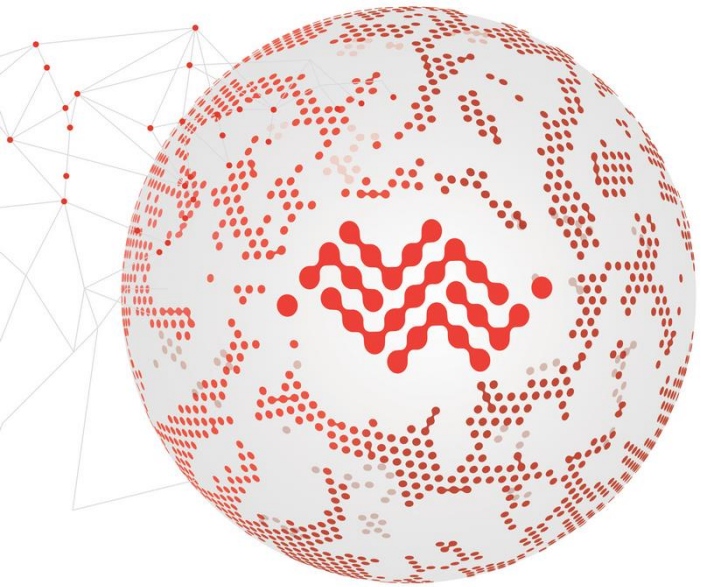


Combining LwM2M and OneM2M

A Developer's Perspective

OMA IoT Developer Seminar, Singapore, 26th October 2016

Sierra Wireless is building the Internet of Things.

oma Open Mobile Alliance

SIERRA WIRELESS®

Sierra Wireless Overview

- Founded in 1993
- 1,100 employees worldwide
- 2015 revenue: $608 million
- #1 IoT module supplier (1)
- 20+ years of innovation

Connected Machines

IoT Hardware

AirPrime Embedded Solutions

AirLink Gateways Solutions

IoT Connectivity

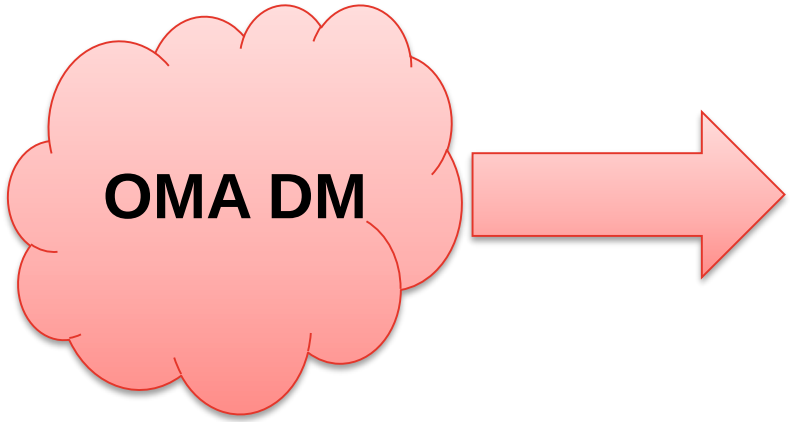
IoT Platform

Enterprise Services

SIERRA WIRELESS

(1) 35% Global M2M module market share (source: ABI Research – June 2015)

