



**Welcome
to the World
of Standards**



OVERVIEW OF ETSI M2M ARCHITECTURE

Presented by:

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Why ETSI M2M ?



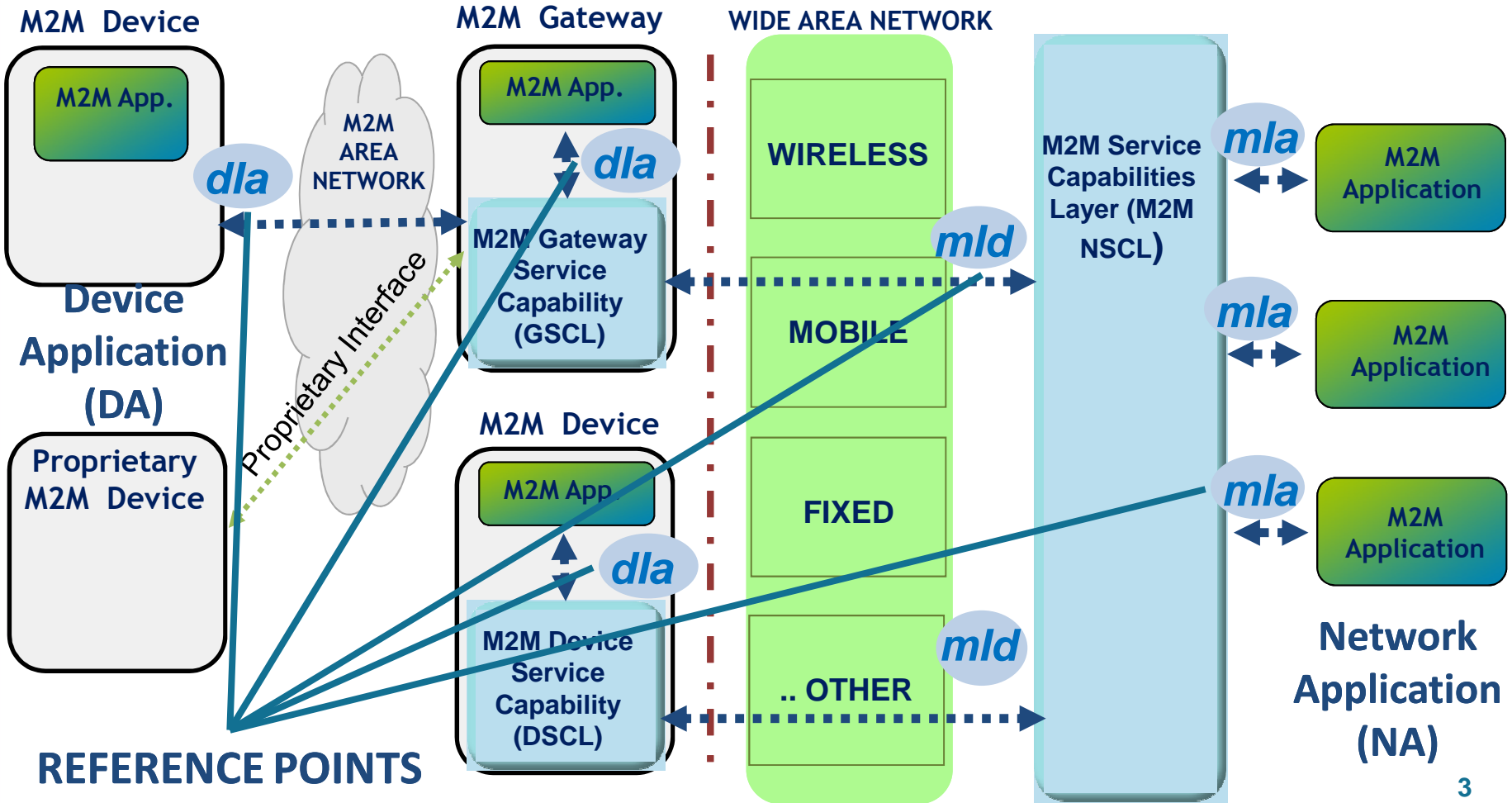
- Provide an M2M architecture with a generic set of capabilities for M2M services
- Provide a framework for developing services independently of the underlying network
- Facilitate deployment of vertical applications
- Facilitate innovation across industries by exposing data and information and providing services.

