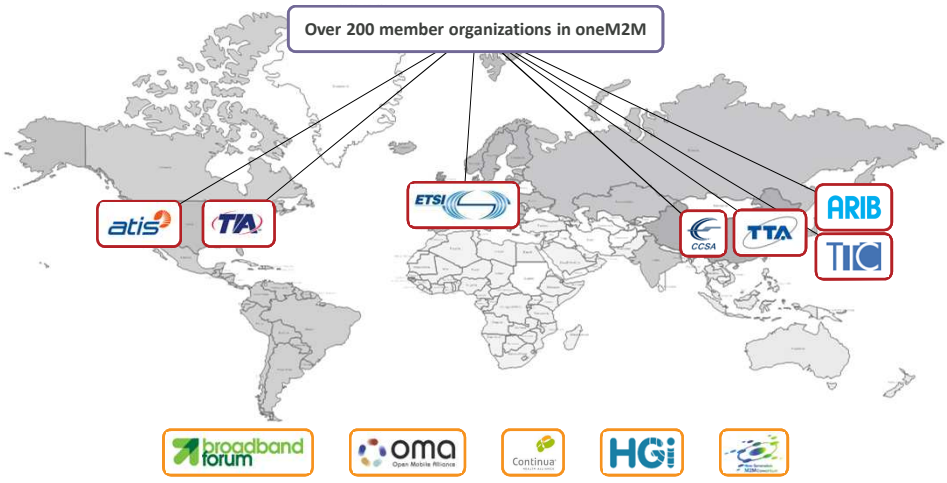
TAKING A LOOK INSIDE

Nicolas Damour
Senior Manager for Business and Innovation Development, Sierra Wireless
ndamour@sierrawireless.com
oneM2M www.oneM2M.org

Agenda

- The Partnership Project
- The Common Service Layer
- The Technical Reports and Specifications
- Use Cases and Requirements
- Architecture and Information Modelling
- Communication Protocols
- Security
- Device Management & Interworking with OMA/BBF
- Interworking with 3GPP/3GPP2 and with AllJoyn

The Partnership Project



Purpose, Work & Deliverables

Purpose

To specify and promote an

M2M Common Service Layer

Work

Six physical 1-week meetings per year

About 5 conference calls per week between the meetings

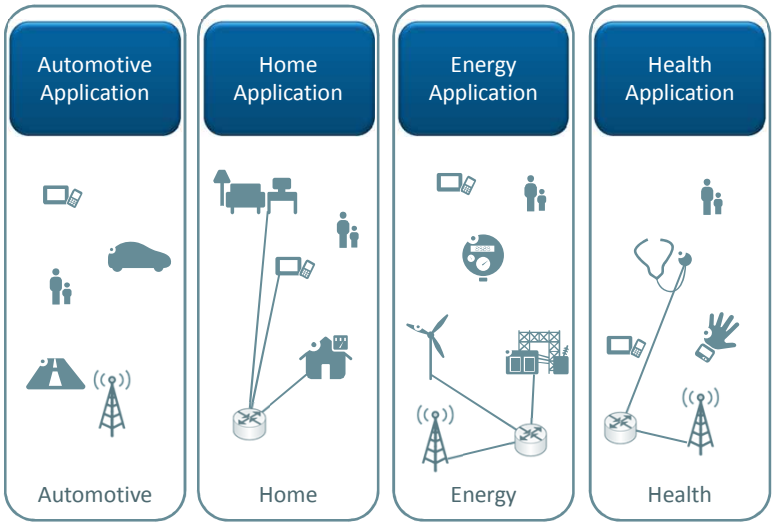
200+ documents produced and discussed at each meeting

