



oneM2M Partnership Project

Global Community for a Standardized IoT Framework

Roland Hechwartner – oneM2M TP Chairman

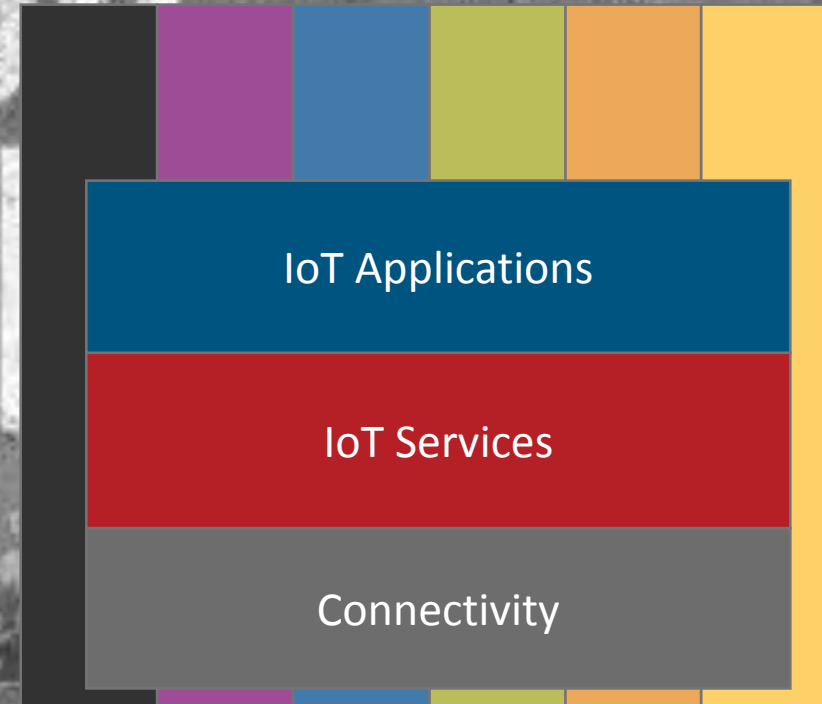
C-DOT Foundation Day

New Delhi, August 26th 2019

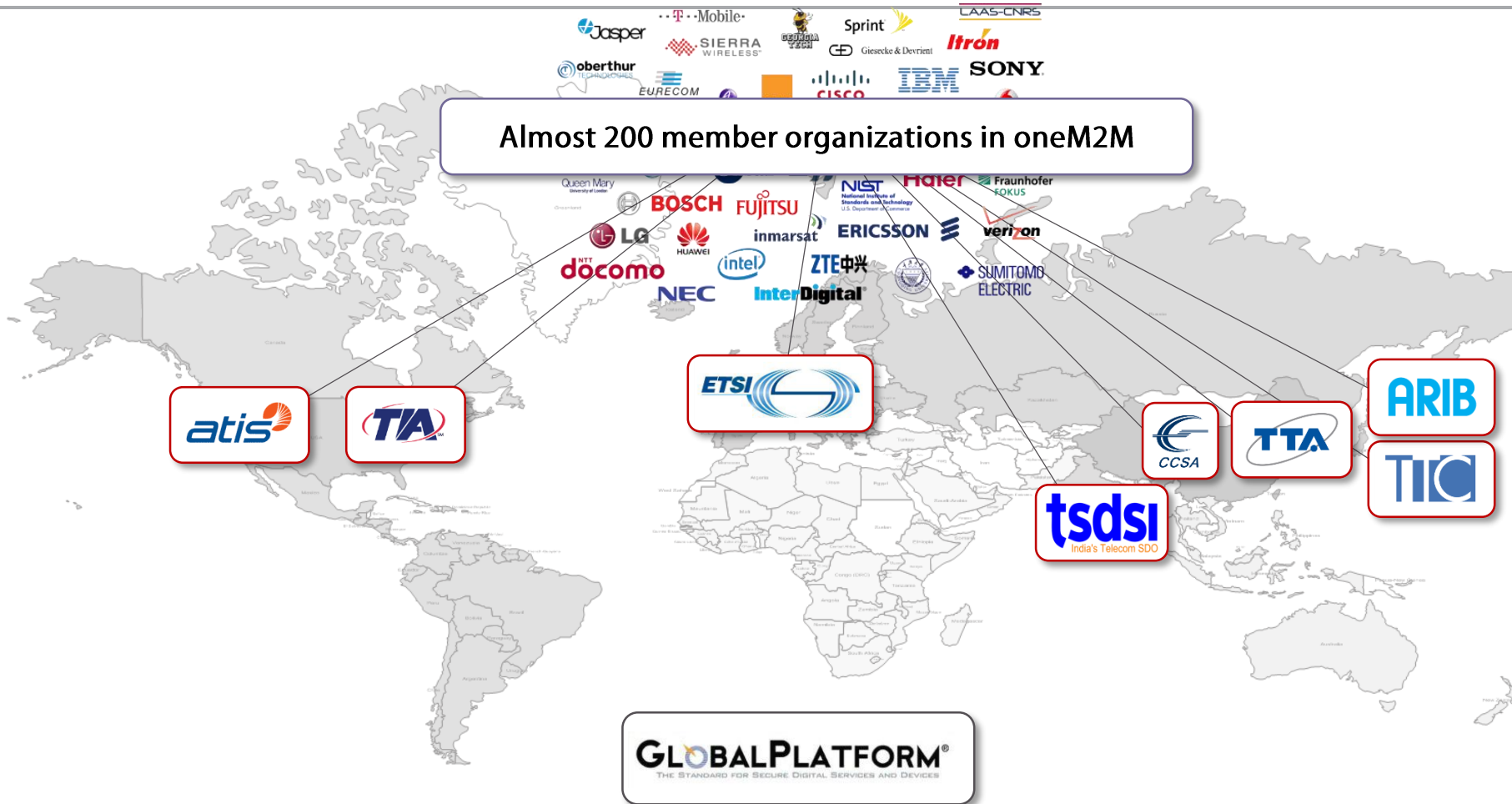
Vertical specific development (silo)
with lack of cross vertical
interoperability



A global interoperable Standard,
enables a
cross-vertical IoT Eco-System



oneM2M Partnership Project



founded¹ July, 24th 2012

TP#1: Sep 24th-29th 2012

[1] [Partnership Agreement](#) V 2.0 (Approved March 2013)

Join forces

=> reduce fragmentation

Partner transpositions

=> De jure Standard

=> "collaborate on standard"

=> focus on interoperability

=> "compete in implementation"

=> Reuse e.g.



Release 2 transposition
ITU-T SG20 Y.4500.x

www.oneM2M.org

All documents and specifications are publically available

oneM2M Structure



<http://onem2m.org/about-onem2m/organisation-and-structure>

Partners

SC Chair:
Enrico Scarrone, Telecom Italia (ETSI)
Vice Chairs:
Rouzbeh Farhoumand, Huawei Technologies (ATIS)
Nick Yamasaki, KDDI Corporation (TTC)
Omar Elloumi, Nokia (ETSI)

Steering Committee

Finance
Industry Liaison
Legal
Marketing
Methods/Procedures

Members / Partners

TP Chair:
Roland Hechwartner, Deutsche Telekom (ETSI)
Vice Chairs:
Josef Blanz, Qualcomm (TIA)
JaeSeung Song, KETI (TTA)
Yongjing Zhang, Huawei Technologies (CCSA)

Technical Plenary

Work Programme
Coordination Group
Methods of Work

RDM

Requirements and Domain Models

WG1 – RDM Chair:
Shane He, Nokia
Vice Chairs:
Catalina Mladin, Convida Wireless
TaeHyun Kim, SyncTechno Inc
Bei Xu (Echo), Huawei

