

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
)
New Part 4 of the Commission's Rules)
Concerning Disruptions to Communications) ET Docket No. 04-35
)

REPORT AND ORDER and FURTHER NOTICE OF PROPOSED RULE MAKING

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**By the Commission: Chairman Powell, Commissioners Abernathy, Copps, Martin and Adelstein
issuing separate statements.**

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I. Introduction and Executive Summary

1. In the *Notice of Proposed Rulemaking* (“*Notice*”)¹ that initiated this proceeding, the Commission proposed to extend its requirements for reporting communications disruptions to providers of wireless and satellite communications.² Currently, communications disruption reporting requirements apply to all other telecommunications carriers.³ We made this proposal because we recognized the critical need for rapid, complete, and accurate information on service disruptions that could affect homeland security, public health or safety, and the economic well-being of our Nation, especially in view of the increasing importance of non-wireline communications in the Nation’s communications networks and critical infrastructure. We also proposed to move our outage-reporting requirements from Part 63 of our rules to Part 4 as a way to take cognizance that, although these requirements were originally established within a traditional wireline common carrier context, it is now appropriate to adapt and apply them more broadly to wireless and satellite communications as well. Further, in an effort to facilitate rapid reporting and reduce administrative burdens on covered entities, we also proposed to streamline compliance with the reporting requirements through electronic filing with a “fill in the blank” template and by simplifying the application of that rule. In addition, we proposed to adopt a common metric that would establish a general outage-reporting threshold for all covered communications providers. These proposals were designed to allow the Commission to obtain the necessary information regarding services disruptions in an efficient and expeditious manner and achieve significant concomitant public interest benefits. In response to the *Notice*, 36 comments and 24 reply comments were filed in this proceeding.⁴ For the reasons discussed herein, we adopt the proposals made in the *Notice* with modifications, as discussed below. We also adopt a *Further Notice of Proposed Rulemaking* to address specifically the outage reporting requirements that will best serve the telecommunications needs of the Nation’s airports and the flying American public.

Executive Summary

2. By this *Report and Order*, the Commission adopts, with some modifications, its proposal to extend mandatory outage-reporting requirements to include all communications providers (cable, satellite, and wireless providers, in addition to wireline providers, which are now covered by the rule) that

¹ *In the Matter of New Part 4 of the Commission’s Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, *Notice of Proposed Rulemaking*, FCC 04-30, 19 FCC Rcd 3373 (2004) (“*Notice*”).

² By the term “communications provider” we mean an entity that provides two-way voice and/or data communications, and/or paging service, by radio, wire, cable, satellite, and/or lightguide for a fee to one or more unaffiliated entities. *Notice* at n.1. We stated, however, that we were not proposing, at this time, to adopt reporting requirements for public data networks, which we defined as networks that provide data communications for a fee to one or more unaffiliated entities. *Id.* at n.4. Nor is it our intention to extend outage reporting requirements to private (i.e., non-commercial) networks.

³ See Section 63.100 of the Commission’s rules which currently requires telecommunications carriers other than cellular and satellite carriers to report significant service disruptions. Section 63.100 of the Commission’s rules, which is codified at 47 C.F.R. § 63.100, was first adopted in 1992. *Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Report and Order*, 7 FCC Rcd 2010 (1992); *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 8 FCC Rcd 8517 (1993); *Second Report and Order*, 9 FCC Rcd 3911 (1994); *Order on Reconsideration of Second Report and Order*, 10 FCC Rcd 11764 (1995).

⁴ See *infra* Appendix A for a list of the parties who filed comments and/or reply comments in this proceeding. In addition, Rural LECs filed separate comments on both the Initial Regulatory Flexibility Act analysis and on the Paperwork Reduction Act analysis in this proceeding. The Department of Homeland Security (“DHS” or “the Department”) filed motions to accept its comments and reply comments, which were filed late. Those motions are granted for good cause shown. See *infra* at n.40. In addition, CCS Partners filed a motion to accept late-filed reply comments. We grant this motion for good cause shown.

provide voice and/or paging communications. As proposed, we adopt a common metric that will apply across all communications platforms in determining the general outage-reporting threshold criteria,⁵ we will require electronic filing of all outage information through a “fill in the blank” template, and we will move the outage-reporting rule from existing section 63.100 to new Part 4 of our rules. We have applied the common metric as a basis for determining specific outage-reporting threshold criteria that account for the unique technical aspects of each communications platform.

3. The overwhelming majority of the commenting parties, including the Department of Homeland Security (“DHS”), have demonstrated that the outage reports will contain sensitive data, which requires confidential treatment under the Freedom of Information Act (“FOIA”). This data, though useful for the analysis of past and current outages in order to increase the reliability and security of telecommunications networks in the future, could be used by hostile parties to attack those networks, which are part of our Nation’s critical information infrastructure. The disclosure of outage reporting information to the public could present an unacceptable risk of more effective terrorist activity. We therefore will treat the information that will be provided as confidential. This information will be withheld from disclosure to the public in accordance with the Freedom of Information Act. This action is the most significant revision to our original proposal that we have adopted in this *Report and Order*.

4. We have also adopted simplified criteria for reporting outages that potentially affect 911/E911 and other special offices and facilities. Currently, only major airports are included within the special office and facility outage-reporting criteria. We have expanded the coverage of the reporting requirement to include more airports, specifically those that are listed as primary (PR), commercial service (CM), and reliever (RL) airports in the FAA’s National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). To better address unique communications needs of airports, we have adopted a *Further Notice of Proposed Rule Making*. The *Further Notice* requests comment on additional types of airport communications that should be subject to service disruption reports and on whether reporting requirements should be extended to cover general aviation airports. In response to concerns raised by commenting parties about possible ambiguity in our proposed 911/E911 outage-reporting threshold criteria, we have adopted the following revised criteria:

- (1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: (a) the failure is neither at the PSAP(s) nor on the premises of the PSAP(s); (b) no reroute for all end users is available; and (c) the outage lasts 30 minutes or more; or
- (2) There is a loss of 911 call processing capabilities in one or more E911 tandems/selective routers for at least 30 minutes duration; or
- (3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or
- (4) There is a loss of ANI/ALI and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or the necessary location determination equipment was then currently

⁵ The common metric is the number of “user-minutes” potentially affected by an outage and is defined as the mathematical result of multiplying the outage’s duration expressed in minutes and the number of users potentially affected by the outage. For example, a 30-minute outage that potentially affects 30,000 end users also potentially affects 900,000 user-minutes (30 minutes X 30,000 users = 900,000 user-minutes). The general threshold criteria are that an outage must be reported to the Commission if (a) its duration is at least 30 minutes; and (b) it potentially affects at least 900,000 user-minutes.

deployed and in use, and the failure is neither at the PSAP(s) nor on the premises of the PSAP(s).

5. We had also proposed to simplify the time calculation for filing initial reports by requiring that all such reports be filed electronically within 120 minutes of discovery of a reportable outage. In response to the vast majority of comments, we have modified our approach to simplification of the rule and have adopted a more flexible, three-step approach. Within 120 minutes of discovery of a reportable outage, a bare-bones Notification must be submitted. The Notification will contain only minimal information, which will enable the Commission to contact the reporting entity if necessary. The more detailed Initial Report, which will contain all information then available about the outage and which must be submitted in good faith, will not be required to be filed until 72 hours after discovery of a reportable outage. The Final Report, as was originally proposed, will be required to be filed 30 days after discovery of a reportable outage and must be attested by the reporting entity.

6. In addition, we are adopting our proposal to require that final outage reports identify whether the outage was at least partially caused because the network did not follow engineering standards for full diversity (redundancy). In an era in which networks are increasingly interconnected and in which there is heightened concern that a failure of one network could conceivably cause the failure of other, interconnected networks, we find it important in this manner to facilitate analysis of the extent to which lack of diversity causes or contributes to significant network outages. We also adopt our original proposal, with modifications that are discussed herein, to extend outage-reporting requirements to third party entities, such as Signaling System 7 (“SS7”) providers, that maintain or provide communications networks or services for covered communications providers. This action serves not only the general, long-term interests of network reliability and security, and potential resultant improvements in customer service, but also the overarching need to obtain rapidly and accurately data that could serve the vital interests of homeland security.

7. For satellite communications providers, we originally proposed to apply the 900,000 user-minute threshold as a general outage-reporting criterion and to treat certain types of outages (*e.g.*, loss of satellite or transponder) as major infrastructure failures that must be reported irrespective of whether the threshold criterion was met. Based on the comments, we have adopted modified outage-reporting requirements. Specifically, we are requiring all satellite operators⁶ to report each outage of at least 30 minutes duration that manifests itself as a failure of any of the following key system elements: one or more satellite transponders, satellite beams, inter-satellite links, or entire satellites. In addition, we are requiring all Mobile-Satellite Service (“MSS”) satellite operators to report each outage of at least 30 minutes duration that manifests itself as a failure of any gateway earth station, except in the case where other earth stations at the gateway location are used to continue gateway operations within 30 minutes of the onset of the failure. Finally, we are requiring all satellite communications providers to report each outage of at least 30 minutes duration that manifests itself as a loss of complete accessibility to at least one satellite or transponder or as a loss of a satellite communications link that potentially affects at least 900,000 user-minutes of either telephony service or paging service.⁷

⁶ “Satellite operators” refer to entities that operate space stations but do not necessarily provide communications services directly to end users.

⁷ Excluded from these outage-reporting requirements are those satellites, satellite beams, inter-satellite links, MSS gateway earth stations, satellite networks, transponders, and satellite communications links that are used exclusively for intra-corporate or intra-organizational private telecommunications networks, for the one-way distribution of video or audio programming, or for other non-covered services (that is, when they are never used to carry common carrier voice or paging communications).

8. Regarding major infrastructure failures, we have adopted our original proposal to require the reporting of all outages of at least 30 minutes duration that potentially affect at least 1,350 DS3 minutes. We observe that a DS3 is a communications highway that has been put in place to carry traffic in a digital format. That traffic can range, for example, from simple alarm and control circuits, to voice circuits, to radio and television programs, to circuits carrying ATM or credit card transactions, to FAA flight control circuits, to Department of Defense circuits, to circuits transferring billions of dollars from one Federal Reserve Bank to another, and to circuits critical to the operation of the stock and bond markets. Our concern is with the unavailability of significant portions of the communication highway regardless of how lightly or heavily those portions may be loaded at any particular time.⁸ In addition, we have adopted our proposal to require SS7 providers to report significant outages because of the central importance of SS7 in much of the Nation's critical telecommunications infrastructure.

9. Finally, we have modified our illustrative electronic filing process. We will provide a method for date and time stamping all report submissions, which also will be assigned a unique identifier or control number, and will provide other user-friendly features. We are currently investigating the proper level of security for the electronic system, which may include use of digital signatures and encryption.

II. Extension of Mandatory Reporting Requirements for Communications Providers

10. *Background.* The terrorist acts of September 11, 2001 starkly illustrate the need for reliable communications during times of crisis. First responders and medical personnel were notified by pagers, cellular telephones, wireline telephones, and the Internet of the tragic events that had occurred, and were occurring, and the immediate need for their services. When these services failed or were overwhelmed, first responders sometimes found themselves falling back on old fashioned "messenger" tactics. Long distance communications, including satellite communications, were used to initiate the movement of equipment and personnel into the affected areas for restoration purposes and to coordinate their work. All levels of government (municipal, county, state, and Federal) coordinated their restoration and Homeland Defense efforts through wireless and wireline phones, public data networks (including dial-up telephone, wireless, and cable modem access to the Internet),⁹ and pagers. In this context, the need for immediate, secure, and reliable communications services is obvious.

11. Somewhat less obvious is the extent to which our Nation has become completely dependent on communications services that are now essential to the operation of virtually all government, business, and critical infrastructures throughout the United States as well as to our Nation's economy.¹⁰ One illustration should suffice, although many are available. Consider, for example, our financial infrastructure which, in large measure, consists of computers, databases, and communications links. If

⁸ We are not asking carriers to determine the actual or potential impact of the outage on end users or on specific services that the DS3 may serve.

⁹ We are using the phrase "public data network" to refer to a network that provides data communications for a fee to one or more unaffiliated entities. We are not adopting reporting requirements for public data networks at this time. We will, however, take this matter under advisement in light of the requests that were made by DHS, the City of New York, the National League of Cities, the National Association of Telecommunications Officers and Advisors and others. See DHS Comments at n.15; City of New York, the National League of Cities, and the National Association of Telecommunications Officers and Advisors ("City of New York *et al.*") Joint Comments at ii-iii, 10-11.

¹⁰ The Communications Act defines the United States to include Alaska, the District of Columbia, Hawaii, the forty-eight contiguous Commonwealths and States, American Samoa, the Commonwealth of the Northern Mariana Islands, the Commonwealth of Puerto Rico, Guam, Howland Island, and the U.S. Virgin Islands. See 47 U.S.C. § 153(51).

the communications links were severed, or severely degraded, ATM machines would not be able to supply cash, credit card transactions would not "go through," banks would not be able to process financial transactions (including checks), and the financial markets would become dysfunctional.¹¹ In a short time, economic activity would grind to a halt and consumers' ability to purchase food, fuel or clothing would be severely limited if not destroyed. This single example leads, ineluctably, to the conclusion that the people of the United States must have secure communications that they can rely upon for their daily needs, as well as during terrorist attacks, fires, natural disasters (such as hurricanes, earthquakes, and tornadoes) and war.¹² Ensuring that the United States has reliable communications requires us to obtain information about communications disruptions and their causes to prevent future disruptions that could otherwise occur from similar causes, as well as to facilitate the use of alternative communications facilities while the disrupted facilities are being restored.

12. The responsibilities of the Commission are stated in the Communications Act.¹³ That Act states that the Commission was created for the "purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States . . . a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities . . . for the purpose of the national defense, [and] for the purpose of promoting safety of life and property through the use of wire and radio communication."¹⁴ Section 4(o) of the Act also states "[f]or the purpose of obtaining maximum effectiveness from the use of radio and wire communications in connection with safety of life and property," the Commission "shall investigate and study all phases of the problem and the best methods of obtaining the cooperation and coordination of these systems."¹⁵ And, to assist the Congress in performing its normal oversight responsibilities, the Act requires the "Commission [to] make an annual report to Congress . . . [which] shall contain: (1) such information and data collected by the Commission as may be considered of value in the determination of questions connected with the regulation of interstate and foreign wire and radio communication and radio transmission of energy; . . . and (4) specific recommendations to Congress as to additional legislation which the Commission deems necessary or desirable. . . ."¹⁶ Thus, the Communications Act authorizes the Commission to collect information it needs to perform its duties, and wireline service disruption reporting has assisted us in that effort. In the case of wireline carriers, outage reports have triggered investigations and, where sufficient cause for concern existed, we initiated corrective actions with those carriers. Service disruption reports have also been used, on a continuing basis, to analyze wireline vulnerabilities. This, in turn, has assisted the Network Reliability and Interoperability Council in developing industry best practices and in making recommendations to the Chairman with regard to

¹¹ For a very localized example of this, see "The Economic Effects of September 11," *Economic Policy Review*, Federal Reserve Bank of New York, Vol. 18, No.2 (Nov. 2002), at 46 (On September 12, 2001, Government Securities Corporation settlement fails were \$440,000,000,000.00.).

¹² See, e.g., DHS Comments at 6-7.

¹³ Communications Act of 1934, 48 Stat. 1064, as amended, 47 U.S.C. § 151 *et seq.* (hereinafter, "the Act" or "the Communications Act").

¹⁴ Section 1 of the Act, 47 U.S.C. § 151 (emphasis supplied). All subsequent sections of the Act are to be read, and construed, in light of the statements of purpose that are contained in Section 1 of the Act. *U.S. v. Southwestern Cable Co.*, 392 U.S. 157, 167-168, 172-173 (1968); see also *Building Owners and Managers Assoc. Int'l. v. FCC*, 254 F.3d 89, 94 (D.C. Cir. 2001) and Sections 4(i)-(j) and 403 of the Act, 47 U.S.C. §§ 154(i)-(j), 403 (additional authority to acquire information needed to perform the Commission's responsibilities).

¹⁵ Section 4(o) of the Act, 47 U.S.C. § 154(o) (emphasis supplied).

¹⁶ Section 4(k) of the Act, 47 U.S.C. § 154(k). More generally, Section 4(i) of the Act, 47 U.S.C. § 154(i), provides that the "Commission may perform any and all acts . . . and issue such orders, not inconsistent with this Act, as may be necessary in the execution of its functions."

actions that the Commission should take.¹⁷ Service disruption reporting has also permitted us to assess trends in wireline reliability and determine the extent to which our policies need modification. This proceeding was initiated because we expect that service disruption reporting by non-wireline communications providers will provide benefits similar to those that have been achieved from requiring wireline communications providers to file service disruption reports.

13. Many technological changes have occurred since our initial service disruption reporting requirements were adopted more than ten years ago. These changes have facilitated the rapid deployment of new communications technologies that have become increasingly important as substitutes for, and complements to, older communications services. Today, a very large number of people in the United States rely on cell phones.¹⁸ In addition, mobile satellite service¹⁹ is being used to provide global connectivity for people with critical communications needs. None of these services were included in the wireline service disruption reporting requirements that we adopted in the early 1990's.

14. In 1992, the Commission adopted outage reporting rules²⁰ which, among other things, required each "Final Service Disruption Report" to contain "all available information on the service outage, including any information not contained in [the] Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type."²¹ With the information provided by these reports, the Network Reliability Council,²² other carriers, and manufacturers were able to understand the root cause of each outage and determine whether an existing best practice adequately addressed the cause of that outage or whether a new best practice, or standard, had to be developed to avert future outages with similar causes. After enough information had been received, the Network Reliability Council made a series of recommendations to the telecommunications industry, to manufacturers, and to the Commission to improve network reliability.²³ Communications service providers, manufacturers, and other entities voluntarily formed industry bodies (for example, the Network Reliability Steering Committee, or "NRSC"),²⁴ to formally study wireline telephone network outages and develop additional best practices.

¹⁷ The work of the Network Reliability and Interoperability Council is described *infra* ¶¶ 14-15.

¹⁸ As of December 31, 2002, there were 187.5 million wireline users and 140.8 million wireless subscribers in the United States. By year-end 2003, the number of wireline users had decreased to 181.4 million but the number of wireless subscribers had increased to 158.8 million. Compare FCC, Local Telephone Competition: Status as of December 31, 2003 (Table 1), <http://www.fcc.gov/wcb/stats> (visited July 23, 2004) with CTIA, Semi-Annual Wireless Industry Survey Results, http://www.ctia.org/public_policy/statistics (visited July 23, 2004).

¹⁹ Mobile satellite service refers to telephone communications that are achieved through portable transceivers that are connected through satellite networks. This type of service has the advantage of being available over most of the earth's surface with very limited interaction with terrestrial facilities and is, therefore, particularly useful in communicating and restoring service when terrestrial facilities have been destroyed or impaired.

²⁰ See *supra* note 3.

²¹ Section 63.100(b) of the Commission's Rules, 47 C.F.R. § 63.100(b).

²² The Network Reliability Council was created by the Commission in compliance with the requirements of the Federal Advisory Committee Act, Pub.L. 92-463, Oct. 6, 1972, as amended, 5 U.S.C. Appendix 2.

²³ Network Reliability: A Report to the Nation, Compendium of Technical Papers, Network Reliability Council (June, 1993).

²⁴ The NRSC is a subcommittee of the Alliance for Telecommunications Industry Solutions ("ATIS").

15. Building upon the work of the first Council, as well as the large number of additional network outage reports that have been filed in response to mandatory filing requirements, subsequent Network Reliability Councils²⁵ have been able to refine the best practices that were developed by earlier Councils and create new best practices to address newly-identified sources of wireline network failure.²⁶ More than seven hundred "best practices" have been developed for use by carriers and manufacturers in reducing the likelihood, and length, of network outages, for facilitating the restoration of failed communications services, and for improving the security of communications networks.²⁷ The *Notice* tentatively concluded that the mandatory reporting process has facilitated the efforts of operators of private communications networks to improve the reliability of their networks²⁸ and that, in general, a significant benefit of this process has been that public access to each outage report has enabled individual service providers, as well as manufacturers, to learn from each other's operational experiences.²⁹ The *Notice* further found that this process has, in turn, created an environment for the wireline telecommunications industry that has fostered reliability in telephone networks even as the number of competitive, interconnected networks has increased throughout the United States.³⁰ As a consequence, the *Notice* stated that this network outage reporting requirement has enabled a successful public-private partnership to emerge in which the telephone industry and manufacturers have voluntarily developed best practices that they have been encouraged, but not required, to adopt.³¹ The validity of those best practices has been continuously confirmed (or, in some cases, invalidated) through outage reports that have been filed in compliance with our reporting requirements. The steady stream of new outage reports, in turn, has permitted existing best practices to be refined and has permitted the development of new best practices.

16. As explained in the *Notice*, the current trend is for wireless users to replace their landline telephones with wireless service. RCR Wireless reports that, although the number of U.S. households that have completely cut the cord remains small, half of all wireless households report that wireless usage

²⁵ After the Telecommunications Act of 1996 was enacted, the Network Reliability Council was renamed the Network Reliability and Interoperability Council to reflect the addition of Section 256 (47 U.S.C. § 256) to the Act. The seventh council will complete work under its current charter by January 6, 2006. See, generally, www.nric.org for the seventh council's charter and the work that is being accomplished to achieve the objectives expressed in that charter.

²⁶ See www.nric.org (last visited July 11, 2004) for the best practices that have been developed so far. As noted above, this is a dynamic process in which continuing best practices development, and refinements, are driven by the provision of required data which validate or disprove conclusions contained in the then-existing best practices. New best practices developed through this process are, in turn, validated or modified as new network outage data become available.

²⁷ These best practices may be found at www.nric.org (last visited July 11, 2004).

²⁸ Many business, government, and educational organizations operate their own networks for a variety of reasons that include increased security, increased reliability, lower cost and, in some cases, the provision of telecommunications services that would not otherwise be available. Our service disruption reporting requirements have enabled these private network operators to learn from the operating experiences of reporting carriers and to benefit from best practices that were developed through analysis of the causes of reported network outages.

²⁹ *Notice*, *supra* note 1, at ¶¶ 6-10.

³⁰ *Id.* at ¶ 7.

³¹ *Id.* For example, network operators should provide duplicate facilities that are physically separate, for all critical resources, such as electrical power, timing sources, and Signaling System 7 communications links. See, generally, www.nric.org (last visited July 11, 2004) for the text of best practices that had been developed through December 5, 2003.

has replaced a significant amount, or all, of their regular telephone usage.³² In addition, wireless service providers are offering flat rate calling plans that encourage users to approximate wireline-calling patterns. Since the terrorist attacks of September 11, 2001, our Nation is more aware of the need for reliable telecommunications. As is the case with wireline telephony, there are many users who seldom make or receive wireless telephone calls, but who subscribe to a wireless service so that they will be able to have communications connectivity in the event of an emergency. Thus, during the immediate aftermath of the terrorist attacks of September 11, 2001, the volume of wireless traffic increased dramatically, causing several wireless networks to become overloaded.

17. Our outage reporting requirements have thus far been directed only to the wireline telecommunications industry with the consequence that the available communications disruption data have not taken into account newly emerging forms of communications (*e.g.*, wireless and satellite) upon which our Nation has now become so vitally dependent.³³ Initially, the fifth and sixth Network Reliability and Interoperability Councils took the best practices that had been developed for wireline telecommunications entities and applied them to wireless, public data network, satellite, and cable providers. Because network outage reports were not required of wireless, satellite, and public data network providers, it is not clear that some of these best practices would, in fact, deter future non-wireline outages. In addition, best practices that are unique to non-wireline technologies may need to be developed, which could be facilitated by analyzing information derived from standardized, mandatory outage reporting.

18. On several occasions beginning in 1999 and extending through 2003, the Commission, through the Network Reliability and Interoperability Council (“NRIC”), charged the telecommunications industry with developing and implementing, on a trial basis, a voluntary service disruption reporting process for providers not subject to Section 63.100 of our rules. The results of this effort, as of the date of adoption of the *Notice*, had not provided us with the quality or quantity of information that we need to accurately monitor the health of the Nation’s telecommunications infrastructure and to provide manufacturers, telecommunications providers, and users of telecommunications services with objective information they need to sustain voluntary self-improvement efforts. Less than three-dozen service

³² See “Wireless Users Turn Away From Landline Long Distance,” *RCR Wireless*, March 23, 2004, available at www.rcrnews.com.

³³ See, *e.g.*, BloostonLaw Rural Carriers Comments at 3 (“With a majority of people in the United States today using wireless phones, the BloostonLaw Rural Carriers agree that it may be appropriate to extend the Commission’s disruption reporting requirements to communications providers that are not wireline carriers.”); Ericsson Comments at 2 (“wireless services now enjoy great importance as part of our nation’s critical communications infrastructure. . . . Ericsson [encourages] first responders and medical personnel to use commercial wireless networks for safe, secure, and reliable communication, including in times of crisis”); Iridium Comments at 1 (citing “the increasing importance of non-wireline, especially satellite, communications in the Nation’s communications networks and critical infrastructure” and stating that “there should be reporting of network outages by non-wireline communications [providers]”); PanAmSat and SES Americom Joint Comments at 2 (supporting the Commission’s proposal because “it will contribute to the reliability and security of telecommunications networks that are used in connection with virtually all government and business activities in the United States . . . [and] will give due recognition to the vital role that satellites play in the national telecommunications infrastructure and to the contributions that satellites make to national security and emergency preparedness”); Sprint Comments at 2 (“There can be no question that the provision of ‘wireless communications have grown rapidly and are now increasingly gaining acceptance as an alternative to wireline telephony’ . . . [and] that wireless networks are now an important part of the Nation’s communications infrastructure.”); Telesat Comments at 2 (“satellite services are playing an increasingly important role in national communications infrastructures, and measures to improve or safeguard the reliability of satellite networks should generally be encouraged in the public interest”).

providers had agreed to enroll in the trial, and few had participated actively throughout the entire trial.³⁴ At the time that we adopted the *Notice*, there had been a recent improvement in the NRIC trial reporting process insofar as the percentage of entities that had been actively participating (*i.e.*, either by filing initial service disruption reports or by filing a report indicating the absence of a service disruption) was concerned. Critical fields in most reports, however, had not been completed.³⁵

19. *Proposal.* In the *Notice*, we proposed to extend the existing data-driven, self-improvement but mandatory model to non-wireline communications providers and sought comment on that proposal. Bearing in mind the experiences described above, and the desire of telecommunications providers for a voluntary reporting regime, we also sought comment as to how a voluntary service disruption reporting process would assure this Commission that accurate, useful and complete reports would be filed dependably, even during periods of high service disruption and/or management turnover. In particular, we sought comment on possible ways that we could assure that voluntary reporting of all major outages would occur. We also sought comment as to how, under a voluntary reporting process, the Commission would be able to be certain that, as service provider management and other staff changes occurred, service providers would continue to be committed to filing voluntary, accurate, and complete service disruption reports.³⁶ We further proposed to adopt a common metric that would establish a general outage-reporting threshold for all covered communications providers.³⁷ In addition, in order to reduce the burden on reporting entities and to enable the reporting process to be rapid and efficient, we proposed simplifications to our existing reporting requirements and the use of electronic filing with a "fill in the blank" template.³⁸ Finally, in light of the fact that outage reports have always been accessible by the public, we requested comment on whether, in the interest of protecting sensitive data on potential vulnerabilities from disclosure to hostile parties, we should now restrict public access to some or all outage reporting data.³⁹

20. *Comments.* Most commenting parties recognize that the Commission needs to be apprised of critical outages. For example, the United States Department of Homeland Security ("DHS") states:

the modern telecommunications system upon which our nation relies no longer consists solely, or even primarily, of wireline-based facilities, but encompasses a network of interconnected technological platforms including terrestrial wireless, satellite, and cable. [T]he same need to ensure the robustness and reliability of the nation's telecommunications that supported the collection of outage information for wireline providers over a decade ago now makes collecting specific outage data for these other technological platforms equally important. Such service disruption information is critical to the NCS's [NCS is an acronym for the National Communications System] ability to

³⁴ During NRIC VI, 28 companies were asked to respond either by filing an outage report or by stating that the company did not have an outage for that month. On average, 17.5 companies participated each month during that trial (a 63% participation rate). During the third quarter of 2003, the number of participating companies increased to 23 (an 82% participation rate) but, during the last quarter of 2003, participation dropped by 16% to 19.3 (a 69% participation rate) from the previous quarter but was still higher than the average for the entire trial.

³⁵ *Notice, supra* note 1, at ¶ 11. See also eCommerce and Telecommunications Users Group ("eTUG") Reply Comments, Attachment A.

³⁶ *Id.* at ¶ 12.

³⁷ *Id.* at ¶¶ 19-23.

³⁸ *Id.* at ¶¶ 24-31, 50-51.

³⁹ *Id.* at ¶ 52.

plan for, mitigate, respond to, and recover from events that threaten national security/emergency preparedness (“NS/EP”) telecommunications, as well [as] its capacity to ensure the availability of Priority Services as directed by the President. The availability of such information also enhances the effectiveness of IAIP’s [IAIP is an acronym for DHS’s Directorate for Information Analysis and Infrastructure Protection] efforts to secure the nation’s critical infrastructure as a whole. In each of these ways, collection of the information contributes significantly to protecting our homeland and preserving our national and economic activity.⁴⁰

DHS further states that “the availability of outage data from wireline providers has contributed to the development and refinement of voluntary industry best practices [which], in turn, led to vast improvements in system reliability.”⁴¹ Because non-wireline services have expanded exponentially in the last decade and have become important alternatives to traditional wireline telephony for transmitting voice and data, and they have taken on increasing significance for homeland security, emergency response, and national security functions, DHS supports the need for communications disruption reporting that includes all technological platforms.⁴² DHS anticipates that outage reporting by non-wireline communications providers will provide benefits similar to those realized from such reports provided by wireline communications providers.⁴³ DHS notes, for example, that non-wireline outage reporting will promote improved maritime distress and safety communications with the Coast Guard.⁴⁴ DHS points to the growth in alternative service delivery platforms and their significance for “homeland security, emergency response, and national security functions”⁴⁵ and the importance of outage information in addressing system vulnerabilities and development of NRIC best practices. “Adding information concerning non-wireline communications service disruptions to that already being furnished by wireline service providers will enhance the IAIP/NCS’ capacity, as well as that of other government bodies, and the carriers themselves, to analyze vulnerabilities and develop mitigation strategies and plan appropriate response and restoration measures, yielding significant dividends for homeland and national security.”⁴⁶

21. In its comments, SBC states that it “recognizes that, in order to oversee the nation’s communications infrastructure, the Commission must remain apprised of critical outages.”⁴⁷ NCTA “recognizes the Commission’s need to collect information on service disruptions that could impact homeland security, public health, and safety, as well as the economic well being of the nation.”⁴⁸ AT&T “recognizes and supports the need for uniform communications disruption reporting by all communications providers, including wireless, satellite, and cable providers, and further proposes to

⁴⁰ DHS Comments at 1-2. The DHS Comments were filed on June 2, 2004, after the comment-filing deadline had passed. On that same date, DHS filed a Motion to Accept Late-Filed Comments, which is unopposed. We shall grant DHS’s Motion for good cause shown.

⁴¹ *Id.* at 7-8.

⁴² *Id.* at 6-7.

⁴³ *Id.* at 6.

⁴⁴ *Id.* at 7. None of the other commenting parties directly challenge any of DHS’s comments in this proceeding. Instead, the main issue that divides the other commenting parties is whether the outage-reporting regime should be voluntary or mandatory.

⁴⁵ *Id.* at 7.

⁴⁶ *Id.* at 8.

⁴⁷ SBC Comments at 1.

⁴⁸ NCTA Comments at 1-2.

include third parties and small enterprises in the definition.”⁴⁹ WilTel “supports the Commission’s efforts in this proceeding and, like the Commission, recognizes the importance of rapidly providing full and accurate information on service disruptions that may have an impact on homeland security, the public health and safety, or the Nation’s economy.”⁵⁰ APCO replies that “network outage information has . . . been invaluable in the formation of industry-wide ‘best practices’.”⁵¹ No commenting party asserts that the Commission does not need to be apprised of critical outages.

22. Many commenting parties contend that extension of mandatory reporting to non-wireline communications providers is necessary. For instance, ITTA supports the Commission’s proposal to extend the same mandatory outage reporting requirements to all communications service providers, regardless of the technology they employ.⁵² The Connecticut Department of Public Utility Control (“CDPUC”) supports the Commission’s proposal due to “the need for a reliable communications network regardless of the service platform.”⁵³ The Staff of the Kansas Corporation Commission (“KCC”) states that “[e]xpanding the already established reporting requirements would provide for consistent data gathering and efficient electronic filing.”⁵⁴ The City of New York, the National League of Cities, and the National Association of Telecommunications Offices and Advisors (collectively, “City of New York *et al.*”) jointly state that the Commission’s existing mandatory wireline reporting regime has greatly supported the creation of NRIC best practices and “because commerce depends so heavily on robust and reliable communications, outage reporting and prompt remedial action is vital to the health of the economy, particularly in this era of local competition.”⁵⁵ They also state that they cannot “conceive of a means by which to ‘assure’ that voluntary reporting of major outages would routinely take place or . . . that the contents of voluntarily submitted reports could be expected to satisfy the crucial needs of homeland security, public safety and other decision makers.”⁵⁶

23. The eCommerce & Telecommunications User Group (“eTUG”) strongly rebuts the adequacy of all the voluntary reporting efforts made to date. In its “Business End User Input to NRIC VI Final Report,”⁵⁷ it explains:

Since the beginning of the first NRIC, a stated objective has always been evaluation, and reporting on, the reliability of America’s networks. Data collection is critical to NRIC’s ability to make those evaluation[s], and its data collection efforts must be judged by the quality of the data that they generate and by the strength of the data analyses that result. Overall, the data coming from the voluntary trial was quite poor and, as a result, the analyses are unable to provide any real conclusions about the reliability of

⁴⁹ AT&T Comments at 6.

⁵⁰ WilTel Comments at 1.

⁵¹ APCO Reply Comments at 2.

⁵² ITTA Comments at 6. ITTA questions the particular common metric proposed and the omission of Voice over Internet Protocol service from the proposal. We shall address these issues, *infra*, in Sections III.A and VI of this *Report and Order*.

⁵³ CDPUC Comments at 2.

⁵⁴ KCC Comments at 3.

⁵⁵ City of New York *et al.* Joint Comments at 9. See also *id.* at 2-3 (application of the same network outage reporting rules across all communications platforms will serve the needs of public safety and advance competitive neutrality).

⁵⁶ *Id.* at 9.

⁵⁷ eTUG Reply Comments, Attachment A.

communication networks. Consequently, the NRIC VI Voluntary Trial must be judged a failure as a data collection effort whose objective is to facilitate meaningful evaluation of the reliability of the network facilities of the industries covered by the Voluntary Trial.

eTUG pointed to a number of reasons for its views, including the low level of compliance during the trial, the inability of participating parties to make determinations about the reliability of specific industry segments [because reporting entities were not required to state, for example, whether the outage involved wireless and/or satellite services], and the lack of sufficient quantity and quality of information in the “scrubbed” outage reports that were available for review.⁵⁸ eTUG further states that “[b]ased on its analysis of previous voluntary reporting efforts, it is quite clear . . . that only a mandatory outage reporting system will be able to produce meaningful data and broad participation.”⁵⁹

24. Commenting parties from the satellite industry generally support extending mandatory outage reporting to non-wireline platforms.⁶⁰ PanAmSat and SES Americom state that adoption of the Commission’s proposal will contribute to the reliability and security of telecommunications networks that are used in connection with virtually all government and business activities in the United States.⁶¹ Such action would also give due recognition to the vital role that satellites play in the national telecommunications infrastructure and to the contributions that satellites make to national security and emergency preparedness.⁶² They further state that all outage reports that will be filed with the Commission should be accorded confidential treatment.⁶³ Iridium, however, states that network outage reporting should generally be voluntary and done in a manner that maintains strict confidentiality of reported information.⁶⁴

25. DHS states that it “would not object to adoption of a voluntary reporting framework; however, in light of the history of past voluntary reporting trials, DHS could support such an approach *only if clear evidence exists of a firm commitment from all service providers to participate fully in the program*”⁶⁵ and “there is *persuasive evidence of an absolute commitment from all carriers in the relevant industry segments to participate fully and to furnish complete and accurate disruption information in a consistent, timely, and thorough manner.*”⁶⁶ It adds that “[r]egardless of whether a voluntary or mandatory approach is adopted . . . DHS urges the Commission to direct that the outage reports be filed with the National Coordinating Center for Telecommunications—Information Sharing and Analysis Center (‘NCC Telecom-ISAC’).”⁶⁷ DHS asserts that “NCC Telecom-ISAC is ideally equipped to put the outage information to immediate use in connection with any needed response or restoration activities and to channel the information expeditiously into ISAC’s analytical and collaborative processes for the purposes of identifying, developing, validating, and sharing new best practices and testing and refining

⁵⁸ *Id.*

⁵⁹ eTUG Reply Comments at 4.

⁶⁰ PanAmSat and SES Americom Joint Comments at 3; Intelsat Comments at 1-2; Telesat Comments at 2; Globalstar Comments at 2.

⁶¹ PanAmSat and SES Americom Joint Comments at 2.

⁶² *Id.*

⁶³ *Id.* at 7-8; Globalstar Comments at 2, 5-8.

⁶⁴ Iridium Comments at 2, 4-5.

⁶⁵ DHS Comments at 2 (emphasis added).

⁶⁶ *Id.* at 9-10 (emphasis added).

⁶⁷ *Id.* at 2.

existing ones.”⁶⁸ Also, DHS specifically recommends that the Commission explore methods to make outage information available to State public utility commissions, in order to assure that State authorities have the outage data they need to support their homeland security and emergency response functions, to reduce the need for State regulators to collect intrastate outage data independently, and to reduce the reporting burden on communications providers.⁶⁹

26. As the following comments demonstrate, most commenting parties from the private sector oppose our proposal to extend the scope of *mandatory* outage reporting. For example, AT&T states it:

applauds the Commission’s efforts to streamline and simplify the outage reporting requirements, but believes that the Commission’s proposed rules will better attain these objectives by making current mandatory reporting requirements *voluntary*. The Commission should support and endorse many of the Network Reliability Steering Committee/Industry-Led Outage Reporting Initiative (‘NRSC/ILORI’) proposals.⁷⁰

In its reply comments, AT&T reiterates its support for the Industry-Led Outage Reporting Initiative (“ILORI”) process and argues that the Commission could obtain real-time “access to the electronic outage reporting system that NRSC/ILORI has established, where the Commission can retrieve instantaneously initial outage reports as they are submitted.”⁷¹ Several of these commenting parties explain that the ILORI is a recently-constituted consensual body comprised of several communications providers whose stated goals include the establishment of a network reliability monitoring capability for the nation’s public communications infrastructure and of a forum for industry experts to review and analyze voluntarily-submitted outage data.⁷² BellSouth replies that, under the ILORI process, a company may file a voluntary report monthly indicating that no events have met the trial’s criteria or a report detailing the outage.⁷³ “The report, which is processed by the NCC and ‘scrubbed’ of any company-identifying data, is provided to the Commission and to the ATIS Network Reliability Steering Committee or ILORI participants for evaluation of the data.”⁷⁴ BellSouth adds that ILORI has developed improvements that should satisfy the Commission’s concerns and that the Commission is fully capable of verifying that all industry segments are participating in a voluntary reporting process.⁷⁵ Several commenting parties also claim that

⁶⁸ *Id.* at 2-3.

⁶⁹ *Id.* at 8.

⁷⁰ AT&T Comments at 2 (emphasis added). ILORI is an acronym, employed by several parties in this proceeding, to refer to the “Industry-Led Outage Reporting Initiative.” *See, e, g,* ATIS Comments, *passim*.

⁷¹ AT&T Reply Comments at 14.

⁷² *E.g.*, ATIS Comments at 3-4; AT&T Comments at 6-9.

⁷³ BellSouth Reply Comments at 4.

⁷⁴ *Id.* We note that this assertion is not accurate. No ILORI reports have been filed with us by ATIS, BellSouth, ILORI, the NCC Telecom-ISAC, NCS, Lucent or any other entity.

⁷⁵ BellSouth Reply Comments at 7-8, 10 (adding that the Commission “has never shied away from contacting carriers and requesting information in the absence of mandatory regulations, and the Commission may use this strategy here. The Commission can monitor compliance with voluntary outage reporting by seeking information from individual providers and/or trade or industry associations.”). We note that, to the extent that this assertion presumes that information has been provided by ILORI to the Commission, this assertion is also not accurate. *See supra* n.74.

mandatory outage reporting would be unduly burdensome, and the voluntary ILORI process would impose fewer burdens on reporting entities.⁷⁶

27. CTIA asserts that “mandatory reporting is unnecessary because ILORI will provide the Commission with a significant and sufficient amount of detailed outage information on a voluntary basis. In fact, the information to be reported under the ILORI process closely mirrors the information [proposed for collection by the *Notice*].”⁷⁷ CTIA states in its reply comments that the wireless carriers have met their responsibility to homeland security by having multiple carriers participate in ILORI.⁷⁸ Verizon Wireless states that the ILORI initiative, in which it states that it and many other CMRS providers currently participate, already provides the Commission with sufficient information for monitoring critical infrastructure outages.⁷⁹ It asserts that the information collected through ILORI is forwarded to the Commission and the NRSC under the protection afforded by the Critical Infrastructure Information Act (“CIIA”).⁸⁰ In its reply comments, Cingular states that summary data analysis reports are generated based on outage data voluntarily submitted by individual companies to ATIS on behalf of the NRSC.⁸¹ Nextel states that, in March 2004, the ILORI initiative was incorporated into the ATIS Network Reliability Steering Committee (“NRSC”) efforts.⁸² T-Mobile states that the deployment of multiple, diverse facilities-based networks is the best solution to address network reliability and homeland security concerns and that wireless communications providers participate in the ILORI process and should not be required to file outage reports with the Commission.⁸³ The commenting wireless parties in general argue that because the wireless industry is highly competitive, they have a strong incentive to analyze any outages and to develop and implement best practices in order to increase network reliability and decrease customer dissatisfaction; they further state that they participate in ILORI and argue, therefore, that mandatory reporting of wireless outages to the Commission will serve no useful purpose and will only cause unnecessary, additional administrative burdens.⁸⁴

28. Several of these commenting parties claim that the Commission has overstated the value of mandatory outage reporting in developing best practices.⁸⁵ For example, CTIA states, “Less than 5% of the Best practices are attributable to mandatory outage reporting.”⁸⁶ In its reply comments, Nextel states that the City of New York *et. al.* provide “no justification for [their] contention that voluntary outage reporting data would not lead to the further development of best practices in the non-wireline area.... Pursuant to a voluntary reporting process, wireless carriers have established important best

⁷⁶ *E.g.*, NTCA Comments at 3; Sprint Comments at 1; USTA Comments at 11; Verizon Comments at 7; BloostonLaw Rural Carriers Comments at 1; BloostonLaw Paging Group Comments at 8. For our thorough discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

⁷⁷ CTIA Comments at 7.

⁷⁸ CTIA Reply Comments at 5.

⁷⁹ Verizon Wireless Reply Comments at 1. *But see supra* note 74.

⁸⁰ *Id.* at 3.

⁸¹ Cingular Reply Comments at 4.

⁸² Nextel Reply Comments at 2.

⁸³ T-Mobile Comments at 9.

⁸⁴ CTIA Comments at 4-6, 11-12; Cingular Comments at 4-8; Sprint Comments at 1-5; T-Mobile Comments at 1-9.

⁸⁵ AT&T Comments at 8; CTIA Comments at 8; SBC Comments at 21; Sprint Comments at 2; USTA Comments at 4.

