



oneM2M Overview

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- oneM2M with ITU-T
 - oneM2M to deliver global standards
 - Now, oneM2M as ITU-T Recommendations
- Why What and how?
 - Why oneM2M?
 - How oneM2M?
 - What oneM2M?
- Standards
- Open Sources and Market Adoptions
 - OCEAN from KETI
 - Smart City

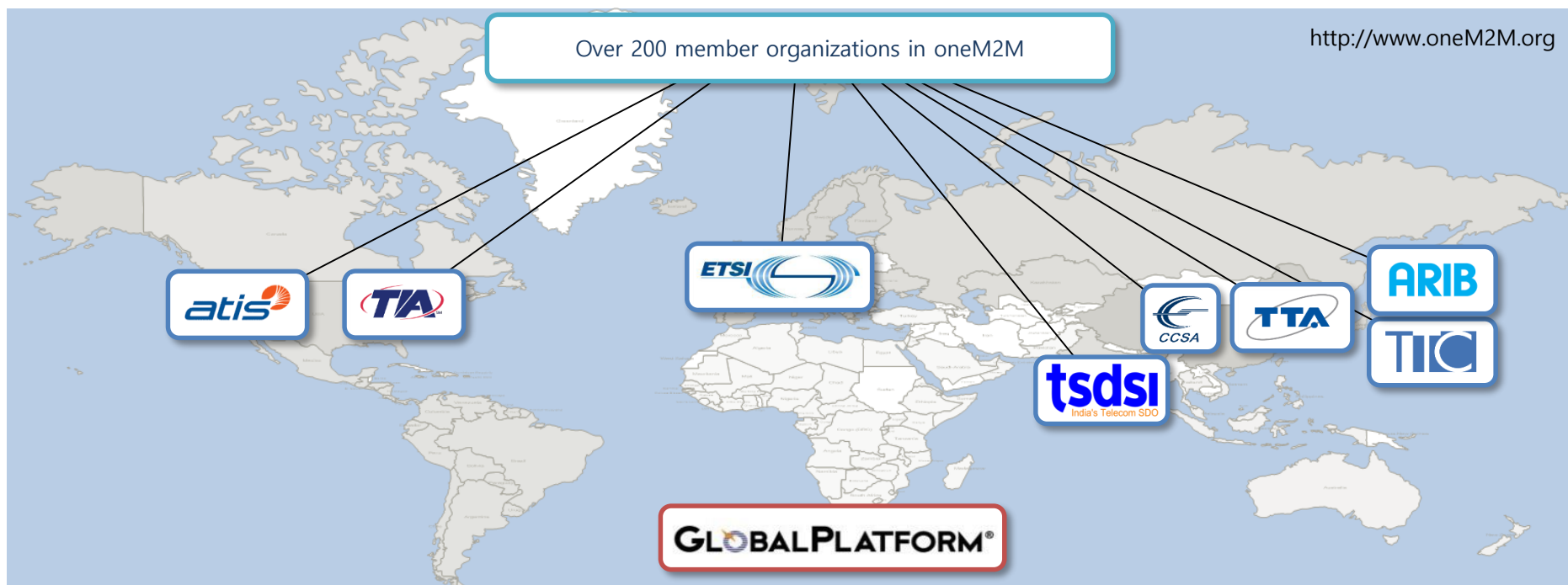


oneM2M with ITU-T

oneM2M to deliver global standards



- Partnership project among regional standard development organizations(SDO)
- SDOs of North America, Europe, Korea, Japan, China and India
- Global, but still the industry standards while missing several regions



Now, oneM2M as ITU-T Recommendations



- Technical specifications and reports have been transposed
- oneM2M will have better visibility and wider adoption globally