SDS

System Design and Security

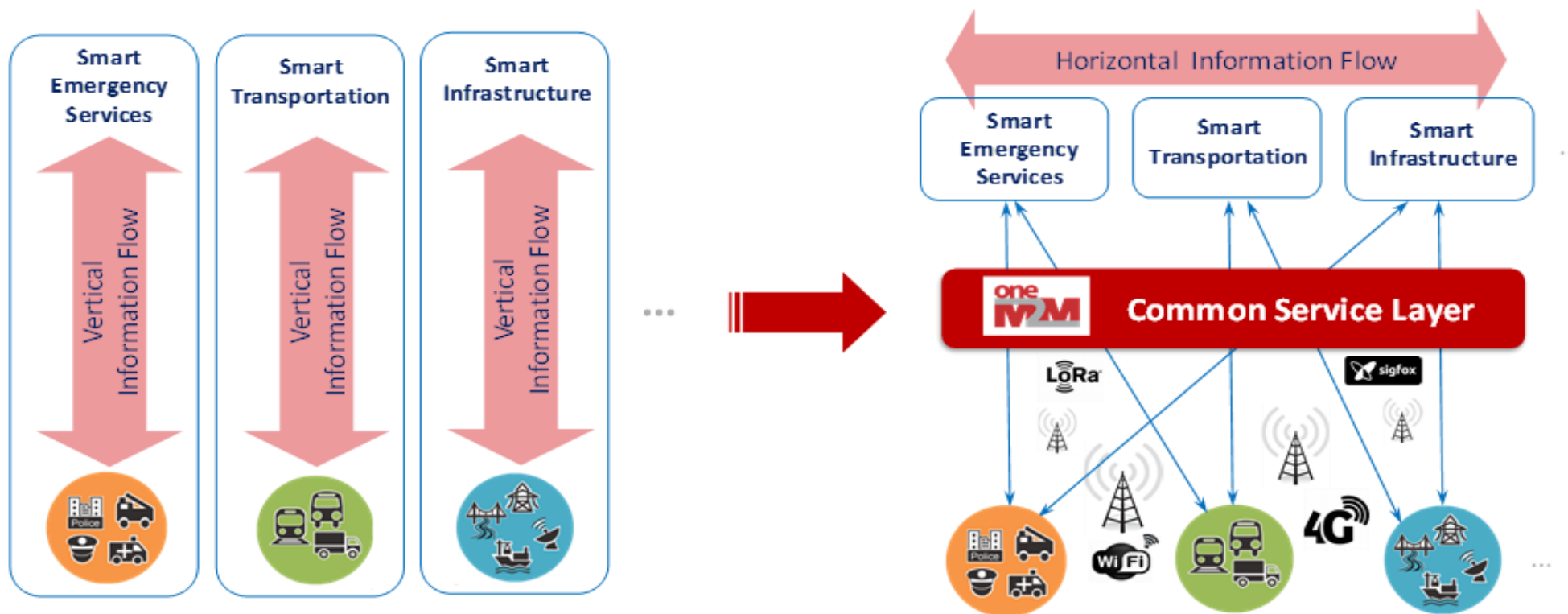
WG 2 SDS Chair:
Dale Seed, Convida Wireless
Vice Chairs:
SeungMyeong Jeong, KETI
Wei Zhou, Datang Telecom
Peter Niblett, IBM

TDE

Testing and Developers Ecosystem

WG3 – TDE Chair:
Andrew Min-gyu Han, Hansung University
Vice Chairs:
Mahdi Ben Alaya, Sensinov
Subhash Gajare, Spirent

oneM2M – The Standard Service layer for things and platforms



- A software “framework”. - enabling an IoT ecosystem - focus on interoperability, avoid vendor lock-in
- Located between the M2M/IoT applications and communication HW/SW that provide connectivity.
- Provides functions that M2M/IoT applications across different industry segments commonly need e.g. data transport, security/ encryption, remote software update...
- Like an “Operating System” for the Internet of Things, it sits on the “things”, edge devices, and in servers.

