



oneM2M Value and Status

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Nov 5th 2019

oneM2M Partnership Project



www.oneM2M.org All documents and specifications are publically available



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

=> focus on interoperability

=> "collaborate on standard -
compete in implementation"

=> Reuse e.g.

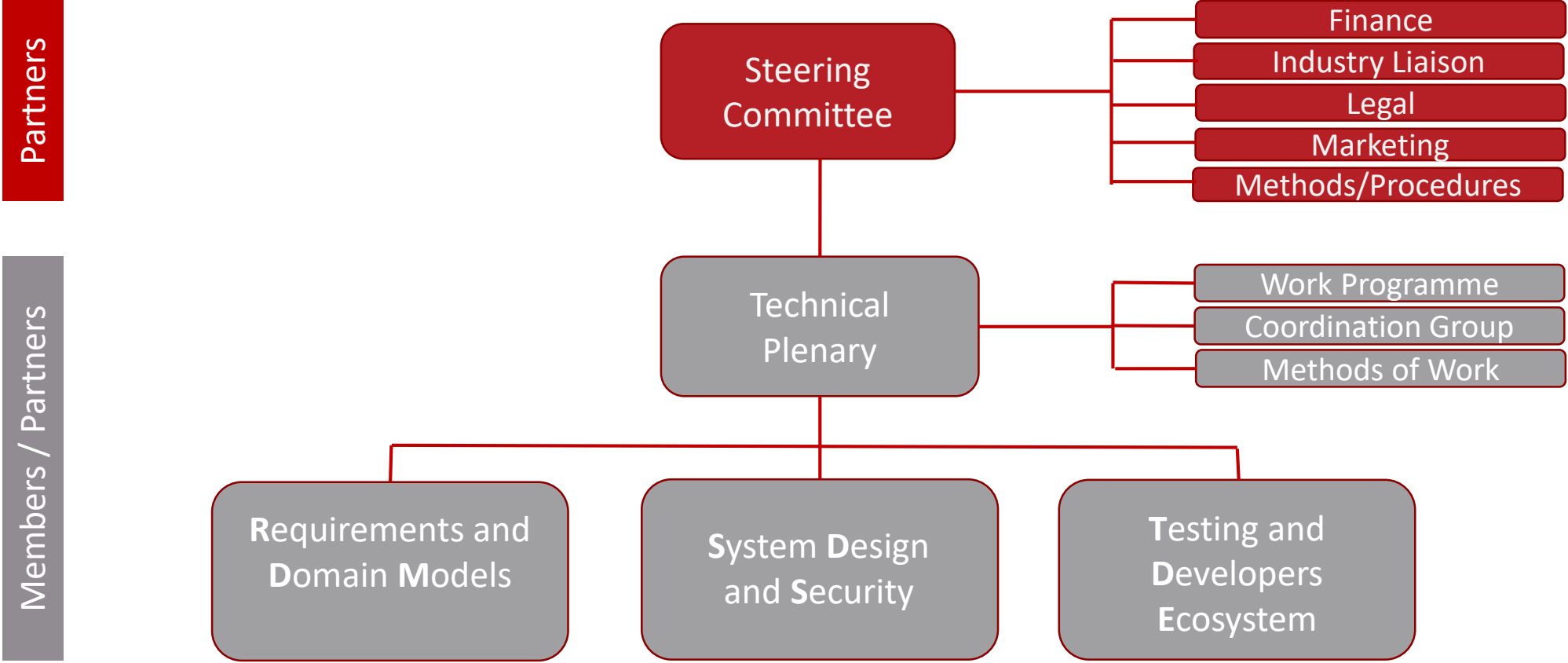


Release 2 transposition
ITU-T SG20 Y.4500.x

oneM2M New Structure

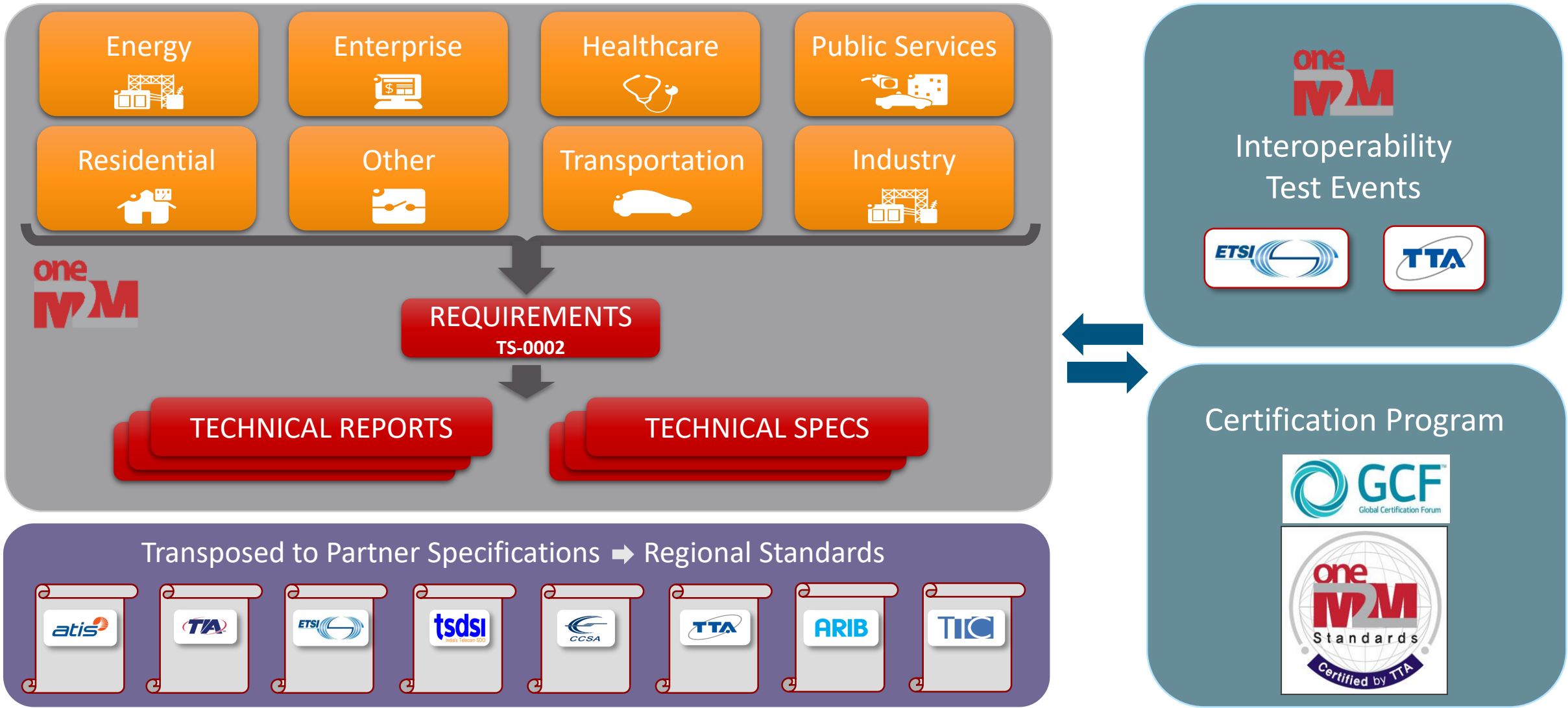


<http://onem2m.org/about-onem2m/organisation-and-structure>

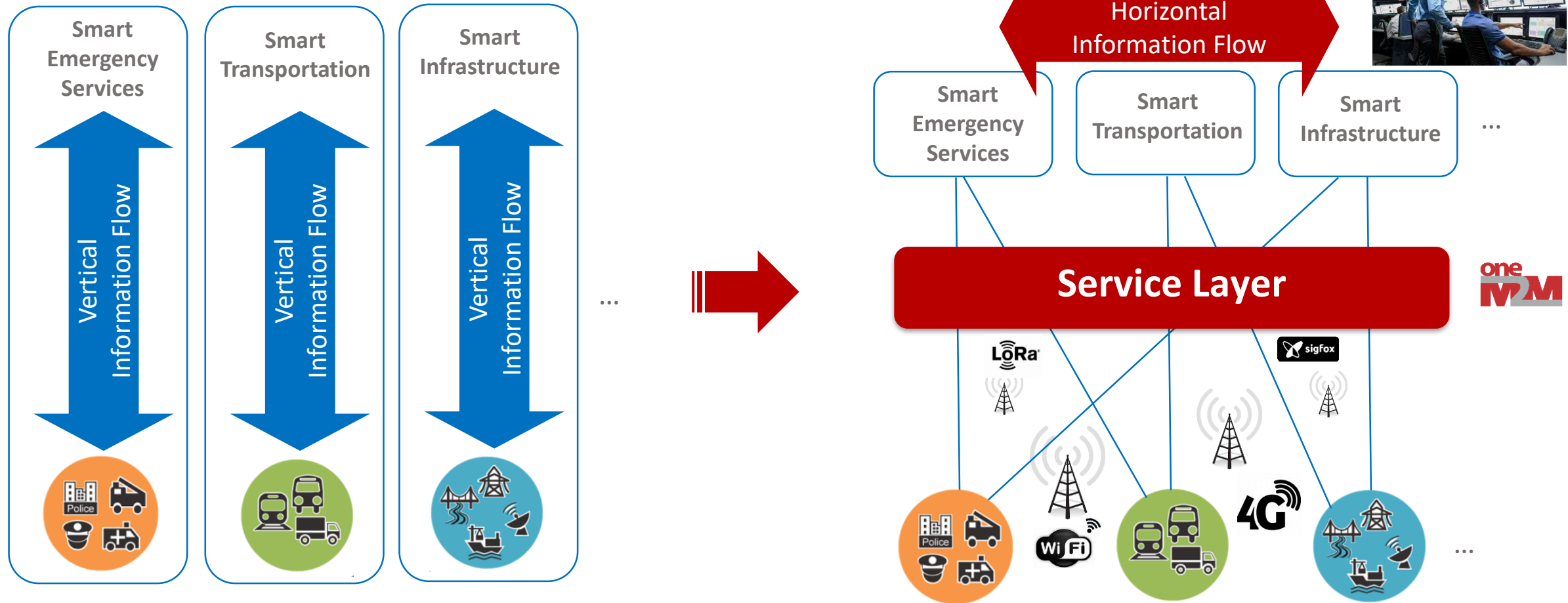


oneM2M Work Process

Standard – Testing – Certification Program



oneM2M Breaks Down the Silos