M2M – High Level Architecture



M2M Device & Gateway Domain

M2M Network Domain



- ETSI M2M 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

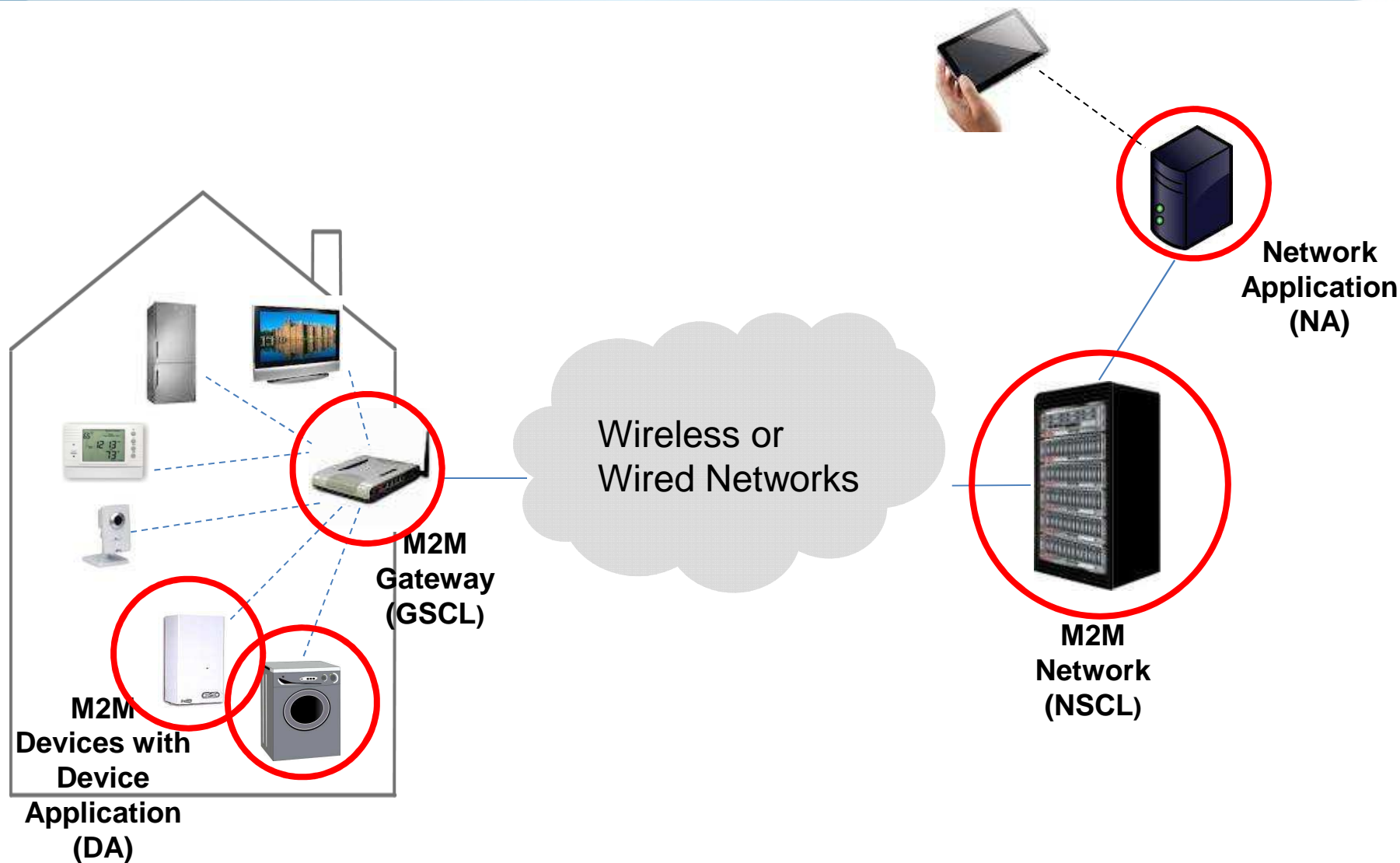
Features offered by ETSI M2M



- Identification of the M2M Application and the M2M Devices
- Asynchronous and synchronous communication
- Store and forward mechanism based on policies for optimising 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 m1d reference point
- And much more

- ETSI M2M Release 1 provides standardized security mechanism for the reference point *mld*
- 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 *mld* end point authentication
 - Perform M2M Connection Key agreement
 - Optionally establish a secure session over *mld*.
 - Perform RESTful procedures over the *mld*

