

Welcome to the World of Standards



ETSI M2M Architecture Introduction

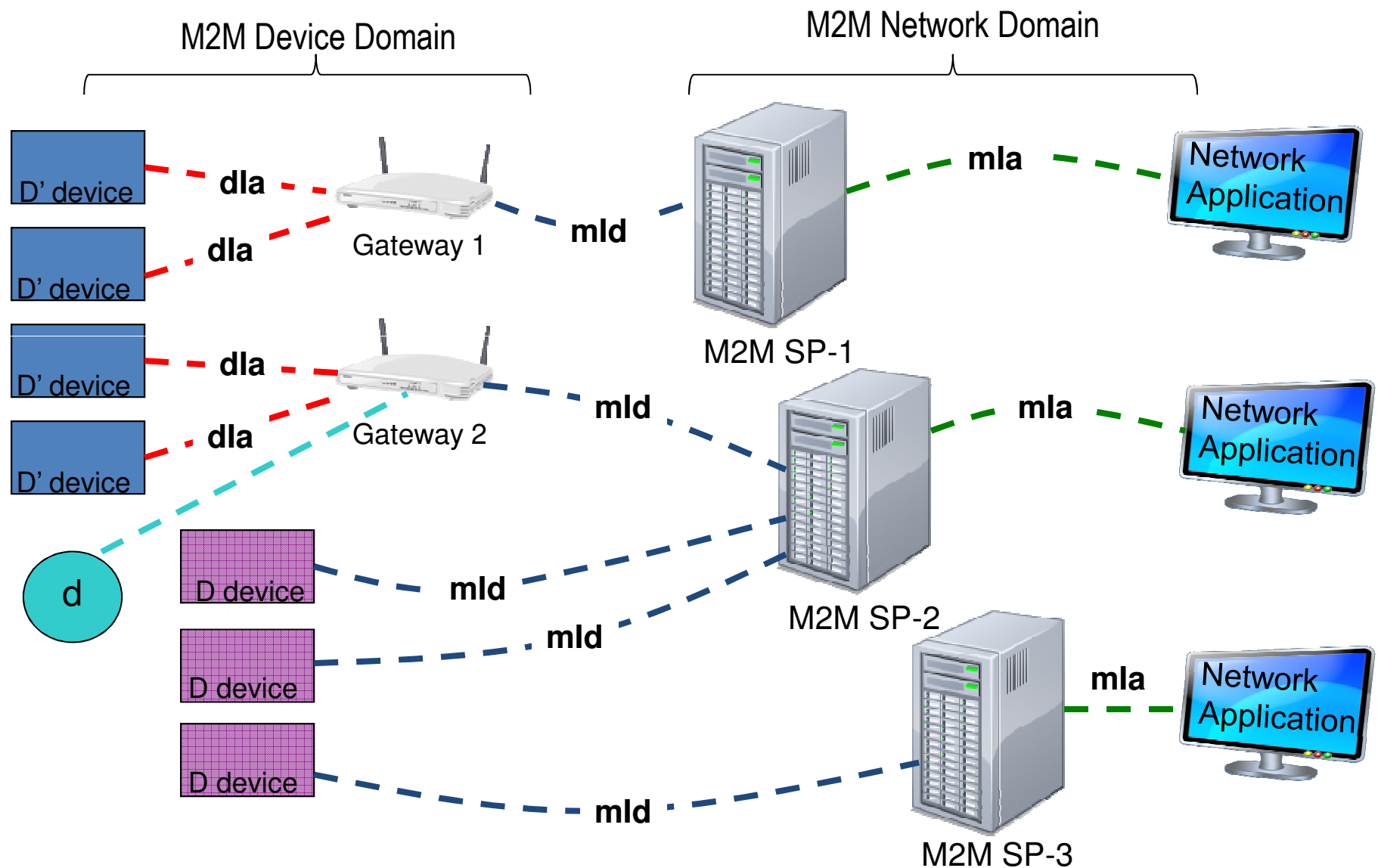
A brief overview for Release 1 and Release 2

Presented by Barbara Pareglio , on behalf of Paul Russell, ETSI TC M2M WG2 Chair

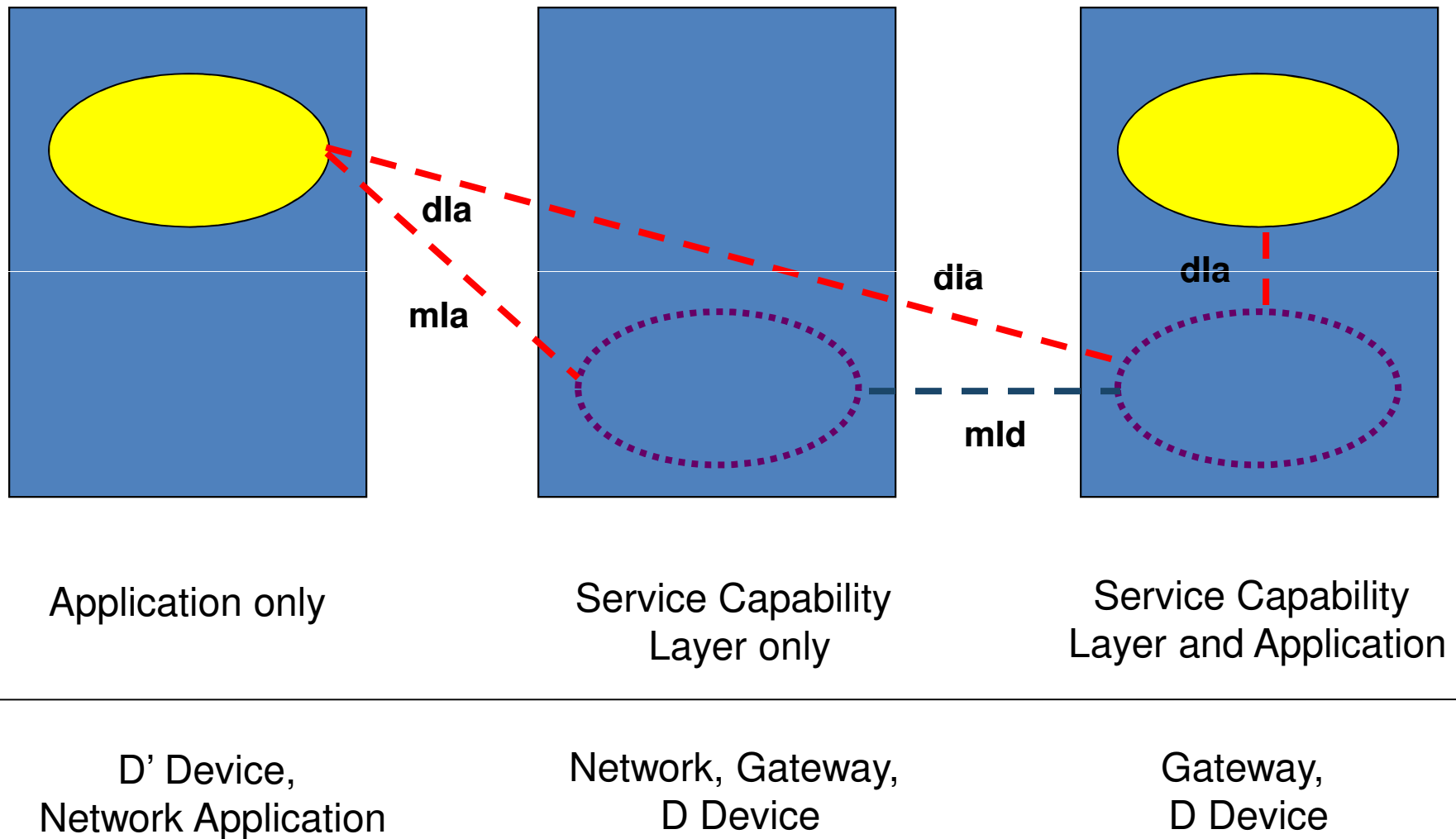
ETSI M2M Workshop, 24-25 October 2012

- Overview of ETSI M2M Architecture, Release 1
- Resource Tree Structure
- Resource Operation Procedures
 - Service & Application Registration
 - Container, Announce & Discovery
 - Subscription and Notification
- M2M Device Management
- Added features for Release 2

