

Indo-European dialogue on ICT standards & Emerging Technologies

(Growth, Profitability & Nation Building)

13-14th March 2014 • New Delhi, INDIA

IN THE FRAMEWORK OF

Project

SESEI

<http://eustandards.in/>



Machine to Machine - Challenges and Opportunities

Current state of affairs

- ❖ M2M has been around for several decades now – some deployments date back more than 20 years. However M2M markets are struggling to realise the full M2M market potential
- ❖ Fragmentation, provisioning, efficiency, integration complexity, scalability – and – lack of standards, seem to be major obstacles



Current state of affairs

❖ Inhibitors for large scale M2M deployments – extracts from industry reports:

... a key challenge for the industry remains the complexity of **developing, deploying, and managing M2M applications** ... This is a challenge both for mobile network operators that are trying to offer profitable services tailored to the M2M market, as well as for application developers and service providers that are trying to **reduce costs, speed time to market, and simplify robust application deployments**, ABI Research, M2M software platforms

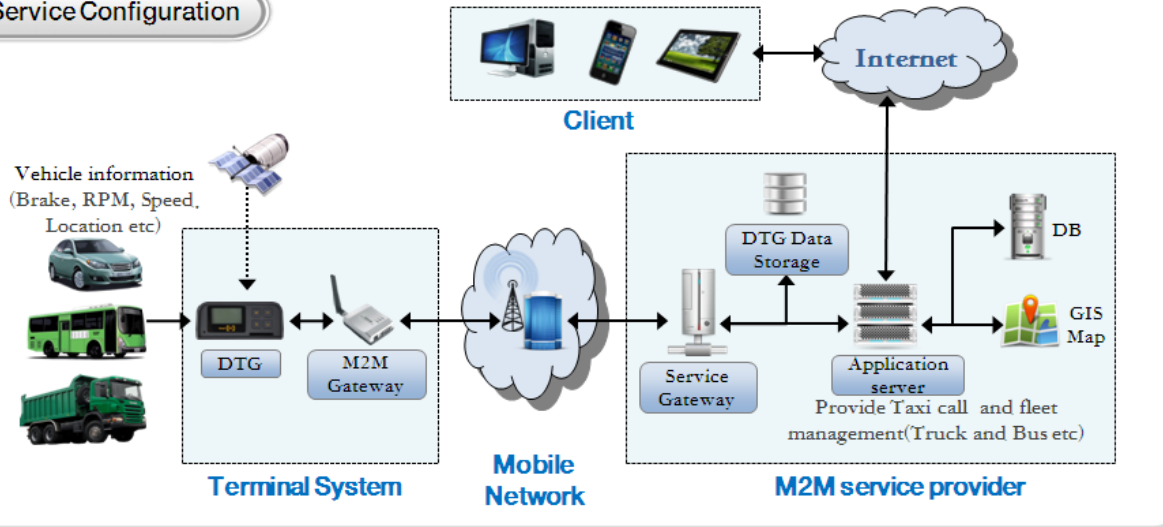
For many years M2M was held back by the lack of a low cost, global access medium, the fragmented nature of the ecosystem, the lack of any single killer application driving demand and **the complex nature of M2M solutions leading to high-cost development and systems integration.**