3800 docs in 2013 4200 docs in 2014 so far

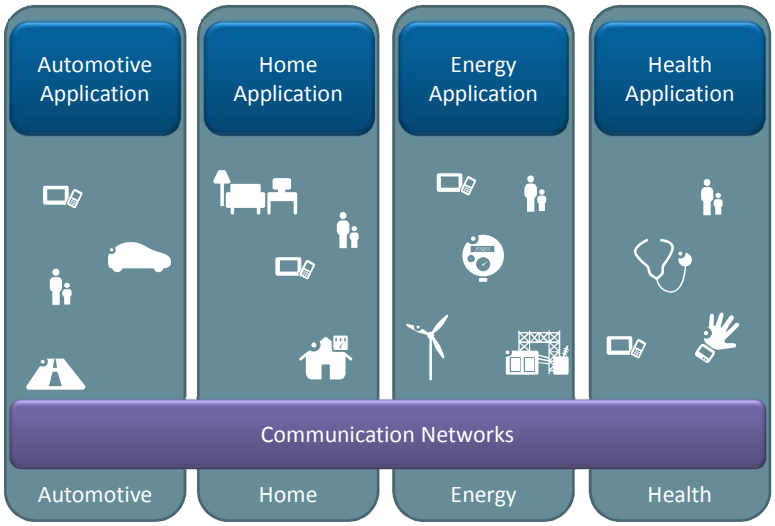
Deliverables

Technical Reports and Technical Specifications

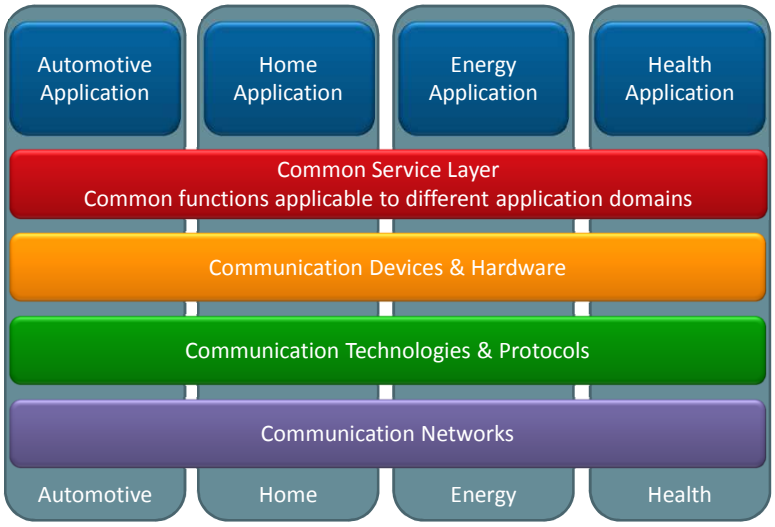
The Common Service Layer



The Common Service Layer

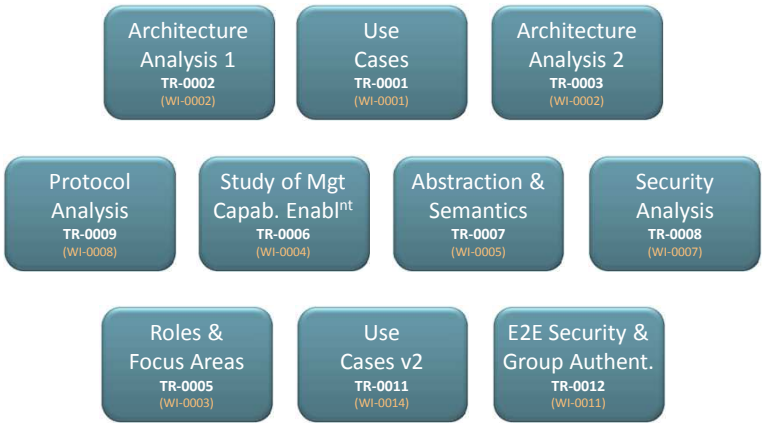


The Common Service Layer



Common Service Functions

Technical Reports

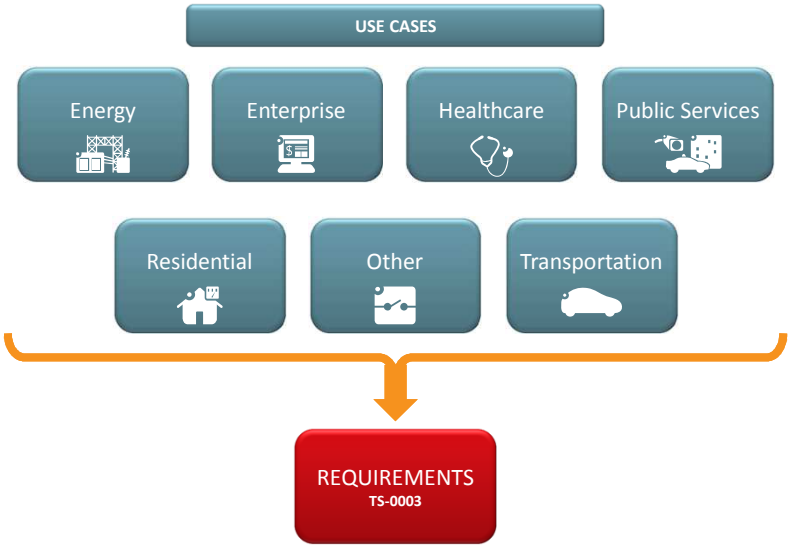


ftp://ftp.onem2m.org/Work Programme/

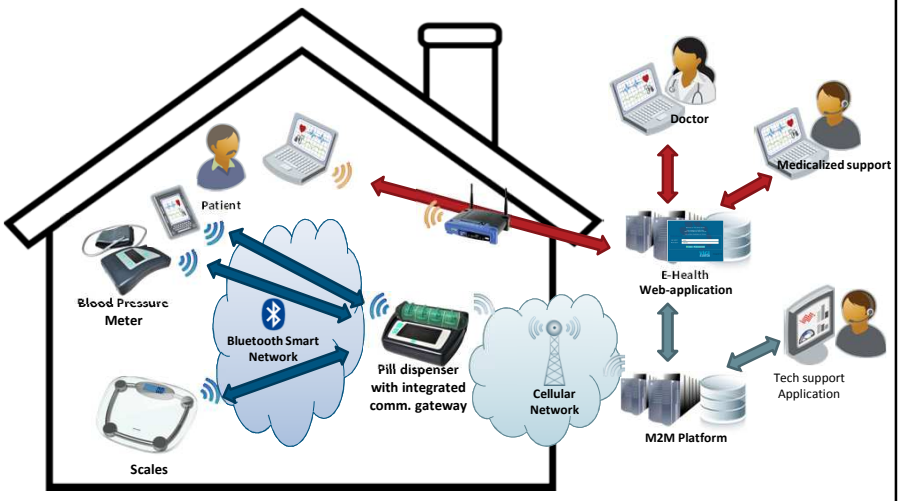
Technical Specifications

ftp://ftp.onem2m.org/Work Programme/

Use Cases & Requirements

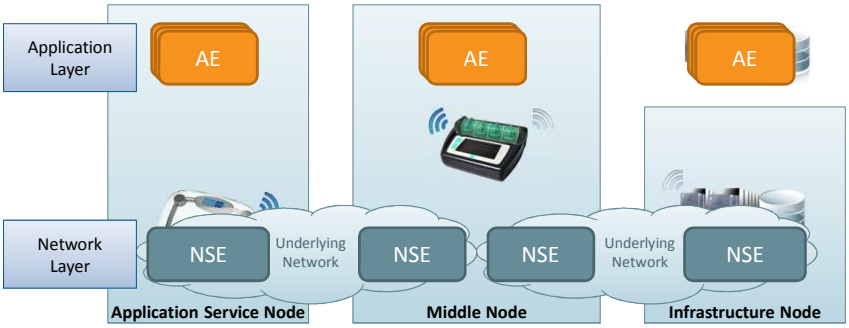


Example Scenario – E-Health



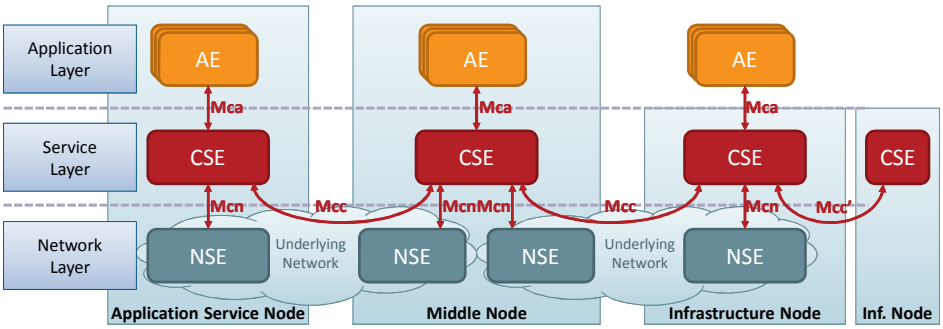
Architecture

Application Entity	Provides application logic for the end-to-end M2M solutions
Network Services Entity	Provides services to the CSEs besides the pure data transport
Node	Logical equivalent of a physical (or possibly virtualized, especially on the server side) device



Architecture

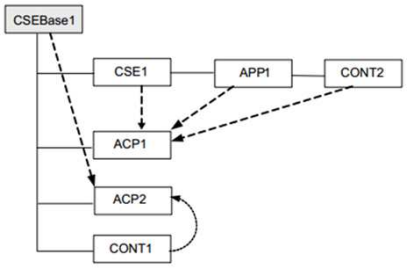
Reference Point	One or more interfaces - Mca, Mcn, Mcc and Mcc' (between 2 service providers)
