



Accelerating the Internet of Things: The oneM2M App-ID Registry

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January 14, 2016

● Agenda



- oneM2M Introduction
- Application Identifier (App-ID)
- Application Identifier (App-ID) Registry
- Q&A

● oneM2M Introduction

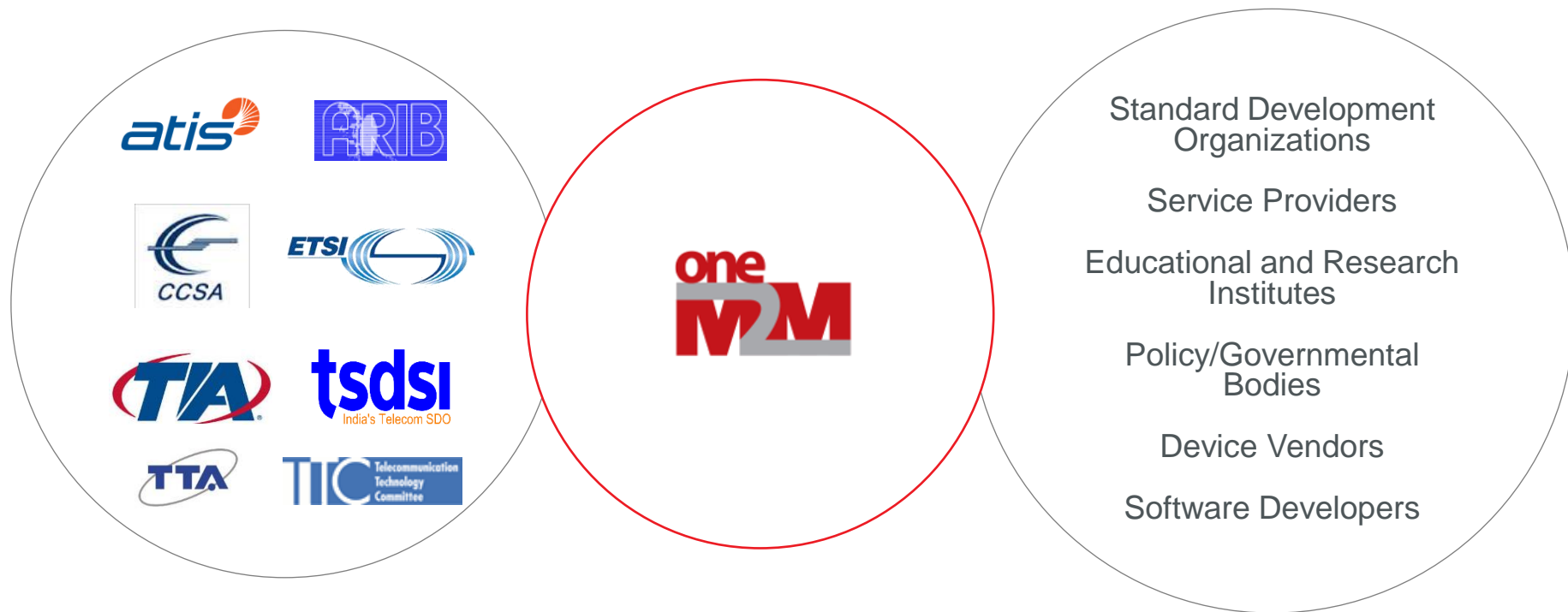


● What is oneM2M

● Goals

● Architecture Overview (High Level)

About oneM2M



oneM2M Goals



- Advance Global M2M and IoT Adoption
- Common M2M Service Layer Framework
- Industry and Vertical Agnostic

Fragmentation and Silos



Apps

Middleware

Device



Remote & on vehicle
Mobile, telematics &
Embedded platforms

Monitoring centers, real
time traffic, weather data
systems

Smart dashboards, OBD-II
Devices, In-vehicle
Cameras



Security & Remote Control
Home Management

Home gateway
middleware

Home alarm, temperature
sensors, electronic locks,
garage door openers,
smart lights



