



M2M Activation, Provisioning and Device Management

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Devices, devices everywhere...

By 2020: **50 billion** connected IP devices
Cisco Visual Networking Index, 2011

By 2014: Managed mobile M2M services market
will be **\$20B**
ABI Research, 2010

By 2015: M2M traffic will grow by **258%.**
Cisco Visual Networking Index, 2011

The number of M2M device connections is set to
grow at a CAGR of up to 50% worldwide in some
sectors during the next ten years.
Analysys Mason, 31 May 2012

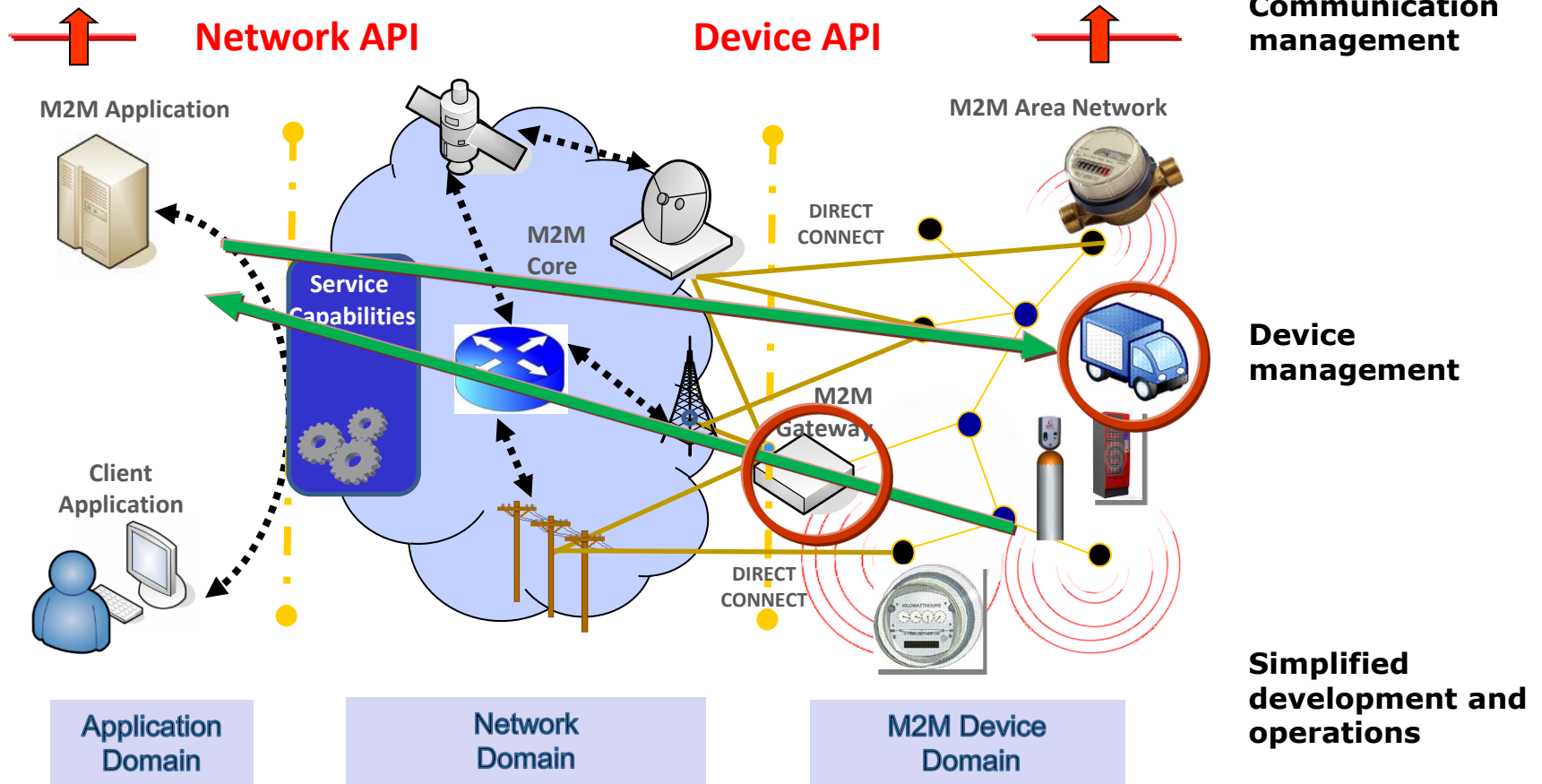
The wireless industry could see a \$1.2 trillion
revenue opportunity out of the connected devices
market by 2020.