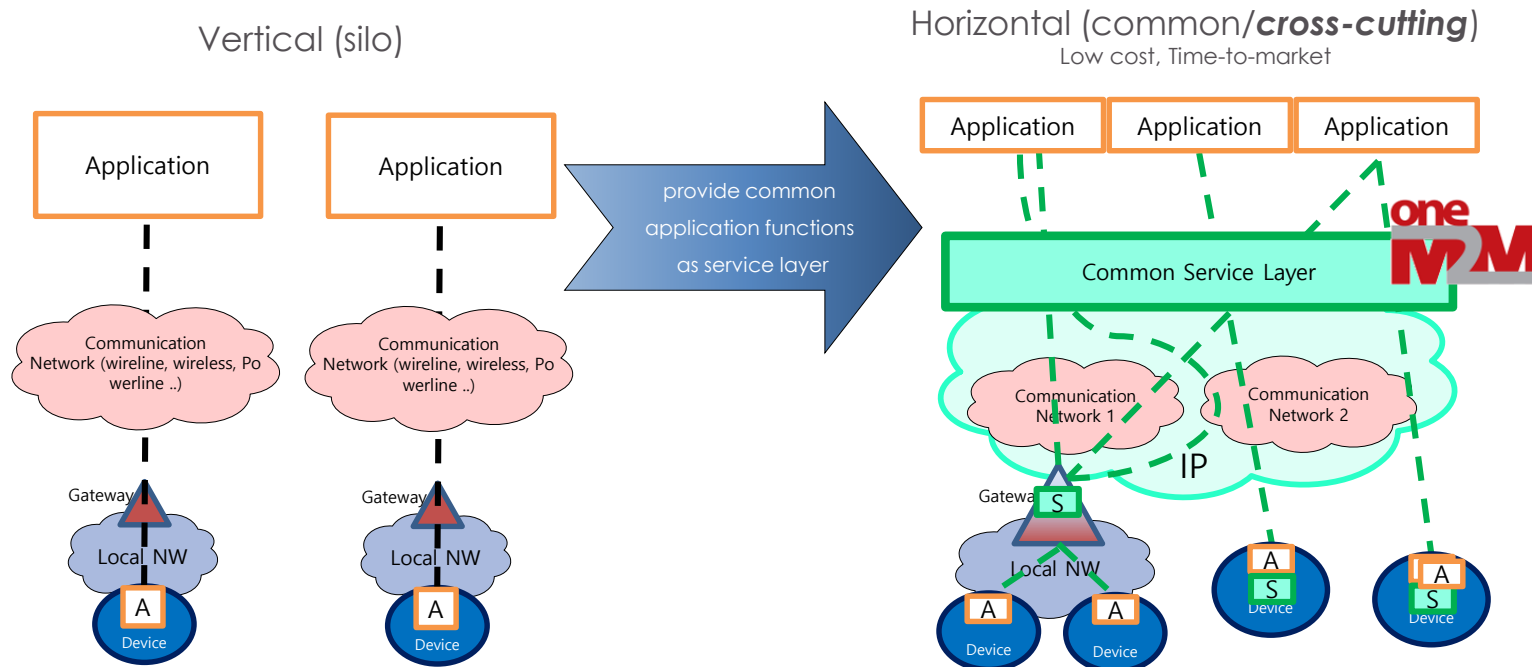
Recommendation	Title	oneM2M TS
Y.4500.1	Functional Architecture	TS-0001
Y.4500.2	Requirements	TS-0002
Y.4500.3	Security Solutions	TS-0003
Y.4500.4	Core Protocol	TS-0004
Y.4500.5	Management Enablement (OMA)	TS-0005
Y.4500.6	Management Enablement (BBF)	TS-0006
Y.4500.8	CoAP Protocol Binding	TS-0008
Y.4500.9	HTTP Protocol Binding	TS-0009
Y.4500.10	MQTT Protocol Binding	TS-0010
Y.4500.11	Common Terminology	TS-0011
Y.4500.12	Base Ontology	TS-0012
Y.4500.13	Interoperability Testing	TS-0013
Y.4500.14	LwM2M Interworking	TS-0014
Y.4500.15	Testing Framework	TS-0015
Y.4500.20	WebSocket Protocol Binding	TS-0020
Y.4500.22	Field Device Configuration	TS-0022
Y.4500.23	Home Appliances Information Model and Mapping	TS-0023
Y.4500.32 (TBD)	MAF and MEF Interface Specification	TS-0032



Why What and how?

Why oneM2M?

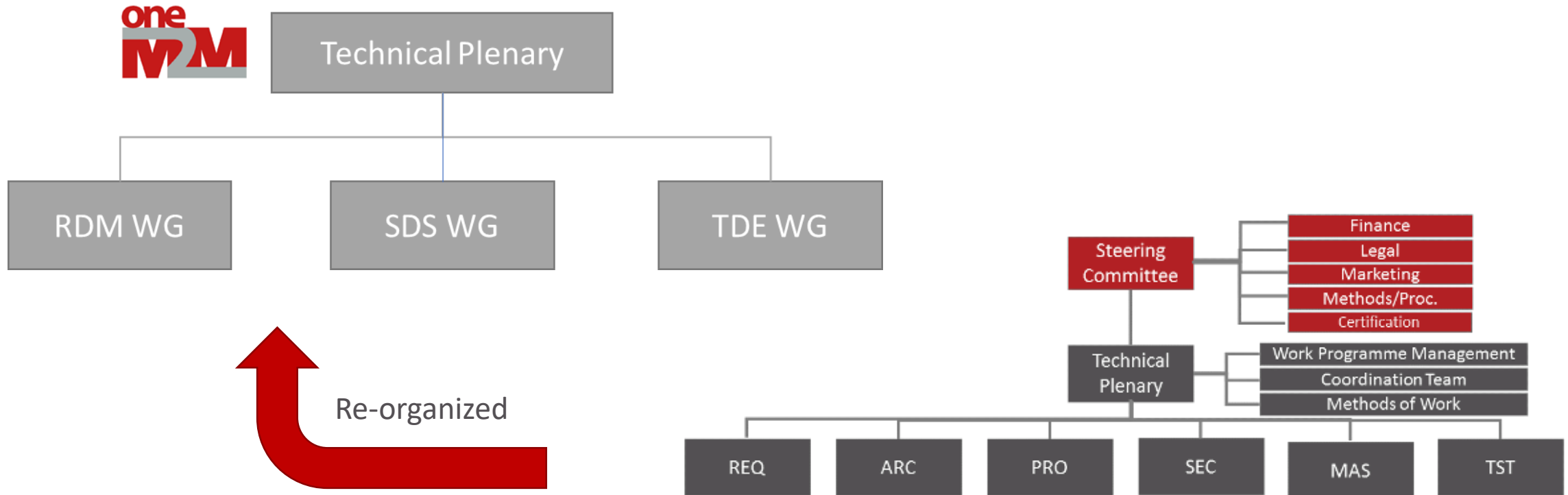
- Provides common *standard* M2M/IoT platform
 - that can be applied to different IoT service domains
 - so the different domains can converge
 - and the IoT markets can grow with interoperability



How oneM2M?