⁸⁶ CTIA Comments at 8.

practices....⁸⁷ Verizon Wireless, in its reply comments, reiterates Cingular's comment that "the NRIC website lists 730 best practices applicable to wireless carriers, many of which are only applicable to wireless carriers."⁸⁸ On the other hand, Cingular states, "[t]he NPRM makes a good case that network outage and root cause analysis of outages has led to the development of best practices and has fostered a 'data-driven, self-improvement model.'⁸⁹

29. Several commenting parties assert that an additional advantage of voluntary reporting is that the data would be voluntarily submitted to the Department of Homeland Security with a request for treatment as Critical Infrastructure Information ("CII") and, thus, the data would be protected from public disclosure pursuant to the Critical Infrastructure Information Act of 2002.⁹⁰ Cingular further states that, pursuant to the Freedom of Information Act ("FOIA"),⁹¹ the Commission cannot legally protect from public disclosure information that is submitted in response to a mandatory data collection.⁹² In its reply comments, however, Qwest disagrees with this assertion.⁹³ In addition, BellSouth states that the Commission can, and should, protect outage data from public disclosure by "develop[ing] clearly defined procedures to protect sensitive outage data in keeping with the Commission's national security obligations. . . . Because of the extremely sensitive nature of reports detailing major infrastructure failures . . . these reports should be completely immune from FOIA disclosure."⁹⁴ Sprint recognizes the public benefits of allowing public access to outage information that is filed at the Commission and suggests that the seemingly divergent needs for public access and protection of confidential information "can be harmonized by simply having the Commission 'scrub' the [outage] reports of critical network information before allowing public access to the reports."⁹⁵ USTA supports Sprint's suggestion that outage report information be "scrubbed" of all confidential information before it is made available for disclosure to the public.⁹⁶

30. DHS emphasizes that "the Commission should change its existing policy of making outage reporting data generally available and easily accessible to the public,"⁹⁷ adding that:

Whatever merit this approach may have had when the outage reporting rules were first adopted, the threat environment following September 11, 2001, dictates that appropriate

⁸⁷ Nextel Reply Comments at 3.

⁸⁸ Verizon Wireless Reply Comments at 5 (quoting Cingular Comments at 5).

⁸⁹ Cingular Comments at 8.

⁹⁰ AT&T Comments at 5, 29-31; CTIA Comments at 9-11; Cingular Comments at 9-13. *See generally*, 6 U.S.C. Chapter 1, Subchapter II (Information Analysis and Infrastructure Protection); *Procedures for Handling Critical Infrastructure Information; Interim Rule*, 69 Fed. Reg. 8074, published February 20, 2004 (DHS), adopting interim rules to be codified at 6 C.F.R. §§ 29.1-29.9 (2004).

⁹¹ 5 U.S.C. § 552.

⁹² Cingular Comments at 10-11.

⁹³ Qwest Reply Comments at 12.

⁹⁴ BellSouth Comments at 27-28. *See also* AT&T Comments at 30 ("the Commission should, at the very least, provide certainty that all data submitted, whether mandatory or voluntary, is protected from public disclosure"); CTIA Comments at 11 ("At a minimum, the Commission should ensure that any data it receives on network security and vulnerabilities is protected from disclosure.").

⁹⁵ Sprint Comments at 28.

⁹⁶ USTA Reply Comments at 5.

⁹⁷ DHS Comments at 3.

steps be taken, consistent with law, to safeguard sensitive information, like that included in the outage reports, which could jeopardize our security efforts if disclosed to inappropriate recipients. The same outage data that can be so useful for the purpose to identify and remedy critical vulnerabilities and make the network infrastructure stronger can, in hostile hands, be used to exploit those vulnerabilities to undermine or attack networks. Moreover, ready public access to outage reports is not necessary to the development of best practices. Several public-private bodies (*e.g.*, NCC Telecom-ISAC and the Network Security Information Exchange ('NSIE')) now exist that support information sharing in a safe environment and foster collaboration within industry to develop effective best practices.⁹⁸

31. In contrast to the concerns expressed by some service providers, and while stressing the need to protect sensitive information, DHS does not predicate its conditional support for voluntary reporting on the ground that it is necessary, legally, in order to protect sensitive information from disclosure. For example, DHS observes, in its reply comments, that there may be an inherent tension between the importance of safeguarding the information and the use of the information for cooperative analysis by communications providers to improve network reliability; thus, not all information to be reported is sensitive, and it may be possible to devise a method of separating the information that requires protection from that which may be shared.⁹⁹ DHS is not alone in the view that not all information needs to be protected.¹⁰⁰ DHS states, in this regard, that it "is willing to work collaboratively with the Commission to explore this and other possibilities to determine the most effective means consistent with existing information access laws to protect the information."¹⁰¹

32. *Discussion.* Most parties recognize the need for some form of outage reporting so that the Commission can fulfill its responsibilities in overseeing the reliability and security of our Nation's telecommunications networks.¹⁰² And, DHS undisputedly needs this data to fulfill its responsibilities concerning homeland security.¹⁰³ There was, however, a mixed record concerning the manner in which outage data should be collected, with some commenting parties in favor of mandatory outage reporting and others opposed. For the reasons discussed below, we find that the mandatory reporting of network outages is the only reliable way to collect this important information for use by this Commission and, where appropriate, for other government entities.¹⁰⁴

⁹⁸ *Id.*

⁹⁹ DHS Reply Comments at 3 – 5.

¹⁰⁰ Sprint Comments at 28; USTA Comments at 4-5; Qwest Comments at 25.

¹⁰¹ DHS Reply Comments at 5.

¹⁰² See CDPUC Comments, *passim*; City of New York *et al.* Joint Comments at 1-2; SBC Comments at 1; AT&T Comments at 6; WilTel Comments at 1. *See generally*, Section 1 of the Communications Act, 47 U.S.C. § 151 (the Federal Communications Commission was created, *inter alia*, "to make available, so far as possible, to all of the people of the United States . . . a rapid, efficient, Nation-wide and world-wide wire and radio communication service with adequate facilities at reasonable charges for the purpose of the national defense, for the purpose of promoting safety of life and property . . .").

¹⁰³ *See, generally*, DHS Comments at 4-6 (description of responsibilities of the Department of Homeland Security).

¹⁰⁴ The City of New York, the National League of Cities, and the National Association of Telecommunications Officers and Advisors jointly state, after noting the importance of being promptly informed of network outage information affecting their jurisdictions, that "[g]iven local government's limited regulatory authority over the industry, local government should not have to be put in the position of being primarily responsible for tracking down and assessing the validity of the many, and often conflicting, explanations by wireline and wireless carriers for such

(continued...)

33. In its comments, the Department of Homeland Security states it “is not opposed to a voluntary reporting structure, provided there is persuasive evidence of *absolute commitment from all carriers* in the relevant industry segments *to participate fully and to furnish complete and accurate disruption information in a consistent, timely, and thorough manner.*”¹⁰⁵ There is, however, no evidence in the record that the ILORI process proposed by the Alliance for Telecommunications Industry Solutions (ATIS) and other commenting parties, or any other voluntary process, would meet the Department’s criteria¹⁰⁶ that all relevant communications providers provide an absolute commitment to participate fully in a voluntary reporting structure; nor is there any probative evidence that the participants would, thereafter, furnish complete or accurate service disruption information in a consistent, or timely, or thorough manner.

34. Thus, for example, although ATIS states in its comments that 53 entities participate in ATIS’ Network Reliability and Steering Committee (“NRSC”), ILORI, and ATIS Committee T1A1, it does not state which of those entities actually participate in, or file outage reports with, ILORI.¹⁰⁷ Also, of the 53 entities that ATIS identifies, 13 are manufacturers or research firms, 4 are government agencies, and 3 are industry trade associations. As a consequence, of the 53 entities that ATIS collectively identifies as participants, only 33 of them are telecommunications providers.¹⁰⁸ Concerning those 33 telecommunications providers, no information has been provided by ATIS or ILORI as to which (if any) are providing outage reports through ILORI; whether those reports were complete or accurate; the number of outage reports that have been provided to ILORI; the nature of the information that was included in any reports that were received; whether each service provider’s report was filed on a timely basis; or whether any entity or entities refused to participate in ILORI.¹⁰⁹ The record does not even include such information in summary form.¹¹⁰

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potentially devastating outages. Rather, mandatory and adequate service outage reporting requirements imposed and enforced by the FCC would help relieve local governments of this burden and ensure uniform and comprehensive reporting by *all* affected service providers.” City of New York *et al.* Joint Comments at 7-8. *Accord*, DHS Comments at 8, 9-10. *See also infra* nn. 108-110, 113, 118, 121, 122.

¹⁰⁵ DHS Comments at 9-10 (emphasis supplied).

¹⁰⁶ *Id.* DHS also notes that the “modern telecommunications system upon which our nation relies no longer consists solely, or even primarily, of wireline-based facilities, but encompasses a network of interconnected technological platforms including terrestrial wireless, satellite, and cable.” DHS Comments at 1-2. DHS adds that although “the Notice observes that public data networks utilizing the Internet have also played an important role in emergency response and homeland defense efforts, the Commission states that it is ‘not proposing, at this time, to adopt reporting requirements for public data networks.[citation omitted].’ DHS believes that, as the volume of traffic carried on a voice over Internet protocol (VoIP) basis continues to expand, the Internet will commensurately become a more important part of the telecommunications infrastructure. For this reason, DHS urges the Commission to revisit the topic of Internet outage reporting in the future as the nature, criteria, and most appropriate mechanisms for addressing the IP-based infrastructure become clearer.” DHS Comments at n.15.

¹⁰⁷ ATIS Comments at 5.

¹⁰⁸ No other party provides information that would permit a determination as to which entities are actually providing prompt, complete, and accurate reports of service disruptions to, or through, the ILORI process.

¹⁰⁹ The Department of Homeland Security has stated that for it to support voluntary reporting, the record in this proceeding would have to contain persuasive evidence of the absolute commitment from all communications providers to furnish complete and accurate disruption information in a consistent, timely, and thorough manner. DHS Comments at 10.

¹¹⁰ Several parties state that this Commission has received ILORI telecommunications outage reports through the ILORI process. That is also incorrect. This Commission has not received any of those reports nor is there any

(continued...)

35. To place these representations about service provider participation in ILORI into perspective, in light of the threshold requirement for DHS to support voluntary reporting (*i.e.*, that *all* providers “participate fully and furnish complete and accurate disruption information”), we consulted the most recent filings of Form 499-A, which all interstate common carriers are required to complete.¹¹¹ Those filings show a total of 4,748 *interstate* telecommunications *common carriers*, which can be broken down into the following categories: 975 wireless services providers, 2,051 fixed local service providers, and 1,089 toll service providers.¹¹² As a consequence, of the 33 telecommunications providers identified by ATIS as participating in the NRSC, or ATIS Committee T1A1, or ILORI, less than one percent (1%) of the interstate common carriers that filed Form 499A were collectively associated with these efforts. Moreover, less than three percent (3%) of the wireless carriers were participating in those voluntary efforts; less than two percent (2%) of the fixed local service providers were participating; and less than three percent (3%) of the toll service providers were participating. This showing by the supporters of voluntary industry reporting through ILORI, or for that matter any other vehicle, hardly constitutes “clear evidence . . . of a firm commitment from *all* service providers to participate fully in the program.”¹¹³

36. Nor does the record reveal how future communications providers not currently in existence could be held to an absolute commitment to meet the DHS criteria for a satisfactory voluntary outage-reporting regime. In the Notice of Proposed Rulemaking that initiated this proceeding, we specifically requested comment as to:

how a voluntary service disruption reporting process would assure the Commission that accurate, useful and complete reports would be filed dependably, even during periods of high service disruption and/or management turnover.¹¹⁴

Further, we questioned how we would be able to:

be certain that, as service provider managements and other staff changes occur, service providers will continue to be committed to filing voluntary, accurate, and complete service disruption reports.¹¹⁵

And, finally, we requested comment on possible ways by which we could assure voluntary reporting of all major outages.¹¹⁶ Unfortunately, no probative comments have been filed that address those initial concerns.

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persuasive evidence in the record that these reports were ever intended to be submitted to the Commission. See *supra* nn. 74-75.

¹¹¹ See *Telecommunications Locator Provider Report* (prepared by the Industry Analysis and Technology Division of the FCC’s Wireline Competition Bureau), which is accessible at www.FCC.Gov/WCB/IATD/locator.html.

¹¹² See *id.* at Table 1 (Feb. 17, 2004), which may be accessed at www.FCC.Gov/WCB/IATD/locator.html. That analysis was prepared on the basis of reports that all interstate telecommunications common carriers are required to file (Form 499-A) to support the provision of Telecommunications Relay Services throughout the United States.

¹¹³ See DHS Comments at 2 (emphasis supplied). We note that the 4,748 interstate common carriers that filed Form 499A during 2003 did not include any wholly intrastate common carriers or other telecommunications providers that are neither interstate nor intrastate telecommunications common carriers. As a consequence, the numerical values of the participation percentages cited above would be further reduced if those providers were taken into account as well.

¹¹⁴ Notice, *supra* note 1, at ¶ 12.

¹¹⁵ *Id.*

37. In addition to the record before us, we have a history of several years of unsuccessful voluntary outage reporting trials conducted by groups working under the auspices of NRIC. Those trials, which were conducted over a four-year interval, used a process that was designed by participating carriers¹¹⁷ to ensure confidentiality of the information submitted. Even so, although we had encouraged telecommunications providers to participate actively and fully in these network outage-reporting efforts, we have observed that participation was spotty and that the quality of information obtained was very poor.¹¹⁸

38. We find that the joint comments of the City of New York, the National League of Cities, and NATOA as to why service outage reporting must be mandatory are very much on point in this regard:

The Commission's own experience with voluntary reporting – which resulted in low participation and the submission of reports of insufficient quality or quantity to track outages reliably – demonstrates that this approach simply will not work.

* * * * *

Ultimately, voluntary reporting suffers from an inherent “free rider” problem. The social costs of failing to report, or to report fully – less reliable information for homeland security, public safety and other decision makers – are externalized, and thus an individual service provider has little or no incentive to report voluntarily. Instead, an individual service provider has significant potential economic incentives either not to report at all, or only to report selectively. Such an approach would (a) lower or eliminate the provider's cost of complying with reporting requirements; and (b) enable the provider to avoid the bad publicity, and possible adverse marketplace reaction, stemming from making known to the public the true scope and frequency of its own service disruptions.¹¹⁹

39. We are not persuaded by the arguments that voluntary reporting through ILORI, or otherwise, is sufficient to meet the needs of this Commission or is likely to be so in the future. The eTUG has accurately summarized many of the deficiencies that have occurred with past voluntary reporting trials.¹²⁰ Even as ILORI's proponents concede, that process was not incorporated into the work of ATIS' Network Reliability Steering Committee until March 2004 (if at all), *after* release of the *Notice*, which

(...continued from previous page)

¹¹⁶ *Id.*

¹¹⁷ In addition, several manufacturers participated in designing those voluntary reporting procedures as did certain trade associations, such as the CTIA.

¹¹⁸ See, e.g., e-Tug Comments, Attachment A, which summarizes some of the deficiencies with the second two-year phase of voluntary reporting that were described during the last meeting of the sixth Network Reliability and Interoperability Council on December 5, 2003. See also the remarks of Edmund Thomas, Chief, FCC Office of Engineering and Technology, at that same meeting. A recording of that meeting is accessible at www.fcc.gov/realaudio/mt120503.ram. See also the remarks of Chairman Michael F. Powell (http://braunfoss.fcc.gov/edocs_public/attachmatch/DOC-245553A1.pdf) and Commissioner Michael F. Capps (http://braunfoss.fcc.gov/edocs_public/attachmatch/DOC-245523A1.pdf) at the March 30, 2004 meeting of NRIC VII. A recording of that meeting is accessible at www.fcc.gov/realaudio/mt033004.ram.

¹¹⁹ City of New York *et al.* Joint Comments at 11.

¹²⁰ eTUG Comments, *passim*.

proposed mandatory reporting requirements.¹²¹ There simply is no persuasive evidence in the record that, as this Commission and DHS require, *all* covered communications providers would voluntarily file accurate and complete outage reports for the foreseeable future or that mandatory reporting is not essential to the development, refinement, and validation of best practices.¹²²

40. Finally, we agree with DHS and the overwhelming majority of commenting parties that the outage reporting data we seek to collect will contain data that, though useful for the analysis of past and current outages in order to increase the reliability and security of telecommunications networks in the

¹²¹ We note that many of the assertions by ILORI's proponents are factually incorrect. The Commission has never been invited to participate in ILORI (in fact, a Commission staff member who recently sought to attend an ILORI meeting was asked to leave that meeting). The Commission has no access to information filed through ILORI. In addition, as stated above, the record is unclear as to how many service providers fully participate in ILORI and, of those, how many have been filing outage information that is accurate and complete. See *supra* ¶¶ 34-35 & nn. 75, 110, 113. Finally, we have observed that, as of August 3, 2004, the ATIS/ NRSC website made no reference to ILORI, and the minutes of the March 10 and June 10, 2004 meetings of the NRSC make no reference to ILORI.

¹²² A number of commenting parties state that we overestimated the importance of mandatory outage reporting in facilitating the collaborative industry self-improvement efforts in the area of network reliability. Some of these parties assert that only 5% of the existing best practices can be attributed to information obtained as a result of the Commission's outage reporting regime. The basis for this 5% assertion is not explained by any of these parties, nor is the method of its calculation explained. It is, at best, a misleading figure that seriously underestimates the value of our mandatorily required outage reports in the development, and subsequent validation, of best practices. Of the 777 Best Practices, only 261 Best Practices address network reliability, which is the primary focus of outage data collection. The original 175 Best Practices from the first Network Reliability Council were based on industry outage/failure data including FCC required outage data (see Network Reliability: A Report to the Nations, Signaling Network Systems Technical Paper, at 2(NRC, June 1993).

Subsequent analyses of mandatory outage data showed an alarming increase in the number of outages in several areas. As a consequence, teams of telecommunications industry experts were formed to address those trends. One team addressed facility cable cuts/failures, with the result that 29 new Best Practices were added to the then-existing 26 Best Practices aimed at reducing the number of facility cable cuts/failures. A second team was formed to address the marked increase in FCC outages with a procedural cause, and after analyzing FCC outage data, the team developed 26 new Best Practices. A third team used FCC outage report data to study outages caused by timing problems. In this respect, thirty three percent of SS7 outages were then due to timing problems. This team developed three new Best Practices along with many other recommendations.

By contrast, the efforts and results that have resulted from the *voluntary* outage reporting initiatives have been underwhelming. The City of New York *et. al.* and this Commission are not aware of a single new or modified Best Practice that has resulted from voluntary outage report trials for wireless communications conducted pursuant to NRIC V or NRIC VI. Contrary to the claim by Cingular and Verizon Wireless that many best practices are only applicable to wireless carriers, there are no best practices applicable exclusively to wireless carriers. Of the 729 best practices applicable to wireless, 723 of them were developed originally for, and currently are applicable to, wireline communications, and all six of the remaining Best Practices are also applicable to satellite and to cable. On the other hand, mandatory outage reports have been useful over the years in helping to identify which Best Practices are the most important for preventing future outages from similar causes. Each quarterly report of the Network Reliability Steering Committee (NRSC) reiterates that one of NRSC's missions is to analyze network outage data in order to "make recommendations aimed at improving network reliability." See, e.g., Network Reliability Steering Committee, 1st Quarter Report 2004, at 2. Notably, the first paragraph of the Executive Summary for this report states, "The Network Reliability Steering Committee (NRSC), under the auspices of the Alliance for Telecommunications Industry Solutions, was formed to monitor network reliability utilizing major outage reports filed with the Federal Communications Commission (FCC) per Docket 91-273. The Committee's mission is to analyze network outage data reported by companies, identify trends, make recommendations aimed at improving network reliability..." In summary, we find, despite the contrary assertions of several commenting parties, that substantially more than 5% of the existing Best Practices were developed or improved based, at least in part, on data acquired through our existing mandatory outage reporting regime.

future, could be used by hostile parties to attack those networks, which are part of our Nation's critical information infrastructure. DHS states that the following information should be protected: "direct and root cause(s); duration of the disruption; the range and types of services affected; the scope and gravity of the impact across all platforms and geographic area; specific equipment failures; the specific network element(s) impacted; remedial measures and/or best practices applied; and an appraisal of the effectiveness of best practices."¹²³

41. Although some commenting parties have suggested that information in outage reports can only be protected from public disclosure if it is "voluntarily" submitted to DHS directly, pursuant to statutory provisions concerning the "protection of voluntarily shared critical infrastructure information,"¹²⁴ this assertion is not correct. The Critical Infrastructure Information Act of 2002 on which those commenting parties rely, states specifically that "[n]othing in this section shall be construed to limit or otherwise affect the ability of a State, local, or Federal Government entity, agency, or authority, or any third party, under applicable law to obtain critical infrastructure information in a manner not covered by [the 'voluntary submission' subsection] of this section . . ."¹²⁵ In addition, before voluntarily submitted information is entitled to protection, the DHS must first review it and make an affirmative determination as to whether that information does, or does not, qualify as Critical Infrastructure Information ("CII").¹²⁶ It is quite possible that some outage information that may not be found to qualify as CII by the DHS will nevertheless be needed by the Commission to fulfill its responsibilities under the Communications Act. Finally, Homeland Security Presidential Directive 7 ("HSPD 7"), upon which the commenting parties also rely, states that federal agencies will appropriately protect sensitive information, "*including handling voluntarily provided information and information that would facilitate terrorist targeting of critical infrastructure and key resources . . .*"¹²⁷ In this regard, we stress that while HSPD-7 *includes* voluntarily submitted information, it *does not exclude* mandatorily submitted information from protection.

42. Likewise, the provisions of the Critical Infrastructure Act do not affect the applicability of exemptions from the requirement of public disclosure in the Freedom of Information Act (FOIA), including FOIA Exemption 4,¹²⁸ nor the provisions of the Trade Secrets Act¹²⁹ that protect commercial information submitted to the Commission. We recognize that the competitive landscape of the communications industry has changed dramatically since we first began requiring these reports from wireline carriers nearly 15 years ago. In addition, our decision here to require reports from wireless and

¹²³ DHS Comments at 14. *See also* Letter for Eric T. Werner, Esq., Office of General Counsel, U.S. Department of Homeland Security, to Jeffery M. Goldthorp, Chief, Network Technology Division, Federal Communications Commission (Aug. 3, 2004)(identifying additional types of harm that could result from disclosure of these types of information).

¹²⁴ *See* 6 U.S.C. § 133(a).

¹²⁵ 6 U.S.C. § 133(c)("independently obtained information"). *See also* 6 U.S.C. § 133(d)("Treatment of voluntary submittal of information") which states: "[t]he voluntary submittal to the government of information or records that are protected from disclosure by this subtitle shall not be construed to constitute compliance with any requirement to submit such information to a Federal agency under any other provision of law."

¹²⁶ *Procedures for Handling Critical Infrastructure Information; Interim Rule*, 69 Fed. Reg. 8074, published Feb. 20, 2004 (DHS), adopting interim rules to be codified at 6 C.F.R. §§ 29.1-29.9 (2004). *See also* AT&T Comments at n.30; DHS Reply at 5 (DHS has authority to protect voluntarily submitted information *under certain circumstances*).

¹²⁷ HSPD 7, Part 10 (emphasis supplied).

¹²⁸ 5 U.S.C. § 552(b)(4)(agencies may withhold "trade secrets and commercial or financial information obtained from a person [that is] privileged or confidential").

¹²⁹ 18 U.S.C. § 1905.

satellite carriers, as well as to require more extensive information in the reports, demands that we reassess the potential competitive sensitivity of this information. The Commission also has an independent obligation to consider whether disclosure of such commercially sensitive information is authorized under provisions of our rules that permit disclosure only for persuasive reasons.¹³⁰

43. In circumstances in which commercial information is required to be submitted to the government, FOIA exemption 4 permits us to withhold such records where release would likely cause substantial harm to the competitive position of the submitting party.¹³¹ As a general matter, the harm must flow from affirmative use of the information by competitors and not consist solely of injuries that flow from customer disgruntlement or public embarrassment.¹³² Reviewing courts have not yet addressed whether more direct types of harm, such as threats to the security of communications facilities, fall within the exemption, but a terrorist attack on a submitter's facilities clearly would result in direct commercial and financial harm to the submitter's business operations.

44. In any event, commenters in this proceeding point specifically to the likelihood of substantial competitive harm from the disclosure of outage reports to competitors. Wireline carriers, for example, state that information contained in the outage reports that they have filed already has been used by competitors to wage marketing campaigns,¹³³ and the likelihood of competitive harm is implicit in the comments of many others. We note that there is emerging intramodal and intermodal competition from cable broadband service providers and other carriers. Moreover, future reports will likely contain more detailed information about outages associated with specific switch manufacturers and operators that, if available to other switch manufacturers, could be used to gain competitive advantage in the highly competitive market for switching equipment.¹³⁴ Representatives of the satellite industry likewise point to the competitive sensitivity of the information that will be submitted for fixed satellite and mobile satellite operators.¹³⁵ Similarly, representatives of the wireless industry emphasize the highly competitive nature of the wireless industry and the importance of service outages on customer satisfaction.¹³⁶ Competitors presumably would have ample incentives to utilize outage information to compete for wireless customers. Indeed, even the joint comments of the City of New York, the National League of Cities, and NATOA emphasize that the incentives for the voluntary submission of this data are greatly affected by the "possible adverse marketplace reaction, stemming from making known to the public the true scope and frequency of its own service disruptions."¹³⁷

¹³⁰ See Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission, 13 FCC Rcd 24816, 24827-28 (1998), *recon. den.*, 14 FCC Rcd 20128 (1999).

¹³¹ See Critical Mass Energy Project v. NRC, 975 F.2d 871, 880 (D.C. Cir. 1992) (en banc); National Parks & Cons. Ass'n v. Morton, 498 F.2d 765 (D.C. Cir. 1974).

¹³² See, e.g., CNA Fin. Corp. v. Donovan, 830 F.2d 1132, 1152, 1154 & n.158 (D.C. Cir. 1987); Public Citizen Health Research Group v. FDA, 704 F.2d 1280, 1291 n.30 (D.C. Cir. 1983); Gen. Elec. Co. v. NRC, 750 F.2d 1394, 1402 (7th Cir. 1984); Center to Prevent Handgun Violence v. United States Dep't of the Treasury, 981 F. Supp. 20, 23 (D.D.C. 1997).

¹³³ BellSouth Comments at 27; SBC Comments at 22; SBC Reply Comments at 6.

¹³⁴ Lucent Comments at 3.

¹³⁵ PanAmSat and /SES Americom Joint Comments at 7; GlobalStar Comments at 7; Inmarsat Reply Comments at 2.

¹³⁶ Cingular Comments at 11-12; Dobson Communication Corporation Reply Comments at 7; Verizon Wireless Reply Comments at 4.

¹³⁷ City of New York *et al*, Joint Comments at 11.

45. Given the competitive nature of many segments of the communications industry and the importance that outage information may have on the selection of a service provider or manufacturer, we conclude that there is a presumptive likelihood of substantial competitive harm from disclosure of information in outage reports. In addition, under FOIA Exemption 4 we are also obliged to consider any adverse impact that disclosure might have on government programs, including the impact on the Commission's ability to implement its statutory responsibility under section 1 of the Act¹³⁸ to ensure that communications services are adequate to protect "the national defense" and promote "safety of life and property."¹³⁹ The record in this proceeding, including the comments of the Department of Homeland Security, demonstrate that the national defense and public safety goals that we seek to achieve by requiring these outage reports would be seriously undermined if we were to permit these reports to fall into the hands of terrorists who seek to cripple the nation's communications infrastructure. In addition, release of this information could also make regulated entities less forthright in the information submitted to the Commission at a time when it is especially critical that we obtain full and accurate information in order to prevent harm to the communications infrastructure. Accordingly, the potential consumer benefits that we pointed to over a decade ago as a public interest factor weighing against routine treatment of outage reports as confidential information, are now substantially outweighed by the potential harm to the public and national defense that might result from disclosure.¹⁴⁰ Accordingly, and although decisions with respect to specific records and the specific basis for withholding them must be made in the context of considering the facts underlying any individual Freedom of Information Act requests, including consideration of the specific types of competitive injury that submitters point to in those cases, we will amend our rules to provide that outage reports are presumptively protected from public disclosure under the FOIA.

46. In sum, based on the record before us, we find no persuasive evidence that a voluntary program would be workable. We therefore adopt our proposal to extend mandatory outage reporting to non-wireline communications providers, and we will treat information in all outage reports as confidential information that is exempt from routine public disclosure under FOIA.¹⁴¹ We note, however, that the analytical substance of these reports is essential to the development and validation of best practices. As a consequence, we will also use information from those reports in analyses that will enable us to provide guidance to the Network Reliability and Interoperability Council, the Network Reliability Steering Committee and other organizations. We will do so, however, in a way that does not provide sensitive information to those who might use it for hostile, or competitive, purposes.¹⁴²

¹³⁸ 47 U.S.C. § 151.

¹³⁹ See, e.g., Critical Mass, 975 F.2d at 879 (recognizing third, program impairment prong of Exemption 4); 9 to 5 Org. for Women Workers v. Bd. Of Governors of the Fed. Reserve Sys., 721 F.2d 1, 10 (1st Cir. 1983); Pub. Citizen Health Research Group v. NIH, 209 F. Supp. 2d 37, 42-43 (D.D.C. 2002) (alternative holding); Allnet Comm. Svcs. V. FCC, 800 F. Supp. 984, 990 (D.D.C. 1992).

¹⁴⁰ Amendment Of Part 63 Of The Commission's Rules To Provide For Notification By Common Carriers Of Service Disruptions, CC Docket No. 91-273, *supra* note 3, 7 FCC Red 2010 at ¶¶ 31-32 (1992). It is no longer the case that "[c]oncerns of . . . aiding saboteurs resulting from disclosure are not supported." *Id.* at ¶31.

¹⁴¹ See Sections 0.457, 0.459 of the Commission's Rules, 47 C.F.R. §§ 0.457, 0.459. DHS's perception in this regard is co-incident with our own. See DHS Comments at 14 ("While this information is critical to identify and mitigate vulnerabilities in the system, it can equally be employed by hostile actors to identify vulnerabilities for the purpose of exploiting them.").

¹⁴² This may take the form, for example, of providing direct assistance to developers of Best Practices who address sources of outage problems. This would be consistent with previous efforts by our staff who, by analyzing outage reports, were able to provide detailed guidance to the Network Reliability Steering Committee and Network Reliability and Interoperability Councils.

47. DHS requests that it receive outage information directly, so that the Secretary of the Department of Homeland Security and the Department's organizational units can fulfill their responsibilities under the Homeland Security Act.¹⁴³ We will, therefore, make available to DHS, in encrypted form and immediately upon receipt, all electronically submitted outage reports.¹⁴⁴ DHS can then undertake to provide information from those reports to such other governmental authorities as it may deem to be appropriate.¹⁴⁵

III. Consistent Reporting

A. Common Metric

48. *Proposal.* Communications disruptions can be characterized as consisting of: (i) an inability to access a network (e.g., an inability to acquire dial-tone or to receive incoming calls),¹⁴⁶ or (ii) once a network has been successfully accessed, the inability to complete the communication effectively.¹⁴⁷ Section 63.100 applies to both types of communications disruptions which are further classified into, essentially, two types of reporting requirements: (i) the reporting of disruptions that could have a direct effect on the safety of life or property or on the National defense and security,¹⁴⁸ and (ii) the reporting of outages that are otherwise sufficiently significant that they warrant reporting.¹⁴⁹ We proposed to retain this basic type of reporting framework with certain modifications to improve its usefulness that we discussed in more detail.

¹⁴³ DHS Comments at 10-13, 4-6. The Homeland Security Act of 2002 granted DHS broad authority to obtain information from federal agencies. *See* 6 U.S.C. §§ 121(d)(4) and (13) providing DHS with “timely and efficient access . . . to all information necessary to discharge the responsibilities under this section”; 6 U.S.C. §122(a)(1)(giving DHS access to “all information concerning infrastructure or other vulnerabilities of the United States to terrorism, whether or not such information has been analyzed, that may be collected, possessed, or prepared by any agency of the Federal Government”); 6 U.S.C. §122(b)(DHS may obtain access to information from agencies “on regular or routine basis”). In addition, the Commission has an affirmative obligation to “promptly” provide DHS with all reports and information relating to threats of terrorism concerning critical infrastructure vulnerability. *See* 6 U.S.C. § 122(b)(2).

¹⁴⁴ This is consistent with our existing practice of sending to DHS, by facsimile (FAX), outage reports that are filed with us.

¹⁴⁵ DHS states that outage information should be made available to State Public Utilities Commissions, noting that such a provision would address “a key concern expressed by carriers relative to the costs and administrative burdens associated with potentially redundant reporting schemes across levels of government and among multiple States.” DHS Comments at 8. DHS further states that because much of the reported data “would likely constitute ‘homeland security information’ under Federal law, sharing the information with State authorities through such channels would also facilitate more effective safeguarding of this sensitive information against disclosure to those who might desire to use it for hostile purposes.” *Id.* *See also id.* at nn. 16-17 (description of authority available to DHS to protect that information from inappropriate disclosure).

¹⁴⁶ We shall refer to this as a lack of generally-useful availability of communications.

¹⁴⁷ We shall refer to this as a lack of generally-useful connectivity of communications. Combining these two related concepts, we shall refer to the user's normal expectations for communications as having “generally-useful availability and connectivity.”

¹⁴⁸ These include, for example, airports, military installations, key government facilities, 911 facilities and nuclear power plants. *See* 47 C.F.R. § 63.100(a) (3)-(4).

¹⁴⁹ *See, e.g.*, 47 C.F.R. § 63.100(c).

49. Section 63.100(c) requires that an outage report be filed whenever at least 30,000 customers are affected for 30 minutes or more.¹⁵⁰ The determination that outages of that size warrant reporting resulted from the investigation into the 1991 Signaling System 7 outages that blocked communications on both the East and West coasts for extended periods of time. We observed that those conjunctive criteria have, in general, worked well and we proposed to apply those criteria to all communications platforms with certain modifications that we discussed in more detail. The first issue that we addressed concerns the criterion of 30,000 affected customers. This criterion presented two issues. The first concerned the use of the word “customers.” The outage reporting criteria currently set forth in subsections 63.100(b) and (c) are based on the number of “customers” potentially affected. Subsection 63.100(a) (2) defines a customer as “a user purchasing telecommunications service from a common carrier.”¹⁵¹ In the past, reporting carriers have tended to apply this definition literally, so that if an outage affected a large business or governmental customer with tens of thousands of telephone lines, the business was nevertheless counted as a single customer for outage reporting purposes.¹⁵² The *Notice* tentatively concluded that application of the reporting requirements in this way disserved the public interest. The reporting thresholds were meant to require the reporting of outages that could potentially affect significant numbers of end users, that is, people, regardless of whether they may be viewed, collectively, to be part of a single commercial or governmental customer. As a consequence, we proposed to utilize the word “user,” rather than “customer,” to address the problem posed by a single customer (*e.g.*, the U.S. Government or General Motors) having hundreds of thousands of “users” even though, in each case, there is only one affected “customer.” In the absence of making this change, hundreds of thousands of users could be without service without a communications disruption report having to be filed, which clearly does not serve the public interest.

50. The second issue concerned how the current rule conjoins the length of time (at least 30 minutes) for which users suffer loss of service with the number of potentially-affected users (at least 30,000) in determining whether a communications disruption report must be filed. As Section 63.100(c) is presently configured, 29,999 or fewer customers could be without service for extended periods of time (*i.e.*, forever)¹⁵³ without triggering the need to file an outage report. This, in turn, would foreclose our ability to understand, and address, extended outages that may be occurring on a routine basis, because the duration of the outage is not taken into account where fewer than 30,000 users are affected.¹⁵⁴ We proposed to address both of these concepts through the use of a “common metric,” which is discussed below, that can be applied to wireline, wireless, cable, and satellite communications. We recognized that although the concept of a uniformly applied common metric is properly based on the number of people potentially affected by, and duration of, an outage, irrespective of the communications system, differences may necessitate variations in developing the metric for these communications networks or even alternative approaches. We sought comment on such approaches.

51. To address these anomalies and to create a metric that accords more precisely with the true intent of the rule, we proposed to cease using the number of “customers” in the threshold criteria for

¹⁵⁰ “Outage” is defined as “a significant degradation in the ability of a customer to establish and maintain a channel of communication as a result of failure or degradation in the performance of a carrier’s network.” 47 C.F.R. § 63.100(a) (1). In other words, outages are experienced by end users as the loss of the generally-useful availability and connectivity of communications. *See supra* notes 146-147.

¹⁵¹ 47 C.F.R. § 63.100(a) (2).

¹⁵² *See* Qwest Comments at 4, SBC Comments at 4.

¹⁵³ *See* 47 C.F.R. § 63.100(c).

¹⁵⁴ We note that more than eighty percent (80%) of the telephone company switches and end offices in the United States have fewer than 30,000 assigned telephone numbers.

communications outage reporting and instead to base the criteria on a newly-defined measurement, the number of user-minutes potentially affected by the outage. We defined “user-minutes” as the mathematical result of multiplying the outage duration, expressed in minutes, by the number of end users potentially affected by the outage.¹⁵⁵ In general, we proposed the following as revised threshold criteria for communications outage reporting:

- The outage duration must be at least 30 minutes; *and*
- The number of “user-minutes” potentially affected per outage must equal or exceed 900,000.¹⁵⁶

In other words, outages of at least 30 minutes duration would have to be reported whenever the mathematical result of multiplying the outage’s duration (expressed in minutes) by the total number of end users potentially affected by the outage is at least 900,000. In developing these criteria, we retained the current rule’s conceptualization of a metric that is based on the number of people who may be *potentially affected* by the outage. That is, the proposed metric focuses on the number of people who would have been affected by the outage if, for example, they had attempted to make or receive telephone calls during the outage, regardless of whether they, in fact, had actually attempted to do so. This reflects expectations that these forms of communication should be available at all times, that people rely on voice and data communications to serve needs that arise unexpectedly in emergency situations as well as every day needs, and that outages could prevent communications providers from knowing which people unsuccessfully sought access during the outages.

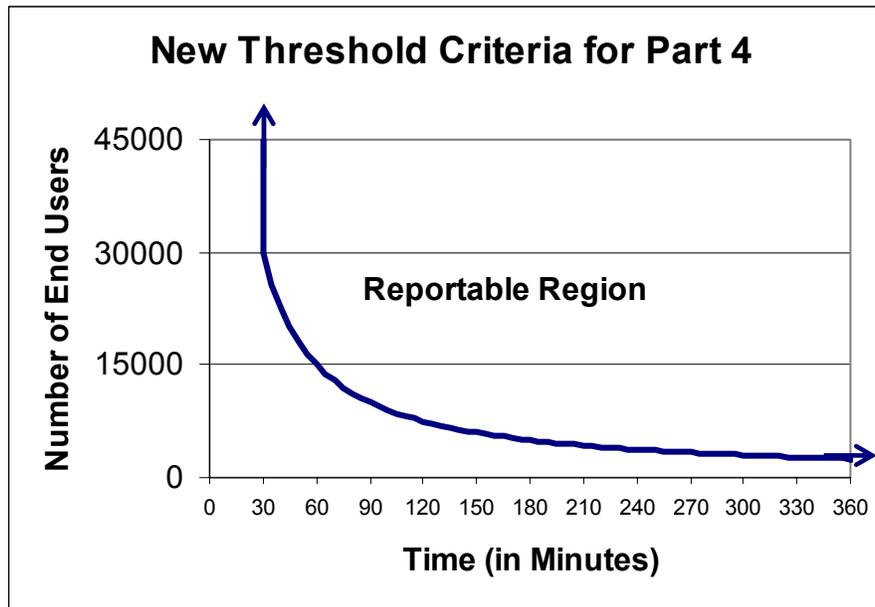
52. We tentatively concluded that the proposed threshold criteria would enable us to better assess the reliability of voice and data communications platforms. For example, the individual failures of more than four-fifths of the wireline telephone switching centers in the United States would not be reportable under our current rule.¹⁵⁷ One implication of the proposed approach is that outages in rural areas,¹⁵⁸ where the end users potentially affected are likely to be smaller in number than for urban area outages, would nevertheless be required to be reported if those outages persisted for an excessively long time. In addition, urban area outages potentially affecting less than 30,000 end users would nevertheless have to be reported whenever their duration reaches the 900,000 user-minute threshold criteria. We graphically illustrated the proposed criteria as follows:

¹⁵⁵ The *Notice* addressed how the number of potentially affected end users would be determined in each section devoted to a particular form of communications (*e.g.*, wireline, wireless, cable, *etc.*) for which it proposed outage reporting requirements.

¹⁵⁶ 900,000 user-minutes is the product of 30,000 users times 30 minutes.

¹⁵⁷ Section 52.15(f) of our rules requires telecommunications carriers to report telephone number utilization, 47 C.F.R. § 52.15(f). Analysis of that data shows that, as of December 31, 2003, there were 30,191 switches with one or more “assigned telephone numbers” (see *infra* ¶ 83, for an explanation of the meaning of the phrase “assigned telephone numbers”). These switches were located in 24,949 buildings. Only 14.9% of these switches and 16.1% of the buildings had 30,000 or more assigned telephone numbers and thus, in the event of a local switch or office failure, would have been subject to the reporting requirements set forth in Section 63.100(c) of our rules. See 47 C.F.R. § 63.100(c). Put somewhat differently, more than 83% of the telephone company central offices in the United States had fewer than 30,000 assigned telephone numbers and outages in any one of those offices would not have been reportable under our existing rules. See *id.*

¹⁵⁸ The Commission has adopted a default definition of “rural” as “a county with a population density of 100 persons or fewer per square mile.” F.C.C. News Release concerning Report and Order and Further Notice of Proposed Rulemaking (FCC-04-166)(July 8, 2004) at 1. This includes most of the United States and its Territories.



We requested comment on these conclusions and proposed modifications to our rules and noted that it was not our intention, in proposing these rules, to preclude the voluntary filing of outage reports where the size of the outage falls below the proposed threshold criteria for mandatory reporting.

53. *Comments.* Several commenting parties agree that the definition of the term “customer” is problematic and warrants a revision of the existing rules.¹⁵⁹ DHS agrees with the abandonment of “affected customers” as a reference point in favor of “affected users” because the change “is appropriate to avoid the problem of non-reporting of potentially serious disruptions impacting significant numbers of end-users.”¹⁶⁰ CDPUC “supports the Commission’s proposal to establish a common metric that can be applied to various providers of communications . . . the new metric would reduce to a common level (*i.e.*, minutes of use), a reportable metric that can be readily reported, reviewed and evaluated by all providers as they develop best practices.”¹⁶¹ City of New York *et. al.* “endorse the proposed new common metric.”¹⁶² General Communication, Inc. (“GCI”), however, disagrees with the discontinuance of the term “customer” in the metric. “[I]t is not clear how a carrier would be able to calculate or ascertain the exact number of end users that receive service at a particular business or government entity.”¹⁶³ GCI also suggests the use of a “safe harbor estimate for users per customer” if the “user” concept is employed in the metric.¹⁶⁴ There were some other concerns raised about application of the term “user.” Thus, although USTA states that the metric should no longer be based on “customers,” it further asserts that “users” would not be an appropriate substitute because “there is no way for service providers to ascertain how many individual users in a large government or General Motors building may be potentially affected by an outage.”¹⁶⁵ ITTA and MCI state that the term “user” is ambiguous and is open to interpretation.¹⁶⁶

¹⁵⁹ See, e.g., SBC Comments at 4; Cingular Comments at 15; DHS Comments at 16.

¹⁶⁰ DHS Comments at 16.

¹⁶¹ CDPUC Comments at 3.

¹⁶² City of New York *et. al.* Joint Comments at 12.