oneM2M is Resource Oriented

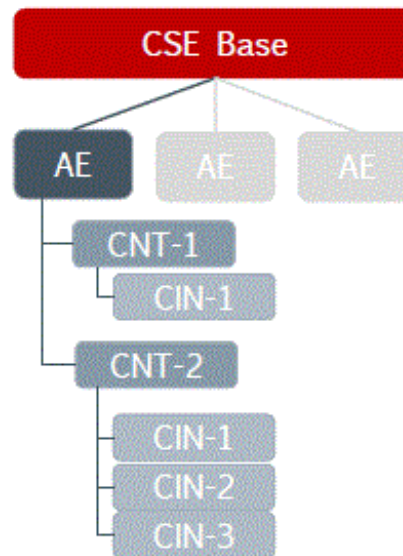


Based on REST architecture style (representational state transfer)

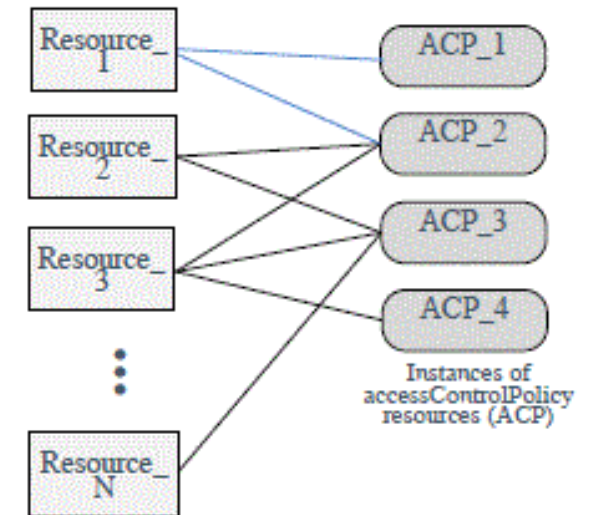
- Access to resources by using an URI <http://www.example.com/wiki/rest>
- Representation format: XML, JSON, BSON, ...
- Dependencies, hierarchy is represented by link in resource representation

