

**Sierra Wireless is building  
the Internet of Things.**

# Combining LwM2M and OneM2M

A Developer's Perspective

OMA IoT Developer Seminar, Singapore, 26<sup>th</sup> October 2016



# Sierra Wireless Overview

Founded in 1993

1,100 employees worldwide

2015 revenue: \$608 million

#1 IoT module supplier <sup>(1)</sup>

20+ years of innovation



Connected  
Machines

## IoT Hardware



**AirPrime<sup>®</sup>**  
Embedded  
Solutions



**AirLink<sup>®</sup>**  
Gateways  
Solutions


## IoT Connectivity




**SIERRA WIRELESS**



## IoT Platform

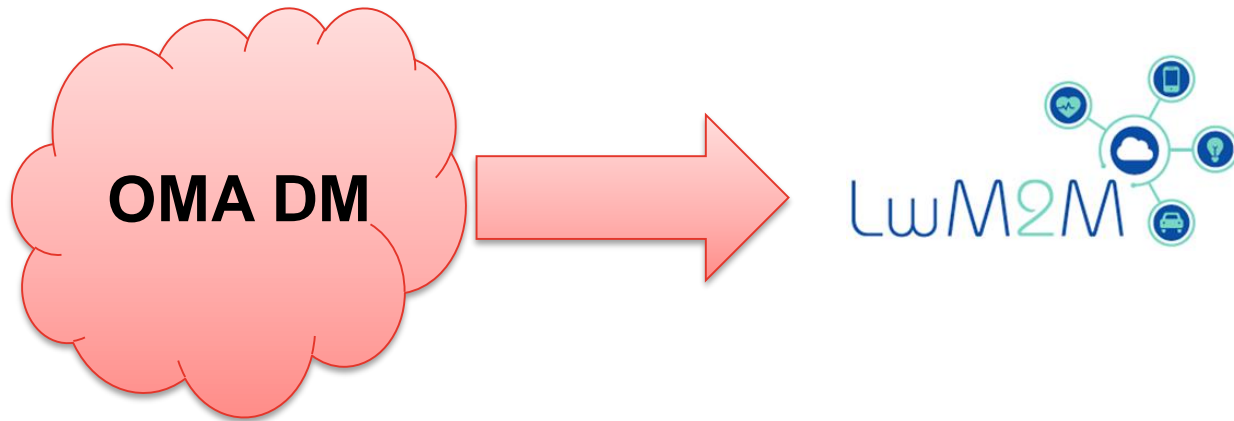


**AirVantage**  
IoT Platform




Enterprise  
Services

# Sierra Wireless and LightweightM2M



# LightweightM2M – Summary

LightweightM2M is originally a **Device Management** technology  
Extended to support generic data exchange



Device



Manager

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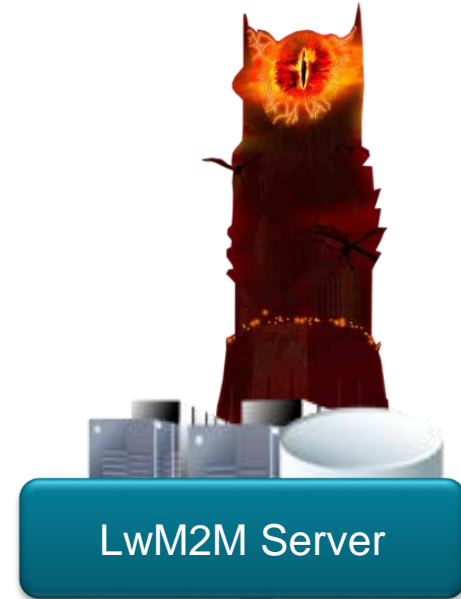
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## 2. Lightweight Data Model



