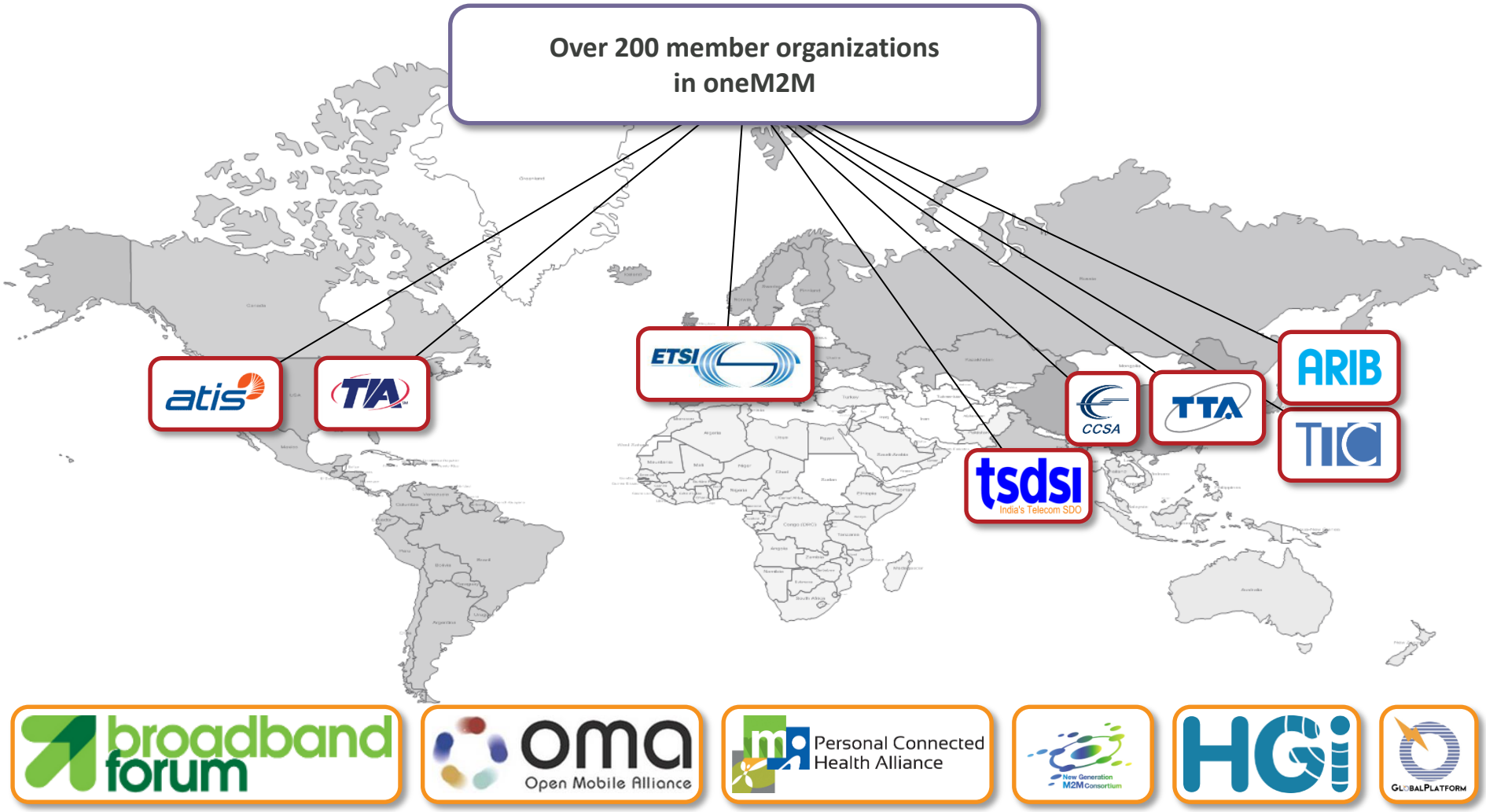
Introduction to oneM2M

Roland Hechwartner, roland.hechwartner@t-mobile.at
Vice Chairman oneM2M Technical Plenary