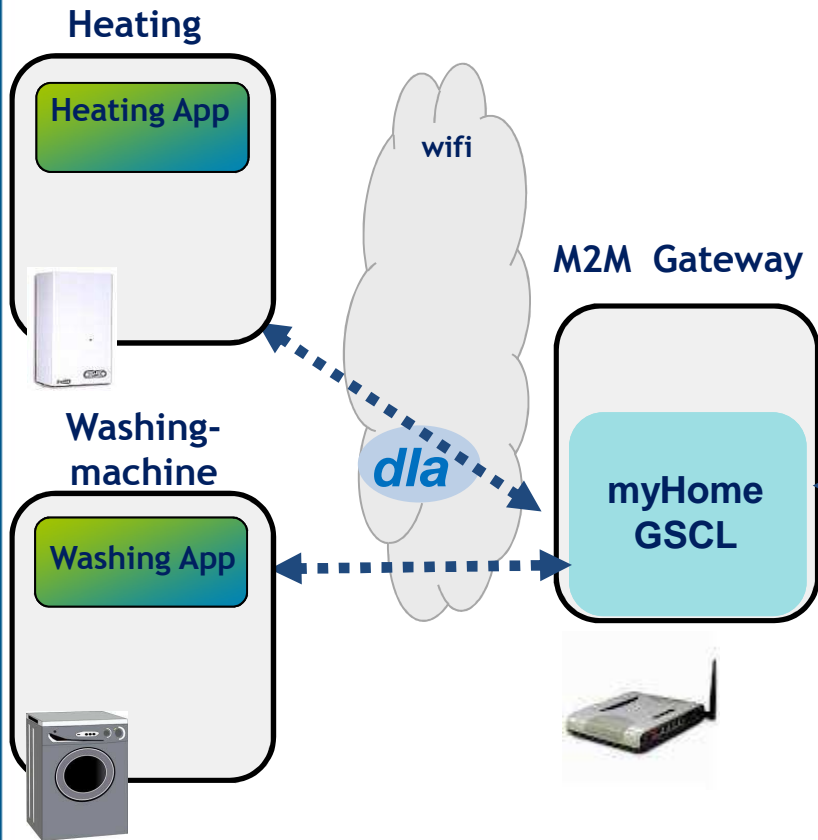
Example: Connected home



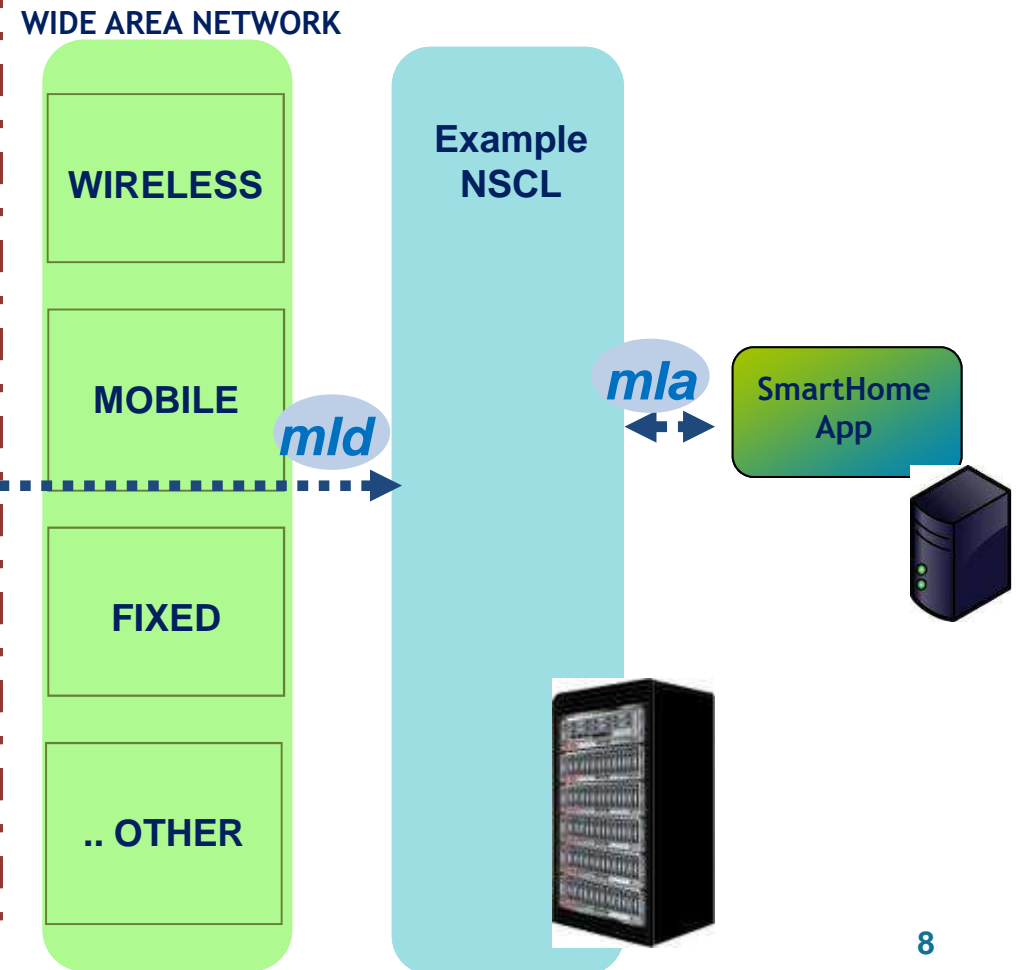
High level deployment



M2M Device & Gateway Domain



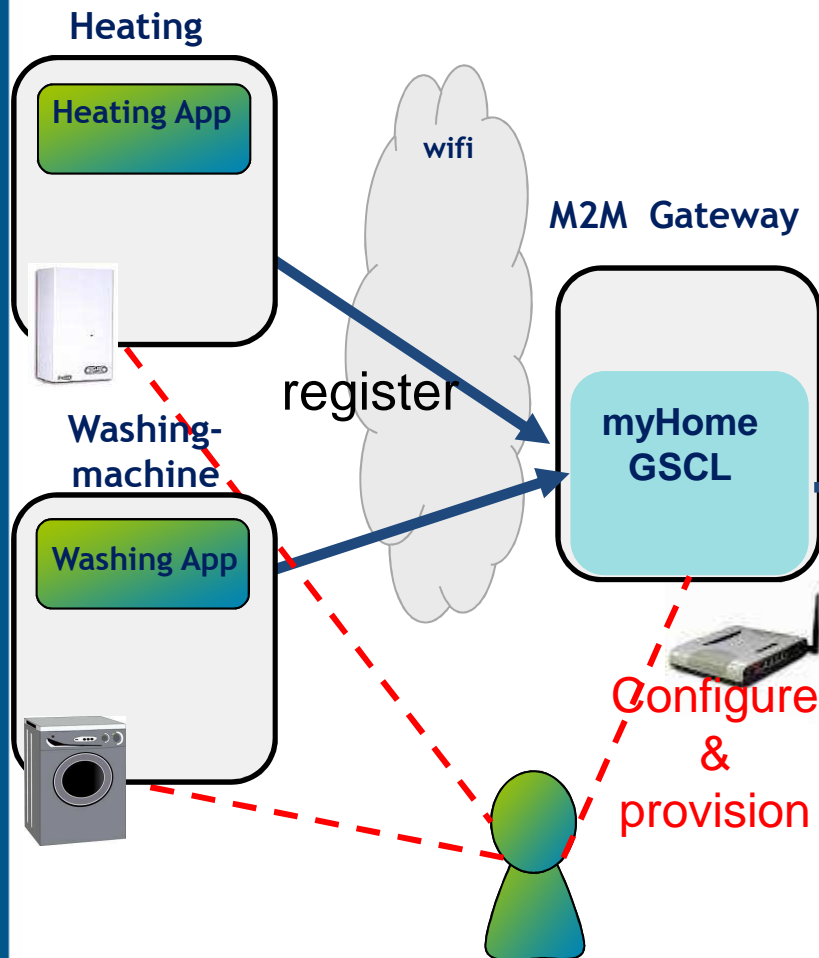