[M2M MAGAZINE](#) | October 21, 2012



Simplified M2M Architecture

The main functionalities in a M2M architecture:



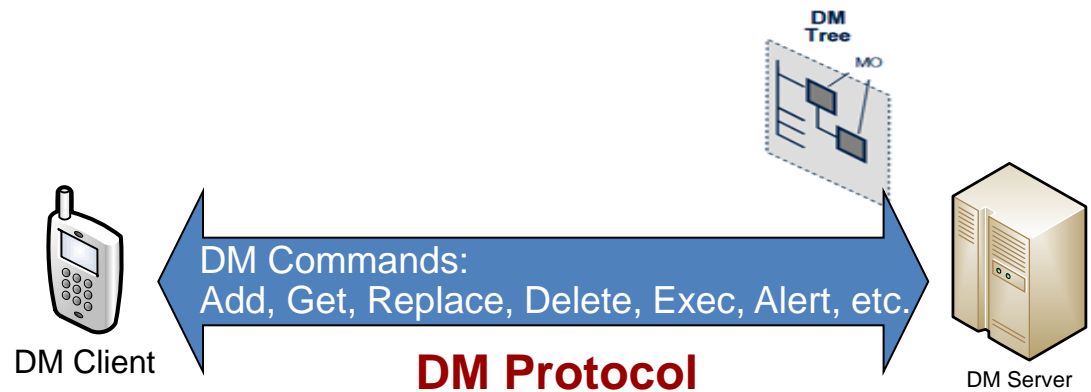
OMA – Mission and Background

- The mission of the Open Mobile Alliance is to facilitate global user adoption of mobile data services by specifying market driven mobile service enablers that ensure service interoperability across devices, geographies, service providers, operators, and networks while allowing businesses to compete through innovation and differentiation.
 - Founded in June 2002
 - Telecommunications Operators, Telecommunications Equipment, Terminal and Software vendors, Content providers and ICT companies with members evenly represented from Europe, Asia, and the Americas
- OMA has developed, and is developing, several enablers that will fit in M2M scenarios in different ways, covering some of the features needed for M2M applications