© 2016 oneM2M

oneM2M partnership project



© 2016 oneM2M

200+ members organizations

Some of the 200+ active members of oneM2M

© 2016 oneM2M

oneM2M – Organization

SC - STEERING COMMITTEE

Chairman: Fran O'Brien, Cisco

Vice-chairs: E. Scarrone, Telecom Italia - P. Jain, Intel - T. Li, Huawei

- Finance Committee
- Legal Committee
- Marketing & Communication Committee
- Methods & Processes Committee

TP - TECHNICAL PLENARY

Chairman: Omar Elloumi, Alcatel-Lucent

Vice-chairs: R. Hechwartner, Deutsche Telekom; N. Yamasaki, KDDI; K. Young Kim, LG Electronics

- Coordination Team
- Work Programme Management Group
- Methods of Work Group

WG1 – REQ
Requirements
S. Kiewel (iconectiv)

WG2 – ARC
Architecture
N. Damour (Sierra W.)

WG3 – PRO
Protocols
P. Niblett (IBM)

WG4 – SEC
Security
F. Ennesser (Gemalto)

WG5 – MAS
Mgt Abst. & Sem.
Y. Zhang (Huawei)

WG6 – TST
Test
J. Song (KETI)

© 2016 oneM2M

Purpose, Work & Deliverables

Purpose

To specify and promote a

Standard for an M2M/IoT Common Service Layer

Work

Six physical 1-week meetings per year with ~100 attendees

200+ documents produced and discussed at each meeting

3800 docs in 2013 4400 docs in 2014

Deliverables

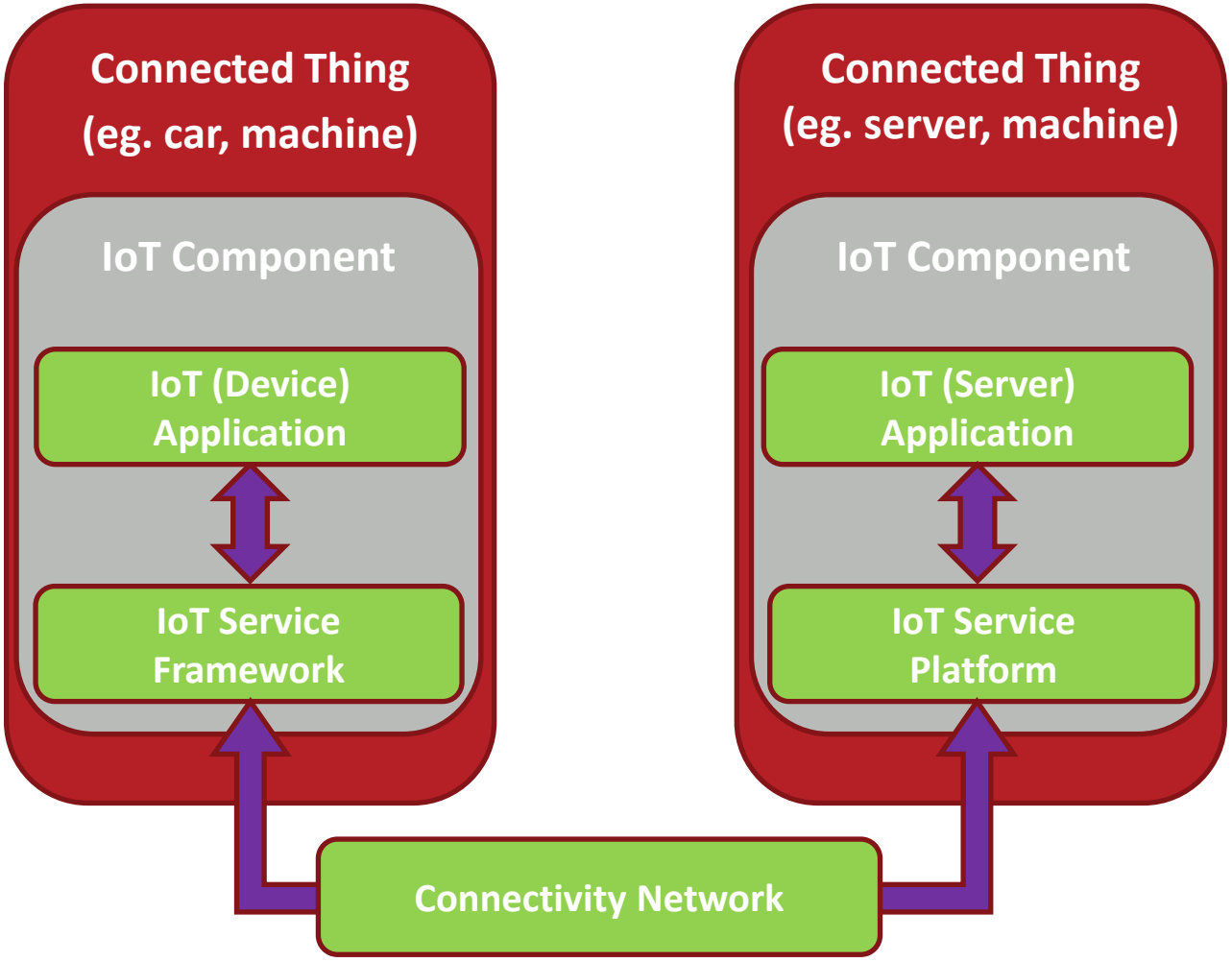
Technical Reports (TRs) and Technical Specifications (TSs)