Common Services Entity	Provides the set of "service functions" that are common to the M2M environments
Application Entity	Provides application logic for the end-to-end M2M solutions
Network Services Entity	Provides services to the CSEs besides the pure data transport
Node	Logical equivalent of a physical (or possibly virtualized, especially on the server side) device



Information Modelling

Resource-based information model

- Information is stored in the system as Resources
- A given Resource can be identified with a Uniform Resource Identifier
- A given Resource is of one of the defined Resource Types
- The Resource Type determines the semantics of the information in the Resource
- Resources can be Created, Read, Updated or Deleted to manipulate the information
- Resources are organized in a tree-like structure and connected by links
- Links either as the tree hierarchy or to another part or the tree



Resource Types & Flows

Defined resource types

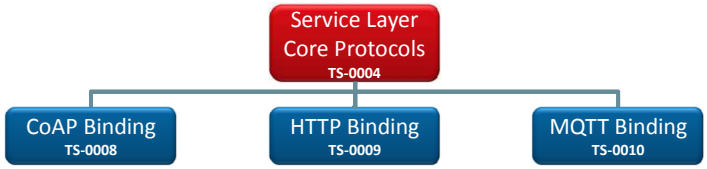
- The System (nodes, CSEs, AEs…): node, CSEBase, AE, mgmtObj…
- M2M Service subscriptions: m2mServiceSubscriptionProfile…
- Security: accessControlPolicy…
- Entity groups and memberships: group, members…
- Application data: container, contentInstance…
- Information dispatch and flows: subscription, delivery, request, schedule…
- Location services: locationPolicy…
- Service charging & accounting: statsConfig, eventConfig, statsCollect…

Defined communication schemes

- Direct communication and subscriptions/notifications
- Synchronous (blocking or non-blocking with regular polling) communications
- Asynchronous (non-blocking, with callback) communications

Communication Protocols

Reuse IP-based existing protocols



XML or JSON Content serialization

HTTP Example

REQUEST

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

RESPONSE

```
HTTP/1.1 200 OK
X-M2M-RI: 56398096
Content-Type: application/onem2m-resource+json
Content-Length: 107
{"typeOfContent":"application/json",
"encoding":1,
"content": "{'timestamp':1413405177000,'value':25.32}"
}
```


Security

Reuse existing mechanisms

Enrolment

Provisioning/Configuration of the M2M System (Devices, Applications…)

Secure communications

Protocols (TLS/DTLS), credentials and authentication (PSK/PKI/MAF)