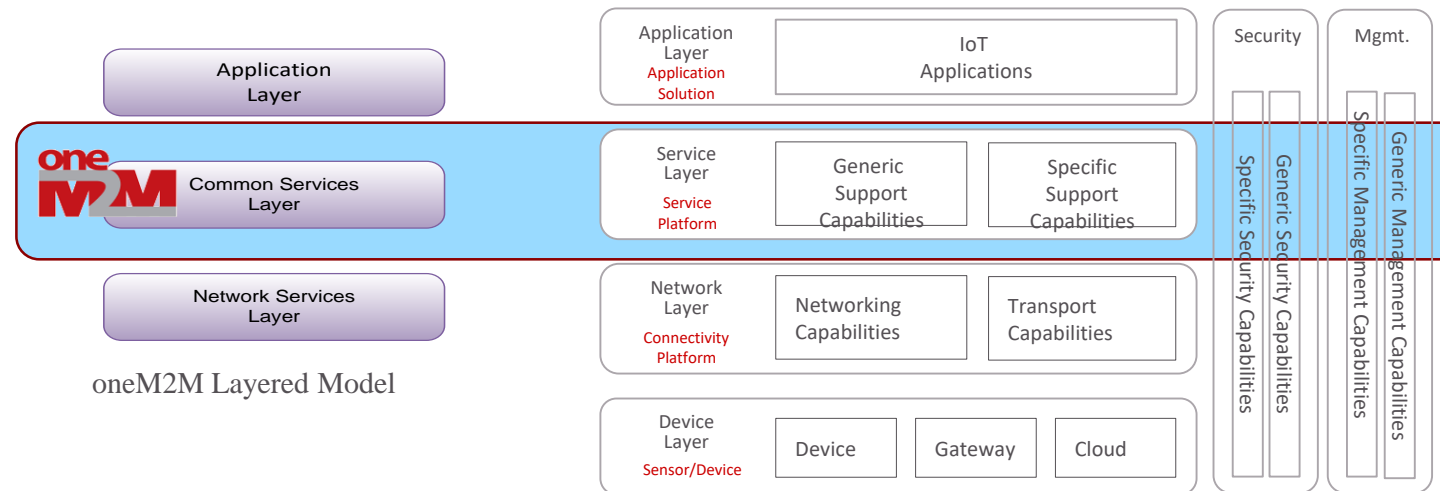
- oneM2M delivers the complete set of specifications



What oneM2M?



- oneM2M provides IoT middleware and its APIs
 - so application developers focus on service logics
 - while they use oneM2M APIs instead of implementing those common functions by themselves
 - e.g. data management, group access, device management, location
- and is transport agnostic over IP covering HTTP, CoAP, MQTT and WebSocket

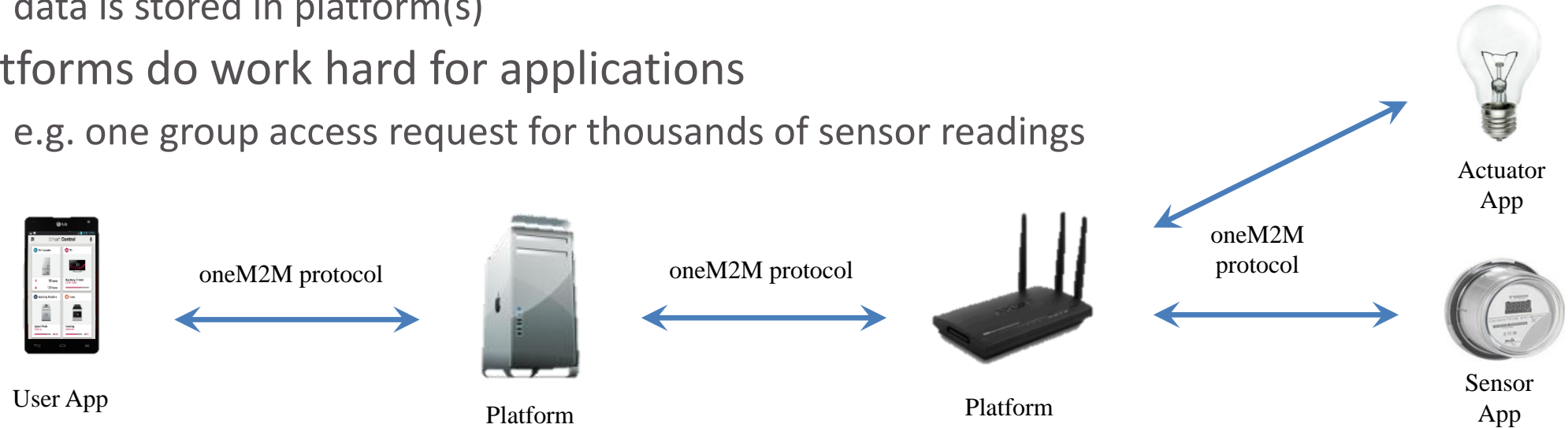


oneM2M Layered Model

ITU-T Y.4000 IoT Reference Model

What oneM2M?