Release 1 published in January 2015 – 10 TSs + 5 TRs

Release 2 planned for mid-2016

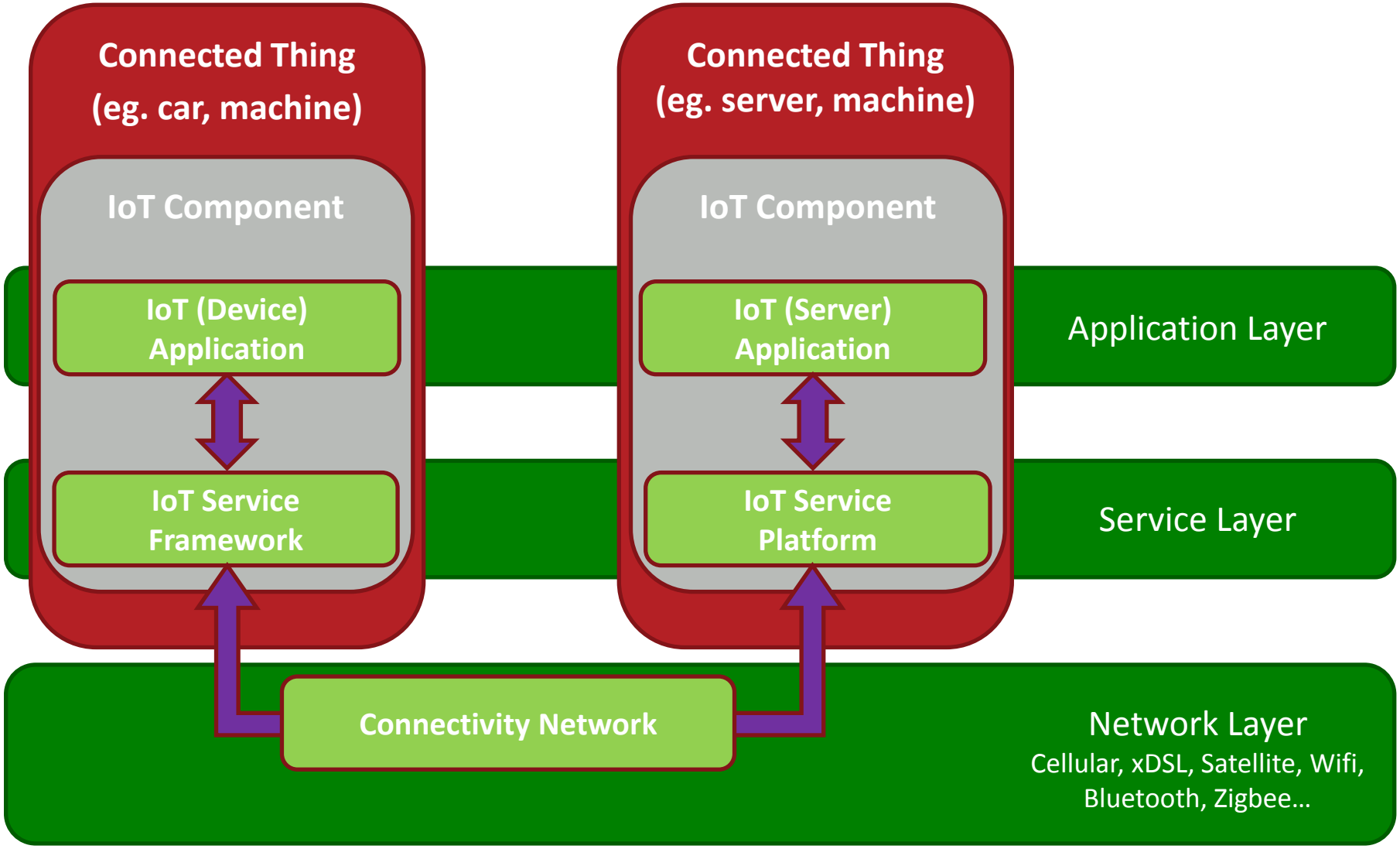
© 2016 oneM2M

M2M Service Delivery Platform



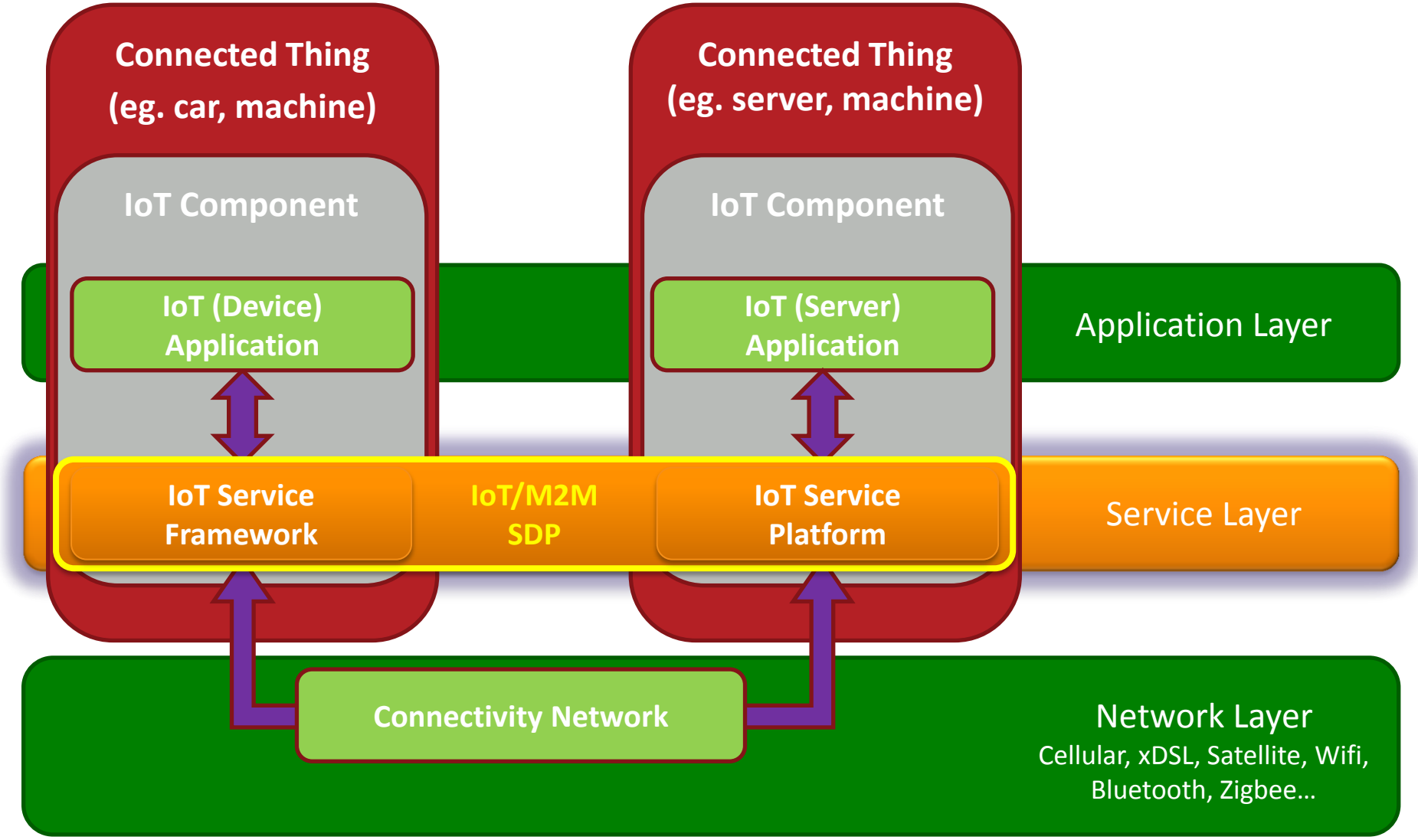
© 2016 oneM2M

M2M Service Delivery Platform



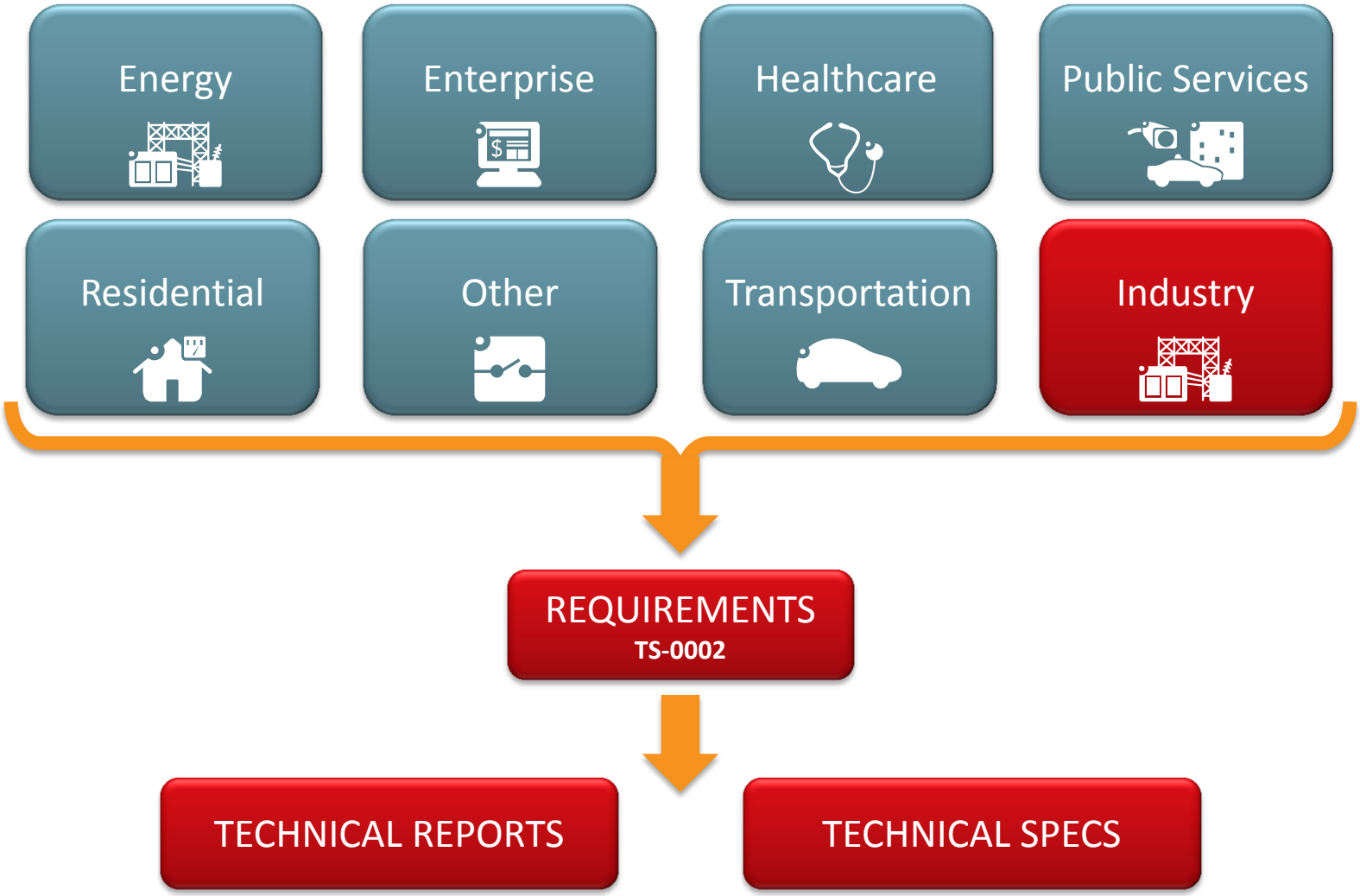
© 2016 oneM2M

M2M Service Delivery Platform



© 2016 oneM2M

Work Process



© 2016 oneM2M

Rel. 1 Technical Reports

Architecture Analysis 1
TR-0002
(WI-0002)

Use Cases
TR-0001
(WI-0001)

Architecture Analysis 2
TR-0003
(WI-0002)

Protocol Analysis
TR-0009
