Welcome to the World of Standards

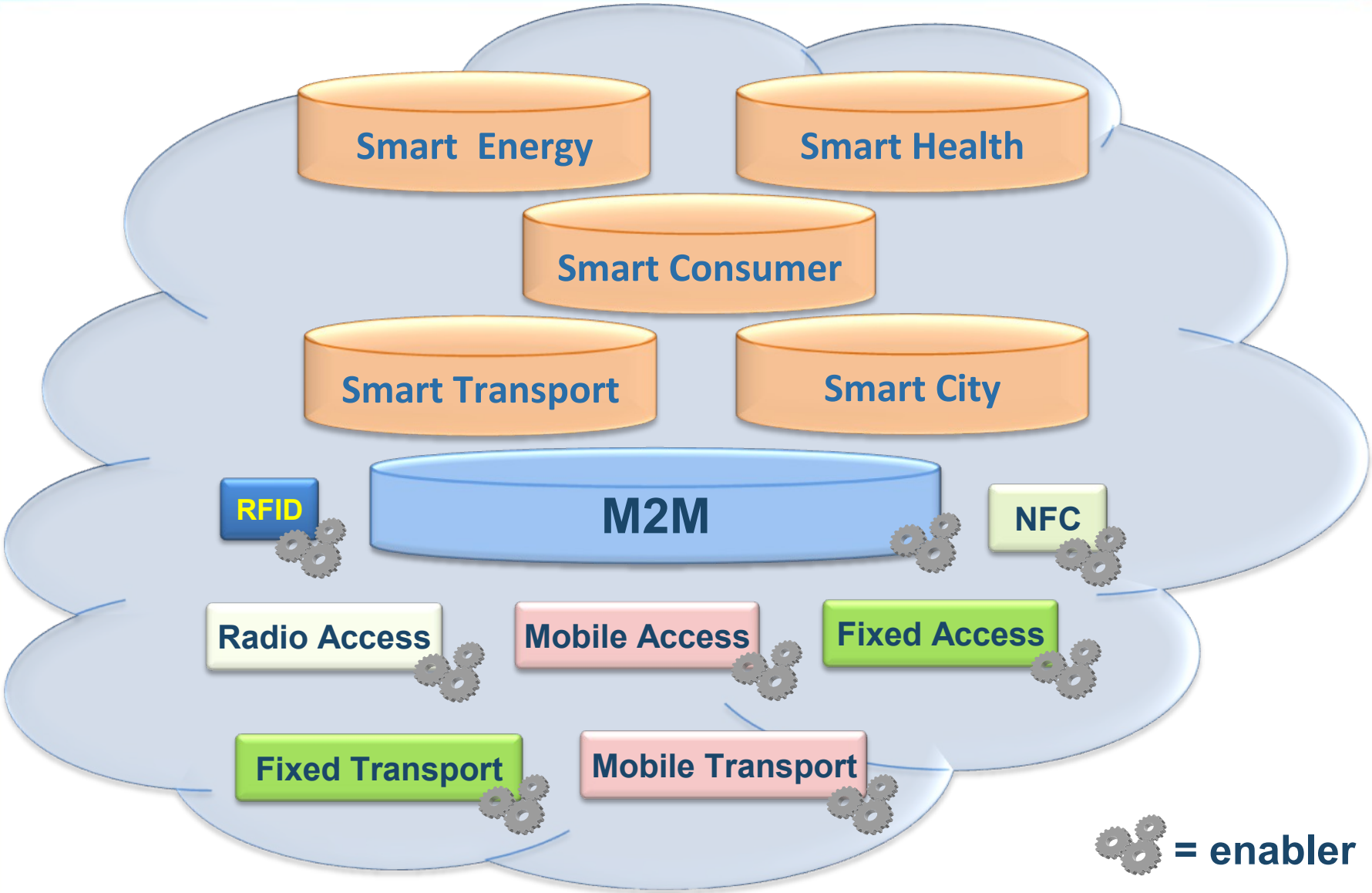
ETSI

World Class Standards

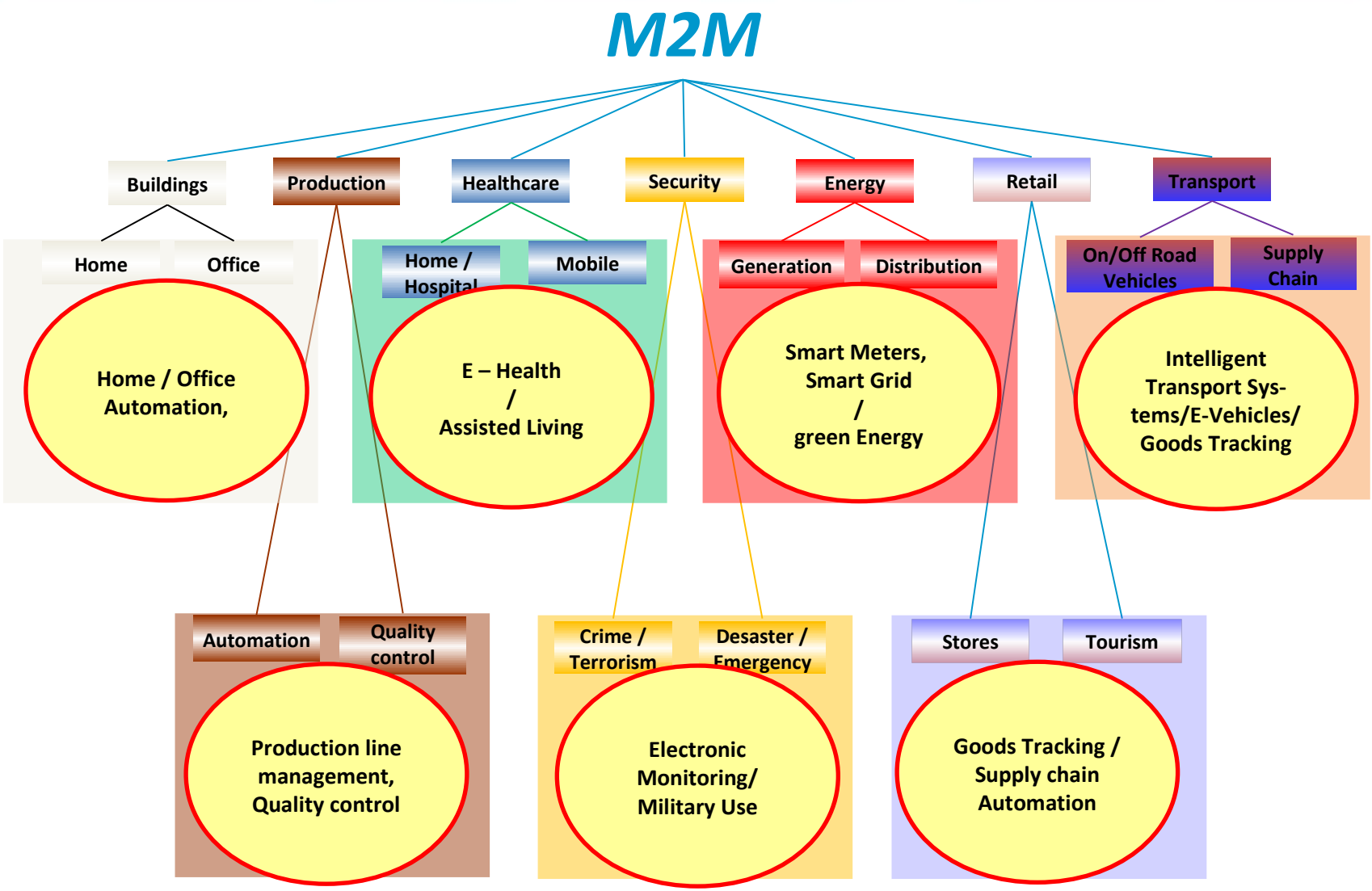
Overview of ETSI TC M2M Activities

March 2012

M2M in the context of IoT



M2M Applications



Introduction to TC M2M

Scope of TC M2M

- to develop and maintain an end-to-end overall telecommunication high level architecture for M2M
- to identify gaps where existing standards and provide specifications to fill these gaps

