

OMA and Machine-to-Machine (M2M) Communications

Why is standardization important to M2M?

With estimates as high as 50 billion network connections, OMA believes standards are the only way to manage and provision on a global scale. There are many vertical industries that will be associated with M2M. These industries will embrace M2M in waves, which is a challenge for standardization. However, these waves of adoption make standardization all the more important.

Why has OMA decided to contribute to M2M standardization?

OMA has always created specifications to meet market requirements. With the recent announcement of worldwide commercial deployment of 1.4 billion devices using OMA Device Management (DM), OMA believes that it is already an established provider of specifications that are relevant in the M2M landscape, and with proven ability to deal with the increased scales. OMA has already completed or begun work on five relevant M2M specifications, including:

1. Converged Personal Network Service (CPNS)
2. Gateway Management Object (GwMO)
3. Lightweight M2M Protocol
4. Open Connection Management API
5. Client Side API Framework

How is OMA supporting successful M2M deployment?

Each vertical market across the M2M spectrum will have its own requirements and players. Mobile operators will have to assume a different role in each of these markets—some central and some not so central. However, there are common requirements across all verticals, and OMA has already begun addressing these with multiple service enablers, management objects and APIs. The important thing is to be able to get your applications to market

quickly, and to reach as wide a market as possible. This can only be achieved if you successfully address the challenge of managing and provisioning these billions of devices.

OMA M2M Enablers and APIs accomplish some of the following things, which mobile operators are in a unique position to provide:

- Enforcing service level agreements
- Policy management
- Charging, rating and billing
- Ensuring quality of service levels such as real-time, low latency or high reliability

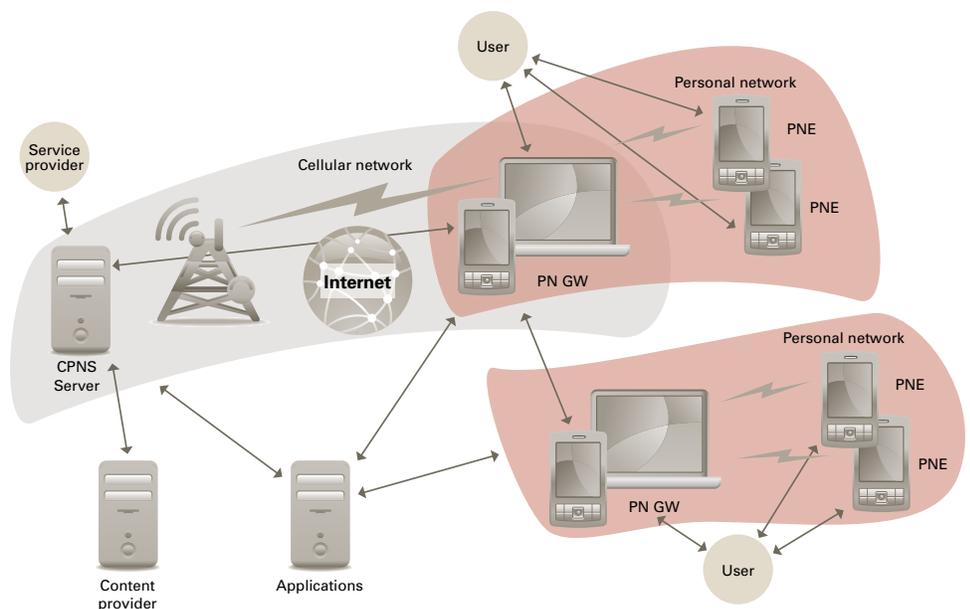
What about proprietary solutions, for example IBM MQTT—how does OMA expect to deal with that?

OMA believes that with billions of devices to be managed remotely, the only way to

do this effectively on a global scale is with a standardized approach. OMA encourages participation from all relevant companies, and in the case of IBM, this company was the original chair of the OMA DM Working Group.

What is OMA's strategy to make sure that all of the relevant companies and verticals are submitting their requirements and/or finding a path to membership in the OMA?