- In oneM2M, platforms do help applications
 - one or more server/gateway/device server(s) deployed
 - cloud vs. edge/fog
 - applications can exchange data via platform with rich functionalities
 - data is stored in platform(s)
 - platforms do work hard for applications
 - e.g. one group access request for thousands of sensor readings



< An example of oneM2M system >

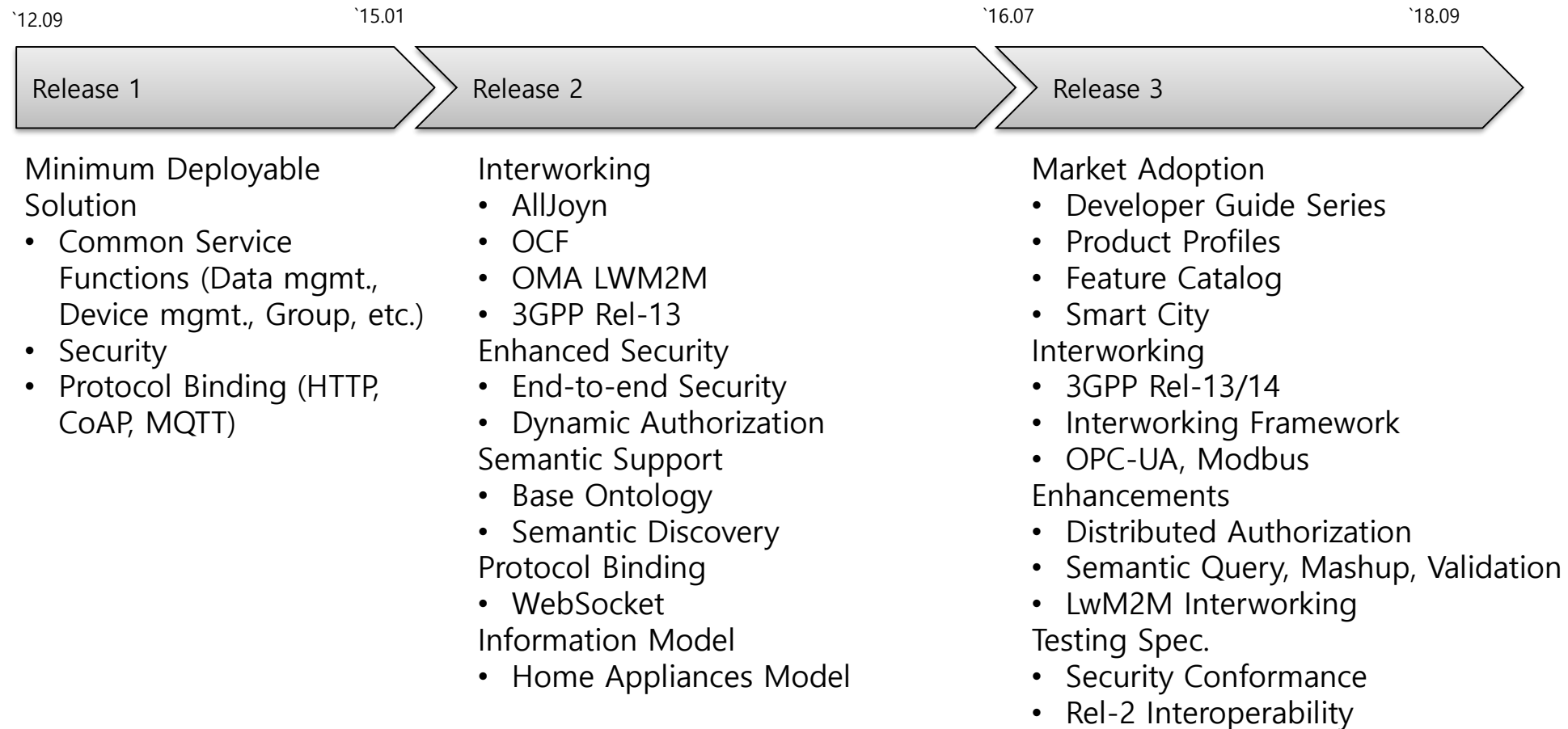


oneM2M Standards

oneM2M releases at a glance

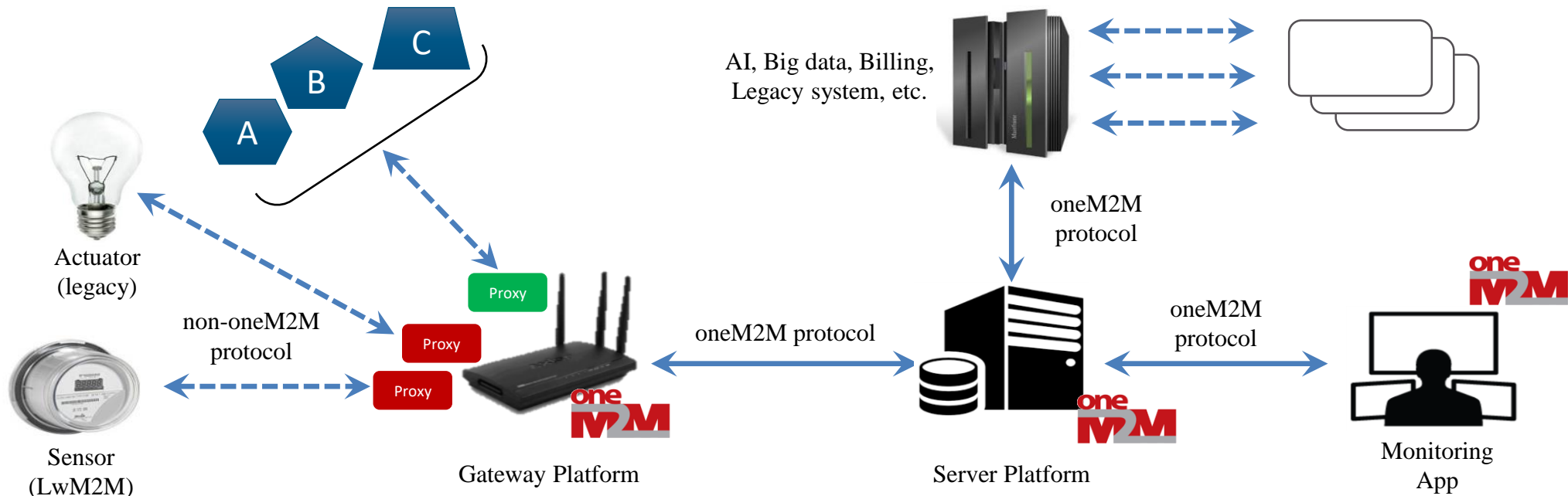


- Foundation, Extension and Adoption



Embrace the others