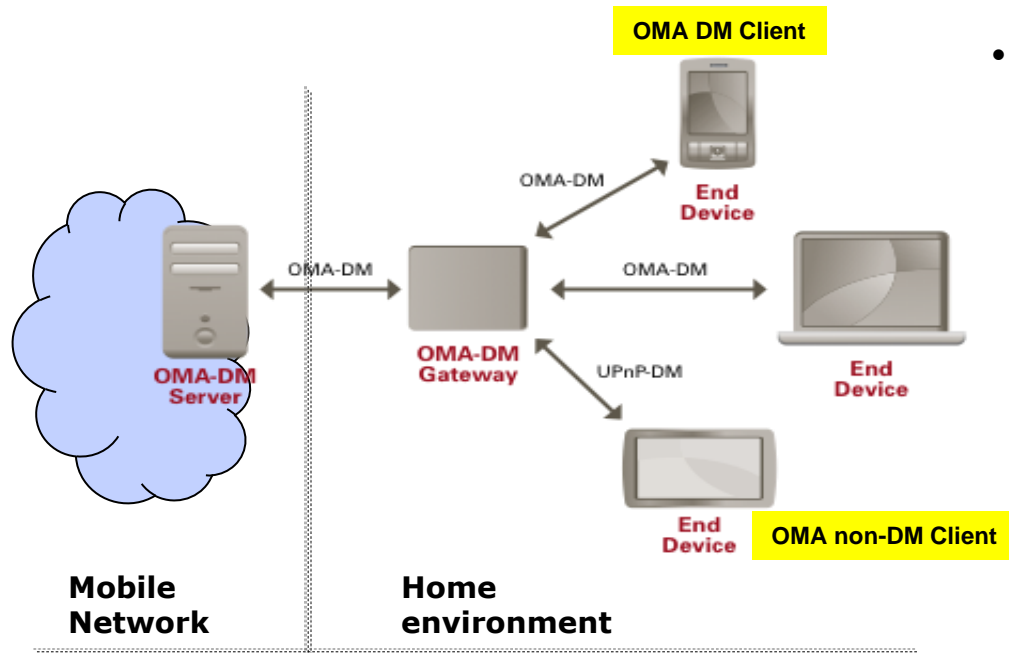


OMA Device Management

- OMA DM is a framework that enables device customization and services configuration in a remote fashion
- The Device Management protocol allows to interrogate and obtain data information from a smartphone
 - The information contained in the Device is exposed to the Server via a logical interface, the Management Object (MO).
- MO is a XML based structure that accepts commands which in turn trigger certain behaviors in the handset, e.g.
 - Schedule and automate device management tasks
 - Configure connectivity
 - Update firmware
 - Diagnose problems
 - Monitor performance
 - Install and update software
 - Lock and wipe personal data
 - Manage device capabilities



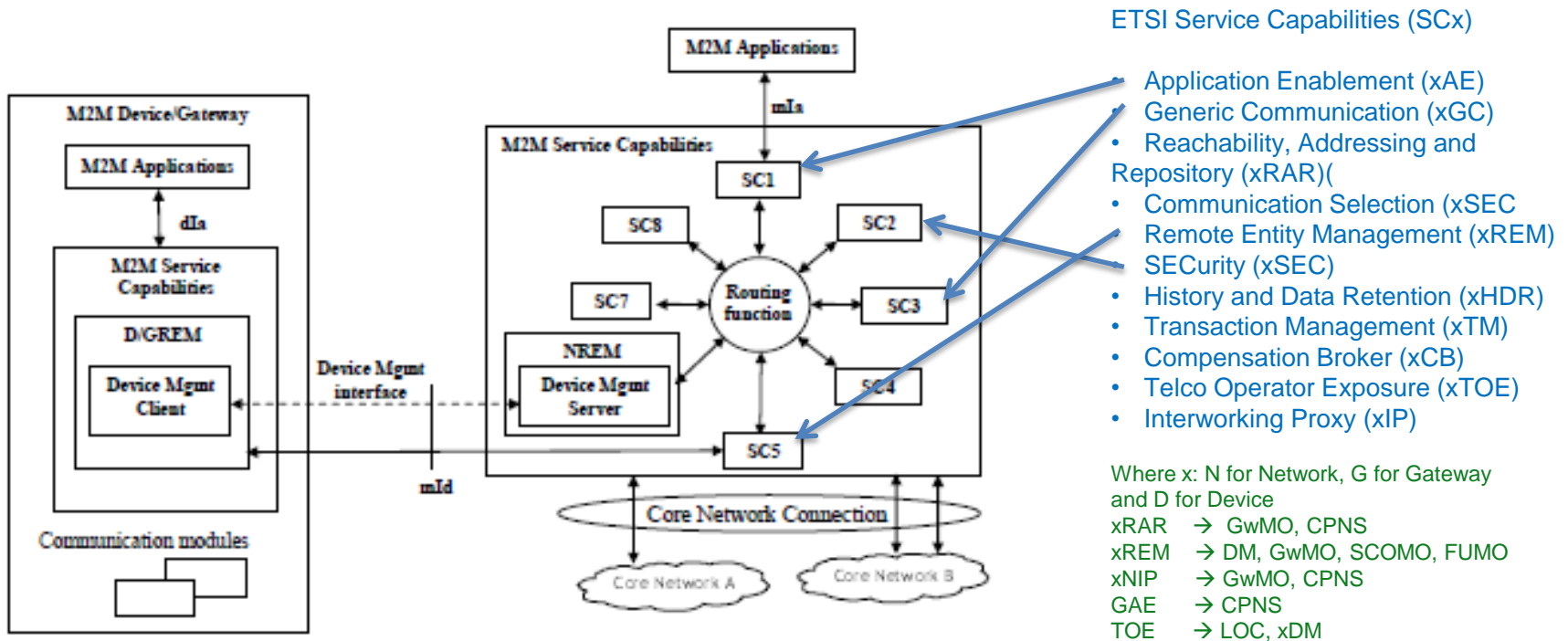
OMA DM Gateway Management Object (GwMO)



- Facilitates interaction between a management server and a management client when:
 - Direct and unaided interaction between server and client is not possible
 - Device does not have a publicly routable address
 - Device may be sitting behind a firewall
 - Device supports a management protocol other than OMA-DM

- OMA DM GwMO allows M2M Devices to be integrated into Mobile Operators' Networks and Platforms, even if those Devices aren't natively able to do so.
- OMA-DM M2M Gateway plays the essential role of adapting virtually any M2M Device to Mobile Network standards, especially OMA-DM, enabling Operators to offer remote management services and build no more fragmented architectures to handle the billions of devices expected in the very next years.