Device



Manager

# OneM2M – Summary

OneM2M is a full, but complex service layer technology



# OneM2M – Summary

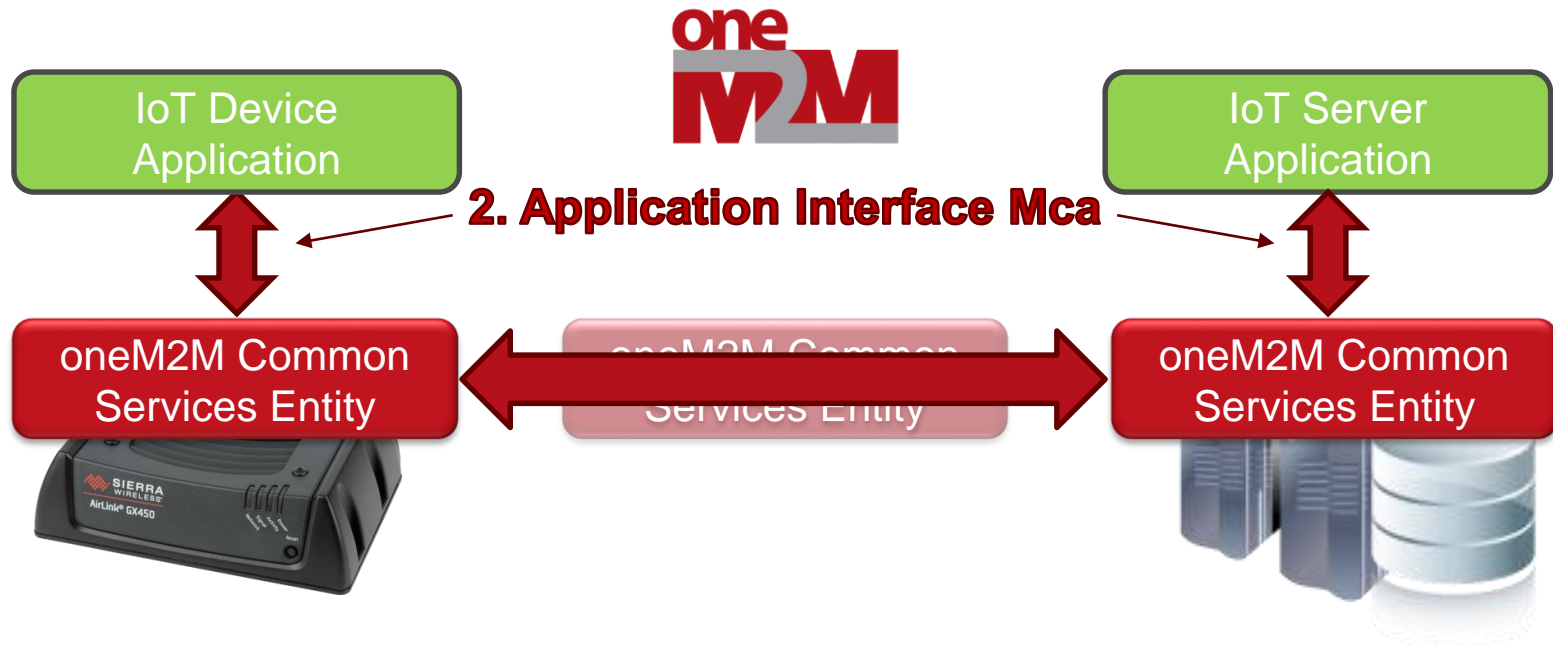