Sierra Wireless and LightweightM2M



eclipse
LESHAN
iot
eclipse.org
eclipse
Wakaama

LightweightM2M – Summary

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

Device

Manager

LightweightM2M – Summary

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

LwM2M Client

Device

1. Lightweight Protocol

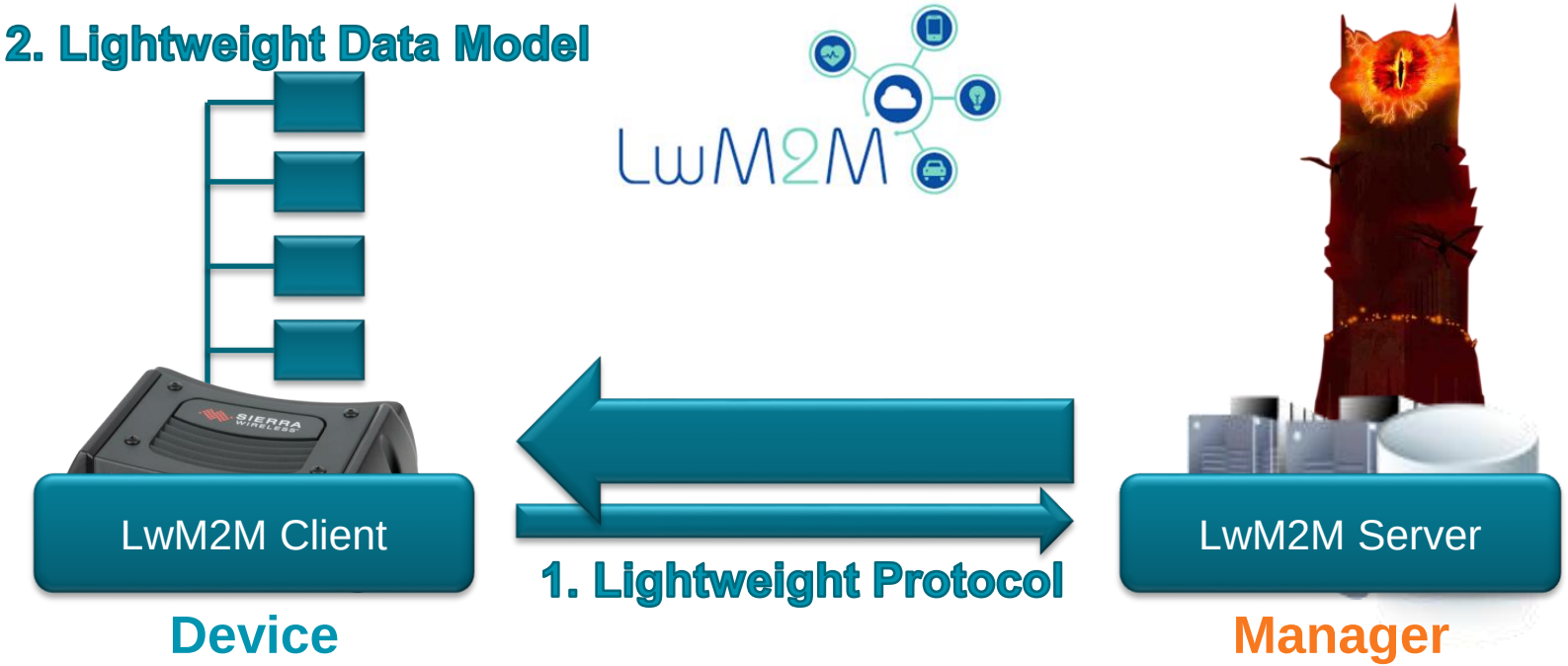
LwM2M Server

Manager

SIERRA WIRELESS

LightweightM2M – Summary

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



OneM2M – Summary

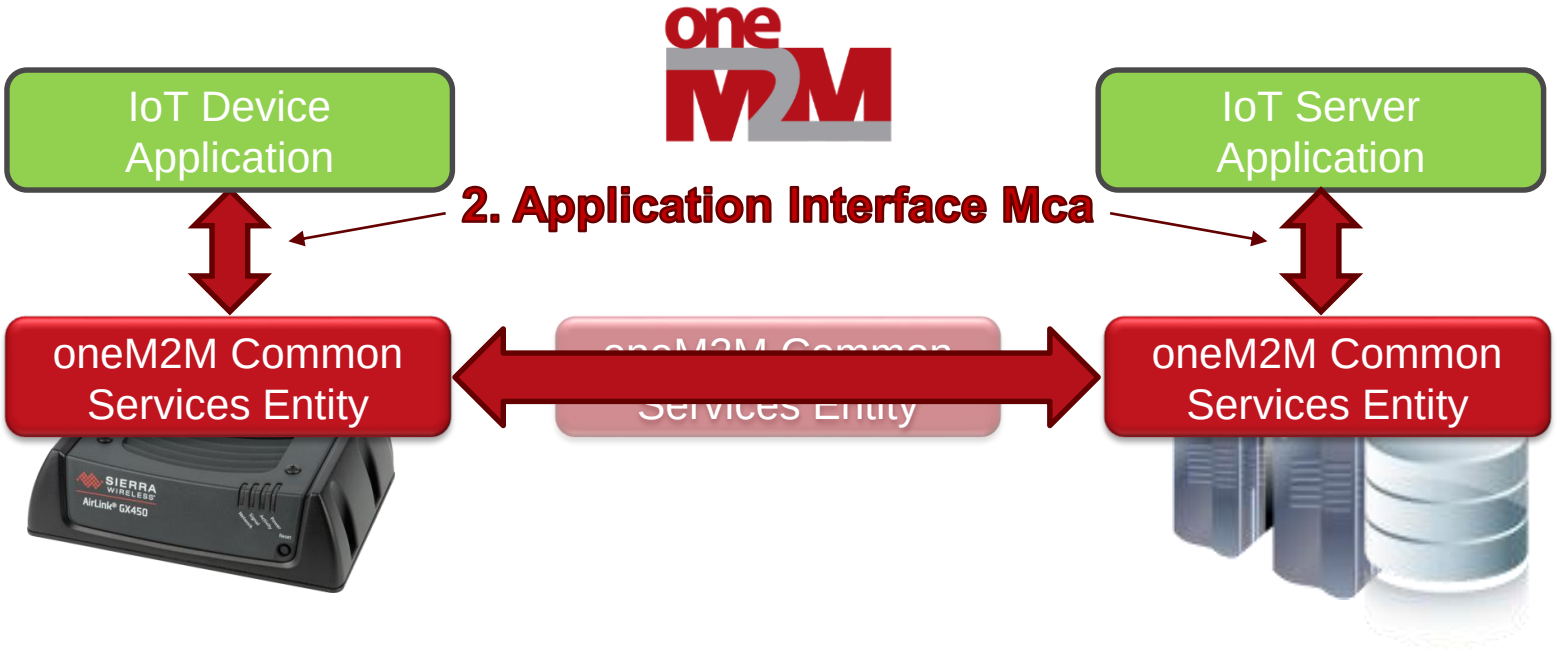
OneM2M is a full, but complex service layer technology