¹⁶³ GCI Comments at 2-3.

¹⁶⁴ *Id.* at 3.

¹⁶⁵ USTA Comments at 7.

Cingular “supports the clarification that it is the number of end users, not billed accounts, which are to be counted to determine whether the reporting threshold is met.”¹⁶⁷ In addition, some commenting parties suggest that we modify the definition of “degradation”¹⁶⁸ to be “the total loss of the ability of end users to establish and maintain a channel of communications.”¹⁶⁹

54. Commenting parties offer various views as to how the outage-reporting threshold should be determined.¹⁷⁰ SBC states that the metric should be less complicated than the one proposed but agrees that long-term outages affecting less than 30,000 users should be reported.¹⁷¹ The Staff of the Kansas Corporation Commission (“KCC”) generally supports the proposal to use a threshold based on user-minutes, but states that the threshold should be lowered to 150,000 user-minutes in order to capture rural outage data.¹⁷² DHS is also concerned that the proposed common metric might result in some critical information going unreported because the proposed threshold might be too high for use in discovering significant outages on those communications platforms currently having only small numbers of end users.¹⁷³ AT&T urges that the proposed metric does not produce any material benefits that would justify the added costs it would impose on providers and that, therefore, the current threshold, according to which no reporting is required for outages affecting less than 30,000 users, should remain unchanged.¹⁷⁴ ATIS and other commenting parties propose an alternative two-tier threshold that would require reporting of those outages of 30 minutes or more that affect 30,000 or more users, and those outages of six hours or more that affect less than 30,000 users.¹⁷⁵ Another alternative proposed by several commenting parties is that the common metric should be based on call blocking and reports should only be required for those outages of at least 30 minutes duration that result in 90,000 blocked calls based on real-time traffic data or 30,000 lost calls based on historic traffic data.¹⁷⁶ Sprint suggests as a criterion the occurrence of 900,000 blocked calls, based on real-time traffic data, during the first 30 minutes of the outage.¹⁷⁷ Other commenting parties state that use of a common metric across all communications

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¹⁶⁶ ITTA Comments at 5; MCI Comments at 2.

¹⁶⁷ Cingular Comments at 15.

¹⁶⁸ “Degradation” differs from the term “outage” in that it connotes a reduction in the quality of service that could be perceived by some (but not necessarily all of the) users as a total outage. Section 63.100(a)(1) of our rules defines an “outage” as a “significant degradation in the ability of a customer to establish and maintain a channel of communications as a result of failure or degradation in the performance of a carrier’s network.” 47 C.F.R. § 63.100(a)(1).

¹⁶⁹ AT&T Comments at 10; ATIS Comments at 16; MCI Comments at 3-4; SBC Comments at 8; Verizon Comments at 12. See also BloostonLaw Rural Carriers Comments at 4, 7.

¹⁷⁰ Those comments that raise concerns about application of the user-minute threshold for a specific communications platform will be addressed in the appropriate section, below, dealing with that platform.

¹⁷¹ SBC Comments at 4-6.

¹⁷² KCC Comments at 2.

¹⁷³ DHS Comments at 16.

¹⁷⁴ AT&T Comments at 10-13. See also USTA Comments at 9 (burden on larger, urban carriers because carriers with 4,000 or more lines would now have to report losses of only 4,000 lines during an average duration outage).

¹⁷⁵ ATIS Comments at 16; SBC Comments at 6-7; BellSouth Comments at 11; USTA Comments at 10. These comments also suggest that the number of “access lines” be used as a surrogate for the number of “users.” We shall address this suggestion, below, in our discussion of the wireline communications platform.

¹⁷⁶ ATIS Comments at 14-16; AT&T Comments at 10-13.

¹⁷⁷ Sprint Comments at 11, 17 (at page 11, Sprint proposes the criterion of 900,000 blocked calls; however, at page 17, it refers to 90,000 blocked calls).

platforms would not be appropriate.¹⁷⁸ Still other commenting parties agree with the common metric as proposed, because it would afford the Commission the ability to evaluate and address communications reliability across all communications platforms in a competitively neutral manner.¹⁷⁹

55. *Discussion.* We conclude that the reporting threshold should henceforth be based on the number of “users” potentially affected by outages instead of the more ambiguous term “customers,” which is currently employed in our rules. Most commenting parties agree, in the abstract, that “users” would be a less ambiguous metric than “customers.” In addition, we are not persuaded by the comments that suggest the use of “blocked calls” would be superior to user-minutes as a basis for a threshold reporting criterion, and we adopt the proposed 900,000 user-minutes as a common metric to serve as an outage-reporting threshold. The major weakness of the blocked calls proposal is that it would result in a significant undercount of the number of users potentially affected by any outage. The number of real-time blocked calls, for example, may be a good measure of the number of users *actually using* a network at a given time. But not only does it fail to account for the number of users that typically would be expected to use the network at peak times, it wholly fails to address how many end users would *potentially be affected by the outage* – the key issue that the Commission has always stressed from the adoption of the original outage reporting rule in 1992. As the Commission explained in adopting the original outage reporting requirements:

[W]e clarify that “50,000 customers” means potential users. For example, if a carrier experiences an outage affecting a large customer, or several large customers, such that it should reasonably expect that [the threshold number of] potential users will be deprived of telephone service, the carrier should report the outage. It is not necessary for the carrier to verify that [the threshold number of] potential users have, in fact, lost telephone service before reporting the outage. Instead, the carrier should estimate, based on the severity of the incident, whether [the threshold number of] potential users were affected. If the answer is affirmative, and the outage continued for 30 or more minutes, then the incident must be reported.... Moreover, while . . . IXCs may not know [by the deadline for filing initial reports] the number of end users affected by an outage in their network, we do expect IXCs to estimate the number of customers potentially affected by such outage and to report those outages that exceed the prescribed threshold. Finally, we clarify that an outage is a significant degradation in the ability the customer normally would have to establish and maintain a channel of communications. The fact that some traffic might be getting through during a period of massive disruption would not mean an outage has not occurred.¹⁸⁰

In 1995, the Commission reaffirmed that the phrase “potentially affects customers” is intended to provide for the reporting of outages in cases where the reporting entity “‘should reasonably expect that at least ... [the threshold number of customers] will be deprived of . . . service,’ even when customer impact cannot be determined with certainty. The number of customers potentially affected by an outage should, therefore, represent the most accurate estimate of the number that might actually have been affected.”¹⁸¹

¹⁷⁸ DHS Comments at 3; Cingular Comments at 15. See also Intelsat Global Comments at 2 (stating that it is impossible for satellite providers to comply with the proposed rule); KCC Comments at 2 (suggesting a lower threshold formula for rural carriers).

¹⁷⁹ CDPUC Comments at 3; City of New York *et al.* Joint Comments at 12.

¹⁸⁰ *Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Report and Order*, *supra* note 3, 7 FCC Rcd 2010 at ¶ 11.

¹⁸¹ *Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Second Report and Order*, *supra* note 3, 9 FCC Rcd 3911 at ¶ 27.

No commenting party has stated directly that the outage-reporting rule's primary focus on the number of *potentially-affected* customers or users has been misplaced and should be altered.¹⁸²

56. Our focus on the number of potentially affected end users is even more important today, in light of the homeland security concerns raised in the aftermath of the tragic events of September 11, 2001. In short, and more generally, because earthquakes, hurricanes, and terrorist attacks can occur at any time, day or night, we need to ensure that our communications infrastructure is reliable and secure on a "24-7" basis. In sum, our proposed 900,000 user-minute threshold could result in the reporting of more outages in rural areas (*e.g.*, if telecommunications in those areas were less reliable); however, the availability of essential telecommunications services are particularly vital in rural areas, given the remote nature and lack of quick access to emergency services and other forms of communications that are more frequently available in urban environments. In this regard, we do not agree with the KCC that it is necessary to lower the reporting threshold to 150,000 user-minutes in order to capture rural outage data. And, an increased number of outages affecting large organizational customers could also be reported because the number of potentially affected end users would no longer be under counted. In other words, use of the common metric will result in a more accurate and realistic assessment of outages on a national basis. We therefore adopt our proposed 900,000 user-minute as a common metric for determining the general outage-reporting threshold for each communications technological platform addressed herein.

B. Simplified Reporting for Special Offices and Facilities and 911 Services

57. *Proposal.* We also proposed to simplify the requirements for reporting communications outages that potentially affect special offices and facilities or potentially affect the ability to complete 911 calls.¹⁸³ Section 63.100(e) of our rules presently requires the reporting of outages of at least 30 minutes duration that potentially affect special offices and facilities.¹⁸⁴ We proposed to keep this requirement substantively intact with a minor modification that will make it applicable to all airports, not just major airports. Section 63.100(e), however, only applies to local exchange carriers, interexchange carriers, and competitive access providers. In light of the rapid changes that have occurred since this rule was adopted, we anticipate that special offices and facilities will increasingly take advantage of new communications technologies and services as they become available, with decreasing regard for the particular technological platform over which they are provided. As a consequence, we proposed to extend the

¹⁸² In addition, we emphasize that the above quotation from the 1992 Report and Order in CC Docket No. 91-273 clarified that "that an outage is a significant degradation in the ability the customer normally would have to establish and maintain a channel of communications. The fact that some traffic might be getting through during a period of massive disruption would not mean an outage has not occurred." 7 FCC Rcd 2010 at ¶ 11. The commenting parties (see *supra* ¶ 53 & n.175) that have suggested that we modify the definition of degradation to be "the total loss of the ability of end users to establish and maintain a channel of communications" have not set forth any persuasive reasons to support such a modification. In the more than ten years that we have received outage reports, we are not aware of any confusion among reporting entities over the meaning of the terms "outage" and "degradation" that has warranted any further clarification. In addition, during the major SS7 outages in 1991, and in hundreds of outages reported since then, end users did not lose dial-tone service or the ability to make local calls, but they lost the ability to make calls to, or receive calls from, users served by facilities located in other telecommunications office buildings. These types of outages are significant in that they identify problems with the infrastructure that are critical to the provision of communications across the nation. They also represent the loss of generally-useful availability and connectivity of communications to a significant number of end users. Accordingly, we reject the suggested modification. Outages that do not involve the total loss of communications to users must be reported as long as they meet the threshold criteria.

¹⁸³ "Special offices and facilities" are defined as "major airports, major military installations, key government facilities, nuclear power plants," and include 911 facilities. See 47 C.F.R. § 63.100(a) (3).

¹⁸⁴ 47 C.F.R. § 63.100(e).

requirement to report outages potentially affecting special offices and facilities to include all communications providers for which we are proposing general communications outage-reporting requirements. These include wireline, wireless, cable, and satellite telecommunications providers.

58. In addition, the current requirements for reporting outages that potentially affect 911 services are differentiated by the length of the outage, the number of lines potentially affected, and other factors.¹⁸⁵ We tentatively concluded that these requirements were overly complex. We proposed to revise these rules and simply require the reporting of all communications outages of at least 30 minutes duration that potentially affect the ability to originate, complete, or terminate 911 calls successfully (including the delivery of all associated name information and location data). Because we anticipate that the public safety community and 911-type services will also evolve to utilize new technologies, services, and platforms, we proposed to apply this requirement to all communications providers for which we had proposed general outage-reporting requirements. In a separate proceeding, however, we have been considering E911 implementation issues for Mobile Satellite Service (“MSS”) providers and have concluded that MSS providers of interconnected two-way voice service have an E911 compliance obligation, specifically to establish call centers for the purpose of answering 911 emergency calls and forwarding these calls to an appropriate PSAP.¹⁸⁶ Although we proposed that MSS providers of interconnected voice service be subject to E911 outage reporting requirements, we proposed to delay implementation of these requirements until the implementation issues raised in the 2nd *Further Notice* portion of the separate proceeding are resolved. We sought comment on these conclusions and proposals.

59. We have been aware for some time that the use of wireless telephony to place emergency 911 calls has been increasing. Accordingly, we adopted rules requiring wireless providers to facilitate the work of E911 service responders by providing to Public Safety Answering Points (“PSAPs”)¹⁸⁷ both the automatic name information (ANI) and automatic location information (ALI) associated with the handset. The reliability of E911 service continues to be of vital concern to this Commission and is an essential part of our responsibilities. We therefore proposed to require wireless service providers to report any failure¹⁸⁸ that prevents a Mobile Switching Center (“MSC”) from receiving, or responding to, 911 calls (including the delivery of all associated data) for at least 30 minutes.¹⁸⁹ We sought comment on this

¹⁸⁵ See Section 63.100(h) (1) of the Commission’s Rules, 47 C.F.R. § 63.100(h) (1).

¹⁸⁶ *In the Matter of Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Networks and Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements et al.*, CC Docket No. 94-102 and IB Docket No. 99-67, *Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 03-290, released December 1, 2003, at ¶¶ 20-48 and 111-112 (adopting 911 service call center requirements and seeking further comment on how to implement E911 requirements for the MSS).

¹⁸⁷ Responses to E911 calls are typically made by personnel in call centers that are funded by local, county, and state governments. As a consequence, the function of the wireless service provider in this context is to provide two-way connectivity (from the user to the PSAP and from the PSAP to the user) and identification of the subscriber’s handset and its location (these latter functions are analogous to the data that are provided to PSAPs by wireline telephone companies).

¹⁸⁸ For reporting purposes this also includes an outage, or significant degradation of information: (i) from a wireless provider’s network; (ii) from a wireless provider’s location vendor; (iii) from a wireless provider’s point of connection to the PSTN; (iv) from a wireless provider’s other point of connectivity to the PSAP (if that provider does not connect to the PSAP through the PSTN); (v) from a failure or degradation in the trunk(s) that connect the mobile switching center to other LECS that serve PSAPs; or (vi) from a failure in the trunking from the LEC that is supplied to the wireless provider to connect it to the PSAP. Failure or significant degradation in any of these components could affect delivery of a 911 call to a PSAP.

¹⁸⁹ We note that not all MSCs provide accessibility to E911 services.

proposed rule and on whether such failures should also be reported to the affected PSAPs in real time. In addition, we sought comments as to whether a 30-minute outage is the most appropriate time metric to measure a significant failure of call completion to a PSAP. Finally, if a commenting party were to conclude that 30 minutes is not an appropriate time metric, we requested such party to include in its comments its reasoning for that conclusion and a recommendation for a more appropriate time interval for E911 emergency calls.

60. *Comments.* The City of New York, National League of Cities and NATOA jointly endorse our proposed revisions for outage reporting related to special offices and facilities and 911 services but recommend modification of the reporting threshold to require that E911 outages lasting longer than 15 minutes be reportable.¹⁹⁰ Most of the objections to the proposed E911 rules center on their literal wording. For example, BellSouth states, “the Commission proposes to require the reporting of all communications outages of at least 30 minutes duration that potentially affect the ability to originate, complete, or terminate 911 calls successfully (including the delivery of all associated name, identification, and location data). BellSouth supports the Commission's desire to simplify the 911-outage reporting requirements. It states, however, that the proposed rule needs further refinement because the proposed requirement provides no measure of magnitude or impact. If the rule were to be applied literally, for example, a carrier would be required to file a report for an outage affecting only a single line.”¹⁹¹ As a consequence, several companies proposed the following alternative criteria:

- (1) PSAP outages affecting less than 30,000 users shall be reportable if:
 - (a) the outage is caused by a failure in the communications provider's network;
 - (b) no reroute was available; and
 - (c) the outage lasts six (6) hours or more.
- (2) PSAP outages affecting 30,000 or more users shall be reportable if:
 - (a) the outage is caused by a failure in the communications provider's network;
 - (b) no reroute was available; and
 - (c) the outage lasts for 30 minutes or more.
- (3) The loss of all call processing capabilities in one or more E-911 tandem(s)/selective router(s) for at least 30 minutes duration shall be reportable; and
- (4) The isolation of one or more end-office switches or host/remote clusters causing 30,000 or more subscribers to be isolated from 911 for at least 30 minutes duration, or the isolation of one or more end-office switches or host/remote clusters causing less than 30,000 subscribers to be isolated from 911 for at least 6 hours duration, shall be reportable.¹⁹²

61. Qwest, USTA, Verizon, AT&T, SBC, CTIA, ATIS and BellSouth state that only a complete failure to complete a call to a PSAP should be considered to be a 911 outage. Verizon Wireless asserts that no additional information such as ANI or ALI is necessary to complete an E911 call and, therefore, the loss of such information should not be considered as triggering an E911 outage.¹⁹³ CTIA

¹⁹⁰ City of New York *et al.* Comments at 12-13.

¹⁹¹ BellSouth Comments at 15. See also USCC Reply Comments at 6.

¹⁹² Qwest Comments at 18; USTA Comments at 13; SBC Comments at 13; AT&T Comments at 19; ATIS Comments at 27.

¹⁹³ Verizon Wireless Reply Comments at 7.

contends that equipment has not yet been deployed for monitoring whether location determination systems are down and urges that loss of the ability to call back a caller (*e.g.*, loss of ANI) or to automatically locate users (*e.g.*, loss of ALI) should not be regarded as reportable 911-outages.¹⁹⁴

62. In its reply comments, NENA¹⁹⁵ states, “Several industry commenters suggested that loss of automatic number identification (“ANI”) and automatic location identification (“ALI”) should not be reportable, and they should not be considered “serious degradations” of 9-1-1 service. We disagree. Loss of these critical and essential components of E9-1-1 should be reported to PSAPs on a timely basis, as proposed by the FCC for wireline, wireless and cable, and should be tracked in outage reporting so potential issues/problems can be identified.”¹⁹⁶ In addition, NENA states, “We agree with the FCC 30-minute outage reporting standard, with the suggestion that it have a threshold of 100 customers.”¹⁹⁷ NENA also rebutted the view of several commenters that “many” PSAPs do not have E911, stating that less than 10% of the counties do not have E911. BellSouth points to certain differences in its alternative 911 proposal from the alternative proposed by others. BellSouth asserts that the loss of 911 call processing capabilities in a 911 tandem defines a reportable event (and not the loss of *all* call processing capabilities in such a tandem). BellSouth also proposes a minimum reporting-threshold of 100 customers for those 911 outages that last at least six hours.¹⁹⁸ MCI urges the Commission not to change its reporting thresholds for 911 until after the NRIC VII completes its work.¹⁹⁹ Southern LINC and Southern Telecom reiterate Sprint’s comment that wireless carriers do not control the end-to-end elements of a 911 call.²⁰⁰ Nextel and ATIS oppose the alternative proposal of The City of New York, National League of Cities and NATOA to require 911 outages of duration 15 minutes or longer to be reported.²⁰¹

63. Twelve commenting parties assert that the proposal to require that all outages that affect any airport be reported is overly broad.²⁰² They instead urge that only outages that affect small, medium or large hubs (as defined by the FAA) and that are “air traffic impacting” should be reportable. USCC states that only outages at airports of a reasonable size should be reportable.²⁰³ Verizon states that wireless carriers should not have to report outages at airports because they do not have dedicated access lines assigned to airport towers and airport security offices.²⁰⁴

64. *Discussion.* Based on the record before us, we conclude that some revisions to our proposed 911/E911 outage-reporting criteria are justified. We adopt the following threshold criteria for reporting 911/E911 outages for wireline and non-wireline operations:

¹⁹⁴ CTIA Reply Comments at 13.

¹⁹⁵ “NENA” is an acronym for the National Emergency Number Association. NENA Reply Comments at 1.

¹⁹⁶ *Id.* at 2.

¹⁹⁷ *Id.*

¹⁹⁸ BellSouth Reply Comments at 20, 21.

¹⁹⁹ MCI Reply Comments at 8. See also CTIA Reply Comments at 13.

²⁰⁰ Southern LINC and Southern Telecom Reply Comments at 6. See Sprint Comments at 26.

²⁰¹ Nextel Reply Comments at 8-9; ATIS Reply Comments at 21-22 (reiterating its alternative proposal).

²⁰² USTA Comments at 12; GCI Comments at 6; MCI Comments at 8-9; Verizon Comments at 15-16; BellSouth Comments at 14-15; AT&T Comments at 18; SBC Comments at 11-12; Sprint Comments at 12-13; Qwest Comments at 15-16; ATIS Comments at 25. See also MCI Reply Comments at 6; Qwest Reply Comments at 8; ATIS Reply Comments at 24; USCC Reply Comments at 7; Verizon Wireless Reply Comments at 9.

²⁰³ USCC Reply Comments at 7.

²⁰⁴ Verizon Wireless Reply Comments at 9.

- (1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: (a) the failure is neither at the PSAP(s) nor on the premises of the PSAP(s); (b) no reroute for all end users was available; and (c) the outage lasts 30 minutes or more; or
- (2) There is a loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes duration; or
- (3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or
- (4) There is a loss of ANI/ALI and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or the necessary location determination equipment was then currently deployed and in use, and the failure is neither at the PSAP(s) or on the premises of the PSAP(s)).²⁰⁵

In taking this action, we have applied the 900,000 user-minute threshold as a substitute for the 30,000 customer threshold proposed by commenting parties in order to maintain consistency with the general threshold that we have adopted. We also adopted BellSouth's suggestion to specify that it is the loss of "911 call processing capabilities" in E-911 tandem/selective routers, and not the loss "all call processing capabilities," that is the gist of this reportable event. In addition, we are persuaded by NENA's comments that ANI/ALI (callback and location identification) functionality is a fundamental part of E911 service whose loss should be considered to be a reportable event. ANI/ALI functionality or its loss can make, and has made, the difference between life and death, even in situations in which voice 911 calls were completed.²⁰⁶ We understand that communications providers will not necessarily know whether the PSAP(s) receive 911/E911 communications. Therefore, the providers' responsibility is to report outages that meet the threshold criteria and that potentially affect their ability to transmit 911/E911 communications to the PSAP(s). We will not hold providers accountable for determining whether their transmissions were in fact received by the PSAP(s). For this reason, we are excluding outages caused by "failures at the PSAP(s) or on the premises of the PSAP(s)." We disagree with the contention that some of the threshold criteria should be limited to only those outages that are caused by a failure in the reporting communications provider's network. We find that it is vitally important that we be informed of all significant outages that affect PSAPs, regardless of the network(s) in which the underlying causal factors lie. This information is crucial to gleaning more quickly a fuller understanding of how outages in a network affect other networks. This is especially so where PSAPs are affected, because of their major role in protecting public safety and human lives. We also disagree with the contention that the Commission should defer addressing outage reporting requirements for E911 until the completion of NRIC VII's study of the issue, at the end of 2005.²⁰⁷ We find that the public's interest in reliable and secure public safety E911 telecommunications is better served by our acting promptly.

65. We are persuaded that our original proposal to include as special facilities all airports, including those small private airports that lack modern air traffic control communications infrastructure, may be overly inclusive. Instead, we shall limit the reporting requirement to those airports that are listed

²⁰⁵ We acknowledge that there are various places where these features are not yet available. Nonetheless, the general public is relying increasingly on them, and the loss of these features (where they are currently available) could be life threatening. We also are skeptical of the assertion that some communications providers are unaware of when location determination equipment is down.

²⁰⁶ See, e.g., <http://www.nena.org/Wireless911/Tragedies.htm> (visited July 21, 2004).

²⁰⁷ Sprint Comments at 13; AT&T Comments at 20; ATIS Comments at 29.

as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage) for the following reasons. There are over 19,000 airports in the United States. Most of those airports are civilian landing areas that are not open to the general public. That leaves a total of 5,314 airports open to the public. Of those airports, there is a list of (currently) 3,489 airports listed in the current NPIAS plan²⁰⁸ as airports that are "significant to national air transportation."²⁰⁹ These airports are categorized as primary (PR), commercial (CM), reliever (RL), and general aviation (GA). There are currently 422 PR, 124 CM, 260 RL, and 2558 GA airports. Commercial airports are airports that receive scheduled passenger service and enplane at least 2,500 passengers per year. Of the primary airports, 142 are hubs.²¹⁰ A hub is a commercial airport that individually enplanes at least .05% of the total U.S. customer volume per year. All hub airports will be covered by our outage reporting requirements. We also find that the primary non-hub airports, which are commercial airports that enplane over 10,000 passengers per year, should be covered by these requirements. Similarly, we are including reliever airports, which are airports that are used as alternatives for congested hubs, as well as providing general aviation service to the surrounding area. In contrast we will exclude at this point general aviation airports, which are the airports that do not receive scheduled commercial service. In sum, 806 airports – the 422 primary airports including all hubs, the 124 commercial service airports, and the 260 reliever airports that are used as alternative airports for congested hubs – will now be covered by the revised outage-reporting requirements for special facilities that we are adopting herein.²¹¹

66. As commenting parties have pointed out, the critical communications infrastructure serving airports is landline based. Therefore, the outage-reporting requirements for special offices and facilities, insofar as they cover communications to airports, will not be applied to satellite and terrestrial wireless communications providers at this time.

C. Further Notice of Proposed Rule Making (Airports)

67. Potentially, all of the airports in the United States may need to be used by aircraft for emergency landings. The potential loss life or property through commercial aircraft crashes can be catastrophic. The need for communications among non-commercial (as well as commercial) airports and the rest of the United States becomes more apparent in the contexts of general aviation and government aviation in which many non-commercial planes carry, for example, personnel who are essential to national defense and homeland security, as well as government officials from Federal, state, local, and foreign governments. Moreover, all of the airports in the United States are potential launching pads for terrorist activities. As a consequence, it is essential that all personnel at airports throughout the United States be able to access appropriate government and civilian personnel to avert acts of terrorism. Finally, commercial communications links are used by airports to support navigation, traffic control, maintenance,

²⁰⁸ NPIAS compiles a list of airports it feels should be eligible for Airport Improvement Program (AIP) grants. It does a study every five years and puts together a five-year plan for those airports. The current plan covers the years 2001-2005. See <http://www.faa.gov/arp/planning/npias/npias2001/appenda/NPIAS01A.pdf> for the list of airports.

²⁰⁹ <http://www.faa.gov/arp/planning/npias/index.cfm?ARPnav=npias>.

²¹⁰ These are divided into 31 large, 37 medium, and 74 small hubs. A medium hub enplanes .25% to 1% and a large hub enplanes at least 1%. The FAA provides public access to descriptions of these airports in its website, which may be accessed at <http://www.faa.gov/arp/planning/npias/npias2001/npias01r.pdf> at 5.

²¹¹ Although we believe that all communications providers will be able to adapt fairly easily to the inclusion of these airports within the outage-reporting requirements for special offices and facilities, we recognize that in some cases small rural communications providers might not be able to comply with the revised rule. In such cases, we anticipate granting appropriate waivers of this rule to providers that file a written request for waiver of the rule that is supported with clear and convincing evidence of the need for such a waiver.

and restoration. Those commercial communications links need to be functioning continuously. We find, however, that the record in this proceeding does not support further extending outage reporting requirements in this area. As a consequence, we are initiating this *Further Notice of Proposed Rule Making* to expand the record in this proceeding to focus specifically on the unique communications needs of airports. In this regard, we request comment on the additional types of airport communications (e.g., wireless, satellite) that should be subject to service disruption reports. This may include, for example, communications that are provided by ARINC as well as commercial communications (e.g., air-to-ground and ground-to-air telephone communications) as well as intra-airline commercial links. We also seek comment on whether the outage-reporting requirements for special facilities should be extended to cover general aviation airports and, if so, what the applicable threshold criteria should be.

D. Elimination of Separate Reporting Requirement for Fires

68. A separate reporting requirement, set forth in Section 63.100(d), pertains to the reporting of outages caused by fires. Carriers are required to report fire-related incidents that affect 1,000 or more service lines for a period of 30 minutes or more.²¹² Only a few outages have been reported pursuant to this subsection and these have tended to be very minor outages. In general, major fire outages have met the more general reporting criteria because they exceed the current 30-minute, 30,000-customer threshold criteria. Such outages would also exceed the proposed 900,000 user-minute threshold criterion. Thus, we tentatively concluded that retention of separate outage reporting criteria for fire-related incidents was an unnecessary complication for reporting carriers that does not provide any significant benefit to the Commission or to the public. We therefore proposed to eliminate this requirement. We sought comment on this conclusion and our proposed elimination of this rule. Commenting parties unanimously support elimination of this rule for the reasons that we advanced in the *Notice*. We therefore conclude that the separate reporting requirement for outages caused by fires no longer serves the public interest and rescind that requirement.

E. Simplified Time Calculation for Filing Initial Report

69. *Proposal.* An initial outage report is required to contain contact information so that additional information can be obtained if necessary. Initial reports are helpful in determining whether an immediate response is required (e.g., terrorist attacks or systemic failures) and whether patterns of outages are emerging (e.g., phased terrorist attacks) that warrant further coordination or other action.²¹³

70. Section 63.100 of our rules currently distinguishes between how quickly outages, of at least 30 minutes duration, are required to be reported, based on whether the number of customers potentially affected meets or exceeds a threshold criterion of 50,000. If this secondary threshold is exceeded, the carrier's initial report must be made "by facsimile or other record means delivered within 120 minutes of the carrier's first knowledge. . . ."²¹⁴ Otherwise, when such outages potentially affect less

²¹² Section 63.100(d) of the Commission's Rules, 47 C.F.R. § 63.100(d).

²¹³ The initial service disruption report "shall identify a contact person who can provide further information, the telephone number at which the contact person can be reached, and what information is known at the time about the service outage.... [I]ack of any of the above information shall not delay the filing of this report." Section 63.100(b) of the Commission's Rules, 47 C.F.R. § 63.100 (b). Final service disruption reports, which are due not later than thirty days from the date of the outage, shall provide "all available information on the service outage, including any information not contained in [the] Initial Service Disruption Report and detailing specifically the root cause of the outage and listing and evaluating the effectiveness and application in the immediate case of any best practices or industry standards identified by the Network Reliability Council to eliminate or ameliorate outages of the reported type." *Id.*

²¹⁴ Section 63.100(b) of the Commission's Rules, 47 C.F.R. § 63.100(b).

than 50,000 customers (but satisfy the primary threshold criterion of 30,000 customers), the initial notification must be delivered within “3 days of the carrier’s first knowledge.”²¹⁵ We tentatively found that this distinction complicates the outage reporting requirements without any off-setting benefit and, therefore, proposed to eliminate it.

71. The current rule requires that the filing be made “by facsimile or other record means.”²¹⁶ In the future, the ability to file initial reports electronically (*e.g.*, over the Internet), coupled with the “fill in the blank” template²¹⁷ that we proposed in the *Notice*, we tentatively concluded, should make it possible for communications providers to notify us more promptly, and more easily, when communications disruptions arise. We tentatively concluded that the improvements in filing requirements, as well as the electronic filing process that we proposed, should make it easy for communications providers to file initial disruption reports within 120 minutes of discovering a reportable outage. This, in turn, would facilitate more rapid action in the event of a serious crisis, and would also facilitate more rapid, more coherent, and more accurate responses whenever multiple outages were to occur during simultaneous (or virtually coincident) crises. We therefore proposed to require all initial outage reports to be filed electronically within 120 minutes of becoming reportable and all final outage reports to be filed within 30 days of the initial report. We sought comment on these conclusions and proposed requirements. We also sought comment as to whether, given the rapid response time that the Internet and circuit-switched telephony (*e.g.*, dial-up modems) enable, we should require the filing of initial outage reports over the Internet within a shorter period of time than the 120-minute period discussed above.

72. *Comments.* Many commenting parties object to the proposed 120 minute window for providing an initial report.²¹⁸ For example, Verizon states:

[i]ronically, the Commission’s proposal to require a detailed initial report in 120 minutes would have the perverse effect of delaying future restoration efforts, because it would require telecommunications companies to divert resources to immediate reporting of outages rather than restoring service to their customers.²¹⁹

Currently, initial reports for outages potentially affecting at least 50,000 customers for at least 30 minutes must be submitted within 120 minutes – hence, the 120-minute time frame for initial reports has been used, successfully, for more than 10 years and cannot now be regarded as unrealistic. Instead, the underlying argument appears to be that our proposed report template would divert resources by requiring initial reports to contain “detailed” information, with all data fields completed. For example, the Rural ILECs state that the 120-minute threshold would be unrealistic because it would take 5 hours to complete the initial outage report.²²⁰ PanAmSat and SES Americom recommend that we clarify that the data for

²¹⁵ Section 63.100(c) of the Commission's Rules, 47 C.F.R. § 63.100(c). This distinction between how quickly outages must be reported is a historical vestige of how the original reporting criteria were developed. See Network Reliability: A Report to the Nation – Compendium of Presentations, Section I (NRC, June 1993) at 3.

²¹⁶ Section 63.100(b) of the Commission's Rules, 47 C.F.R. § 63.100(b).

²¹⁷ See *Notice, supra*, note 1, Appendix C for the template that we proposed for Internet reporting of outages by communications providers.

²¹⁸ BloostanLaw Rural Carriers Comments at 2; Sprint Comments at 18; Qwest Comments at 9; BloostanLaw Paging Group Comments at 7; Rural ILECs Comments at 3; Verizon Comments at 6; ITTA Comments at 3; T-Mobile Comments at 19; CTIA Comments at 15; GCI Comments at 5; Cingular Comments at 17.

²¹⁹ Verizon Comments at 6.

²²⁰ Rural ILECs Comments at 6.

many fields would be unknown and therefore the corresponding field can be left blank on initial reports that are submitted 120 minutes after an outage becomes reportable.²²¹ There are several alternative suggestions for the timing of initial reports: Rural ILECs suggest that outages be reported orally within 24 hours;²²² GCI suggests that initial reports be submitted within 24 hours;²²³ BloostonLaw Rural Carriers suggest within 2 days;²²⁴ Blooston Law Paging Group suggests semiannually or annually;²²⁵ T-Mobile, Cingular and CTIA suggest 72 hours (unless the template were simplified).²²⁶ T-Mobile suggests that the template for the initial report be simpler than the template for the final report.²²⁷ In addition, BloostonLaw Rural Carriers suggest that final reports be due in 60 days (as opposed to the currently required 30 days).²²⁸

73. Many commenting parties²²⁹ suggest, instead of the existing two-step process of filing initial and final reports, that we adopt variations of the following 3-step process:

1. *Notification.* The first step - notification - would be required on all outages believed to be reportable in accordance with the Commission's rules. Notification would have to occur within two hours of carrier knowledge and could be made through electronic filing, telephone or facsimile, with electronic filing being the preferred method. The notification should require minimal information (*i.e.*, Reporting Entity, Date, Time, Brief Description of Problem, Services Affected, Geographic Area, Contact Name, and Contact Number).

This notification step will serve to notify the Commission that a major event has occurred and would assist in determining whether an immediate response is required and whether patterns of outages are emerging that might warrant further coordination or other action. The addition of this step also would allow the Commission to be informed without interfering with the restoration process. In addition, by providing contact information as part of the initial notification, the Commission would be able to contact the carrier for additional information, if necessary. Thus, notification as described above, would serve the Commission's essential national security needs without unduly burdening providers.

2. *Initial Report.* The second step, after notification, would be the submission of the initial report within 72 hours of the notification. Setting the filing deadline for the initial report at 72 hours is reasonable given that it allows the provider the time necessary to gather more complete information. The initial outage report would be mandatory and would include information more detailed than contained in the notification (*e.g.*, the extent of the incident, causes if known)...A provider would be required to follow up each

²²¹ PanAmSat and SES Americom Joint Comments at 7.

²²² Rural ILECs Comments at 3.

²²³ GCI Comments at 5.

²²⁴ BloostonLaw Rural Carriers Comments at 5.

²²⁵ BloostonLaw Paging Group Comments at 8.

²²⁶ T-Mobile Comments at 20; CTIA Comments at 15; Cingular Comments at 17.

²²⁷ T-Mobile Comments at 20.

²²⁸ BloostonLaw Rural Carriers Comments at 2.

²²⁹ Qwest Comments at 21; USTA Comments at 14; Verizon Comments at 8; SBC Comments at 17; AT&T Comments at 24; ATIS Comments at 30.

notification with either an initial outage report or retraction of a notification. This option would allow a provider to retract any inaccurate notification without having to submit a formal retraction letter.

3. *Final Outage Report.* The final outage report would be due within 30 days of the event and would provide all information about the event, its causes, and resolution, as required in the proposed reporting template. Similar to the current outage reporting process, the final report would include an attestation.²³⁰

74. In their reply comments, Qwest, MCI and ATIS support the three-step reporting proposal outlined above.²³¹ In addition, Qwest supports BellSouth's recommendation that the notification provide the following limited amount of information: "Reporting Entity, Date, Time, Brief Description of Problem, Services Affected, Geographic Area, Contact Name and Contact Number."²³² Verizon and USCC support the alternatively proposed 72-hour time frame for filing the initial report.²³³ Southern LINC and Southern Telecom state that our proposed 120-minute time frame is not enough time to file an initial outage report.²³⁴

75. *Discussion.* We are persuaded that the three-step approach suggested by various commenting parties would best provide the information that we need in an efficient and timely manner. Notification within two hours of the provider's first knowledge of the outage will alert the Commission and DHS that a significant outage might be underway and will also provide some essential initial information (e.g., who to contact if more information were required in order to proceed further) if it is necessary to proceed further. This will also not impose any significant burden on the provider's restorative efforts. Efficient, electronic, Web-based filing, using a "fill-in-the-blank" template will be the preferred method of notification, but since there cannot be a guarantee that any particular method of communications would be operating normally, other written alternatives (e.g., FAX, courier) would be equally acceptable. We adopt the BellSouth/Qwest proposal that the following items -- Reporting Entity, Date, Time, Brief Description of Problem, Services Affected, Geographic Area, Contact Name and Contact Telephone Number be included in the notification. At the three-day (72-hour) mark, the initial report would be due. The data contained in the initial report would tend to be more complete and accurate than those that are filed at the two-hour mark under our current reporting rule. It may be the case, as PanAmSat and SES Americom suggest, that varying amounts of information will be available at the three-day mark from one outage to another and, thus, that not all data fields in every initial outage report will be able to be completed on time. We understand this but expect that reporting providers will exercise good faith in filling out the initial report as completely as possible. As a result, use of the same template for initial and final reports will enable reporting entities to submit all available information in the initial report and re-use that information in the final report to the extent that it is still accurate. Attestation will be required for the final report only.²³⁵

²³⁰ BellSouth Comments at 19.

²³¹ Qwest Reply Comments at 9; MCI Reply Comments at 8; ATIS Reply Comments at 23.

²³² Qwest Reply Comments at 10.

²³³ Verizon Wireless Reply Comments at 8; USCC Reply Comments at 7.

²³⁴ Southern LINC and Southern Telecom Reply Comments at 7.

²³⁵ The attestation requirement is contained in Section 4.11 of our rules. See Appendix B, Section 4.11, *infra*. For a thorough discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

F. Other

76. Our experience in administering Section 63.100 has enabled us to understand more completely other aspects of the existing reporting requirements that should be revised. As a consequence, we tentatively found that existing requirements for final disruption reports should be modified to include the following information:

- A statement as to whether the reported outage was at least partially caused because the network did not follow engineering standards for full diversity (redundancy),²³⁶ and
- A statement of all of the causes of the outage. Outages may result from the occurrence of several events. The current rule requires that the final report identify the root cause.²³⁷ Experience in administering this part of our rules has convinced us that there may be more than one root cause and that, to facilitate analysis, all causes of each outage should be reported.

In addition, as the communications market evolves, we anticipated that communications may increasingly be offered through complex arrangements among communications providers and other entities (which may or may not be affiliated with the provider) that maintain or provide communications networks or services for them. For example, local exchange carriers have long provided Signaling System 7 (“SS7”) communications for their own use as well as for their customers, but some entities have more recently emerged to provide SS7 for such carriers. We proposed to require these entities to comply with any disruption reporting requirements that we may adopt to the same extent as would be required of the communications provider if it were directly providing the voice or data communications or maintaining the system. We sought comment on these proposals.

77. *Comments.* Several commenting parties object to inclusion of a statement (checkbox) in every outage report as to whether absence of diversity was the cause or a partial cause of the outage.²³⁸ For example, Qwest states:

It would require an additional statement regarding whether the outage was at least partially caused because the network did not follow engineering standards for full diversity (redundancy), as well as a statement of all the causes of the outage, instead of just a root cause, as currently required. These proposed new requirements are also unnecessary. The Commission’s current rules require that Final Reports contain a statement regarding whether or not best practices could have avoided an outage,

²³⁶ Diversity refers to the deployment and operation of redundant assets (*e.g.*, transmission facilities, network equipment, or logical paths) to achieve survivable communications in the event of a failure. Diversity requirements are specified in applicable industry standards and best practices, *see, e.g.*, the following requirements for Signaling System 7 networks: ANSI T1.111-2001 Signaling System No. 7, Message Transfer Part; ATIS/NIIF-5001 Network Interconnection Interoperability Forum Reference Document – March 2004 – Issue 6.1; GR-246-CORE, Telcordia Technologies Specification of Signaling System Number 7 (SS7); and GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP) and Integrated Services Digital Network User Part (ISUP). Full diversity encompasses electronic, logical, optical, and physical diversity.

²³⁷ 47 C.F.R. § 63.100(h) (1).

²³⁸ Sprint Comments at 19; Qwest Comments at 26; Syniverse Comments at 5; USTA Comments at 16; SBC Comments at 18; AT&T Comments at 26; Iridium Comments at 7; ATIS Comments at 36.

including best practices for diversity/redundancy capabilities. Thus, the current rule already adequately encompasses diversity/redundancy. This is all the more true since a change from reporting based on best practices to one based on engineering standards is impossible to implement. There currently are no engineering standards in the industry regarding diversity/redundancy. Accordingly, the proposed new rule would be impossible to comply with.²³⁹

Several commenting parties urge that there can be only one root cause for any outage and that, therefore, the final report should require the listing of only one root cause, although there can be many other contributing factors.²⁴⁰

78. Regarding our proposal to extend outage reporting requirements to third party entities that maintain or provide communications networks or services for covered communications providers, Ericsson states that, in the case of terrestrial wireless communications, only wireless service licensees should be required to report outages.²⁴¹ Ericsson recognizes that any licensee may contract with an unrelated third party to perform services for the licensee, but it observes that licensees have always borne ultimate responsibility to the Commission for controlling the operation of their networks. It notes that if the unrelated third party fails to provide the necessary outage information to the licensee, the licensee may seek its recourse under its service agreement with the third party.²⁴² Finally, Ericsson suggests that by extending the outage-reporting requirement to non-licensees, the quality of outage information that the Commission will receive could be lessened, because the Commission will lose the opportunity to rely on the licensee's special duty to be honest with the Commission.²⁴³ Syniverse suggests that third-party providers of signaling be afforded reporting requirements that better reflect how SS7 signaling services are provisioned.²⁴⁴ It suggests that service level agreements negotiated between third-party SS7 signaling providers and carriers would contain provisions outlining the respective outage reporting obligations and service resolution obligations of the SS7 signaling provider and the carrier. Syniverse asserts that the Commission should rely on the parties' performance pursuant to the service level agreement in order to be assured of more accurate reporting and quicker service resolution. KCC appears to support Syniverse's alternative proposal.²⁴⁵ KCC recognizes that SS7 providers "may have first hand knowledge of service-affecting disruptions and may be able to provide more detail as to cause and circumstances leading up to an interruption. However, jurisdictional issues may complicate the [Commission's] and/or various state commissions' authority in this area."²⁴⁶ KCC therefore suggests that the outage reporting requirements remain with the certificated service provider.²⁴⁷ Although a service provider may by contract outsource certain services, KCC asserts that the certificated service provider always remains ultimately responsible for providing the service and is held accountable to its end users.

²³⁹ Qwest Comments at 26. *But see supra* note 236.

²⁴⁰ Sprint Comments at 20; Qwest Comments at 27; SBC Comments at 18; AT&T Comments at 26; Iridium Comments at 7; ATIS Comments at 36.

²⁴¹ Ericsson Comments at 3-5.

²⁴² *Id.* at 3 n.5.

²⁴³ *Id.* at 5.

²⁴⁴ Syniverse Comments at 2-5.