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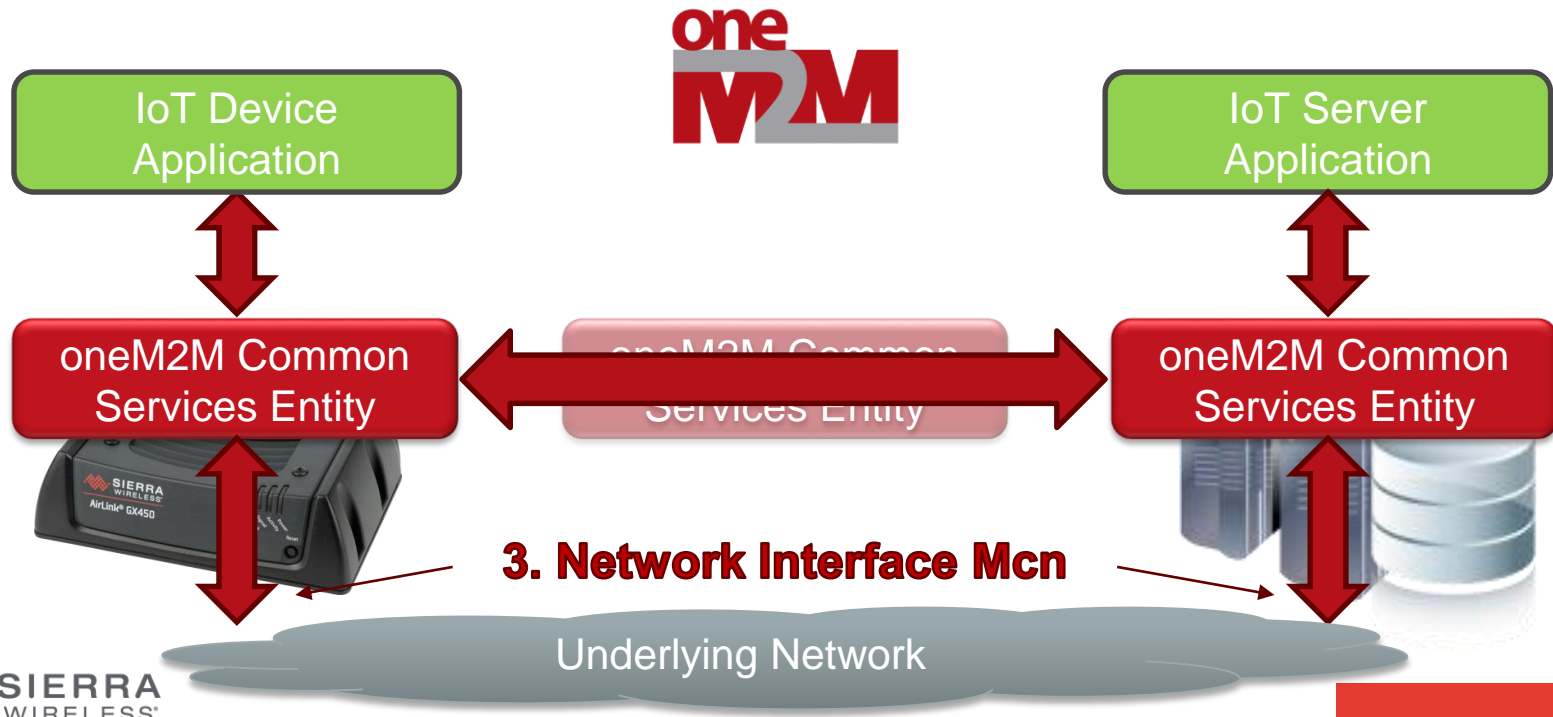
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