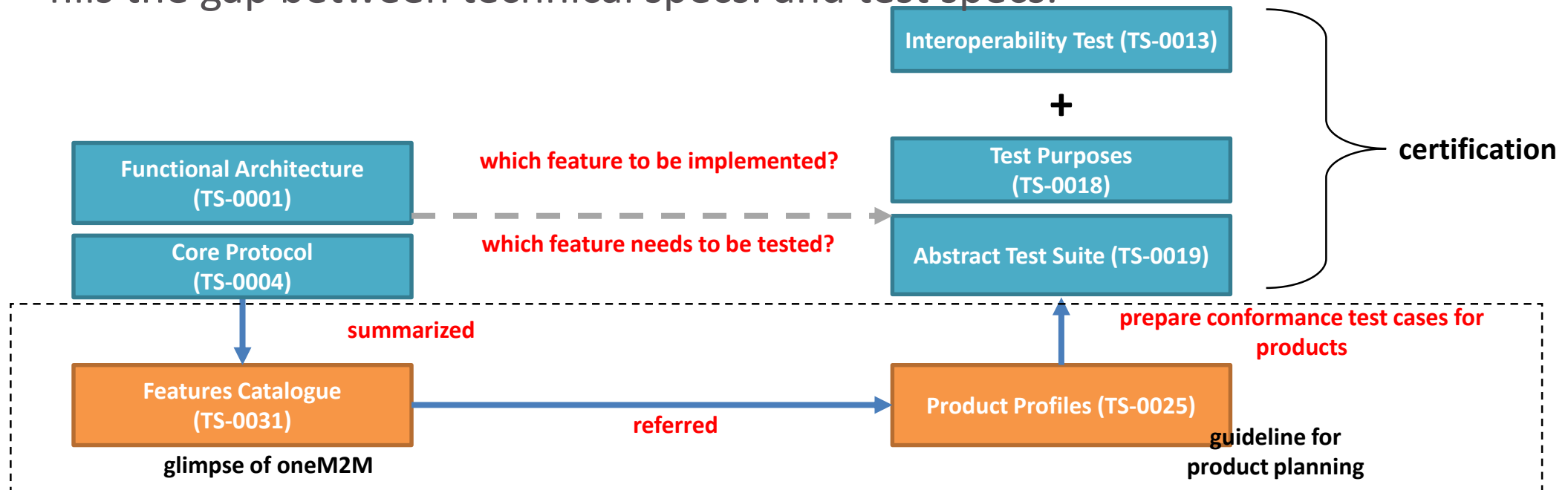
- Interworking is evolving as the interworking framework
 - to avoid specifying new interworking schemes for new ones
- Integration with IoT backend solutions
 - to have different applications for enhanced services and external APIs



< Another example of oneM2M system >

Planning, implementation, testing and certification

- Feature catalogue and product profiles
 - summary to oneM2M features
 - guide to product planning with interested features
 - fills the gap between technical specs. and test specs.