Strategy analytics, M2M strategies

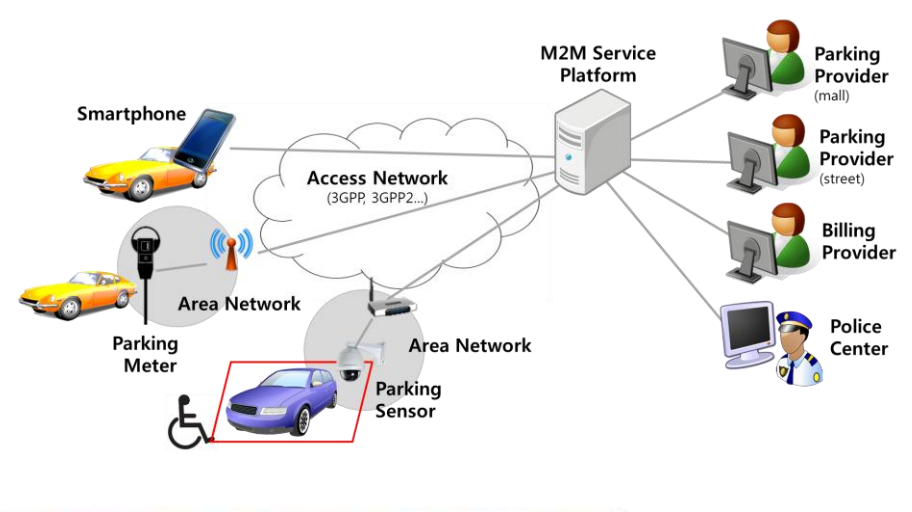
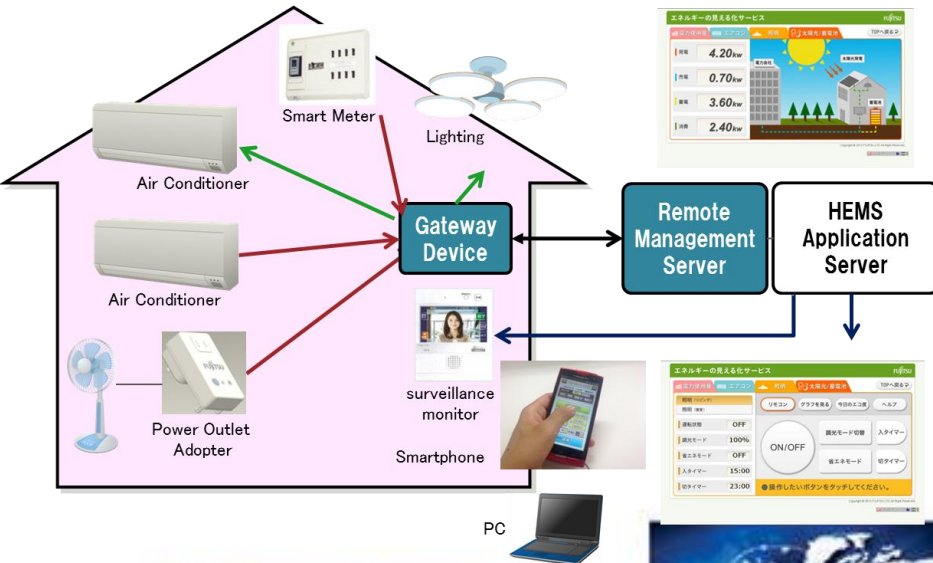