OMA DM already in M2M specifications



ETSI TC M2M reuses OMA DM (and BBF TR069) for managing M2M Devices.
Release-1 includes 'TS 101 404 OMA DM compatible Management Objects'



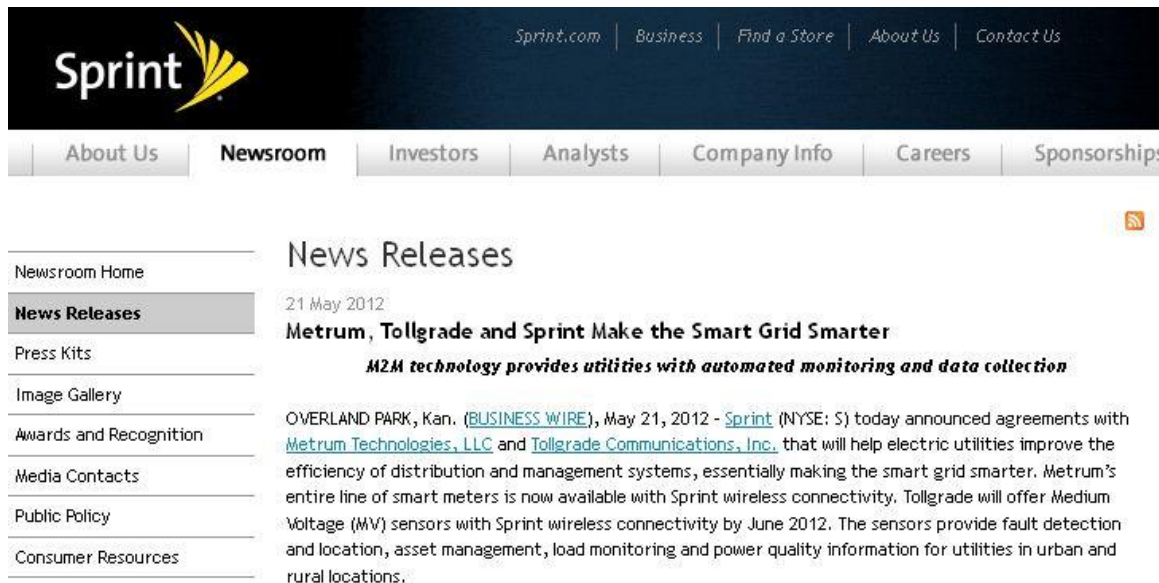
Commercial DM Deployment on a Global Scale

- OMA has achieved commercial deployment of 1.4 Billion devices implementing the Firmware Update Management Object enabler (February 2012)



OMA DM used in M2M applications

Press release, May 21st 2012 – Sprint, Metrum, Tollgrade
Make Smart Grid Smarter
Enabling smart meters with wireless connectivity
Both Metrum and Tollgrade have completed
OMA Device Management certification



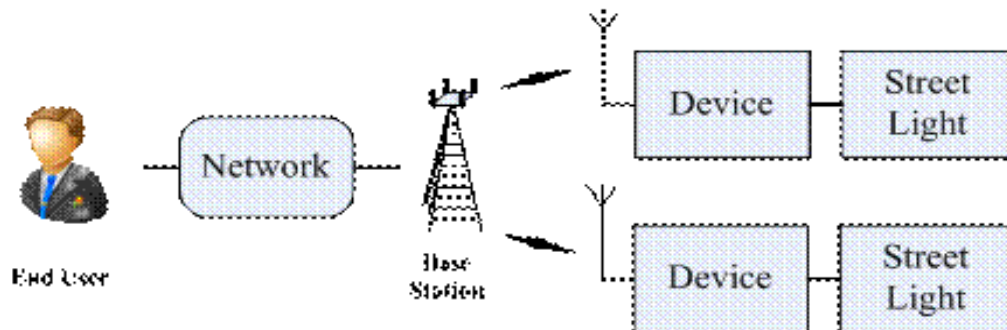
The screenshot shows the Sprint Newsroom website. The top navigation bar includes links for Sprint, Business, Find a Store, About Us, and Contact Us. Below this is a secondary navigation bar with links for About Us, Newsroom, Investors, Analysts, Company Info, Careers, and Sponsorships. The main content area features a "News Releases" section with a sub-header "21 May 2012" and a title "Metrum, Tollgrade and Sprint Make the Smart Grid Smarter". The sub-header reads "M2M technology provides utilities with automated monitoring and data collection". The main text of the release states: "OVERLAND PARK, Kan. (BUSINESS WIRE), May 21, 2012 - Sprint (NYSE: S) today announced agreements with Metrum Technologies, LLC and Tollgrade Communications, Inc. that will help electric utilities improve the efficiency of distribution and management systems, essentially making the smart grid smarter. Metrum's entire line of smart meters is now available with Sprint wireless connectivity. Tollgrade will offer Medium Voltage (MV) sensors with Sprint wireless connectivity by June 2012. The sensors provide fault detection and location, asset management, load monitoring and power quality information for utilities in urban and rural locations."

