



# Welcome to the World of Standards

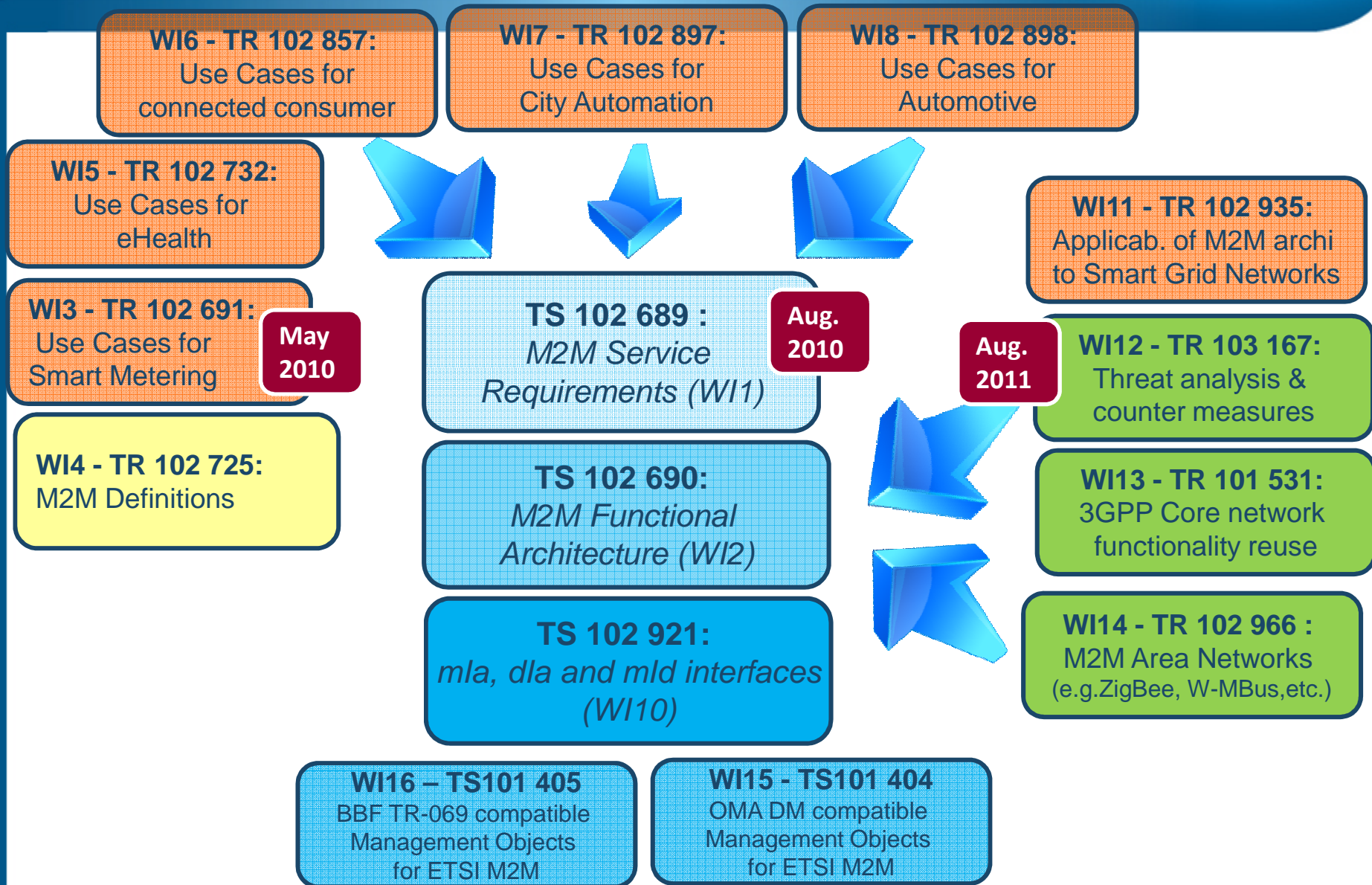


## OVERVIEW OF ETSI M2M RELEASE 1 – USE CASES & REQUIREMENTS

Presented by Patricia MARTIGNE at ETSI M2M Workshop, 26-27 October 2011

- Structure of ETSI M2M
- Release 1 Requirements
- Next steps
- Example of liaison with other fora