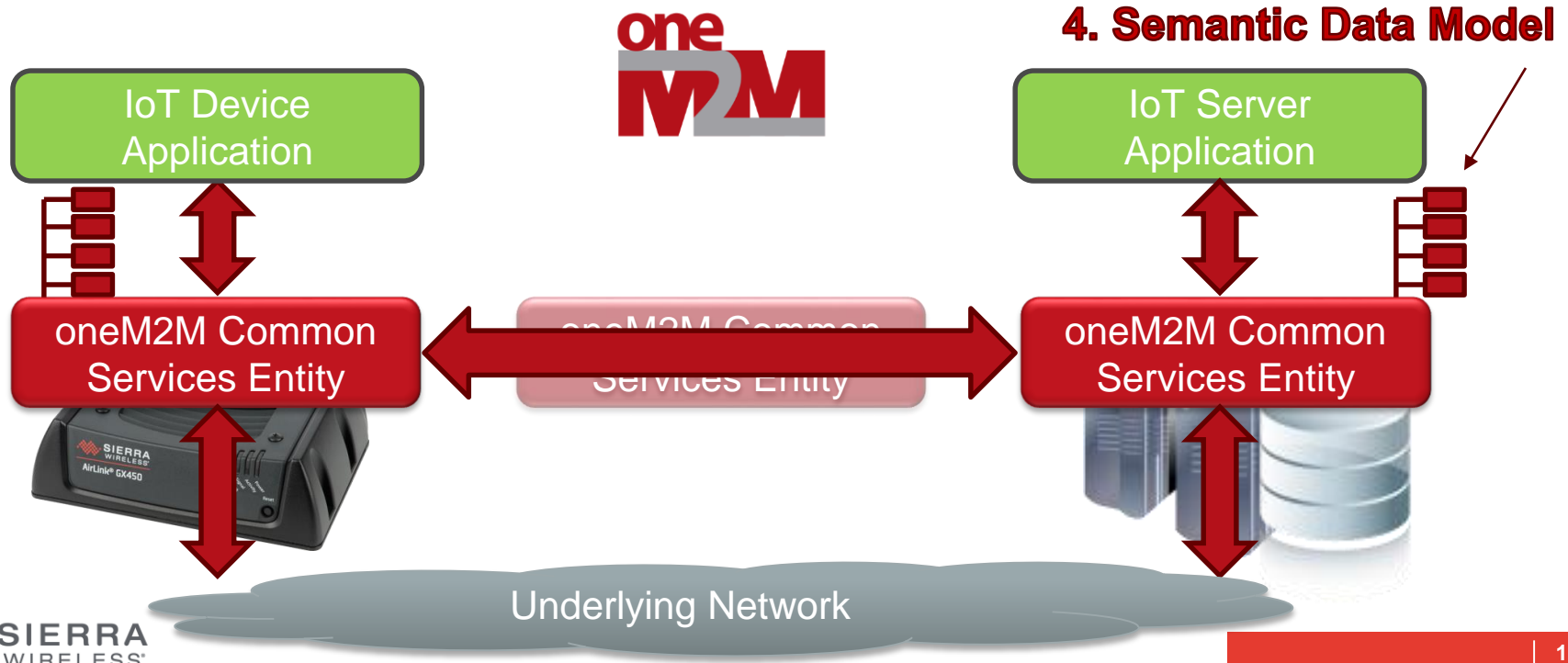
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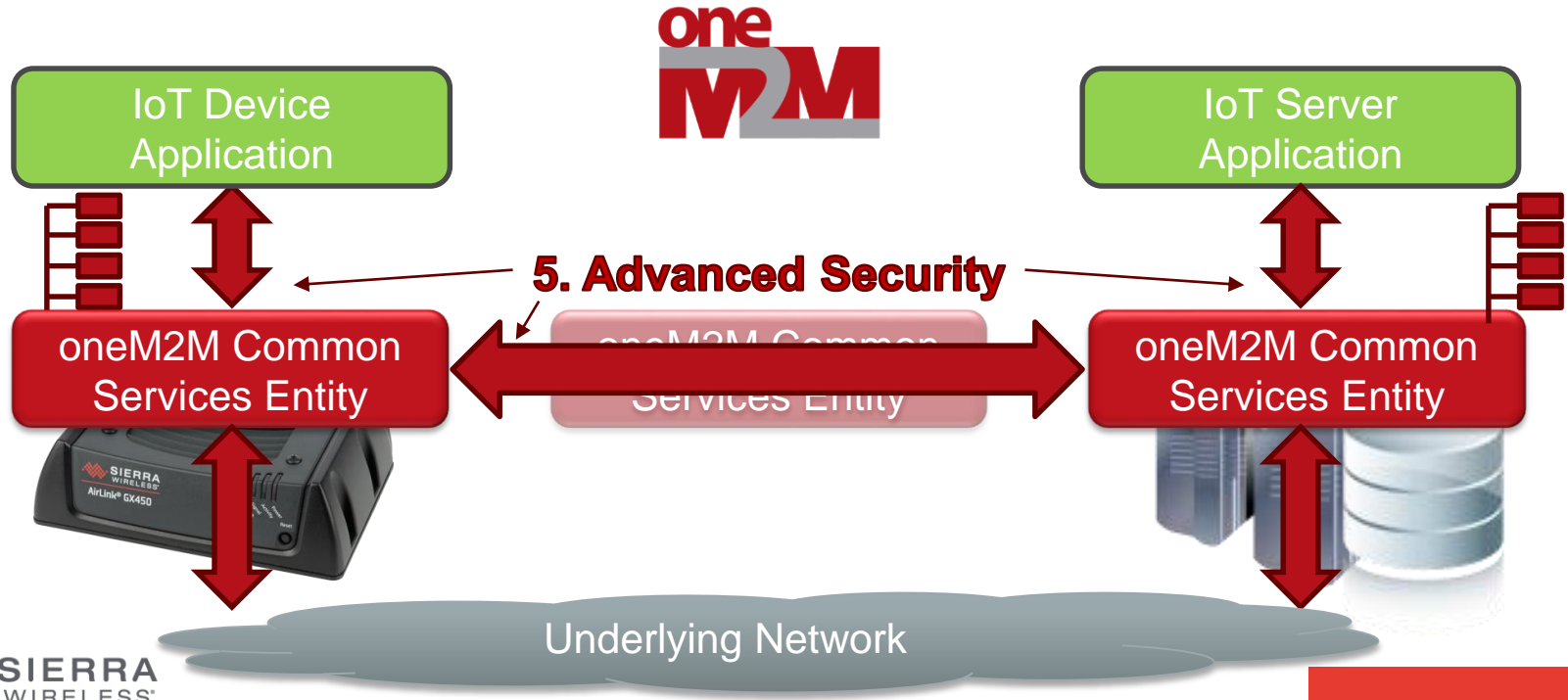