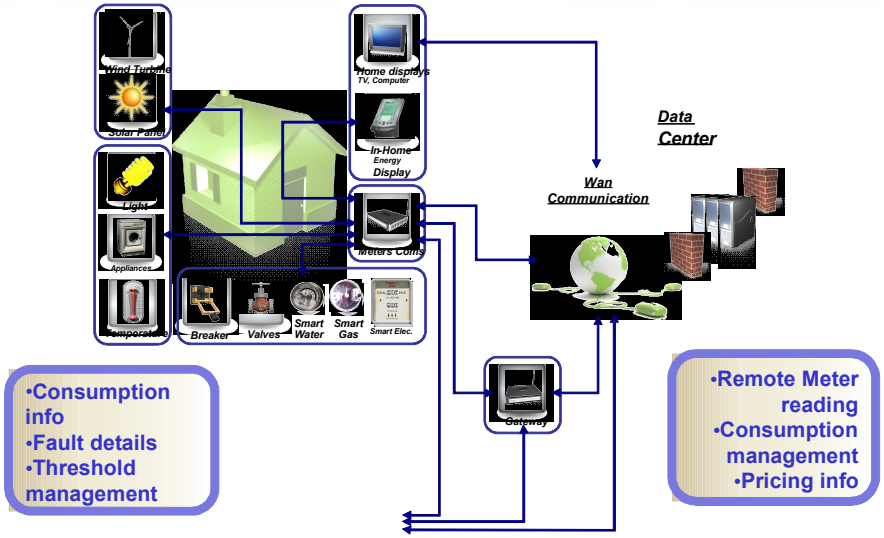
Some figures

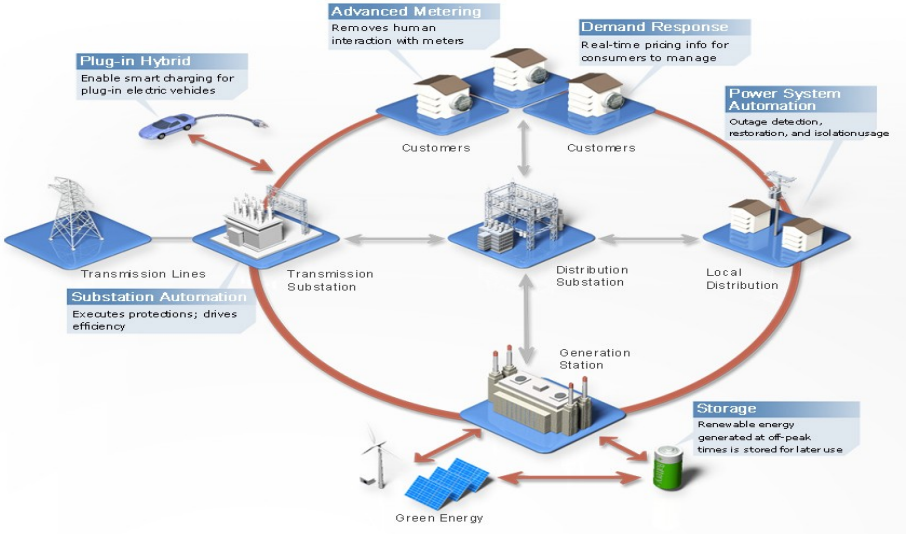
- Established in Jan 2009, after 8 months of preparation in the ETSI Board
- 8 plenary meetings per year plus numerous ad-hoc meetings
- 3-5 conference calls per week
- Constantly Growing number of documents per meeting (200 +)
- Constantly growing plenary participation (70 +)
- Growing membership in M2M email list (400+)
- Active delegates from Europe, North America, China, Korea, and Japan and currently about 30% Operators, 60% Manufacturers and 10% others

Open approach

- TC M2M has initiated active liaisons and cooperation with many other SDOs and consortia.
- Published and draft TR/TS are available on the public side of the ETSI server http://docbox.etsi.org/M2M/Open/

M2M activities for EU Mandates





EC's M/411 Smart Metering Mandate:

- EC Mandate issued in March 2009 by DG TREN and sent to the 3 ESO's : CEN, CENELEC and ETSI
- Objective: to build standards for European smart meters, allowing interoperability and Consumer actual consumption awareness

EC's M/490 Smart Grid Mandate:

- EC Mandate issued in March 2011 by DG TREN and sent to the 3 ESO's : CEN, CENELEC and ETSI
- Objective: to build standards for European Smart Grids.

ETSI TC M2M is coordinating work inside ETSI and contributing to the mandates M/411 and M/490.