What oneM2M Rel-3 newly provides

oneM2M certification program



- oneM2M certification was founded by TTA and handed over to GCF
- Chordant, InterDigital, is certified as the first product performing conformance test
- Mobius is the first certified open source oneM2M platform

Certified Products (Not limited to)

Product	Webpage	Vendor	Product Type
Chordant™ Platform	https://www.chordant.io	Chordant™	End product(IN-CSE)
SysOne	http://www.c3systems.com	C3SYSTEMS	End product(IN-CSE)
Universal IoT Gateway	http://web.modacom.co.kr	Moda Inc.	End product(IN-CSE)
HuRa IoT Platform	http://www.herit.net	HERIT	End product(IN-CSE)
GWP	http://www.irexnet.co.kr	IREXNET	End product(IN-CSE)
AiSOP	http://www.irexnet.co.kr	IREXNET	End product(IN-CSE)
Insator™	https://www.samsungsds.com	SAMSUNG SDS	End product(IN-CSE)
HANDYPIA IoT Platform	http://www.handysoft.co.kr	HANDYSOFT, Inc.	End product(IN-CSE)
IoT Healthcare Platform	http://www.hconnect.co.kr	HealthConnect Co., Ltd	End product
ThingPlug	https://www.thingplug.net	SK Telecom	Software component
N-MAS	http://www.ntels.com	nTels	End product
IoTmakers Middleware	http://iotmakers.olleh.com	KT	Software component
IoTmakers	http://iotmakers.olleh.com	KT	Software component
e-IoT Energy Platform	https://spin.kepco.co.kr	KEPCO	End product
e-IoT Energy Gateway	https://spin.kepco.co.kr	KEPCO	End product



www.onem2mcert.com











- New work items for release 4
 - Interworking with 3GPP V2X
 - Edge and fog computing
 - Service subscriber and user
 - Industrial information model mapping and semantics support
- On-going work items
 - 3GPP interworking Rel-13 and beyond
 - Vehicular domain enablement
 - Lightweight services
 - Smart city enablement



Open Sources and Market Adoption

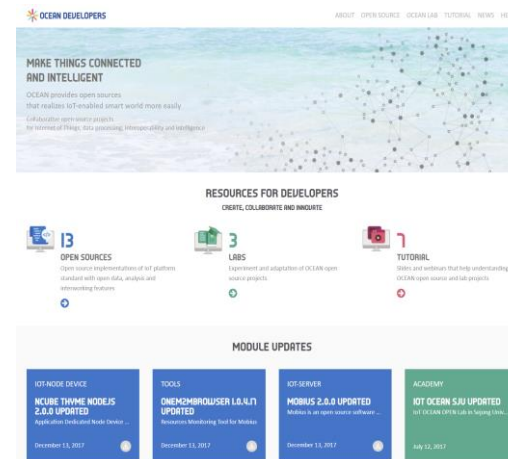
Open Source Implementations

- Members support different open sources for different dev. environments
 - Different open sources gives better opportunity for standard adoption

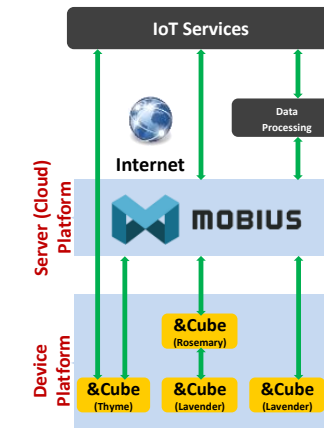
					
Lead					
Homepage	www.eclipse.org/om2m	wiki.opendaylight.org/view/IoTDM:Main	developers.iotocean.org	os-iot.org	www.openmtc.org
License	EPL 1.0	EPL 1.0	BSD 3-Clause	BSD 3-Clause	EPL 1.0
Offering	Platform	Platform	Platform, Dev Tools	Lightweight Dev API	Platform
Binding	HTTP, CoAP	HTTP, CoAP	HTTP, CoAP, MQTT, WebSocket	HTTP	HTTP, MQTT
Format	XML, JSON	JSON	XML, JSON, CBOR	XML, JSON	JSON
Language, Framework	Java / OSGi	Java	Node.js, Java	C++	Python
Interworking	KNX, ZigBee, HUE, LoRa, SigFox, etc	ZigBee	AllJoyn, OCF, Nest, ZigBee, FIWARE, Jawbone	-	FIWARE, Cui868

OCEAN from KETI

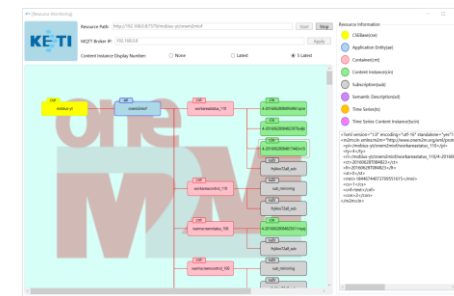
- oneM2M open sources for server and device platform
 - oneM2M server/gateway/device platforms and interworking for OCF, AllJoyn, etc.
 - provides dev tools oneM2M resource browser and conformance testing tool
 - server platform, Mobius, has been commercialized now is certified
 - also provides open source conformance testing tool that is commercialized, and the commercial tool is now one of official testing tools
- BSD 3-Clause license
- <http://developers.iotocean.org>