ETSI M2M Service Architecture, Release 1

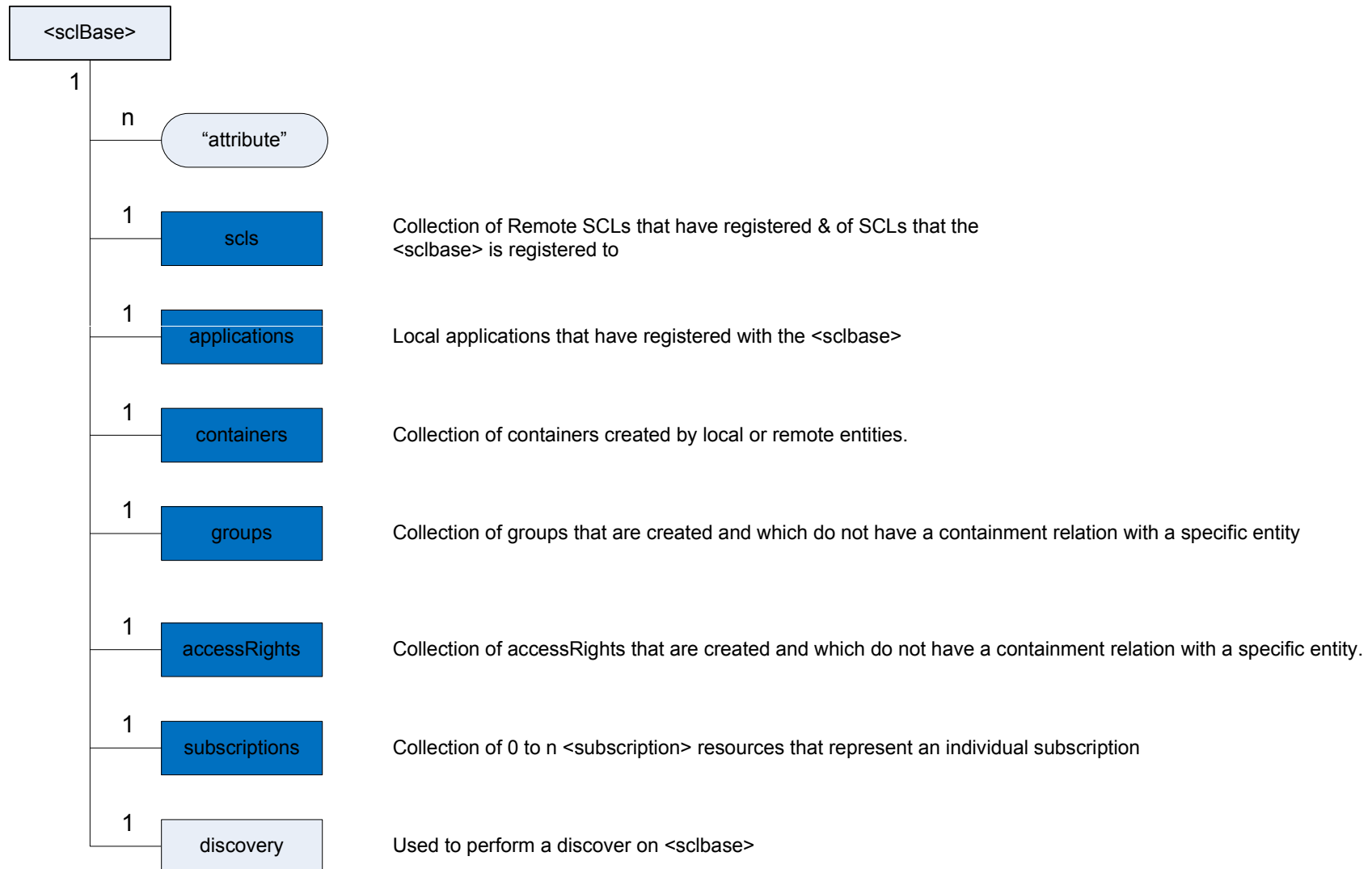


Basic entities, deployment view



- IP-based
- RESTful – resource structure tree
- Some of the supported features are:
 - Authentication
 - Secure communication
 - Service and Application Registration
 - Announce and Discovery
 - Exchange of Information through containers
 - Subscription and Notification
 - Group handling
 - Access Control
 - Store and Forward
 - Notification channels
 - Device Management

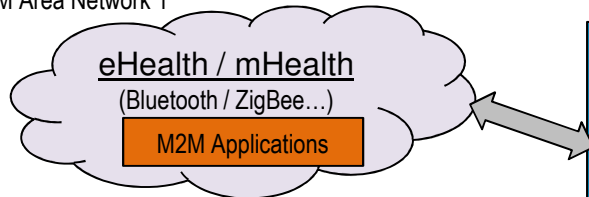
The main resource tree



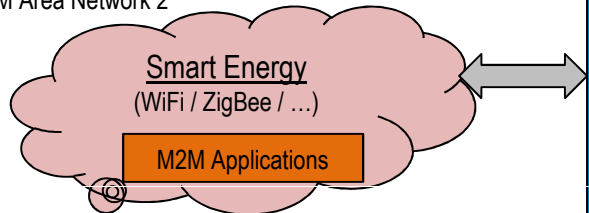
RESTful Resource Tree



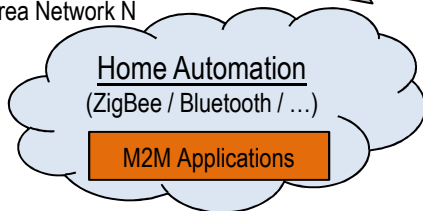
M2M Area Network 1



M2M Area Network 2

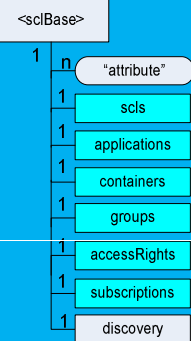


M2M Area Network N



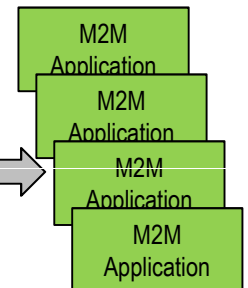
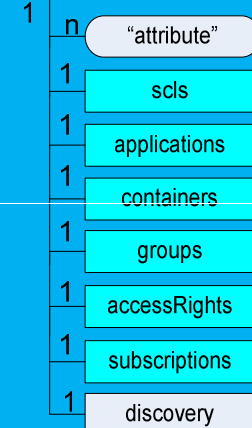
M2M Gateway

