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

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

<table>
<thead>
<tr>
<th>Supply Chain / Industrial IoT</th>
<th>Utilities</th>
<th>Healthcare / Fitness</th>
<th>Smart Building</th>
<th>Automotive / Connected Car</th>
<th>Connected Home</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT Applications</td>
<td>IoT Services</td>
<td>Connectivity</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Andreas Neubacher, oneM2M Industry Day #5
oneM2M Partnership Project

Almost 200 member organizations in oneM2M

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

founded 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.

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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

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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)
oneM2M has global adoption

- oneM2M Open Source Project
- oneM2M Product Offerings
- oneM2M Trial Deployment
- oneM2M Commercial Deployment
Takeaways

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
oneM2M Releases and Specifications

- **Release 1**
  - TS 0001: Functional Architecture
  - TS 0002: Requirements
  - TS 0003: Security Solutions
  - TS 0004: Service Layer Core Protocol
  - TS 0005: Management Enablement (OMA)
  - TS 0006: Management Enablement (BBF)
  - TS 0007: Service Components
  - TS 0009: HTTP Protocol Binding
  - TS 0010: MQTT Protocol Binding
  - TS 0011: Common Terminology
  - TS 0012: oneM2M Base Ontology
  - TS 0014: LWM2M Interworking
  - TS 0015: Testing Framework
  - TS 0020: WebSocket Protocol Binding
  - TS 0021: oneM2M and AllJoyn Interworking
  - TS 0023: Home Appliances Information Model and Mapping
  - TS 0024: OIC Interworking
  - TR 0001: Use Cases Collection
  - TR 0007: Study of Abstraction and Semantic Enablements
  - TR 0008: Security
  - TR 0012: oneM2M End-to-End security and Group Authentication
  - TR 0017: Home Domain Abstract Information Model
  - TR 0018: Industrial Domain Enablement
  - TR 0022: Continuation and Integration of HGI Smart Home Activities
  - TR 0024: 3GPP Release 13 Interworking
  - TR 0032 – MAF and MEF Interface Specification
  - TR-0025 Application developer guide
  - TR-0034 CoAP binding and long polling for temp. monit.
  - TR-0035 Device management use case
  - TR-0037 Smart farm example using MQTT binding
  - TR-0039 Developer guide-SDT-based implementation
  - TR-0045 Implementing semantics

- **Release 2**
  - TS 0032: MAF and MEF Interface Specification
  - TR-0025 Application developer guide

- **Release 2A**
  - TS 0032: MAF and MEF Interface Specification

For details see also:

[1] ADM-0008-Release 1 Control Document
<table>
<thead>
<tr>
<th>Technical Specifications</th>
<th>Technical Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 0001 - Functional Architecture, V 3.13.2</td>
<td>TS-0016 – Secure Environment Abstraction V 3.0.2</td>
</tr>
<tr>
<td>TS 0002 - Requirements, V 3.1.2</td>
<td>TS-0020 – WebSocket Protocol Binding, V 3.0.1</td>
</tr>
<tr>
<td>TS 0003 - Security Solutions, V 3.10.2</td>
<td>TS-0022 – Field Device Configuration-V 3.0.1</td>
</tr>
<tr>
<td>TS 0004 - Service Layer Core Protocol, V 3.11.0</td>
<td>TS-0023 – Home Appliances Information Model and Mapping, V 3.7.3</td>
</tr>
<tr>
<td>TS 0005 – Management enablement (OMA), V 3.4.2</td>
<td>TS-0024 – OCF Interworking, V 3.2.2</td>
</tr>
<tr>
<td>TS 0006 – Management enablement (BBF), V 3.6.2</td>
<td>TS-0026 – 3GPP Interworking V3.0.0</td>
</tr>
<tr>
<td>TS 0008 – CoAP Protocol Binding, V 3.3.1</td>
<td>TS-0030 – Ontology Based Interworking V 3.0.3</td>
</tr>
<tr>
<td>TS 0009 – HTTP Protocol Binding, V 3.2.0</td>
<td>TS-0031 – Feature Catalogue V 3.0.0</td>
</tr>
<tr>
<td>TS 0011 – Common Terminology, V 3.0.2</td>
<td>TS-0033 – Interworking Framework V 3.0.0</td>
</tr>
<tr>
<td>TS-0012 – Base Ontology, V 3.7.3</td>
<td>TS-0034 – Semantics Support V 3.0.0</td>
</tr>
<tr>
<td>TS-0014 – LWM2M Interworking, V 3.1.1</td>
<td>TS-0035 – OSGi Interworking V 3.0.0</td>
</tr>
</tbody>
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<td>TR-0001 Use Cases Collection, V 3.1.1</td>
<td></td>
</tr>
<tr>
<td>TR-0026 Vehicular Domain Enablement, V 3.0.1</td>
<td></td>
</tr>
<tr>
<td>TR-0033 Study on Enhanced Semantic Enablement V 3.0.0</td>
<td></td>
</tr>
</tbody>
</table>