< OCEAN Website >



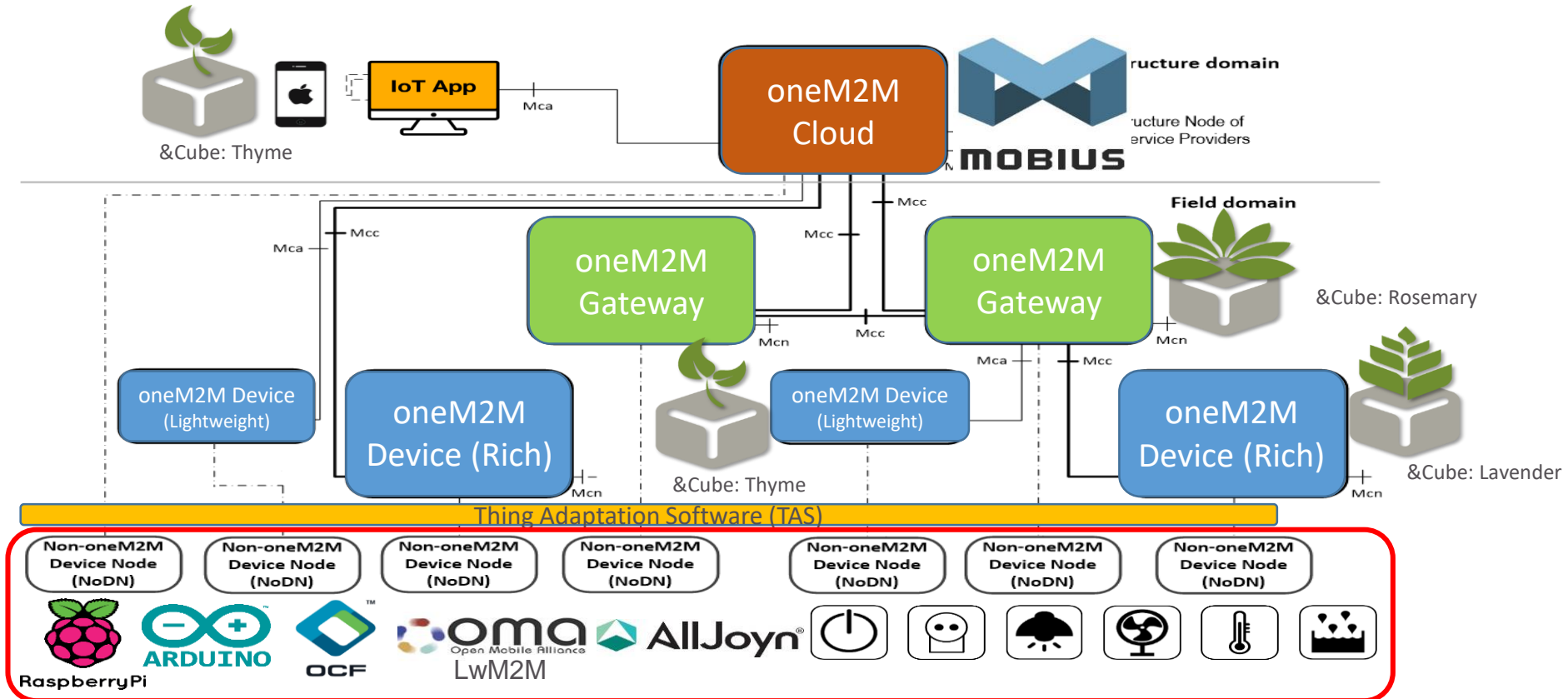
< oneM2M Node Implementations >



< Resource Browser >

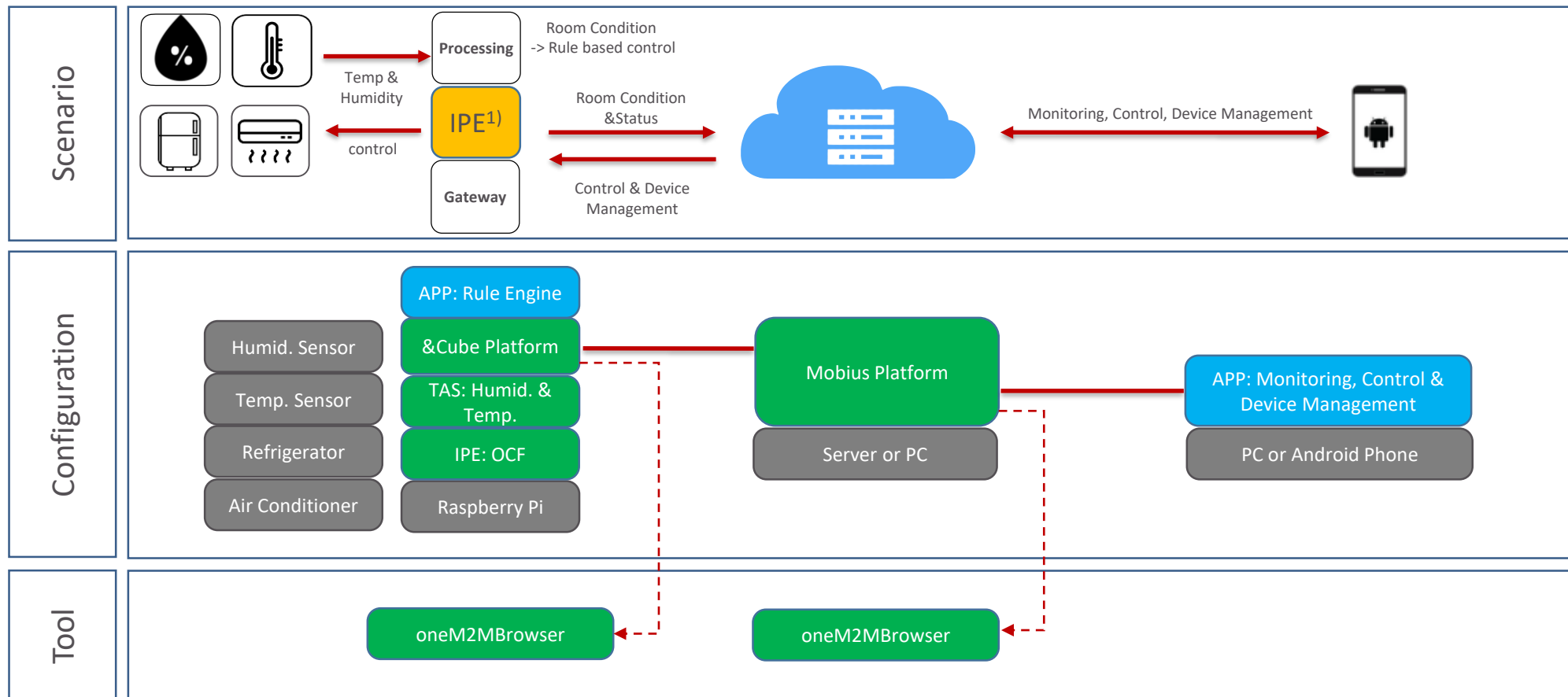
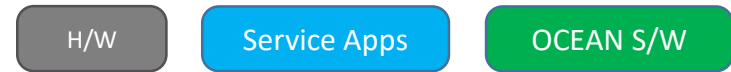
OCEAN for oneM2M