M2M Network Domain



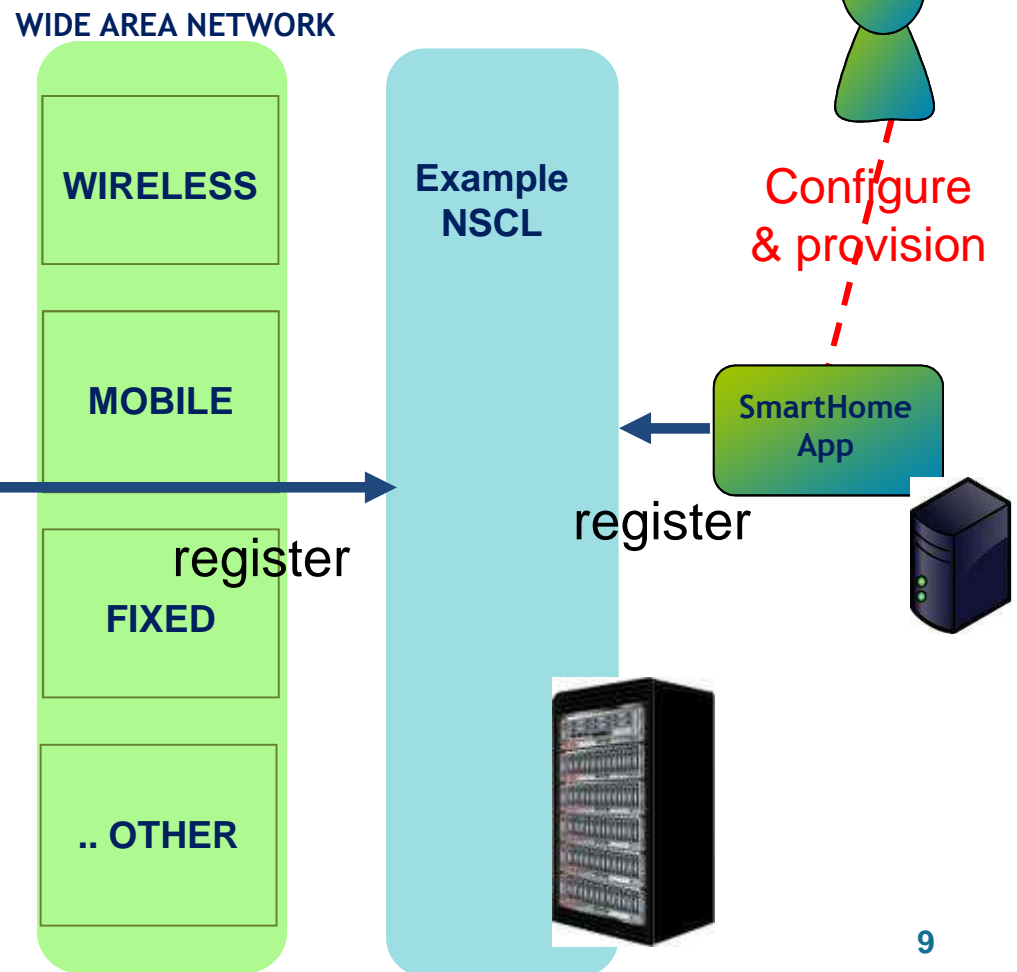
Flow of events



M2M Device & Gateway Domain



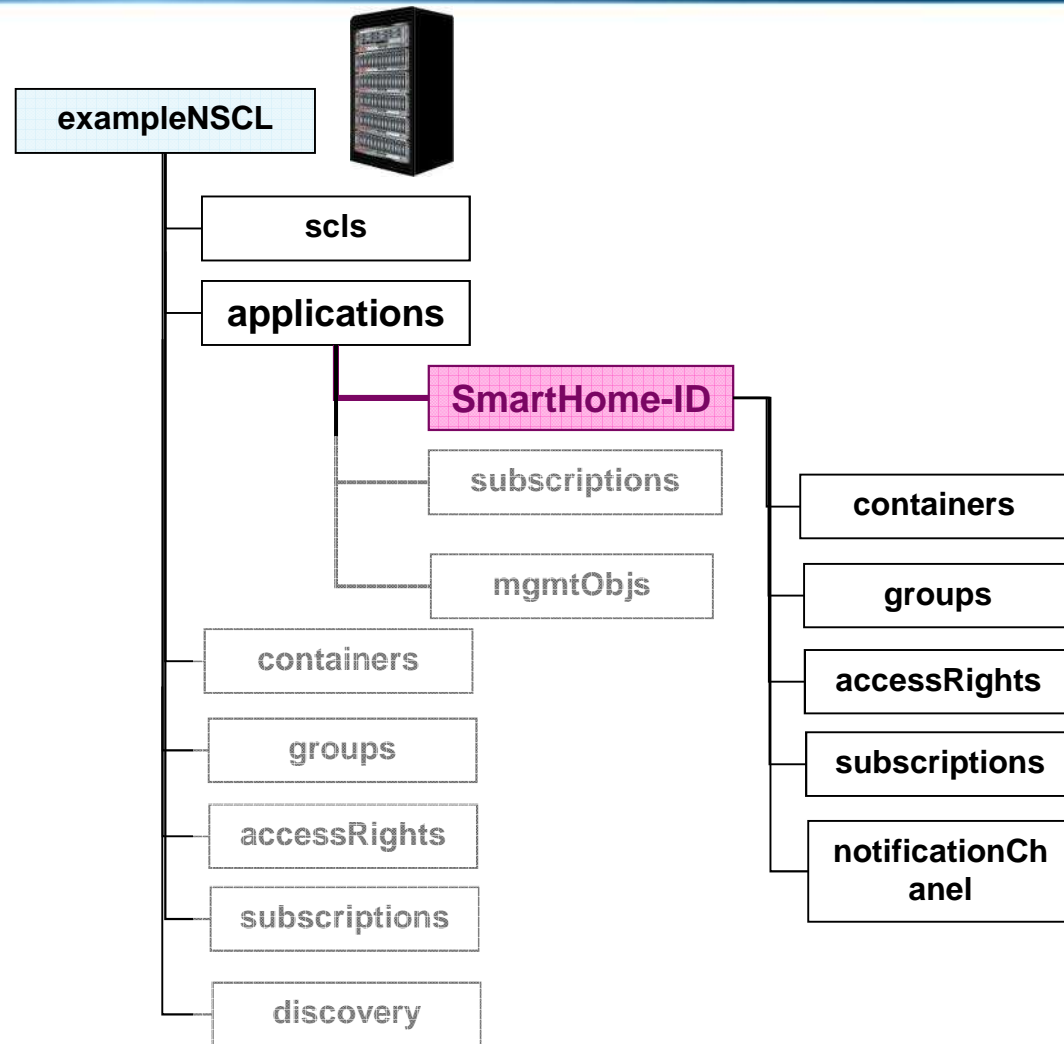
M2M Network Domain



Network Application registration