# ETSI M2M TC : Technical Specs & Technical Reports



# Release 1 specifications



1

## Stage 1 (requirements) Aug. 2010

ETSI TS 102 689 V1.1.1 (2010-08)  
Technical Specification

Machine-to-Machine communications (M2M);  
M2M service requirements



2

## Stage 2 (architecture) Q3-2011

Draft ETSI TS 102 690 V0.11.1 (2011-04)  
Technical Specification

Machine- to- Machine communications (M2M);  
Functional architecture



3

## Stage 3 (interfaces, APIs) Q4-2011

Draft ETSI TS 102.921 V<0.2.1> (2011-01)  
Technical Specification

Machine- to- Machine communications (M2M);  
mla, dla and mld interfaces

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Approved and published Specifications and reports for implementation of the M2M system shall be obtained exclusively via the ETSI Documentation Service at <http://pda.etsi.org/pda/queryform.asp>



ETSI TS 102 689 V1.1.1 (2010-08)

*Technical Specification*



Machine-to-Machine communications (M2M);  
M2M service requirements

# M2M Service Requirements



section 4.  
General requirements

section 7.  
Security

section 5.  
Management

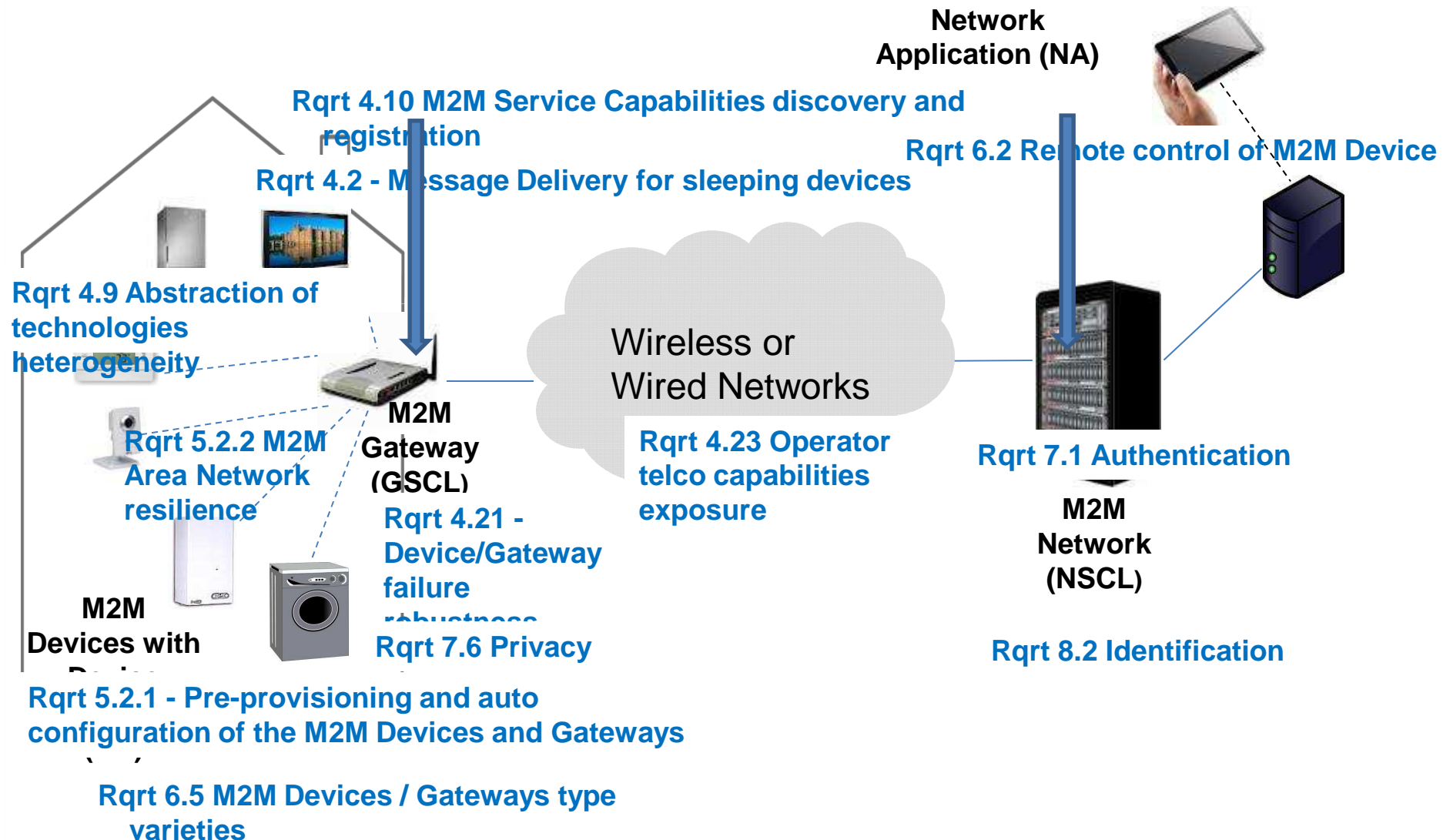
section 6.  
Functional rqrts for  
M2M services