OneM2M – Summary

OneM2M is a full, but complex service layer technology

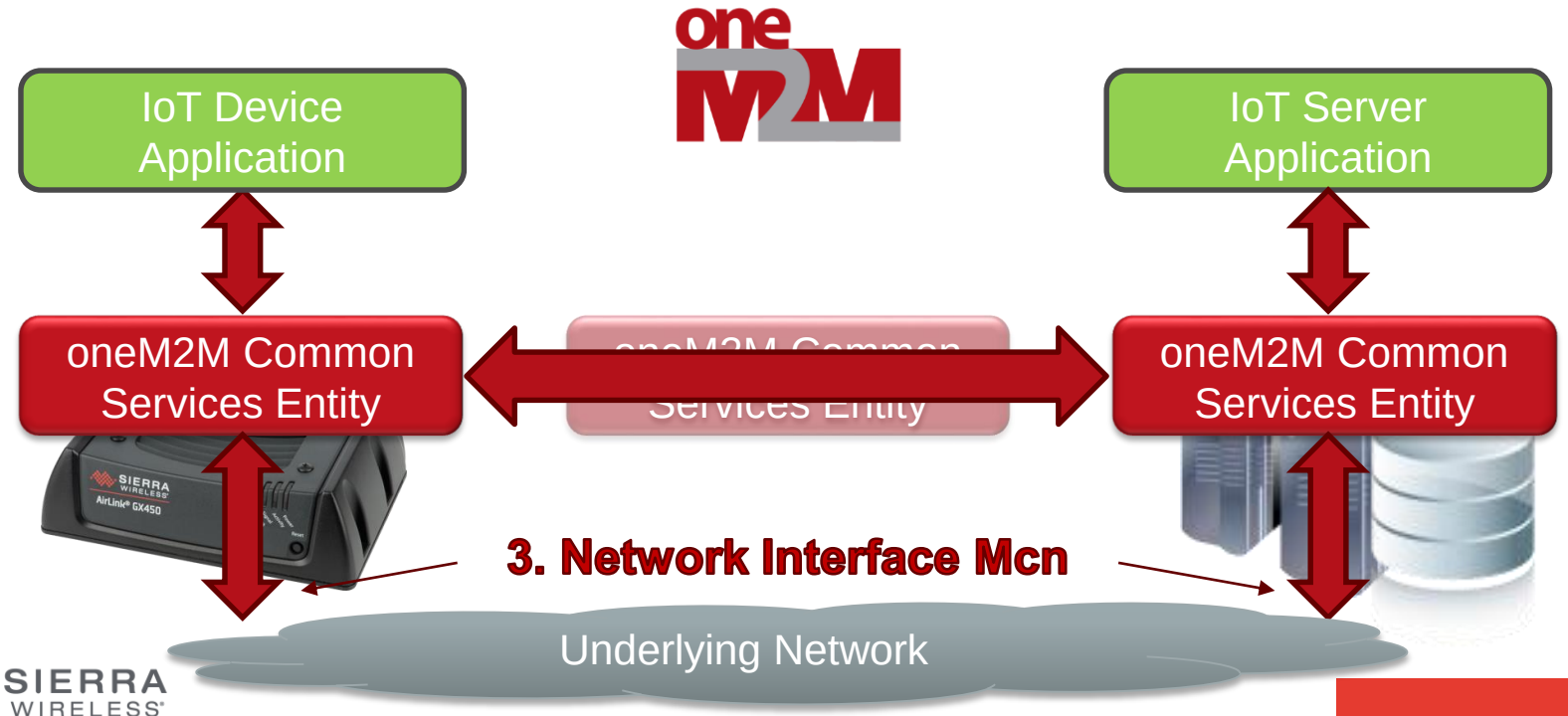
OneM2M – Summary

OneM2M is a full, but complex service layer technology



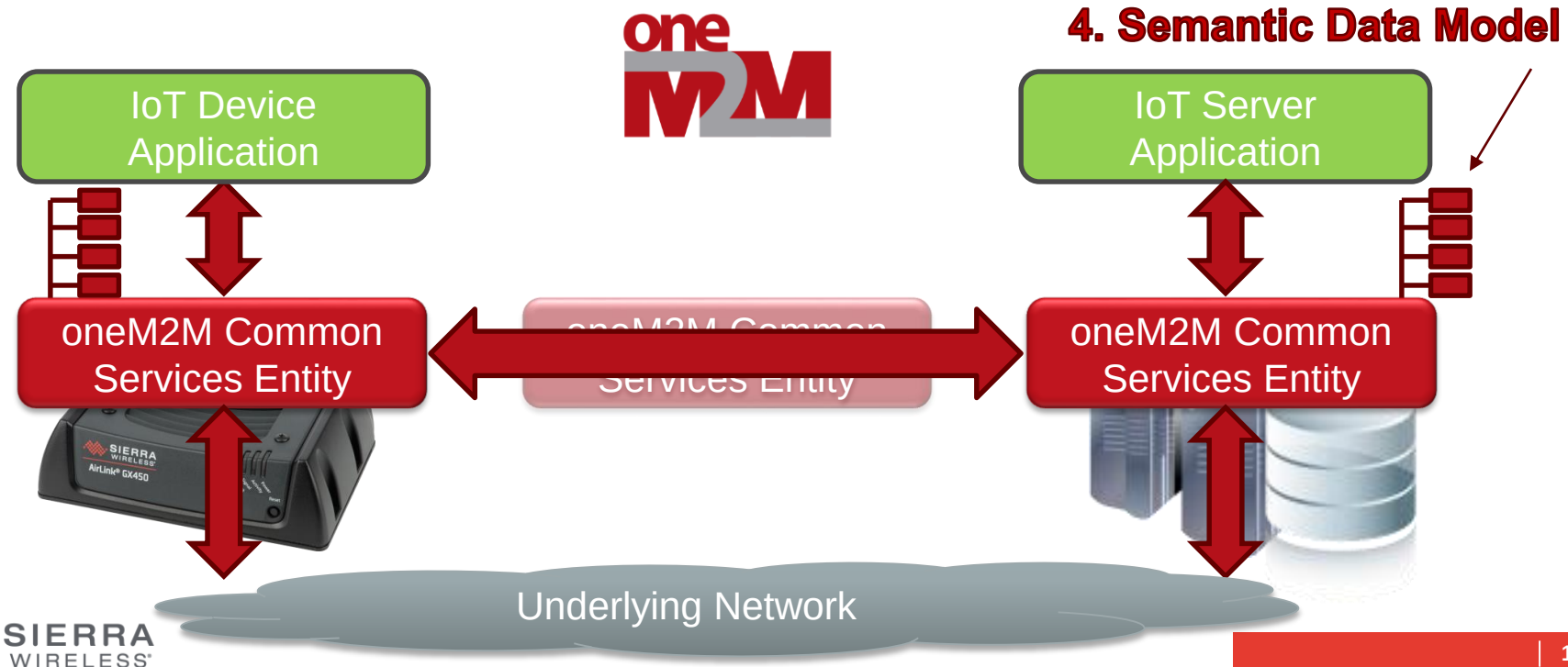
OneM2M – Summary

OneM2M is a full, but complex service layer technology