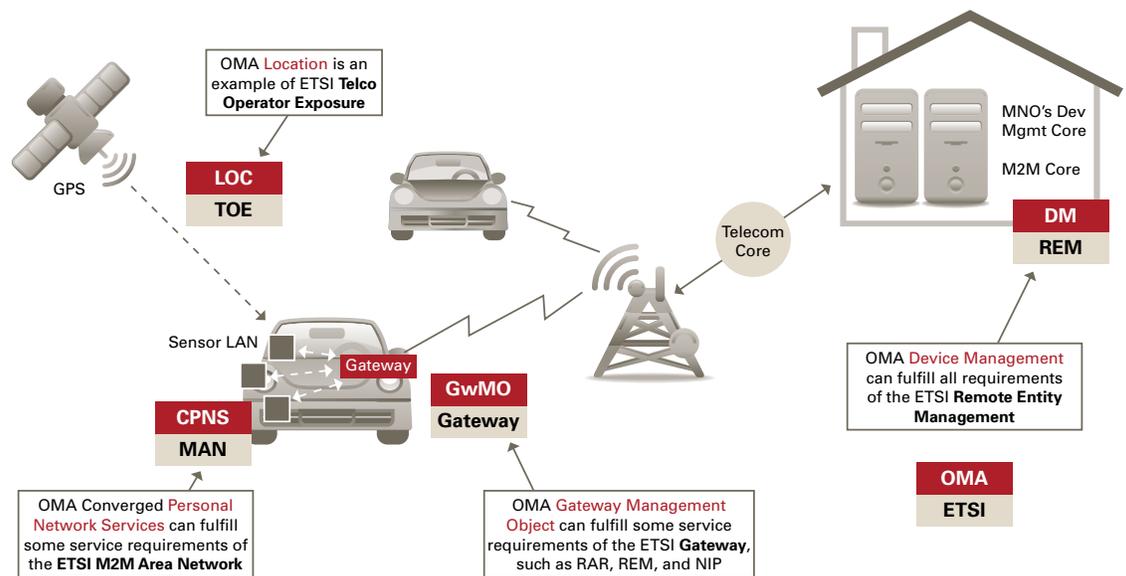
OMA has liaison relationships with more than 50 industry partners, including ITU-T, ETSI, IETF, ADIS, ARIB, OASIS and 3GPP, as well as industry consortia such as GSM Association, Small Cell Forum, Broadband Forum, Continua Health Alliance, and many others.



OMA CPNS enables universal access to services across a convergence of Personal Networks and Wide Area Networks/Cellular Networks.

What can mobile operators do to be successful in M2M?

Operators need to understand that the business model is different for M2M. M2M devices will communicate differently than traditional connected devices and ARPU is expected to be much lower. Revenue may not come from increased network traffic. The very notion of who the subscriber is, and what that subscriber actually does on the network, is different. The operator business model needs to accommodate these considerations.



What does the term constrained devices/constrained technologies mean to OMA and is this new terminology?

These are commonly used terms to refer to limited capabilities for devices or software. For example, without a screen or a user interface, or without supporting 3G or 2G network technology, devices require much less power, much less interaction with the network, and may only come on briefly to send short bursts of data and then return to "sleep" mode.

If I were a utility company seeking to deploy M2M services, why would I want to engage in discussions with a particular operator, since I would be able to reach the customer base of that operator?

Standardization addresses this problem by specifying interoperable protocols and interfaces. Management and provisioning of devices, and delivery of content and applications requires cross-operator interoperability to ensure regional or national coverage in the case of utility companies.

Does OMA know how many operators are actually using the M2M specs in particular?

OMA does not have a formal program for tracking member or operator deployments. We do have specific confirmation from one

vendor that OMA DM is deployed in nearly 1.5 billion consumer devices worldwide. OMA can also confirm through its members that many OMA specifications are deployed through network infrastructure providers, mobile operators and handset manufacturers that reach more than half of the customers and end-points across the globe. OMA is better positioned than any other body to meet the global potential of M2M, and has already begun to provide specific and useful enablers and APIs for M2M markets.

Will OMA Converged Personal Network Service actually enable a mobile phone to act as a gateway to manage a Cisco Router, an ADT security system and an Itron smart connection system?

This is precisely how it is designed to work—the OMA enabled device becomes the gateway between the other devices. We saw early examples of this for in home entertainment from South Korea Telecom as early as November 2010.

Why not have the CPNS server on the network rather than in the device and why not a web server in the device?

With OMA CPNS, your smart/mobile device acts as a gateway between your devices. The CPNS server is on your mobile to allow 3rd parties to interact—for example, sending data between devices remotely or locally. The benefit to this is reduced bandwidth with local use. Each time the

connected devices interact, they interact with the CPNS server only, unless they need the operator network.

What are some examples of current OMA DM/M2M deployment as well as pending deployments?