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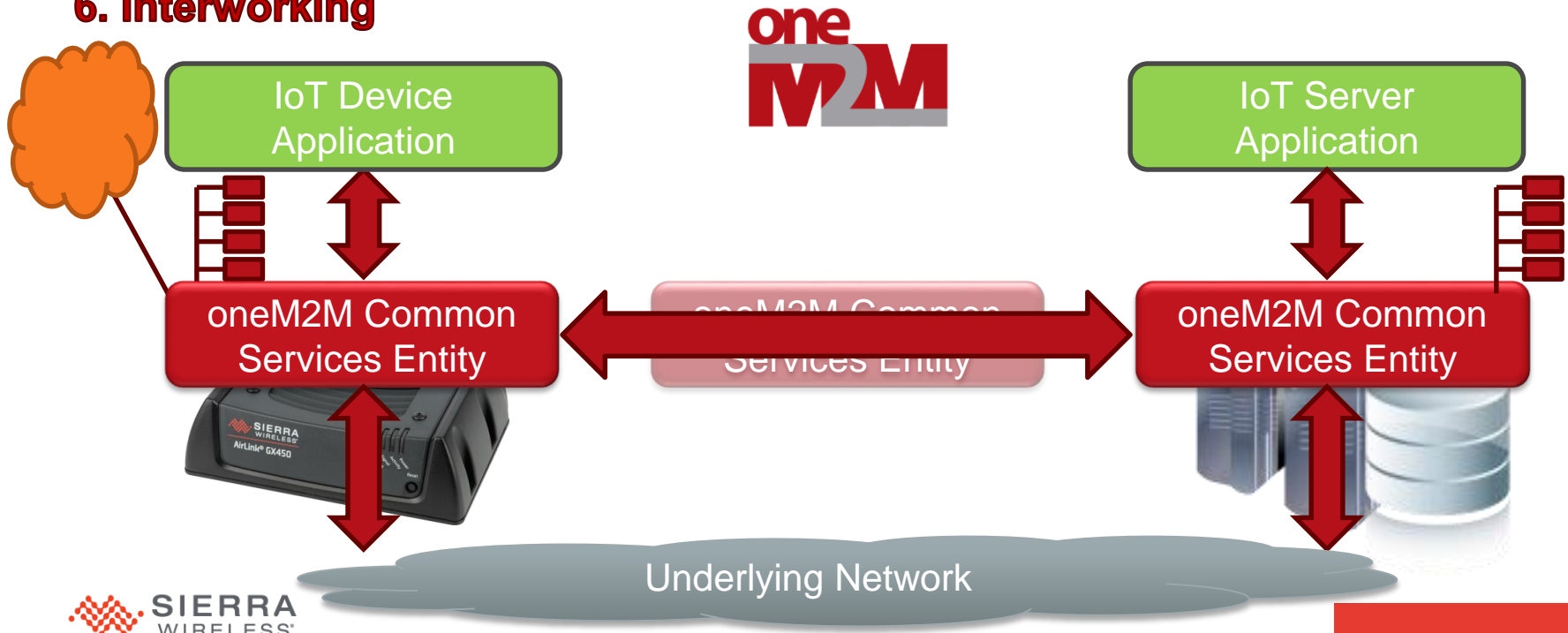
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# OneM2M – Summary