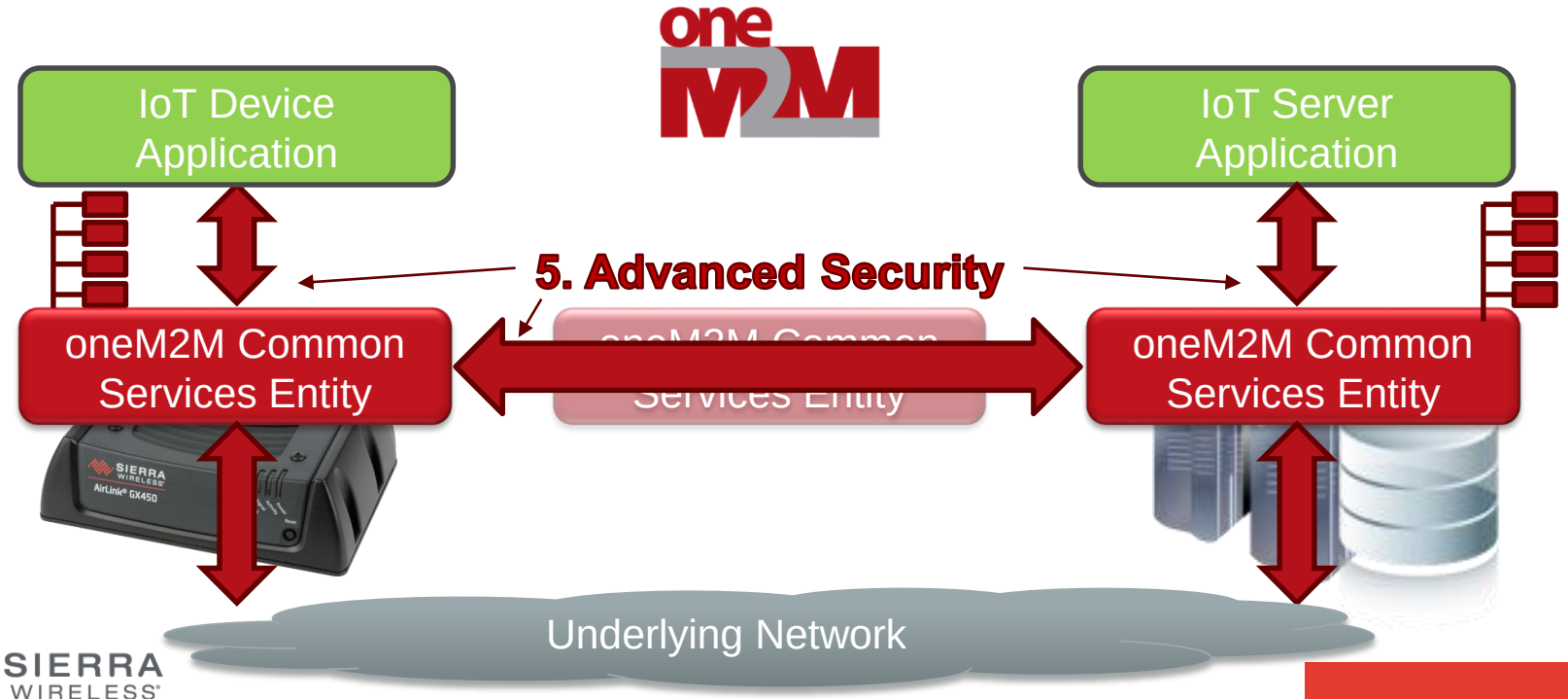
OneM2M – Summary

OneM2M is a full, but complex service layer technology



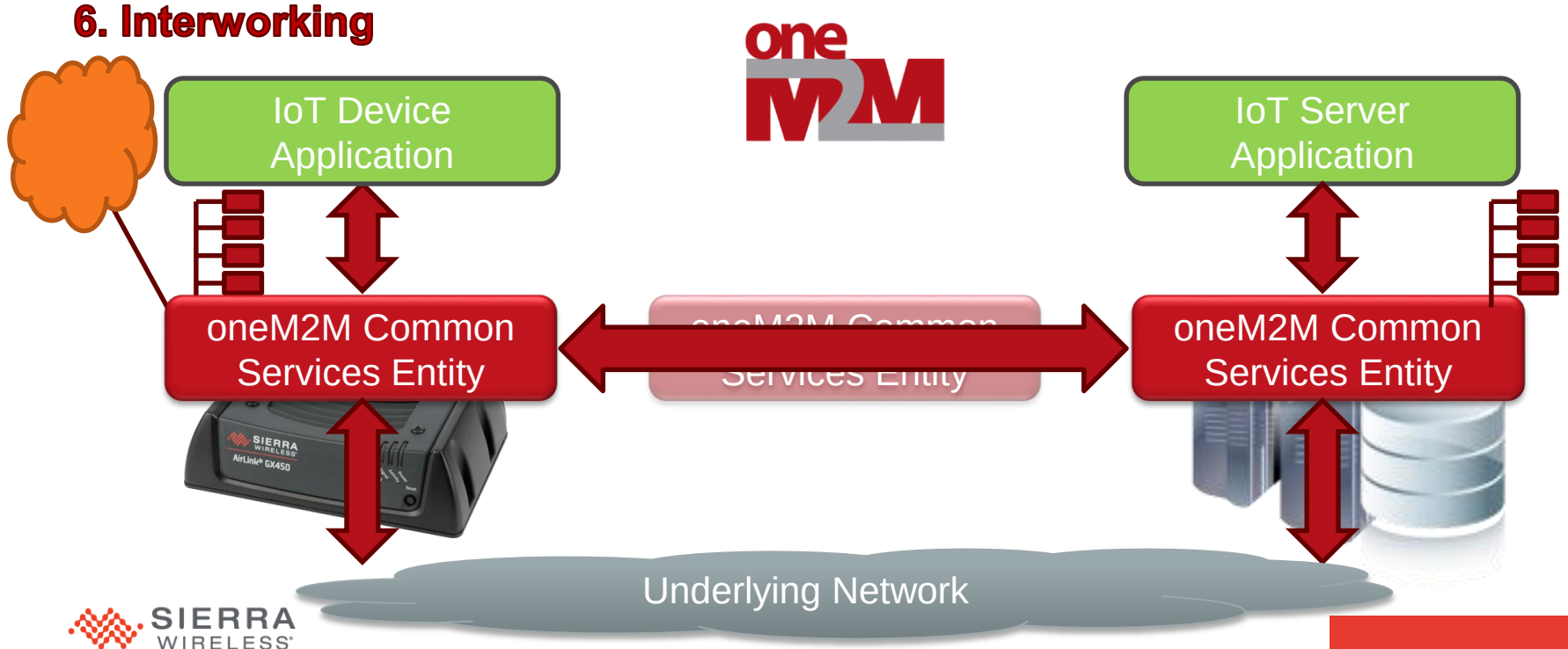
OneM2M – Summary

OneM2M is a full, but complex service layer technology



OneM2M – Summary