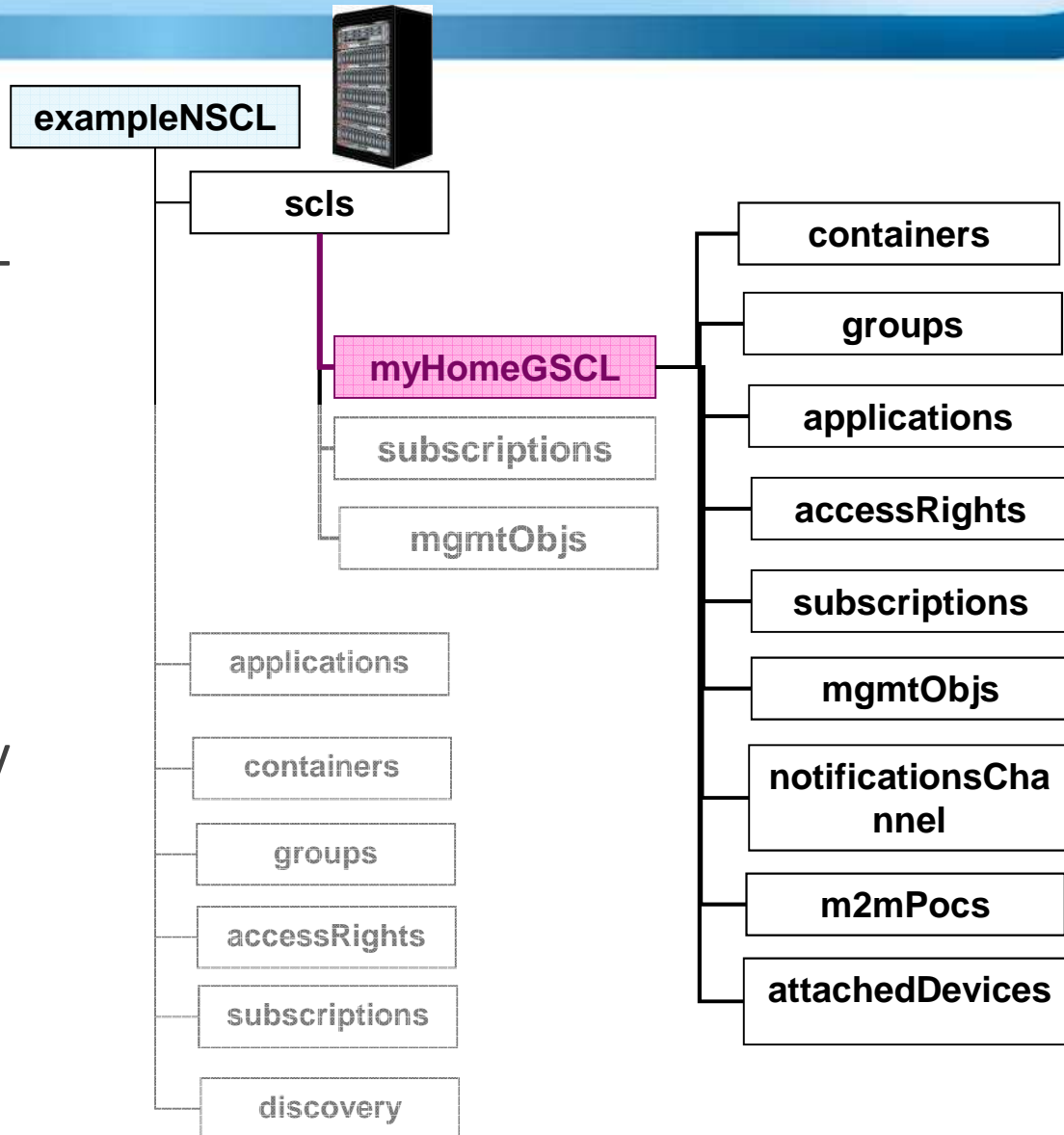
- The Network Application registers to the NSCL
 - Name of the NSCL = exampleNSCL
 - Network application register with the ID = SmartHome-ID