Access Control

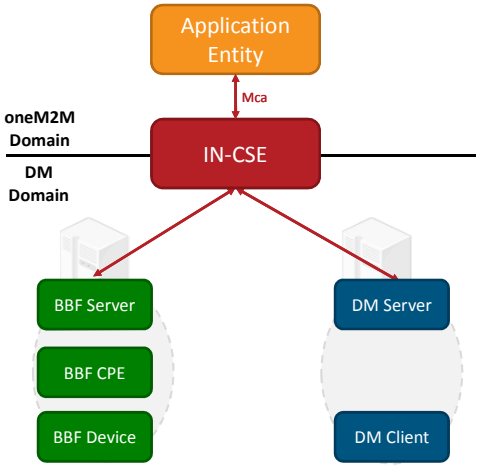
Defined in accessControlPolicy resources
Which SUBJECT can perform which ACTIONS
on which OBJECT under which CIRCUMSTANCES

More details

in the oneM2M webinar#3
November 14th 2014

Interworking – OMA & BBF

Reuse existing Device Management technologies

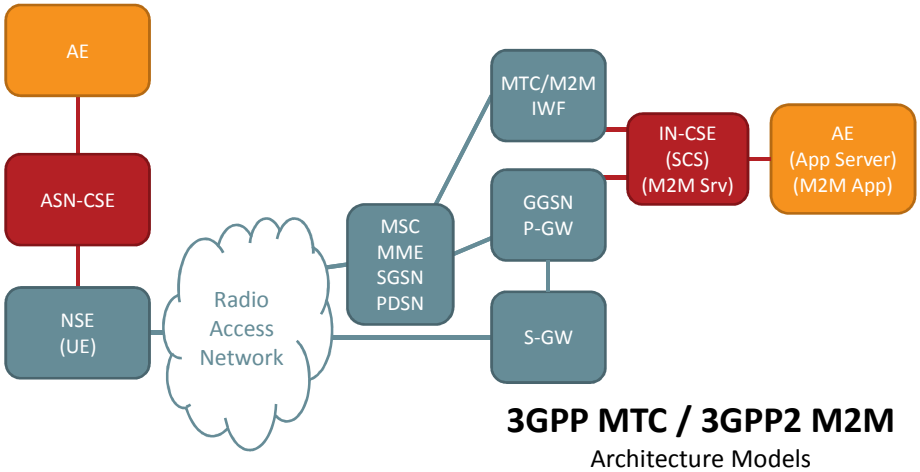


OMA DM 1.3 | OMA DM 2.0 | OMA LWM2M

BBF TR-069

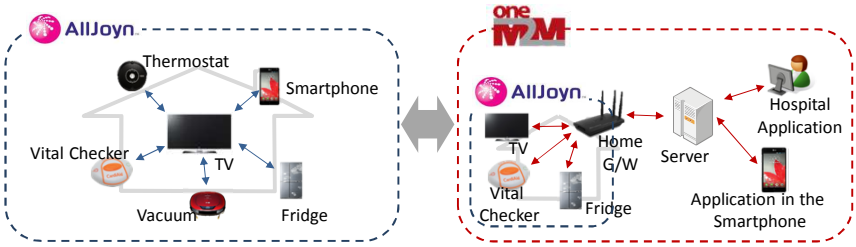
More details
in the oneM2M webinar#4
November 27th 2014

Interworking – 3GPP/3GPP2



3GPP MTC / 3GPP2 M2M
Architecture Models

Interworking – AllJoyn



	AllJoyn	oneM2M
Network Architecture	Peer-to-Peer in LAN	Server-to-Client in WAN
API Style	RPC(RMI) API	Resource-based API
Discovery Style	Proactive Discovery	Passive Discovery

Join us for the next webinar

Facing the Challenges of M2M Security and Privacy

by Philip Hawkes

Principal Engineer

at Qualcomm Incorporated

14 November 2014 at 1PM AEDT = 2AM UTC

http://www.onem2m.org/btchannel.cfm

Join us at the oneM2M showcase event

- OneM2M project partners, rationale and goals
- OneM2M Service Layer Specification release
- Showcase demos that demonstrate oneM2M “live"

9 December 2014, Sophia-Antipolis, France

(free of charge, but online registration is required)

http://www.onem2m.org/Showcase

Followed by the ETSI M2M workshop

Thank You!

Q&A