M2M Applications



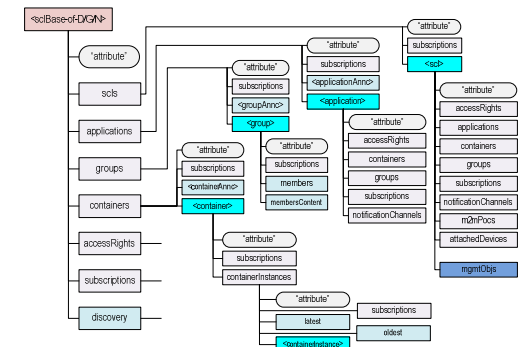
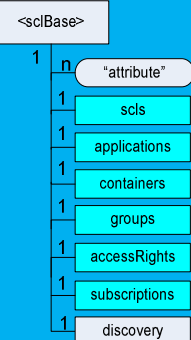
M2M Server

<scfBase>

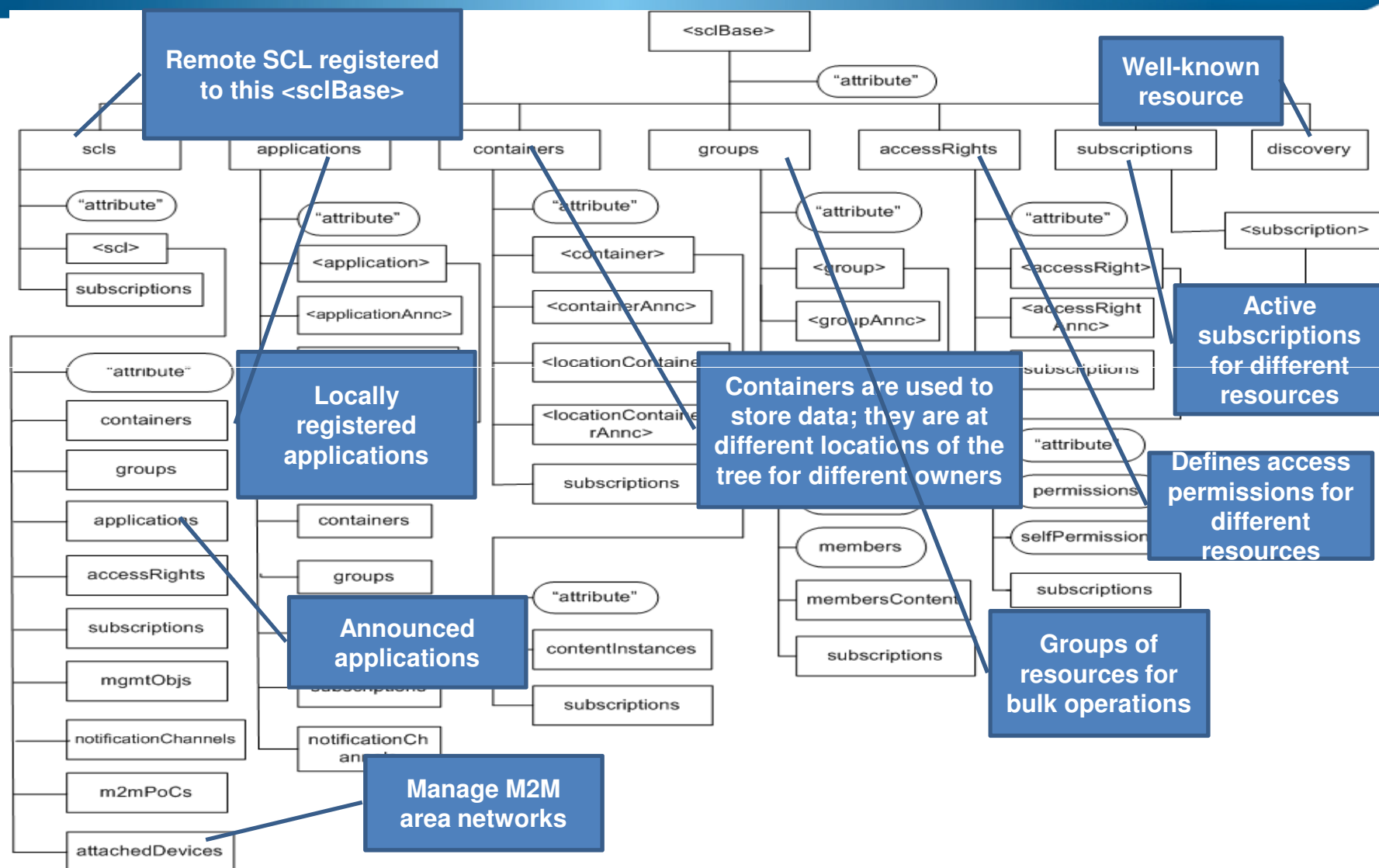


M2M Device