oneM2M functions provided to applications



Common Service Layer

Registration

Discovery

Security

Group
Management

Communication
Management

Data
Management &
Repository

Subscription &
Notification

Device
Management

Application &
Service
Management

Network Service
Exposure

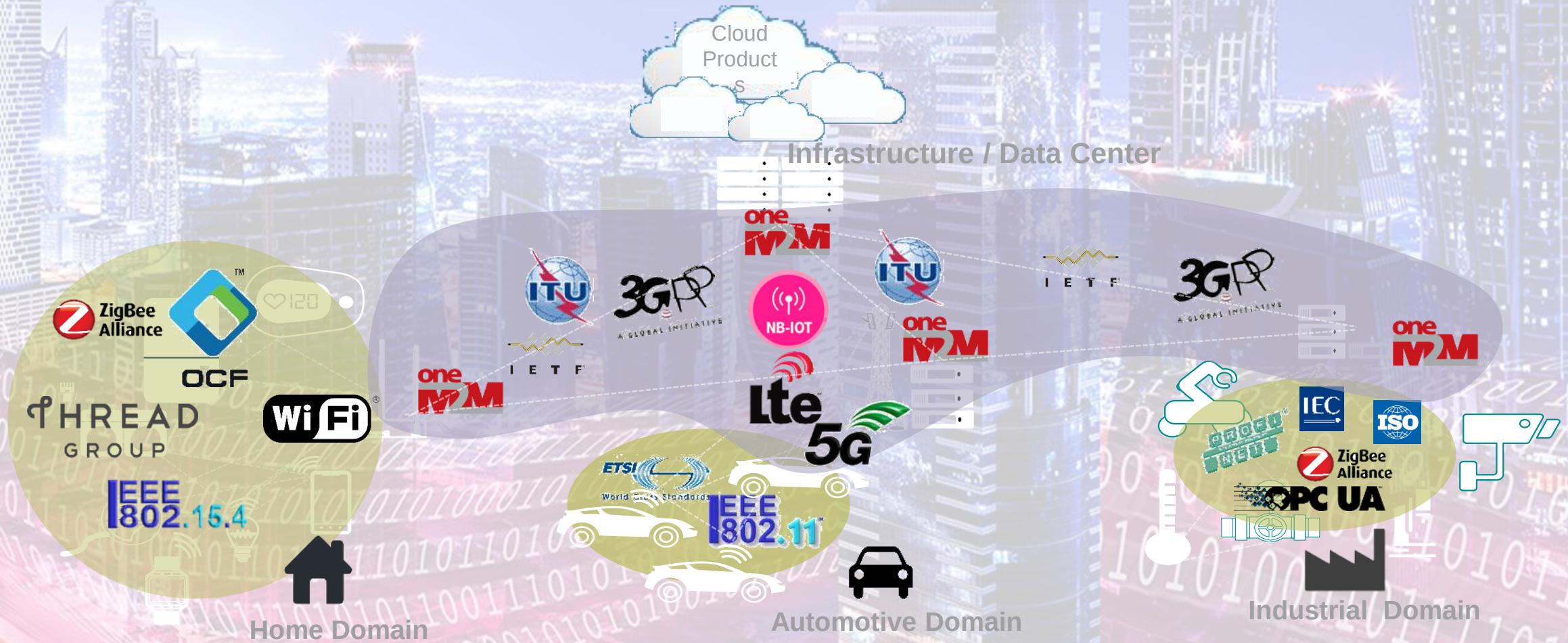
Location

Service Charging
& Accounting

Semantics

Transaction
Management

oneM2M Interworking with domain specific technologies/Standards





oneM2M Feature Summary by Release



Rel-1 Features

- Registration
- Discovery
- Security
- Group Mgmt.
- Data Mgmt. & Repository
- Subscription & Notification
- Device Management
- Communication Mgmt.
- Service Charging
- Network Service Exposure
- App & Service Mgmt.
- HTTP/CoAP/MQTT Bindings

Rel-2 Features

- Time Series Data
- Flexible resources that can be customized by app developers
- Semantics Description & Discovery
- Security Enhancements
 - Dynamic Authorization
 - Content Security
 - E2E Security
- WebSocket Binding
- Ontology for Home Area Information Model
- oneM2M App-ID Registry
- oneM2M Interworking
 - LWM2M
 - AllJoyn
 - 3GPP Triggering