M2M Use Cases

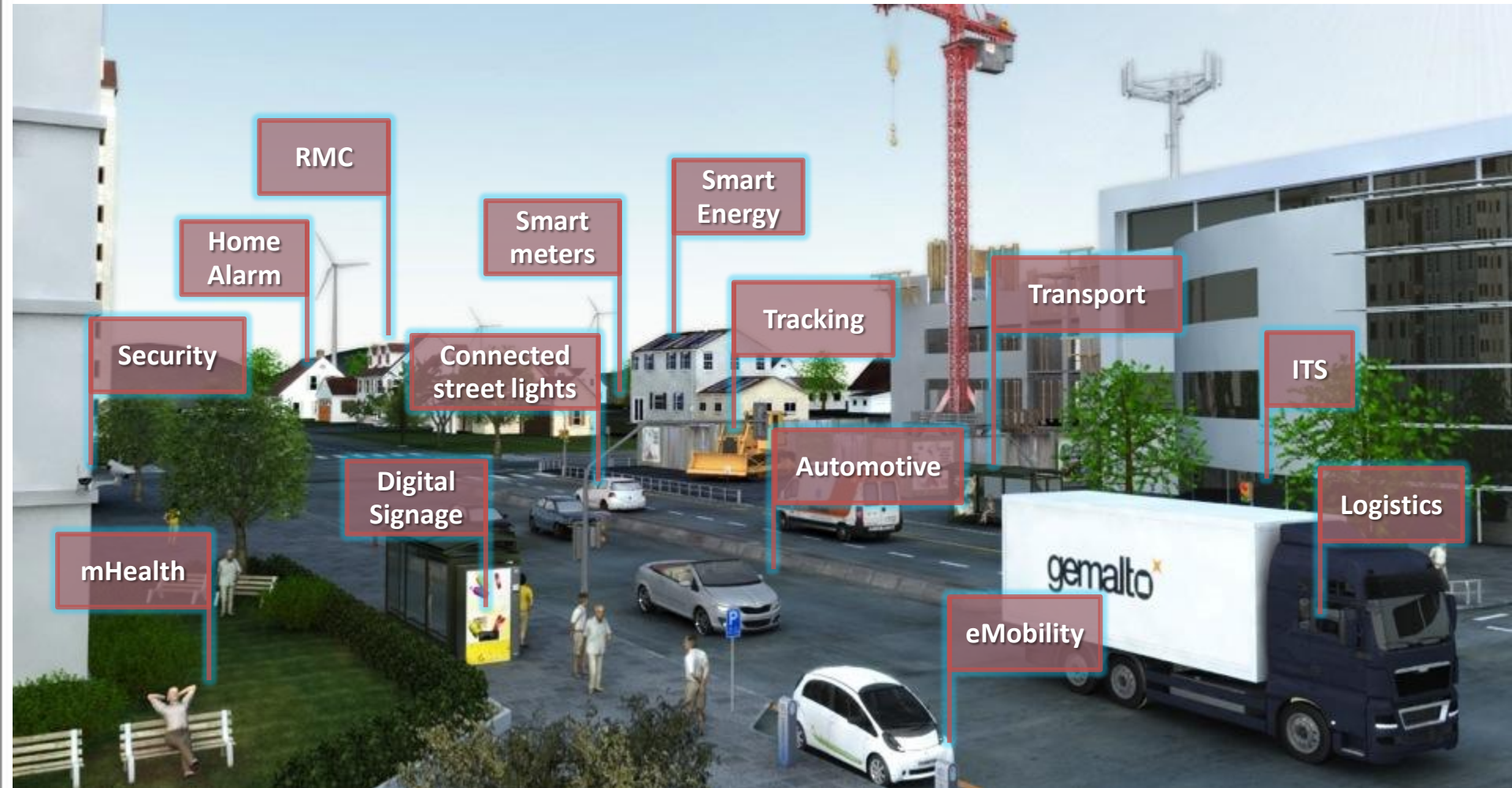
Service Configuration



- ❖ Fleet Management
- ❖ Home Energy Management
- ❖ Smart Parking



Smart City – a complex Ecosystem with a wide range of different services



Smart Solutions

... meaning interlinked intelligent infrastructure solutions

Transportation & Safety

Source: Machina Research, June 2012

- **Public Transport**
road, rail, air and sea transport as well as ticketing and passenger information systems
- **Traffic Management**
parking space management and payment, congestion charging and road tolls, traffic volume monitoring, connected road signs, traffic lights, enforcement cameras, in-vehicle congestion and toll devices
- **Environment and Public Safety**
CCTV, street lighting, waste collection, public alarms, intercoms, tourist information services
- **Public Space Advertising**
static advertising and billboards

Energy & Home/Building Automation

- **Smart Grid**
intelligent management of load between energy generation and consumption
e.g. loading stations for e-Cars
- **Smart Buildings**
intelligent, integrated management of all building systems
e.g. hospitals, offices, residential, restaurants, hotels, shopping centers, schools
- **Networked infrastructure for**
business services, payment systems, housing, leisure and lifestyle services, and ICTs (mobile and fixed phones, satellite TVs, computer networks, e-commerce, internet services)



What is emerging from the Use Cases?

- ❖ What is a device?
- ❖ How do devices interact with multiple applications?
- ❖ Need to interwork?
- ❖ How are devices managed?
- ❖ How is data shared?
- ❖ How secure is the system?

A common service layer can provide all of these needs and more.