²⁴⁵ KCC Comments at 4.

²⁴⁶ *Id.*

²⁴⁷ *Id.*

79. BellSouth, on the other hand, supports the Commission's proposed extension of outage-reporting requirements to all providers of SS7 service.²⁴⁸ It states that "[b]ecause SS7 outages have the potential to affect large numbers of end users and can have a large impact on the reliability and availability of the public switched telephone network, it is reasonable to require disruption reporting for SS7 service from all SS7 providers."²⁴⁹ AT&T states that third party entities providing SS7 service should be subject to the same final reporting guidelines as carriers.²⁵⁰ In its reply comments, Verisign asserts that third party SS7 providers should not have to report because they do not know the impact of the outages.²⁵¹

80. *Discussion.* We find that the public interest will be best served by requiring that final outage reports identify whether the outage was at least partially caused because the network did not follow engineering standards for full diversity (redundancy).²⁵² In an era in which networks are increasingly interconnected and in which there is heightened concerns that a failure of one network could conceivably cause the failure of other, interconnected networks, we find it important to facilitate analysis of the extent to which lack of diversity causes significant network outages. To analyze the text fields of existing outage reports manually for variations from best practices and for lack of diversity would be a very time consuming task. If past outage reports had contained a checkbox for identifying a lack of diversity, those analyses could have been readily done. In any event, we deem it important to discover if increased diversity would appreciably prevent the occurrences of outages. Therefore, we conclude that the outage template should, as proposed, include a checkbox for diversity. In general, if Best Practices related to diversity are discussed in any of the Best Practice fields or if lack of diversity is listed as a root cause or contributing factor to the outage, then the diversity checkbox must also be checked. In addition, we have been persuaded by those comments²⁵³ that assert that each outage has only a single root cause but may have many contributing factors. Accordingly, reporting entities will be required to reveal in the final outage report the root cause of the outage and several contributing factors (if any) to the outage.

81. Regarding outage reporting by third party entities that maintain or provide communications networks or services for covered communications providers, we adopt our proposal. We point out that equipment manufacturers or vendors that do not maintain or provide such networks or services will not be subject to outage-reporting requirements. As BellSouth cogently observes: "SS7 outages have the potential to affect large numbers of end users and can have a large impact on the reliability and availability of the public switched telephone network" and therefore "it is reasonable to require disruption reporting for SS7 service from all SS7 providers."²⁵⁴ Although, as Syniverse, KCC, and Ericsson observe, third party entities and communications providers should fully cooperate in assembling outage report data and in restoration efforts, we do not deem it advisable to countenance any delay that could result from these coordination efforts or from any emerging contractual disputes among the parties with respect to their service agreements. The outage reporting requirements we are adopting

²⁴⁸ BellSouth Comments at 25-26.

²⁴⁹ BellSouth Comments at 25. BellSouth also proposes alternative threshold criteria for SS7 outage reporting. *Id.* at 26. This proposal will be addressed below in the section where we discuss our proposal for SS7 reporting.

²⁵⁰ AT&T Comments at 23-24.

²⁵¹ Verisign Reply Comments at 1.

²⁵² We find Qwest's assertion (Comments at 26) that there "currently are no engineering standards in the industry regarding diversity/redundancy" to be inconsistent with existing standards in the telecommunications industry. *See, e.g., supra* note 237 (list of several applicable standards).

²⁵³ ATIS Comments at 36, SBC Comments at 18, AT&T Comments at 26.

²⁵⁴ BellSouth Comments at 25.

serve not only the general, long-term interests of network reliability and security, and potential resultant improvements in customer service, but also the overarching need to obtain rapidly and accurately outage data that could serve the vital interests of homeland security. Our proposal better serves those vital interests and we therefore adopt it.

IV. Outage Reporting Requirements for Wireline Communications

A. Voice Telephony

82. In the *Notice*, we used the term “wireline provider” to refer to an entity that provides terrestrial communications through direct connectivity, predominantly by wire, coaxial cable, or optical fiber, between the serving central office (as defined in the glossary to Part 36 of the Commission’s Rules)²⁵⁵ and end user location(s).²⁵⁶ We proposed to require wireline providers to report outages that meet the following criteria:

- The outage duration must be at least 30 minutes; *and*
- The number of “user-minutes” potentially affected must equal or exceed 900,000.

83. For telephony, we proposed to define the number of end users as the number of “assigned telephone numbers,” by which we mean the sum of “assigned numbers” and “administrative numbers” as defined in Section 52.15(f)(i) and (iii) of the Commission’s Rules.²⁵⁷ Assigned numbers are defined as “numbers working in the Public Switched Telephone Network (“PSTN”) under an agreement such as a contract or tariff at the request of specific end users or customers for their use, or numbers not yet working but having a customer service order pending.”²⁵⁸ Administrative numbers are “numbers used by telecommunications carriers to perform internal administrative or operational functions necessary to maintain reasonable quality of service standards.”²⁵⁹ We tentatively concluded that the combination of these two measurements would provide a better assessment of the number of users that are potentially affected by the communications disruption, as distinguished from the number of “customers” that may be potentially affected.²⁶⁰

84. *Comments.* The City of New York, the National League of Cities, and the National Association of Telecommunications Advisors, the Connecticut Department of Public Utility Control, and the eCommerce and Telecommunications Users Group support our proposal to use a common metric.²⁶¹ ATIS and several other commenting parties argue that the use of blocked calls, or access lines, are much better indicators of the impact of an outage than the number of assigned telephone numbers potentially

²⁵⁵ 47 C.F.R. Part 36, Appendix-Glossary.

²⁵⁶ Wireline communications may also be augmented through the use of micro-wave links and other links that use other radio frequencies. It is our intention to include these fixed service technologies with the other wireline technologies described above.

²⁵⁷ 47 C.F.R. § 52.15(f) (i), (iii).

²⁵⁸ 47 C.F.R. § 52.15(f) (iii). That subsection also states “[n]umbers that are not yet working and have a service order pending for more than five days shall not be classified as assigned numbers.”

²⁵⁹ 47 C.F.R. § 52.15(f) (i).

²⁶⁰ See *supra* ¶¶ 20-23.

²⁶¹ City of New York *et al.* Joint Comments at 2; CDPUC Comments at 3; eTUG Reply Comments at 1, 5.

affected.²⁶² In cases where the number of blocked calls is unavailable, they suggest that the outage-reporting threshold criteria should be based on the number of "lines in service" potentially affected:

For those communications providers that have the ability to use blocked call counts, ATIS proposes an outage be reported if it: (1) lasts for thirty (30) or more minutes; (2) generates 90,000 blocked calls based on real-time traffic data; and (3) involves a survivable element. If real-time traffic data is unavailable, then a communications provider would report an outage if it: (1) lasts for thirty (30) or more minutes; (2) affects 30,000 calls based on historic traffic data; and (3) involves a survivable element. Finally, for those communications providers that do not have the ability to identify blocked call data, a different threshold would be used. For these providers, an outage would be reportable if it: (1) lasts for thirty (30) or more minutes and affects 30,000 or more "lines in service," or lasts for at least six hours and affects 30,000 or fewer "lines in service"; and (2) involves a survivable element.²⁶³

85. Commenting parties have come up with a number of different names for the connection between the serving central office and end user locations, such as access lines,²⁶⁴ lines in service,²⁶⁵ customer lines,²⁶⁶ and affected lines.²⁶⁷ They assert that the use of assigned telephone numbers would result in an over counting of the number of end users affected by outages.²⁶⁸ ATIS also claims that the NRUF²⁶⁹ reports "do not reflect working telephone lines" while other commenting parties claim various problems with the NRUF reports.²⁷⁰ In addition, ATIS points out that the proposed reporting scheme may generate more outage reports. Also, ATIS asserts that, for an outage to be reportable, it must involve the failure of a "survivable element," which it defines as "switching or transmission equipment that has active redundant capability." ATIS²⁷¹ and others commenting parties also define "survivable element" as a host or remote switch. USTA²⁷² takes this one step further and states that "in order to qualify as an outage, the failure must be associated with the failure of a network element (i.e. switch, transport, power) and that feeder cables or non-intelligent elements be exempt." Finally, ATIS²⁷³ and others assert that the NRUF

²⁶² See, e.g., ATIS Comments at 16; Bell South Comments at 6.

²⁶³ ATIS Comments at 16; SBC Comments at 6-7; BellSouth Comments at 11; USTA Comments at 10.

²⁶⁴ ATIS Comments at 17; BellSouth Comments at 6; ITTA Comments at 5; Qwest Comments at 6; SBC Comments at 5; and USTA Comments at 6, 7, 9, and 17.

²⁶⁵ ATIS Comments at 16; Qwest Comments at 6; SBC Comments at 6; and Verizon Comments at 3 and 9.

²⁶⁶ ATIS Comments at 17.

²⁶⁷ Verizon Comments at 11.

²⁶⁸ ATIS Comments at 13, 17, and 18; BellSouth Comments at 7; MCI Comments at 2; Qwest Comments at 7; SBC Comments at 4 and 5; USTA Comments at 8; Verizon Comments at 9.

²⁶⁹ NRUF is a contracted acronym that the telecommunications industry has developed under the Industry Numbering Committee (INC) to assist carriers in implementing Section 52.15 (47 C.F.R. § 52.15) of the Commission's telephone numbering rules. Its full title is "North American Numbering Plan Numbering Resource Utilization/Forecast Reporting (NRUF) Guidelines." The latest edition of these guidelines was issued by ATIS on March 23, 2004, and is identified as INC 00-0619-0.

²⁷⁰ AT&T Comments at 12; ATIS Comments at 13; AT&T Comments at 12; BellSouth Comments at 7-10; Verizon Comments at 10.

²⁷¹ ATIS Comments at 18.

²⁷² USTA Comments at 10.

²⁷³ ATIS Comments at 13.

data that would be needed to determine the number of assigned telephone numbers potentially affected by outages can be outdated by six months and is cumbersome and time-consuming to use.

86. *Discussion.* We agree with a number of commenting parties that our proposed use of assigned telephone numbers as a count of *potentially* affected wireline end users could result in a small over counting, which might unnecessarily increase the number of reports. Hence we will revise our requirement to include assigned telephoned number *or* working telephone numbers, where working telephone numbers refer to telephone numbers that have been assigned and provisioned for service.²⁷⁴ Working telephone numbers include direct inward dialing (“DID”) telephone numbers assigned to PBX and Centrex customers. Service providers may be aware of working telephone numbers to support their billing and operations processes and, if so, may use working telephone numbers in place of assigned telephone numbers. If the working telephone numbers are unknown for any reason, assigned telephone numbers must be used.

87. Blocked calls, which were proposed as an alternative by a number of commenting parties, measure the actual impact, not the potential impact, of an outage. Our concern is to identify problem areas in the network by receiving reports on events that, if they had occurred at a different time or on a different day of the week, could have affected many users. We are not interested primarily in a tally of the exact number of users that were affected because we have not, and do not currently intend to rank or rate outage reports based on their actual impact on end users.

88. Furthermore, as discussed more fully above,²⁷⁵ the use of blocked calls as a reporting criterion would result in a significant undercounting of the number of end users *potentially* affected by outages.²⁷⁶ We find that the use of “access lines in service” or any of the other types of lines mentioned in the comments would suffer from the same flaw primarily because there are no useful definitions on the record for any of those terms. A Verizon e-mail, dated June 11, 2004,²⁷⁷ clearly illustrates problems in the use of “access lines” in that many connections among end users and their serving central office are not being counted. The Verizon e-mail explained that an outage of a switch, which serves approximately 190,000 working telephone numbers, was not reported because Verizon had determined that less than 28,000 “access lines” were potentially affected. Verizon also explained that its definition of “access line” includes switch line-side connections only, and excludes all of the trunk-side connections that serve its multi-line business and PBX customers. By contrast, if Verizon had counted the end users in the manner that we are requiring,²⁷⁸ it should have been clear that the outage caused by the switch failure would have had to be reported.²⁷⁸

²⁷⁴ To be more specific, “working telephone numbers” are defined to be the sum of all telephone numbers that can originate, or terminate telecommunications. As a consequence, this would include, for example, all working telephone numbers on the customer’s side of a PBX or Centrex.

²⁷⁵ See *supra* ¶ 55.

²⁷⁶ We note that the number of blocked calls, which reflects the actual immediate impact of the outage, would continue to be included in the outage report. But it is the *potential* impact of an outage that is far more significant in triggering an outage report that can be used for identifying network problem areas that need to be addressed to prevent future outages. For this reason, measuring the potential impact of outages is simply the first step in helping us to determine if adequate facilities are being provided to serve communications for all of the people of the United States.

²⁷⁷ E-mail from Ann D. Berkowitz, Associate Director, Federal Regulatory Advocacy, Verizon to Whitey Thayer, Senior Engineer, F.C.C., Office of Engineering and Technology, June 11, 2004, 5:16 p.m.

²⁷⁸ As a more generalized example, a large PBX or Centrex with many users, working stations, and telephone numbers can be connected to a switch by a relatively small number of lines or trunks. Simply counting these lines or trunks would underestimate the number of potentially-affected end users. In fact, even counting telephone

(continued...)

89. We disagree with ATIS's assertions about inaccuracies and "out-datedness" of, and difficulties in using, NRUF data. ATIS's claim that the NRUF reports "do not reflect *working telephone lines*" is not apposite because the Commission's rules, which are also clearly set forth in the NRUF instructions, state that "assigned numbers are *numbers working* in the Public Switched Telephone Network."²⁷⁹ In addition, it is not clear what definition of "working" ATIS is using in reference to access lines. We emphasize that telephone switches are not designed to enable every telephone number that can be served by a switch to be actually served simultaneously, but every such number is *potentially affected* if the switch fails. Our rules and the NRUF guidelines clearly spell out the five mutually exclusive utilization categories in which telephone numbers are to be counted. These categories cover all of the various problem areas mentioned in the comments.

90. Similarly, ATIS and other's proposed requirement -- that a "survivable element" must fail in order for an outage to be reportable²⁸⁰ -- fails to account for the fact that end users are potentially affected by outages regardless of whether "survivable elements" fail. We take particular exception to the USTA comment²⁸¹ that outages should not be required to be reported if "non-intelligent elements" are involved regardless of the number of users affected. We stress that our concern is with the communications users, not with the intelligence or lack thereof in various network elements. As ATIS and others state, the adoption of our proposal could result in the filing of more outage reports than have been filed under the existing reporting threshold criteria. We do not believe that the number of such reports will dramatically increase, but the additional data will better enable the Commission to meet its responsibilities to facilitate increased reliability and security of our nation's telecommunications infrastructure.

91. Finally, we reject the assertions that it is difficult and cumbersome for wireline providers to use NRUF data to determine the number of assigned telephone numbers potentially affected by outages. The NRUF data is reported by rate center, and the individual utilization records in each rate center are reported by NPA, NXX, and the thousands digit of the telephone numbers. It is a simple, straight forward process for wireline providers to use the LERG²⁸² to sum up the utilization of all the numbers served by each switch to determine the total assigned numbers and administrative numbers. We note that none of the smaller carriers or their industry associations that submitted comments in this proceeding has raised any concern regarding their ability to track assigned and administrative numbers for each switch. All wireline carriers continuously keep track of assigned and administrative numbers so that an incoming call to any of those numbers can be switched to the correct line and trunk, so that they can respond to requests for new service or for specific vanity telephone numbers. As a consequence, we find that our proposal will best serve the public interest and, therefore, we adopt it.

B. IXC and LEC Tandem Outages

92. Section 63.100(g) states that, for the tandem facilities of interexchange or local exchange carriers, "carriers must, if technically possible, use real-time *blocked calls* to determine whether criteria

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numbers may underestimate the impact, particularly in the case of PBXs for which unique telephone numbers are not assigned to each end user.

²⁷⁹ 47 C.F.R. § 52.15 (f)(1)(iii) makes no reference to the number of "lines."

²⁸⁰ ATIS Comments at 16, SBC Comments at 6-7, BellSouth Comments at 11, USTA Comments at 10.

²⁸¹ USTA Comment at 10.

²⁸² LERG is an acronym for the Local Exchange Routing Guide, which is published by Telcordia and updated monthly.

for reporting an outage have been reached. Carriers must report IXC and LEC tandem outages . . . where more than 90,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold.”²⁸³ We proposed to modify this rule to replace the “customer” metric with the “assigned telephone number-minute” metric, in order to be consistent with the other modifications that we proposed. We also noted that the term “blocked calls” is not clearly defined in Section 63.100 and that some companies have counted only originating calls that are blocked, while other companies count both originating and terminating blocked calls. To eliminate this ambiguity and permit the Commission to gain an understanding of the full impact of each outage, as well as to promote consistent reporting by all carriers, we proposed to require that all blocked calls, regardless of whether they are in the originating or terminating direction, be counted in determining compliance with the outage reporting threshold criteria.

93. For those outages where the failure prevents the counting of blocked calls in either the originating or terminating direction, or in both directions, historical data may be used.²⁸⁴ We tentatively concluded that three times the actual number of carried calls for the same day of the week and the same time of day should be used as a surrogate for the number of blocked calls that could not be measured directly.²⁸⁵ We also clarified that “blocked calls” are a “running measurement” made for the total duration of the outage. That is, an outage that blocks only 50,000 calls in the first 30 minutes may nevertheless reach the 90,000 blocked-call threshold criterion if the outage lasts, for example, for one hour. In relatively rare cases, it may be possible to obtain the number of outgoing blocked calls only, or the number of incoming blocked calls only, but not both. For these cases, we proposed to require that the blocked-call count be doubled to compensate for the missing data, unless the carrier certifies that only one direction of the call set-up was affected by the outage. We sought comment on this proposed rule.

94. *Comments.* BellSouth and ATIS oppose what they categorize as our apparent shift away from using blocked calls for determining whether tandem outages are reportable.²⁸⁶ Sprint asserts that only the calls that are blocked in the first 30 minutes of an outage should be counted as blocked calls for purposes of triggering the requirement to file an outage report.²⁸⁷ Other commenting parties contend that our proposal has inaccurately categorized blocked calls as either “originating” or “terminating” and that it would be more appropriate to categorize blocked calls as either “outgoing” or “incoming.”²⁸⁸ Several

²⁸³ 47 C.F.R. § 63.100(g) (emphasis supplied). This subsection further provides that: “[c]arriers may use historical data to estimate blocked calls when required real-time blocked call counts are not possible. When using historical data, carriers must report incidents . . . where more than 30,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold.”

²⁸⁴ For example, if 70,000 calls were carried during the historical period, the assumption would be made for reporting purposes that 70,000 calls would have been carried during the outage.

²⁸⁵ The proposed multiplicand of three is based on the total number of times (three) that an average subscriber would attempt to redial a number after first not being able to complete a telephone call. *In the Matter of Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Second Report and Order*, 9 FCC Rcd 3911, 3914 at ¶ 14 (1994). Providers should use larger multiplicands for determining whether the outage should be reported if their experience has been that three is too small a number (*i.e.*, that their subscribers try, on average, to redial a number more frequently than three times after first not being able to complete a telephone call). Thus, if 70,000 calls were carried during the historical period, the assumption for reporting purposes would be that each of those calls would have been attempted three times, which means that 210,000 calls would have been blocked during the outage.

²⁸⁶ BellSouth Comments at 12-13; ATIS Comments at 19.

²⁸⁷ Sprint Comments at 17.

²⁸⁸ BellSouth Comments at 12; AT&T Comments at 15; SBC Comments at 8

commenting parties claim that our proposal to count both originating and terminating blocked calls would result in an unfair double counting of blocked calls.²⁸⁹ A number of commenting parties contend that the threshold based on real-time blocked calls should not be triple the threshold that is based on historical carried calls.²⁹⁰ MCI states that the reporting requirements for tandem outages should be expanded to cover all “network” outages, so that outages involving transport facilities would also be covered.²⁹¹

95. *Discussion.* We believe that there is some confusion about our proposal. Contrary to the comments of several entities, we are not using assigned telephone numbers as the basis for determining if a tandem outage is reportable. Instead, we are using blocked calls. We disagree with commenting parties who object to our proposal to triple the number of historic carried calls to determine if an outage is reportable. We believe that setting the threshold for real-time blocked calls equal to triple the threshold using the number based on measured historic carried calls is still appropriate. This is not a change in the Commission’s position. The existing rule, as it always has, states:

Carriers must report IXC and LEC tandem outages . . . where more than 90,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold. Carriers may use historical data to estimate blocked calls when required real-time blocked call counts are not possible. *When using historical data*, companies, corporations or entities must report incidents . . . where more than 30,000 calls are blocked during a period of 30 or more minutes for purposes of complying with the 30,000 potentially affected customers threshold.²⁹²

One can logically infer that there are more call attempts when outages occur. This implies that there should be a conversion factor when using real-time information instead of historical information. In the early 1990s, ATIS Committee T1A1.2 used a factor of three in its recommended methodology.²⁹³ This resulted in the existing threshold of 90,000 for real-time blocked calls. If we follow the suggestion of certain commenting parties and eliminate the factor of three, the threshold for real-time blocked calls would be 30,000 blocked calls – the same as the threshold for historical carried calls. We find that this would be an unsupported deviation from the existing rule and would disserve the public interest.

96. We strongly disagree with Sprint’s recommendation²⁹⁴ that we limit the counting of blocked calls to those that occur in the first 30 minutes of an outage. This would result in a severe and unjustified undercount of the effects of outages. Thus, many severe outages would not be reported. Most outage reports that the Commission receives and which have been triggered by blocked calls are the result of cable failures; these outages can persist for hours and even days.²⁹⁵ Regarding the “originating” and

²⁸⁹ USTA Comments at 21; Verizon Comments at 15; BellSouth Comments at 13-14; AT&T Comments at 17; SBC Comments at 8; Sprint Comments at 16; Qwest Comments at 8; ATIS Comments at 20.

²⁹⁰ USTA Comments at 21; GCI Comments at 4; WilTel Comments at 10; Verizon Comments at 15; BellSouth Comments at 13; AT&T Comments at 16-17; ATIS Comments at 21.

²⁹¹ MCI Comments at 4.

²⁹² Section 63.100(f) of the Commission’s rules and regulations, 47 C.F.R. § 63.100(f) (emphases added). When referring to historical data, for which 30,000 “historic carried calls” is the appropriate criterion, the existing rule inaccurately refers to 30,000 “calls [that are] blocked.” This is so, because in the historic period, all calls were presumably carried and none were “blocked.”

²⁹³ ATIS Committee T1A1.2 Technical Report #42 at 12.

²⁹⁴ Sprint Comments at 17.

²⁹⁵ For example, in its final report for the September 11, 2001 outage in New York City, AT&T reported that the number of blocked calls was “ongoing” 30 days after the start of the outage.

“terminating” terminology that we have historically applied to blocked calls, we acknowledge that for tandem switches the terms “incoming” and “outgoing” would serve just as well. Our paramount goal is to ensure that all effects of outages are counted. For outages of tandem switches, all blocked calls need to be counted. Since any call incoming to a tandem switch is also outgoing from that tandem, the number of blocked calls can be counted by determining the number of blocked incoming calls or by determining the number of outgoing blocked calls. That is, there is no need to double either figure or to add them together. For failures of interoffice facilities, blocked calls also need to be counted. Many interoffice facilities carry traffic in both directions. In this case, if the number of blocked calls in only one direction can be determined, then the estimate of the number of blocked calls for both directions must be obtained by doubling that number. Our proposal, when interpreted and applied in this manner, will not result in the double counting of blocked calls but will accurately count the number of all blocked calls.²⁹⁶ Therefore, we adopt our proposal. Additionally, we clarify that whenever a provider relies on available “historical data,” it must use historic carried call load data for the same day of the week and the same time of day as the outage, and for a time interval not older than 90 days preceding the onset of the outage. Finally, we must account for situations where, for whatever reason, real-time and historical data are unavailable to the provider, even after a detailed investigation. In such cases, the provider must determine the carried call load based on data obtained in the time interval between the onset of the outage and the due date for the final report; this data must cover the same day of the week and the same time of day as the outage. Justification that such data accurately estimates the traffic that would have been carried at the time of the outage had the outage not occurred must be available on request.

V. Outage Reporting Requirements for Wireless and Paging Communications

A. Common Metric for Paging and Wireless Services

97. Consistent with the 30 minutes/900,000 user-minutes criteria discussed above, we proposed to require wireless service providers to report outages of at least 30 minutes duration that potentially affect 900,000 user-minutes. We sought comment on this proposal. While we believe in the importance of a common metric that is based on outage impact on people irrespective of the communications system involved, we also sought comment on possible alternative criteria that would yield outage data that would be useful in developing best practices. Paging remains an important technology for emergency responders, and we therefore proposed to include paging service providers within the scope of the outage reporting requirements for wireless service providers. For those paging networks in which each individual user is assigned a telephone number, we proposed to define an end user as an assigned telephone number, and the number of potentially-affected user minutes would be the mathematical result of multiplying the outage’s duration (expressed in minutes) by the number of potentially-affected assigned telephone numbers. It is our understanding that for other paging networks in which a caller must first dial a central number (*e.g.*, an “800 number”) and then dial a unique identifier for the called party, the paging provider maintains a database of identifiers for its end users and would therefore know how many of its end users are potentially affected by any particular outage. The number of potentially-affected end users for those paging networks would simply be the mathematical result of multiplying the outage’s duration (expressed in minutes) by the number of end users potentially affected by the outage. We sought comment on this interpretation and proposed addition to our rules. We also sought comment on whether there are alternative approaches for measuring the extent of the impact of the outage of CMRS paging networks. For other wireless services, we acknowledged, the determination of the number of potentially affected users could be more complex.

²⁹⁶ This takes into account the concern about outages of transport facilities, which was raised by MCI. See *supra* ¶ 94 & n.291.

98. *Comments.* BloostonLaw Paging Group, SBC and MCI (Skytel) object to the proposed reporting requirements for paging providers and alternatively propose annual outage reporting, regional outage reporting, reporting those particular outages of a suspicious origin, and voluntary outage reporting through ILORI.²⁹⁷ They oppose the application of our proposed metric of 900,000 user-minutes to paging operations because of the broadcast nature of paging, by which several transmitting facilities simultaneously broadcast the same paging message. In addition, most of the paging networks are one-way and, they state, there is no way to tell if messages are received. AAPC urges the Commission to establish a staff/industry working-group to develop appropriate and realistic guidelines for the paging industry to use in determining whether to file reports in particular cases.²⁹⁸ DHS generally shares the Commission's view that a consistent reporting method and metric has merit. However, DHS also supports, where necessary, the appropriate tailoring of the threshold criteria to account for significant differences among the various communications platforms to ensure that the reporting information obtained from all providers will be relevant and useful for analytical purposes.²⁹⁹

99. *Discussion.* We adopt outage reporting requirements for paging providers because of paging's vitally important role in alerting first responders and other critical personnel in emergencies, as well as its general importance as part of our Nation's telecommunications infrastructure. Nonetheless, we recognize that paging users are highly mobile, and there is no way to predict accurately how many users will be at specific locations at any particular time. Therefore, we are adopting modified outage-reporting threshold criteria for paging to account for its unique characteristics. We find that the key, common element in paging networks is the switch. All messages are processed through a single switch before being distributed for broadcast. In addition, most paging switches have large numbers of users assigned to them. Therefore, if the switch cannot receive messages or distribute them to the transmitters, all assigned users are potentially affected. On the other hand, we find that it would be difficult to determine the number of potential users affected by the failure of one or more transmitters. Also, a failure of a single transmitter would not cause a service outage if the paging messages were successfully completed through the use of other transmitters. Therefore, we find that the proposed 900,000 user-minute reporting threshold is applicable only to failures of the switch,³⁰⁰ and not to failures of individual transmitters. If the switch is incapable of processing paging messages for at least 30 minutes and at least 900,000 user-minutes are thereby potentially affected, then the paging provider will be required to report the outage to the Commission.

B. Related Criteria for Wireless Communications

100. To measure the extent of wireless services system degradation, we proposed to require the use of blocked calls instead of using assigned telephone numbers as a proxy for the usefulness of the system to users.³⁰¹ In the wireless telephony service, a call is deemed "blocked" whenever the MSC³⁰²

²⁹⁷ BloostonLaw Paging Group Comments at 11; SBC Comments at 14; MCI Comments at 1.

²⁹⁸ AAPC Reply Comments at 3.

²⁹⁹ DHS Comments at 2.

³⁰⁰ As used here, the term "switch" refers to any terminating device used by a paging provider to receive incoming page requests.

³⁰¹ "Degradation" differs from the term "outage" in that it connotes a reduction in the quality of service that could be perceived by some (but not necessarily all of the) users as a total outage.

³⁰² "MSC" is an acronym for Mobile Switching Center, which is also frequently referred to as a Mobile Telephone Switching Office, or MTSO. The MSC coordinates calls among cells, participates in Signaling System 7 switching, and serves as a point of aggregation for calls originating from a group of cell sites and as a point for distribution of incoming calls to individual cell phone subscribers.

cannot process the call request of an authenticated, registered user. Call blocking can result from a malfunction or from an overloaded condition in the wireless service network. Usually when calls are blocked, users newly attempting to access the system cannot be registered on the system until the underlying problem is corrected. Because wireless service networks typically provide user access through several MSCs, an outage on a single MSC affects only those subscribers served by that MSC. Accordingly, under our proposal, call blocking on a single MSC would be reportable if it were to result in an outage of at least 30 minutes duration that meets or exceeds the 900,000 user-minute criterion.

101. To estimate the number of potential users affected by a significant system degradation³⁰³ of wireless service facilities, we proposed to require providers to determine the total call capacity of the affected MSC switch (or, in the case of a MSC that has more than one switch, the total call capacity of all switches in the affected MSC) and multiply the call capacity by the concentration ratio.³⁰⁴ Although the concentration ratio may vary among MSCs, we tentatively concluded that, on average, the concentration ratio used for determining the outage reporting threshold should be uniform to facilitate correlative analyses of outage reports from different wireless providers. Based upon discussions with telecommunications engineers and our understanding of typical traffic loading/switch design parameters, we proposed that the concentration factor be ten.³⁰⁵ Thus, a MSC switch that is capable of handling 3,000 simultaneous calls would have 30,000 potentially affected users (*i.e.*, $(3,000) \times (10) = 30,000$). We tentatively concluded that this proposed concentration factor should adequately account for those users that are in the service area of the MSC and are thus eligible for immediate service. This factor would also take into account users that are assigned to the local home location register database for the MSC as well as potential visitors.³⁰⁶ Thus, under the general outage-reporting criteria that we proposed, wireless service providers would be required to report MSC outages of at least 30 minutes duration that potentially affect at least 900,000 user-minutes. The 900,000 minutes were calculated by multiplying the number of simultaneous calls the MSC can complete through the switch by the concentration ratio of 10, and then multiplying the result by the duration of the outage expressed in minutes. In the case of the preceding example, the calculation would be 3,000 multiplied by 10, or 30,000 users. 30,000 users multiplied by 30 minutes would equal 900,000 user minutes (30). That is, 3,000 (user switch capacity) multiplied by 10 (concentration ratio) equals 30,000 (number of potentially affected users). Then, 30,000 (number of potentially affected users) multiplied by 30 minutes (outage duration) equals 900,000 user-minutes. If the outage were to involve less than the full capacity of the switch, then that portion of the traffic that is disrupted would be calculated. For example, if a 3,000 user switch were operating at one-half of its capacity for one hour, during which the switch could simultaneously serve a maximum of only 1,500 users, then the calculation would be 1,500 users multiplied by 10 = 15,000 potentially affected users. Then, 15,000 potentially affected users multiplied by 60 minutes would equal 900,000 user-minutes. This outage would meet the threshold and, therefore, would be required to be reported. We sought comment

³⁰³ Section 63.100(a)(1) of our rules defines an “outage” as a “significant degradation in the ability of a customer to establish and maintain a channel of communications as a result of failure or degradation in the performance of a carrier’s network.” 47 C.F.R. § 63.100(a)(1).

³⁰⁴ Concentration is based on the premise that not all users eligible to place and receive calls on a particular switch do so simultaneously. Accordingly, more users can be assigned to a switch than the actual capacity of that switch. The concentration ratio is the quotient of the number of users eligible for service from a particular MSC switch at any given time divided by the call capacity of the switch. A concentration ratio of 10-to-1 means that for every ten users eligible to access service from a particular switch there is one communication channel available to handle calls. This ratio and similar ones are frequently used in the design of cellular system architectures.

³⁰⁵ See Bellamy, John, *Digital Telephony*, 2nd ed., John Wiley and Sons (2000) at 234, for a description of call blocking and the development of a concentration ratio.

³⁰⁶ “Visitors” are wireless service users whose transceivers are active in areas that are not served by the physical facilities of their particular service provider.

on this proposed addition to our rules and on whether there are specific types of wireless networks for which a concentration factor other than ten should be applied. As with CMRS paging providers, we also sought comment on possible alternative criteria for wireless service providers and approaches to measure the extent of the impact of system degradation that would yield useful outage data on which to base the development of best practices.

102. We further proposed to require the filing of an outage report whenever a MSC is incapable of processing communications for at least 30 minutes, without regard to the number of user-minutes potentially affected by the outage. Our reason for this specific proposal on MSC-outage reporting was based on our continuing need to be aware of the underlying robustness, as well as the overall reliability, of wireless networks. The MSC, in this regard, is a critical architectural component in wireless networks that is designed to address significant levels of traffic aggregation and call routing that is dependent upon SS7 signaling. We sought comment on these additional conclusions and further proposal.

103. *Comments.* American Mobile Telecommunications Association, Inc. (“AMTA”) requested that we clarify that only those Specialized Mobile Radio Services (“SMR”) providers that meet the definition of “covered CMRS” service provider, pursuant to Sections 20.18(a), 52.21, and 52.31 of the Commission’s Rules, will be made subject to outage-reporting requirements.³⁰⁷ BloostonLaw Rural Carriers (“BRC”) request clarification of the term “significant degradation” as it applies to wireless communications outages.³⁰⁸ In addition, BRC states that the proposed concentration ratio would over count users in rural areas. Commenting wireless parties disagree with our proposed use of a concentration ratio to determine the number of potential users affected by an outage. Thus, for example, CTIA states that the use of a concentration ratio would greatly overestimate the effect of any outage in the wireless environment and therefore should be rejected as inappropriate for calculating the impact of an outage. Instead, CTIA suggests that historical data should be used to determine the number of users affected by an outage.³⁰⁹

104. Qwest also challenges the proposed use of a concentration ratio and states that “[w]ireless switches are not designed or ‘sized’ in this manner. Instead wireless switches are designed by performing a complicated analysis that evaluates numerous factors to determine the peak number of user minutes that may be expected at any time.”³¹⁰ Cingular states that “[m]any wireless users turn off their devices when incoming calls would distract others, such as in restaurants, meetings and concerts. These customers would be invisible to the wireless switch.”³¹¹ Nextel argues that the concentration ratio is “a wireline concept that does not translate to CMRS applications. In particular, the concentration ratio is typically used for class 5 end offices.... and denotes fixed serving arrangements between two points in the wireline network. In contrast, MSC traffic designs are based on traffic load between and among numerous points in the network, and directly correlate with peak busy, call duration, call attempts, calling traffic patters and other design characteristics.”³¹²

105. Sprint also challenges the use of MSC switch capacity and a concentration ratio to calculate the number of users potentially affected by an outage. It argues that unlike wireline networks,

³⁰⁷ AMTA Comments at 1, 3-4, citing 47 C.F.R. §§ 20.18(a), 52.21, 52.31.

³⁰⁸ BloostonLaw Rural Carriers Comments at 4, 7.

³⁰⁹ CTIA Comments at 12.

³¹⁰ Quest Comments at 10.

³¹¹ Cingular Comments at 15.

³¹² Nextel Comments at 10.

call capacity on a wireless network is extremely fluid. The number of calls that a particular MSC can handle is dependent upon a number of variables including (1) the number of base stations (or cell sites) that subtend the switch; (2) the number of carriers (*i.e.*, radio frequencies) that have been deployed or are available; (3) the type of handsets the particular end users currently on the system are employing (*e.g.*, 2G handsets impose greater capacity demands on the network than 3G handsets, handsets with different vocoder bit rates demand different capacity); and (4) the capacity of the Base Station Controller to manage mobile call hand-off. Moreover, Sprint adds, the capacity of any particular switch varies over time as new cell sites, carriers, or upgraded processing are added.³¹³ Sprint also states that the fluid nature of the RF portion of wireless networks makes it difficult to determine system reliability. It explains that RF voice channels are not static and do not equate to twisted pairs connected to a wireline switch. The mobility of wireless and the changing RF environment could require a user over the course of a call to use several different voice channels from several different cell sites. Thus, Sprint proposes that any wireless outage-reporting threshold should be based on call blocking.³¹⁴ Qwest also stresses that “[t]here are a variety of different radio frequency technologies used in wireless networks – AMPS, NAPMS, GSM, TDMA, CDMA, *etc.* It is difficult to derive common measurements used across these radio technologies.”³¹⁵ Qwest adds that any calculation of the number of potentially affected users is complicated by the fact that wireless phones are designed to “roam” to an alternate switch when blockage occurs. If the MSC were blocked, a user could travel some distance to an adjacent, unblocked MSC and make a call on the Qwest network.³¹⁶ The number of roaming agreements among service providers is increasing; however, in order to access another provider’s network the handsets must be compatible. Thus, although several service providers may provide overlapping service in a specific geographic coverage area, there is no guarantee that a user on one network can access the other wireless networks.

106. In addition, Nextel suggests that the proposed rules, as set forth in Appendix A to the *Notice*, should be revised to make them more substantively consistent with the proposals set forth in paragraph 38 of the *Notice*.³¹⁷ Nextel asserts that the threshold of 900,000 user minutes, the requirement to report MSC outages of at 30 minutes duration, and the requirement to report outages that potentially affect 911 special facilities are inconsistent.³¹⁸ Finally, CTIA urges that planned wireless MSC outages should not be required to be reported.³¹⁹

107. *Discussion.* We adopt AMTA’s suggestion that only those SMR providers that meet the definition of “covered CMRS” providers be required to submit outage reports. As explained in the *Notice*,³²⁰ our intent is to include SMR providers that offer services interconnected with the PSTN and compete with cellular and PCS services. We believe that AMTA’s proposal accurately depicts the SMR services to which we intend to apply outage-reporting requirements. We also find that there is a public interest need to determine the potential number of users that may be affected by an outage. As explained in the *Notice* the current trend is for wireless users to replace their landline telephones with wireless

³¹³ Sprint Comments at 23.

³¹⁴ *Id.* at 24.

³¹⁵ Qwest Comments at 10.

³¹⁶ *Id.*.

³¹⁷ *See* Nextel Comments at 9.

³¹⁸ *Id.*

³¹⁹ Most commenting wireless industry parties oppose mandatory outage-reporting requirements; instead they propose voluntary reporting and support the ILORI initiative. We have considered this argument but for reasons previously explained have found that this alternative would not serve the public interest. See *supra* ¶¶ 32-39.

³²⁰ *Notice*, *supra* note 1, at ¶ 14 & nn.30, 38, 40.

service. RCR Wireless reports that the number of U.S. households that have completely cut the cord remains small.³²¹ However, half of the wireless households report that wireless usage has replaced some, a significant amount or all of their regular telephone usage.³²² In addition, wireless service providers are offering flat rate calling plans that encourages users to approximate wireline-calling patterns. Similar to wireline, there are many users who seldom make or receive wireless telephone calls, their main intent is to have communications available in case of an emergency. This reliance on wireless for emergency communications has reportedly increased in the wake of the September 11, 2001 terrorist attacks.³²³ In addition, in the immediate aftermath of these terrorist attacks, the volume of wireless communications traffic reached saturation levels, causing several wireless networks to become overloaded. In such situations, it is clear that the alternative proposed by some commenting parties, that we rely on either real-time or historical blocked call counts to determine whether an outage has reached the reporting threshold, would result in severe undercounts of the number of users that would have likely relied on wireless phones to attempt calls to reach emergency assistance or loved ones. Therefore, we find it imperative that the outage-reporting threshold rely on a more realistic method for calculating the number of users potentially affected by a wireless outage. The impact of an outage on the Nation's infrastructure and the growing reliance of first responders on wireless communications make the reporting of the number of potential users affected imperative to determine the robustness of the nation's wireless infrastructure. Some commenting parties have presented arguments that the concentration ratio as described in the *Notice* is an inappropriate method of estimating the number of potential users affected by a wireless network outage. Although concentration ratios vary among MSCs, we believe that, on average, the concentration ratio used for determining outages should be uniform to facilitate correlative analysis of outage reports from different wireless providers. Based on discussions with telecommunications engineers and our understanding of typical traffic loading/switch design parameters, we proposed that the number be 10.

108. We conclude, however, that the concentration ratio should be reduced to 8 to account for the dynamic nature and the mobility of wireless telephony systems. The proposed concentration ratio of 10 was based on an analysis that assumed a presented load of 0.05 Erlangs/user, which is half the load presented to a typical wireline switch.³²⁴ We believed this assumption was justified in light of the fact that wireless phones, while gaining considerably in popularity, are still not complete substitutes for wireline telephone service. For example, because wireless users tend to be aware of remaining battery life, they may tend to shorten the average duration of their calls. Wireless calls can also terminate prematurely due to the uncertain nature of wireless coverage areas and dead spots. However, despite these issues, more recent information³²⁵ leads us to believe that more users are considering wireless service to be a complete substitute for wireline local exchange service, where issues like coverage area and battery life would weigh less on the average call duration, and that this trend is likely to continue. Hence, we find that our original assumption about the average load presented to a typical wireless switch was low but could increase in the future. After increasing the assumed presented load to a more realistic

³²¹ See "Wireless users turn away from landline long distance," *RCR Wireless*, March 23, 2004, available at www.rcrnews.com.

³²² *Id.*

³²³ Carrico, Lydia, "Cell phone sales up after attack," September 25, 2001, *Messenger Inquirer.com* 25, available at <http://www.messenger-inquirer.com/news/attacks/3596724.htm> ("Since the September 11 attack on the United States, when passengers aboard the hijacked airplanes called family members to say goodbye, more area residents are snatching up their own cell phones to use in emergency situations.")

³²⁴ See Bellamy, John C., *Digital Telephony*, 2nd ed., John Wiley and Sons (2000) at 241.

³²⁵ See, e.g., "SBC/BLS More Vulnerable than VZ Because of Pending AWE Merger," *Precursor*, August 3, 2004 at 1.

level, we conclude that the concentration ratio should be reduced to 8. Thus, a MSC switch that is capable of handling 3,750 simultaneous calls would have 30,000 potentially affected users (*i.e.*, $(3,750) \times (8) = 30,000$).

109. The comments help illustrate the complexities of developing a common method to estimate the number of potential users affected by an outage. The use of historical data will only account for the normal usage patterns of the MSC. Once a MSC is overloaded or is out of service there is no mechanism to count blocked calls. As a consequence, reliance on historical data would result in a gross underestimate of the number of roamers and the number of users who only use their wireless phones in an emergency. This underestimation of potential users through the use of historical data has been repeatedly illustrated during emergencies in which wireless usage has overloaded wireless networks. As the BloostonLaw Rural Carriers concede, when a switch fails, all users assigned to the switch are potentially affected.³²⁶ We conclude that outage reports should account for all potential users, not just those users who normally use their phones.

110. The concentration ratio of 8 reflects the generic parameters that are routinely used in basic telecommunication traffic analysis. In practice, cellular and PCS networks strive to maintain not more than 2% blocking.³²⁷ The wireless design goal is to accommodate 2% blocking of calls during the busy hour. Similar statistical calculations are used to determine wireline switch capacity.³²⁸ During an *ex parte* meeting held on June 10, 2004, discussions with CTIA and other representatives of the cellular industry confirmed that wireless networks are designed to not permit more than 2% blocking during the busy hour.³²⁹ This means that, on average, during the switch's busy hour, 2% of all calls presented to the switch will be blocked and 98% will be completed. Based on application of the 2% blocking factor and commonly accepted switch design parameters and principles as described above,³³⁰ we find, first, that use of a concentration ratio to determine the call capacity of MSC switches is appropriate. Second, we find that the choice of 8 as the concentration ratio for determining the wireless outage-reporting threshold is also appropriate.