Wellness & diagnostic
Fitness Tracker Apps
Open Healthcare

Patient Info data
warehouses, SaaS

Pace makers, glucose
meters, heart rate monitor

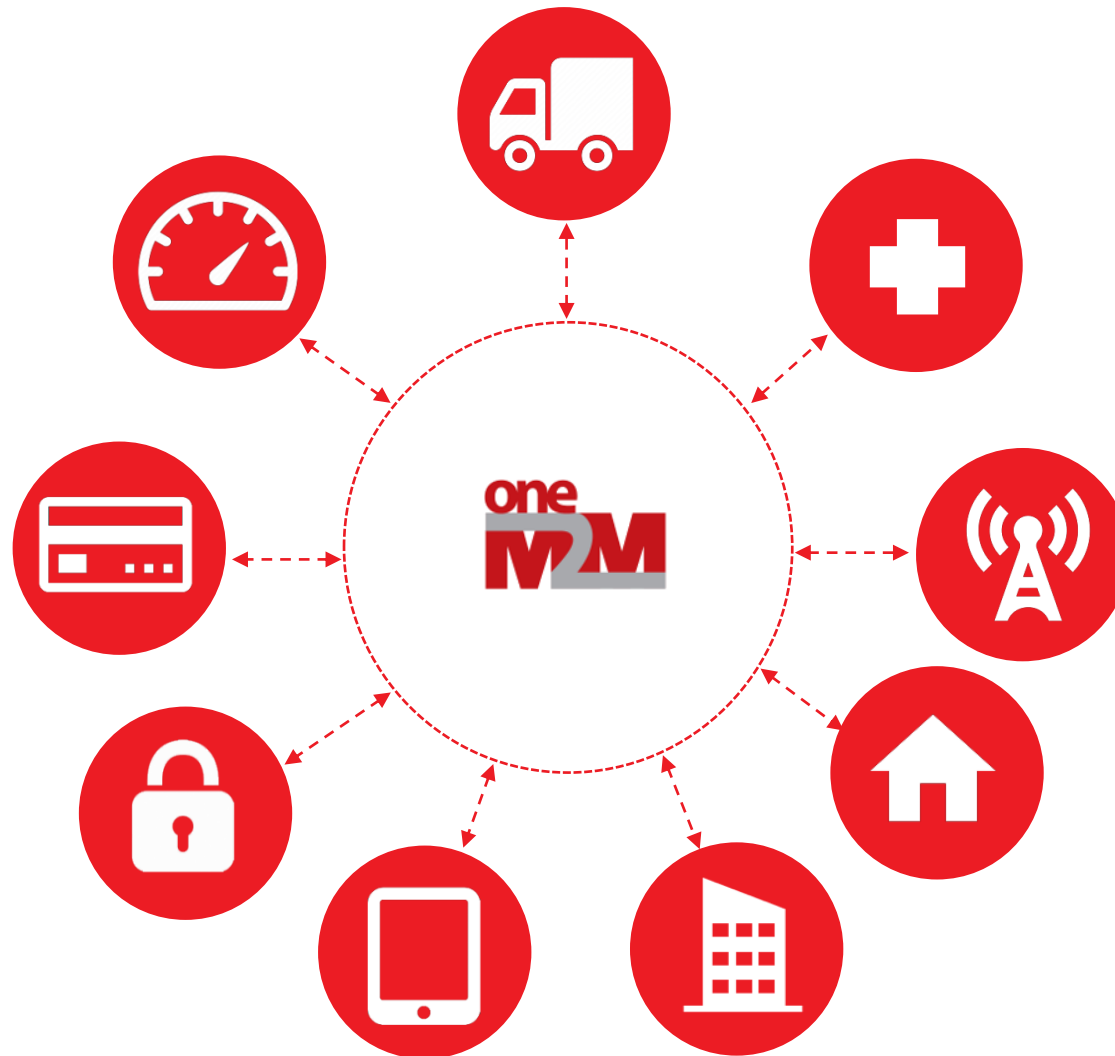


Energy use & monitoring
Smart grids, ETP
GridControl platform

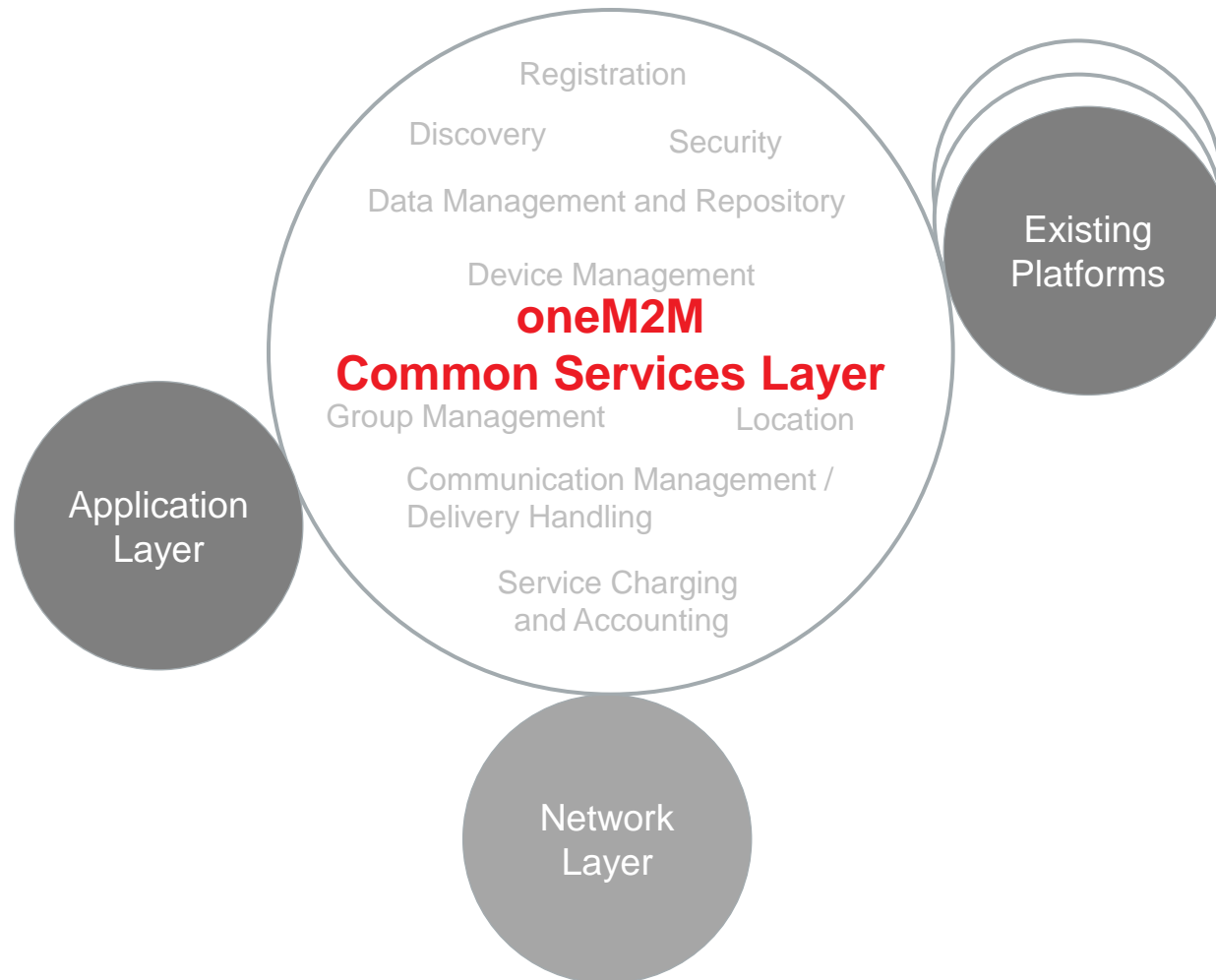
Service oriented
middleware

Smart utility energy meters

● Interoperability Across Verticals – oneM2M



oneM2M Common Services Layer



Source: oneM2M Common Services Framework

oneM2M Functional Architecture

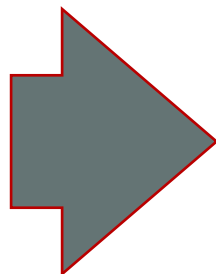


oneM2M Layered Model

Application Layer

Common Services Layer

Network Services Layer



Field Domain

AE

CSE

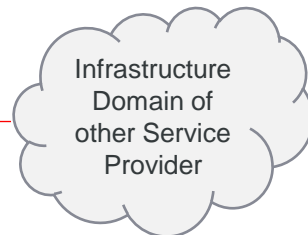
NSE

Infrastructure Domain

AE

CSE

NSE



NSE Network Services Entity
AE Application Entity
CSE Common Services Entity



oneM2M Architecture Configurations

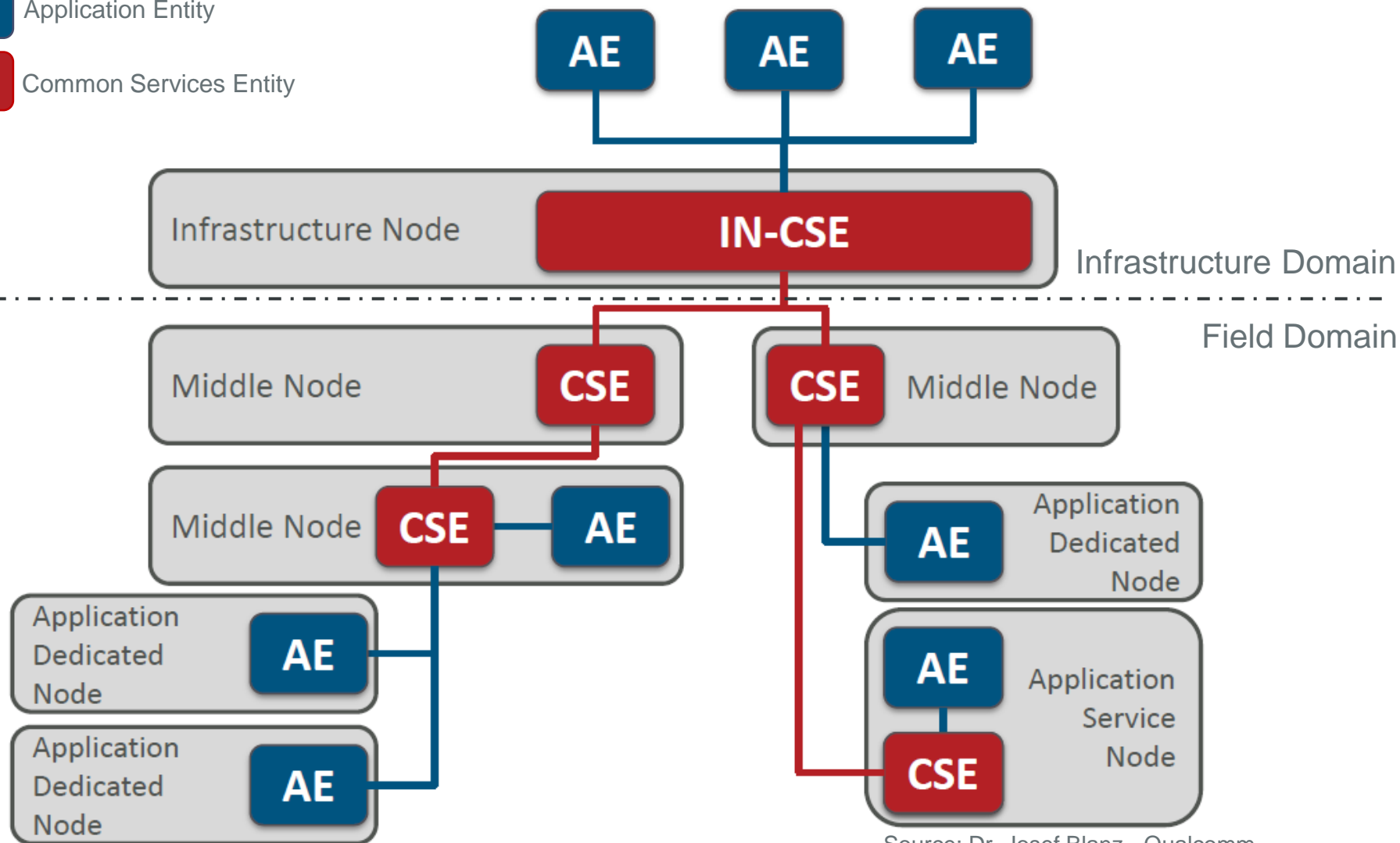


AE

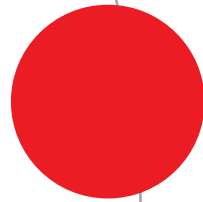
Application Entity

CSE

Common Services Entity



Source: Dr. Josef Blanz - Qualcomm



Application Identifier (App-ID)