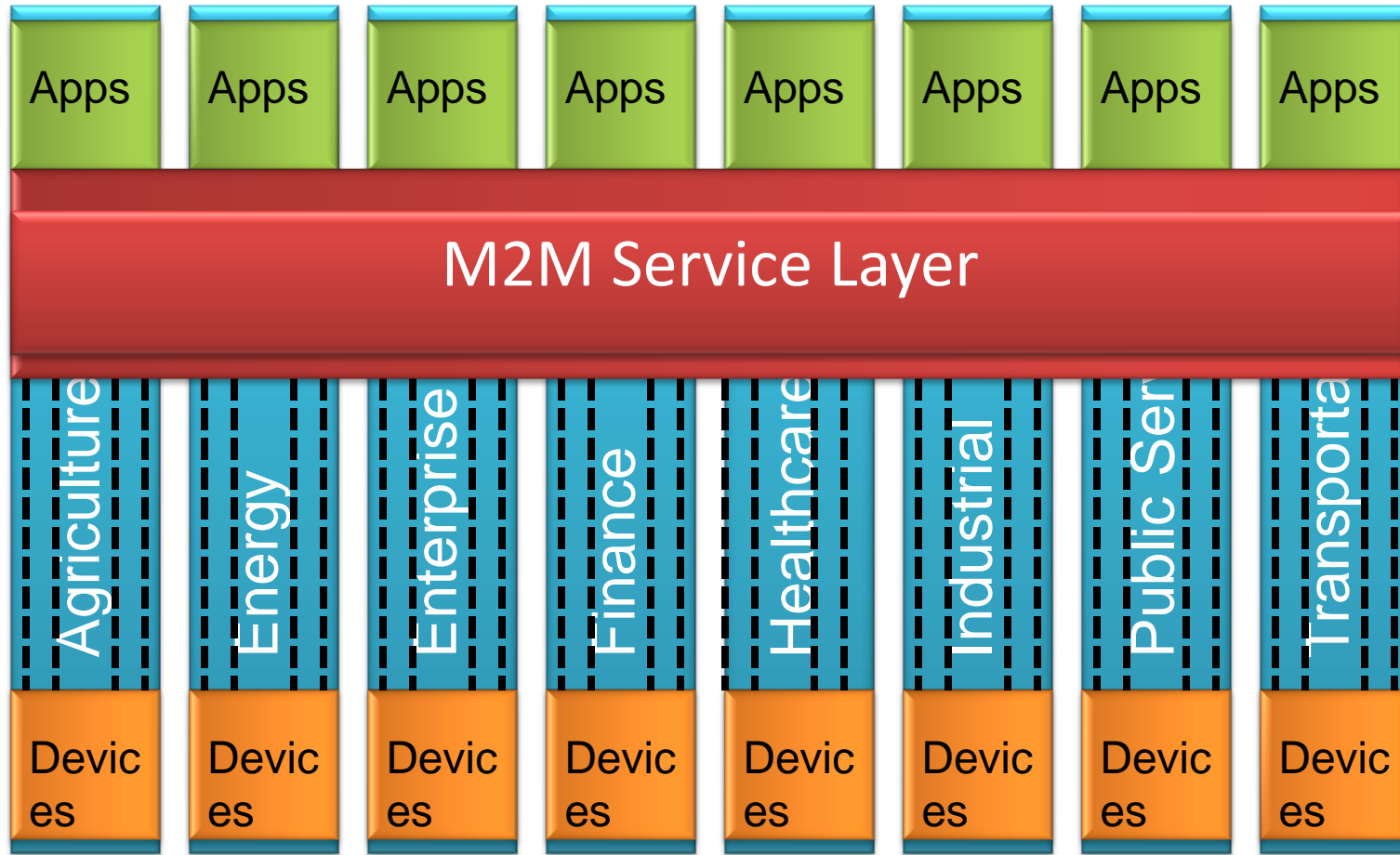


ETSI M2M

- ❖ ETSI TC M2M established in 2008
 - ❖ Developing and maintaining an end-to-end overall telecommunication high level architecture for M2M
 - ❖ Architecture kernel: M2M Service Layer Platform
 - ❖ Provided the first set of M2M platform standards to the market in 2011, the second set in 2013
- ❖ Transfer of the technical work to “oneM2M”
- ❖ Renaming: ETSI TC SmartM2M in 2013
 - ❖ New scope