Gateway registration



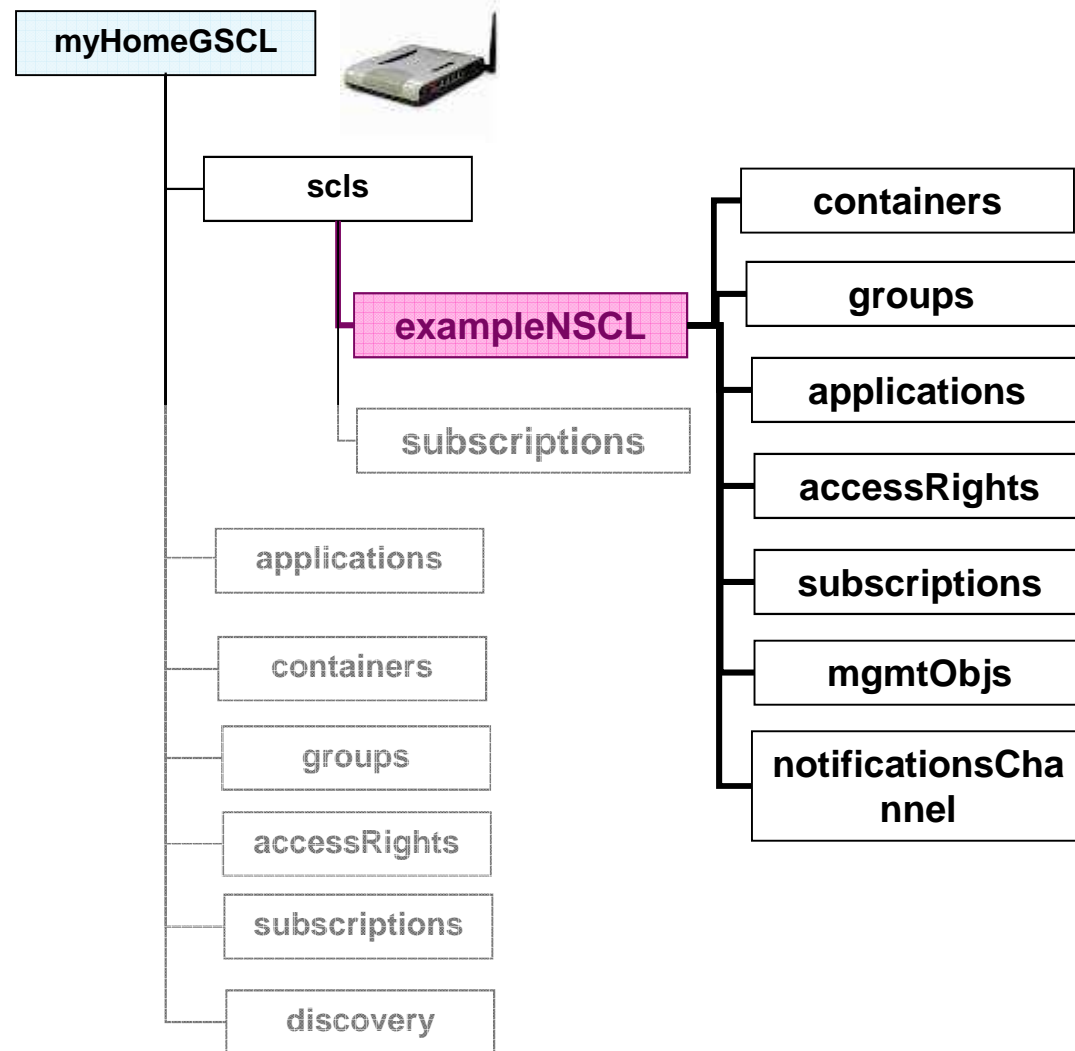
- The gateway (GSCL) registers to the NSCL
 - Name of the NSCL = exampleNSCL
 - Name of the GSCL = myHomeGSCL
- Before registration the GSCL and NSCL are authenticated by means of the M2M Communication procedures



Result of Gateway registration



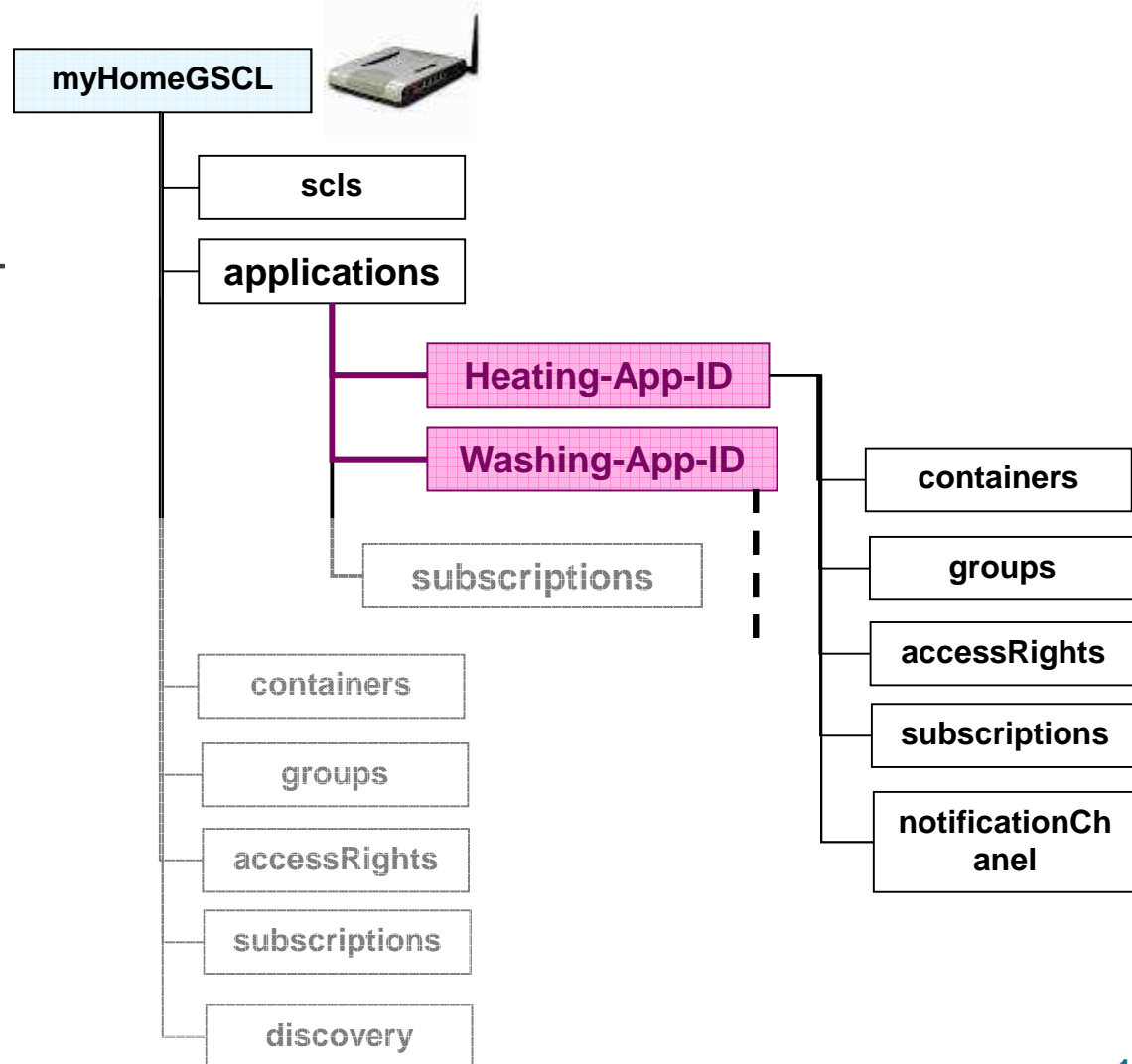
- As a result of the gateway registration a resource representing the NSCL is created in the GSCL.