Rel-3 Features

- Semantic Querying/Mashups
- 3GPP SCEF Interworking
 - Non-IP Data Delivery,
 - UE Reachability Monitoring
 - Device Triggering
 - Etc.
- Transaction Management
- Service Layer Routing
- Common oneM2M Interworking Framework
 - OCF, OPC UA, OSGi, Modbus
- oneM2M Conformance Tests and Profiles
- Security Enhancements
 - Distributed Authorization, etc.
- Ontology-based Interworking

Rel-4 Features (planned)

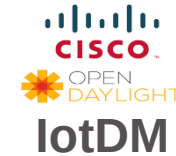
- Fog/Edge Computing
 - Service Provisioning
 - Service Pooling, etc.
- 3GPP Interworking
 - Session QoS
 - V2X
 - NIDD Enhancements
 - Charging
- Vehicular Centric Features
 - Mobility, low latency, ...
- Semantic Reasoning & Ontology Mapping
- Service/User Subscription
- Security Enhancements
 - User/Data Privacy, etc.
- W3C WoT Interworking
- SDT4.0 and the information models for multiple domains
- Streamlining oneM2M protocol
- oneM2M Conformance Tests

oneM2M Implementation and Deployment Base



A vibrant and healthy ecosystem of oneM2M implementations exists!

Industry-driven Open source implementations



Examples of Commercial implementations, Prototypes, Trials



Certification Test Houses and Test Tool Vendors



Regular Interop Events (6 Held from 2015-2018)

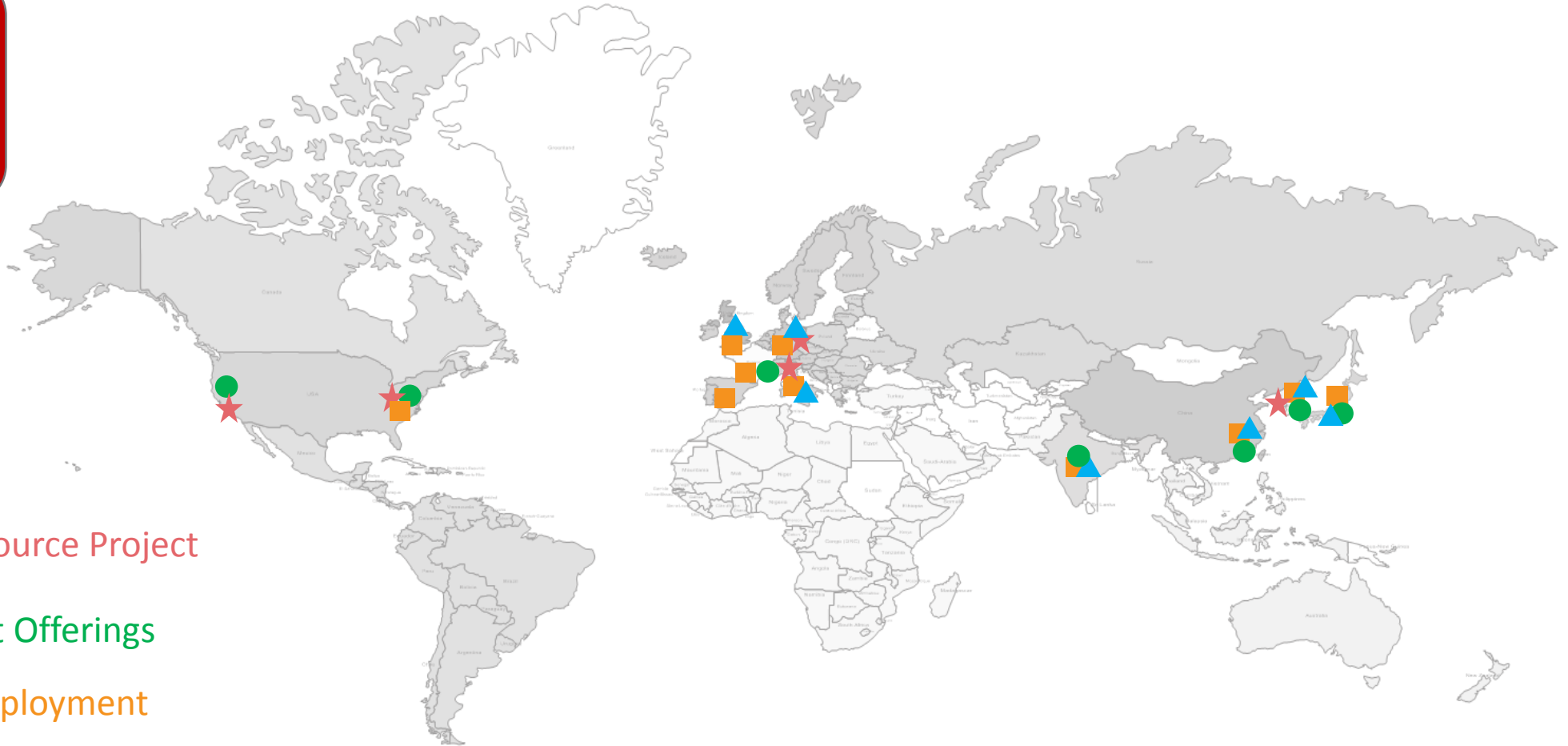
[Link to List of deployments](#)