Vertical Pipes



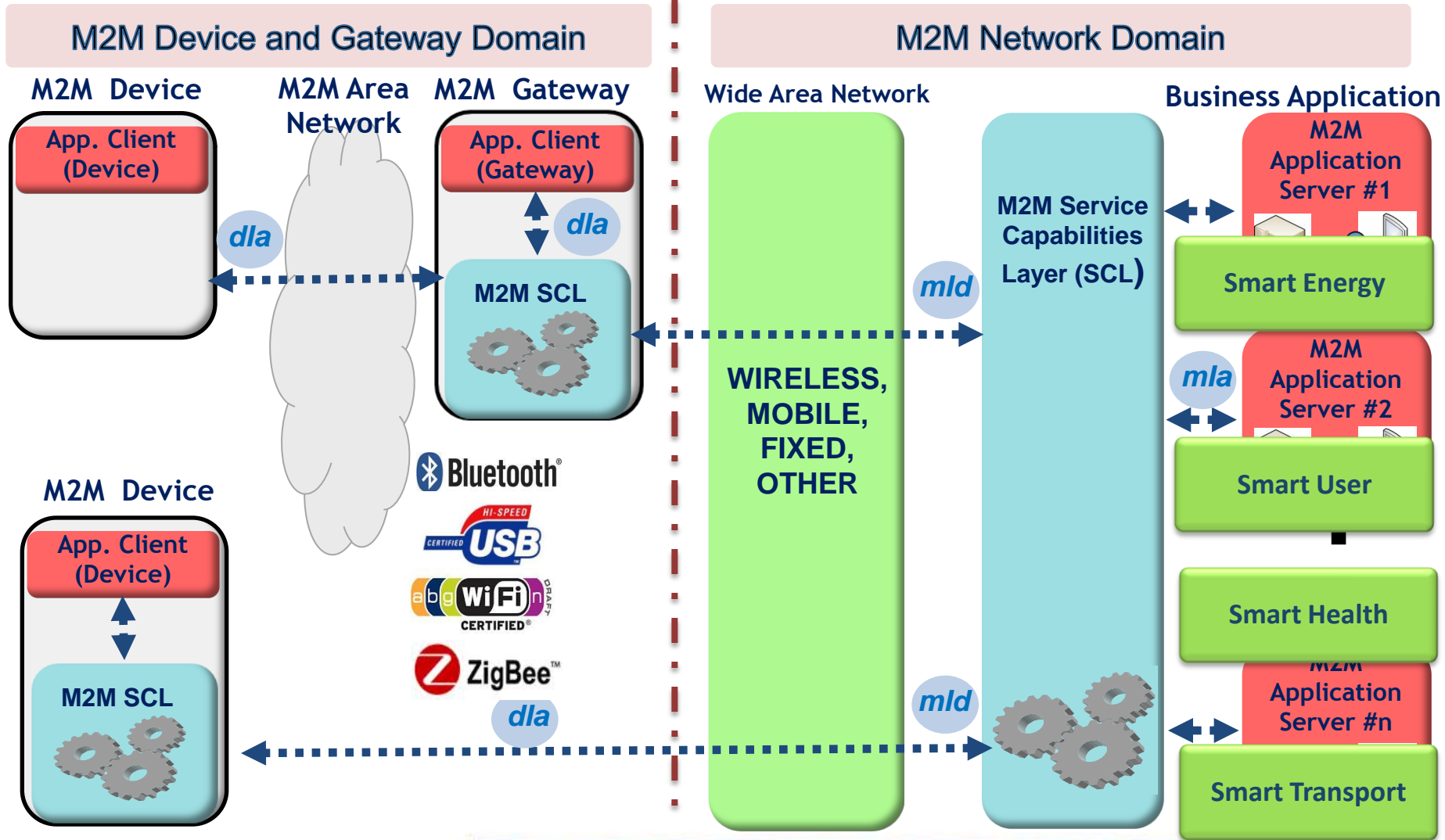
M2M Service Layer

Middleware - supporting secure end-to-end data/control exchange between M2M devices and customer applications by providing functions for remote provisioning & activation, authentication, encryption, connectivity setup, buffering, synchronization, aggregation and device management