Device applications registration



- The device Applications register to the GSCL
 - Name of GSCL = myHomeGSCL
 - Device application heating register with the ID = Heating-App-ID
 - Device application washing-mashing register with the ID = Washing-App-ID



What's next ?

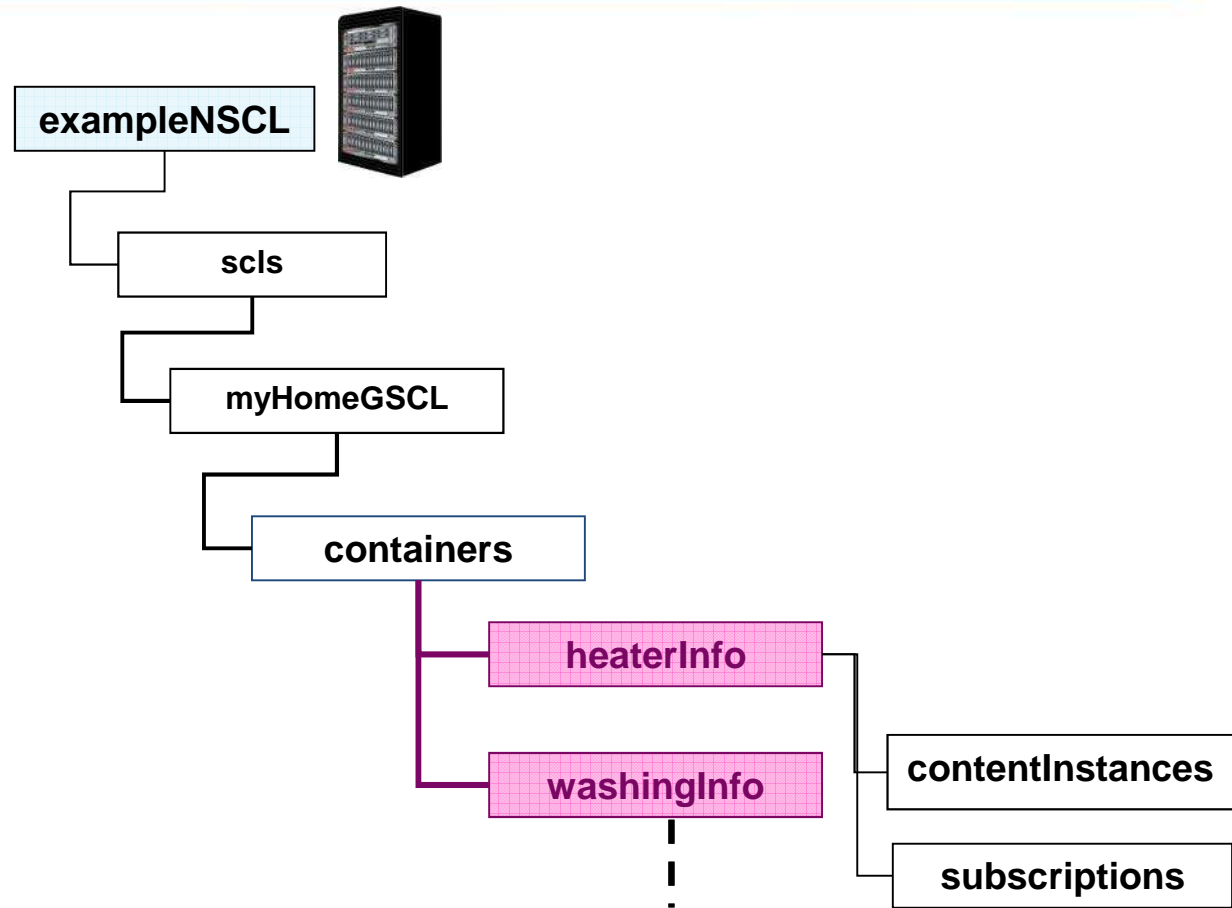


- Appropriate access rights needs to be set up.
 - For example the network application that knows the GSCL and the applications is setting up the accessRights
- information can now be transferred over the mld.

Store information



- The information from the 2 device applications are stored in the containers in the NSCL