● Application Identifier (App-ID)



● Definition

● Usage

● Example

Application Identifier (App-ID)



- An Application Identifier (App-ID) uniquely identifies an application within a oneM2M Service Provider network
- App-ID comes in two variations
 - Registered: assigned by Registration Authority
 - Guaranteed to be globally unique
 - Format¹: R<registration authority>.<reverseDNS>.<appName>



Temperature Monitor Application
App-ID: Ra1.com.abcd.tempMonitor

- Unregistered: assigned by the Developer
 - Not guaranteed to be globally unique
 - Format: N<any-string>



Light Control Application
App-ID: NlightController

¹ Registered App-ID format proposed in oneM2M Release 2.0

● App-ID vs Application Entity ID (AE-ID)



- App-ID uniquely defines the application running in the oneM2M environment
- AE-ID uniquely defines the INSTANCE of the application running in the oneM2M environment



Temperature Monitor Application

App-ID: Ra1.com.abcd.tempMonitor

AE-ID: C1234501



Light Control Application

App-ID: NlightController

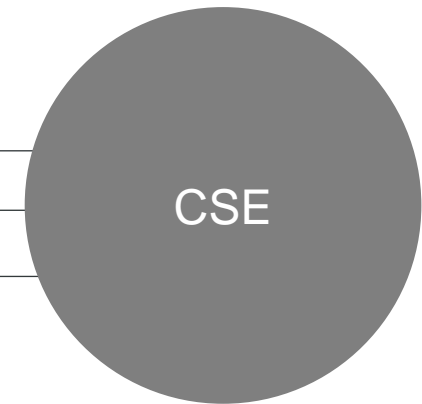
AE-ID: C1234502



Temperature Monitor Application

App-ID: Ra1.com.abcd.tempMonitor

AE-ID: C1234503



● App-ID Usage

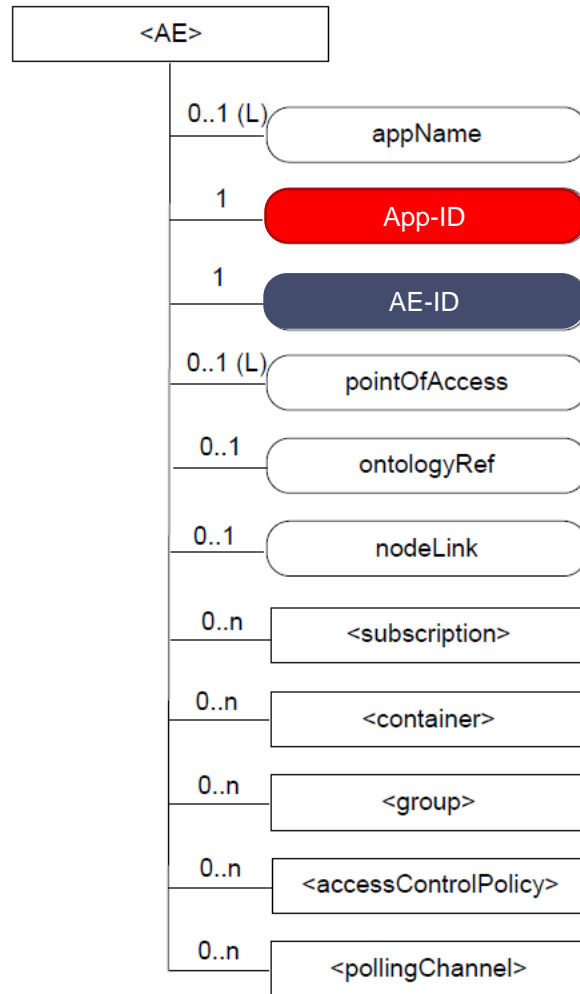


● Application Entity

● CSE

● Security

Application Entity <AE> Resource



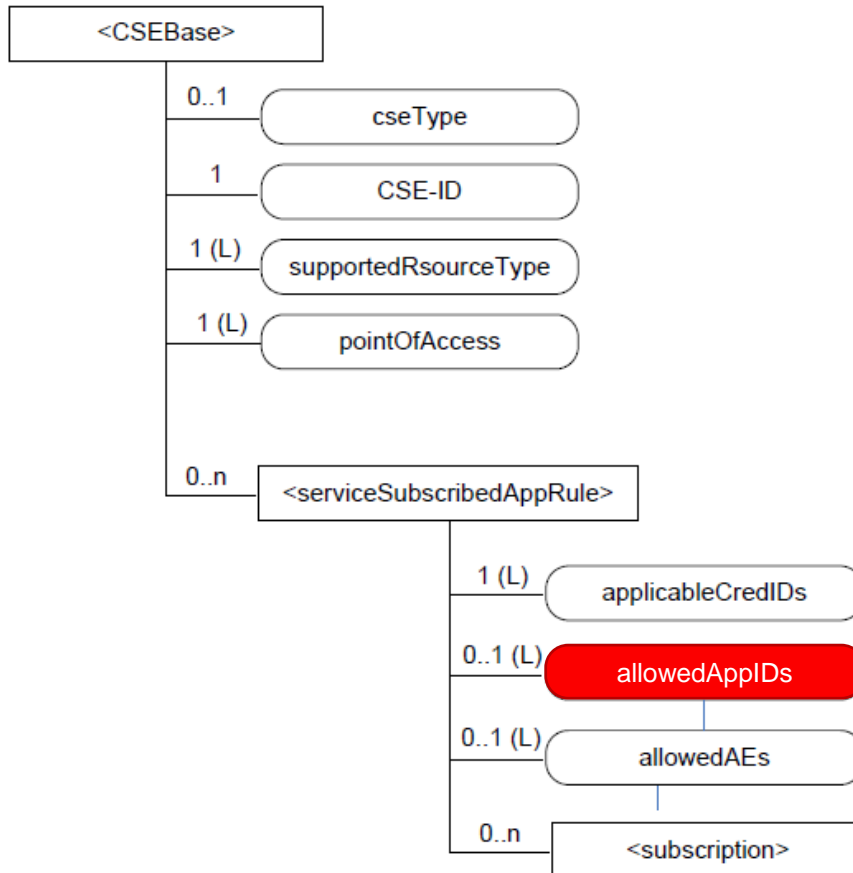
AE

- An Application Identifier (App-ID) uniquely identifies an application within a oneM2M system
- An Application Entity Identifier (AE-ID) uniquely identifies the instance of an application within the oneM2M system

Attribute

child resource

Common Service Entity <CSEBase>



- allowedAppIDs are used by CSEs to restrict applications from registering with the system