section 8.  
Naming, numbering,  
addressing





# Example: connected home



Next steps



# To use 1st release of ETSI M2M...



## and further contribute to an enhanced Release 2

- Demonstrators implementing ETSI M2M Rel1 specifications showed during this Workshop (26th & 27th Oct2011)
- ETSI M2M Release 1 ready for complete publication end-2011. To decide on the Release 2 roadmap:
  - for requirements taking in account more functionalities
  - based on new use cases
- Ready for closer liaisons with specific standardization fora:
  - for device management aspects : BBF, OMA,... see presentations made during this workshop
  - for gateway aspects : HGI (Home Gateway Initiative), presented in the next slides.

# HGI

## Input to ETSI M2M Seminar



**HGI**  
CONNECTING HOMES, ENABLING SERVICES

# HGI HEM: use cases clusters

- Visualization of current energy and power data
- Visualization of historical data
- Alarm in different events

provide alarms or messages related to energy data to customers

- Home Domain Overload management

encourage the use of appliances when there is enough power in order to avoid overloading

- Optimize energy cost

e.g. optimization of energy cost in case of multi-tariff and configuration of a monthly cost limit

- Demand response

take into account possible requirements related to the future interaction between clients and the electricity market to optimise the energy use on utilities' side

- End User Control

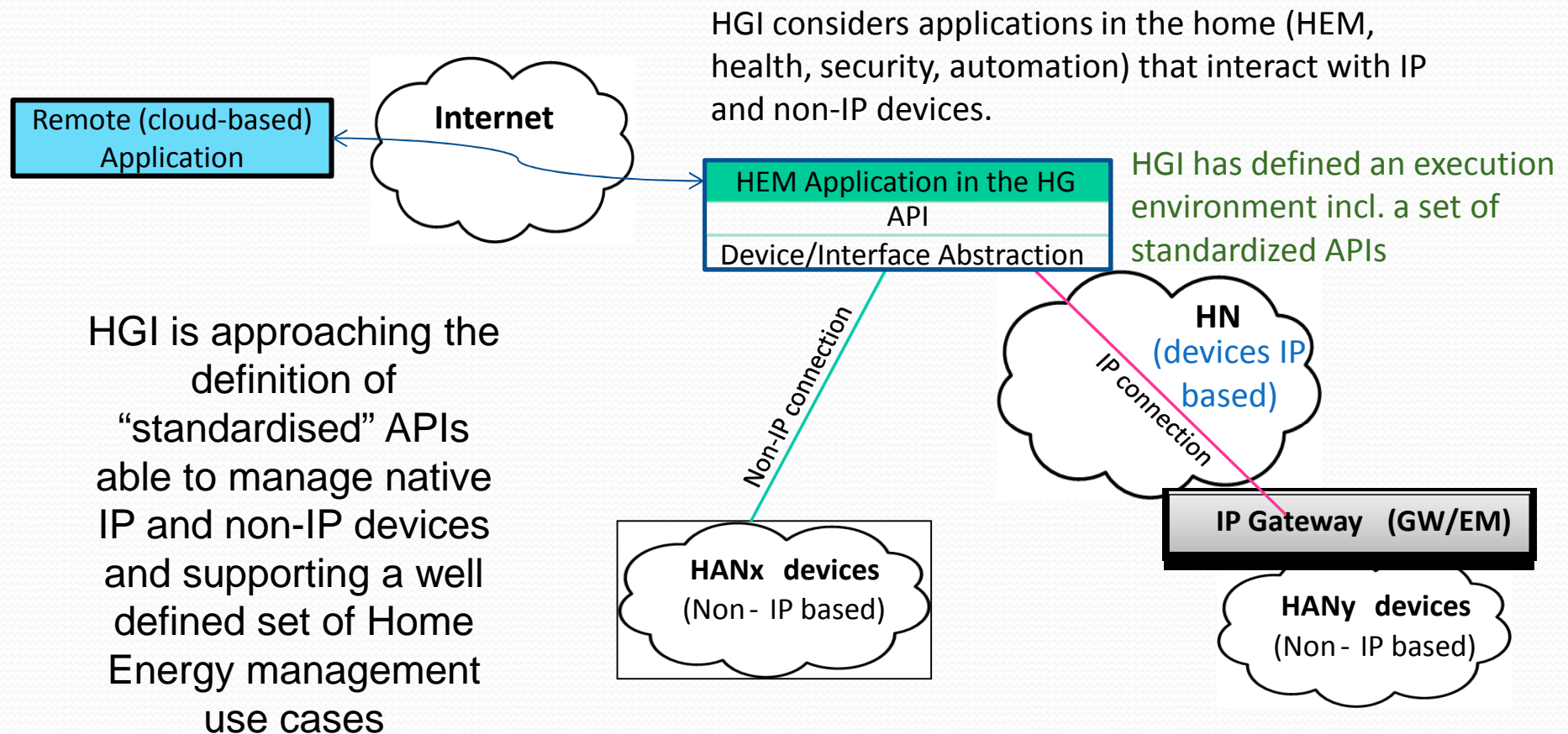
provide the customers with the ability to control all appliances within their Home

- Consumer/Prosumer tariffs simulator

provide customers with the ability to optimize their tariff in multiprovider context, choosing the best tariff from each provider, simulating the consumption with that tariff etc.



# HEM Application in the Home and “Cloud”



[http://www.homegatewayinitiative.org/publis/GD-017-R3\\_use-cases-and-architecture-for-home-energy-Management-service.pdf](http://www.homegatewayinitiative.org/publis/GD-017-R3_use-cases-and-architecture-for-home-energy-Management-service.pdf)

# HGI Questions for M2M, (for the Q&A time-slot) as an introduction to future liaisons

## Home Network

- Several interfaces being considered such as Zigbee, Z-wave, DECT, Homeplug, G.hn, Wi-Fi, and others
  - Overall, what role does M2M assign to the home environment elements?
  - What is the relation between Smart Energy Profiles and M2M?
  - Does M2M assume the suggested abstraction layer structures in the HG?
  - Does M2M assume the distribution of application logic across device, gateway, cloud?

