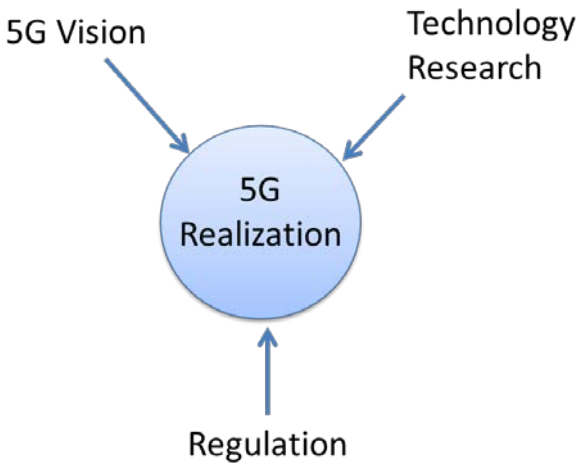
ATIS 5G Initiative: Advancing Network Evolution

Introduction

As 4G deployment grows, industry is preparing for the next generation of wireless technology, making 5G a hot topic among analysts, researchers and thought leaders. Many industry groups have articulated broad 5G visions; some have even included advanced technical proposals for 5G radio access networks (RAN) and core networks (CN). However, the process of translating these concepts into a technically and commercially successful system is just now starting. In many instances, broad vision statements are not yet substantiated by detailed technical analysis.

Building on its long-standing success in technical analysis and solutions development for previous generations of wireless technology, ATIS is taking today's 5G vision and technology building blocks and delivering an interoperable framework. The goal is to help 5G reach its commercial value and fulfill its potential to deliver innovative new services. In partnership with members and colleague organizations, ATIS' 5G initiative will identify solutions that are focused on the North American market, and will contribute these requirements to global 5G efforts.



Advancing a Coherent View of the Network

To realize the North American 5G Vision, ATIS is conducting a much-needed industry initiative to define a coherent network evolution from 4G/LTE to 5G. North American service providers have invested heavily and strategically in 4G/LTE. Rapid growth in the LTE footprint and subscriber numbers are predicted for several years to come. One of ATIS' goals is to enable service providers to leverage their existing and planned LTE investments to ensure 5G's success.

ATIS' focus fully leverages existing LTE investment while ensuring 5G can effectively address an expansive range of services, including mobility services, the Internet of Things (IoT), PSTN

replacement, content delivery, critical communications and more. ATIS' coherent network view will be based on requirements, including:

- Defining an "access agnostic" core by decoupling the RAN from the CN and by allowing for mobility on demand to minimize complexity while providing services with the degree of mobility that is needed
- Evolution of the core based on Network Functions Virtualization (NFV) and Software Defined Networking (SDN) concepts to fully support all anticipated 5G use cases and services
- Support for end-to-end security as a foundational element in the architecture
- Simplified network design and the avoidance of unnecessary overlay networks

Taking the North American View of 5G Global

As the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), ATIS is positioned to play a leadership role in ensuring North American requirements are considered in the 5G industry roadmap. Its track record of doing this has been demonstrated through its extensive emergency services work, which has led to the development of global public safety requirements.

North America has distinct regulatory requirements, and initiatives such as NG911 location, are influential in subsequent deployments throughout other regions of the world. Cellular-based critical communications, such as emergency services over mobile networks, will ensure that 5G can meet the unique needs of emergency personnel and first responders. North America is also leading efforts for wireless-based PSTN replacement, which will generate additional 5G requirements. These and other regulatory priorities will establish the baseline requirements for 5G interoperability.

As work progresses, beyond the emergency services realm, ATIS will continue to represent members' shared interests, as well as North American regional interests, to address 5G's most pressing technical issues. ATIS' initial 5G analysis highlights several other areas of future interest including enhanced Self Organizing Networks (SON) and new approaches to sharing spectrum – these topics also will be addressed.

A 5G Vision to Meet the Future's Challenges

In addition to supporting regulatory imperatives and delivering an evolutionary path, ATIS recognizes the need to embrace the possibility of disruptive elements in 5G. It is easy to let the current experience of networks, services and devices limit thinking about what has the potential to be a very different future.

That's why ATIS is also analyzing 5G from a disruptive perspective and considering potential new architectures to identify breakthrough 5G opportunities. Using a use case-driven approach, ATIS will propose how 5G could:

- Support new business models and create roles for new types of providers, and
- Optimize user experience on current and future devices.

These use cases will emphasize alternatives that optimize use of unlicensed spectrum in combination with, and perhaps in preference to, licensed spectrum. ATIS will also consider on-demand mobility, local offload, edge caching and other techniques to improve broadband performance, lower cost, and increase capacity of 5G mobile broadband networks and services.

Simplified approaches to existing services and requirements, while delivering real improvements in cost, performance, latency or capacity also will be addressed. Legacy functions that may no longer be required in 5G because they have little user adoption or value, or because equivalent functionality is available, will be identified.

The goal of this innovative approach is to generate new perspectives to best meet 5G requirements and incorporate innovation in services and business models.

ATIS – The North American Voice for 5G

ATIS will ensure that 5G is positioned to deliver the long-promised convergence of all services onto a common framework, with corresponding enhancements to efficiency, security and service velocity. By representing North American 5G requirements globally, ATIS will leverage members' thought leadership and the region's recognized role as the incubator of new business models.

Learn more about ATIS' 5G Initiative at www.atis.org/5G.