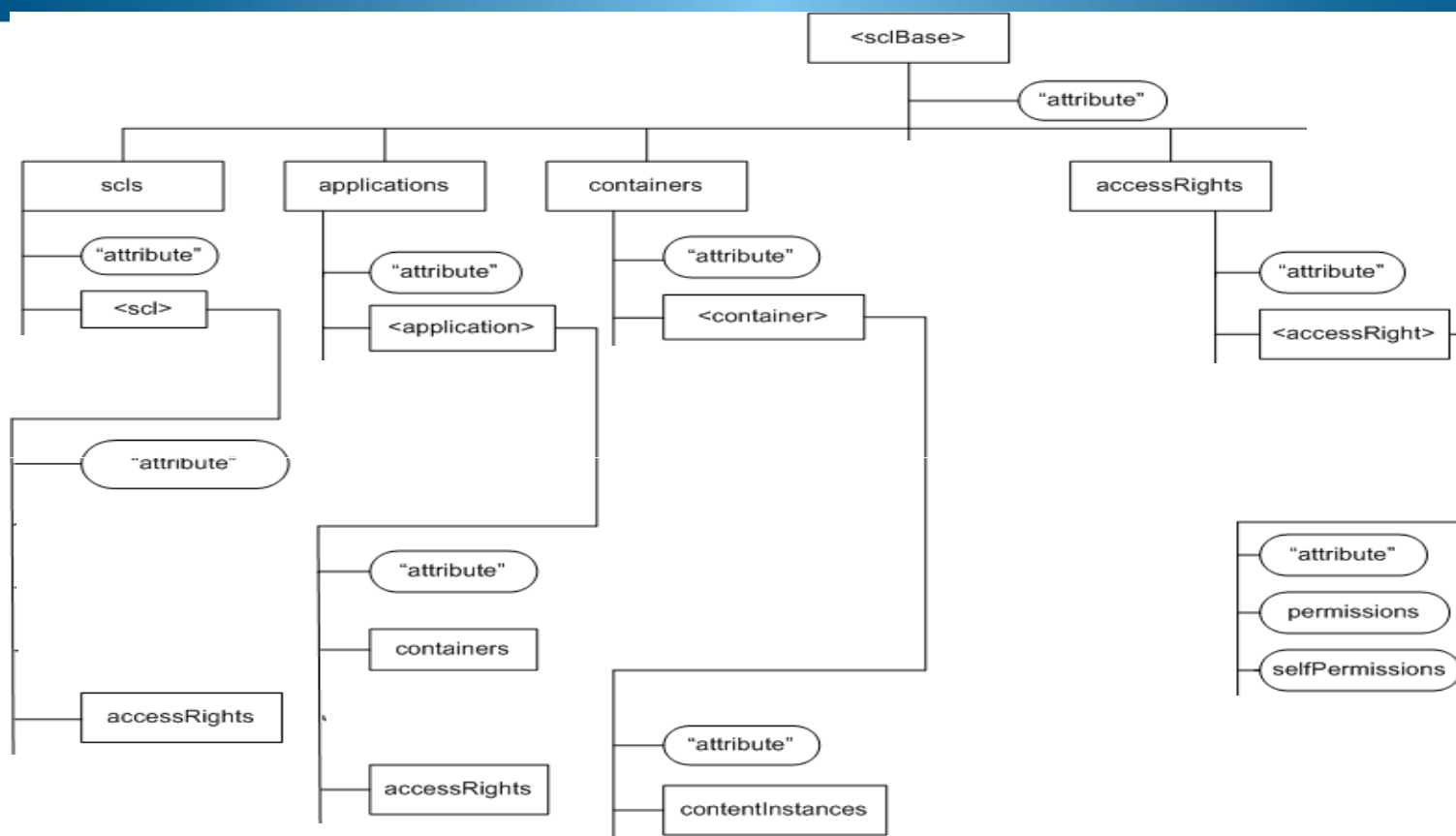
M2M Applications



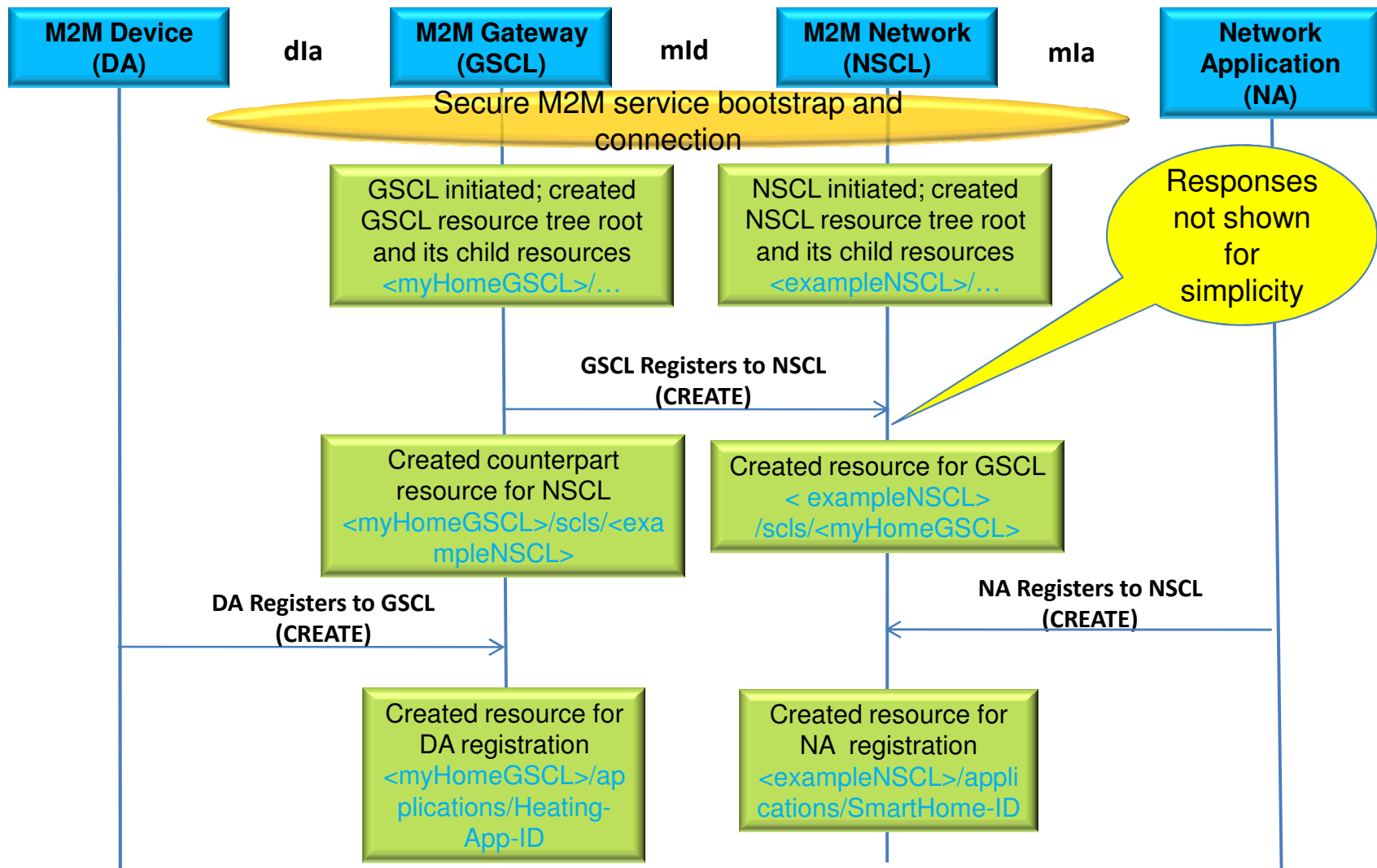
Resource Tree Overview



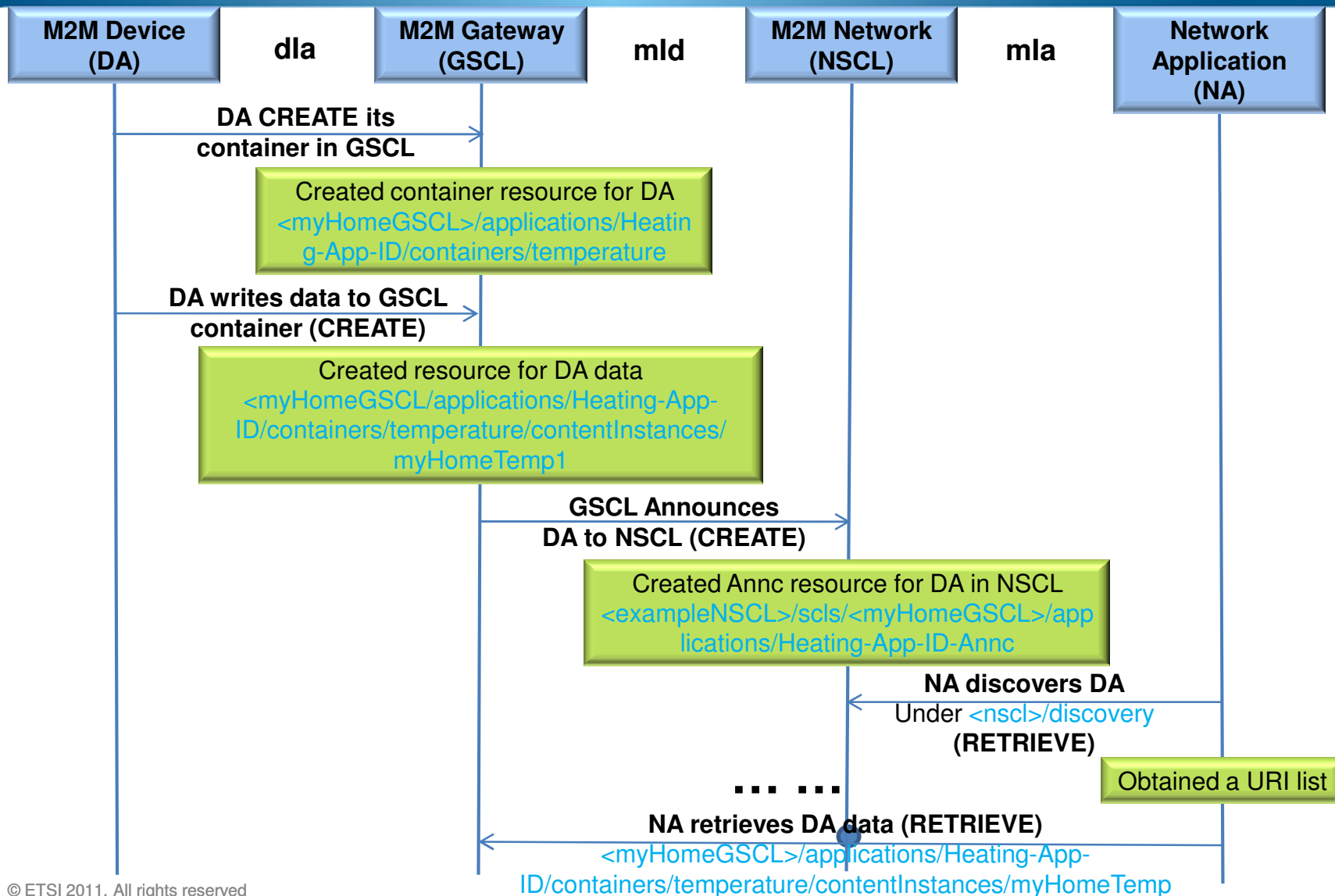
Example simplified Resource Tree on NSCL