Attribute

child resource

Security and Authorization



Temperature Monitor Application

App-ID: Ra1.com.acme.tempMonitor



Certificate Details

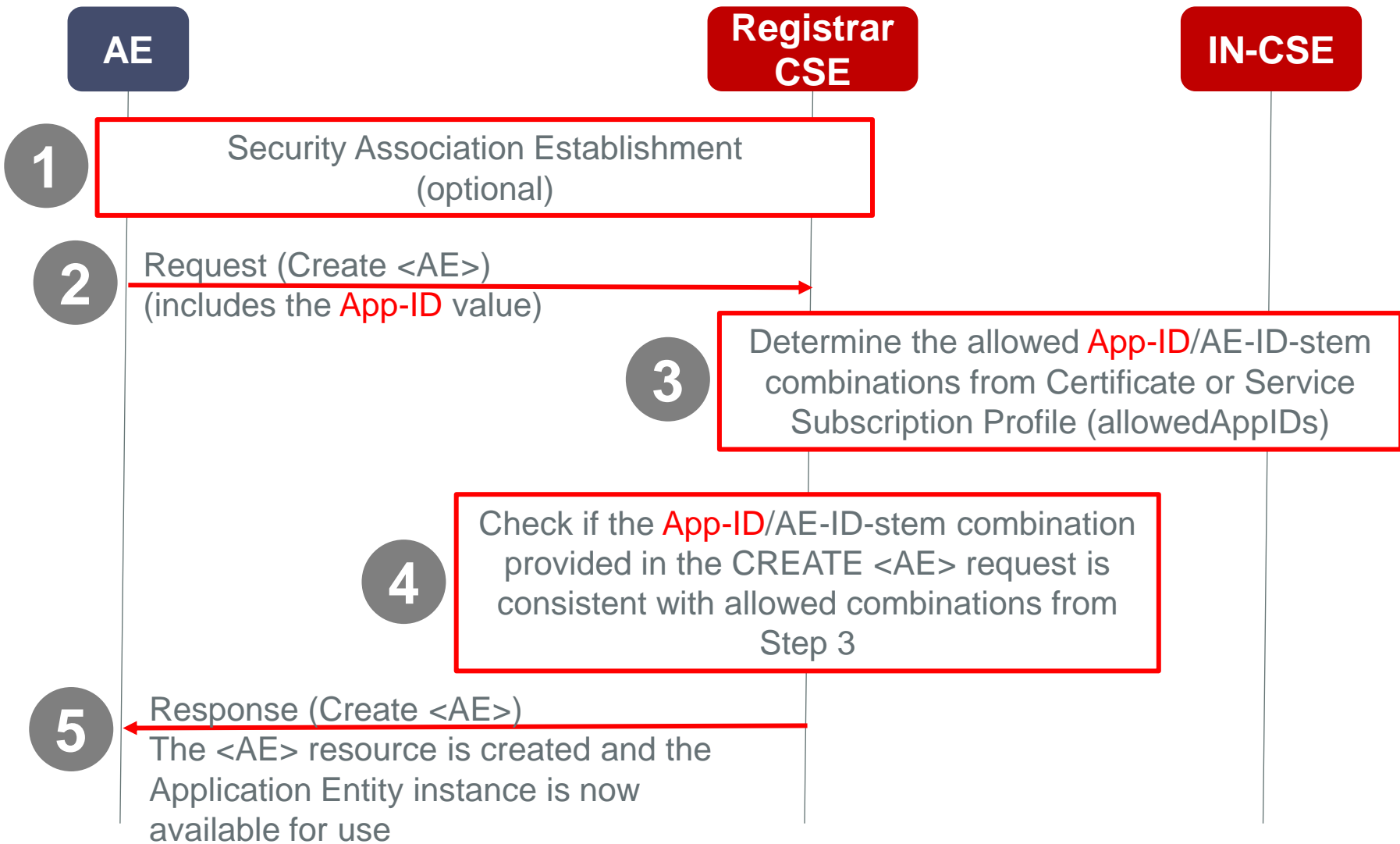
Issued to: ABC Corp

Issued by: Certificate Authority Name

App-ID: Ra1.com.acme.tempMonitor

etc...

● Example: Application Entity Registration



Unregistered App-IDs



- With unregistered App-IDs, a developer may self-assign an App-ID to their application



Company A Developer



Temperature Monitor Application

App-ID: NTempMonitor



Light Control Application

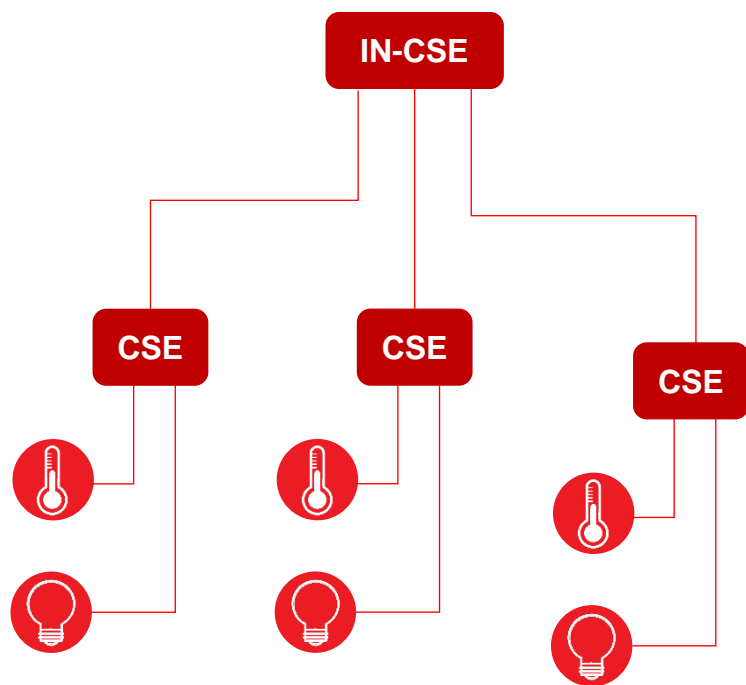
App-ID: NlightController



Local or Single Service Provider View



Service Provider



- Service provider configures their CSEs to allow
 - App-ID: NTempMonitor
 - App-ID: NlightController

● Challenge with Unregistered App-IDs



- As more developers join the M2M ecosystem, the chance that completely different applications have the same App-ID increases



Company A Developer



Company B Developer



Temperature Monitor Application
App-ID: NTempMonitor



Temperature Monitor Application
App-ID: NTempMonitor



Light Control Application
App-ID: NlightController



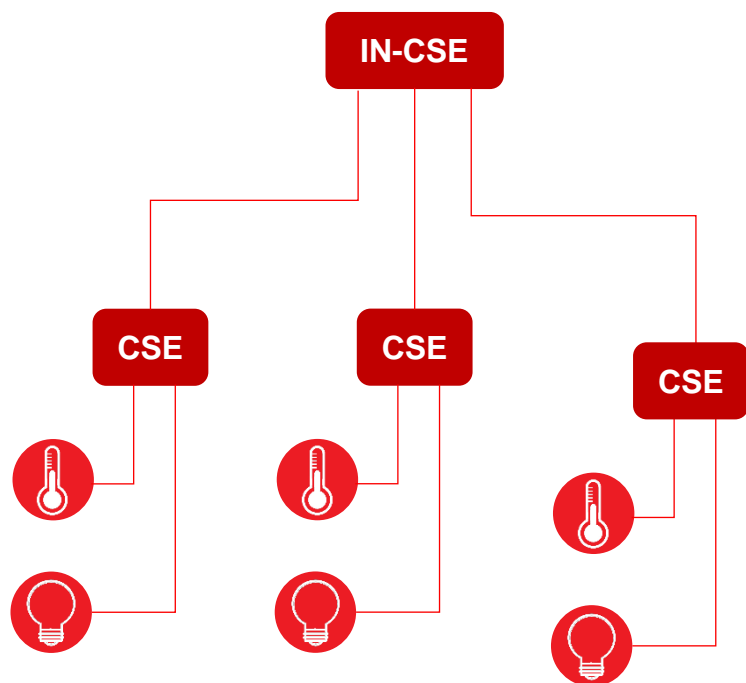
Light Control Application
App-ID: NlightController