Flow of events: add & read data



M2M Device & Gateway Domain

M2M Network Domain

Heating

Heating App

Washing-machine

Washing App

M2M Gateway

myHome GSCL

Example NSCL

SmartHome App

add

add

add

read

Flow of events: subscribe & notify



M2M Device & Gateway Domain



M2M Gateway



M2M Network Domain

Example NSCL



subscribe



SmartHome App



notify

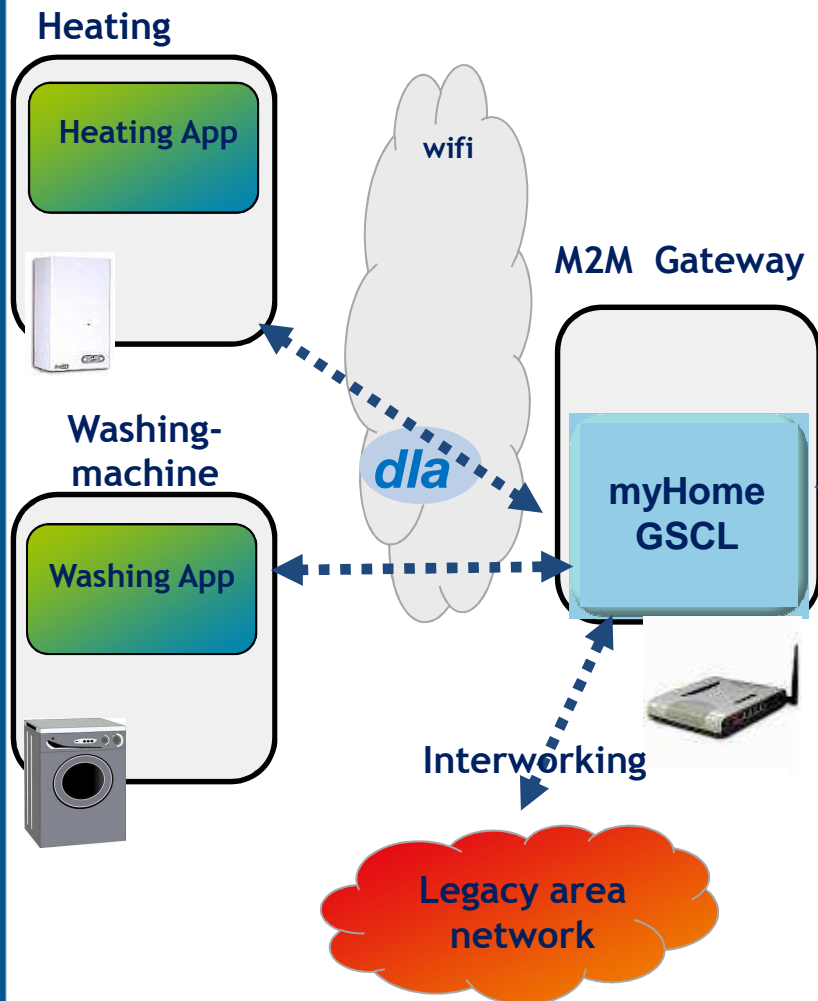


- A new Network Application would like to reuse some of the data produced?
 - For example the device manufacturer that controls the performance and status of the device
 - The utility company that monitors the levels of utilization for each appliances
 -
- All you need to do is to develop the Network Application and
 - Ask the “owner” of the information to give you read permission by updating the access right
 - Retrieve the information and consume it

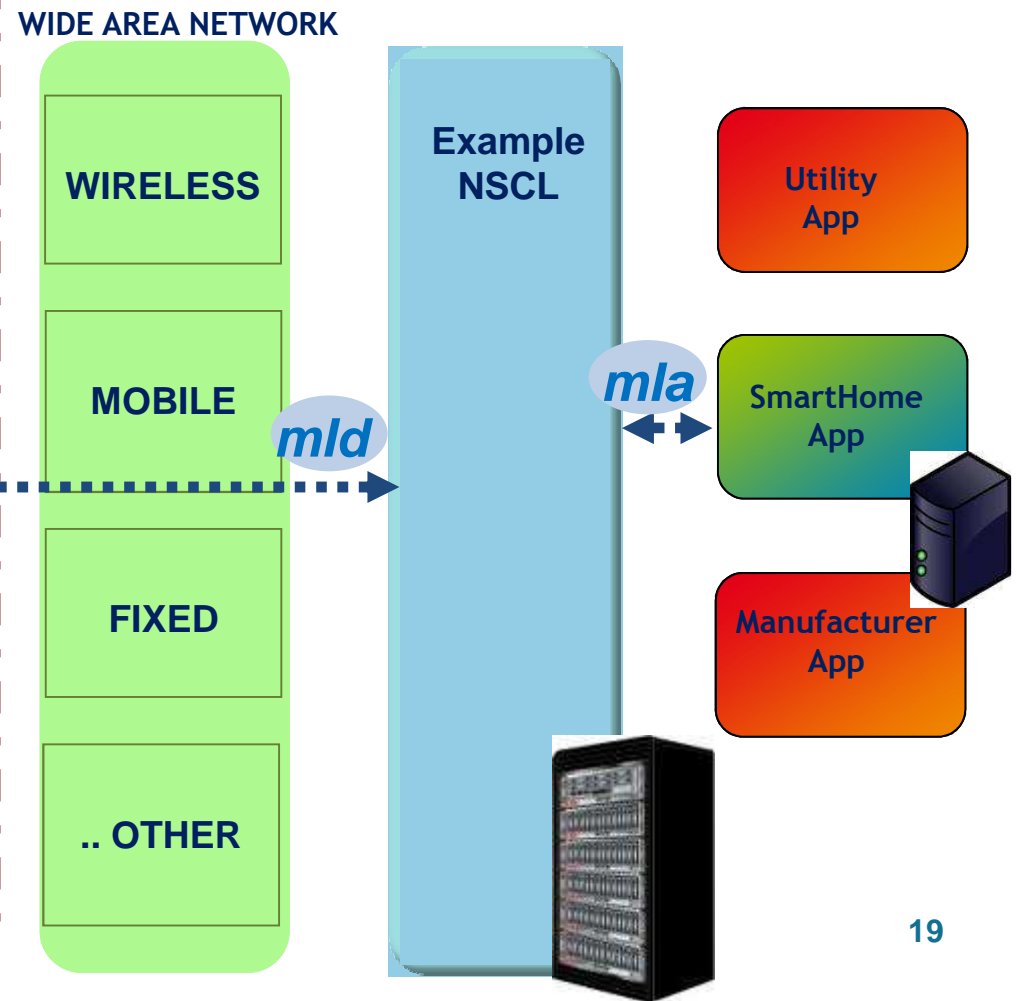
High level deployment



M2M Device & Gateway Domain



M2M Network Domain





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