Basic Resources

- Common Service Entity (*CSE*)
- Container (*CNT*)
- Application Entity (*AE*)
- Container (*CNT*)
- Content Instance (*CIN*)
-



Resource Access Control Policy (ACP)



Source: oneM2M TS-0003



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

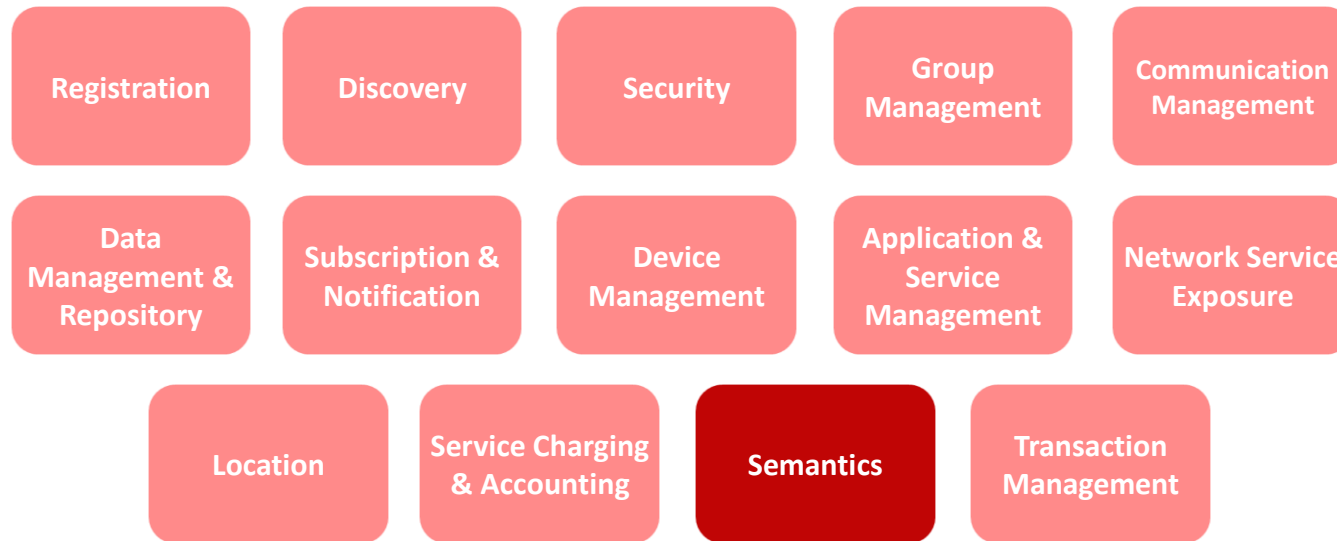
Semantics

Transaction
Management

oneM2M Semantic Functionalities

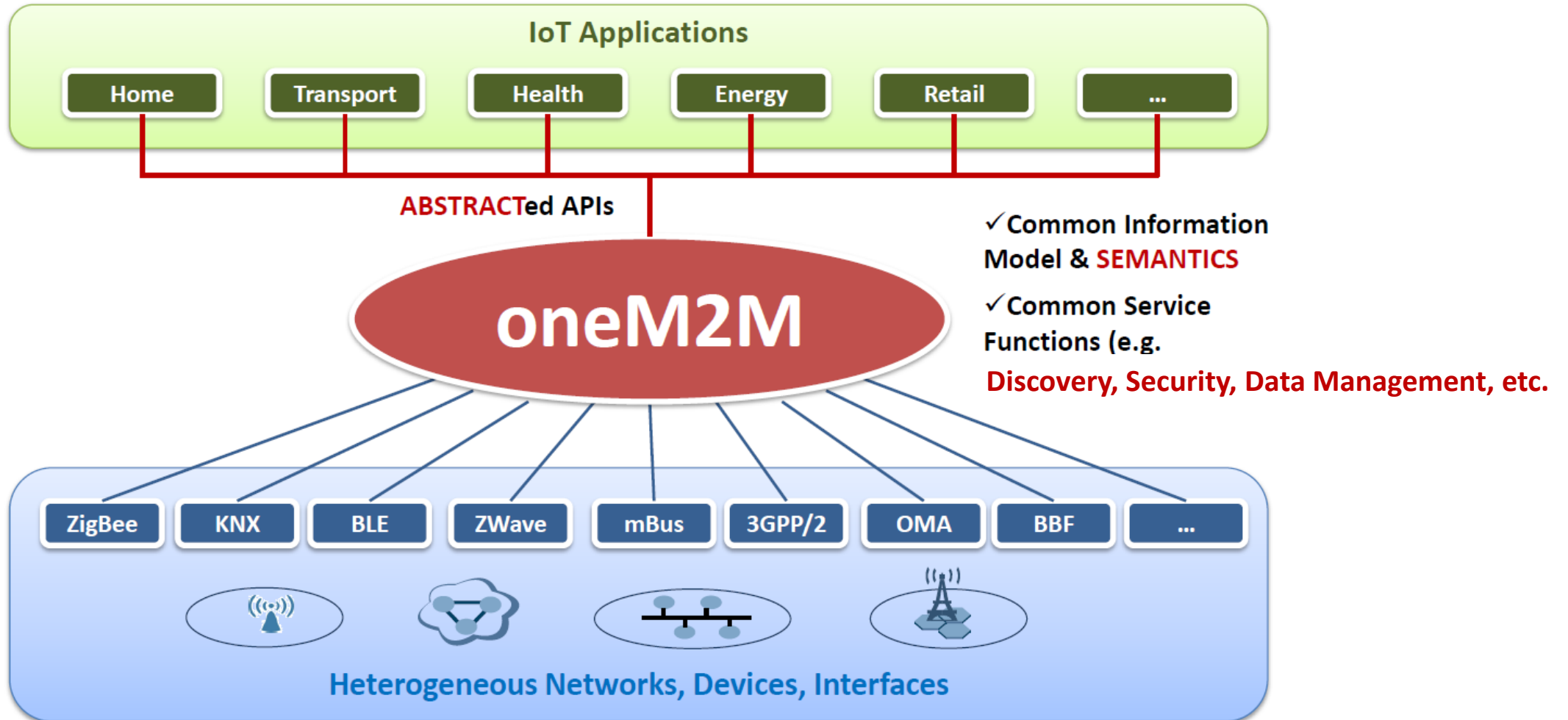


oneM2M Service Layer



- **Semantic enables Applications to directly interact with real-world entities**, through their virtual annotated representation
- Semantic support for **interworking between various applications**
 - TS-0030-Ontology based Interworking
- **Functionalities**
 - Semantic Queries (e.g. Discovery)
 - Support for Semantic Mash-ups
- **Required Foundations**
 - Semantic Annotation
 - Ontology
 - Semantic Reasoning
- **Resources (TS-0034)**
 - semanticDescriptor: store a semantic description of a resource
 - semanticFanOutPoint: a virtual resource for semantic discovery or query
 - Resources for mashup operation, ontology repository, queries, validation, Access Control Ontology

oneM2M Interworking Framework



Current Specifications

- **Requirements**
- **Functional Architecture**
- **Security**
- **Service Layer Protocols**
- **Protocol Bindings**
e.g. HTTP, CoAP, MQTT, WebSockets
- **Base Ontology & Semantics**
- **Remote Management Enablement**
e.g. for OMA, BBF
- **Vertical Domain Support**
e.g. Smart Home;
Home Appliances Information Model
SDT*3.0
- **Interworking Support**
e.g. LwM2M, OCF, 3GPP, OSGi
- **Tests & Certifications**

Release 4 - More Smart City & Vertical Domain Support

- **Smart City**, e.g. Ontologies for Smart City Services
- **Public Warning Service Enabling**
- **Vehicular Domain Enabling**, incl. 3GPP V2X interworking
- **Industrial Domain Enabling**, e.g. OPC-UA model mapping
- **Railway Domain Enabling**
- **Interworking** e.g. ZigBee, Modbus