OneM2M is a full, but complex service layer technology



Developer's Perspective

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

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

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

OneM2M is a natural extension of LightweightM2M

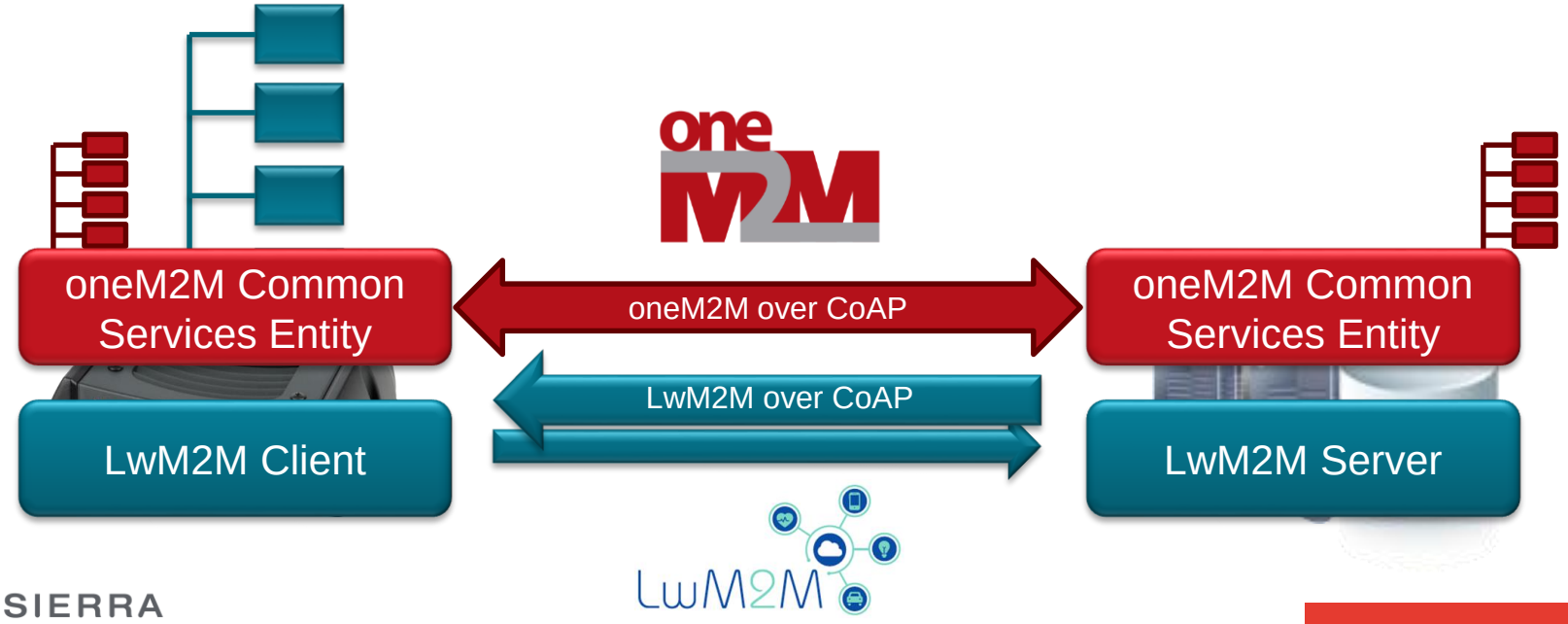
1. Reuse LightweightM2M and CoAP as device-to-cloud enablers
2. Use the OneM2M Interworking capabilities to integrate LightweightM2M
3. Use OneM2M Mca as the application - northbound interfaces
4. Bring in full data semantics and advanced security