The ETSI M2M Vision

Horizontal Multi-Service Platform

Multi – Application

Technology Independent

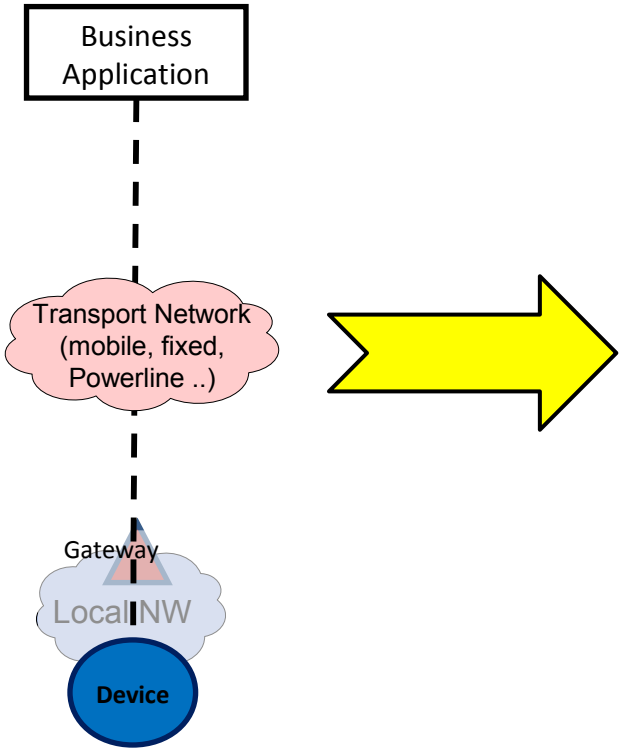
Existing Standards Re-use and integration

End to End

M2M Service Capabilities, Resource Based

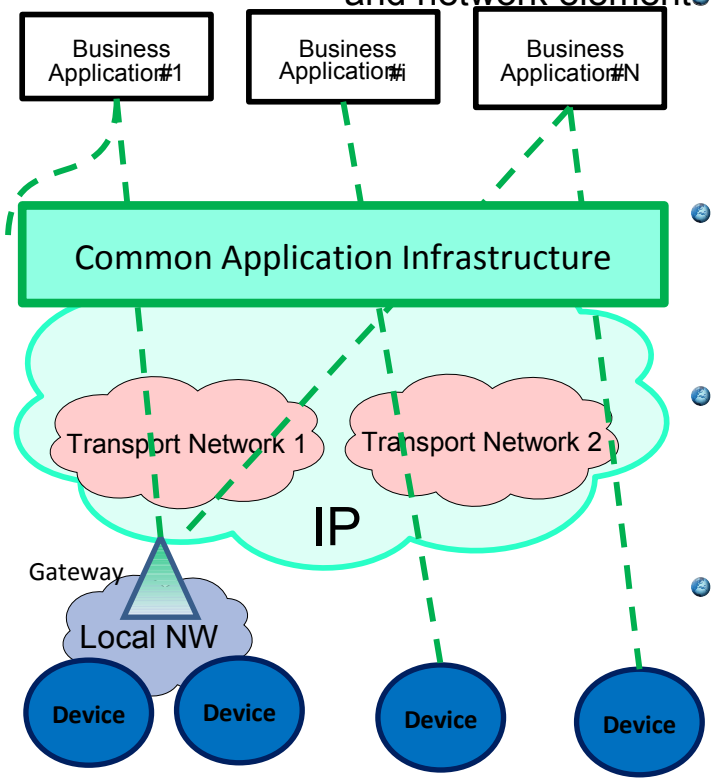
M2M is inverting the pipes

Pipe (vertical):
1 Application, 1 NW, 1 (or few) type of Device



Horizontal (based on common Layer)

Applications share common infrastructure, environments and network elements



- *M2M Applications providers* run individual M2M services. Customer is Device owner
- *M2M Service provider* hosts several M2M Applications on his Platform.
- *Transport Network operator(s)* Customer is the M2M service provider
- *End user* owns / operates the Device or Gateway

Value of a standardized horizontal M2M service layer

Reduced complexity,
Standard APIs and protocols,
Scalable horizontal solution,
Reduced initial investment costs.

Better network efficiency
Same service layer for many verticals,
Network independent, use best networks for deployment needs.