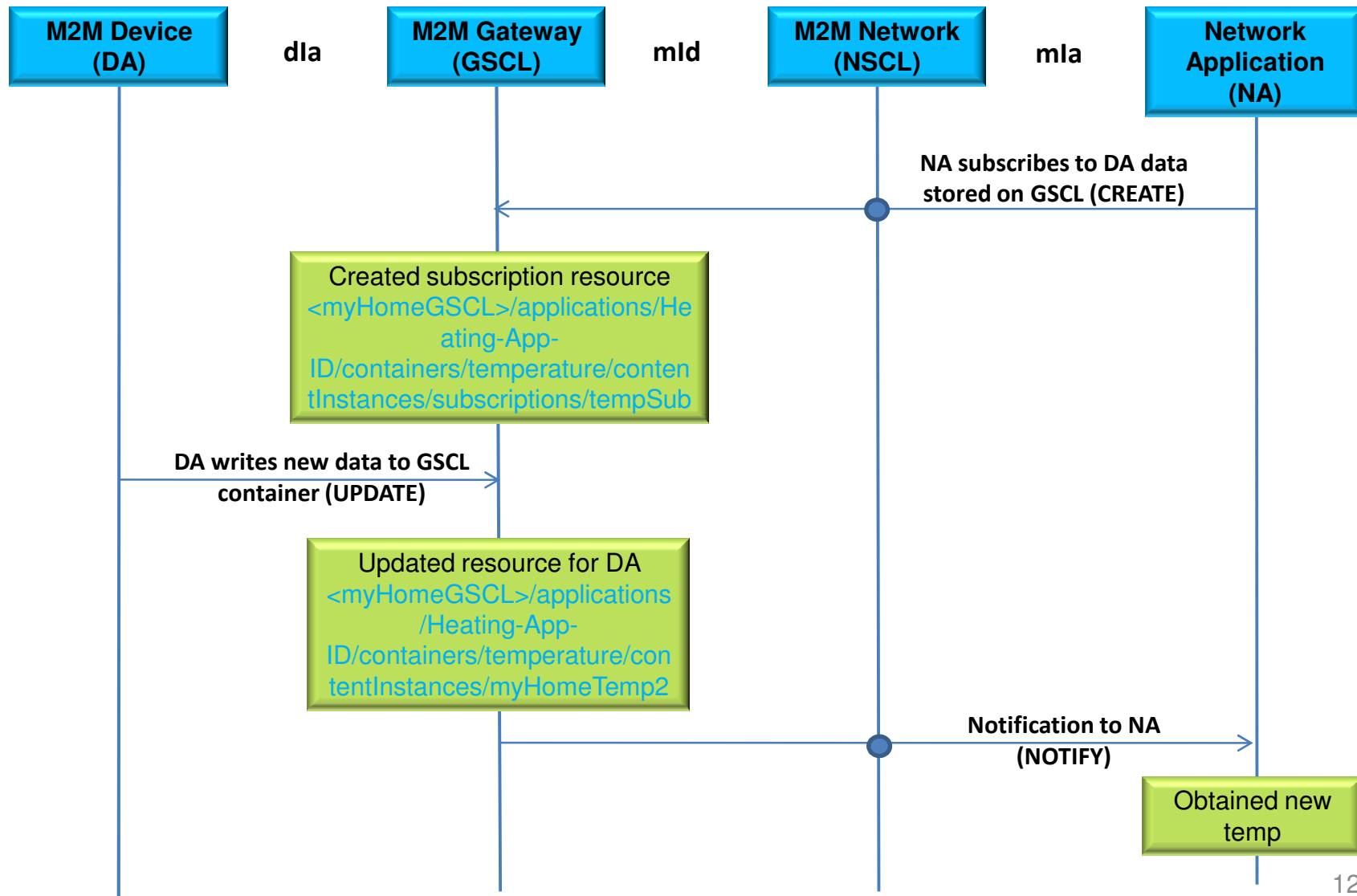
M2M Service & Application Registration



Write Data to Containers, Announce and Data Retrieval



Resource Subscription and Notification



ETSI M2M – HTTP and CoAP Binding

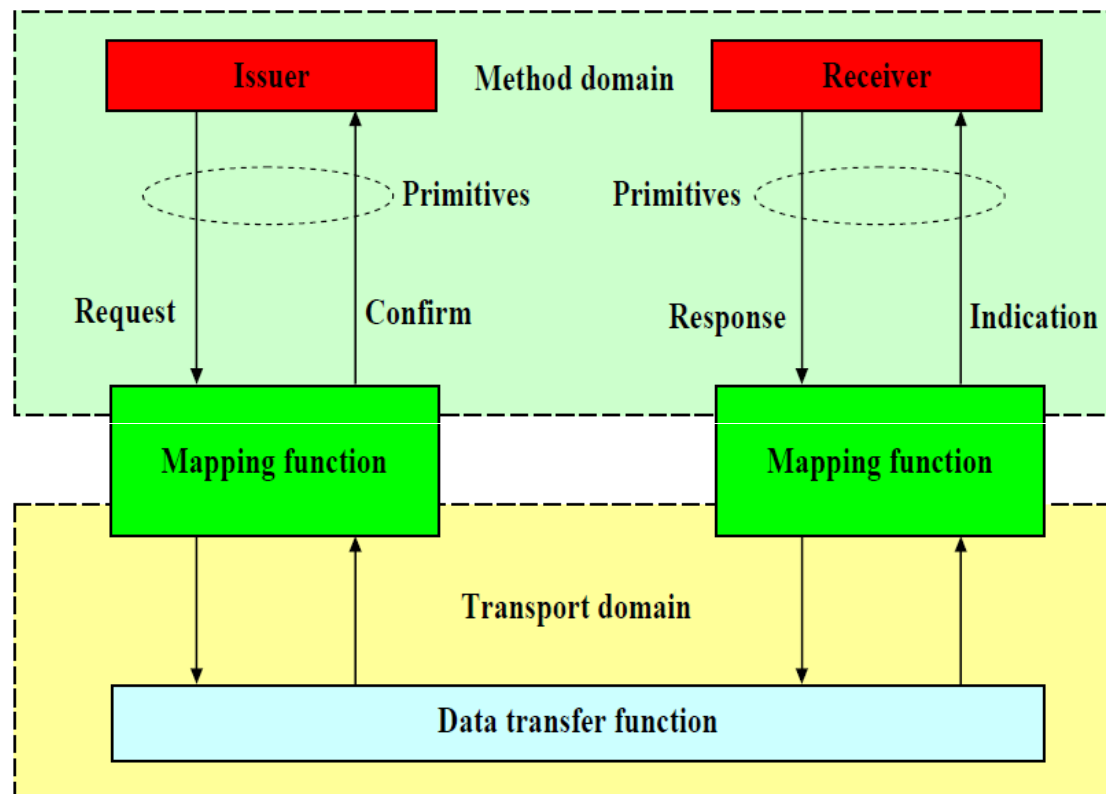
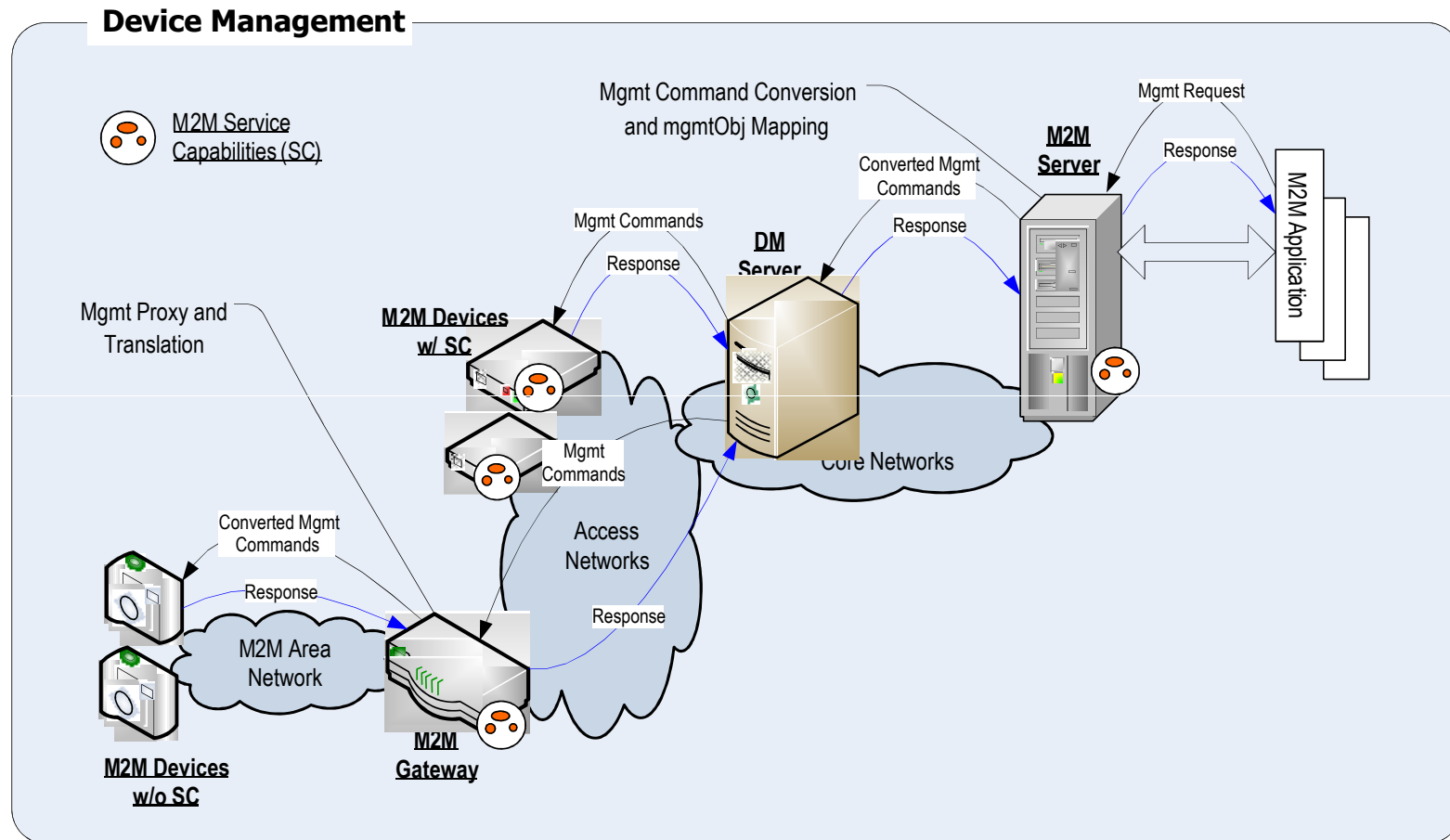


