OVERVIEW OF ETSI M2M RELEASE 1 – USE CASES & REQUIREMENTS

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

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

Stage 1 (requirements)
Aug. 2010

Stage 2 (architecture)
Q3-2011

Stage 3 (interfaces, APIs)
Q4-2011

ETS1 TS 102 689 V1.1.1 (2010-08)
Technical Specification

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

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

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

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

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

M2M Service Requirements
section 4. General requirements

section 5. Management

section 6. Functional rqrts for M2M services

section 7. Security

section 8. Naming, numbering, addressing
Example: connected home

Network Application (NA)

Rqrt 4.10 M2M Service Capabilities discovery and registration
Rqrt 4.2 - Message Delivery for sleeping devices
Rqrt 4.9 Abstraction of technologies heterogeneity

Rqrt 5.2.1 - Pre-provisioning and auto configuration of the M2M Devices and Gateways
Rqrt 5.2.2 M2M Area Network resilience
Rqrt 4.23 Operator telco capabilities exposure
Rqrt 6.2 Remote control of M2M Device
Rqrt 7.1 Authentication
Rqrt 8.2 Identification

Wireless or Wired Networks

M2M Gateway (GSCL)
Rqrt 4.21 - Device/Gateway failure robustness
Rqrt 7.6 Privacy

M2M Devices with Device Application (DA)
Rqrt 6.5 M2M Devices / Gateways type varieties
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 Oct 2011)

- 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 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”

HGI considers applications in the home (HEM, health, security, automation) that interact with IP and non-IP devices.

HGI has defined an execution environment incl. a set of standardized APIs able to manage native IP and non-IP devices and supporting a well defined set of Home Energy management use cases.

HGI is approaching the definition of “standardised” APIs able to manage native IP and non-IP devices and supporting a well defined set of Home Energy management use cases.

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
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

- Release 1
- Release 2
- Further Releases

New requirements specified

Time, and Number of Use Cases considered

Requirements specification for most M2M applications considering more and more «vertical» use cases
Contact Details:

Patricia Martigne
patricia.martigne@orange.com

Thank you!
back-up
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
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
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