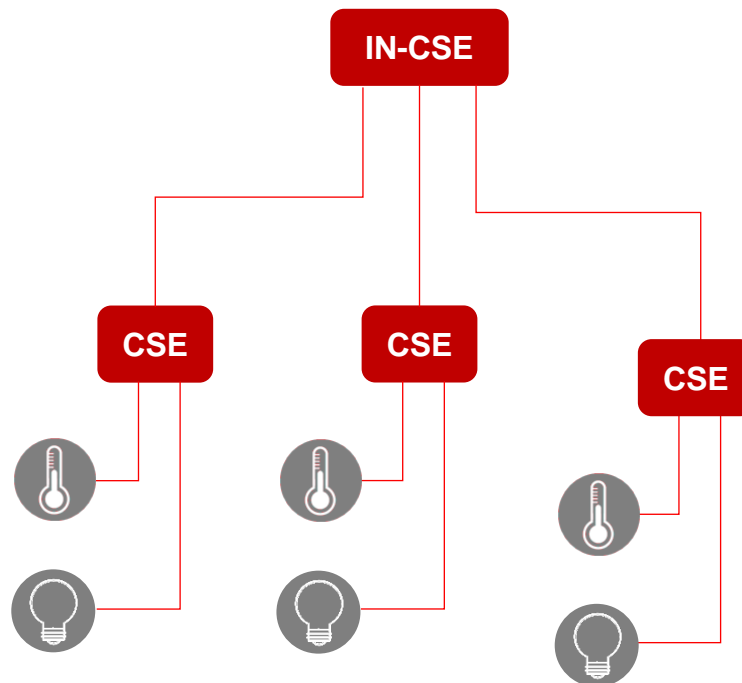
Multiple Service Provider Domain View



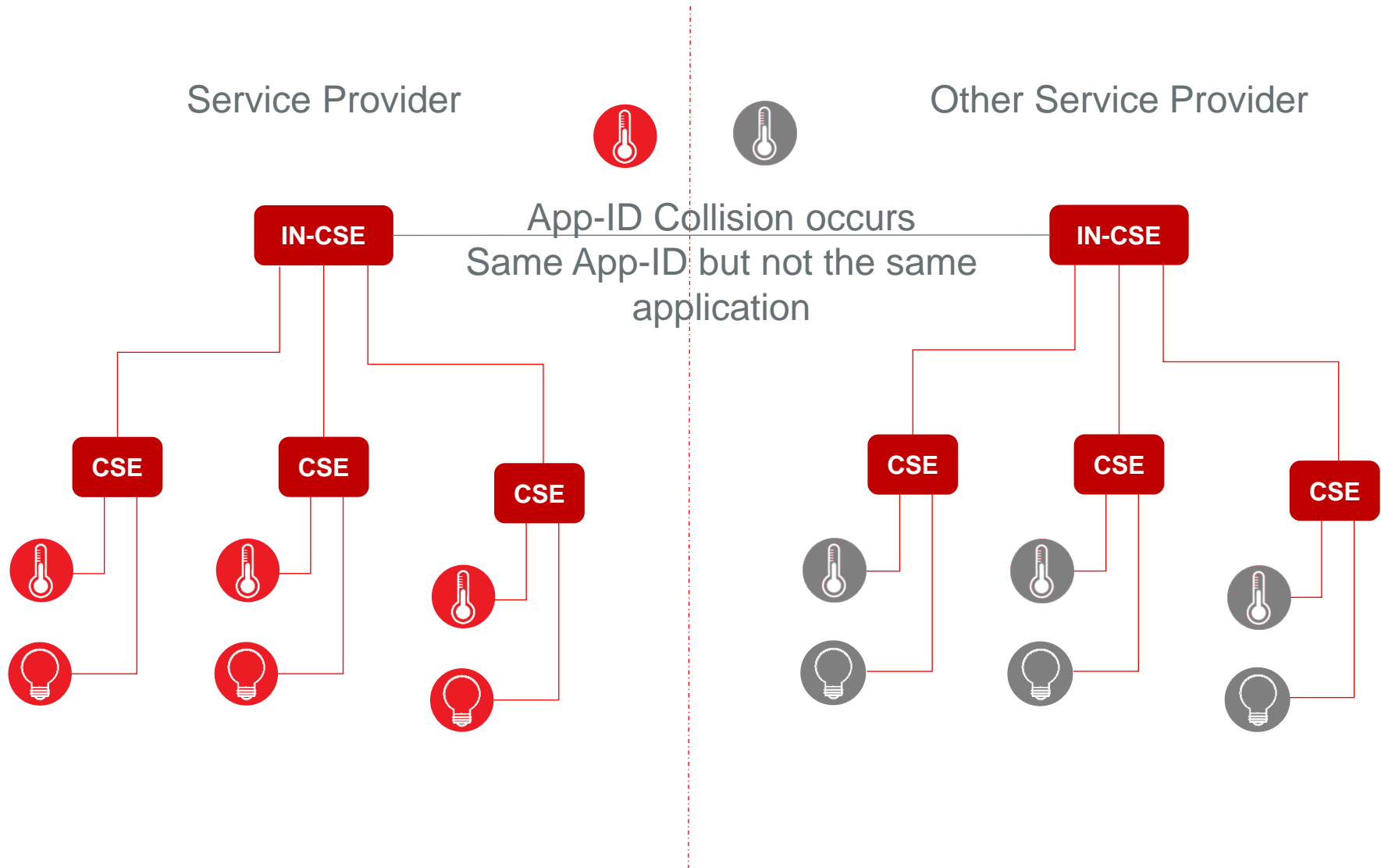
Service Provider



Other Service Provider



App-ID Collision Between Domains

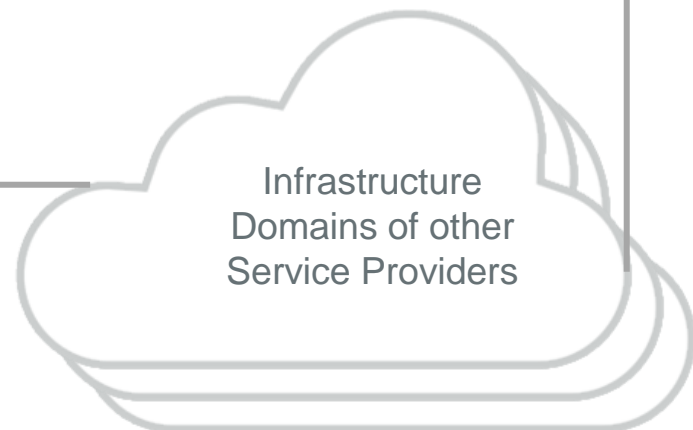
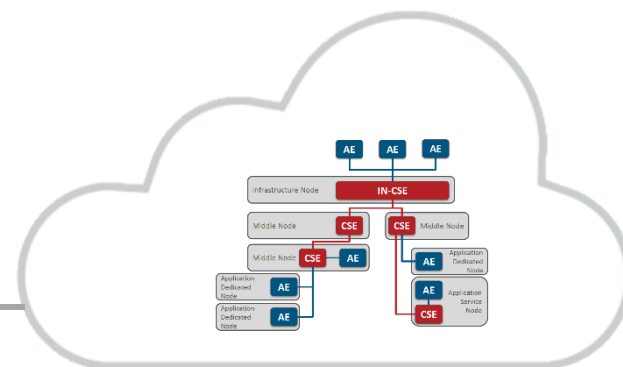
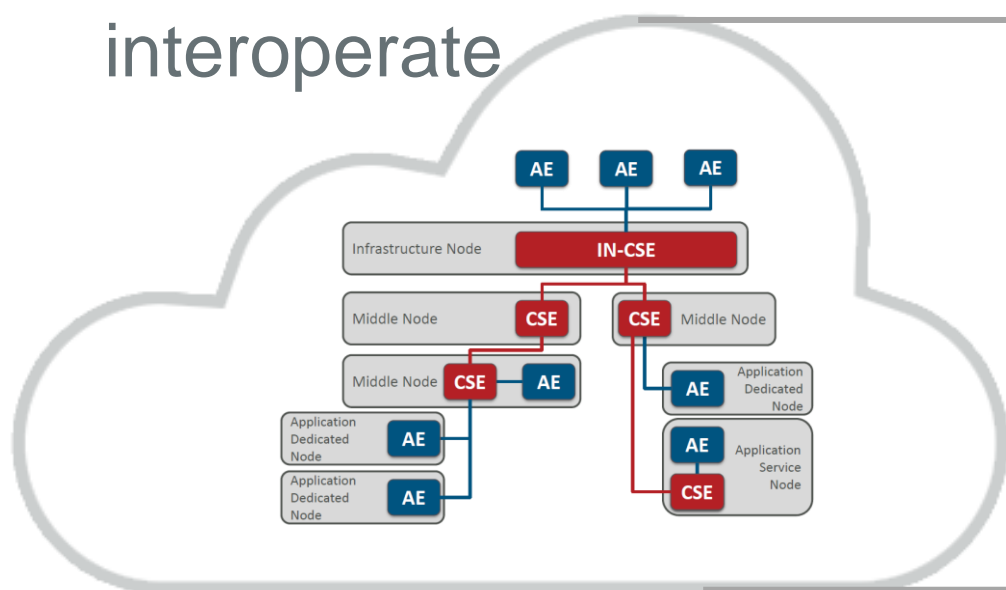