- ❖ a software layer
- ❖ sits between M2M applications and communication HW/SW that provides data transport
- ❖ normally rides on top of IP
- ❖ provides functions that M2M applications across different industry segments



ETSI M2M Architecture



11



11

ETSI TC SmartM2M

- ❖ Maintain ETSI M2M published specifications
- ❖ Provide specifications for M2M services and applications
- ❖ Identification of EU policy and regulatory requirements on M2M services and applications to be developed by oneM2M, and the conversion of the oneM2M specifications into European Standards.
- ❖ Produce specifications as needed for regulatory purposes



oneM2M Partnership Project

- ❖ On July 24, 2012 seven of the world's leading ICT Standards Development Organizations (SDOs) launched a new global organisation: the oneM2M Partnership Project: <http://www.oneM2M.org> to:

Mission:

oneM2M is working to unify the Global M2M Community, by enabling the federation and interoperability of M2M systems, across multiple networks and topologies



In addition Broad Band Forum, Continua Health Alliance, Home Gateway Initiative and Open Mobile Alliance (OMA) have been accepted as a oneM2M Partners Type 2.



Participation



Levels of participation

- **Partner Type 1**
- **Member** companies participate directly
- **Partner Type 2**
Contributes on behalf of Member companies
- **Associate Member**
government or regulatory agency

Join: <http://www.onem2m.org/join.cfm>

Docs: <http://www.onem2m.org/library/index.cfm>

News: <http://www.onem2m.org/subscribe.cfm>



Scope and Objectives

❖ To develop

Global M2M end-to-end specifications -
using common use cases and architecture principles across multiple M2M applications to connect M2M devices with application servers worldwide with an access independent view of end-to-end services