## Cloud

- In M2M view, what is the appropriate interface for cloud-located applications that interact with applications in the HG?
  - Service-provider supported applications
  - Internet based applications
- What functions are required in the HG to support M2M?
- What is the state of specification of the M2M gateway, and how can HGI help to specify requirements, if needed?
  - In particular, what is the expected impact on M2M gateway for security mechanisms?

## Conclusion

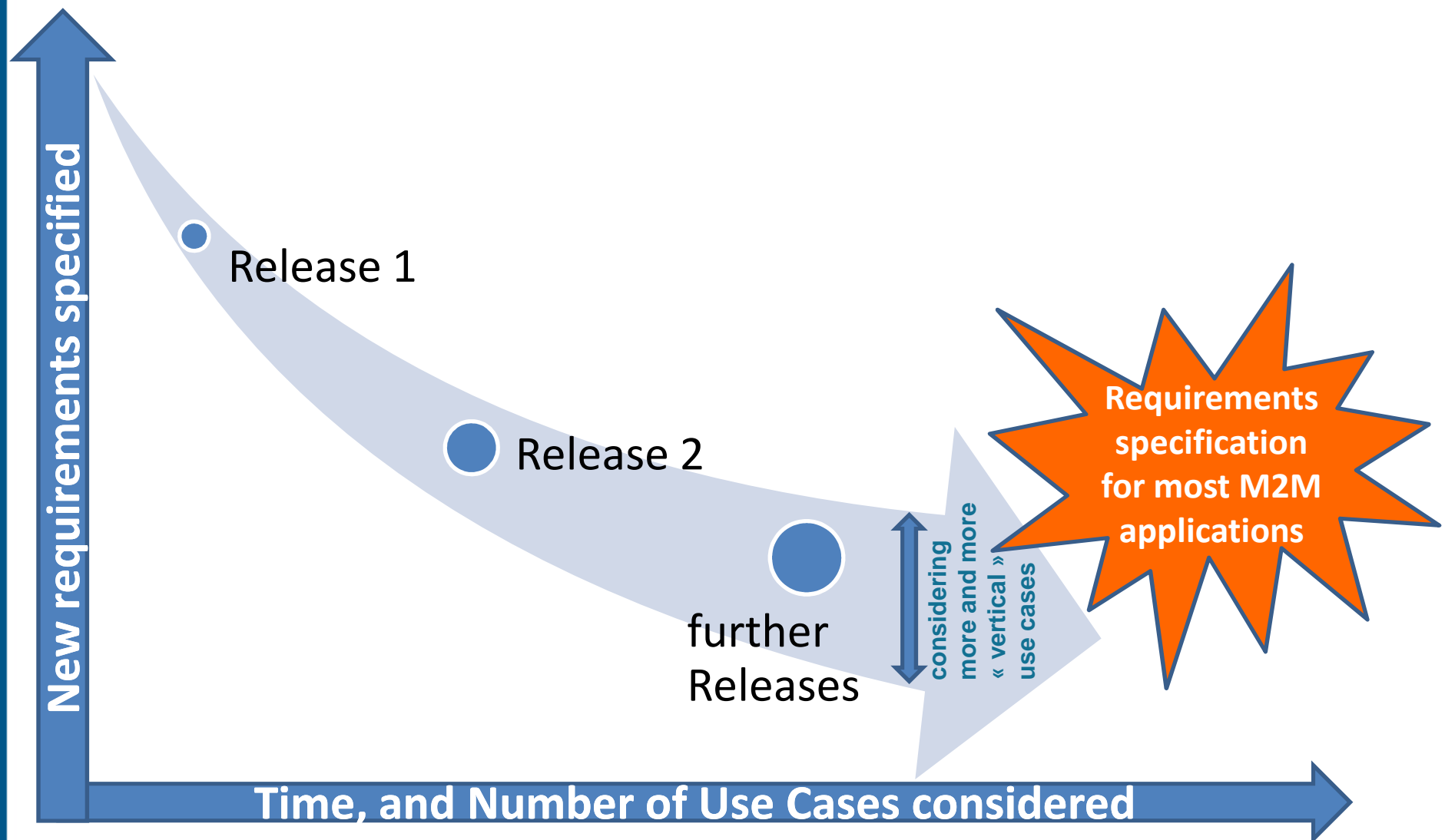


# Conclusion on ETSI M2M Stage 1 work



- Identification of generic requirements for a M2M system (from the services platform up to the device, not forgetting the gateway)
  - useful to give a first framework for the architectural (Stage 2) discussions aiming at defining the generic enablers at the service layer
  - for M2M applications to be launched and run in a transparent, uniform way
- Definition of relevant use cases from particular (« vertical ») M2M domains
  - that are expected to make the M2M market take off
  - that feed discussions for some new requirements in the Stage 1 Specification

# Stage 1 work converging to requirements relevant for most M2M applications



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Thank you!

**back-up**

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## Section 4. General requirements

- 4.1 M2M Application communication principles
- 4.2 Message Delivery for sleeping devices
- 4.3 Delivery modes
- 4.4 Message transmission scheduling
- 4.5 Message communication path selection
- 4.6 Communication with devices behind a M2M gateway
- 4.7 Communication failure notification
- 4.8 Scalability
- 4.9 Abstraction of technologies heterogeneity
- 4.10 M2M Service Capabilities discovery and registration
- 4.11 M2M Trusted Application
- 4.12 Mobility
- 4.13 Communications integrity
- 4.14 Device/Gateway integrity check
- 4.15 Continuous connectivity
- 4.16 Confirm