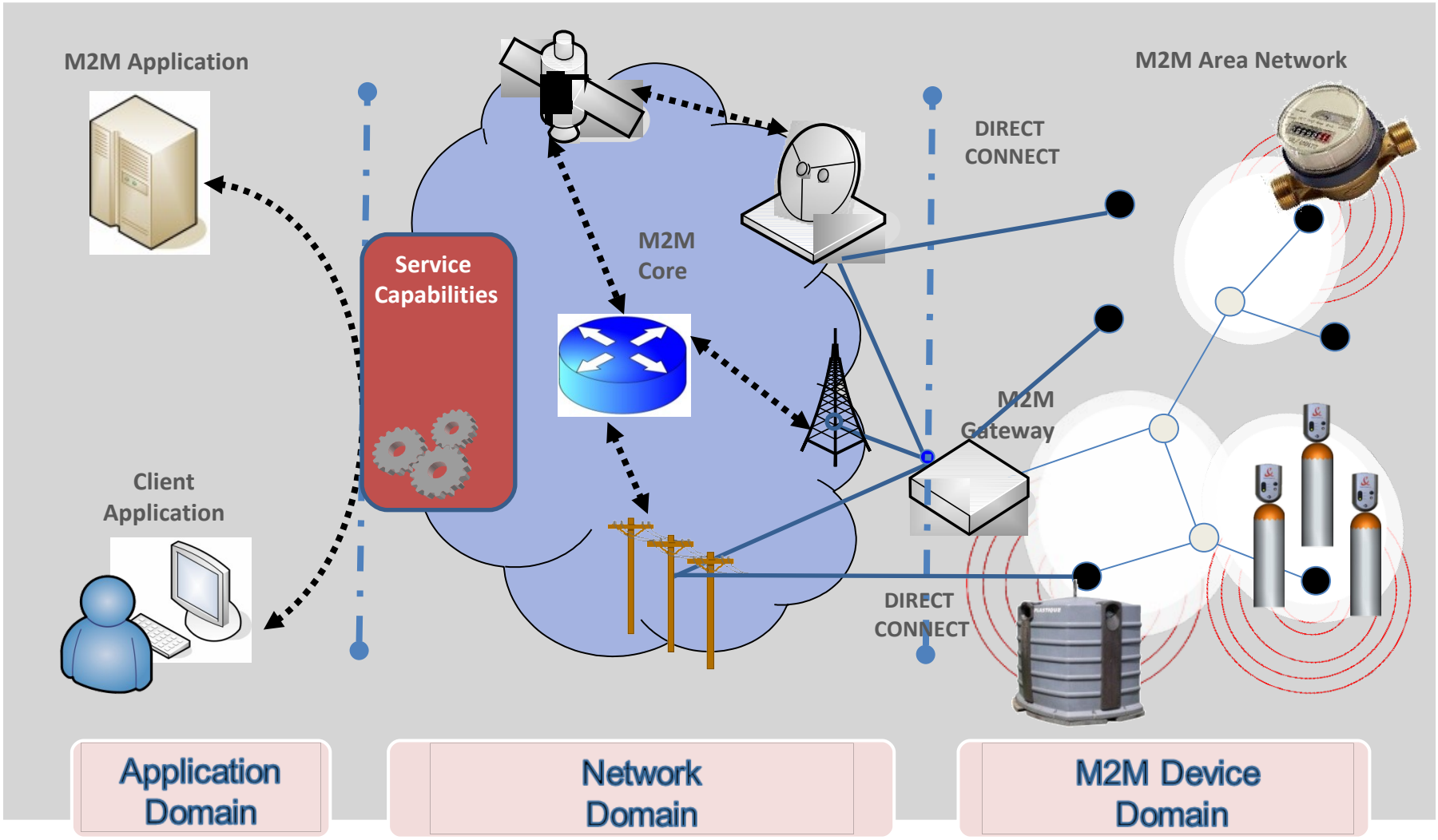
Re-use of platform to test and roll out new services,
Simplified applications development.

Simplicity of deployment,
Allows to trail new services,
Less expensive to roll out than dedicated solution.