OneM2M is a full, but complex service layer technology

## 6. Interworking



## What do you develop?

### 1. Enabling Technology

Protocol stack (client / server)

Object/Data Manager

### 2. End Applications

Server Applications

Device Applications

# Combining LwM2M and OneM2M

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## LightweightM2M is a good first step for IoT standards

- Enough for most applications
- Data consumer is the same as the data producer (80% of cases)
- No northbound interfaces, ok for integrated devices

# Combining LwM2M and OneM2M

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## OneM2M is a natural extension of LightweightM2M

1. Reuse LightweightM2M and CoAP as device-to-cloud enablers
2. Use the OneM2M Interworking capabilities to integrate LightweightM2M
3. Use OneM2M Mca as the application - northbound interfaces
4. Bring in full data semantics and advanced security



# Reuse LightweightM2M and CoAP



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# Use the OneM2M Interworking capabilities

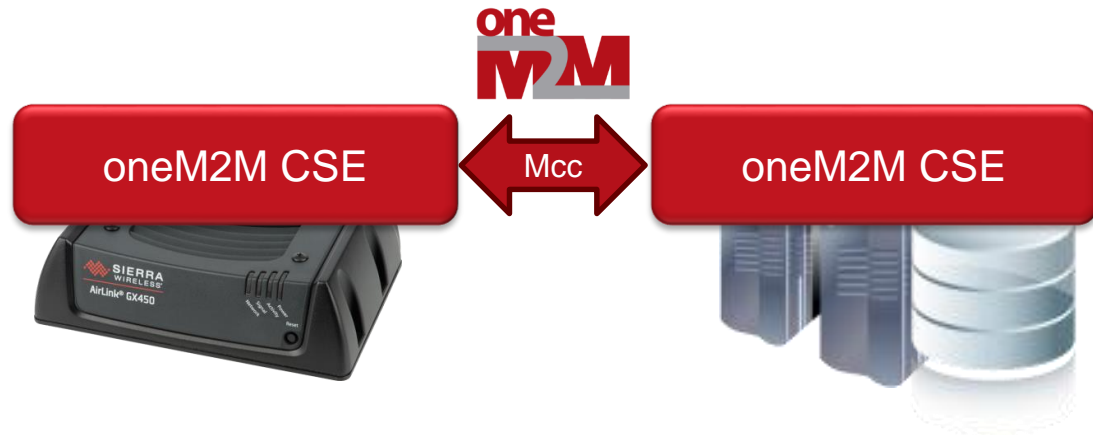
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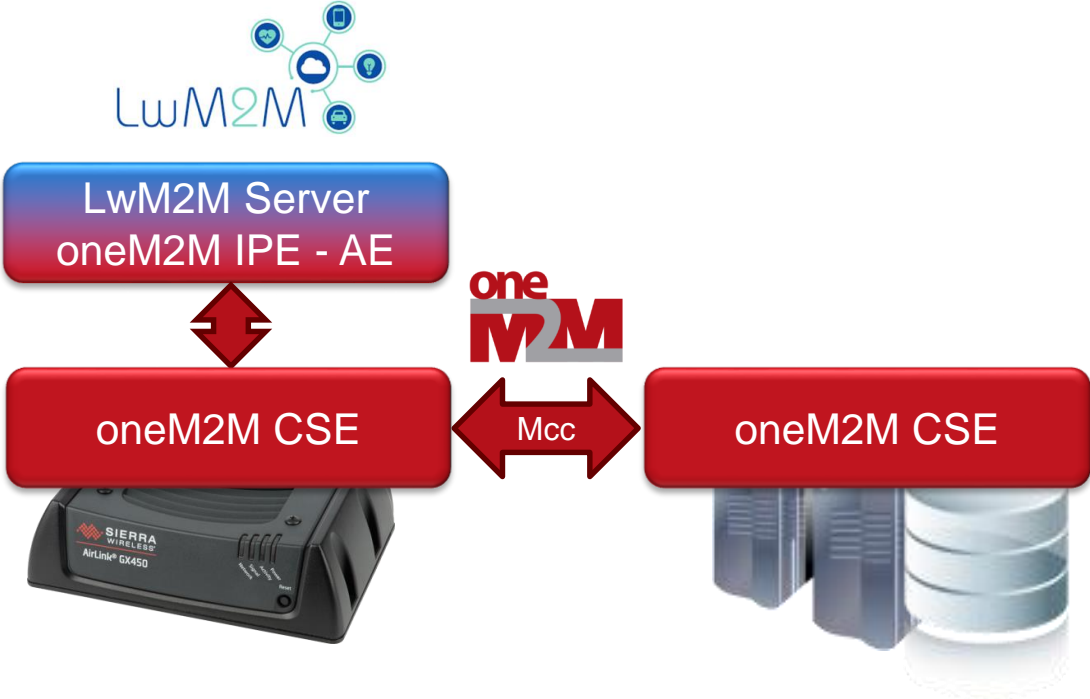
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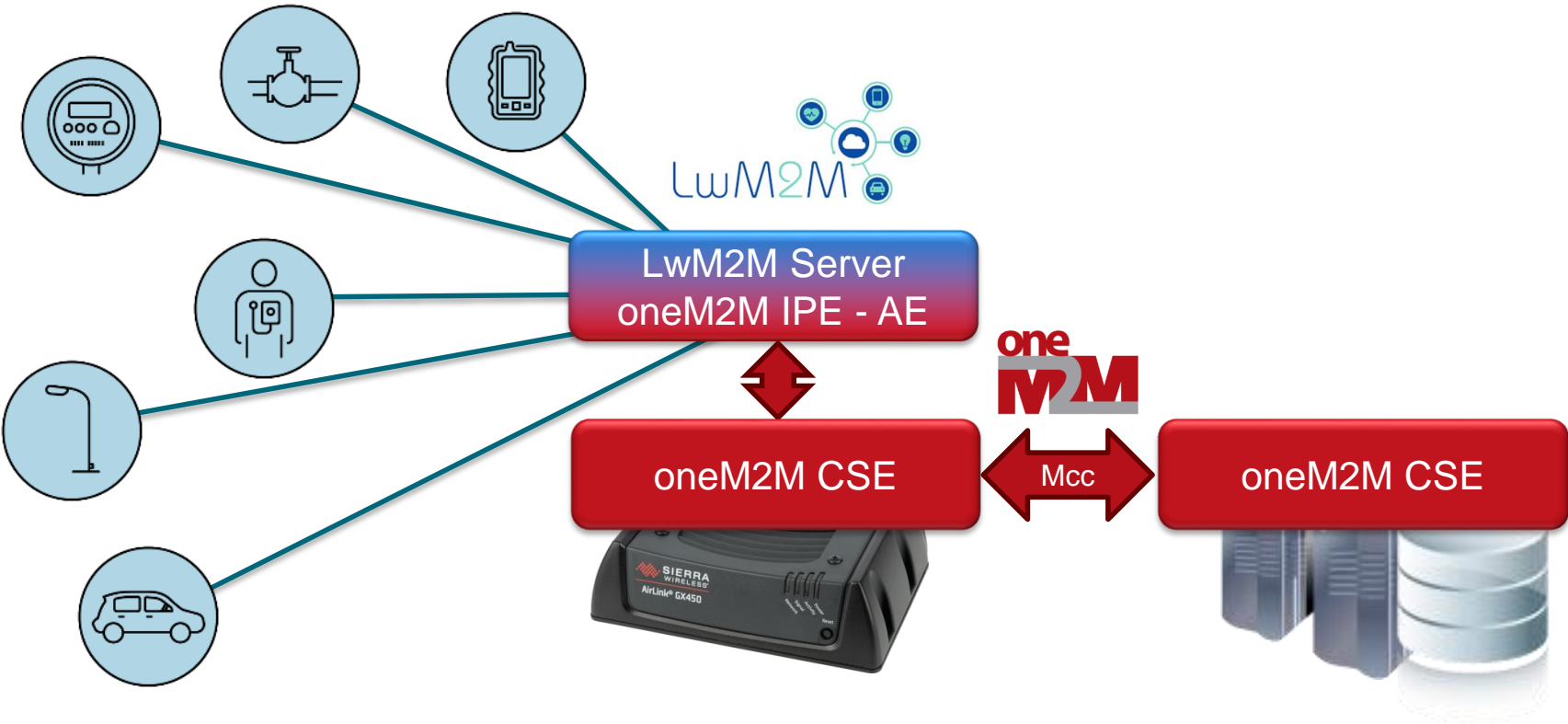
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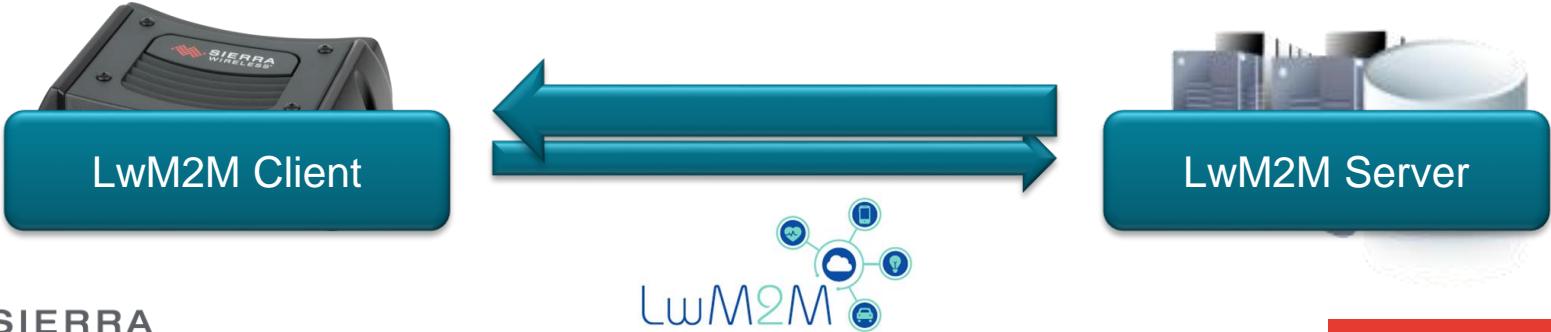




# Use OneM2M Mca as northbound interfaces



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# Bring in full data semantics

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In LwM2M, data semantics is shared out-of-band through object defs.

Example: Odins single phase power meter ([urn:oma:lwm2m:x:10243](#))

« Active Power » is the resource [/10243/0/6/0](#), expressed in kWatts

But there is also the IPSO Object power ([urn:oma:lwm2m:ext:3305](#))

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In oneM2M, each data can be « tagged » using a semantic descriptor:

- Reference to external ontology (ex: DLMS/COSEM model)  
<http://www.dlms.com/COSEMpdu/>
- Reference to actual object definition:  
Example: OBIS ID = 1.1.1.7.0.255 for Active Power, in Watts

# Bring in advanced security

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In OneM2M, advanced security is available:

- Transport layer security (TLS/DTLS)
- Finer access control determined per application/entity, also using roles
- Distributed authentication and authorization model
- Application-level end-to-end encryption is supported
- More to come in release 3 (privacy profiles, ...)



# Thank You



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OneM2M – Chairman of the WG2-Architecture

OMA – Member of the Board of Directors