Reuse LightweightM2M and CoAP

SIERRA WIRELESS®

Reuse LightweightM2M and CoAP

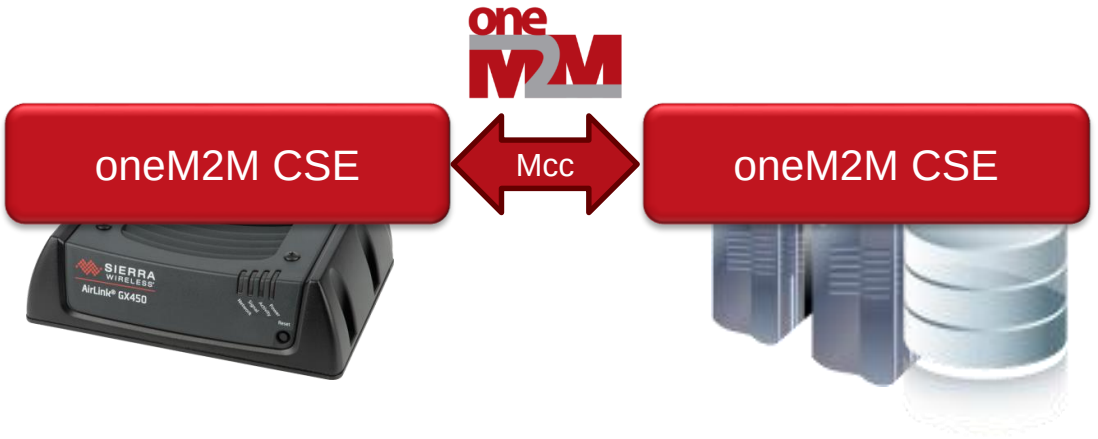
Reuse LightweightM2M and CoAP



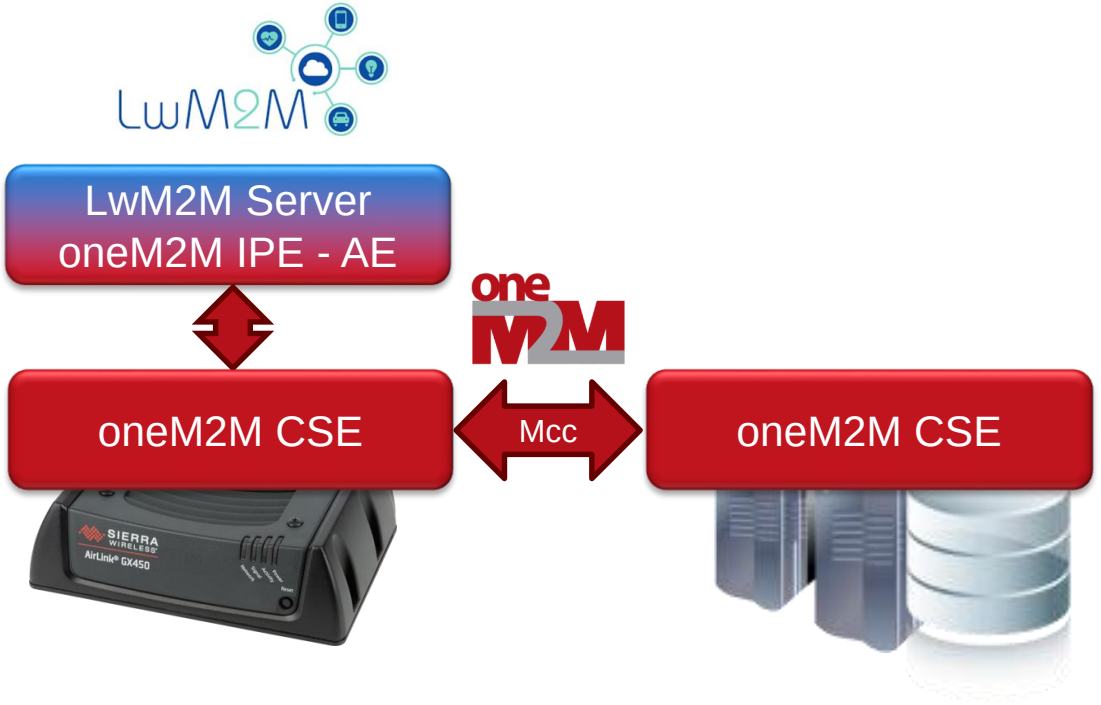
Use the OneM2M Interworking capabilities