(WI-0008)

Study of Mgt Capab. Enabl^{nt}
TR-0006
(WI-0004)

Abstraction & Semantics
TR-0007
(WI-0005)

Security Analysis
TR-0008
(WI-0007)

Roles & Focus Areas
TR-0005
(WI-0003)

Use Cases v2
TR-0011
(WI-0014)

E2E Security & Group Authent.
TR-0012
(WI-0011)

© 2016 oneM2M

Rel. 1 Technical Specifications

Requirements
TS-0002
(WI-0001)

Functional Architecture
TS-0001
(WI-0002)

Definitions & Acronyms
TS-0011
(WI-0003)

Service Layer Core Protocols
TS-0004
(WI-0009)

HTTP Protocol Binding
TS-0009
(WI-0013)

CoAP Protocol Binding
TS-0008
(WI-0012)

Management Enabl^{nt} - OMA
TS-0005
(WI-0010)

Management Enabl^{nt} - BBF
TS-0006
(WI-0010)

MQTT Protocol Binding
TS-0010
(WI-0014)

Security Solutions
TS-0003
(WI-0007)

(Now 24 Tech. Specifications under way for Rel. 2 as of March 2016)

© 2016 oneM2M

oneM2M Work Programme

Release 1 (publ. Jan. 2015)

- WI-01 - Requirements
- WI-02 - Architecture
- WI-03 - Vocabulary
- WI-04 - Study of Managt Capability
- WI-05 - Abstraction & Semantics
- WI-06 - Device/GW Classification
- WI-07 - Security
- WI-08 - Protocol Analysis
- WI-09 - Protocols
- WI-10 - Management Enablement
- WI-11 - Service Components Arch.
- WI-12 - RESTful COAP Protocol
- WI-13 - RESTful HTTP Protocol
- WI-14 - MQTT Protocol

Release 2 (target ~mid. 2016)

- WI-15 - Use Cases v2
- WI-16 - E2E Security & Groups
- **WI-17 - Home Domain Enablement**
- **WI-18 - oneM2M & AllJoyn IWK**
- WI-19 - Dynamic Authorization
- …
- **WI-24 - LWM2M Interworking**
- **WI-25 - Area Ntwks Gen. Interwrkg**
- WI-26 - Efficient Communications
- WI-27 - Testing Framework
- **WI-28 - Industrial Domain Enablnt**
- …
- **WI-43 - Contin. of HGI Smart Home**
- **WI-44 - oneM2M & OIC IWK**