[Link to Certified Products](#)

oneM2M Adoption



oneM2M has
global adoption



- ★ oneM2M Open Source Project
- oneM2M Product Offerings
- oneM2M Trial Deployment
- ▲ oneM2M Commercial Deployment

oneM2M

- Specifies a common set of horizontal IoT services = de-jure standard
- Interworks with existing IoT technologies
- Simplifies the life for IoT stakeholders
- Ensures conformance and interop through a certification program
- Vendor independent => Essential building block for an IoT ecosystem

Thank you!

Backup

- Publicly Accessible Links
- oneM2M Releases and Specifications

Publicly Accessible Links



- Web Site
 - <http://www.oneM2M.org>
- Developer Guides
 - <http://www.onem2m.org/developer-guides>
- Technical Questions
 - <http://www.onem2m.org/technical/technical-questions>
- Published Specifications
 - <http://www.onem2m.org/technical/published-documents>
- Documents developed in oneM2M
 - <http://www.onem2m.org/technical/latest-drafts>
- Webinars
 - <http://www.onem2m.org/technical/webinars>
- YouTube Channel
 - <https://www.youtube.com/c/onem2morg>
- Events
 - <http://www.onem2m.org/news-events/events>
- Certified Products
 - http://www.onem2mcert.com/sub/sub04_01.php

Publicly Accessible Links



Developer Guides
are now accessible via the public link:
<http://www.onem2m.org/developer-guides>

The screenshot shows the oneM2M website with the 'Developer Guides' section highlighted in the navigation menu. The page title is 'Standards for M2M and the Internet of Things'. The navigation bar includes links for HOME, DEVELOPER GUIDES, and various TR standards (TR-0025, TR-0034, TR-0035, TR-0037, TR-0038, TR-0039, TR-0045). A search bar is also present. The main content area is titled 'Developer Guides' and contains a list of guides on the left and a detailed description on the right. The list includes: TR-0025 Light Control using HTTP, TR-0034 Temperature Monitoring using CoAP, TR-0035 Device Management, TR-0037 Smart Farm using MQTT, TR-0038 Security, TR-0039 Interworking Proxy using SDT, and TR-0045 Implementing Semantics. The detailed description on the right explains that oneM2M has worked on a series of developer guides to provide a guideline for application developers. It mentions that when implementing a standard, it is frequently requested from the software developer community to get some tutorials describing basic use cases, some procedures and scenarios, including diagrams, message flows, message traces samples, resource description samples, etc. It also states that such a document would be helpful in software development to provide overall understanding of the main functions offered by the oneM2M architecture, before going more deeply into the analysis of the oneM2M standards. A 'Print' button is available. Below the description, there is a section titled 'Use cases examples' which lists links to specific guides: TR-0025 (Light control using HTTP binding), TR-0034 (Temperature Monitoring using CoAP binding), TR-0035 (Device Management example), TR-0037 (Smart farm example using MQTT binding), TR-0038 (Implementing security), TR-0039 (Interworking proxy using SDT), and TR-0045 (Implementing semantics). At the bottom, there is a note 'To be online soon' and '3GPP interworking example'.