Challenge in Managing Application Identification in an Interconnected World



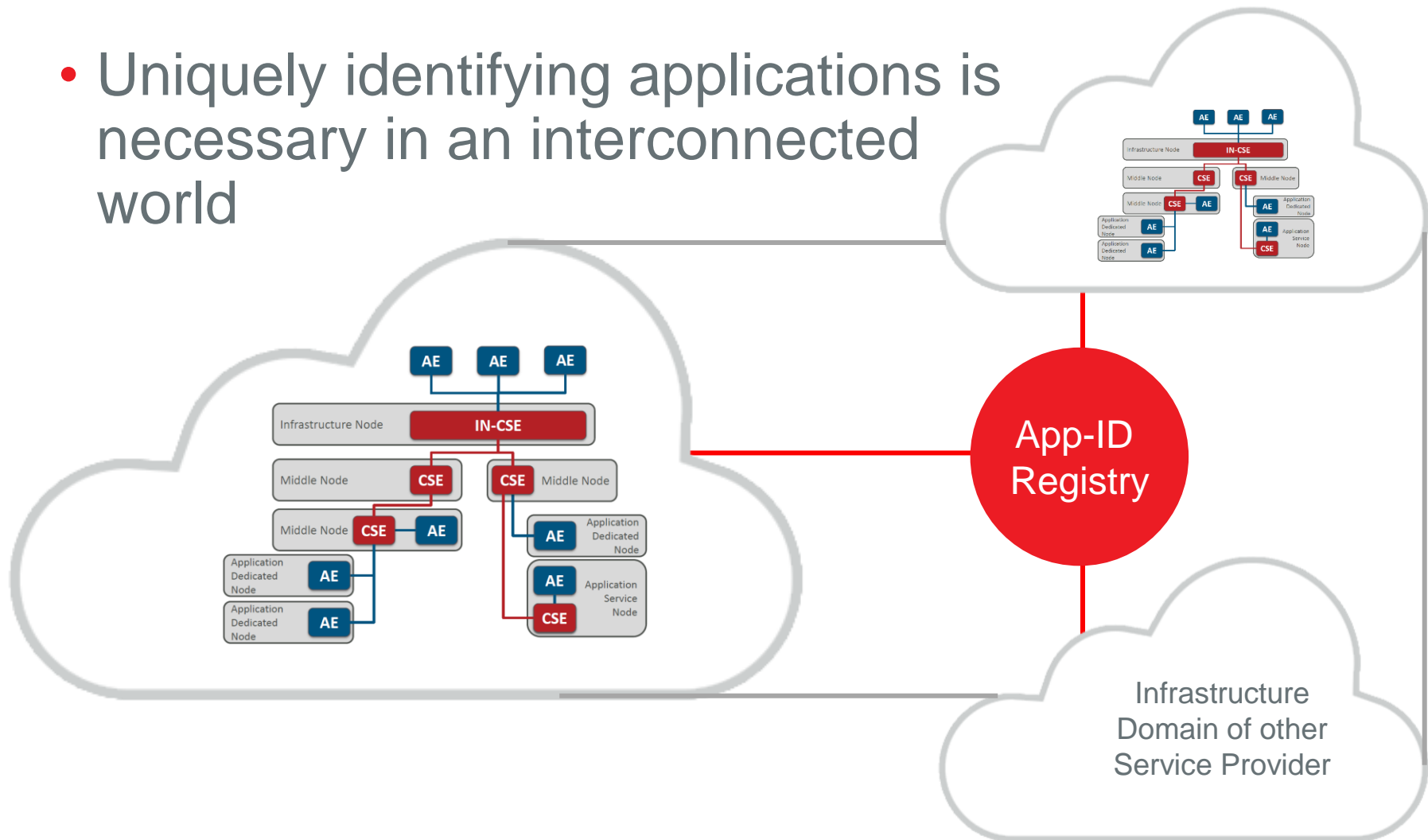
- There is an explosion of applications and services that need to interconnect and interoperate

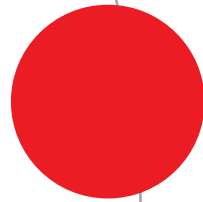


The Answer: App-ID Registry



- Uniquely identifying applications is necessary in an interconnected world





Application Identifier (App-ID) Registry

● Application Identifier (App-ID) Registry



● Overview

● Goals

● Functional Architecture

● Release 1.0 Capabilities

● Roadmap

App-ID Registry Overview



Globally Unique
Software Identification

Standards-based
Centralized Registry

Web-UI to Manage Data

App-ID Registry Timeline



July 2015

oneM2M designates
ATIS as Management
Authority

ATIS designates
iconectiv as
Registration Authority

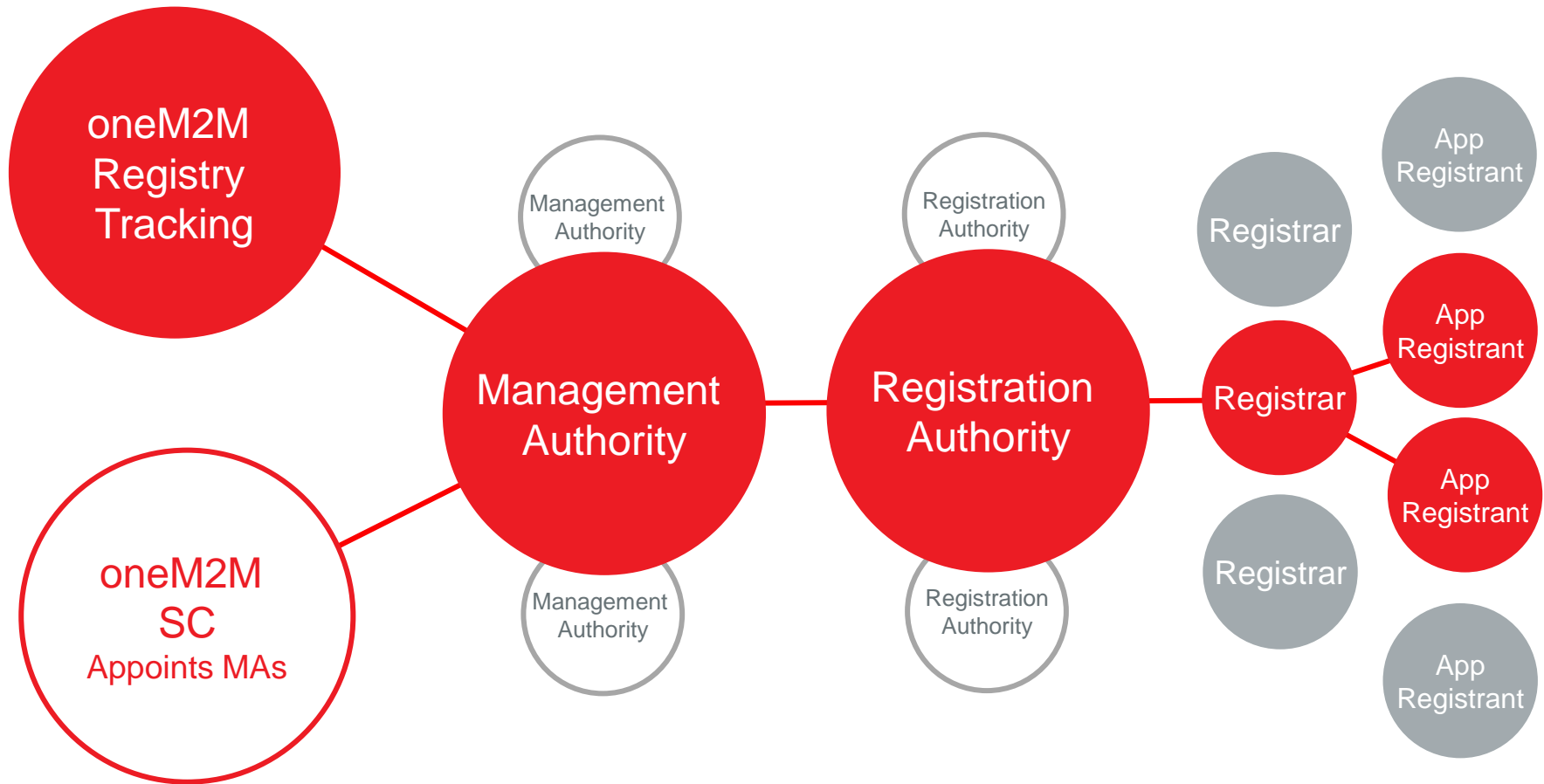
**September
2015**

iconectiv develops the
oneM2M App-ID
Registry and launches
a closed BETA to
oneM2M members

**December
2015**

The oneM2M App-ID
Registry 1.0 version is
released

Registration Management History



As approved in SC-2015-0018R01

- During Steering Committee (SC) Meeting #25, SC identified ATIS as the initial App-ID Registry Management Authority (MA).