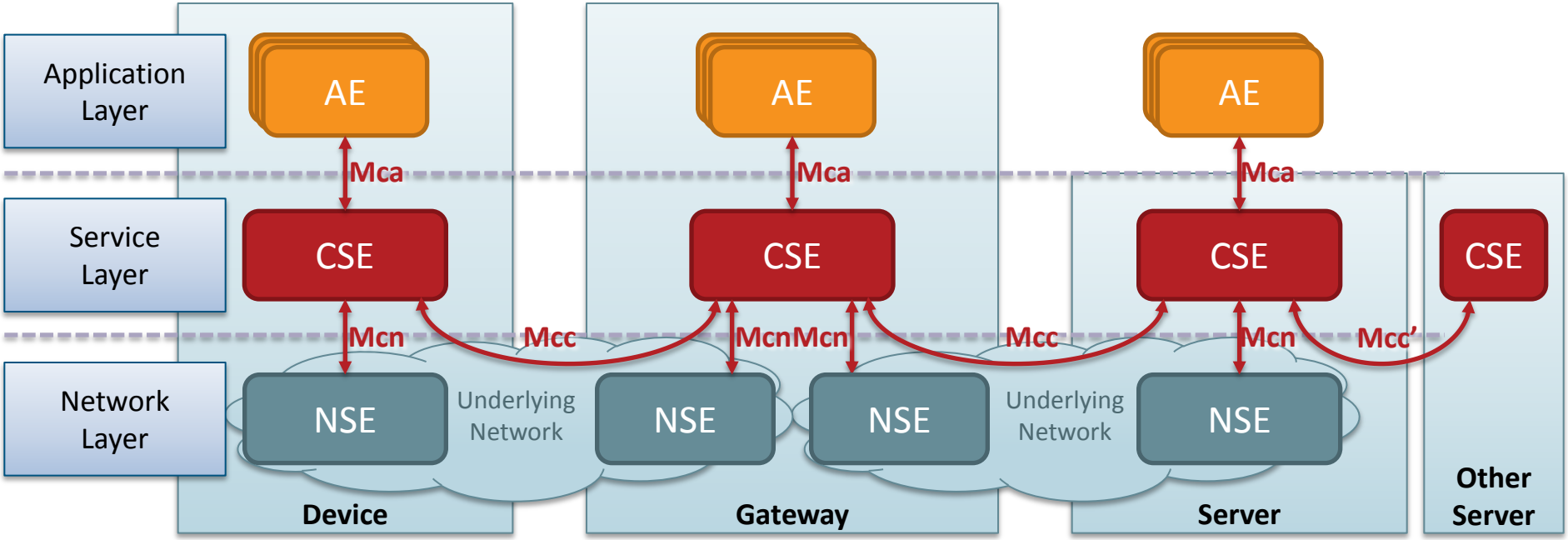
© 2016 oneM2M

Common Service Functions

- Registration
- Discovery
- Security
- Group Management
- Data Management & Repository
- Subscription & Notification
- Device Management
- Application & Service Management
- Communication Management
- Network Service Exposure
- Location
- Service Charging & Accounting

© 2016 oneM2M

Technical View



Entities	AE (Application Entity), CSE (Common Services Entity) and NSE (Network Services Entity)
Reference Point	One or more interfaces - Mca, Mcn, Mcc and Mcc'

EXAMPLE REQUEST

```
GET http://provider.net/home/temperature/la
HTTP/1.1
Host: provider.net
X-Orig: /CSE-1234/WeatherApp42
X-M2M-RI: 56398096
Accept: application/vnd.onem2m-res+json
```

EXAMPLE RESPONSE

```
HTTP/1.1 200 OK
X-M2M-RI: 56398096
Content-Type: application/vnd.onem2m-res+json
Content-Length: 94
{"ri":"28375964","cnf":"application/json:0",
"con":"{'timestamp':1413405177000,'value':25.32}"}
```

© 2016 oneM2M

Strong implementation base

Open source implementations

LAAS-CNRS
Fraunhofer FOKUS
KETI
CISCO
OM2M Connecting things
open mtc
OCEAN
OPEN DAYLIGHT IotDM