111. Also discussed at the June 10, 2004 *ex parte* meeting was the dynamic nature and environment of the RF³³¹ portions of wireless networks. We agree with Sprint³³² that the RF portions of wireless networks are time variant and operate in dynamic environments that make evaluation of failures within the RF portion of wireless networks more difficult. In order to avoid those difficulties, we

³²⁶ BloostonLaw Rural Carriers Comments at 7.

³²⁷ See Levine, R., Digital Switching Lecture, March 23, 2004, at 37, available at <http://enr.smu.edu/Levine/ee8304/dmaswt4.ppt>.

³²⁸ See Bellamy, John, *Digital Telephony*, 2nd ed., John Wiley and Sons (2000) at 234, for a description of call blocking and the development of a concentration ratio. In fact, for many years, wireline system designs have been based on a more stringent blocking factor, namely, a maximum of 1% blocking in the busy hour of the busy season. See Telcordia Notes on the Networks, SR-2275, Issue 4, October 2000, Section 4.5.1.2.

³²⁹ The *ex parte* meeting was held on June 10, 2004, and, on June 14, CTIA filed notice of the meeting. The attendees from outside the Commission were Chris Guttman-McCabe, CTIA; Rick Kemper, CTIA; Michael Fingerhut, Sprint; David Jatlow, AT&T Wireless; Jim Bugel, Cingular; and Lee Fitzsimmons, Nextel. Representing the Commission from the Office of Engineering and Technology were Jeffery Goldthorp, Kent Nilsson, Charles Iseman, Whitey Thayer, John Healy, Paul Marrangoni, and Shanti Gupta.

³³⁰ See ¶ 108, *supra*.

³³¹ "RF" (an acronym for Radio Frequency) refers to the radio portions of each wireless communication.

³³² Sprint Comments at 24 (the fluid nature of the RF portion of wireless networks makes it difficult to determine system reliability).

conclude that the MSC switch is the point at which wireless communications outages should be measured. The MSC switch, like a wireline switch, operates in a stable, controlled environment and easily accommodates the measurement of call connections potentially lost during an outage. When a call is established through the MSC switch, there is a single switch connection used for the duration of the call as long as that user is located within the MSC serving area. Thus, by using the switch as the basic element to calculate potential users, the computational difficulties that result from the fluidity of the RF portions of each wireless network are avoided. If the RF portion of the network were to increase in capacity, the switch would require upgrading to maintain the same level of service (i.e., 2% or fewer calls being blocked during the average busy hour).

112. Several commenting parties have urged that a MSC switch and a wireline switch are totally different in design and function. We recognize that MSC switches have more assigned tasks than do wireline switches (*e.g.*, tracking mobiles as they move about the network's cell sites, coordinating handoff, and monitoring signal strength). These are, however, ancillary functions performed by computers and data processing elements located at the MSC. The circuit switch part of a MSC is very similar if not identical to a wireline switch, and the MSC's traffic management function is based on the same statistical methods. Thus, the switch capacity of a MSC is a stable element on which to calculate the number of users potentially affected by an outage.

113. In our opinion, application of a concentration ratio of 8 will result in the closest overall approximation of the number of potential users per MSC switch for voice calls. As was the case in our development of an outage-reporting threshold for wireline communications, we acknowledge that not all potential users (here, wireless users) actually use their phones at any specific time. For example, in the evening it is very unlikely that most office phones are used. Likewise, during the day many residential users are not at home. As Qwest has pointed out, wireless networks are not designed to enable all eligible users to complete calls simultaneously. The same is true of wireline switches. We understand that a concentration ratio of 8 may overestimate the potential users on some wireless networks, and underestimate them on others, but that have concluded that it would be unnecessarily burdensome to require each provider to develop an individual concentration ratio for each MSC. We have carefully considered, but disagree with, the argument of the BloostonLaw Rural Carriers that our proposal will result in over counting users in rural areas. The capacity of MSC switches is designed to handle the number of users that originate and terminate calls at the MSC. MSC switches with smaller capacities would normally be deployed in rural areas that have fewer users. Moreover, there is no evidence that rural wireless networks apply anything other than the 2% blocking factor that is typical in wireless system designs. As a consequence, we conclude that application of a concentration ratio of 8 in determining the call capacity of MSC switches will not result in over counting users in rural areas. Finally, we find that the use of a common concentration ratio for all wireless networks will provide consistency, will be easy to understand and use, and, in turn, will best serve the public interest. In sum, we adopt a common concentration ratio of 8 based on our best engineering judgment as applied to the record before us. This concentration ratio corresponds to a service level approximately equal to a 2% blocking factor, for which wireless networks are designed. Accordingly, we adopt our proposed method of determining the call capacity of a MSC, that is, the number of potential users = (MSC switch capacity) X (the concentration ratio of 8). We recognize, however, that this concentration ratio may change over time. As a consequence, we direct the Chief, Office of Engineering and Technology, to monitor the numerical value of the concentration ratio and advise the Commission if this value needs to be revised to more adequately reflect the number of potential users that are impacted by an outage.

114. We disagree with Nextel's assertion that the proposed rules are inconsistent. The threshold of 900,000 user-minutes could be reached even when a MSC is not totally out of service. Conversely, small MSCs could be out of service for a considerable time without triggering the outage-reporting threshold. Finally, we reject the contention that planned outages should not be reportable and conclude that, regardless of the reason for it, any outage that meets the threshold must be reported.

Wireless communications providers are encouraged to seek alternative means of accomplishing maintenance that do not require taking the MSC or the entire switch out of service. In taking these actions, we give due recognition to the fact that wireless and paging services among the primary means of contacting essential personnel, such as doctors, and nurses, during an emergency. In addition, the departmentalized first responders (police, fire and EMS) use wireless communications to augment their public safety communication systems. The public is also becoming increasingly reliant on wireless communication for emergencies, as well as their routine communications. Taking these facts into account, we conclude that our actions herein will best serve the public interest.

VI. Outage Reporting Requirements for Cable Circuit-Switched Telephony

115. Failures in various portions of cable network infrastructures³³³ can cause disruptions to cable circuit-switched telephony service. For example, failures within the cable distribution plant, the fiber distribution plant, cable headend systems, and voice terminating equipment, as well as failures within Local Exchange Carrier (“LEC”) facilities such as switches and other points within the Public Switched Telephone Network (“PSTN”) can cause cable telephony to be disrupted.³³⁴ Circuit-switched telephony provided by cable operators has always been subject to our communications disruption reporting requirements, and outage reports have been filed by cable operators.³³⁵ Nonetheless, we proposed to amend Section 63.100 to make it explicitly clear that cable circuit-switched telephony is subject to our service disruption reporting requirements. The current thresholds for reporting cable telephony outages are the same as those for wireline telephony -- outages must last at least 30 minutes in duration and potentially affect at least 30,000 customers. We proposed to apply to cable telephony the same revised threshold reporting criteria (30 minutes/900,000 assigned telephone number-minutes potentially affected) that we proposed for wireline telephony outage reporting and sought comment on this proposed addition to our rules.

116. *Comments.* Several commenting parties support the proposed rule for circuit-switched telephony provided by cable operators.³³⁶ A few commenting parties suggest that the outage-reporting requirements be extended to include Voice over Internet Protocol (VoIP) service provided by cable operators³³⁷ or generally to all communications providers,³³⁸ while others³³⁹ oppose this suggestion and

³³³ “Cable system infrastructure” refers to the physical paths, switches, routers, and databases that the cable system operator uses to provide connectivity for its subscribers to the PSTN (in the case of cable telephony).

³³⁴ Of course, failures that occur outside of the cable infrastructure (*e.g.*, at the switch or elsewhere within the PSTN) are also covered by the outage reporting requirements as they relate to the communications provider whose facility failed.

³³⁵ Section 2(a) of the Act states that cable service is subject to the provisions of the Act, 47 U.S.C. § 152(a), and Subsections 621(b) (3) and (d) of the Act state that cable service providers may provide telecommunications services but these services are outside the scope of the regulatory provisions of Title VI of the Act, 47 U.S.C. § 621(b) (3) and (d). Cable circuit-switched telephony providers fall within the definition of telecommunications carriers, which have always been subject to the requirements of Section 63.100 of the Commission’s Rules, 47 C.F.R. § 63.100.

³³⁶ For example, the City of New York, National League of Cities, and National Association of Telecommunications Officers and Advisors jointly state that they “endorse the NPRM’s proposals to (1) revise and strengthen the Commission’s current service disruption reporting requirements, and (2) extend those requirements to wireless, cable circuit-switched telephony, and satellite communications service providers.” Other commenting parties that support the proposed rule for circuit-switched telephony over cable include DHS, CDPUC, NTCA, and KCC.

³³⁷ City of New York *et al.* Comments at ii, 10.

³³⁸ NTCA Comments at 2; KCC Comments at 2; ITTA Comments at 6. See also DHS Comments at n.15 (As the volume of traffic carried on a VoIP basis continues to expand, the Internet will commensurately become a more
(continued...)

state that this issue should instead be addressed in the pending proceeding on IP-enabled services. No comments were filed by any cable providers or by their industry associations.

117. *Discussion.* We adopt our proposed outage-reporting requirements for cable communications providers. We note that the customer base for circuit-switched telephony over cable may not be as large as the one over wireline and, hence, few cable outages might be reported. However, the reporting threshold that we adopt will capture outages when they are sufficiently long and is a more stringent threshold than the existing one. We do not find that the needs of homeland security warrant a different action at this time. Also, as we stated in the *Notice*,³⁴⁰ we are not addressing VoIP or public data network outage reporting at this time.³⁴¹

VII. Outage Reporting Requirements for Satellite Communications

118. Section 63.100 of our rules does not contain outage-reporting requirements that are applicable to satellite communications.³⁴² We tentatively concluded, however, that because of the increasing role and importance of satellites in our national communications infrastructure, it would be prudent to require U.S. space station licensees and those foreign licensees that are providers of satellite communications to the American public to report all major failures. This would apply to satellites or transponders used to provide telephony and/or paging. Thus, our proposal did not include satellites or transponders used solely to provide intra-corporate or intra-organizational private telecommunications or solely for the one-way distribution of video or audio programming.

119. Satellite communications have space components and terrestrial components. The reporting requirements that we proposed cover all satellite communications outages, regardless of whether they result from failures in the space or terrestrial components. Specifically, we proposed to require the reporting of any loss of complete accessibility to a satellite or any of its transponders for 30 minutes or more. Such outages could result, for example, from an inability to control a satellite, a loss of uplink or downlink communications, Telemetry Tracking and Command failures, or the loss of a satellite telephony terrestrially-based control center, and we regard such outages to be major infrastructure failures. Analogous to the cases of wireline, wireless, and cable communications, we also proposed to

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important part of the telecommunications infrastructure. Therefore, the Commission should revisit the topic of Internet outage reporting in the future as the nature, criteria, and most appropriate mechanisms for addressing the IP-based infrastructure become clearer.).

³³⁹ AT&T Reply Comments at 20-21; SBC Reply Comments at 4; Qwest Reply Comments at 16 n.47.

³⁴⁰ *Notice, supra* note 1, at ¶ 2 n.4.

³⁴¹ DS-3 reporting requirements should enable us to understand, more fully, service disruptions that occur throughout the fabric of our Nation's telecommunications infrastructure. See *infra* Section VII.B. To the extent that DS-3 communications carry many different forms of communications (e.g., analog voice and video, digital voice and video), there may, on occasion, be DS-3 service disruption reporting by cable, wireline, and wireless service providers that includes transmission paths that support public data networks.

³⁴² Satellite licensing and several technical portions of our rules require the limited disclosure of information on some satellite outages in the context of determining the extent to which the electromagnetic spectrum is being used efficiently. See 47 C.F.R. §§ 25.142(c), 25.143(e), 25.144(c), 25.145(g), 25.149(b), and 25.210(k). With the exception of the requirement that those Mobile Satellite Service (MSS) licensees using ancillary terrestrial components (which use spectrum terrestrially) must report certain outages within 10 days of their occurrence (47 C.F.R. §§ 25.149(b)(2)(iii)), these rules require the filing of reports on an annual basis. As a consequence, these rules do not provide for the prompt and detailed disclosure of information that is needed to develop best practices and assure that satellite telecommunications infrastructures and networks are reliable and secure.

require the reporting of the loss, for 30 minutes or more, of any satellite link or its associated terrestrial components that are used to provide telephony and/or paging, whenever at least 900,000 user-minutes are potentially affected.³⁴³ We requested comment on this proposed addition to our rules.³⁴⁴

120. We noted that Part 25 of the Commission's Rules provides that certain satellite licensees file annual reports that contain some information on outages and that Mobile-Satellite Service (MSS)³⁴⁵ Ancillary Terrestrial Component (ATC) licensees report certain outages within 10 days of their occurrence. These rules were adopted to provide the Commission with information necessary to assess the commercial and technical development of satellite services, including the efficiency of spectrum utilization by satellite licensees,³⁴⁶ and, in the case of MSS ATC licensees, to ensure that the terrestrial use of spectrum remains ancillary to satellite use.³⁴⁷ We tentatively concluded that our proposed additional reporting requirements were necessary so that we can more rapidly acquire information that would be more useful in achieving our objectives of increasing reliability and security in satellite communications. We sought comment on these proposals and on alternative ways to accomplish our objectives in this proceeding while minimizing any duplication of reporting requirements or unnecessary burdens on satellite communications providers.

121. Finally, we noted that in the E911 Scope proceeding,³⁴⁸ we decided to require MSS providers of voice service that is interconnected with the PSTN to establish E911 call centers. Also,

³⁴³ We anticipated that the satellite provider's Network Operations Center would be aware of the loss of satellite system components and their potential impact on end users. For telephony and many paging networks, one user-minute would be defined as one assigned telephone number-minute.

³⁴⁴ In a separate proceeding, we sought comment on whether we should adopt reporting requirements regarding aspects of spacecraft operations that may affect the ability of operators to complete appropriate satellite end-of-life procedures. *See In the Matter of Mitigation of Orbital Debris*, IB Docket No. 02-54, *Notice of Proposed Rule Making*, 17 FCC Rcd 5586 (2002). This issue will be addressed in that proceeding.

³⁴⁵ "Mobile Satellite Service" is defined as a radio communication service between mobile earth stations and one or more space stations, between space stations used by this service, or between mobile earth stations by means of one or more space stations. Section 2.1(c) of the Commission's Rules, 47 C.F.R. § 2.1(c).

³⁴⁶ *See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service*, CC Docket No. 92-76, *Report and Order*, 8 FCC Rcd 845 at ¶ 11 (1993) (Section 25.142(c) reporting requirements, including listing of non-scheduled space station outages lasting more than thirty minutes and their causes, provides information by which the Commission assesses the commercial and technical development of a satellite service, including its spectrum utilization); *accord Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to Mobile Satellite Service in the 1610-1626.5/248.5-2500 MHz Frequency Bands*, CC Docket No. 92-166, *Report and Order, Memorandum Opinion and Order, and Further Notice of Proposed Rulemaking*, 12 FCC Rcd 5754, 5799 at ¶ 10 (1997) (Section 25.144(c) with respect to DARS); CC Docket No. 92-297, *Third Report and Order*, 12 FCC Rcd 22310, 22335 at ¶ 62 (1997) (Section 25.145(g) with respect to the FSS in the 20/30 GHz bands); and *Amendment of Part 25 of the Commission's Rules and Regulations to Reduce Alien Carrier Interference Between Fixed-Satellites at Reduced Orbital Spacing and To Revise Application Processing Procedures for Satellite Communication Services*, CC Docket No. 86-496, *Second Report and Order and Further Notice of Proposed Rulemaking*, 8 FCC Rcd 1316 at ¶¶ 21-23, (current Section 25.210(l) – then subsection (j) – with respect to the technical requirements for FSS space stations).

³⁴⁷ *See Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, et al.*, IB Docket Nos. 01-185 and 02-364, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 11030 at ¶ 78 (2003).

³⁴⁸ *In the Matter of Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Networks and Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements et al.*, CC Docket No. 94-102 and IB Docket No. 99-67, *Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 03-290, released December

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NRIC had been directed to study several E911 implementation technical issues for satellite systems. Finally, comment had been sought on whether transition periods were necessary for MSS providers with an ancillary terrestrial component (ATC) to comply with the terrestrial wireless E911 requirements and on proposed reporting and recordkeeping requirements in connection with implementation of the emergency call center rule. In the *Notice*, we proposed that Mobile Satellite Service (“MSS”) providers of interconnected voice service be subject to E911 outage-reporting requirements, including those proposed in the proceeding paragraph. Nevertheless, we proposed to delay implementation of these proposed requirements for MSS providers until the implementation issues for the MSS, raised in the *Second Further Notice* in the E911 Scope proceeding,³⁴⁹ were resolved. We welcomed comments on these proposals.

122. *Comments.* Six satellite service providers submitted comments. Intelsat, Telesat Canada, PanAmSat and SES AMERICOM provide services through Geo-stationary (GEO) satellites and are fixed satellite service (FSS) providers. GlobalStar and Iridium provide services through non-GEO (NGO) Low Earth Orbit (LEO) satellites and are mobile-satellite service (MSS) providers. All of the satellite service providers state that they currently file annual reports on the status of their satellite systems. The GEO FSS parties state that, by the nature of their service, their role is simply to provide transponder capacity to entities that provide service to end users, and they therefore have no direct knowledge of how many end users are potentially affected by any given transponder failure. On the other hand, the NGO MSS providers contend that, during any particular satellite failure, service to end users is never lost for more than a few minutes because they maintain available spare satellites in orbit. Iridium objects to the proposed requirement to report equipment failures. All of the satellite service providers indicate that they do not understand how the proposed 900,000 user-minute and 1350 DS3-minute reporting thresholds would apply to satellite operations. They contend that the threshold criteria for satellite reporting should be more closely related to the specifics of satellite technology. GlobalStar, PanAmSat and SES Americom request that the Commission more clearly define the term “satellite communications provider.” Inmarsat in its reply comments agrees with the six satellite commenting parties and DHS in urging that outage reports be treated as confidential. Inmarsat also urges that two hours are insufficient for the preparation and submission of a detailed initial outage report.

123. *Discussion.* We are persuaded that FSS communications providers do not have a way to determine the number of end users nor the nature of the communications traffic that would be potentially affected by any given transponder failure. In addition, we find that MSS service providers are not likely to know how many end users are potentially affected during intermittent service disruptions. Nevertheless, we think it is important that major outages of satellite networks involving voice or paging services be reported. As a result, we are adopting a two tier approach for reporting – one for satellite operators and one for satellite communications providers. In either of the satellite outage reporting tiers, we are applying our rules only to voice and paging communications. In many cases, the satellites may carry a mix of traffic that includes video or audio programming, or private network communications, that are not covered by these rules. We believe that it is important that we obtain information on any outages that meet our criteria if they could involve voice or paging communications. As a result, our reporting rules will not apply to satellites, satellite beams, inter-satellite links, MSS gateway earth stations, and satellite networks when those elements are used exclusively for non-covered services (that is, when they never are used to carry voice or paging communications). We believe this clarification will help satellite operators and satellite communications providers to determine more easily when reporting is required,

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1, 2003, at ¶¶ 20-48 and 111-112 (adopting 911 service call center requirements and seeking further comment on how to implement E911 requirements for the MSS).

³⁴⁹ *Id.*

and are modifying our proposed rules accordingly. We are also modifying our rules to more clearly distinguish between the requirements that apply to satellite operators and satellite communications providers.

124. As a first tier, all satellite operators will be required to report any outage of more than 30 minutes duration of the following key system elements: satellite transponders, satellite beams, inter-satellite links, or entire satellites. In addition, MSS satellite operators will be required to report any outage of more than 30 minutes duration at any gateway earth station. We recognize that several commenting parties, including Iridium, Intelsat, and Globalstar, have suggested that reporting requirements should apply only for service outages, not for equipment outages. They argue that satellite operators can often bring in-orbit spares into use or rely on other satellites in the network to provide coverage. While this may be true, we still believe that reporting should be required when key satellite system elements have failed for more than 30 minutes. Satellite systems in general are expensive and difficult to replace, and it can take a long time for replacement satellite systems to be manufactured and launched. Furthermore, use of in-orbit spares or other satellites in a network can have a significant impact on future satellite network redundancy and overall system capacity. Given the critical backup role that satellites systems play in the overall U.S. communications infrastructure, we believe it is essential that operators report outages of key satellite system elements.

125. We are adopting rules that identify the key satellite system elements, which would require reporting if there is an outage of more than 30 minutes duration, as satellite transponders, satellite beams, inter-satellite links, or entire satellites. We are also applying reporting requirements to MSS gateway earth stations if there is an overall gateway outage of more than 30 minutes duration. The reporting requirements will not apply to individual MSS gateway earth station outages where other earth stations at the gateway location are used to continue gateway operations within 30 minutes. Outage of any of the key satellite elements for an extended period could have a significant impact on the overall functioning of a satellite network and can affect system coverage, capacity and usability. They can also affect that ability of satellite systems to handle higher levels of emergency traffic if there is an outage elsewhere in the communications infrastructure. We note that this approach avoids the concerns raised by satellite operators that they could not determine the number of users or user-minutes that would be involved in an outage.

126. The second tier of our approach for satellite outage reporting is to require satellite communications providers to report outages that involve more than 900,000 user-minutes. We recognize that a FSS satellite operator may not know that an outage is even occurring when it involves the failure in a service provider's network that communicates with the FSS satellite. However, the satellite communications provider should know when such an outage occurs, and should be responsible for reporting that outage just as other non-satellite communications providers are required to do. We recognize that there may be cases, as raised by MSS operators, that a satellite communications provider doesn't know how many users may be potentially affected by the outage. This can be particularly true with the MSS operator is providing service both inside and outside the U.S. In those cases, we expect the satellite communications provider to determine whether reporting is required based on an estimate of how many users in the U.S. might be impacted and the amount of time those users lose service.

VIII. Reporting of Major Infrastructure Failures

127. The communications outage reports that we have received over the past ten years have provided significant insight into some of the major problems affecting circuit-switched voice communications. The infrastructure used to provide these services, however, is also used to provide many other services that are essential to Homeland Security and our nation's economy. A tiny glimpse

into the other uses of our Nation's communications infrastructure was provided in Verizon's network outage report covering the World Trade Center disaster on September 11, 2001.³⁵⁰ That report states that "some 300,000 dial tone lines and some 3.6 million DS0 equivalent data circuits were out of service" as a result of the damage. The ratio of more than ten times as many DS0³⁵¹ equivalent services using the infrastructure as dial tone lines is not unusual in a major metropolitan area. Most of the DS0 equivalent circuits are used to carry what are frequently called "special services." While we have not previously required the reporting of communications outages that affected large numbers of special services, we need to recognize in our communications disruption reporting rules the continuously increasing importance of data communications throughout the United States. We tentatively concluded that our rules should be revised to account for certain important attributes of special services. Rather than collect information that is limited specifically to "special services," however, we proposed to directly address the underlying issue and collect information on the potential impact on all communications services of major infrastructure failures.

A. DS3 Minutes

128. As a consequence, we proposed to establish additional outage-reporting criteria that would apply to failures of communications infrastructure components having significant traffic-carrying capacity. This requirement would apply to those communications providers for which we have already proposed outage-reporting requirements and would also apply to those affiliated and non-affiliated entities that maintain or provide communications networks or services on their behalf.³⁵² We tentatively concluded that the threshold reporting criterion for such infrastructure outages should be based on the number of DS3³⁵³ minutes affected by the outage because DS3s are the common denominator used throughout the communications industry as a measure of capacity. A DS3 can handle 28 DS1s (T1s) or 672 DS0 (64 kbps voice or data circuits). On the higher end of the multiplexing hierarchy, an OC3 includes 3 DS3s, an OC48 includes 48 DS3s, and an OC192 includes 192 DS3s. Specifically, we proposed to require the reporting of all outages of at least 30 minutes duration that potentially affect at least 1,350 DS3 minutes.³⁵⁴ We proposed to count only working DS3s in this measure, by which we meant those actually carrying some traffic of any type at the time of a failure. For example, an OC24 could have a maximum of 24 DS3s working, but at the time of a failure might have only 10 DS3s that are in working condition and equipped with the necessary electronics. In this case, only the 10 DS3s would be counted in determining whether the threshold-reporting criterion had been met. In addition, we regarded the failure for at least 30 minutes duration of a satellite or any of its in-service transponders as a major infrastructure failure and therefore had also proposed to require reporting of such outages. We stressed that the 1,350 DS3-minute and the satellite/transponder failure reporting criteria would be in

³⁵⁰ Network Outage 01-147, Verizon Final Report (Oct. 11, 2001).

³⁵¹ A DS0 circuit is normally associated with a 64 Kbps data rate.

³⁵² For example, an entity that supplies optical fiber transmission links to communications providers or to ISPs would be included in this reporting requirement.

³⁵³ DS3 circuits have a data rate of approximately 44.7 megabits per second.

³⁵⁴ Therefore, for example, a DS3 that was out of service for 1,350 minutes would be a reportable outage. The 1,350 figure was derived from the current threshold-reporting criterion of "30,000 customers potentially affected." Each DS3 has a capacity of 672 DS0 circuits (basically, 672 "customers"). Therefore, to determine how many DS3s are equivalent to 30,000 customers, we compute: 30,000 customers divided by the DS3 capacity of 672 DS0 circuits (customers) equals 44.6 DS3s rounded to 45. Then, 45 DS3s multiplied by 30 minutes equals 1,350 DS3 minutes. Note that the figure of 45 DS3s for at least 30 minutes was proposed by Pacific Telesis (now part of SBC Communications, Inc.) in the Comments and Reply Comments it filed in CC Docket No. 91-273 in January and February 1994, respectively. At that time, however, there was no record of the number of outages that had affected the basic communications infrastructure.

addition to the 90,000 blocked-call and the 900,000 user-minute criteria proposed elsewhere in the *Notice*. Whenever any of these criteria are exceeded, the outage would be reportable and the values of all three measures, if applicable, would be required to be included in the outage report. We requested comment on these conclusions and proposed rules.

129. *Comments.* Five commenting parties specifically recognize the need for the reporting of DS3 outages³⁵⁵ while only one commenting party suggested that other reporting criteria such as user minutes or blocked calls should replace the DS3 criteria.³⁵⁶ ATIS and several other commenting parties³⁵⁷ propose an alternative quantitative threshold for DS3 outages (*i.e.*, a failure of 48 or more DS3's for 30 minutes or more, or a failure of 24 or more DS3's for 6 hours or more). A number of commenting parties suggested that the failure of a DS3 that is part of a protection scheme such as a SONET³⁵⁸ ring should not be required to be reported because communications services provided over the DS3 would not be immediately affected by the failure.³⁵⁹ Five commenting parties³⁶⁰ suggested that it would be difficult, if not impossible, for reporting carriers to determine the actual impact on end users of DS3 failures. Four commenting parties³⁶¹ suggest that the only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points." Three commenting parties³⁶² suggest that only the service provider whose infrastructure network element causes a reportable DS3 outage, or has maintenance responsibility for the point of failure, should submit the outage report. Two commenting parties state that we are requiring carriers to report on outages affecting special services.³⁶³ AT&T³⁶⁴ suggests in cases in which DS3s are the subject of a Service Level Agreement, they should not be counted in DS3 outages. BellSouth³⁶⁵ argues that our proposal on outage reporting for major infrastructure failures would result in the indirect regulation of the "Internet and other data services" that should be free of regulation. BellSouth also argues that a "working DS3 should be defined as one that has more than 10% of the DS0s in use."³⁶⁶ One commenting party pointed out that our current rules do not require reporting unless there is a service outage.³⁶⁷

³⁵⁵ City of New York *et al.* Joint Comments at 14; CTDPU Comments at 5, 6; and WilTel Comments at 4.

³⁵⁶ MCI Comments at 4.

³⁵⁷ ATIS Comments at 33; AT&T Comments at 22; BellSouth Comments at 24; Qwest Comments at 13; SBC Comments at 10; USTA Comments at 23; Verizon Comments at 20.

³⁵⁸ A SONET (Synchronous Optical Network) ring is a bidirectional multipoint fiber ring where the traffic normally flows in one direction (such as clockwise) around the ring. In the event of a single failure the traffic immediately reverses direction so as to maintain connectivity among the points on the ring.

³⁵⁹ See ATIS Comments at 23; AT&T Comments at 22; MCI Comments at 5; Qwest Comments at 13; SBC Comments at 10; USTA Comments at 23; and WilTel Comments at 5, 6, 7.

³⁶⁰ See BellSouth Comments at 22, 23, 24; MCI Comments at 5; Qwest Comments at 13; Sprint Comments at 21; and WilTel Comments at 4, 5.

³⁶¹ ATIS Comments at 23; AT&T Comments at 22; Qwest Comments at 13; and SBC Comments at 10.

³⁶² ATIS Comments at 23; BellSouth Comments at 24; and SBC Comments at 10.

³⁶³ USTA Comments at 21, BellSouth Comments at 22.

³⁶⁴ AT&T Comments at 22.

³⁶⁵ BellSouth Comments at 22.

³⁶⁶ BellSouth Comments at 24.

³⁶⁷ Globalstar Comments at 4.

130. Several commenting parties suggest that various labels be placed on DS3s and that they then be counted or not depending on the label. For example, BellSouth and SBC state that only those DS3s labeled as "transport infrastructure components" should be counted.³⁶⁸ BellSouth further states that the reporting requirements should "apply to infrastructure DS3s, not access DS3s."³⁶⁹ In the same vein, Verizon asserts that outage reports should "be limited to interoffice facilities, not DS3 and higher facilities serving end user customers" which they are calling "customer DS3s."³⁷⁰ BellSouth urges that DS3s "that are at least partially under the control of the customer" be treated differently than DS3s "within the control of the carrier."³⁷¹ Nextel states that it has had several problems with T-1 (DS1) lines provided by ILECs to haul traffic between Nextel cell sites and Nextel MSCs.³⁷² BellSouth urges that, to be reportable, DS3 outages must "affect customer service" but must not involve "public data networks."³⁷³ BellSouth and USTA point out that today "the predominate traffic on DS3s is data."³⁷⁴ BellSouth suggests that only DS3s that affect "customer service" should be counted and also argues that only DS3s with more than 67 DS0s in use should be counted.³⁷⁵ Qwest perceives a need to "determine the number of T1s [DS1s] in service on each T3 [DS3] and determine the number of DS0s in service."³⁷⁶ Sprint is concerned that a DS3 outage "does not measure the real impact on end users of an outage."³⁷⁷ ITTA suggests that "a DS3 equates to 672 access lines. BellSouth at 25 asks us to only have our rules apply to "infrastructure DS3s, not access DS3s."³⁷⁸

131. In reply comments, ATIS and other parties reiterate their support for the alternative reporting threshold.³⁷⁹ Three commenting parties express support for Verizon's proposal to exclude customer DS3s.³⁸⁰ Both ATIS and Qwest support BellSouth's definition of a working DS3 (67 or more DS0s), but SBC recommends using at least 400 DS0s.³⁸¹ ATIS and Qwest both oppose Nextel's suggestion that T1 (DS1) outages be reported.³⁸² Four commenting parties express support that only "infrastructure" and not "customer" or "access" DS3s be reported.³⁸³ ATIS supports USTA's comments regarding the resources required to report outages of special services.³⁸⁴ BellSouth supports Qwest's

³⁶⁸ BellSouth Comments at 24; SBC Comments at 10.

³⁶⁹ *Id.* at 25.

³⁷⁰ Verizon Comments at 18-20.

³⁷¹ BellSouth Comments at 24.

³⁷² Nextel Comments at 11-12.

³⁷³ BellSouth Comments at 24.

³⁷⁴ *Id.* at 22, USTA Comments at 23.

³⁷⁵ BellSouth Comments at 23-24.

³⁷⁶ Qwest Comments at 13.

³⁷⁷ Sprint Comments at 21.

³⁷⁸ ITTA Comments at n.14.

³⁷⁹ ATIS Reply Comments at 16; BellSouth Reply Comments at 18; and Qwest Reply Comments at 13.

³⁸⁰ ATIS Reply Comments at 17; BellSouth Reply Comments at 17; and MCI Reply Comments at 3.

³⁸¹ ATIS Reply Comments at 18; Qwest Reply Comments at 7; and SBC Reply Comments at 4.

³⁸² ATIS Reply Comments at 18; Qwest Reply Comments at 15.

³⁸³ ATIS Reply Comments at 18; BellSouth Reply Comments at 18; MCI Reply Comments at 3 and 5; and Qwest Reply Comments at 15.

³⁸⁴ ATIS Reply Comments at 17.

comments regarding the end user impact of some DS3 outages and it also reiterates its earlier comments regarding public data networks.³⁸⁵ MCI recommends the use of blocked calls instead of reporting DS3 outages, while Qwest expresses strong objection to MCI's proposal to not report DS3 outages.³⁸⁶ Qwest expresses concern that the proposed reporting scheme may trigger multiple reports of the same outage.³⁸⁷

132. *Discussion.* ATIS and many other commenting parties appear to have misinterpreted our proposed DS3 reporting requirements. Our proposal was, and is, that an outage that lasts at least 30 minutes and affects 1,350 or more DS3 minutes shall be reported. As explained below, we adopt this proposal. The only place that 45 DS3s was mentioned was in explanatory footnote 104 showing how the 1,350 figure was initially derived.³⁸⁸ Thus if, for example, 45 or more DS3s are out of service for 30 minutes, an outage report must be filed. However, the quantity of DS3s affected in an outage is just one factor used to determine if the 1,350 DS3 minute threshold has been reached. Outages of longer duration will become reportable for fewer than 45 DS3s according to the 1,350 DS3 minute threshold. For example, a DS3 that was out of service for 1,350 minutes would constitute a reportable outage. Similarly, an outage of two DS3s for 675 minutes would constitute a reportable outage, and so forth.

133. The alternative proposal of establishing the threshold criteria for reporting a failure of 48 DS3's for at least 30 minutes or of 24 DS3's for at least 6 hours would leave gaping holes through which significant basic infrastructure failures would go unreported. Under this proposal 23 DS3s could be out of service indefinitely (accumulating 1,380 DS3 minutes per hour) and would never be reported. Also 47 DS3s could be out of service for 5 hours and 59 minutes (16,873 DS3 minutes) (ATIS, BellSouth, Qwest, SBC, USTA, and Verizon proposals) or 7 hours and 59 minutes (22,513 DS3 minutes) (AT&T proposal) and not be reported. Hence, we reject this alternative in favor of our original proposal. We also reject the concept that an outage of any specific number of DS3s for 30 minutes or more would not be reportable regardless of the duration.

134. When a DS3 is part of a protection scheme such as a SONET ring, it will frequently switch to a protect-path within seconds of a failure in the primary path. The communication services being provided over the DS3 will not be immediately affected, *but they will no longer be protected.* Unfortunately, we have had a number of network outages reported where there are multiple failures on a SONET ring at different points in time, in one case five months after the initial failure.³⁸⁹ The second failure that occurs before the first failure is repaired causes the loss of all communications services being provided over the DS3. We therefore require that DS3s that switch to protect be counted in DS3 outage minutes until such time as the DS3s are restored to normal service, including protection. An analogy would be to a two-engine airplane that can still fly with one engine. If one engine fails, the second (protection) engine keeps the plane flying but in an impaired state. Service is not restored to normal until

³⁸⁵ BellSouth Reply Comments at 17-18.

³⁸⁶ MCI Reply Comments at 5 and 6; Qwest Reply Comments at 13.

³⁸⁷ Qwest Reply Comments at 14.

³⁸⁸ *Notice, supra* n.1 at n.104 (“The 1,350 figure was derived from the current threshold-reporting criterion of “30,000 customers potentially affected. Each DS3 has a capacity of 672 DS0 circuits (basically, 673 “customers”) Therefore, to determine how many DS3s are equivalent to 30,000 customers, we compute 30,000 customers divided by the DS3 capacity of 672 DS0 circuits (customers) equals 44.6 DS3s rounded to 45. Then, 45 DS3s multiplied by 30 minutes equals 1,350 DS3 minutes. Note that the figure of 45 DS3s for at least 30minutes was proposed by Pacific Telesis (now part of SBC Communications, Inc) in the Comments and Reply Comments it filed in CC Docket No. 91-273 in January and February 1994, respectively. At that time, however, there was no record of the number of outages that had affected the basic communications infrastructure.”)

³⁸⁹ Under the current 63.100 reporting scheme the initial failure was not reported because there was no loss of voice service to end users.

both engines operate properly. Protected communications services are not restored to normal until both the primary and protect DS3s operate properly. In this same regard, if protection DS3s should fail while the primary DS3s are still working, services would not be immediately affected but the failed DS3 minutes are still counted toward the reportable trigger due to the loss of protection. Hence, we reject the proposed alternative that would exempt failures of DS3's that are part of a protection scheme.

135. We agree with the many comments that indicate it would be virtually impossible to measure the real impact on end users of a DS3 outage but find these observations inapposite.³⁹⁰ The reporting of the failure of major communication infrastructure network components,³⁹¹ as measured by working DS3 minutes, is not intended to measure the immediate impact on "customers" or end users. Nor is it intended to measure the impact on any specific services as stated by Globalstar in its comments.³⁹² Rather, it is a measure of the impact on the basic communications infrastructure that has been put in place to provide wire and radio³⁹³ communications to all the people of the United States. The DS3 minute reporting requirement does not require the reporting carriers to make any effort to determine the actual or potential impact of the outage on end users or "customers." Nor does the DS3 minute reporting requirement apply in cases where customer owned equipment fails or is taken out of service for any reason.

136. A DS3 is a communications highway that has been put in place to carry traffic in a digital format. That traffic can range from simple alarm and control circuits, to voice circuits, to radio and television programs, to circuits carrying ATM or credit card transactions, to FAA flight control circuits, to Department of Defense circuits, to circuits transferring billions of dollars from one Federal Reserve Bank to another, to circuits critical to the operation of the stock and bond markets. As discussed above, some DS3s that carry no traffic are built strictly as protection in the case of a failure of another DS3. MCI suggested that DS3 outages could be measured by blocked calls while at the same time other comments pointed out that the primary traffic on DS3s is data, not voice. We reject the suggestion that blocked calls can be used to measure DS3 outages because calls are only a portion of the traffic being carried on DS3s. We also find it necessary to point out that our concern is with the loss of communication highways regardless of how lightly or heavily they may be loaded at the time of an outage. The actual impact of a DS3 failure is that a communications highway that is part of this nation's communications infrastructure is no longer available. We are not asking carriers to calculate the potential impact of a DS3 failure. For example, if a failed DS3 is the only working DS3 in an OC48 (with 48 possible DS3s), then the potential is for 48 DS3s to have failed. Likewise, if that same OC48 was riding one fiber in a 72 fiber cable that was cut, then the potential is for all of the fibers to be multiplexed at the OC48 level even if some of the fibers were actually dark. We only require that the working DS3s be counted, not those that could be potentially working.

137. A number of commenting parties suggested that only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points." This is an extremely restrictive provision that would be very difficult for the "service provider" to implement. The American National Standard for Telecommunications, T1.238-2003,³⁹⁴ used to identify DS3s, does not even include data elements that identify who owns, operates or maintains the

³⁹⁰ Sprint Comments at 21; Qwest Comments at 13; BellSouth Reply Comments at 17.

³⁹¹ Fiber cable, fiber multiplexers, digital cross connects, etc.

³⁹² Globalstar Comments at 4.

³⁹³ DS3s are carried on digital radio networks as well as on fiber.

³⁹⁴ ANSI T1.238-2003 Information Interchange – Structure for the Identification of Telecommunications Facilities for the North American Telecommunications System published by and available from ATIS.

electronic terminal equipment at the ends of DS3s. It is expected that the primary infrastructure failures that will be reported will involve fiber cables, fiber multiplexers, and fiber cross connect devices. When these network elements fail there are apt to be hundreds of DS3s that are out of service. Determining the end points of each and every DS3 would be a major task and then to further determine the owner of the terminal equipment (possibly a bank), the operator of the terminal equipment, and the maintainer of the terminal equipment would be a difficult and time consuming task that would not contribute to the restoration of service or to a prompt reporting of the outage.³⁹⁵ In almost all cases it will be possible to restore service without knowing what companies own, operate and maintain the electronic terminal equipment at each end of the DS3s. This Commission is concerned with understanding infrastructure failures that might suggest that adequate facilities are not being provided to serve the communications needs of the people of the United States, and not with who owns, operates and maintains the electronic terminal equipment. Hence, we reject the suggestion that the only DS3 failures that should be reported are those where "the service provider owns, operates and maintains the electronic terminal equipment at both end points."

138. Verizon in its comments expressed concern that customers may intentionally or unintentionally cause their DS3s to go out of service and did not want such failures counted toward the DS3 reporting trigger. In reply comments ATIS, BellSouth, and MCI supported Verizon's concerns. This Commission has no intention of asking service providers to report individual DS3 outages where the customer has deliberately turned the DS3 off, or where the customer's equipment has failed. To do so would be unfair to the communications provider. However, if that same DS3 goes through a multiplexer, a digital cross-connect, a fiber cable or other network component that fails then it shall be counted as one of the many DS3s that are affected. The determination that a customer intentionally or unintentionally caused a DS3 failure typically cannot be made until after service is restored.

139. We agree with the suggestion that the service provider whose infrastructure network component causes a reportable DS3 outage, or has maintenance responsibility for the point of failure, should submit an outage report. But we will not limit the reporting responsibility to such providers only. In this regard, we agree with MCI and Qwest³⁹⁶ that any given failure may trigger multiple outage reports. We have made the reporting process very simple so as to readily accept and process multiple reports triggered by the same event such as a fiber cable cut. The individual fibers in the cable may be leased to different organizations, and the working DS3s riding on each fiber may be used to provide a wide variety of services. If a reportable quantity of calls are blocked due to the cut fiber then that should be reported. Likewise, if the cut fiber also causes a reportable quantity of wireline user minutes to be potentially affected then that should also be reported. The value of this system of outage reporting is that it is most likely to reveal how failures in one part of a network can trigger failures in other parts of the same network or in other networks. The needs of homeland security and the long-term goal of improving network security and reliability demand no less.

140. We disagree with AT&T's suggestion that in cases in which DS3s are the subject of a Service Level Agreement, they should not be counted in DS3 outages. The presence or absence of a SLA is not shown in the records described in ANSI T1.238-2003³⁹⁷ and such information would only be readily available to the parties to the contract. Communications service providers routinely contract with third party vendors for equipment and various services, but the service provider always maintains ultimate responsibility for its network operations and services. Thus, all DS3s, regardless of whether they are the

³⁹⁵ We note that many of the DS3s will have one or both terminations in a private (non-carrier) location. As many commenters have pointed out, the primary task when network elements have failed is to restore service.

³⁹⁶ MCI Comments at 4; Qwest Reply Comments at 14.

³⁹⁷ See *supra*, n.394.

subject of SLAs, shall be included in the DS3 minute calculation. We disagree with BellSouth's assertion that our proposal on outage reporting for major infrastructure failures would result in the indirect regulation of the "Internet and other data services"³⁹⁸ that should be free of regulation. Internet and data services are two examples of hundreds of services that can be, and are, provided on DS3s. We have no intention of requiring every carrier to examine all of the services that were provided on every failed DS3 and then deciding if it is reportable. That would be an almost impossible burden for the carriers and would unacceptably extend the amount of time that would be required before an outage would be reported. If a DS3 fails it shall be counted regardless of the services it was providing at the time of the failure. We also disagree with the contention that a "working DS3 should be defined as one that has more than 10% of the DS0s in use, *i.e.*, 67 DS0s"³⁹⁹ and the SBC suggestion to increase the threshold to 400 DS0s.⁴⁰⁰ Many of the working transport DS3s being are not demultiplexed down to the DS2, DS1, or DS0 level within the confines of the reporting carrier so it would be almost impossible to determine how many DS0, or DS0 equivalent, channels were in use at the time of a failure. The fact that a DS3 is working, as we have defined working, is sufficient for it to be counted as part of this infrastructure.