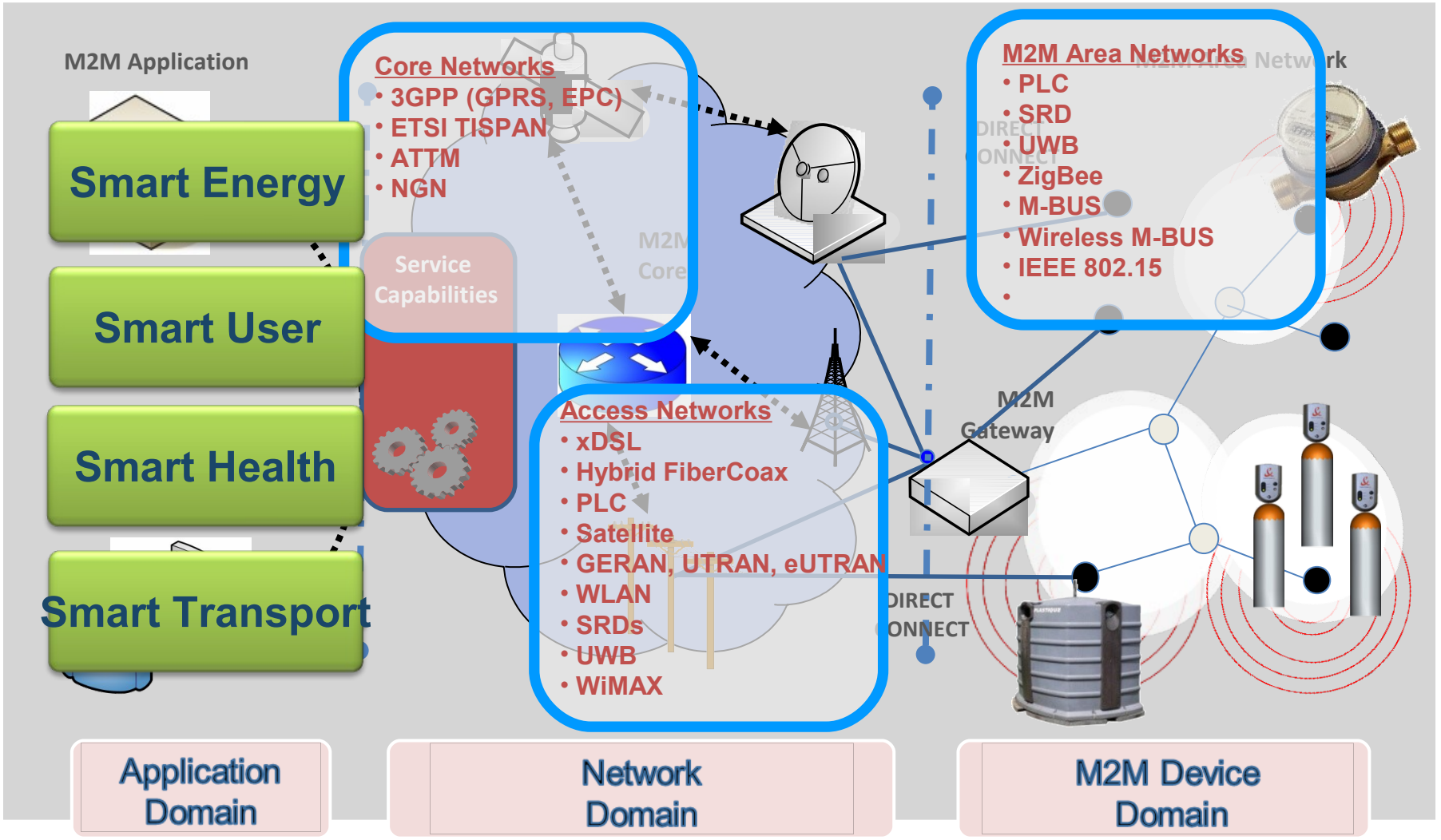
Standard interfaces, protocols opens vendor ecosystem,
Reduces solution cost and improves interoperability.

Hiding the complexity of underlying networks to Applications developers foster innovation of new services.