Commercial implementations and demos

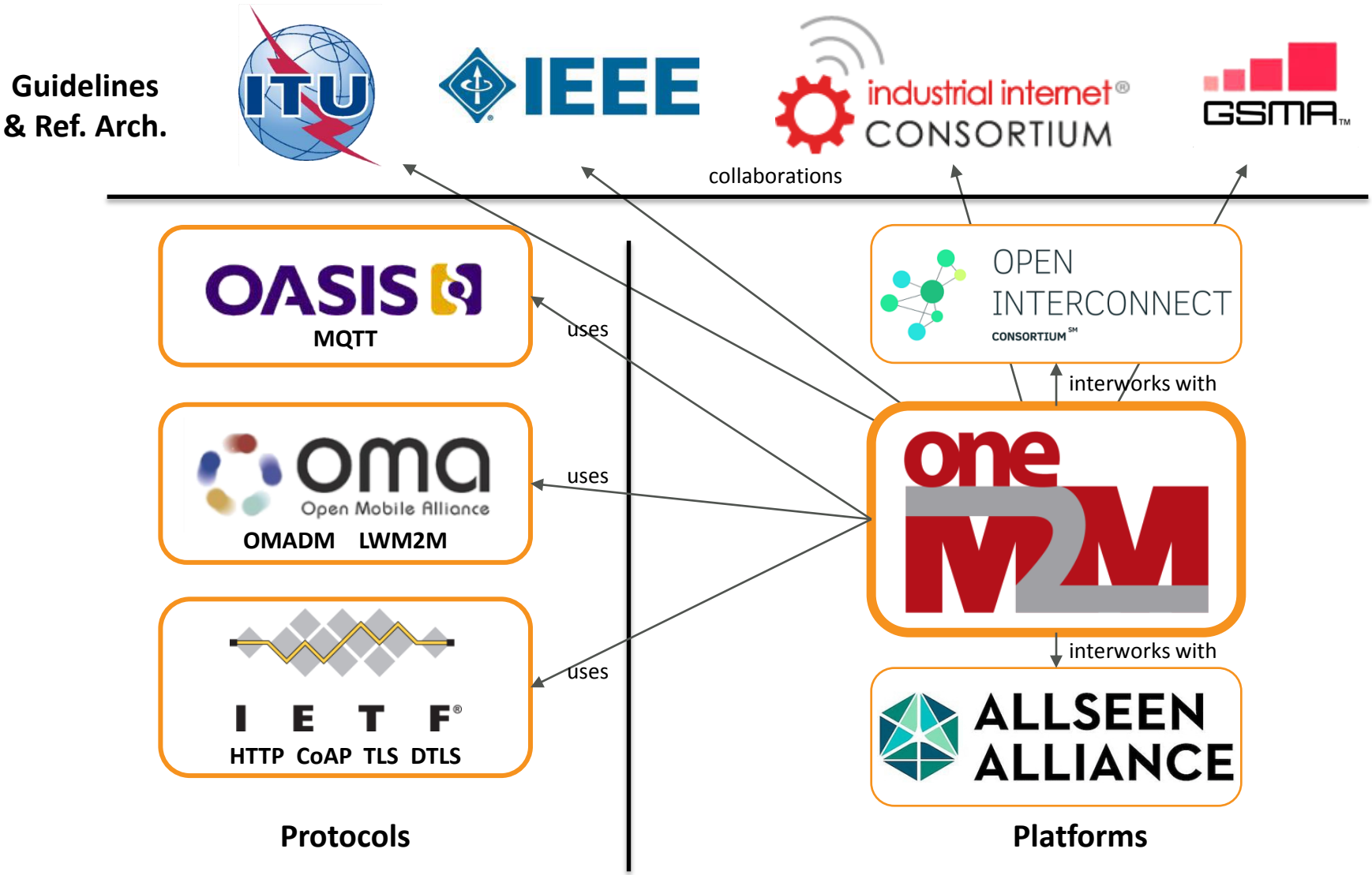
LG
SIERRA WIRELESS
InterDigital
ILS technology a Telit company
HUAWEI
ERICSSON
QUALCOMM
hp

First interoperability event Sept 2015

With 30 participating organizations and 75 people

© 2016 oneM2M

Interoperable standard



© 2016 oneM2M

Collaborative Mindset

- Collaborative mindset within oneM2M
  - Partnership Project from the start
  - Strong focus on reusing existing technologies wherever possible
  - Strong consideration for user industries
- Collaborative mindset with external organizations
  - Personal Connected Health Alliance – Continua
  - Home Gateway Initiative
  - AllSeen Alliance
  - Open Interconnect Consortium
  - European Smart Metering Industry Group
  - IEEE P2413
  - ITU-T SG20
  - W3C
  - Industrial Internet Consortium
  - OSGi

© 2016 oneM2M

Thank you

Questions?

© 2016 oneM2M