● App-ID Registry Goals

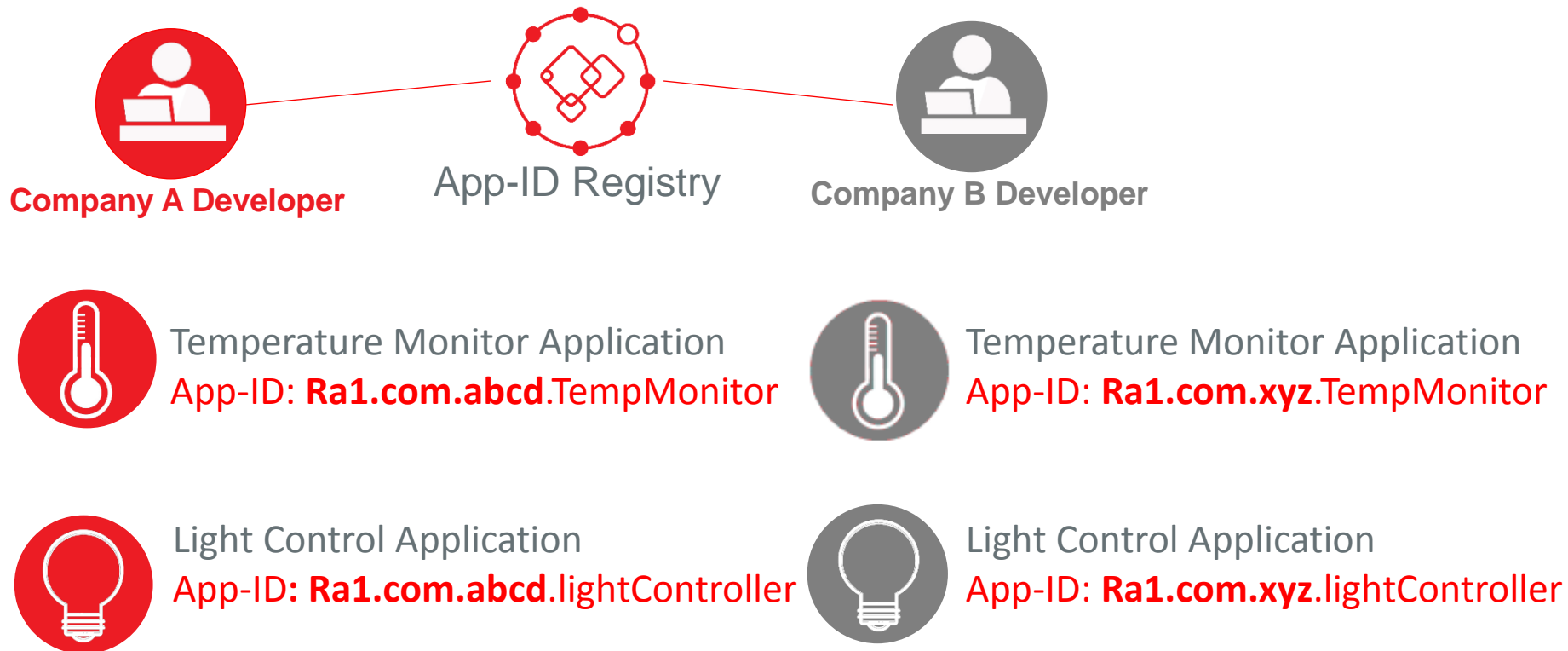


- Identification of applications via globally unique ID's
- Record and manage metadata of applications
- Promote exposure and discovery of applications
- Facilitate global data interoperability and communication between applications