- OCEAN supports extensible oneM2M system deployments
 - covering platforms, apps, interworking specs. and open H/Ws



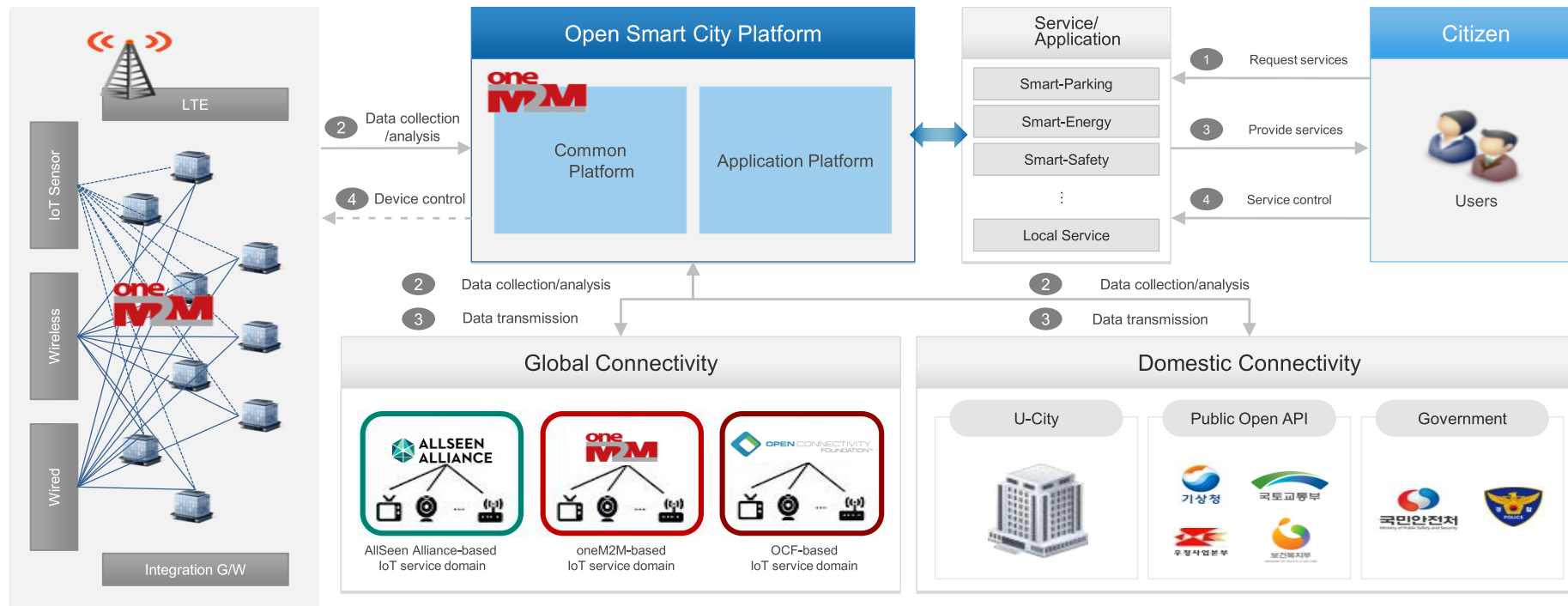
OCEAN for IoT deployment

- With OCEAN, half of system is ready



Smart City

- oneM2M has common IoT platform in smart cities
 - Busan, Goyang, Daegu for pilots and commercial deployments South Korea
 - oneTransport in England, Turin in Italy and Bordeaux in France



Busan Smart City (KOR)

Industrial IoT

- Smart Dust Collector and Gas Metering Solution