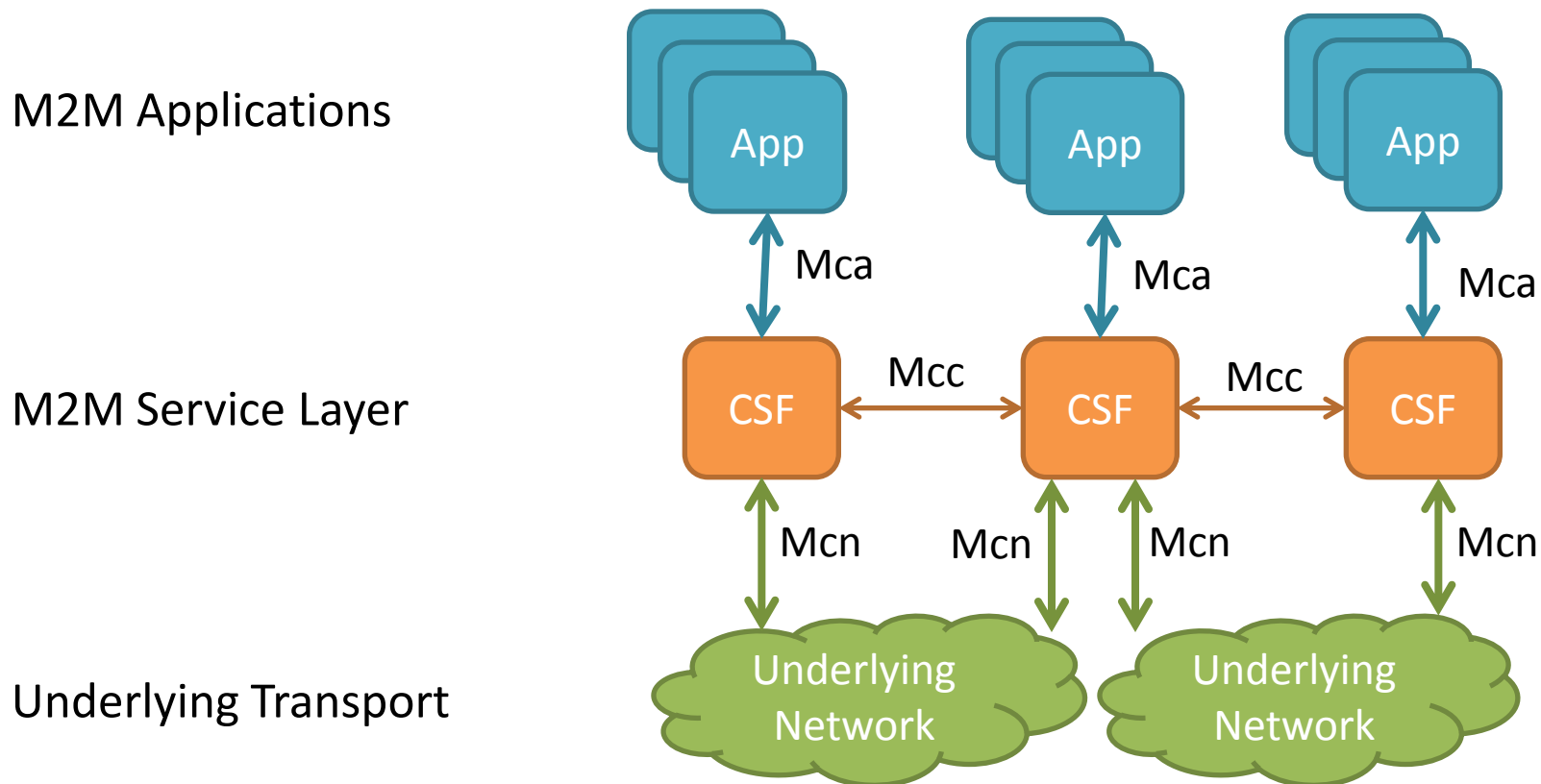
❖ To define

Service Layer platform with high level / detailed service architecture including:

- Protocols/APIs/standard objects (open interfaces & protocols)
- Interoperability, test and conformance specifications
- Common use cases, terminal/module aspects
- Service Layer interfaces/APIs between:
 - Application and Service Layers
 - Service Layer and communication functions
 - Security and privacy aspects
 - authentication, encryption, integrity verification



oneM2M Functional Architecture



Common Services Functions

Application Entity (AE)

Mca Reference Point

Common Services Entity (CSE)



Mcc Reference Point

Mcn Reference Point

Underlying Network Service Entity (NSE)



Conclusion

A oneM2M-specified M2M Service Layer (CSF) being access technology independent could become a vehicle to transport and manage data traffic of M2M applications, globally across many M2M sectors and across all regions, enabling the following:

- ❖ Efficient use of underlying networks => **lower connectivity cost**
- ❖ Abstracting out complexity => **lower development cost**
 - => **shorter development time**
 - => **faster time to market**
- ❖ Sharing of components and infrastructure => **lower investments**
- ❖ Use of same technology as in other verticals => Synergies => **Lower cost**
- ❖ **Focus on business logic** rather than connectivity, security, buffering etc.
- ❖ **Expansion** into other business cases due to horizontal nature of M2M CSF
- ❖ **Reduction of fragmentation** due to horizontal nature of M2M CSF



Key messages

- ❖ M2M Communications meets non-ICT Industry sectors
- ❖ Make intelligent use of information, enabled by connected IT
- ❖ IoT is the social network of things



Thank you for your attention!

Contact Details:



Joachim Koss

*Director Standardization M2M
ETSI Board Member / oneM2M TP Vice Chairman*

*Gemalto M2M GmbH
Siemensdamm 50
13629 Berlin*

Phone: +49 30 31102-8255

Fax : +49 30 31102-8405

Mobile: +49 172 3911249

<mailto:joachim.koss@gemalto.com>

www.gemalto/m2m.com