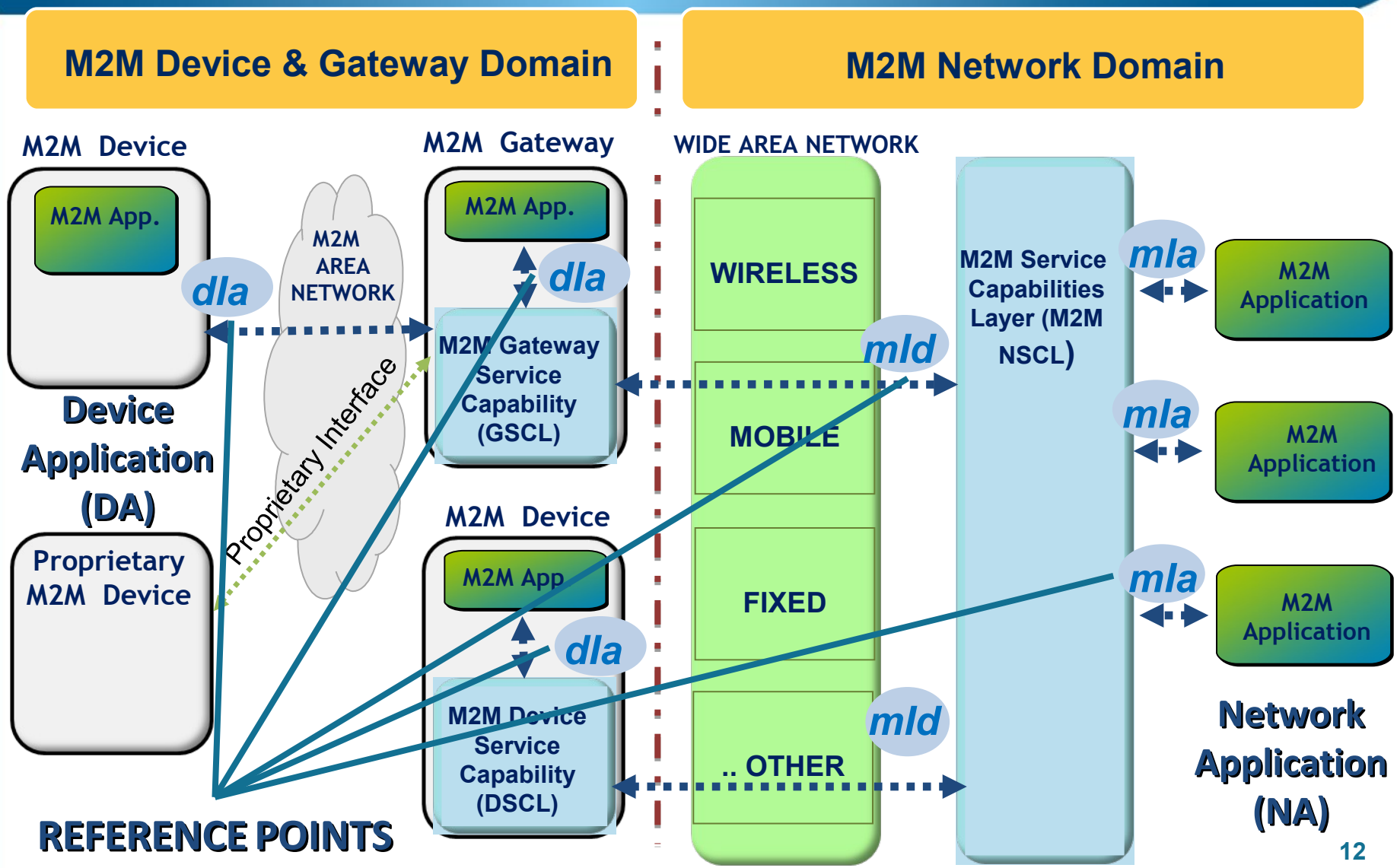
Simple M2M Architecture



… based on existing Technologies



M2M – High Level Architecture



12

M2M architecture principles

- ETSI M2M has adopted a RESTful architecture style
  - Information is represented by resources which are structured as a tree
- ETSI M2M standardizes the resource structure that resides on an M2M Service Capability Layer (SCL)
  - Each SCL contains a resource structure where the information is kept
- M2M Application and/or M2M Service Capability Layer exchange information by means of these resources over the defined reference points
- ETSI M2M standardizes the procedure for handling the resources

13

Features offered by ETSI M2M

- Identification of the M2M Application and the M2M Devices
- Asynchronous and synchronous communication
- Store and forward mechanism based on policies for optimizing the communication
- Location information
- Device management based both on OMA DM (wireless) and BBF TR-69 (wireline)
- Mutual authentication between Network Service Capability Layer and Device/Gateway Service Capability Layer that are connected
- Secure channel for transporting data over mId reference point
- And much more ….

14

M2M Security

- R1 provides standardized security mechanism for the reference point *mId*
- The device/gateway needs to have keys for securing the connection.
- The device/gateway is provisioned with the key M2M Root Key.
- The high level procedure are to
  - Perform mutual *mId* end point authentication
  - Perform M2M Connection Key agreement
  - Optionally establish a secure session over *mId*.
  - Perform RESTful procedures over the *mId*

15

TC M2M recent activities

- Completed the first release of M2M specifications which addresses urgent market needs and provides an end-to-end architecture to support multiple M2M-type applications.

- ETSI M2M Release 1 core standards are published as a set of three specifications which are available for download from the ETSI website:
  - Requirements in ETSI TS 102 689
  - Functional architecture in ETSI TS 102 690
  - Interface descriptions in ETSI TS 102 921