oneM2M Standards for M2M and the Internet of Things

Member Login

HOME DEVELOPER GUIDES TR-0025 TR-0034 TR-0035 TR-0037 TR-0038 TR-0039 TR-0045

Search...

You are here: Home > Developer Guides

TR-0025 Light Control using HTTP

TR-0034 Temperature Monitoring using CoAP

TR-0035 Device Management

TR-0037 Smart Farm using MQTT

TR-0038 Security

TR-0039 Interworking Proxy using SDT

TR-0045 Implementing Semantics

Developer Guides

oneM2M has worked on a series of developer guides, proposing a guideline for application developers who want to use functionalities offered by an oneM2M service platform. [Print](#)

When implementing a standard, it is frequently requested from software developer community to get some tutorials describing for basic use cases, some procedures and scenarios, including diagrams, message flows, message traces samples, resource description samples, etc.

Such document would be helpful in software development to provide overall understanding of the main functions offered by the oneM2M architecture, before going more deeply into the analysis of the oneM2M standards.

Use cases examples

- TR-0025 : Light control using HTTP binding : [TR-0025](#)
- TR-0034 : Temperature Monitoring using CoAP binding : [TR-0034](#)
- TR-0035 : Device Management example: [TR-0035](#)
- TR-0037 : Smart farm example using MQTT binding : [TR-0037](#)
- TR-0038 : Implementing security : [TR-0038](#)
- TR-0039 : Interworking proxy using SDT : [TR-0039](#)
- TR-0045 : Implementing semantics : [TR-0045](#)

To be online soon

3GPP interworking example



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oneM2M Release 3 Deliverables

ADM-0017 Release 3 Control Document



Technical Specifications

TS 0001 - Functional Architecture, V 3.13.2

TS 0002 - Requirements, V 3.1.2

TS 0003 - Security Solutions, V 3.10.2

TS 0004 - Service Layer Core Protocol, V 3.11.0

TS 0005 – Management enablement (OMA), V 3.4.2

TS 0006 – Management enablement (BBF), V 3.6.2

TS 0008 – CoAP Protocol Binding, V 3.3.1

TS 0009 – HTTP Protocol Binding, V3.2.0

TS 0010 – MQTT Protocol Binding, V 3.0.2

TS 0011 – Common Terminology, V 3.0.2

TS-0012 – Base Ontology, V 3.7.3

TS-0014 – LWM2M Interworking, V 3.1.1

TS-0016 – Secure Environment Abstraction V 3.0.2

TS-0020 – WebSocket Protocol Binding, V 3.0.1

TS-0022 – Field Device Configuration-V 3.0.1

TS-0023 – Home Appliances Information Model and Mapping, V 3.7.3

TS-0024 – OCF Interworking, V 3.2.2

TS-0026 – 3GPP Interworking V3.0.0

TS-0030 – Ontology Based Interworking V 3.0.3

TS-0031 – Feature Catalogue V 3.0.0

TS-0032 – MAF and MEF Interface Specification V 3.0.1

TS-0033 – Interworking Framework V 3.0.0

TS-0034 – Semantics Support V 3.0.0

TS-0035 – OSGi Interworking V 3.0.0

Technical Reports

TR-0001 Use Cases Collection, V 3.1.1

TR-0026 Vehicular Domain Enablement, V 3.0.1

TR-0033 Study on Enhanced Semantic Enablement V 3.0.0