Release 4 - Feature Enhancement & Optimization

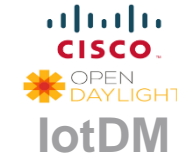
- **SDT*4.0 & Data Model extension**, e.g. City, Railway
- **Semantic Enhancement**, e.g. reasoning, ontology mapping
- **Security Enhancement**, e.g. user/data privacy
- **Edge & Fog Computing support**, e.g. service provisioning, service pooling
- **System Optimizations**, e.g. lightweight services, platform discovery, rule engine, users, ...
- **3GPP Interworking**, e.g. session QoS, V2X, charging..
- **Testing Specifications & Developer Guides**

* SDT – Smart Device Template: Technology-independent methodology to specify functionalities and devices

Implementation and Deployment Base

A vibrant and healthy oneM2M ecosystem continues to build

Industry-driven Open source implementations



Examples of Commercial implementations, Prototypes, Trials



oneM2M.org lists
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Deployments
[List of deployments](#)

Certification Test Houses and Test Tool Vendors



Regular Interop Events (6 Held from 2015-2018)

oneM2M Certified Products



Telecom
Indonesia
recently
certified

PRODUCT Name	PRODUCT VENDOR	PRODUCT TYPE	LISTING DATE
AiSOP(aThings, 1.4.0)	irexnet	End product (IN-CSE)	8/30/2019
rino IoT(ESE-RINO-IOT)	ESE Co., Ltd.	End product (IN-CSE)	8/30/2019
Government Internet of things Management...	DKI Technology Co., Ltd.	End product (IN-CSE)	8/30/2019
ANTARES	PT Telekomunikasi Indonesia	End product (IN-CSE)	3/28/2019
Wireless Sensor Data Acquisition Device	KEPCO KDN	End product (ADN-AE)	3/28/2019
Every Things.IoT	Awasoft Inc.	End product (IN-CSE)	2/14/2019
PAS [Platform for device Administration ...	ELSYS Co., Ltd.	End product(IN-CSE)	2/14/2019
UANGEL IoT Platform	UANGEL CORPORATION,	End product(IN-CSE)	6/29/2018
Mobius	KETI	Software Component	5/18/2018
Chordant™ Platform	Chordant™, an InterDigital business	End product(IN-CSE)	2/21/2018
SysOne	C3SYSTEMS	End product(IN-CSE)	12/7/2017
Universal IoT Gateway	Moda Inc.	End product(MN-CSE)	12/7/2017
HuRa IoT Platform	HERIT	End product(IN-CSE)	12/7/2017
GWP	IREXNET	End product(IN-CSE)	9/7/2017
AiSOP	IREXNET	End product(IN-CSE)	9/7/2017
...

www.onem2mcert.com/main/main.php

TTA oneM2M Standard Certified

one Certification for oneM2M Standard

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Introduction
Certification Guide
Facilities
Certified Products
Downloads
Reference

oneM2M Standards
Certified by TTA

oneM2M Certification logo is intended to represent to consumers that oneM2M products and services meet oneM2M standard testing requirements that ensure interoperability. When your product is oneM2M Certified, it becomes a part of integral ecosystem of oneM2M enabled products, services and applications in the market.

START CERTIFICATION

oneM2M Certification from TTA <http://onem2mcert.com>

Source: Dale Seed, oneM2M Industry Day hosted by TSDSI. 2019

oneM2M

- is a global open standard, not controlled by a single private company
- specifies a common set of horizontal IoT services
 - architecture, common services functions, information model
- enables data interoperability
 - Information model, semantics, ontology based interoperability
- interworks with existing IoT technologies
- has interoperability testing and a certification program
- standardized APIs simplify the life for IoT stakeholders
 - minimize development, deployment & maintenance costs
- is a mature and a commercially deployed technology

Work progressing on
oneM2M release 4
Expected: Q1 2021

Thank you!

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>

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

Smart Device Template

SDT 3.0 is available under Apache 2 License:

<https://git.onem2m.org/MAS/SDT>

TS-0023 : SDT based Information Model and Mapping for Vertical Industries

The latest published version of TS-0023 is available:

<http://www.onem2m.org/technical/published-drafts>

Tools

A utility for converting SDT to other formats is the SDTTool:

<https://github.com/Homegateway/SDTTool>

Twitter

[@oneM2M](https://twitter.com/oneM2M)

Stackoverflow

<https://stackoverflow.com/questions/tagged/onem2m>