Use the OneM2M Interworking capabilities

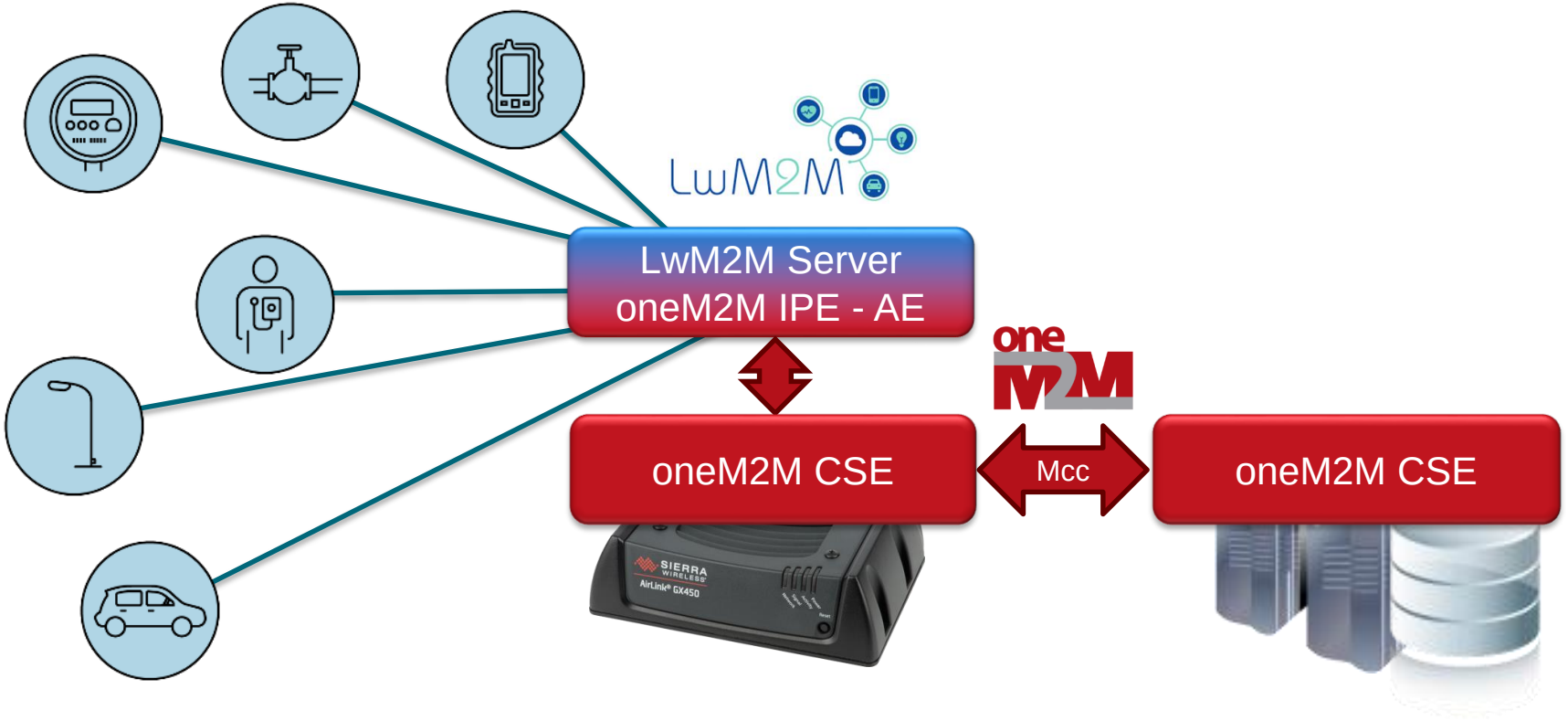
Use the OneM2M Interworking capabilities



Use the OneM2M Interworking capabilities



Use the OneM2M Interworking capabilities



Use OneM2M Mca as northbound interfaces

Use OneM2M Mca as northbound interfaces

Use OneM2M Mca as northbound interfaces

Use OneM2M Mca as northbound interfaces

Bring in full data semantics

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)
« Active Power » there is /3305/0/5800/0, expressed in Watts

Bring in full data semantics

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)
« Active Power » there is /3305/0/5800/0, expressed in Watts

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

In LwM2M, security is provided by:

- Transport layer security (DTLS)
- Access control on objects determined per LwM2M Server

Bring in advanced security

In LwM2M, security is provided by:

- Transport layer security (DTLS)
- Access control on objects determined per LwM2M Server

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

Nicolas Damour – ndamour@sierrawireless.com
Sierra Wireless - Senior Manager, Business and Innovation
OneM2M – Chairman of the WG2-Architecture
OMA – Member of the Board of Directors