141. We also disagree with the suggestions that various labels, such as "access," "customer," "interoffice," or "infrastructure" be placed on DS3s and that they then be counted, or not, depending on the label. None of the labels suggested by the commenting parties are clearly defined and they are not necessary to identify a failure. We are not asking telecommunications providers to apply various labels to working DS3s and then to count them, or not count them, based on those labels. The fact that a DS3 is working, as we have defined "working," is sufficient for it to be counted as part of the infrastructure.

142. We observe that Nextel's comments regarding problems it has had with T-1 (DS1) lines provided by ILECs illustrate just how dependent wireless carriers are on the services provided by wireline carriers. While we are concerned with the DS1 problems identified by Nextel we decline to include DS1s in the outage reporting requirements at this time.

143. We also observe that, in the case of a "mid-span meet," we require, at a minimum, that an outage report be submitted by the provider whose network element failed or who "has maintenance responsibility for the point of failure."⁴⁰¹ Other service providers may also report the same failure if their failed services met one of the other reporting thresholds such as blocked calls or user minutes. MCI recognizes that "a single outage situation could ... give rise to two [or more] reportable events."⁴⁰² We recognize this possibility and have made the electronic reporting of outages as simple as possible. The advantage of multiple reports of the same outage under these circumstances is that: (i) outages can be reported more rapidly without provider confusion as to who should report; and (ii) we will have a much better understanding of the overall impact of a given outage. We further observe that several commenting parties portray DS3 outage reporting as far more complex a matter than we intend it to be. These concerns are misplaced. We have absolutely no intention of placing a burden on the DS3 provider to determine just what services were being carried, nor of determining just how many DS0s, if any, might have been in use, at the time of the outage, nor of determining the "real impact on end users" (an almost impossible task). Our concern is with the failure of working DS3s regardless of the services being carried or the fill at the time of the failure. In this regard, while a DS3 has a capacity of 672 DS0 communication channels, this is not relevant to infrastructure outage reporting since it is only one of hundreds of possible

³⁹⁸ BellSouth Comments at 23 and BellSouth Reply Comments at 18.

³⁹⁹ BellSouth Comments at 24.

⁴⁰⁰ SBC Reply Comments at 4.

⁴⁰¹ *See, e.g.*, ATIS Comments at 22; Bellsouth Comments at 24 (comments describing these types of situations).

⁴⁰² MCI Comments at 4.

services that can be carried in a DS3. A DS3 is simply a unit of communications capacity that can be and is used to carry hundreds of different services, and the services that are actually carried can vary from hour to hour, if not moment by moment.

B. Signaling System Seven ("SS7")

144. Signaling System 7 (SS7) networks provide information to process, and terminate, virtually all domestic and international telephone calls irrespective of whether the call is wireless, wireline, local, long distance, or dial-up telephone modem access to ISPs.⁴⁰³ SS7 is also used in providing SMS text messaging services, 8XX number (i.e., toll free) services, local number portability, VoIP Signaling Gateway services, 555 type number services, and most paging services. Currently our rules do not require outage reporting by those companies that do not provide service directly to end users. In addition, even for companies currently subject to outage reporting requirements, no threshold reporting criteria are currently based on blocked or lost SS7 messages.⁴⁰⁴

145. As a consequence, we proposed the addition of SS7 communications disruption reporting requirements. To be more specific, all providers of Signaling System 7 service (or its equivalent)⁴⁰⁵ would be required to report those communications disruptions of at least 30 minutes duration for which the number of blocked or lost ISDN User Part (ISUP) messages⁴⁰⁶ (or its equivalent) was at least 90,000.⁴⁰⁷ We requested comment on these conclusions and proposed addition to our rules.

146. *Comments.* BellSouth supports our extending outage reporting requirements to third party SS7 providers.⁴⁰⁸ Sprint, Verizon, Qwest, AT&T, ATIS and BellSouth have all stated that it would require some software modifications to count ISUP messages.⁴⁰⁹ In addition, Qwest,⁴¹⁰ SBC⁴¹¹ and BellSouth⁴¹²

⁴⁰³ See Telcordia Notes on Common Channel Signaling (CCS) Networks, SR-NOTES-SERIES-17, Issue 1, August 2001, at 2-1 for a description of SS7 architecture.

⁴⁰⁴ Implicit in this statement is that a blocked or lost signaling message will result in a blocked or lost call. There are numerous types of failures that have already resulted in lost or blocked signaling messages. For example, SS7 failures have occurred: when both A-links were cut; when A links were out of service due to a common power pack failure; when a timing problem on both A links isolated a central office; when all B links became overloaded; when a common software problem caused a pair of STPs to fail; when a translation error caused both STPs to fail; when a common table entry error caused both SCPs to fail; and when a software upload problem in both STPs resulted in SS7 service failure.

⁴⁰⁵ Services "equivalent" to SS7 would be those services that currently provide, or will provide, the transmission signaling that SS7 protocols (and their successors) provide. Our intention here is to insure that this reporting requirement will continue to apply to future signaling developments that are similar in function to those that are performed through SS7 transmission/router/server architectures and databases.

⁴⁰⁶ ISDN User Part (ISUP) is the functional module of the SS7 protocol that supports the signaling interactions responsible for the control of calls and connections for circuit-switched narrowband communications. An explanation of all SS7 messages including ISUP messages can be found in Telcordia Notes on SS7 and CCS Network Evolution, SR-NOTES-SERIES-13, Issue 1, August 2001, at 3-15.

⁴⁰⁷ Under this approach, the number of blocked or lost messages could be based on call logs if they are available. Otherwise if call logs are not available, the number of blocked or lost messages could be estimated based on the normal call volumes during the applicable time(s) of day. The 90,000 criterion for blocked ISUP messages is analogous to the criterion of 90,000 blocked calls because an ISUP message is utilized to set up each call.

⁴⁰⁸ BellSouth Comments at 25.

⁴⁰⁹ Sprint Comments at 22; Verizon Comments at 21; Qwest Comments at 14; AT&T Comments at 23; ATIS Comments at 23; BellSouth Comments at 26.

⁴¹⁰ Qwest Comments at 14.

have indicated that there are at least 5 ISUP messages for each call. Several companies have put forth the following suggestion. As described by Qwest:

If SS7 signaling is within a service provider's network and the service provider is responsible for maintenance of the SS7 links at both end points, then providers would be required to report outages meeting the threshold proposed for IXC and LEC tandem switches, *i.e.*, outages resulting in blocked calls of a certain level [historic (30,000) or real-time (90,000)] lasting 30 or more minutes. If a third party SS7 provider is involved and a customer of a third party SS7 provider notifies their provider that they have met or exceeded the threshold proposed for IXC and LEC tandem reporting in their networks, the third party SS7 provider is responsible for any report compliance required in connection with any SS7 failure involved in the outage.⁴¹³

BellSouth puts forth the following recommendation, with which ATIS, AT&T, SBC, and USTA concur:

The Commission should require an SS7 provider to report an SS7-related event when the event: (1) is not reported by that carrier under another category; (2) lasts 30 minutes or longer; and (3) results in 90,000 or more blocked calls on a real-time basis. If real-time data is not available, historical like-day data could be used and the proposed threshold would be 30,000 blocked calls. For third-party providers that do not have access to their customer blocked call data, the providers shall query their customers for blocked call data to determine if an event is reportable. In addition, if a previously unrecognized event that resulted in 90,000 or more blocked calls is reported to a third-party provider, the third party provider should have the responsibility to submit an outage report.⁴¹⁴

147. In reply comments, Verisign argues that third party SS7 providers should not have to report because they do not know the impact of the outages.⁴¹⁵ MCI states that the threshold for SS7 outages should be based on blocked calls.⁴¹⁶ Alcatel states that lost MTP messages can be counted by STPs and could be used as a surrogate for blocked or lost calls. That is, 500,000 lost MTP messages could serve as a surrogate for 90,000 blocked calls.⁴¹⁷ Alcatel estimates that there are between 5 and 6 times as many MTP messages as there are call attempts.

148. *Discussion.* We agree with most commenting parties that third-party SS7 providers should have to report an outage if the outage is big enough so that one or more affected carriers would also have to report. Having both the third party SS7 providers report as well as the affected communications service providers will help us to understand underlying vulnerabilities in these interconnected signaling networks. We find several significant weaknesses in the proposal put forth by Qwest. First, we continue to find it important for carriers to report outages that affect their customers

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⁴¹¹ SBC Comments at 11.

⁴¹² BellSouth Comments at 26.

⁴¹³ Qwest Comments at 14.

⁴¹⁴ BellSouth Comments at 26; ATIS Comments at 23; AT&T Comments at 24; SBC Comments at 11; USTA Comments at 24. See also BellSouth Reply Comments at 19; ATIS Reply Comments at 19.

⁴¹⁵ Verisign Reply Comments at 1.

⁴¹⁶ MCI Reply Comments at 6.

⁴¹⁷ Alcatel ex parte on July 7, 2004.

even if the actual cause of the outage did not occur in their network or was not caused by them. This is the case with our current rule, and we find no reason to change the rule in this regard. The Commission continues to need outage information irrespective of whether culpability has been definitely determined. In the absence of such outage information, it may not be possible to determine with rapidity whether further action is necessary. Second, under Qwest's proposal, a third party SS7 provider would have to submit a report only if one of its several carrier-customers experienced an outage sufficiently large to meet the threshold criteria; otherwise, no report would be required even if, cumulatively, its carrier-customers experienced an outage that met the threshold criteria. Under the requirements that we are adopting, however, if several small carriers are simultaneously affected by an outage in a third-party SS7 provider's network, the third-party SS7 provider must report the outage if it meets the threshold criteria.

149. We agree with BellSouth's suggestion and will require that, for carriers and third party SS7 providers with access to blocked call information, the reporting of each outage in an SS7 network that lasts 30 minutes and either generates 90,000 blocked calls based on real-time traffic data or would result in 30,000 lost calls based on historic carried loads. Blocked or lost call information should be readily available for database outages (e.g., "800-number" service outages). Also, third party SS7 providers may be able to use their link monitoring system to obtain blocked call data for other outages. In addition, third party SS7 providers could ask for traffic data from the affected carriers. Whenever blocked or lost call information is available, that information must be used to determine whether the reporting-threshold criteria have been met. For situations in which blocked or lost call information is unavailable, we proposed to use a count of lost ISUP messages as a surrogate for a count of lost or blocked calls. We agree with Alcatel, however, that there is an equally acceptable, more straightforward, and less burdensome alternative that will achieve this same goal. That is, whenever a third party SS7 provider cannot directly estimate the number of blocked calls, the provider must count the number of lost MTP messages (level 3). A count of 500,000 real-time lost MTP messages shall be used as a surrogate for 90,000 real-time blocked calls, and a count of 167,000 lost MTP messages on a historical basis shall be used as a surrogate for 30,000 lost calls based on historic carried loads.⁴¹⁸ Additionally, we clarify that whenever a provider relies on available historic carried call load data, that data must be for the same day of the week and the same time of day as the outage, and for a time interval not older than 90 days preceding the onset of the outage. Finally, we must account for situations where, for whatever reason, real-time and historical data are unavailable to the provider, even after a detailed investigation. In such cases, the provider must determine the carried load based on data obtained in the time interval between the onset of the outage and the due date for the final report; this data must cover the same day of the week and the same time of day as the outage. Justification that such data accurately estimates the traffic that would have been carried at the time of the outage had the outage not occurred must be available on request.

IX. Electronic Filing and New Reporting Process

150. Consistent with authority granted by the Communications Act of 1934, as amended,⁴¹⁹ and in furtherance of the objectives of the Government Paperwork Elimination Act,⁴²⁰ we proposed to require that communications outage reports be filed electronically with the Commission.⁴²¹ Electronic

⁴¹⁸ Alcatel estimates that there are between 5 and 6 times as many MTP messages as there are call attempts.

⁴¹⁹ See *supra* ¶ 12 and references cited therein.

⁴²⁰ Government Paperwork Elimination Act, 44 U.S.C. § 3504 note, Pub. L. No. 105-277, Div. C, Title XVII, 112 Stat. 2681-749 (1998).

⁴²¹ See Appendix C for an illustrative depiction of the proposed data collection fields.

filing would have several major advantages for the Commission, reporting communications providers, and the public. For example:

- Providers would be able to file reports more rapidly and more efficiently.
- Information would be updated immediately. The expenses and efforts that are associated with the outage reporting process should be reduced substantially which, in turn, should result in continuing productivity gains.
- Changes to outage report data should be more easily accessible by communications providers, the public, and the Commission. Thus, reporting entities should be able to file initial and final report information more easily, and interested parties should also be able to access this information more quickly.
- Changes to electronic input form(s) can be implemented more quickly. Two of the purposes of the reliability database are to help identify causes of outages and to refine best practices for averting failures in communications networks. As networks evolve and experience is gained, the data fields can be more easily revised to improve the quality of the information received to reflect changes in communications infrastructures and management procedures.
- In addition, security precautions can be implemented to authenticate access by authorized users.

151. Our current outage reporting rules do not require, or even refer to, electronic filing (other than by facsimile). Although it is understandable, in retrospect, that our rules did not incorporate electronic filing because the Internet was just beginning to expand in 1992, we tentatively concluded that the time has now arrived to implement electronic filing procedures.⁴²² These procedures should not only facilitate compliance with the objectives that are expressed in the Government Paperwork Elimination Act but also should improve service to the public, enhance the efficiency of our internal operations, and virtually eliminate any burden that would be associated with complying with the proposed reporting requirements.⁴²³ It may, however, be desirable for other reasons to have alternative ways by which outage

⁴²² The Commission has adopted mandatory electronic filing requirements in several other contexts. See *Wireline Competition Bureau Initiates Electronic Filing of Automated Reporting Management Information System (ARMIS) Data and Associated Documents by Incumbent Local Exchange Carriers*, Public Notice, 18 FCC Rcd 3245 (Wireline Comp. Bur., 2003); *In the Matter of Amendment of the Commission's Space Station Licensing Rules and Policies and 2000 Biennial Regulatory Review (Part 25)*, IB Docket Nos. 02-34 and 00-248, *Third Report and Order and Second Further Notice of Proposed Rulemaking*, FCC 03-154, released July 8, 2003 ("Space Station Licensing Rules 3rd R&O"), at ¶ 64 (adopting mandatory electronic filing for routine C- and Ku-band earth station applications), ¶ 66 (adopting mandatory electronic filing for space station applications), ¶ 84 (inviting comment on extending electronic filing requirements to all pleadings governed by Part 25) & n.153; *In the Matter of Amendment of Part 5 of the Commission's Rules to Require Electronic Filing of Applications for Experimental Radio Licenses and Authorizations, Order*, FCC 03-207, released August 20, 2003; *Amendment of the Commission's Rules for Implementation of its Cable Operations and Licensing System (COALS) to Allow for Electronic Filing*, CS Docket No. 00-78, *Report and Order*, 19 FCC Rcd 5162 (2003); *Wireless Telecommunications Bureau (WTB) Extends Mandatory Electronic Filing Date*, Public Notice, 15 FCC Rcd 15692 (WTB, 2000); *1998 Biennial Review – Streamlining of Mass Media Applications, Rules and Processes*, MM Docket No. 98-43, 13 FCC Rcd 23056, 23060 ¶ 8 (1998); and *Electronic Tariff Filing System (ETFS)*, Order, 13 FCC Rcd 12335 (Com. Car. Bur., 1998).

⁴²³ Irrespective of any of the reporting requirements that we are proposing here, we expect that communications firms will track, investigate, and correct all of their service disruptions as an ordinary part of conducting their business operations - and will do so for service disruptions that are considerably smaller than those that would trigger the reporting criteria that we propose here. As a consequence we believe, in the usual case the only burden associated with the reporting requirements contained in this Notice will be the time required to complete the initial and final reports. We anticipate that electronic filing, through the type of template that we have identified in Appendix B, will minimize the amount of time and effort that will be required to comply with the rules that we

(continued...)

reports can be filed with this Commission. Accordingly, we requested comment on whether there are any circumstances under which electronic filing would not be appropriate and, if so, on what alternative filing procedures should be used in such circumstances. Finally, we recognized that as experience is gained with the electronic filing of outage reports, modifications to the filing template may be necessary to fully implement an automated outage reporting system that will maximize reporting efficiency and minimize the time for providers to prepare, and for the Commission staff to review, outage reports. Accordingly, we proposed to delegate authority to the Chief, Office of Engineering and Technology to make the revisions to the filing system and template that are necessary to achieve these goals.⁴²⁴

152. Historically, outage reports from wireline carriers have been available to the public. We sought comment as to whether this policy should not be applied, in whole or in part, to outage reports that will be filed by wireless, wireline, satellite, or cable providers and, if so, why.

153. *Comments.* If outage reporting is needed, virtually everyone was in favor of electronic outage reporting. There were a number of suggestions by several companies but, since BellSouth provided the most comprehensive list, we used its list as a starting point:

1. Provide a method for time and date stamping all report submissions.⁴²⁵
2. Provide a unique identifier or control number in order to link reports associated with a specific reportable event.⁴²⁶
3. Permit carriers to prepare, save, and update draft reports to allow for management review and revision. The draft reports should not be available to anyone other than the reporting entity.⁴²⁷
4. Permit providers to print drafts and reports submitted to the Commission.⁴²⁸
5. Allow for multiple users at each company.⁴²⁹
6. Provide for digital signatures to ensure that the report was not filed by an unauthorized person.⁴³⁰
7. Provide for encryption on the transmission of the report in order to protect against unauthorized disclosure and access.⁴³¹
8. Allow for the withdrawal of the two-hour notification reports without requiring a formal retraction letter.⁴³²

(...continued from previous page)

propose in this proceeding. Electronic records and signatures are legally binding to the same extent as if they were filed by non-electronic means. *See generally* Sections 101-106 of the Electronic Signatures in Global and National Commerce Act, Pub.L. 106-229, June 30, 2000, 114 Stat. 464, codified at 15 U.S.C. §§ 7001-7006. For further discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

⁴²⁴ *See, generally*, Section 5(c) (1) of the Act, 47 U.S.C. § 155(c) (1); *Space Station Licensing Rules 3rd R&O*, *supra* note 113, at ¶ 8.

⁴²⁵ BellSouth Comments at 28.

⁴²⁶ *Id.*; Qwest Comments at 24; Globalstar Comments at 28; Verizon Comments at 22; AT&T Comments at 27.

⁴²⁷ BellSouth Comments at 28

⁴²⁸ *Id.*, ATIS Comments at 36.

⁴²⁹ BellSouth Comments at 28.

⁴³⁰ *Id.*

⁴³¹ *Id.*

⁴³² *Id.* at 29.

9. Need ability to withdraw notifications and initial reports electronically and strike them from the public record.⁴³³
10. System needs to be able to deliver a filed/confirmed copy.⁴³⁴

154. There were several suggestions on improving the outage template. Ericsson stated that the name and type of equipment should be identified only when that equipment was the direct cause of the outage.⁴³⁵ KCC suggested that we add a field asking whether Telecommunications Service Priority (TSP) was involved in the restoration of service and a field for the vendor name.⁴³⁶ In addition, KCC suggests that we have a way that outages that occurred during installation and/or rearrangement are identified. Finally, KCC suggests that our outage-reporting template contain a link to the NRIC website for accessing the list of best practices. ATIS suggests that the template indicate whether the report is an initial report or a final report and recommended that Best Practices Used field be eliminated.⁴³⁷ BellSouth recommended a field to designate the appropriate time zone in which the outage occurred. BellSouth also recommended that there be more specific instructions explaining what was inside a building and what was outside a building. Finally BellSouth recommended that all names, addresses, phone numbers, be kept confidential.⁴³⁸

155. Observing that, under our proposal, several communications providers and/or third party network providers could be required to file reports on the same underlying outage, CTIA and WilTel express concern about the potential additional burden on reporting entities could result from duplicative filings.⁴³⁹ WilTel asks what are "the reporting requirements when an outage affects service provided by a carrier that does not own or operate the underlying network upon which the outage occurs?" Globalstar states that only the entity responsible for an outage should have to report.⁴⁴⁰ Several organizations indicated that federal reporting guidelines should not duplicate what is done at the state level.⁴⁴¹ Every state/city commission (Connecticut, Kansas and New York City) that responded to this NPRM has supported this rulemaking. Finally, the commenting parties from the private sector unanimously oppose the Commission's proposal to delegate to the Chief, Office of Engineering and Technology, anything more than the authority to make non-substantive, editorial changes to the outage-reporting rule. In reply comments, ATIS repeats its initial recommendations about electronic reporting, supports some of BellSouth's comments, and rejects some of KCC's comments.⁴⁴² Southern LINC and Southern Telecom state that the proposed template asks for too much information particularly if an initial report with comprehensive information is due in 120 minutes.⁴⁴³

⁴³³ Qwest Comments at 24; Globalstar Comments at 28; ATIS Comments at 32; Verizon Comments at 22.

⁴³⁴ Qwest Comments at 24; AT&T Comments at 27.

⁴³⁵ Ericsson Comments at 6.

⁴³⁶ Kansas Comments at 4.

⁴³⁷ ATIS Comments at 37.

⁴³⁸ BellSouth Comments at 35, 37.

⁴³⁹ CTIA Comments at 13; WilTel Comments at 3.

⁴⁴⁰ Globalstar Comments at 9

⁴⁴¹ Rural ILECs Comments at 2; NCTA Comments at 6. ITTA Comments at 4.

⁴⁴² ATIS Reply Comments at 27, 28.

⁴⁴³ Southern LINC and Southern Telecom Reply Comments at 7.

156. *Discussion.* We agree with virtually all suggestions made about the electronic reporting process. That is, we agree that it is necessary to provide a method for time and date stamping all report submissions. The current process date stamps all faxed transmissions, with electronic time and date stamping occurring virtually automatically. All submissions will have a unique identifier or control number. We agree that companies will be allowed to prepare, save, and update draft reports to allow for management review and revision. The draft reports should not be available to anyone other than the reporting company since the information may still be tentative. We will permit providers to print drafts and reports submitted to the Commission. We plan on allowing only a small number of users from each company to submit and edit initial and final reports for security reasons. We are currently investigating the proper level of security for the electronic system. This may include digital signatures and encryption. We will allow for the appropriate withdrawal of the two-hour notification reports without requiring a formal retraction letter. We agree that companies need to be able to withdraw notifications and initial reports in legitimate circumstances.⁴⁴⁴ However, the system will keep copies of all submissions. The electronic system will be able to deliver a filed copy.

157. We disagree with Ericsson's assertion that the name and type of equipment should be identified only when that equipment was the direct cause of the outage. Some outages are specific to one vendor's product. These fields are in the current outage-reporting template and even in the NRIC VI template. We adopt KCC's suggestion that we add a field asking whether Telecommunications Service Priority (TSP) was involved in the restoration of service. We agree that outage data could help gauge the effectiveness of TSP. We do not adopt KCC's suggestion that we add a field for the vendor name because the name of the equipment is usually uniquely identified with a particular vendor. We also note that KCC's suggestion that we identify outages that occurred during installation and/or rearrangement will be handled in the fields for contributing factors. We adopt KCC's suggestion that our outage-reporting template contain a link to a website for accessing the list of Best Practices. Since several reporting fields are related to the use of Best Practices, it is essential to make it easy for users to access the relevant Best Practices. We adopt ATIS's suggestion that the template indicate whether the report is an initial report or a final report. Clearly, we need to be able to distinguish between initial and final reports. The electronic template will have a field to designate the appropriate time zone in which the outage occurred, as suggested by BellSouth. This will make it easier to compare outages that occurred nearly simultaneously across the country. We plan to have instructions for all the fields. We disagree that the outage template is too comprehensive noting that we received suggestions for additional fields. We disagree with the comments that suggest that it is inappropriate and wasteful for the Commission to require different entities to file reports with respect to the same underlying outage. We have historically required all entities to report the same event if those companies cross one of our thresholds. There have been some instances of multiple filings on the same event in the past, but typically the number of reports per such events does not exceed two. For example, there were seven final reports that were a result of the Northeast power outage. Often there are several companies responsible for an outage. For example, a carrier who buys SS7 service from a third-party SS7 provider will still have to file a report on an outage caused by a failure in the SS7 network if the outage has a big enough impact on its own communications services. Both the SS7 provider and the carrier will be required to report the outage. Furthermore, requiring just one company to report could necessitate endless negotiations among the affected companies to decide who should report. Requiring all companies that cross a relevant threshold to report is simpler and, in the long run, less burdensome to all. And, it facilitates faster reporting which is essential for homeland security. If a communications provider experiences a single outage that satisfies several reporting thresholds (e.g., wireline, SS7 and DS3), the provider will be required to file only one report for the outage. The only occasions that a communications provider would have to file an outage report when it has not experienced an outage that satisfies the general threshold criteria based on the 30

⁴⁴⁴ E.g., where a notification was filed under the mistaken assumption that the outage was required to be reported.

minute/900,000user-minute common metric are when it experiences outages based on the additional threshold criteria that we are adopting (e.g., for DS3 or SS7). Generally, on only rare occasions, the modified rule could result in the filing of an additional report on the same outage event; in the case of SS7 outages, for example, an additional report could be required as a result of an outage in a third-party SS7 network. Finally, analysis of these additional reports could be exceedingly important in understanding how reliability in one network affects the reliability of other networks. The insights gleaned from such analysis could contribute greatly to increasing the reliability and security of the nation's telecommunications infrastructure and to furthering our Nation's homeland security.

158. With respect to the issue of potential duplication of the efforts of the states, we emphasize that we do understand the potential value of having one outage template instead of 50 different templates. Individual states, however, may have their own unique needs that could necessitate their collection of outage-reporting data that may differ from that needed by the Commission. For example, South Dakota requires many more outage reports than our criteria would generate. But since South Dakota is a small state, it may need tighter criteria in order to generate more than a handful of useful outage reports. It is, however, possible that our reporting requirements may provide a common framework that will be of assistance to state, commonwealth and territorial governments; and which may, therefore, serve to reduce the number of outage reports that might otherwise be required by those jurisdictions. Furthermore, we anticipate increased collaboration with DHS, state and local governments, and expert industry groups on matters of network reliability, homeland security, and emergency communications. The fruits of this collaboration will require that adjustments be made to our outage-reporting template and filing system on an expeditious basis. The most efficient manner in which the Commission can address this issue is to delegate authority to the Chief, Office of Engineering and Technology, to make necessary changes to the template and filing system.⁴⁴⁵

X. Small Business Alternatives

159. We noted that the economic impact on small entities that would result from our proposed action consists of the electronic filing of two outage reports for each significant outage experienced. This impact, we tentatively concluded, is likely to not be significant because we found that our proposals would not likely have a significant economic impact on a substantial number of small businesses. We anticipated that our proposals would produce no more than 1,000 communications outage reports filed by all communications providers annually and that the vast majority of these reports will be filed by larger businesses. Our proposals would require the reporting of outages of at least 30 minutes duration that meet specified criteria. One of the criteria is that the outage potentially affects at least 900,000 user-minutes for providers of telephony and/or paging services (including wireline, cellular-type wireless, cable telephony, and satellite telephony services). Those communications providers that would qualify as "small businesses" were, we tentatively concluded, highly unlikely to experience outages of sufficient magnitude to meet the user-minute criterion. If they were to experience such an outage, then a likely inference would be that a small number of users had lost service for several days duration, a situation of which we should be apprised. We did not believe that it would be wise to exempt small businesses from the proposed requirements to report outages of at least 30 minutes duration that also satisfy the other proposed reporting criteria (*i.e.*, those criteria that are not expressed in terms of user-minutes), such as the criteria of potentially affecting special facilities, offices, or services (including 911) or presenting major infrastructure failures or SS7 problems. We requested comment on these conclusions and on any useful alternatives that we should consider that would further reduce the impact of the outage reporting

⁴⁴⁵ See section 0.241(d) of our rules, *infra* Appendix B, which authorizes the Chief, Office of Engineering and Technology to implement the reporting requirements specified in Part 4 of our rules. For further discussion regarding the burden placed on communications providers by the revised rule, see our PRA analysis, *infra* ¶¶ 162-171, and our FRFA analysis, *infra* Appendix D.

requirements on small businesses. The Rural LECs filed responsive comments. We address these matters in the Final Regulatory Flexibility Analysis (“FRFA”) in Appendix D.

XI. CONCLUSION

160. For the reasons set forth above, we adopt outage-reporting requirements for wireline, cable, satellite, and terrestrial wireless communications providers, Signaling System 7 providers, and “affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications.” These requirements were set forth in our original proposal but contain certain modifications discussed above. We conclude that this action will best serve the public interest by enabling the Commission to obtain the necessary information regarding services disruptions in an efficient and expeditious manner. This action addresses the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. This action takes into account the increasing importance of non-wireline communications, as well as wireline communications, in the Nation’s communications networks and critical infrastructure.

XII. PROCEDURAL MATTERS

A. Final Regulatory Flexibility Analysis

161. As required by the Regulatory Flexibility Act of 1980, as amended (“RFA”),⁴⁴⁶ the Commission has prepared a Final Regulatory Flexibility Analysis (“FRFA”) of the possible significant economic impact on a substantial number of small entities by the policies and rules adopted in this Report and Order (“Report and Order”). The FRFA is set forth in Appendix D. The Commission will send a copy of this Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the Small Business Administration (“SBA”).⁴⁴⁷ In addition, the Report and Order and FRFA (or summaries thereof) will be published in the Federal Register.⁴⁴⁸

B. Final Paperwork Reduction Act Analysis

162. This document contains modified information collection requirements subject to the Paperwork Reduction Act of 1995 (“PRA”), Public Law 104-13. The information collections proposed in the *Notice* were submitted for review under Section 3507(d) of the PRA to the Office of Management and Budget (OMB), which assigned OMB Control Number 3060-0484 to the proposed information collection. OMB, the general public, and other Federal agencies were invited to comment on the new or modified information collection requirements contained in this proceeding.

163. In this present document, we have assessed the effects of how the modified outage-reporting requirements that apply to wireline communications providers and to cable communications providers of circuit-switched telephony, and the new outage-reporting requirements that apply to satellite communications providers, Signaling System 7 (“SS7”) providers, terrestrial wireless communications providers, and affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications, will impose information collection burdens on small business concerns. We have taken into account the comments that the Rural ILECs

⁴⁴⁶ See 5 U.S.C. § 604. The RFA, *see* 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (“SBREFA”), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

⁴⁴⁷ See 5 U.S.C. § 603(a).

⁴⁴⁸ *Id.*

filed pursuant to the PRA and to the Initial Regulatory Flexibility Act (“IRFA”).⁴⁴⁹ In these comments, they state that our original proposal, which would have required small communications providers to file detailed, initial outage reports within 120 minutes of their discovery that an outage was occurring, would be overly burdensome. They explain that their employees who diagnose outages and then work to repair and restore their communications networks are the same employees who would be called upon to supply the information needed for the initial outage reports and/or to file those reports with the Commission. Therefore, the Rural ILECs conclude that our proposal would result in a paperwork burden for rural ILECs that would interfere with the restoration of service. Second, the Rural ILECs note that our initial PRA estimated that the proposed reporting requirement would take about 5 hours for each response and state that, therefore, the proposed 120-minute time frame for filing initial outage reports may be technically infeasible, especially in outage situations where faxes cannot be sent and the Internet cannot be accessed. To address these concerns, the Rural ILECs suggest that the Commission exempt those companies that are already subject to state outage reporting requirements. They also suggest that the Commission allow those companies that are not subject to state reporting requirements to report outages orally to the Commission within 24 hours of their discovery of a reportable outage.

164. In their general comments, several parties broadly assert that “reporting obligations will only cause additional administrative burden.”⁴⁵⁰ BellSouth states that the number of filed reports could rise 1000 percent.⁴⁵¹ Verizon adds that the new rules would result in an increase in the number of outage reports that it files annually, from between 19 and 25 to 500 approximately, requiring it hire five additional employees to work on outage reporting.⁴⁵² MCI states that the new rules would result in the annual filing of at least 25 times more outage reports than are currently filed.⁴⁵³ ATIS states, “[c]hanges in [the reporting] thresholds would certainly require the retraining of personnel and, in many cases, would require substantial capital outlays for new equipment.”⁴⁵⁴ AT&T stresses that the proposed requirement for SS7 providers to count lost ISUP messages would be burdensome and costly.⁴⁵⁵ ITTA claims that small and midsize carriers are disproportionately burdened by the new rules.⁴⁵⁶ NCTA argues that carriers

⁴⁴⁹ The Rural ILECs include the following 33 rural incumbent local exchange carriers that state that they have fewer than 1,500 employees and should therefore be considered to be small businesses: Big Sandy Telecom, Inc.; Bluestem Telephone Company; C-R Telephone Company; Chautauqua and Erie Telephone Corporation; China Telephone Company; Chouteau Telephone Company; Columbine Telecom Company; Community Service Telephone Company; Ellensburg Telephone Company, Inc.; Fremont TelCom; Great Plains Communications, Inc.; GTC, Inc.; Kennebec Telephone Company; K&M Telephone Company; Maine Telephone Company; Marianna and Scenery Hill Telephone Company; Northland Telephone Company of Maine, Inc.; Odin Telephone Exchange, Inc.; Peoples Mutual Telephone Company; RC Communications, Inc.; Roberts County Telephone Cooperative Association; Sidney Telephone Company; Standish Telephone Company, Inc.; STE/NE Acquisition Corp. d/b/a Northland Telephone Company of Vermont; Sunflower Telephone Co., Inc.; Taconic Telephone Corp.; The El Paso Telephone Company; The Columbia Grove Telephone Company; The Nebraska Central Telephone Company; The Orwell Telephone Company; Waitsfield-Fauston Telephone Company; Yates City Telephone Company; and YCOM Networks, Inc. *See* Rural ILECs Comments on the IRFA at 1 & Attachment A; Rural ILECs Comments on the PRA.

⁴⁵⁰ Sprint Comments at 1; BloostanLaw Rural Carriers Comments at 1; USTA Comments at 11; BloostanLaw Paging Group Comments at 8; NTCA Comments at 3; Verizon Comments at 7;

⁴⁵¹ BellSouth Comments at 2, 3.

⁴⁵² Verizon Comments at 2.

⁴⁵³ MCI Reply Comments at 3.

⁴⁵⁴ ATIS Comments at 15.

⁴⁵⁵ AT&T Reply Comments at 6.

⁴⁵⁶ ITTA Comments at 1-4..

with less than 100 employees should not be required to report outages.⁴⁵⁷ USTA states that an increase in the number of outage reports filed annually could overburden the Commission.⁴⁵⁸

165. On the other hand, the Staff of the Kansas Corporation Commission states, “[t]he scope of information requested appears to be very relevant and comprehensive. It should not be burdensome to provide.”⁴⁵⁹ The Connecticut Department of Public Utility Control states, “[t]he Commission has proposed service disruption rules that revise existing complex and burdensome rules putting into place those that appear to be administratively efficient.”⁴⁶⁰

166. *Discussion:* We have considered the concerns raised by the commenting parties and have taken significant steps to minimize the administrative burdens on reporting entities, including small businesses. As is the case with the existing rule, most of the administrative burden is caused by the need for the communications provider to investigate outages and to collect information on these outages for its own internal use. Virtually every telecommunications provider, in the ordinary course of business, collects this type of information for its own use in order to operate and maintain its network. We do not find that the reformatting of this information and the collection of some additional information to comply with the rule adopted herein will result in an undue administrative burden. We find that our adoption of the three-stage reporting process that several commenting parties alternatively proposed will reduce the administrative burden. In particular, by not requiring the filing of a detailed initial outage within 2 hours of discovery of the outage (as the existing rule requires in some instances) and, instead, requiring the filing of only a bare-bones notification, the provider’s technical staff will be able to focus on the necessary outage diagnosis and restoration efforts. Because most outages last a few hours at most, the technical staff will also be able to assist in preparing and filing the initial and final outage reports in a timely fashion. No additional staff appears necessary for reporting entities to comply with the revised rule. The revised rule requires that within 120 minutes of discovering an outage, each reporting entity, whether large or small, must electronically submit to the Commission a Notification that contains only a minimal amount of data, that is, the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission’s technical staff may contact the reporting entity. But, if a specific outage situation prevents the Notification from being filed electronically or by FAX, other written means of filing (such as the use of a courier) will be acceptable. Thus, we find that our action will enable communications providers to focus on their repair and restoration efforts immediately after onset of the outage. The bare-bones Notification that we require will not substantially divert them from these efforts but will alert the Commission to the possibility that a major communications disruption might be occurring. We anticipate that reporting entities will ordinarily not need more than 15 minutes to file a Notification with the Commission. A more detailed initial report will be required to be filed electronically 72 hours after the outage was discovered. At this point, much more information will ordinarily be available and restoration efforts will likely be either complete or well on the way to completion. The information that we seek is of the type that the reporting entity will routinely gather as part of its outage diagnosis and restoration efforts. We anticipate that reporting entities will ordinarily not need more than 45 minutes to complete and submit the initial report to the Commission. The initial report will contain all available information and must be submitted in good faith.

⁴⁵⁷ NCTA Comments at 7.

⁴⁵⁸ USTA Reply Comments at 7.

⁴⁵⁹ KCC Comments at 4.

⁴⁶⁰ CDPUC Comments at 6.

167. The final report is required to be filed electronically 30 days after the outage was discovered. At this point, complete information will, in almost all cases, be available and the final report must contain this information and be submitted with an attestation to its accuracy and completeness. We anticipate that reporting entities will ordinarily not need more than 2 hours to complete and submit electronically the final report to the Commission. These time estimates include the actual time needed for data entry and submission but do not include the time taken for data gathering and analysis. Also excluded is idle time (for example, any time in which partially completed information is waiting in an inbox for further review), which we find cannot fairly be counted as a reporting burden. Since most companies routinely collect information on major failures, it is difficult to estimate precisely how much additional time for data gathering and analysis, if any, will be required to comply with the revised rule. In any event, we estimate that for the great majority of outages the total additional time so required will be significantly less than two (2) hours. Thus, the final report will generally not require more than 4 hours in total time.

168. In making all of our time estimates, above, we have taken into account that all filings are to be made electronically, through a “fill in the blank” template, thereby minimizing the burden on all reporting entities. In sum, we estimate the total time needed to file all reports pertinent to each outage that meets or exceeds the threshold criteria to be significantly less than 5 hours (the Notification + the Initial Report + Final Report: 15 minutes + 45 minutes + 2 hours = 3 hours). Although we anticipate that more than the current (2003) number of 126 outage reports will be filed annually, we estimate that the total number of reports from all reporting sources combined will be substantially less than 1,000 annually.

169. In reaching these conclusions, we disagree with the argument of the Rural ILECs that, because our initial PRA estimates of 52 respondents, 5 hours per response, and 1,040 hours per year response time were the same as for our existing outage-reporting rule, these estimates are far too low for the proposed expanded rules. For analytical purposes, we shall assume that the Rural ILECs are correct that the adopted rule will extend to most of the 1,337 incumbent LECs that, it states, are too small to be subject to most existing requirements, and to the previously-exempt 1,387 wireless service providers and 324 satellite telecommunications providers. Nonetheless, both the general outage-reporting criteria under both the old and new rule do not require outages whose duration is less than 30 minutes to be reported. The old rule applied only to outages potentially affecting 30,000 customers. The new rule replaces the term “customers” with the term “users” to clarify that the rule has always been focused on the number of end users potentially affected, including the many employees who may work for large organizational “customers” of the reporting entity. We refined the old rule, however, because it permitted very long outages to go unreported if less than 30,000 users were potentially affected by the outage. Instead, the new rule includes outages potentially affecting at least 900,000 user-minutes, where the number of user-minutes is the mathematical result of multiplying the outage’s duration expressed in minutes by the number of potentially affected users. Thus, under the old rule, an outage of at least 30 minutes duration that potentially affects at least 30,000 users must be reported. Such an outage equates to 900,000 user-minutes (30 minutes duration X 30,000 users) and, thus, must be reported under the new rule. Under the new rule, however, longer-lasting outages that potentially affect less than 30,000 users may have to be reported. For example, an outage that lasts 60 minutes that potentially affects 15,000 users must be reported under the new rule because the outage potentially affects 900,000 user-minutes (60 minutes duration times 15,000 users). We anticipate that this modification to the rule will require the reporting of a few more outages than the approximately 200 outages that were reported annually. Communications providers that are small businesses are likely to have far fewer end users than the large ILECs, which have filed the vast majority of all outage reports in the past. We find it likely that, only on the rarest of occasions, small businesses may be required to file outage reports. Furthermore, it is practically inconceivable that small business employing 25 or fewer employees will ever be required to file an outage report, because the communications providers to which the revised rule applies typically require far larger numbers of employees. In addition, as discussed in the preceding paragraph, we anticipate that the response time per report will be significantly less than the 5 hours that we estimated in the past. This is a

direct result of our adoption of electronic filing with a “fill in the blank” template. Finally, no commenting party in this proceeding, including the Rural ILECs, has offered any estimates of their own as to what the estimates for reporting burdens should be. As a consequence, we find that the initial PRA estimate of an overall annual reporting burden of 1,040 hours is reasonable.

170. Additionally, we point out that the alternative, 72-hour time frame for filing initial outage reports is more generous than the 24-hour time frame suggested by the Rural ILECs. Thus, we do not find that the public interest would be served by the Rural ILECs suggestion to permit outage information to be reported orally within 24 hours. The quality of information that would be submitted orally is likely to be less accurate and less uniform than that submitted electronically through the “fill in the blank” template which we have adopted. This is particularly important in the context of retransmitting this information to the Department of Homeland Security. Also, the reporting burden would likely not decrease as a result of oral submissions, because of the speed that e-filing permits and because of the greater likelihood that the Commission would need to ask oral submitters to correct and supplement incorrect and incomplete orally-submitted information. We also do not adopt the Rural ILECs suggestion that we exempt those small, rural companies that are subject to state outage-reporting requirements. We believe that there is a legitimate need for the national, uniform outage-reporting system that we adopted and which covers various communications platforms. This system is designed to address the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. Nonetheless, as the Commission, the Department of Homeland Security, and appropriate State authorities gain experience with the outage-reporting system that we adopting, the Commission and the States may make further refinements in their systems to improve the analytic results that can be gleaned from them and to eliminate any unnecessary duplication. In fact, this is one of the reasons that the Commission is delegating to the Chief of its Office of Engineering and Technology the authority to improve the outage-reporting system as the need for such improvements emerges. The information collection that we have adopted is necessary to fulfill the Commission’s responsibilities for ensuring the reliability and security of the Nation’s telecommunications networks and infrastructure, which also serves the public’s homeland security needs. We do not find that further accommodations for small businesses could be made that would not be outweighed by the public interest benefits of our present action. Moreover, as discussed in the preceding paragraph, we do not anticipate that there will be any, let alone a significant number of, businesses having fewer than 25 employees that would be covered by the outage-reporting rule that we adopted in this proceeding.

171. Finally, we have revised the criteria for reporting E911 and SS7 outages in a manner that will reduce the number of outages that will need to be reported. We also observe, as a possible gauge of administrative burden, that in the NRIC VI voluntary trial, participant wireless, Internet service, satellite, and cable communications providers submitted 66 outage reports cumulatively for 2003.⁴⁶¹ Because 26 providers had participated in this trial, the frequency of reporting averaged 0.21 reports per month per provider. Although these statistics do not provide a solid estimate of what the actual reporting burden will be under the revised rule, we do find that it is a strong indicator that the commenting parties have greatly overestimated the additional burden that could result from the rule. Thus, for example, we greatly doubt that the number of outage reports to be filed by Verizon will rise by a factor of 20, and even if it did, we doubt that Verizon would need to hire an additional five employees to file a little over one outage report a day. But even if it were to do so, we would not consider this to be a significant burden because of Verizon’s size and large, multifaceted operations in more than 35 states, commonwealths and territories. In summary, we agree with the Staff of the Kansas Corporation Commission and with the Connecticut Department of Public Utility Control that our revised rule will not impose requirements that are unduly burdensome.