- OMA confirmed more than 1.4 billion DM deployments in early 2012, using diverse standardized management objects, such as firmware update.
- OMA Lightweight DM addresses devices that are not addressable using OMA DM 1.3, which can have deployment challenges due to CPU and memory limitations of some M2M devices.
- Many operators are using OMA DM on their networks - in Asia for example, China Mobile has large deployments of OMA DM.
- In Europe, operators and automakers are partnering in areas such as provisioning and location. Automakers have made it clear that one standardized solution is better than a multitude of proprietary solutions, and several OMA DM and API specs are relevant in automotive scenarios.

Can you give some examples of how automakers would use OMA DM/M2M?

The European Commission has made the decision that in the near future (likely beginning in 2014), the implementation of

the harmonized EU-wide interoperable eCall will be mandatory for car manufacturers. It requires all cars to have a location device to alert emergency agencies of an accident or problem. Additional use cases include the use of OMA Diagnostics and Monitoring to allow the transfer of data to a management authority in order to diagnose technical problems proactively and after the fact.

How do OMA solutions differ from telematics solutions?

Telematics are complimentary to the goal of interoperable solutions to manage M2M connectivity. For example, most gas meters in the home are a proprietary solution. OMA M2M, using GPRS and/or a Wi-Fi mechanism inside the home offers a centralized solution rather than sending an individual gas meter reader to each home.

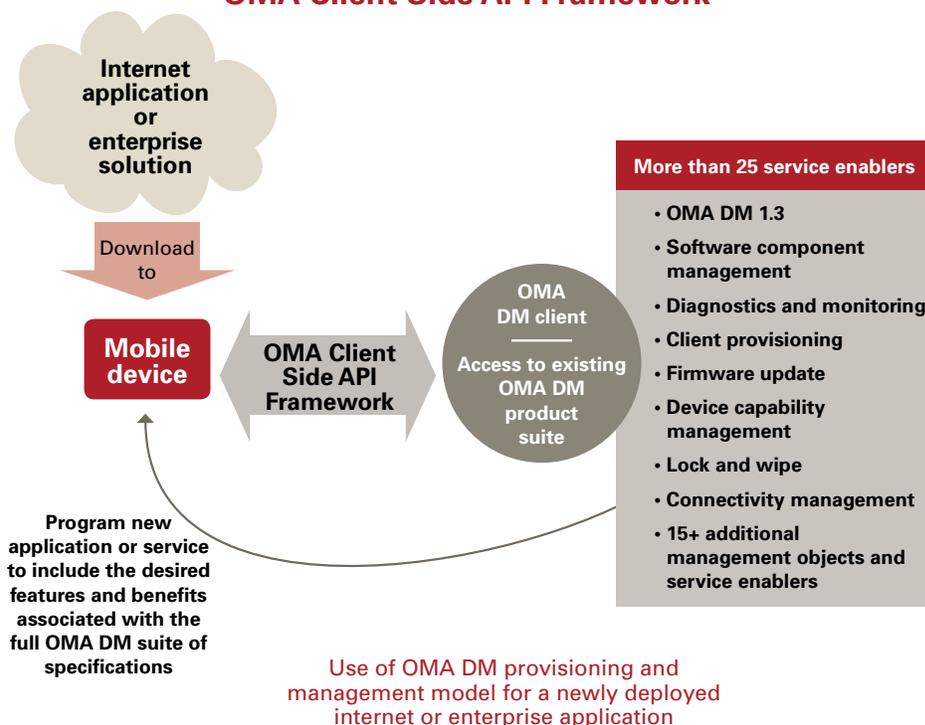
What are some other examples of OMA deployment scenarios for M2M?

- OMA DM 1.3 - delegation management allows you to delegate part of the DM client management to other management authorities such as civil administration.
- OMA GwMO could be used in cars as a router to provide connectivity management to cars' services such as streaming multimedia systems. The router in the car and associated devices can be managed by 3rd party systems or one's home systems. Parents can manage their children's devices remotely.

Is OMA writing any interface specifications for DM and M2M?

- OMA has developed and published the OMA DM Client-side API Framework, which enables local applications on the device to access the Management Objects supported by the OMA DM Client resident on the device.
- OMA is near completion of the OMA Open Connection Manager API, which enables local applications on the device to manage a wide variety of connections and seamlessly move from one connection to another.

OMA Client Side API Framework



OMA Open Connection Manager API