Benefit of Registered App-IDs



- Every application is guaranteed to have a globally unique App-ID

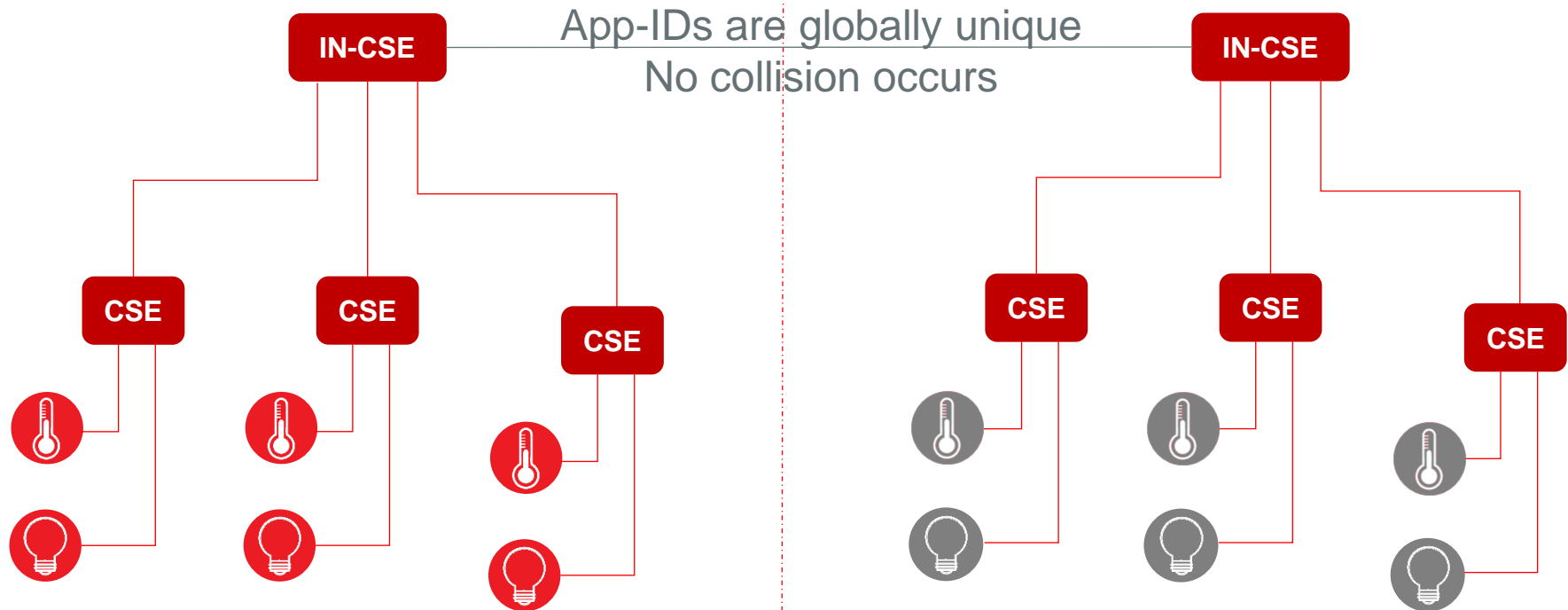


Registered App-IDs in Multiple Domains



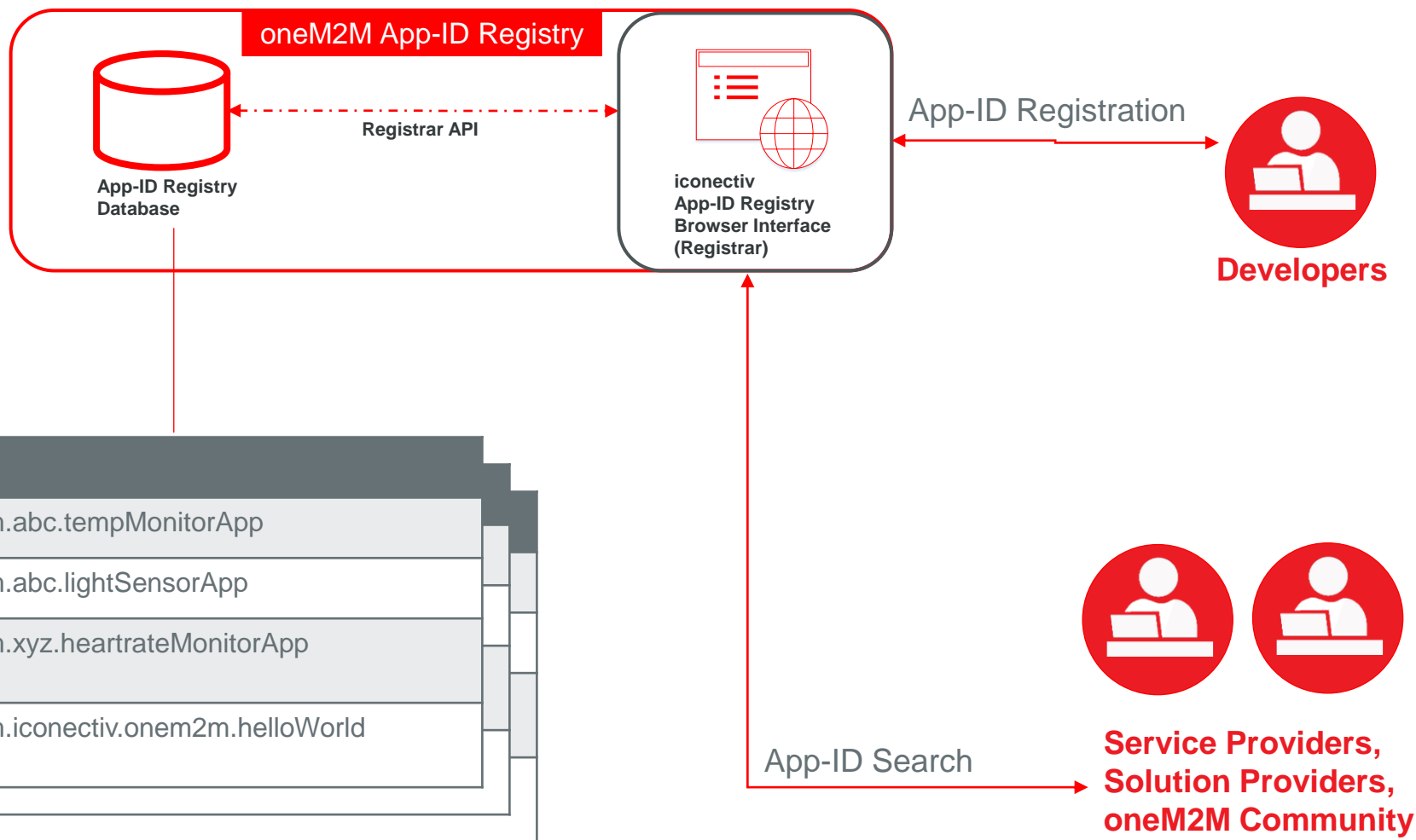
Service Provider

Other Service Provider





App-ID Registry Functional Architecture



● App-ID Registry 1.0 Features



● **Developers** Register Unique App-ID code

● **Developers** Manage their App-IDs

● **Registry Users** Search and View App-ID Info

Access the App-ID Registry



A screenshot of a web browser displaying the 'oneM2M App-ID Registry' portal. The browser's address bar shows 'https://appid.iconectiv.com/appid/#/'. The website has a teal header with the 'oneM2M App-ID Registry' logo and navigation links: Home, About, Contact, Feedback, and Sign In. A large teal banner in the center contains the text 'Welcome to the oneM2M App-ID Registry Portal' and 'This is the official portal for registering oneM2M App-IDs. For more information on this, please visit oneM2M web site. At this portal, you will be able to register App-IDs for your oneM2M applications, and deploy them in oneM2M compliant networks.' Below the banner is a green button that says 'Get started today »'. The main content area is divided into three columns: 'Sign Up' (with a description and a 'Sign Up »' button), 'Register App-ID' (with a description and a 'Register App-ID »' button), and 'Search App-ID' (with a description and a 'Search »' button). At the bottom, there are logos for 'iconectiv', 'atis', and 'oneM2M', along with links for 'Company', 'Legal', and 'Privacy Policy'.

<https://appid.iconectiv.com/>

● Getting Started with the App-ID Registry



1

CREATE

your
oneM2M
App-ID
Registry
portal
account

2

SIGN IN

in to your
account
and access
your
account
dashboard.

3

CREATE

your
organization
(Registrant-ID)

4

REGISTER

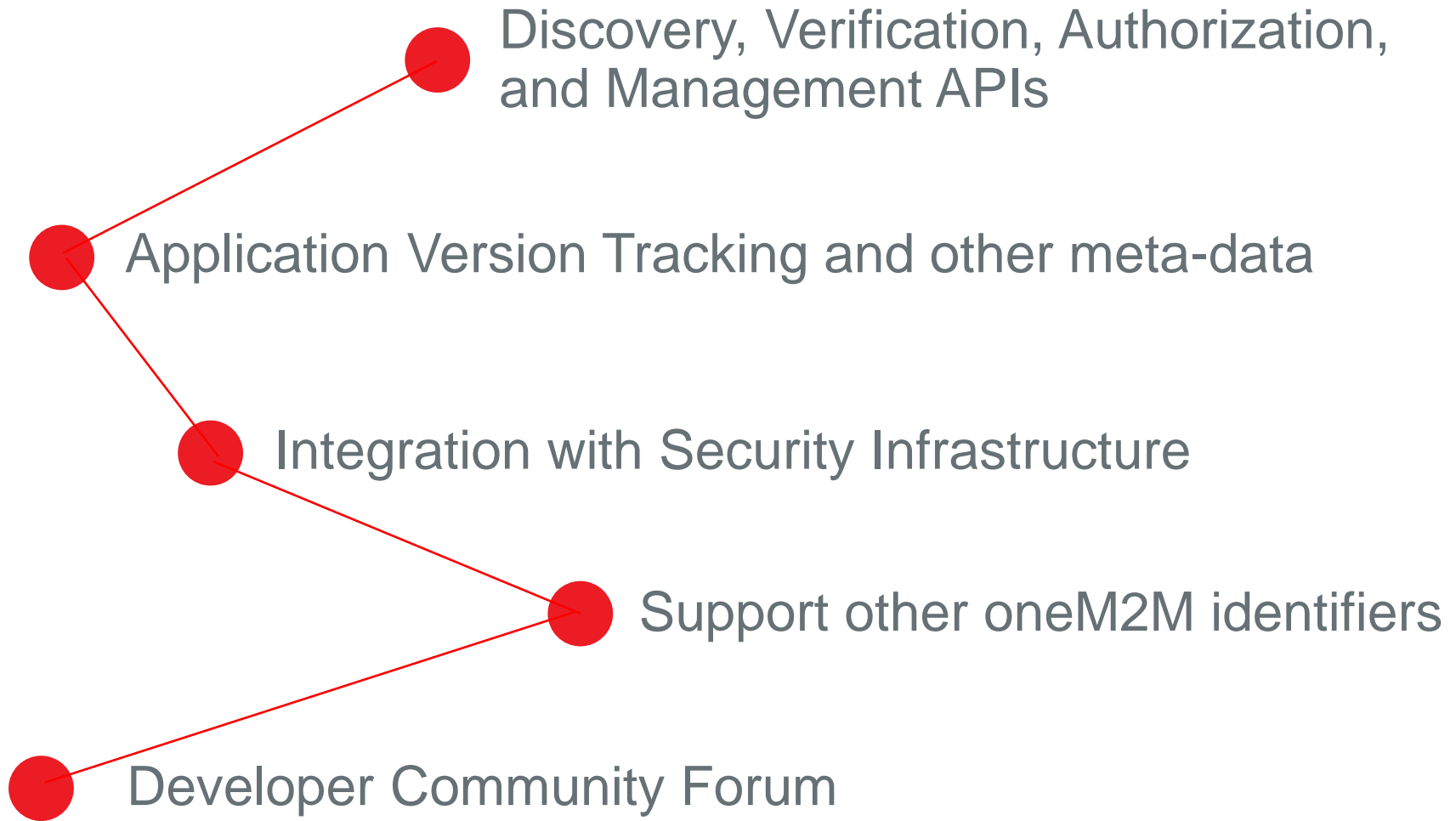
your
App-IDs

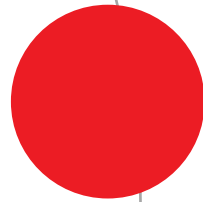
5

SEARCH

for App-IDs

Roadmap



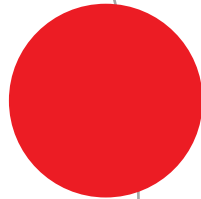
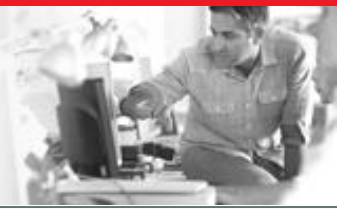


Questions & Answers



Enhancing oneM2M platform with semantics, why does it matter?

Dr. Mahdi Ben Alaya
CEO of Sensinov
Jan 28, 2016



Thank You!