Illustration of ETSI M2M Primitive Binding to Transport Layer Protocols

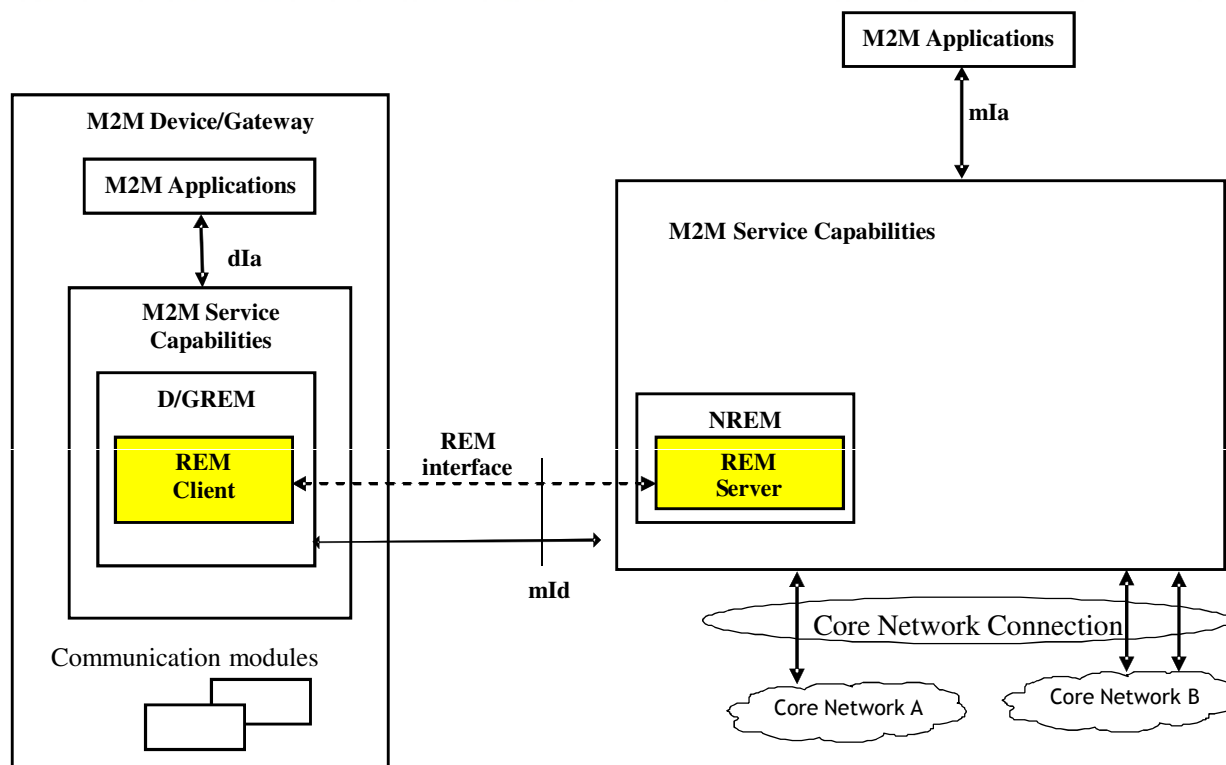
- Binding to HTTP and CoAP is easy due to ETSI M2M RESTful approach
- Normative mapping defined for both HTTP and CoAP
- Primitives represent the resource operation in the Method domain