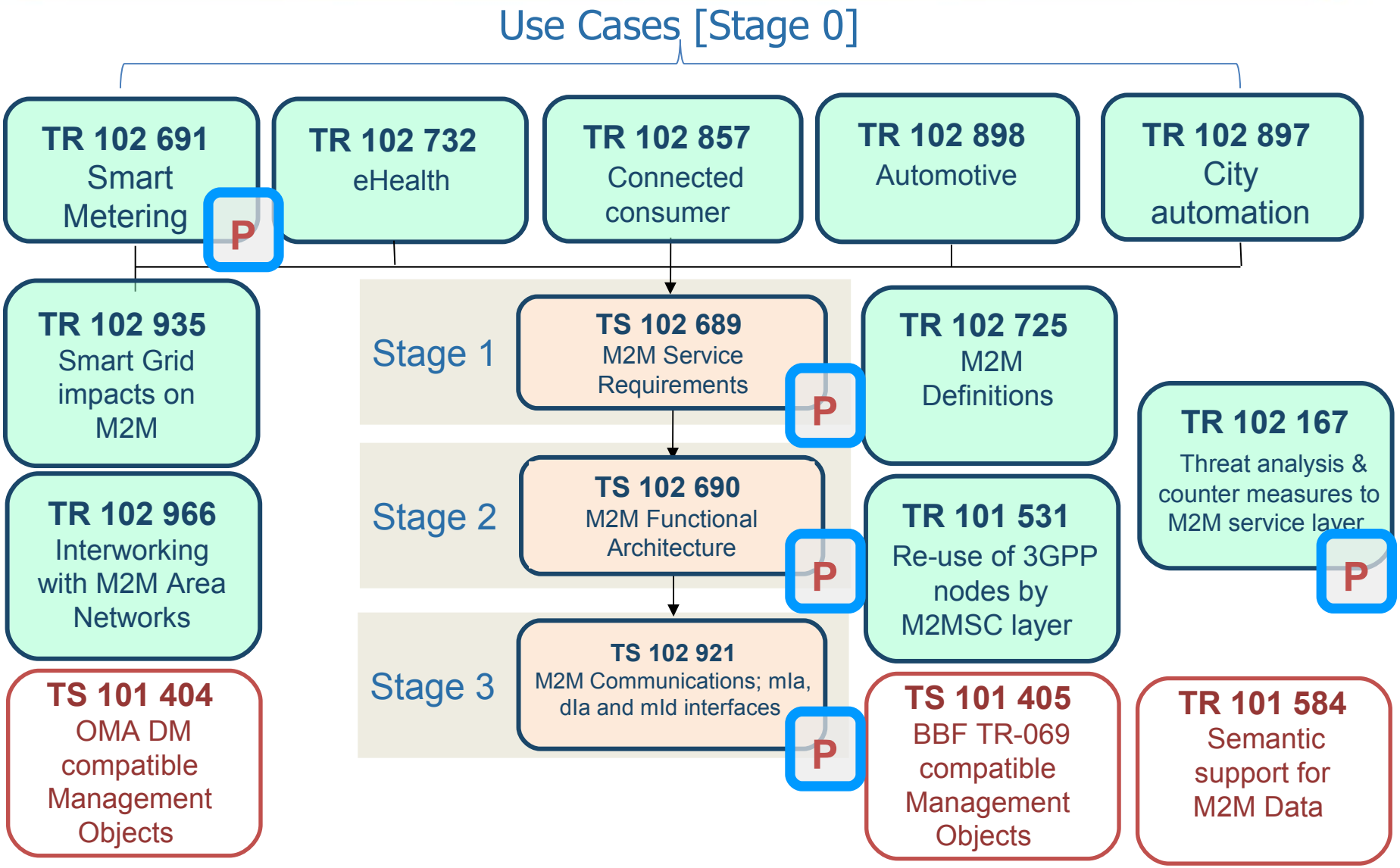
- ETSI M2M had also created a series of highly popular technical workshops. The 2011 edition held last October saw over 240 participants and live demonstrations of real life implementations of ETSI M2M specifications .

  http://cftvideo.com/etsi/m2mdemos/

TC M2M future activities

- TC M2M have started work on M2M Release 2, and already set priorities;
- Potential aspects under consideration for M2M Rel-2 are:
  - charging, data models and semantics, security extensions, the standardised use of operators' network interfaces, multi-operator service platforms, service discovery, Area Network Management and service interworking profiles.
- ETSI TC M2M are discussing with several SDOs and standardization groups on setting up the oneM2M initiative (planned for summer 2012)
- The objective is to have the M2M release 2 completed by the start of technical activities in the oneM2M partnership project.
- ETSI is planning a major M2M workshop in October 2012, with much wider scope than previous years as well as testing / demos and extended discussion with our standards partners

ETSI M2M Specifications Work



CONTACTS:

M2MSUPPORT@ETSI.ORG

WWW.PORTAL.ETSI.ORG/M2M