⁴⁶¹ NCC report as of January 2, 2004. The voluntary trial for NRIC VI covered the year 2003.

C. Congressional Review Act

172. The Commission will include a copy of this Report and Order in a report to be sent to Congress and the General Accounting Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

D. Initial Regulatory Flexibility Analysis

173. As required by the Regulatory Flexibility Act of 1980, as amended (“RFA”),⁴⁶² the Commission has prepared this present Initial Regulatory Flexibility Analysis (“IRFA”) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in the *Further Notice of Proposed Rulemaking (Further Notice)* (see *supra* ¶ 67). The IRFA is set forth in Appendix E. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* provided *infra* paragraph 174. The Commission will send a copy of this *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (“SBA”).⁴⁶³ In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.⁴⁶⁴

E. Initial Paperwork Reduction Act Analysis

174. The *Further Notice of Proposed Rule Making* (see *supra* ¶ 67) contains proposed modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. Public and agency comments are due **60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. § 3506(c)(4), we seek specific comment on how we might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”

XIII. ORDERING CLAUSES

175. Accordingly, IT IS ORDERED THAT, Parts 0, 4, and 63 of the Commission's Rules ARE AMENDED as specified in Appendix B, effective 30 days after publication in the Federal Register. This action is taken pursuant to the authority contained in Sections 1, 4(i)-(j), 4(k), 4(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j), 154(k), 154(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d), and in Section 1704 of the Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1998, 44 U.S.C. § 3504, this Report and Order and Further Notice of Proposed Rule Making IS ADOPTED. This Report and Order contains information

⁴⁶² See 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

⁴⁶³ See 5 U.S.C. § 603(a).

⁴⁶⁴ *Id.*

collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13, that are not effective until approved by the Office of Management and Budget. The Federal Communications Commission will publish a document in the Federal Register following approval of the information collection by the Office of Management and Budget (“OMB”) announcing the effective date of those rules.

176. IT IS FURTHER ORDERED that the motion for acceptance of late-filed comments filed by the Department of Homeland Security on June 2, 2004, and the motions for acceptance of late-filed reply comments filed by the Department of Homeland Security and CCS Partners, LLC on June 29 and July 6, 2004, respectively, ARE GRANTED for good cause shown.

177. IT IS FURTHER ORDERED that comments on the Further Notice of Proposed Rulemaking initiated herein shall be filed on or before sixty (60) days after publication of this Further Notice of Proposed Rulemaking in the Federal Register and reply comments shall be filed thirty (90) days after publication in the Federal Register.

178. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Report and Order and Further Notice of Proposed Rule Making, including the Final Regulatory Flexibility Analysis and the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A**Alphabetical list of Parties Filing Comments in this Proceeding**

- Alliance for Telecommunications Industry Solutions (“ATIS”)
- American Mobile Telecommunications Association, Inc. (“AMTA”)
- AT&T Corp. (“AT&T”)
- BellSouth Corporation (“BellSouth”)
- Bloostonlaw Paging Group
- Bloostonlaw Rural Carriers
- Cingular Wireless, LLC (“Cingular”)
- City of New York, National League of Cities, and National Association of Telecommunications Officers and Advisors (“City of New York *et al.*”)
- Connecticut Department of Public Utility Control (“CDPUC”)
- CTIA – The Wireless Association (“CTIA”)
- Department of Homeland Security (“DHS”)
- Ericsson Inc. (“Ericsson”)
- General Communication Inc. (“GCI”)
- Globalstar LLC (“Globalstar”)
- Independent Telephone & Telecommunications Alliance (“ITTA”)
- Intelsat Global Service Corporation (“Intelsat”)
- Intrado Inc. (“Intrado”)
- Iridium Satellite LCC (“Iridium”)
- Kansas Corporation Commission (“KCC”)
- Lucent Technologies (“Lucent”)
- MCI, Inc. (“MCI”)
- National Telecommunications Cooperative Association (“NTCA”)
- Nextel Communications, Inc. (“Nextel”)
- PanAmSat Corporation and SES AMERICOM, Inc. (“PanAmSat and SES AMERICOM”)
- QuEST Forum (“QuEST”)
- Qwest Communications International Inc. (“Qwest”)
- Rural Incumbent Local Exchange Carriers (“Rural ILECs”)
- SBC Communications, Inc. (“SBC”)
- Sprint
- Syniverse Technologies, Inc. (“Syniverse”)
- Telesat Canada (“Telesat”)
- T-Mobile USA, Inc. (“T-Mobile”)
- United States Telecom Association (“USTA”)
- Verizon Communications Inc. affiliated telephone companies (“Verizon”)
- Wayne Martin of Palo Alto, California (“Mr. Martin”)
- WilTel Communications, LLC (“WilTel”)

Alphabetical list of Parties Filing Reply Comments in this Proceeding

- Alliance for Telecommunications Industry Solutions (“ATIS”)
- American Association of Paging Carriers (“AAPC”)
- Association of Public-Safety Communications Officials-International, Inc. (“APCO”)
- AT&T Corporation (“AT&T”)

- BellSouth Corporation (“BellSouth”)
- CCS Partners, LLC. (“CCS Partners”)
- Cingular Wireless, LLC (“Cingular”)
- CTIA – The Wireless Association (“CTIA”)
- Department of Homeland Security (“DHS”)
- Dobson Communications Corporation (“Dobson”)
- eCommerce & Telecommunications User Group (“eTUG”)
- Inmarsat Ventures Limited (“Inmarsat”)
- MCI, Inc. (“MCI”)
- National Emergency Number Association (“NENA”)
- Nextel Communications, Inc. (“Nextel”)
- Nokia, Inc. (“Nokia”)
- Qwest Communications International, Inc. (“Qwest”)
- SBC Communications (“SBC”)
- Southern Communications Services, Inc. d/b/a Southern LINC and Southern Telecom, Inc. (“Southern LINC and Southern Telecom”)
- T-Mobile USA, Inc. (“T-Mobile”)
- United States Cellular Corporation (“USCC”)
- United States Telecom Association (“USTA”)
- Verisign, Inc. (“Verisign”)
- Verizon Wireless (“Verizon”)

APPENDIX B

FINAL RULES

For the reasons discussed in the preamble, the Federal Communications Commission amends Parts 0 and 63 and creates new Part 4 of Chapter I of Title 47 of the Code of Federal Regulations (C.F.R.) as follows:

PART 0 – COMMISSION ORGANIZATION

The authority citation for part 0 continues to read as follows:

Authority: Sec. 5, 48 Stat. 1068, as amended; 47 U.S.C. 155.

1. Section 0.31 is amended by revising paragraph (i) to read as follows:

§ 0.31 Functions of the Office.

* * * * *

(i) To administer parts 2, 4, 5, 15, and 18 of this chapter, including licensing, recordkeeping, rule making, and revising the filing system and template used for compliance with the Commission's communications disruption reporting requirements.

* * * * *

2. Section 0.241 is amended by revising the introductory text paragraph (a) and paragraph (1) and paragraphs b through g and by adding paragraphs (h) and (i) to read as follows:

§ 0.241 Authority delegated.

(a) The performance of functions and activities described in § 0.31 of this part is delegated to the Chief of the Office of Engineering and Technology: Provided, that the following matters shall be referred to the Commission en banc for disposition:

(1) Notices of proposed rulemaking and of inquiry and final orders in rulemaking proceedings, inquiry proceedings and non-editorial orders making changes, except that the Chief of the Office of Engineering and Technology is delegated authority to make the revisions to the filing system and template necessary to improve the efficiency of reporting and to reduce, where reasonably possible, the time for providers to prepare, and for the Commission staff to review, the communications disruption reports required to be filed pursuant to part 4 of this chapter.

* * * * *

(b) The Chief of the Office of Engineering and Technology is delegated authority to administer the Equipment Authorization program as described in part 2 of the Commission's Rules.

(c) The Chief of the Office of Engineering and Technology is delegated authority to administer the Experimental Radio licensing program pursuant to part 5 of the Commission's Rules.

(d) The Chief of the Office of Engineering and Technology is delegated authority to administer the communications disruption reporting requirements that are contained in part 4 of this chapter and to revise the filing system and template used for the submission of such reports.

(e) The Chief of the Office of Engineering and Technology is delegated authority to examine all applications for certification (approval) of subscription television technical systems as acceptable for use under a subscription television authorization as provided for in this chapter, to notify the applicant that an examination of the certified technical information and data submitted in accordance with the provisions of this chapter indicates that the system does or does not appear to be acceptable for authorization as a subscription television system. This delegation shall be exercised in consultation with the Chief, Media Bureau.

(f) The Chief of the Office of Engineering and Technology is authorized to dismiss or deny petitions for rulemaking which are repetitive or moot or which for other reasons plainly do not warrant consideration by the Commission.

(g) The Chief of the Office of Engineering and Technology is authorized to enter into agreements with the National Institute of Standards and Technology and other accreditation bodies to perform accreditation of test laboratories pursuant to § 2.948(d) of this chapter. In addition, the Chief is authorized to make determinations regarding the continued acceptability of individual accrediting organizations and accredited laboratories.

(h) The Chief of the Office of Engineering and Technology is delegated authority to enter into agreements with the National Institute of Standards and Technology to perform accreditation of Telecommunication Certification Bodies (TCBs) pursuant to §§ 2.960 and 2.962 of this chapter. In addition, the Chief is delegated authority to develop specific methods that will be used to accredit TCBs, to designate TCBs, to make determinations regarding the continued acceptability of individual TCBs, and to develop procedures that TCBs will use for performing post-market surveillance.

(i) The Chief of the Office of Engineering and Technology is delegated authority to make nonsubstantive, editorial revisions to the Commission's rules and regulations contained in parts 2, 4, 5, 15, and 18 of this chapter.

PART 4 – DISRUPTIONS TO COMMUNICATIONS

GENERAL

Sec.

4.1 Scope, basis and purpose.

4.2 Availability of reports filed under this part

Reporting Requirements for Disruptions to Communications

4.3 Communications providers covered by the requirements of this part.

4.5 Definitions of outages, special offices and facilities, and 911 special facilities.

4.7 Definitions of metrics used to determine the general outage-reporting threshold criteria.

4.9 Outage reporting requirements -- threshold criteria.

4.11 Notification of communications outages and initial and final communications outage reports that must be filed by communications providers.

4.13 Reports by the National Communications System (NCS) and by special offices and facilities, and related responsibilities of communications providers.

The authority citation for Part 4 reads as follows:

Authority: Sections 1, 4(i), 4(j), 4(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 154(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 403, 621(b)(3), and 621(d), unless otherwise noted.

GENERAL

§ 4.1 Scope, basis and purpose.

By these rules the Federal Communications Commission is setting forth requirements pertinent to the reporting of disruptions to communications and to the reliability and security of communications infrastructures.

§ 4.2 Availability of reports filed under this part.

Reports filed under this Part will be presumed to be confidential. Public access to reports filed under this part may be sought only pursuant to the procedures set forth in 47 C.F.R. §0.461. Notice of any requests for inspection of outage reports will be provided pursuant to 47 C.F.R. §0.461(d)(3).

§ 4.3 Communications providers covered by the requirements of this part. As used in this Part:

- (a) “Cable communications” providers are cable service providers that also provide circuit-switched telephony. Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering telephony.
- (b) “Wireless service” providers include Commercial Mobile Radio Service communications providers that use cellular architecture and CMRS paging providers. In particular, they include Cellular Radio Telephone Service (Part 22 of the Commission’s Rules) providers; Personal Communications Service (PCS) (Part 24) providers; those Special Mobile Radio Service (Part 90) providers that meet the definition of “covered CMRS” providers pursuant to Sections 20.18(a), 52.21, and 52.31 of the Commission’s Rules, 47 C.F.R. §§ 20.18(a), 52.21, and 52.31; those private paging (Part 90) providers that are treated as CMRS providers (see Section 20.9 of the Commission’s Rules, 47 C.F.R. § 20.9); and narrowband PCS providers (Part 24). Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications.
- (c) IXC or LEC tandem facilities refer to tandem switches (or their equivalents) and interoffice facilities used in the provision of interexchange or local exchange communications.
- (d) “Satellite communications providers” use space stations as a means of providing the public with communications, such as telephony and paging. Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in

offering such communications. "Satellite operators" refer to entities that operate space stations but do not necessarily provide communications services directly to end users.

- (e) Signaling System 7 (SS7) is a signaling system used to control telecommunications networks. It is frequently used to "set up," process, control, and terminate circuit-switched telecommunications, including but not limited to domestic and international telephone calls (irrespective of whether the call is wholly or in part wireless, wireline, local, long distance, or is carried over cable or satellite infrastructure), SMS text messaging services, 8XX number type services, local number portability, VoIP signaling gateway services, 555 number type services, and most paging services. For purposes of this rule Part, SS7 refers to both the SS7 protocol and the packet networks through which signaling information is transported and switched or routed. It includes future modifications to the existing SS7 architecture that will provide the functional equivalency of the SS7 services and network elements that exist as of August 4, 2004. SS7 communications providers are subject to the provisions of Part 4 of the Commission's rules regardless of whether or not they provide service directly to end users. Also subject to Part 4 of the Commission's rules are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the SS7 provider in offering SS7 communications.
- (f) "Wireline communications providers" offer terrestrial communications through direct connectivity, predominantly by wire, coaxial cable, or optical fiber, between the serving central office (as now defined on October 1, 2002 in the glossary to Part 36 of the Commission's Rules, 47 C.F.R. Part 36, Appendix-Glossary) and end user location(s). Also included are affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications.
- (g) "Communications provider" is an entity that provides for a fee to one or more unaffiliated entities: two-way voice and/or data communications; paging service, by radio, wire, cable, satellite, and/or lightguide; and/or SS7 communications.
- (h) Exclusion of equipment manufacturers or vendors. Excluded from the requirements of Part 4 of the Commission's rules are those equipment manufacturers or vendors that do not maintain or provide communications networks or services used by communications providers in offering communications.

§ 4.5 Definitions of outage, special offices and facilities, and 911 special facilities. As used in this Part:

- (a) "Outage" is defined as a significant degradation in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communications provider's network.
- (b) Special offices and facilities are defined as major military installations, key government facilities, nuclear power plants, and those airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airports Systems (NPIAS) (as issued at least one calendar year prior to the outage). The member agencies of the National Communications System (NCS) will determine which of their locations are "major military installations" and "key government facilities." 911 special facilities are addressed separately in paragraph (e) of this section.

- (c) All outages that potentially affect communications for at least 30 minutes with any airport that qualifies as a “special office and facility” pursuant to the preceding paragraph shall be reported in accordance with the provisions of sections 4.11 and 4.13.
- (d) A mission-affecting outage is defined as an outage that is deemed critical to national security/emergency preparedness (NS/EP) operations of the affected facility by the National Communications System member agency operating the affected facility.
- (e) An outage that potentially affects a 911 special facility occurs whenever:
- (1) There is a loss of communications to PSAP(s) potentially affecting at least 900,000 user-minutes and: (a) the failure is neither at the PSAP(s) nor on the premises of the PSAP(s); (b) no reroute for all end users was available; and (c) the outage lasts 30 minutes or more; or
 - (2) There is a loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes duration; or
 - (3) One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes; or
 - (4) There is a loss of ANI/ALI (associated name and location information) and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes (provided that the ANI/ALI or location determination equipment was then currently deployed and in use, and the failure is neither at the PSAP(s) or on the premises of the PSAP(s)).

§ 4.7 Definitions of metrics used to determine the general outage-reporting threshold criteria. As used in this Part:

- (a) “Administrative numbers” are defined as the telephone numbers used by communications providers to perform internal administrative or operational functions necessary to maintain reasonable quality of service standards.
- (b) “Assigned numbers” are defined as the telephone numbers working in the Public Switched Telephone Network under an agreement such as a contract or tariff at the request of specific end users or customers for their use. This excludes numbers that are not yet working but have a service order pending.
- (c) “Assigned telephone number minutes” are defined as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the sum of the number of assigned numbers (defined in paragraph (b) of this section) potentially affected by the outage and the number of administrative numbers (defined in paragraph (a) of this section) potentially affected by the outage. “Assigned telephone number minutes” can alternatively be calculated as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of working telephone numbers potentially affected by the outage, where working telephone numbers are defined as the telephone numbers, including DID numbers, working immediately prior to the outage.
- (d) “DS3 minutes” are defined as the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of previously operating DS3 circuits that were affected by the outage.

(e) “User minutes” are defined as:

(A) assigned telephone number minutes (as defined in paragraph (c) of this section), for telephony and for those paging networks in which each individual user is assigned a telephone number;

(B) the mathematical result of multiplying the duration of an outage, expressed in minutes, by the number of end users potentially affected by the outage, for all other forms of communications.

(f) “Working telephone numbers” are defined to be the sum of all telephone numbers that can originate, or terminate telecommunications. This includes, for example, all working telephone number on the customer’s side of a PBX, or Centrex, or similar arrangement.

§ 4.9 Outage reporting requirements – threshold criteria.

(a) *Cable.* All cable communications providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration that: (1) potentially affects at least 900,000 user minutes of telephony service; (2) affects at least 1,350 DS3 minutes; (3) potentially affects any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5); or (4) potentially affects a 911 special facility (as defined in paragraph (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider’s contact person for communications outages at that facility, and they shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on callers to that facility. (DS3 minutes and user minutes are defined in paragraphs (d) and (e) of section 4.7.) Not later than 72 hours after discovering the outage, the provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider shall submit electronically a Final Communications Outage Report to the Commission. The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.

(b) *Wireless.* All wireless service providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration: (1) of a Mobile Switching Center (MSC); (2) that potentially affects at least 900,000 user minutes of either telephony and associated data (2nd generation or lower) service or paging service; (3) that affects at least 1,350 DS3 minutes; (4) that potentially affects any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5) other than airports; or (5) that potentially affects a 911 special facility (as defined in (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider’s contact person for communications outages at that facility, and they shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on callers to that facility. (DS3 minutes and user minutes are defined in paragraphs (d) and (e) of section 4.7.) In determining the number of users potentially affected by a failure of a switch, a concentration ratio of 8 shall be applied. For providers of paging service solely, however, the following outage criteria shall apply instead of those in subparagraphs (1) – (3), above: Notification must be submitted if the failure of a switch for at least 30 minutes duration potentially affects at least 900,000 user-minutes. Not later than 72 hours after discovering the outage, the provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider shall

submit electronically a Final Communications Outage Report to the Commission. The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.

(c) *IXC or LEC tandem facilities.* In the case of IXC or LEC tandem facilities, providers must, if technically possible, use real-time blocked calls to determine whether criteria for reporting an outage have been reached. Providers must report IXC and LEC tandem outages of at least 30 minutes duration in which at least 90,000 calls are blocked or at least 1,350 DS3-minutes are lost. For interoffice facilities which handle traffic in both directions and for which blocked call information is available in one direction only, the total number of blocked calls shall be estimated as twice the number of blocked calls determined for the available direction. Providers may use historic carried call load data for the same day(s) of the week and the same time(s) of day as the outage, and for a time interval not older than 90 days preceding the onset of the outage, to estimate blocked calls whenever it is not possible to obtain real-time blocked call counts. When using historic data, providers must report incidents where at least 30,000 calls would have been carried during a time interval with the same duration of the outage. (DS3 minutes are defined in paragraph (d) of section 4.7.) In situations where, for whatever reason, real-time and historic carried call load data are unavailable to the provider, even after a detailed investigation, the provider must determine the carried call load based on data obtained in the time interval between the onset of the outage and the due date for the final report; this data must cover the same day of the week, the same time of day, and the same duration as the outage. If this cannot be done, for whatever reason, the outage must be reported. Justification that such data accurately estimates the traffic that would have been carried at the time of the outage had the outage not occurred must be available on request.

(d) *Satellite.*

(1) All satellite operators shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, of an outage of at least 30 minutes duration that manifests itself as a failure of any of the following key system elements: one or more satellite transponders, satellite beams, inter-satellite links, or entire satellites. In addition, all Mobile-Satellite Service (“MSS”) satellite operators shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, of an outage of at least 30 minutes duration that manifests itself as a failure of any gateway earth station, except in the case where other earth stations at the gateway location are used to continue gateway operations within 30 minutes of the onset of the failure.

(2) All satellite communications providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration that manifests itself as:

- (i) a loss of complete accessibility to at least one satellite or transponder;
- (ii) a loss of a satellite communications link that potentially affects at least 900,000 user-minutes (as defined in section 4.7(d)) of either telephony service or paging service;
- (iii) potentially affecting any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5) other than airports; or
- (iv) potentially affecting a 911 special facility (as defined in (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider’s contact person for communications outages at that facility, and they shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on callers to that facility.

(3) Not later than 72 hours after discovering the outage, the operator and/or provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty

days after discovering the outage, the operator and/or provider shall submit electronically a Final Communications Outage Report to the Commission.

(4) The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.

(5) Excluded from these outage-reporting requirements are those satellites, satellite beams, inter-satellite links, MSS gateway earth stations, satellite networks, and transponders that are used exclusively for intra-corporate or intra-organizational private telecommunications networks, for the one-way distribution of video or audio programming, or for other non-covered services (that is, when they are never used to carry common carrier voice or paging communications).

- (e) *Signaling System 7.* Signaling System 7 (SS7) providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize an outage of at least 30 minutes duration that is manifested as the generation of at least 90,000 blocked calls based on real-time traffic data or at least 30,000 lost calls based on historic carried loads. In cases where a third-party SS7 provider cannot directly estimate the number of blocked calls, the third-party SS7 provider shall use 500,000 real-time lost MTP messages as a surrogate for 90,000 real-time blocked calls, or 167,000 lost MTP messages on a historical basis as a surrogate for 30,000 lost calls based on historic carried loads. Historic carried load data or the number of lost MTP messages on a historical basis shall be for the same day(s) of the week and the same time(s) of day as the outage, and for a time interval not older than 90 days preceding the onset of the outage. In situations where, for whatever reason, real-time and historic data are unavailable to the provider, even after a detailed investigation, the provider must determine the carried load based on data obtained in the time interval between the onset of the outage and the due date for the final report; this data must cover the same day of the week and the same time of day as the outage. If this cannot be done, for whatever reason, the outage must be reported. Justification that such data accurately estimates the traffic that would have been carried at the time of the outage had the outage not occurred must be available on request. Finally, whenever a pair of STPs serving any communications provider becomes isolated from a pair of interconnected STPs that serve any other communications provider, for at least 30 minutes duration, each of these communications providers shall submit electronically a Notification to the Commission within 120 minutes of discovering such outage. Not later than 72 hours after discovering the outage, the provider(s) shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider(s) shall submit electronically a Final Communications Outage Report to the Commission. The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.
- (f) *Wireline.* All wireline communications providers shall submit electronically a Notification to the Commission within 120 minutes of discovering that they have experienced on any facilities that they own, operate, lease, or otherwise utilize, an outage of at least 30 minutes duration that: (1) potentially affects at least 900,000 user minutes of either telephony or paging; (2) affects at least 1,350 DS3 minutes; (3) potentially affects any special offices and facilities (in accordance with paragraphs (a) - (d) of section 4.5); or (4) potentially affects a 911 special facility (as defined in (e) of section 4.5), in which case they also shall notify, as soon as possible by telephone or other electronic means, any official who has been designated by the management of the affected 911 facility as the provider's contact person for communications outages at that facility, and the provider shall convey to that person all available information that may be useful to the management of the affected facility in mitigating the effects of the outage on efforts to communicate with that facility. (DS3 minutes and user minutes are defined in paragraphs (d) and (e) of section 4.7.) Not later than 72 hours after discovering the outage, the provider shall submit electronically an Initial Communications Outage Report to the Commission. Not later than thirty days after discovering the outage, the provider shall submit electronically a Final Communications Outage Report to the

Commission. The Notification and the Initial and Final reports shall comply with all of the requirements of section 4.11.

§ 4.11 Notification and Initial and Final Communications Outage Reports that must be filed by communications providers. Notification and Initial and Final Communications Outage Reports shall be submitted by a person authorized by the communications provider to submit such reports to the Commission. The person submitting the Final report to the Commission shall also be authorized by the provider to legally bind the provider to the truth, completeness, and accuracy of the information contained in the report. Each Final report shall be attested by the person submitting the report that he/she has read the report prior to submitting it and on oath deposes and states that the information contained therein is true, correct, and accurate to the best of his/her knowledge and belief and that the communications provider on oath deposes and states that this information is true, complete, and accurate. The Notification shall provide: the name of the reporting entity; the date and time of onset of the outage; a brief description of the problem; the particular services affected; the geographic area affected by the outage; and a contact name and contact telephone number by which the Commission's technical staff may contact the reporting entity. The Initial and Final Reports shall contain the information required in Part 4 of the Commission's rules. The Initial report shall contain all pertinent information then available on the outage and shall be submitted in good faith. The Final report shall contain all pertinent information on the outage, including any information that was not contained in, or that has changed from that provided in, the Initial report. The Notification and the Initial and Final Communications Outage Reports are to be submitted electronically to the Commission. "Submitted electronically" refers to submission of the information using Commission-approved Web-based outage report templates. If there are technical impediments to using the Web-based system during the Notification stage, then a written Notification to the Commission by email, FAX, or courier may be used; such Notification shall contain the information required above. All notifications, as well as all Initial and Final Communications Outage Reports, whether in tangible or electronic form, shall be addressed to the Chief, Office of Engineering & Technology, Federal Communications Commission, Washington, D.C. 20554. Electronic filing shall be effectuated in accordance with procedures that are specified by the Commission by public notice.

§ 4.13 Reports by the National Communications System (NCS) and by special offices and facilities, and related responsibilities of communications providers. Reports by the National Communications System (NCS) and by special offices and facilities (other than 911 special offices and facilities) of outages potentially affecting them (see paragraphs (a) – (d) of section 4.5) shall be made according to the following procedures:

- (a) When there is a mission-affecting outage, the affected facility will report the outage to the NCS and call the communications provider in order to determine if the outage is expected to last 30 minutes. If the outage is not expected to, and does not, last 30 minutes, it will not be reported to the Commission. If it is expected to last 30 minutes or does last 30 minutes, the NCS, on the advice of the affected special facility and in the exercise of its judgment, will either:
 - (1) Forward a report of the outage to the Commission, supplying the information for initial reports affecting special facilities specified in this section of the Commission's Rules;
 - (2) Forward a report of the outage to the Commission, designating the outage as one affecting "special facilities," but reporting it at a level of detail that precludes identification of the particular facility involved; or
 - (3) Hold the report at the NCS due to the critical nature of the application.

- (b) If there is to be a report to the Commission, an electronic, written, or oral report will be given by the NCS within 120 minutes of an outage to the Commission's Duty Officer, on duty 24 hours a day in the FCC's Communications and Crisis Management Center in Washington, DC. Notification may be served at such other facility designated by the Commission by public notice or (at the time of the emergency) by public announcement only if there is a telephone outage or similar emergency in Washington, DC. If the report is oral, it is to be followed by an electronic or written report not later than the next business day. Those providers whose service failures are in any way responsible for the outage must consult and cooperate in good faith with NCS upon its request for information.
- (c) Additionally, if there is to be a report to the Commission, the communications provider will provide a written report to the NCS, supplying the information for final reports for special facilities required by this section of the Commission's rules. The communications provider's final report to the NCS will be filed within 28 days after the outage, allowing the NCS to then file the report with the Commission within 30 days after the outage. If the outage is reportable as described in paragraph (b) of this section, and the NCS determines that the final report can be presented to the Commission without jeopardizing matters of national security or emergency preparedness, the NCS will forward the report as provided in either paragraphs (a) (1) or (a) (2) of this section to the Commission.

PART 63 – EXTENSION OF LINES, NEW LINES, AND DISCONTINUANCE, REDUCTION, OUTAGE AND IMPAIRMENT OF SERVICE BY COMMON CARRIERS; AND GRANTS OF RECOGNIZED PRIVATE OPERATING AGENCY STATUS

The authority citation for Part 63 continues to read as follows:

Authority: Sections 1, 4(i), 4(j), 10, 11, 201-205, 214, 218, 403 and 651 of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 160, 161, 201-205, 214, 218, 403, and 571, unless otherwise noted.

1. Section 63.100 is amended by removing paragraphs (a) through (h) and revising § 63.100 to read as follows:

§ 63.100 Notification of service outage.

The requirements for communications providers concerning communications disruptions and the filing of outage reports are set forth in Part 4 of this chapter.

APPENDIX C**ILLUSTRATIVE ELECTRONIC FILING TEMPLATE**

An illustrative template for reporting telecommunications disruption (“outage”) information is given below. It is expected that additions, modifications, and deletions to this proposed template will be made as appropriate to better achieve the purposes that are contained in Sections 1 and 256 of the Communications Act of 1934, as amended, and as discussed in the Report and Order In the Matter of New Part 4 of the Commission’s Rules Concerning Disruptions to Communications (FCC ET Docket No. 04-35).

Serial Number for Report: Initial Report: Final Report

Name of Reporting Entity (e.g., Company):

Type of Entity Reporting Disruption:

Date of Incident:

Local Time Incident Began (24 hr clock): Time Zone

Outage Duration: Hrs Min

Explanation of Outage Duration (for incidents with partial restoration times)

Inside Building Yes No

Effects of the Outage

Services Affected

Cable Telephony:

Wireless (other than paging):

E911:

Paging:

Satellite:

Signaling (SS7):

Wireline:

Special Facilities (Airport, Government, etc.):

Other (please specify)

Number of Potentially Affected:

Wireline Users:

Wireless (non-paging) Users:

Paging Users:

Cable Telephony Users:

Satellite Users:

Number of Affected:

Blocked Calls:

Real-Time

Historic

DS3s:

Lost SS7 MTP Messages:

Real-Time

Historic

Mobile Switching Center (MSC) Failed

Yes

No

Geographic Area Affected

State:

County:

More Complete Description of Geographic Area of Outage

Description of Incident

Description of the Cause(s) of the Outage

Direct Causes: The direct cause is the immediate event that resulted in an outage. Please scroll down to the appropriate entry.

Root Cause(s): The root cause is the underlying reason why the outage occurred. Please scroll down to the appropriate entry.

Contributing Factors. Please scroll down to the appropriate entry.

No Other Cause 

Contributing Factors. Please scroll down to the appropriate entry.

No Other Cause 

Lack of Diversity Contributed to, or Caused, Outage:

Yes 

Malicious Activity:

Yes 

If yes, please explain



Name and Type of Equipment that Failed:

Specific Part of the Network Involved:

Method(s) Used to Restore Service



Was Telecommunications Service Priority (TSP) Involved in the Restoration of Service?

Yes 

Steps Taken to Prevent Reoccurrence



Applicable Best Practices That Might Have Prevented the Outage or Reduced Its Effects (See www.nric.org)

Best Practices Used to Mitigate Effects of Outage

Analysis of Best Practices

Primary Contact Person:

Phone Number:

E-mail Address:

U.S. Postal Service Address

Secondary Contact Person:

Phone Number:

E-Mail Address

U.S. Postal Service Address

APPENDIX D

FINAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),¹ an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *Notice of Proposed Rulemaking* in this proceeding.² The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA. The comments received are discussed below. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.³

A. Need for, and Objectives of, the *Report and Order*

2. The purpose of the *Report and Order* is to extend the Commission's requirements for reporting communications disruptions to communications providers that are not wireline carriers.⁴ Previously, such requirements have applied to wireline and cable telecommunications common carriers only.⁵ Now they will additionally apply to all communications providers that offer circuit-switched telephony, satellite communications providers, Signaling System 7 providers, terrestrial wireless communications providers, and affiliated and non-affiliated entities that maintain or provide communications networks or services used by the provider in offering such communications. We have taken this action because we recognize the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well-being of our Nation, especially in view of the increasing importance of non-wireline communications in the Nation's communications networks and critical infrastructure. We also are moving the outage-reporting requirements from Part 63 of our rules to Part 4 as a way to take cognizance that, although these requirements were originally established within the telecommunications common carrier context, it is now appropriate to adapt and apply them more broadly across all communications platforms to the extent discussed in the *Notice*. Further, in an effort to promote rapid reporting and minimal administrative burden on covered entities, we are streamlining compliance with the reporting requirements through electronic filing with a "fill in the blank" template and by simplifying the application of that rule. In addition, we are adopting a common metric that would establish a general outage-reporting threshold for all covered communications providers. These actions are designed to allow the Commission to obtain the necessary information regarding services disruptions in an efficient and expeditious manner and achieve significant concomitant public interest benefits.

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

² *In the Matter of New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, *Notice of Proposed Rulemaking*, FCC 04-30, 19 FCC Rcd 3373 (2004) ("*Notice*"), at ¶ 56 and Appendix C.

³ See 5 U.S.C. § 604.

⁴ By the term "communications provider" we mean an entity that provides two-way voice and/or data communications, and/or paging service, by radio, wire, cable, satellite, and/or lightguide for a fee to one or more unaffiliated entities.

⁵ See Section 63.100 of the Commission's rules currently requires only wireline and cable telecommunications common carriers to report significant service disruptions. Section 63.100 of the Commission's rules, which is codified at 47 C.F.R. § 63.100, was first adopted in 1992. *Notification by Common Carriers of Service Disruptions*, CC Docket No. 91-273, *Report and Order*, 7 FCC Rcd 2010 (1992); *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 8 FCC Rcd 8517 (1993); *Second Report and Order*, 9 FCC Rcd 3911 (1994); *Order on Reconsideration of Second Report and Order*, 10 FCC Rcd 11764 (1995).

3. The general outage-reporting threshold criteria that we adopting specify that those outages of at least 30 minutes duration that potentially affect 900,000 user-minutes must be reported. This metric is the mathematical result of multiplying the number of end users potentially affected by the outage and the outage's duration expressed in minutes. For example, a 30-minute outage that potentially affects 30,000 users meets the 900,000 user-minute threshold for reporting (*i.e.*, 30,000 users X 30 minutes = 900,000 user-minutes). Also, a 60-minute outage that potentially affects 15,000 users meets this threshold (*i.e.*, 15,000 users X 60 minutes = 900,000 user-minutes). We also are adopting specific outage-reporting thresholds for 911/E911 services and for other special offices and facilities. Major airports have always been included as special offices and facilities, and we are expanding this definition to include all of those airports that are primary (PR), commercial service (CM), or reliever (RL) airports as listed in the FAA's National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). We also specified thresholds for major infrastructure failures, such as those involving the loss of DS3 facilities or Signaling System 7 messages.

B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

4. One comment – by the Rural ILECs⁶ – was filed directly in response to the IRFA. The Rural ILECs state that the outage reporting rules that we proposed in the *Notice* -- which called for detailed, initial communications outage reports to be filed within 120 minutes of the discovery of the outage – “could compromise the ability of a small, rural ILEC to restore service during the crucial hours immediately after the onset of an outage. Indeed, compliance with the proposed rules may be technically infeasible in situations where faxes cannot be sent and the Internet cannot be accessed.”⁷ To minimize the impact on small, rural companies, they suggest that the Commission exempt those companies that are already subject to state outage reporting requirements. They further suggest that the Commission permit those companies that are not subject to such state requirements to report outages orally within 24 hours of the discovery of a reportable outage.⁸

5. Based on these comments and the more general comments of other parties in the proceeding, we are adopting modifications to our proposed rule that, we believe, will adequately address the concerns raised by the Rural ILECs. Specifically, instead of requiring the filing of a detailed, initial outage report within 120 minutes of discovery of the outage, we are requiring the filing of only a bare-bones Notification disclosing the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission's technical staff may contact the reporting entity. We will not require the more detailed initial outage report to be filed until 72 hours

⁶ The Rural ILECs include the following 33 rural incumbent local exchange carriers that state that they have fewer than 1,500 employees and should therefore be considered to be small businesses: Big Sandy Telecom, Inc.; Bluestem Telephone Company; C-R Telephone Company; Chautauqua and Erie Telephone Corporation; China Telephone Company; Chouteau Telephone Company; Columbine Telecom Company; Community Service Telephone Company; Ellensburg Telephone Company, Inc.; Fremont TelCom; Great Plains Communications, Inc.; GTC, Inc.; Kennebec Telephone Company; K&M Telephone Company; Maine Telephone Company; Marianna and Scenery Hill Telephone Company; Northland Telephone Company of Maine, Inc.; Odin Telephone Exchange, Inc.; Peoples Mutual Telephone Company; RC Communications, Inc.; Roberts County Telephone Cooperative Association; Sidney Telephone Company; Standish Telephone Company, Inc.; STE/NE Acquisition Corp. d/b/a Northland Telephone Company of Vermont; Sunflower Telephone Co., Inc.; Taconic Telephone Corp.; The El Paso Telephone Company; The Columbia Grove Telephone Company; The Nebraska Central Telephone Company; The Orwell Telephone Company; Waitsfield-Fayston Telephone Company; Yates City Telephone Company; and YCOM Networks, Inc. See Rural ILECs Comments on the IRFA at 1 & Attachment A.

⁷ Rural ILECs Comments on the IRFA at 1-2.

⁸ *Id.* at 2.

after discovery of the outage. The final communications outage report will be due 30 days after discovery of the outage, as originally proposed. This action will enable communications providers to focus on their repair and restoration efforts immediately after onset of the outage. The bare-bones Notification that we require will not substantially divert them from these efforts but will alert the Commission to the possibility that a major communications might be occurring. The 72-hour time frame for filing initial outage reports is more generous than the 24-hour time frame suggested by the Rural ILECs. The Notification will be submitted electronically, but if the outage makes this impossible, other written alternatives (such as FAX or courier) will suffice. The initial and final reports will be filed electronically. We believe that electronic filing will minimize the burdens imposed on all reporting entities, including those (if any) which might be considered to be small businesses. We do not adopt the Rural ILECs suggestion that we exempt those small, rural companies that are subject to state outage-reporting requirements. We believe that there is a legitimate need for the national, uniform outage-reporting system that we adopted and which covers various communications platforms. This system is designed to address the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. Nonetheless, as the Commission, the Department of Homeland Security, and appropriate State authorities gain experience with the outage-reporting system that we adopting, the Commission and the States may make further refinements in their systems to improve the analytic results that can be gleaned from them and to eliminate any unnecessary duplication.

C. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply

6. The RFA directs agencies to provide a description of, and, where feasible, an estimate of, the number of small entities that may be affected by the rules adopted herein.⁹ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹⁰ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹⁰¹ A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹²

7. We further describe and estimate the number of small entity licensees and regulatees that may be affected by rules adopted pursuant to this Report and Order. The most reliable source of information regarding the total numbers of certain common carrier and related providers nationwide, as well as the number of commercial wireless entities, appears to be the data that the Commission publishes in its *Trends in Telephone Service* report.¹³ The SBA has developed small business size standards for wireline and wireless small businesses within the three commercial census categories of Wired

⁹ 5 U.S.C. § 604(a)(3).

¹⁰ 5 U.S.C. § 601(6).

¹⁰¹ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

¹² 15 U.S.C. § 632.

¹³ FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, “Trends in Telephone Service” at Table 5.3, Page 5-5 (Aug. 2003) (hereinafter “Trends in Telephone Service”). This source uses data that are current as of December 31, 2001.

Telecommunications Carriers,¹⁴ Paging,¹⁵ and Cellular and Other Wireless Telecommunications.¹⁶ Under these categories, a business is small if it has 1,500 or fewer employees. Below, using the above size standards and others, we discuss the total estimated numbers of small businesses that might be affected by our actions.

8. We have included small incumbent local exchange carriers in this present RFA analysis. As noted above, a “small business” under the RFA is one that, *inter alia*, meets the pertinent small business size standard (*e.g.*, a telephone communications business having 1,500 or fewer employees), and “is not dominant in its field of operation.”¹⁷ The SBA’s Office of Advocacy contends that, for RFA purposes, small incumbent local exchange carriers are not dominant in their field of operation because any such dominance is not “national” in scope.¹⁸ We have therefore included small incumbent local exchange carriers in this RFA analysis, although we emphasize that this RFA action has no effect on Commission analyses and determinations in other, non-RFA contexts.

9. *Wired Telecommunications Carriers*. The SBA has developed a small business size standard for Wired Telecommunications Carriers, which consists of all such companies having 1,500 or fewer employees.¹⁹ According to Census Bureau data for 1997, there were 2,225 firms in this category, total, that operated for the entire year.²⁰ Of this total, 2,201 firms had employment of 999 or fewer employees, and an additional 24 firms had employment of 1,000 employees or more.²¹ Thus, under this size standard, the majority of firms can be considered small.

10. *Incumbent Local Exchange Carriers (LECs)*. Neither the Commission nor the SBA has developed a small business size standard specifically for incumbent local exchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.²² According to Commission data,²³ 1,337 carriers have reported that they are engaged in the provision of incumbent local exchange services. Of these 1,337 carriers, an estimated 1,032 have 1,500 or fewer employees and 305 have more than 1,500 employees. Consequently, the Commission estimates that most providers of incumbent local exchange service are small businesses that may be affected by our action.

¹⁴ 13 CFR § 121.201, North American Industry Classification System (NAICS) code 517110.

¹⁵ 13 CFR § 121.201, NAICS code 517211.

¹⁶ 13 CFR § 121.201, NAICS code 517212.

¹⁷ 15 U.S.C. § 632.

¹⁸ Letter from Jere W. Glover, Chief Counsel for Advocacy, SBA, to William E. Kennard, Chairman, FCC (May 27, 1999). The Small Business Act contains a definition of “small-business concern,” which the RFA incorporates into its own definition of “small business.” See 15 U.S.C. § 632(a) (Small Business Act); 5 U.S.C. § 601(3) (RFA). SBA regulations interpret “small business concern” to include the concept of dominance on a national basis. 13 C.F.R. § 121.102(b).

¹⁹ 13 CFR § 121.201 (1997), NAICS code 513310 (changed to 517110 in October 2002).

²⁰ U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, “Establishment and Firm Size (Including Legal Form of Organization),” Table 5, NAICS code 513310 (issued October 2000).

²¹ *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is “Firms with 1,000 employees or more.”

²² 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

²³ “Trends in Telephone Service” at Table 5.3.

11. *Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), “Shared-Tenant Service Providers,” and “Other Local Service Providers.”* Neither the Commission nor the SBA has developed a small business size standard specifically for these service providers. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.²⁴ According to Commission data,²⁵ 609 carriers have reported that they are engaged in the provision of either competitive access provider services or competitive local exchange carrier services. Of these 609 carriers, an estimated 458 have 1,500 or fewer employees and 151 have more than 1,500 employees. In addition, 16 carriers have reported that they are “Shared-Tenant Service Providers,” and all 16 are estimated to have 1,500 or fewer employees. In addition, 35 carriers have reported that they are “Other Local Service Providers.” Of the 35, an estimated 34 have 1,500 or fewer employees and one has more than 1,500 employees. Consequently, the Commission estimates that most providers of competitive local exchange service, competitive access providers, “Shared-Tenant Service Providers,” and “Other Local Service Providers” are small entities that may be affected by our action.

12. *Interexchange Carriers (IXCs).* Neither the Commission nor the SBA has developed a small business size standard specifically for providers of interexchange services. The appropriate size standard under SBA rules is for the category Wired Telecommunications Carriers. Under that size standard, such a business is small if it has 1,500 or fewer employees.²⁶ According to Commission data,²⁷ 261 carriers have reported that they are engaged in the provision of interexchange service. Of these, an estimated 223 have 1,500 or fewer employees and 38 have more than 1,500 employees. Consequently, the Commission estimates that the majority of IXCs are small entities that may be affected by our action.