M2M Device Management



ETSI M2M reuses OMA DM and BBF TR069 for managing M2M Devices

Remote Entity Management Architecture (1)

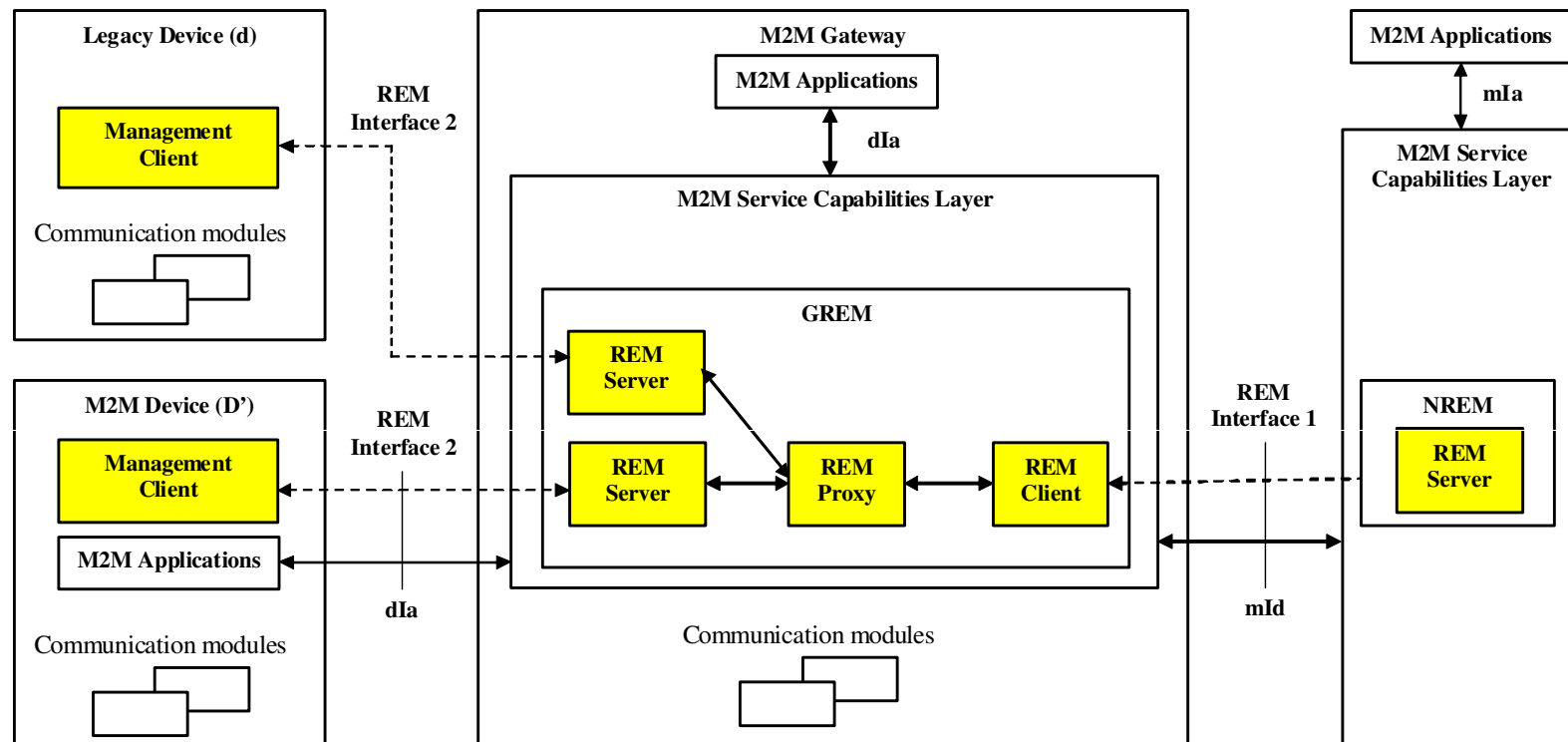


- Integrated Architecture for Managing M2M Devices/Gateways directly:

ETSI M2M	OMA DM	BBF TR069
REM Server (*)	DM Server	ACS
REM Client	DM Client	CPE
REM Interface (m1d)	DM-1, DM-2	TR069-CWMP

***NOTE:** Alternatively to REM Server being integrated as a part of the NREM, the REM Server may be external to the NREM but interface with the NREM via an implementation-specific interface exposed by the REM Server.

Remote Entity Management Architecture (2)



Integrated Architecture for Managing M2M Devices behind a M2M

ETSI M2M	OMA DM	BBF TR069
REM Server (N)	DM Server	ACS
REM Server (G)	Legacy Server	Control Point
REM Proxy	GwMO	Proxy Module

REM Client	DM Client	CPE
Management Client	Legacy Client	Legacy Client
REM IF 1 (mld)	DM-1, DM-2	TR069-CWMP
REM IF 2 (dla)	Legacy IF	Legacy IF