- 4.17 Priority
- 4.18 Logging
- 4.19 Anonymity
- 4.20 Time Stamp
- 4.21 Device/Gateway failure robustness
- 4.22 Radio transmission activity indication and control
- 4.23 Operator telco capabilities exposure
- 4.24 Location reporting support
- 4.25 Support of multiple M2M Applications

- 5.1 Fault Management
  - 5.1.1 Proactive monitoring
  - 5.1.2 Diagnostics mode
  - 5.1.3 Connectivity test
  - 5.1.4 Fault discovery and reporting
  - 5.1.5 Fault Recovery by Remote Management
  - 5.1.6 Service Level Agreement (SLA) monitoring
- 5.2 Configuration Management
  - 5.2.1 Pre-provisioning and auto configuration of the M2M Devices and Gateways
  - 5.2.2 M2M Area Network resilience
  - 5.2.3 Time synchronisation
  - 5.2.4 Configuration Management
- 5.3 Accounting
  - 5.3.1 Charging
  - 5.3.2 Compensation mechanisms



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## Section 6. Functional requirements for M2M services

- 6.1 Data collection and reporting
- 6.2 Remote control of M2M Devices
- 6.3 Group mechanisms
- 6.4 Quality of Service (QoS)
- 6.5 M2M Devices/Gateways type varieties
- 6.6 Information reception
- 6.7 Reachability
- 6.8 Asymmetric flows
- 6.9 Paths diversity
- 6.10 Heterogeneous M2M Area Networks
- 6.11 Information collection & delivery to multiple applications
- 6.12 Management of multiple M2M Devices/Gateways
- 6.13 M2M Devices/Gateways description

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## Section 7. Security

- 7.1 Authentication
- 7.2 Authentication of M2M service layer capabilities or M2M applications
- 7.3 Data transfer confidentiality
- 7.4 Data integrity
- 7.5 Prevention of abuse of network connection
- 7.6 Privacy
- 7.7 Multiple actors
- 7.8 Device/Gateway integrity validation
- 7.9 Trusted and secure environment
- 7.10 Security credential and software upgrade at the Application level

## Section 8. Naming, numbering, addressing

- 8.1 Naming
- 8.2 Identification
- 8.3 Addressing