13. *Wireless Service Providers.* The SBA has developed a small business size standard for wireless small businesses within the two separate categories of Paging²⁸ and Cellular and Other Wireless Telecommunications.²⁹ Under both SBA categories, a wireless business is small if it has 1,500 or fewer employees. According to the Commission’s most recent data,³⁰ 1,387 companies reported that they were engaged in the provision of wireless service. Of these 1,387 companies, an estimated 945 have 1,500 or fewer employees and 442 have more than 1,500 employees.³¹ Consequently, the Commission estimates that most wireless service providers are small entities that may be affected by the rules and policies adopted herein.

14. *Broadband Personal Communications Service.* The broadband Personal Communications Service (PCS) spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. The Commission defined “small entity” for Blocks C and F as an entity

²⁴ 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

²⁵ “Trends in Telephone Service” at Table 5.3.

²⁶ 13 C.F.R. § 121.201, NAICS code 517110 (changed from 513310 in Oct. 2002).

²⁷ “Trends in Telephone Service” at Table 5.3.

²⁸ 13 CFR § 121.201, North American Industry Classification System (NAICS) code 517211.

²⁹ 13 CFR § 121.201, North American Industry Classification System (NAICS) code 517212.

³⁰ FCC, Wireline Competition Bureau, Industry Analysis and Technology Division, Trends in Telephone Service, Table 5.3, (August 2002).

³¹ *Id.*

that has average gross revenues of \$40 million or less in the three previous calendar years.³² For Block F, an additional classification for “very small business” was added and is defined as an entity that, together with its affiliates, has average gross revenues of not more than \$15 million for the preceding three calendar years.”³³ These standards defining “small entity” in the context of broadband PCS auctions have been approved by the SBA.³⁴ No small businesses, within the SBA-approved small business size standards bid successfully for licenses in Blocks A and B. There were 90 winning bidders that qualified as small entities in the Block C auctions. A total of 93 small and very small business bidders won approximately 40 percent of the 1,479 licenses for Blocks D, E, and F.³⁵ On March 23, 1999, the Commission re-auctioned 347 C, D, E, and F Block licenses. There were 48 small business winning bidders. On January 26, 2001, the Commission completed the auction of 422 C and F Broadband PCS licenses in Auction No. 35. Of the 35 winning bidders in this auction, 29 qualified as “small” or “very small” businesses. Based on this information, the Commission concludes that the number of small broadband PCS licenses would have included the 90 winning C Block bidders, the 93 qualifying bidders in the D, E, and F Block auctions, the 48 winning bidders in the 1999 re-auction, and the 29 winning bidders in the 2001 re-auction, for a total of 260 small entity broadband PCS providers, as defined by the SBA small business size standards and the Commission’s auction rules. Consequently, the Commission estimates that 260 broadband PCS providers would have been small entities that could be affected by the rules and policies adopted herein. The results of Auction No. 35, however, were set aside and the licenses previously awarded to NextWave, which had qualified as a small entity, were reinstated. In addition, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

15. *Narrowband Personal Communications Services.* To date, two auctions of narrowband personal communications services (PCS) licenses have been conducted. For purposes of the two auctions that have already been held, “small businesses” were entities with average gross revenues for the prior three calendar years of \$40 million or less. Through these auctions, the Commission has awarded a total of 41 licenses, out of which 11 were obtained by small businesses. To ensure meaningful participation of small business entities in future auctions, the Commission has adopted a two-tiered small business size standard in the *Narrowband PCS Second Report and Order*.³⁶ A “small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$40 million. A “very small business” is an entity that, together with affiliates and controlling interests, has average gross revenues for the three preceding years of not more than \$15

³² See Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, WT Docket No. 96-59, Report and Order, 61 FR 33859 (July 1, 1996); see also 47 C.F.R. § 24.720(b).

³³ See Amendment of Parts 20 and 24 of the Commission’s Rules – Broadband PCS Competitive Bidding and the Commercial Mobile Radio Service Spectrum Cap, WT Docket No. 96-59, Report and Order, 61 Fed.Reg. 33859 (July 1, 1996).

³⁴ See, e.g., Implementation of Section 309(j) of the Communications Act – Competitive Bidding, PP Docket No. 93-253, Fifth Report and Order, 59 Fed.Reg. 37566 (July 22, 1994).

³⁵ FCC News, Broadband PCS, D, E and F Block Auction Closes, No. 71744 (released January 14, 1997). See also Amendment of the Commission’s Rules Regarding Installment Payment Financing for Personal Communications Services (PCS) Licenses, WT Docket No. 97-82, Second Report and Order, 62 FR 55348 (Oct. 24, 1997).

³⁶ In the Matter of Amendment of the Commission’s Rules to Establish New Personal Communications Services, Narrowband PCS, Docket No. ET 92-100, Docket No. PP 93-253, *Second Report and Order and Second Further Notice of Proposed Rulemaking*, 65 FR 35875 (June 6, 2000).

million. The SBA has approved these small business size standards.³⁷ In the future, the Commission will auction 459 licenses to serve Metropolitan Trading Areas (MTAs) and 408 response channel licenses. There is also one megahertz of narrowband PCS spectrum that has been held in reserve and that the Commission has not yet decided to release for licensing. The Commission cannot predict accurately the number of licenses that will be awarded to small entities in future actions. However, four of the 16 winning bidders in the two previous narrowband PCS auctions were small businesses, as that term was defined under the Commission's Rules. The Commission assumes, for purposes of this analysis that a large portion of the remaining narrowband PCS licenses will be awarded to small entities. The Commission also assumes that at least some small businesses will acquire narrowband PCS licenses by means of the Commission's partitioning and disaggregation rules.

16. *800 MHz and 900 MHz Specialized Mobile Radio Licenses.* The Commission awards "small entity" and "very small entity" bidding credits in auctions for Specialized Mobile Radio (SMR) geographic area licenses in the 800 MHz and 900 MHz bands to firms that had revenues of no more than \$15 million in each of the three previous calendar years, or that had revenues of no more than \$3 million in each of the previous calendar years, respectively.³⁸ These bidding credits apply to SMR providers in the 800 MHz and 900 MHz bands that either hold geographic area licenses or have obtained extended implementation authorizations. The Commission does not know how many firms provide 800 MHz or 900 MHz geographic area SMR service pursuant to extended implementation authorizations, nor how many of these providers have annual revenues of no more than \$15 million. One firm has over \$15 million in revenues. The Commission assumes, for purposes here, that all of the remaining existing extended implementation authorizations are held by small entities, as that term is defined by the SBA. The Commission has held auctions for geographic area licenses in the 800 MHz and 900 MHz SMR bands. There were 60 winning bidders that qualified as small or very small entities in the 900 MHz SMR auctions. Of the 1,020 licenses won in the 900 MHz auction, bidders qualifying as small or very small entities won 263 licenses. In the 800 MHz auction, 38 of the 524 licenses won were won by small and very small entities. In addition, we note that, as a general matter, the number of winning bidders that qualify as small businesses at the close of an auction does not necessarily represent the number of small businesses currently in service. Also, the Commission does not generally track subsequent business size unless, in the context of assignments or transfers, unjust enrichment issues are implicated.

17. *Paging.* The SBA has developed a small business size standard for Paging, which consists of all such firms having 1,500 or fewer employees.³⁹ According to Census Bureau data for 1997, in this category there was a total of 1,320 firms that operated for the entire year.⁴⁰ Of this total, 1,303 firms had employment of 999 or fewer employees, and an additional seventeen firms had employment of 1,000 employees or more.⁴¹ Thus, under this size standard, the majority of firms can be considered small.

18. *Rural Radiotelephone Service.* The Commission has not adopted a size standard for small businesses specific to the Rural Radiotelephone Service.⁴² A significant subset of the Rural

³⁷ See Letter to Amy Zoslov, Chief, Auctions and Industry Analysis Division, Wireless Telecommunications Bureau, FCC, from Aida Alvarez, Administrator, SBA (Dec. 2, 1998).

³⁸ 47 CFR § 90.814(b) (1).

³⁹ 13 C.F.R. § 121.201, NAICS code 517211 (changed from 513321 in October 2002).

⁴⁰ U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 5, NAICS code 513321 (issued October 2000).

⁴¹ *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is "Firms with 1,000 employees or more."

⁴² The service is defined in Section 22.99 of the Commission's Rules, 47 C.F.R. § 22.99.

Radiotelephone Service is the Basic Exchange Telephone Radio System (BETRS).⁴³ The Commission uses the SBA's small business size standard applicable to "Cellular and Other Wireless Telecommunications," *i.e.*, an entity employing no more than 1,500 persons.⁴⁴ There are approximately 1,000 licensees in the Rural Radiotelephone Service, and the Commission estimates that there are 1,000 or fewer small entity licensees in the Rural Radiotelephone Service that may be affected by the rules and policies adopted herein.

19. *Cable and Other Program Distribution.*⁴⁵ This category includes cable systems operators, closed circuit television services, direct broadcast satellite services, multipoint distribution systems, satellite master antenna systems, and subscription television services. According to Census Bureau data for 1997, there were a total of 1,311 firms in this category, total, that had operated for the entire year.⁴⁶ Of this total, 1,180 firms had annual receipts of under \$10 million and an additional 52 firms had receipts of \$10 million or more but less than \$25 million. Consequently, the Commission estimates that the majority of providers in this service category are small businesses that may be affected by the rules and policies adopted herein.

20. *Cable System Operators (Rate Regulation Standard).* The Commission has developed a size standard for small cable system operators for the purposes of rate regulation. Under the Commission's rules, a "small cable company" is one serving fewer than 400,000 subscribers nationwide.⁴⁷ Based on our most recent information, we estimate that there were 1439 cable operators that qualified as small cable companies at the end of 1995.⁴⁸ Since then, some of those companies may have grown to serve over 400,000 subscribers, and others may have been involved in transactions that caused them to be combined with other cable operators. The Commission's rules define a "small system," for the purposes of rate regulation, as a cable system with 15,000 or fewer subscribers.⁴⁹ The Commission does not request nor does the Commission collect information concerning cable systems serving 15,000 or fewer subscribers and thus is unable to estimate, at this time, the number of small cable systems nationwide.

21. *Cable System Operators (Telecom Act Standard).* The Communications Act of 1934, as amended, also contains a definition of a small cable system operator, which is "a cable operator that, directly or through an affiliate, serves in the aggregate fewer than 1% of all subscribers in the United States and is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000."⁵⁰ The Commission has determined that there are 61,700,000 subscribers in the United States. Therefore, a cable operator serving fewer than 617,000 subscribers shall be deemed a small

⁴³ BETRS is defined in Sections 22.757 and 22.759 of the Commission's Rules, 47 C.F.R. §§ 22.757 and 22.759.

⁴⁴ 13 C.F.R. § 121.201, NAICS code 517212.

⁴⁵ 13 CFR § 121.201, North American Industry Classification System (NAICS) code 513220 (changed to 517510 in October 2002).

⁴⁶ U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)", Table 4, NAICS code 513220 (issued October 2000).

⁴⁷ 47 C.F.R. § 76.901(e). The Commission developed this definition based on its determination that a small cable system operator is one with annual revenues of \$100 million or less. *Implementation of Sections of the 1992 Cable Act: Rate Regulation, Sixth Report and Order and Eleventh Order on Reconsideration*, MM Docket No. 92-266 and 93-215, 10 FCC Rcd 7393 (1995), 60 Fed. Reg. 10534 (February 27, 1995).

⁴⁸ Paul Kagan Associates, Inc., *Cable TV Investor*, Feb. 29, 1996 (based on figures for Dec. 30, 1995).

⁴⁹ 47 C.F.R. § 76.901(c).

⁵⁰ 47 U.S.C. § 543(m)(2).

operator, if its annual revenues, when combined with the total annual revenues of all of its affiliates, do not exceed \$250 million in the aggregate.⁵¹ Based on available data, we find that the number of cable operators serving 617,000 subscribers or less totals approximately 1450.⁵² Although it seems certain that some of these cable system operators are affiliated with entities whose gross annual revenues exceed \$250,000,000, we are unable at this time to estimate with greater precision the number of cable system operators that would qualify as small cable operators as defined in the Communications Act of 1934.

22. *Satellite Telecommunications Providers.* The appropriate size standards under SBA rules are for the two broad categories of Satellite Telecommunications and Other Telecommunications. Under both categories, such a business is small if it has \$12.5 or less in average annual receipts.⁵³ For the first category of Satellite Telecommunications, Census Bureau data for 1997 show that there were a total of 324 firms that operated for the entire year.⁵⁴ Of this total, 273 firms had annual receipts of under \$10 million, and an additional twenty-four firms had receipts of \$10 million to \$24,999,999. Thus, the majority of Satellite Telecommunications firms can be considered small.

23. *Signaling System 7 (SS7) Providers.* The Commission has not developed a definition of small entities applicable to Signaling System 7 providers. We shall apply the SBA's small business size standard for Other Telecommunications, which identifies as small all such companies having \$12.5 million or less in annual receipts.⁵⁵ We believe that there are no more than half-a-dozen SS7 providers and doubt that any of them have annual receipts less than \$12.5 million. In the IRFA in this proceeding, we assumed that there may be several SS7 providers that are small businesses which could be affected by the proposed rules and requested comment on how many SS7 providers exist and on how many of these are small businesses that may be affected by our proposed rules. No comments provided this information. We conclude that none of these providers are small businesses.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

24. The rules adopted in this *Report and Order* require telecommunications providers to report those outages that meet specified threshold criteria. These criteria are largely determined by the number of end users potentially affected by the outage and the duration of the outage, which generally must be at least 30 minutes. Under the prior rules, which have applied only to wireline carriers and cable television service providers that also provide telecommunications service, only about 200 outage reports per year from all reporting sources combined were filed with the Commission. In the IRFA, we stated that the proposed revisions to the threshold criteria were not expected to alter the number of outage reports filed annually to a significant degree. Nevertheless, the adopted rules do extend the outage reporting requirements to telecommunications providers that are not currently subject to these rules. Thus, in the IRFA we anticipated that more than 200 outage reports will be filed annually, but estimated that the total number of reports from all reporting sources combined will be substantially less than 1,000 annually. We noted then, and find now, that, occasionally, the outage reporting requirements could require the use of professional skills, including legal and engineering expertise. Without more data, the IRFA concluded that we could not accurately estimate the cost of compliance by small telecommunications providers. But irrespective of any of the

⁵¹ 47 C.F.R. § 76.1403(b).

⁵² *Cable TV Investor*, *supra* note 48.

⁵³ 13 C.F.R. § 121.201, NAICS codes 517410 and 517910 (changed from 513340 and 513390 in Oct. 2002).

⁵⁴ U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Establishment and Firm Size (Including Legal Form of Organization)," Table 4, NAICS code 513340 (issued Oct. 2000).

⁵⁵ 13 C.F.R. § 121.201, NAICS code 517910.

reporting requirements that were proposed, the IRFA expected that telecommunications providers will track, investigate, and correct all of their service disruptions as an ordinary part of conducting their business operations -- and will do so for service disruptions that are considerably smaller than for disruptions that would trigger the proposed reporting criteria. As a consequence, the IRFA tentatively found that in the usual case, the only burden associated with the proposed reporting requirements would be the time required to complete the initial and final reports. The IRFA anticipated that electronic filing using a "fill in the blank" template would minimize the amount of time and effort that would be required to comply with the proposed rules. The IRFA sought comment on the types of burdens telecommunications providers would face in complying with the proposed requirements. Entities, especially small entities, were encouraged to quantify the costs and benefits of the proposed reporting requirements. In addition, in our initial analysis pursuant to the Paperwork Reduction Act of 1995, we estimated that the Number of Respondents would be 52, the Estimated Time per Response would be 5 hours, the Frequency of Response would be "on occasion," the Total Annual Burden would be 1,040 hours, and the Total Annual Costs would be \$41,600. We sought comment on the PRA, including on: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. See *Commission's Rules Concerning Disruptions to Communications*, ET Docket No. 04-35, *Proposed Rule*, FCC 04-30, 69 Fed. Reg. 15761 (published March 26, 2004).

25. The Rural ILECs⁵⁶ were the only parties to file direct comments on the IRFA. In these comments, they state that our original proposal, which would have required small communications providers to file detailed, initial outage reports within 120 minutes of their discovery that an outage was occurring, would be overly burdensome. They explain that their employees who diagnose outages and then work to repair and restore their communications networks are the same employees who would be called upon to supply the information needed for the initial outage reports and/or to file those reports with the Commission. Therefore, the Rural ILECs conclude that our proposal could compromise their ability to restore service during the critical hours immediately after the onset of an outage. In addition, they state that compliance with the proposed rules may be technically infeasible in situations where faxes cannot be sent and the Internet cannot be accessed. To address these concerns, the Rural ILECs suggest that the Commission exempt those companies that are already subject to state outage reporting requirements. They also suggest that the Commission allow those companies that are not subject to state reporting requirements to report outages orally to the Commission within 24 hours of their discovery of a reportable outage. Taking these comments, as well as the general comments of other parties into account, the Commission, in the *Report and Order*, adopted a modified outage-reporting rule that is more flexible than the one proposed in the *Notice*. Within 120 minutes of discovering an outage, each reporting entity, whether large or small, will be required to submit to the Commission a Notification that contains only a minimal amount of data, that is, the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission's technical staff may contact the reporting entity. We anticipate that reporting entities will ordinarily not need more than 15 minutes to file a Notification with the Commission. The more detailed initial report, with which Rural ILECs expressed concern, will not be required to be filed until 72 hours after the outage was discovered. Further, all filings are to be made electronically, thereby minimizing the burden on all reporting entities. But, if a specific outage situation prevents the Notification from being filed electronically or by FAX, other written means of filing (such as the use of a courier) will be acceptable.

⁵⁶ See *supra* note 6.

Thus, we find that our action will enable communications providers to focus on their repair and restoration efforts immediately after onset of the outage. The bare-bones Notification that we require will not substantially divert them from these efforts but will alert the Commission to the possibility that a major communications outage might be occurring. In addition, the alternative, 72-hour time frame for filing initial outage reports is more generous than the 24-hour time frame suggested by the Rural ILECs. Thus, we do not find that the public interest would be served by the Rural ILECs suggestion to permit outage information to be reported orally within 24 hours. The quality of information that would be submitted orally is likely to be less accurate and less uniform than that submitted electronically through the “fill in the blank” template which we have adopted. Also, the reporting burden would likely not decrease as a result of oral submissions, because of the speed that e-filing permits and because of the greater likelihood that the Commission would need to ask oral submitters to correct and supplement incorrect and incomplete orally-submitted information.

26. We also do not adopt the Rural ILECs suggestion that we exempt those small, rural companies that are subject to state outage-reporting requirements. We believe that there is a legitimate need for the national, uniform outage-reporting system that we adopted and which covers various communications platforms. This system is designed to address the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. Nonetheless, as the Commission, the Department of Homeland Security, and appropriate State authorities gain experience with the outage-reporting system that we are adopting, the Commission and the States may make further refinements in their systems to improve the analytic results that can be gleaned from them and to eliminate any unnecessary duplication. The information collection that we have adopted is necessary to fulfill the Commission’s responsibilities for ensuring the reliability and security of the Nation’s telecommunications networks and infrastructure, which also serves the public’s homeland security needs. We do not find that further accommodations for small businesses could be made that would not be outweighed by the public interest benefits of our present action.

27. We estimate that reporting entities will ordinarily not need more than 15 minutes to file electronically with the Commission the bare-bones Notification that will contain only a minimal amount of data, that is, the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission’s technical staff may contact the reporting entity. We further estimate that reporting entities will ordinarily not need more than 45 minutes to complete and submit electronically to the Commission the initial report, due within 72 hours of discovery of the outage, that will contain all information then available. Finally, we estimate that reporting entities will ordinarily not need more than 2 hours to complete and submit electronically the final report to the Commission. These time estimates include the actual time needed for data entry and submission but do not include the time taken for data gathering and analysis. Also excluded is idle time (for example, any time in which partially completed information is waiting in an in-box for further review), which we find cannot fairly be counted as a reporting burden. Since most companies routinely collect information on service failures, it is difficult to estimate precisely how much additional time for data gathering and analysis, if any, will be required to comply with the revised rule. In any event, we estimate that for the great majority of outages the total additional time so required will be significantly less than two (2) hours. Thus, the final report will generally not require more than 4 hours in total time. In making all of our time estimates, above, we have taken into account that all filings are to be made electronically, through a “fill in the blank” template, thereby minimizing the burden on all reporting entities. In sum, we estimate the total time needed to file all reports pertinent to each outage that meets or exceeds the threshold criteria to be significantly less than 5 hours (the Notification + the Initial Report + Final Report: 15 minutes + 45 minutes + 2 to 4 hours < 5 hours).

28. Although we anticipate that more than the current amount of 200 outage reports will be filed annually, we estimate that the total number of reports, from all reporting sources combined, will be

substantially less than 1,000 annually. We note that, occasionally, the outage reporting requirements could require the use of professional skills, including legal and engineering expertise. The commenting parties have not provided any data that would assist us in estimating more accurately estimate the cost of compliance by small telecommunications providers. But irrespective of any of the reporting requirements, we expect that all telecommunications providers (including small ones) will track, investigate, and correct all of their service disruptions as an ordinary part of conducting their business operations--and will do so for service disruptions that are considerably smaller than for disruptions that would trigger the reporting criteria that we propose here. As a consequence, we believe that in the usual case, the only burden associated with the reporting requirements will be the time required to complete the Notification, and the Initial and Final Reports. We anticipate that electronic filing, through the type of illustrative template that we have set forth in Appendix C of this *Report and Order*, should minimize the amount of time and effort that will be required to comply with the rules. In addition, we anticipate that the vast majority of outage reports will be necessitated by outages that meet the general reporting threshold criteria of having a duration of at least 30 minutes and potentially affecting at least 900,000 user-minutes (that is, the mathematical result of multiplying the outage duration expressed in minutes and the number of users potentially affected by the outage meets or exceeds 900,000). We further anticipate that the vast majority of these types of outages will be experienced by large telecommunications providers. Only rarely will providers that are small businesses experience such outages because they are most likely to have a relatively small number of end users that potentially would be affected by any particular outage. Therefore, the outages that are experienced by those providers that are small businesses will most likely fall below the criteria for mandatory reporting and, thus, will not be required to be reported to the Commission. Therefore, such outages will impose minimal reporting burdens on small businesses. Small businesses as a group may experience a few outages yearly that must be reported because those outages meet the reporting criteria for outages potentially affecting 911/E911 services or other special offices and facilities. Large businesses face the same reporting criteria and burden. Because of the critical nature of 911/E911 and other special offices and facilities, it is a national priority that all telecommunications providers, including those that are small businesses, comply with these particular requirements.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

29. In order to minimize any adverse impact of the modified outage-reporting rule on small entities, we have provided for the electronic filing of reports through use of a “fill in the blank” template and have adopted a three-step reporting process that is less burdensome than the two-step process originally proposed. We had proposed to require that, 120 minutes after discovering an outage, reporting entities file an Initial Report that would include all information about the outage then available. Instead, we have considered comments that indicate that this proposal could interfere with the ability of reporting entities, especially small businesses, to focus on repair and restorative efforts. Therefore, we have adopted a more flexible requirement, by which reporting entities, 120 minutes after discovering an outage, will file electronically a bare-bones Notification that will contain only a minimal amount of data, that is, the name of the Reporting Entity; the Date and Time of onset of the outage; a Brief Description of the Problem; the particular Services Affected; the Geographic Area affected by the outage; and a Contact Name and Contact Number by which the Commission’s technical staff may contact the reporting entity. The time frame for filing electronically the Initial Report, which is to contain all information then available, has been revised to be 72 hours after the outage’s discovery. This is less burdensome to reporting entities because all or most of the diagnostic and restorative work will have typically been completed by this time, and, thus, the reporting requirement will not significantly interfere with such efforts. Moreover, because all or most of the information will already be known, it is unlikely that very much time will be needed to complete either the Initial or the Final Report. The Final Report, as we had

proposed, will be due 30 days after discovery of the outage; no commenting party has objected to this time frame.

30. In taking this action, we have considered but reject the Rural ILECs suggestion that, instead of requiring the filing of the Initial Report by the 120-minute mark, we allow small entities to submit outage information orally at the 24-hour mark. The requirements that we adopt will allow all entities 72 hours to file the Initial Report electronically. At the 120-minute mark, we are requiring only that a bare-bones Notification be submitted. We also reject Rural ILECs suggestion that we exempt those small entities to which State outage-reporting requirements apply. We believe that there is a legitimate need for the national, uniform outage-reporting system that we have adopted and which covers various communications platforms. This system is designed to address the critical need for rapid, full, and accurate information on service disruptions that could affect homeland security, public health and safety, as well as the economic well being of our Nation. Nonetheless, as the Commission, the Department of Homeland Security, and appropriate State authorities gain experience with the outage-reporting system that we adopting, the Commission and the States may make further refinements in their systems to improve the analytic results that can be gleaned from them and to eliminate any unnecessary duplication. In any event, we believe that the requirements that we adopt will adequately address the concerns of small entities as well as provide more timely warning of outages and, ultimately, more accurate, complete, and uniform information that will of great use to the Commission, the Department of Homeland Security, and technical expert groups in assessing and improving network reliability and in addressing homeland security concerns.

31. Our action also takes into account comments filed by the BloostonLaw Paging Group, which states our proposed metric of 900,000 user-minutes would place onerous burdens on the paging industry and that almost all paging outages involve only a particular transmitter or a small cluster of transmitters and the provider's entire system. As a result, we adopted rules that are a modified version of our original proposal, which would have required the reporting of all paging outages, even ones that involve only a single transmitter, that meet the threshold. Instead, we have decided to apply the 900,000 user-minute criterion to outages of the switch only. Therefore, we anticipate that very few paging outages will be reportable. The BloostonLaw Paging Group also state the proposed 120-minute time frame for filing Initial Reports would cause providers to divert resources from restoration efforts and/or to hire additional personnel. We addressed these concerns, above, where we referenced the comments of the Rural ILECs, and have adopted a more flexible, three-step process that adequately addresses and mitigates these concerns and, we find, would not impose a significant financial burden on paging providers. Thus, we reject the suggestions of BloostonLaw Paging Group that we limit the contemporaneous outage-reporting requirements for paging providers to those outages whose origins appear "suspicious" and require reports for "non-suspicious" outages to be filed semi-annually or less frequently. We do not find that it is always immediately evident whether or not an outage has a "suspicious" origin.

32. Finally, we reject the suggestions of BloostonLaw Rural Carriers that, in order to reduce reporting burdens, outage reporting by small (*i.e.*, Tier III) wireless carriers should be on a voluntary basis or an annual or semi-annual basis, with contemporaneous reporting required only for outages of "suspicious" origin. As discussed in the paragraphs above, we believe that the modifications we have adopted are sufficient to address and mitigate the concerns of small entities while ensuring that the Commission, DHS, and technical expert groups receive the essential information. We also disagree, for reasons explained in the text of the *Report and Order*, with their argument that the concentration ratio of 8 that we have adopted would, for rural wireless providers, result in an overstatement of the number of users potentially affected by an outage.⁵⁷

⁵⁷ See *Report and Order*, *supra*, at ¶¶ 107-113.

33. **Report to Congress:** The Commission will send a copy of the *Report and Order*, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.⁵⁸ In addition, the Commission will send a copy of the *Report and Order*, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order* and FRFA (or summaries thereof) will also be published in the Federal Register.⁵⁹

⁵⁸ See 5 U.S.C. § 801(a)(1)(A).

⁵⁹ See 5 U.S.C. § 604(b).

APPENDIX E

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (“RFA”),¹ the Commission has prepared this Initial Regulatory Flexibility Act Analysis (“IRFA”) of the possible significant economic impact on small entities by the policies and rules proposed in this *Further Notice of Proposed Rule Making* (“*Further Notice*”). Written public comments are requested on this IRFA and must be filed by the deadlines for comments on the *Further Notice* provided above in paragraph 174. The Commission will send a copy of the *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.² In addition, the *Further Notice* including the IRFA (or summaries thereof) will be published in the Federal Register.³

A. Need for and Objectives of the Proposed Rules. We seek to expand the record in this proceeding in order to focus specifically on the unique communications needs of airports. In this regard, we request comment on the additional types of airport communications (e.g., wireless, satellite) that should be subject to service disruption reports. This may include, for example, communications that are provided by ARINC as well as commercial communications (e.g., air-to-ground and ground-to-air telephone communications) as well as intra-airline commercial links. We also seek comment on whether the outage-reporting requirements for special facilities should be extended to cover general aviation airports and, if so, what the applicable threshold criteria should be. Potentially, all of the airports in the United States may need to be used by aircraft for emergency landings. The potential loss life or property through commercial aircraft crashes can be catastrophic. The need, however, for communications among non-commercial (as well as commercial) airports and the rest of the United States becomes more apparent in the contexts of general aviation and government aviation in which many non-commercial planes carry, for example, personnel who are essential to national defense and homeland security, as well as government officials from Federal, state, local, and foreign governments. Moreover, all of the airports in the United States are potential launching pads for terrorist activities. As a consequence, it is essential that all personnel at airports throughout the United States be able to access appropriate government and civilian personnel to avert acts of terrorism. Finally, commercial communications links are used by airports to support navigation, traffic control, maintenance, and restoration. Those commercial communications links need to be functioning continuously. The requirements for which we seek comment would be in addition to those adopted in the *Report and Order* in this proceeding. Those requirements apply to wireline and cable circuit-switched telecommunications with airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA’s National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). Outages affecting any of these airports for 30 minutes or more must be reported.

B. Legal Basis. The legal basis for the rule changes proposed in this *Further Notice* are contained in sections 1, 4(i), 4(k), 4(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 303(v), 403, 621(b)(3), and 621(d) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 154(k), 154(o), 218, 219, 230, 256, 301, 302(a), 303(f), 303(g), 303(j), 303(r), 303(v), 403, 621(b)(3), and 621(d), and in section 1704 of the Omnibus Consolidated and Emergency Supplemental Appropriations Act of 1998, 44 U.S.C. § 1704.

¹ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601 - 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, 110 Stat. 847 (1996).

² 5 U.S.C. § 603(a).

³ *Id.*

C. Description and Estimates of the Number of Small Entities to Which the Rules Adopted in This Notice May Apply. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the proposed rules.⁴ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”⁵ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.⁶ A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).⁷

The small entity licensees and regulatees that may be affected by rules adopted pursuant to this *Further Notice* are the same as those addressed in the Final Regulatory Flexibility Act analysis for the *Report and Order* in this proceeding. See *supra* Appendix D. Specifically, all of the following categories of licensees and regulatees may be affected: Wired Telecommunications Carriers; Incumbent Local Exchange Carriers (LECs); Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), “Shared-Tenant Service Providers,” and “Other Local Service Providers;” Interexchange Carriers (IXCs); Wireless Service Providers; Broadband Personal Communications Service; Narrowband Personal Communications Services; 800 MHz and 900 MHz Specialized Mobile Radio Licenses; Paging; Rural Radiotelephone Service; Cable and Other Program Distribution; Cable System Operators (Rate Regulation Standard); Cable System Operators (Telecom Act Standard); Satellite Telecommunications Providers; and Signaling System 7 (SS7) Providers.

D. Description of Projected Reporting, Recordkeeping and Other Compliance Requirements. The *Further Notice* seeks to expand the record in this proceeding in order to focus specifically on the unique communications needs of airports. In this regard, we request comment on the additional types of airport communications (*e.g.*, wireless, satellite) that should be subject to service disruption reports. This may include, for example, communications that are provided by ARINC as well as commercial communications (*e.g.*, air-to-ground and ground-to-air telephone communications) as well as intra-airline commercial links. We also seek comment on whether the outage-reporting requirements for special facilities should be extended to cover general aviation airports and, if so, what the applicable threshold criteria should be. The current rule as modified by the *Report and Order* applies exclusively to wireline and cable circuit-switched telecommunications with airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA’s National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). Outages affecting any of these airports for 30 minutes or more must be reported. The *Further Notice* considers expanding these requirements to include general aviation airports. Also, the *Further Notice* considers possible revisions to the threshold criteria for determining whether outage reports for special offices and facilities (as specifically applied to airports) must be filed. Under previous rules, which applied only to wireline carriers and cable television service providers that also provide telecommunications service, only about 200 outage reports per year from all reporting sources combined have been filed with the Commission. We have anticipated that the rule as modified by the *Report and Order* will result in more than 200 outage reports being filed annually, but have estimated that the total number of reports from all reporting sources combined will be substantially

⁴ 5 U.S.C. §§ 603(b) (3), 604(a) (3).

⁵ *Id.* at § 601(6).

⁶ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such terms which are appropriate to the activities of the agency and publishes such definitions(s) in the Federal Register.”

⁷ 15 U.S.C. § 632.

fewer than 1,000 annually. The great majority of these reports, however, result from outages that meet the general threshold criteria, which are much broader in scope than those applicable to special facilities and offices (including airports) and which are the subject of the *Further Notice*. Thus, we anticipate that even if the scope of the requirements pertinent to special offices and facilities were extended from the 806 larger airports included within the modified rule to include additionally the 2558 general aviation airports, and the rule were extended to include wireless and satellite communications providers, the overall result would be that not more than twelve (12) additional outage reports would have to be filed annually by all providers collectively. Also, we believe it unlikely that the threshold criteria applicable to outages affecting airports would be revised in such a way as to require the filing of additional reports; on the other hand, the criteria may be refined in a manner that would reduce the necessary filings. We note that, occasionally, the proposed outage reporting requirements could require the use of professional skills, including legal and engineering expertise. Without more data, we cannot accurately estimate the cost of compliance by small telecommunications providers. But irrespective of any of the reporting requirements that we are proposing here, we expect that telecommunications providers will track, investigate, and correct all of their service disruptions as an ordinary part of conducting their business operations -- and will do so for service disruptions that are considerably smaller than for disruptions that would trigger the reporting criteria that we consider here. As a consequence, we believe that in the usual case, the only burden associated with the reporting requirements contained in this *Further Notice* will be the time required to complete the notification, initial and final reports. We anticipate that electronic filing, through the type of template that we have identified in Appendix C, should minimize the amount of time and effort that will be required to comply with the rules that we propose in this proceeding. In this IFRA, we therefore seek comment on the types of burdens telecommunications providers will face in complying with the proposed requirements. Entities, especially small entities, are encouraged to quantify the costs and benefits of the proposed reporting requirements.

F. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered. The Regulatory Flexibility Act of 1980, as amended (“RFA”),⁸ requires that an initial regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.”⁹ The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”¹⁰ In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.¹¹ A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).¹²

Potentially, all of the airports in the United States may need to be used by aircraft for emergency landings. The potential loss of life and property through commercial aircraft crashes can be catastrophic.

⁸ See 5 U.S.C. § 603. The RFA, see 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

⁹ 5 U.S.C. § 605(b).

¹⁰ 5 U.S.C. § 601(6).

¹¹ 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

¹² 15 U.S.C. § 632.

The need, however, for communications among non-commercial (as well as commercial) airports and the rest of the United States becomes more apparent in the contexts of general aviation and government aviation in which many non-commercial planes carry, for example, personnel who are essential to national defense and homeland security, as well as government officials from Federal, state, local, and foreign governments. Moreover, all of the airports in the United States are potential launching pads for terrorist activities. As a consequence, it is essential that all personnel at airports throughout the United States be able to access appropriate government and civilian personnel to avert acts of terrorism. Finally, commercial communications links are used by airports to support navigation, traffic control, maintenance, and restoration. Those commercial communications links need to be functioning continuously. The requirements for which we seek comment would be in addition to those adopted in the *Report and Order* in this proceeding. Those requirements apply to wireline and cable circuit-switched telecommunications with airports that are listed as current primary (PR), commercial service (CM), and reliever (RL) airports in the FAA's National Plan of Integrated Airport Systems (NPIAS) (as issued at least one calendar year prior to the outage). Outages affecting any of these airports for 30 minutes or more must be reported. We believe that the proposed telecommunications outage reporting requirements are minimally necessary to assure that we receive adequate information to perform our statutory responsibilities with respect to the reliability of telecommunications affecting public safety and the national defense and their infrastructures. Also, we believe that the magnitude of the outages needed to trigger the reporting requirements (*e.g.*, outages of at least 30 minutes duration) is sufficiently high as to make it unlikely that small businesses would be impacted significantly by the proposed rules. Finally, we believe that the proposed requirement that outage reports be filed electronically would significantly reduce the burdens and costs currently associated with manual filing processes. We seek comment on any alternatives that might lessen the compliance burden on small entity communications providers with respect to reporting outages that affect non-commercial airports, including any possible simplification or other helpful modification of the electronic filing template (see *supra* Appendix C).

F. Federal Rules that Might Duplicate, Overlap, or Conflict with the Proposed Rules. None.

**STATEMENT OF
CHAIRMAN MICHAEL K. POWELL**

*Re: New Part 4 of the Commission's Rules Concerning Disruptions to Communications;
ET Docket No. 04-35, Report and Order*

The foundation of our homeland security agenda is a reliable telecommunications infrastructure. With support from the Department of Homeland Security, today's *Report and Order* helps to ensure that foundation is properly laid.

With Americans depending on telecommunications for everything from banking to paging, it is imperative that our systems run reliably. Our current outage reporting requirements focus on the wireline network. Although these requirements have been successful in recognizing and correcting certain causes of service disruptions, it would be imprudent to focus solely on wireline networks as our telecommunications infrastructure becomes increasingly diverse. Today's Order adopts a technology neutral metric to be used across all telecommunications networks.

By requiring mandatory outage reports of carriers we are facilitating a prompt discovery of outages and assuring that first responders, government leaders and citizens will be able to quickly regain access to the services they depend on. Today's Order applies a new common metric of "user-minutes" potentially affected by an outage. This new metric will guarantee that all outages are reported and corrected. Additionally, the rules adopted today revise our previous 911/E911 outage reporting criteria further protecting citizens in times of crisis.

Simplifying the time calculation for filing reports and providing an electronic template will help reduce the burden on carriers who must file a report. The streamlining of the reporting requirements strikes a balance between the Commission's need to be apprised of outages, while at the same time minimizing burden on the industry. The Order also recognizes that much of the information provided in these reports will contain sensitive homeland security information. In order to prevent this information from falling into hostile hands, the Commission has created appropriate protections for this data.

Today's *Report and Order* is yet another step the Commission is taking to ensure the safety of America's telecommunications networks. In a world becoming increasingly dependent on rapid communication via wireless, cable and satellite we adopt these rules to make certain that disruptions to these networks are minimal and rapidly corrected.

**STATEMENT OF
COMMISSIONER KATHLEEN Q. ABERNATHY**

*Re: New Part 4 of the Commission's Rules Concerning Disruptions to Communications;
ET Docket No. 04-35, Report and Order*

There is no issue facing the FCC that is more important than homeland security. The Commission is fully committed to working with the Department of Homeland Security to take whatever steps are necessary to help safeguard critical telecommunications infrastructure and ensure that the American people can communicate with one another, even in times of an emergency.

As American consumers rely on an increasingly broad array of technologies and services, the FCC must continue to promote the reliability of these services. With this order, we expand our current mandatory reporting requirements to include all technologies that use the Public Switch Telephone Network. The information we collect in these reports will provide us with critical data that will further our efforts to formulate best practices to guard against future network outages. In addition, the information will be shared with the Department of Homeland Security, thus enhancing our ability to protect our homes and businesses.

A central issue in this proceeding is whether the outage reporting requirements we are adopting should be mandatory. Given the increasing importance of communications capabilities during times of emergencies, I believe that the reporting requirement should be mandatory. At the same time, I understand and share the concerns raised in this proceeding about the need to ensure that the data contained in these outage reports remains confidential. By presumptively affording filed data confidentiality under Exception 4 of the Freedom of Information Act, we are protecting the data while also meeting our data collection needs.

**STATEMENT OF
COMMISSIONER MICHAEL J. COPPS**

*Re: New Part 4 of the Commission's Rules Concerning Disruptions to Communications;
ET Docket No. 04-35, Report and Order*

This goes back to my comments earlier today. Mandatory reporting rules may not be our first choice in this area, but sometimes they are necessary. And when they are necessary, we should step up to the plate and just do them. Our experience in this particular area has been that voluntary mechanisms have not given us the information that we need to do our job on homeland security. That realization brings us to this decision, which I approve. Thanks to OET for bringing this item to us.

**STATEMENT OF
COMMISSIONER KEVIN J. MARTIN**

*Re: New Part 4 of the Commission's Rules Concerning Disruptions to Communications;
ET Docket No. 04-35, Report and Order*

One of this Commission's most important responsibilities is to seek to "make available, so far as possible" a nationwide and worldwide wire and radio communication service "for the purpose of the national defense" and "for the purpose of promoting safety of life and property." 47 U.S.C. § 151. In order to fulfill that responsibility, the Commission in 1992 established network outage reporting requirements for telephone companies and cable companies providing common carrier services. The information gathered through this reporting has led to the development of best practices to reduce the severity and number of telecommunications outages and has enabled the Commission to determine whether and how network reliability is improving.

However, the world has changed a great deal since the early 1990s. Since then, wireless and satellite communications – which have not been covered by our reporting requirements – have become ubiquitous. Moreover, these communications are now the first choice of many (including Government and public safety officials) for use in emergencies. It is thus crucial that we ensure the reliability of these communications. And, as the Commission found with respect to wireline communications, an important part of ensuring reliability is obtaining network outage information.

The most difficult question for me in this proceeding concerned how the Commission should obtain this information. In particular, I am sympathetic to the call from many in industry to rely on voluntary submissions. I have been impressed with the development of the Industry Led Outage Reporting Initiative ("ILORI"), which seeks to accomplish our goals through voluntary reporting. While the Initiative is not yet a perfect solution, it is certainly a good start, and I generally encourage these kinds of industry led solutions.

In addition, a voluntary reporting scheme could provide greater protection for the information we obtain, as the Critical Infrastructure Information Act of 2002 protects only information voluntarily submitted to the Department of Homeland Security (DHS). There is no question that America's communications network is an essential component of the country's critical infrastructure and that sensitive information about the network must be kept out of the hands of bad actors. Thus, in this proceeding, DHS "urge[d] the Commission to make safeguarding the sensitive information that will be contained in the outage reports a highest priority."

On the other hand, DHS made clear that obtaining outage information is of paramount importance – that such information is "critical to national and homeland security functions central to DHS' mission including planning, incident prevention, impact analysis and mitigation, and improving incident response and recovery." Moreover, there have been problems with voluntary outage reporting in the past. At the same time, the Commission has taken steps to ensure the confidentiality of the information we collect, and I am advised that the Freedom of Information Act should provide ample legal protection. Accordingly, I support this item.

**STATEMENT OF
COMMISSIONER JONATHAN S. ADELSTEIN**

*Re: New Part 4 of the Commission's Rules Concerning Disruptions to Communications;
ET Docket No. 04-35, Report and Order*

Events over the past several years dictate that this Commission must have access to the most accurate and immediate information possible when there are significant disruptions to our nation's communications systems, on any platform. I support today's item because it improves the Commission's efforts to play a role, to the degree we can, in responding to emergency situations.

I recognize the reporting requirements we adopt today are not embraced by everyone in the communications industry. But I urge everyone involved to rise to the challenge in helping us do our job. It is well worth repeating that the Federal Communications Commission was created "for the purpose of the national defense, [and] for the purpose of promoting safety of life and property through the use of wire and radio communication ..."⁴⁶⁵

Finally, I am pleased that we have made an effort to accommodate a number of industry suggestions with the reporting process when such changes did not inappropriately undercut our underlying objective of data collection. We could not make all of the requested changes, but in many circumstances, I think we found the right balance in addressing a concern while still enabling us to get access to the depth and breadth of information we really need.

⁴⁶⁵ Section 1 of the Communications Act of 1934, as amended, 47 USC § 151.