**“Over the Air”
Management
and configuration
of devices
and efficient use of network
resources.
Suitable for
large-scale deployments**



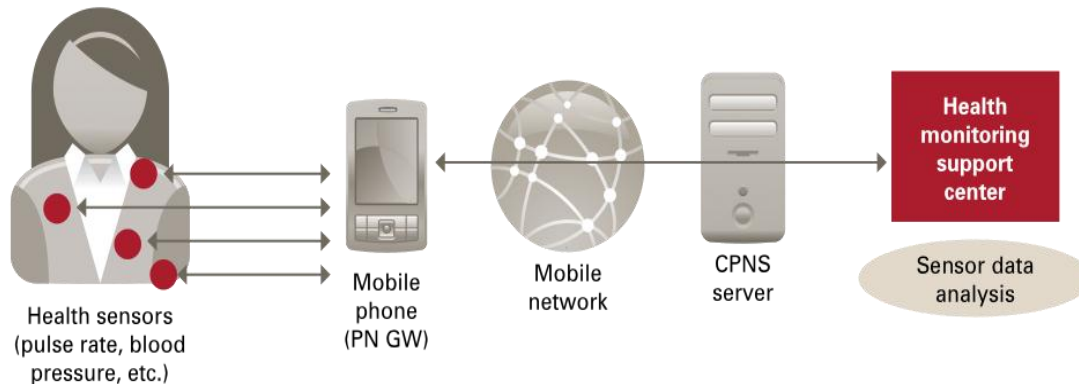
OMA Lightweight M2M Protocol

- OMA Lightweight M2M protocol is an activity OMA is working on aiming to support both device management and service logic.
 - The rationale behind is that in many M2M scenarios, the service logic is very simple and similar to device management.
 - For example, a command to retrieve M2M metering data is seen as a service but may be covered using a unique protocol. So it is unnecessary to develop a device management protocol independent from the service logic. On the contrary, the LightweightM2M protocol should support full device management and provide the capability to be extended to satisfy the requirements of specific service logic
- The need for a lightweight protocol for M2M
 - support capability constrained M2M devices; data collection and remote controlling without complex computing and UI operations
 - optimize network resources; very large numbers of devices may be connected to the communication network simultaneously



OMA Converged Personal Network Service (CPNS)

- OMA CPNS enables interaction with in-home M2M Applications and M2M Devices, using CPNS connections between personal networks and the CPNS Server by means of a Personal Network Gateway (PN GW). This allows for remote control, monitoring and content delivery
- OMA CPNS provides functionality such as end-to-end management of service sessions, publication and discovery of services, and customization of service characteristics based upon device capabilities



Businesses such as hospitals and pharmacies can access information from monitoring devices attached to patients

CPNS: Use device as a gateway for remote control, monitoring and content delivery

OMA and oneM2M

- OMA collaborated with ETSI TC M2M during the specification of ETSI M2M Release 1
- OMA DM is natively included in the ETSI M2M R1 Functional Architecture and several OMA DM Management Objects have been specified.
- OMA, in the very best interest of collaboration, harmonization and coordination, welcomes oneM2M Global Initiative.
 - OMA is a oneM2M Partner Type 2 and actively participating in oneM2M activities



<http://openmobilealliance.org/>



Thank You!



[OMA at Mobile World Congress](#)

Visit **OMA Demo Day at MWC '13**

Wednesday, Feb. 27, 15:00-19:00, Hall 8 Theatre C

<http://www.mobileworldcongress.com/open-mobile-alliance/>