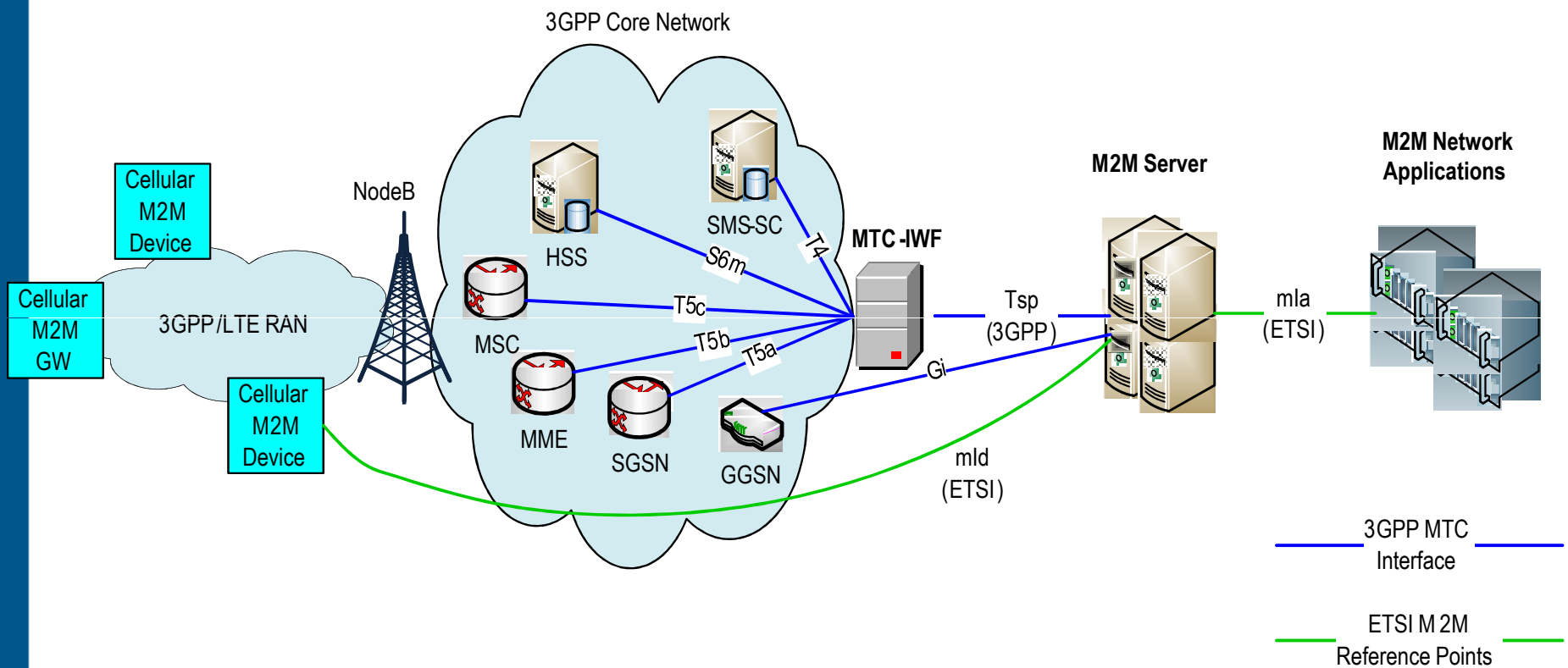
Additional features in Release 2

Main Release 2 features



- Interworking with 3GPP
- M2M Information Recording
- Charging architecture
- Few enhancements: like the communication channel used for arbitrary requests to a Gateway behind a NAT

Interworking with 3GPP MTC



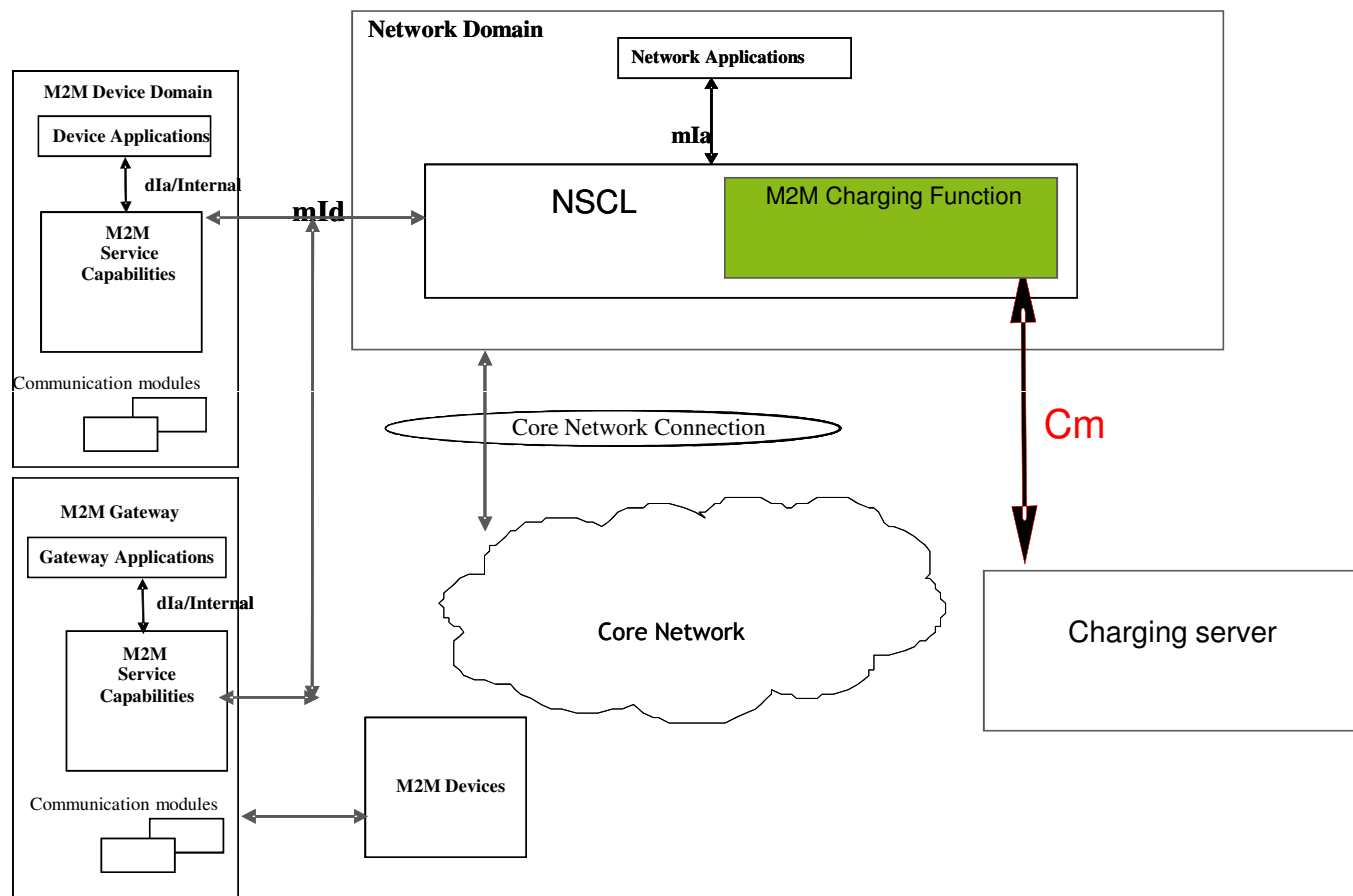
M2M Information Recording (1)



- ETSI TC M2M Release 2 provide the recording feature on the M2M NSCL (only network side).
- The M2M NSCL shall be able to initiate recording based on any of the following triggers:
 - A request received by the M2M NSCL over the mld reference point.
 - A request received by the M2M NSCL over the mla reference point
 - A request initiated by the M2M NSCL
 - Timer- based trigger for non- request based information recording. This trigger is used only when the memory size of a container over a period of time is required.
- More than one trigger can be simultaneously configured
- The recording triggers may also be configurable, for example, as follows:
 - On a per SCL basis, for requests originating/arriving from/at the M2M NSCL.
 - On a per application basis
 - A default behaviour for non-configured SCLs/applications.

- A recorded unit shall be tagged to depict its content according to the following classification:
 - Data related procedures represent procedures associated with data storage or retrieval from the M2M NSCL (eg. Container related procedures)
 - Control related procedures: represent all procedures that are not associated with data storage/retrieval from the M2M NSCL with the exclusion of group and device management related procedures (e.g. subscription procedures)
 - Group related procedures: represent procedures that handle groups.
 - Device Management Procedures

Offline Charging architecture



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Thank you!