

OMA General Q&A

What is the Open Mobile Alliance?

The Open Mobile Alliance (OMA) delivers open specifications for creating interoperable data services that work across all geographical boundaries, on any bearer network. The OMA's primary mission is to support the global adoption of data services.

How are OMA specifications used?

OMA's specifications support the billions of new and existing fixed and mobile devices across a variety of mobile networks. Driven by increasing global demand for data services, OMA increases the adoption of new and enhanced information, communication and entertainment solutions, including applications and services for machine-to-machine communication and the ever-expanding applications market.

Who are the members of the OMA?

The Open Mobile Alliance includes contributors from all key elements of the wireless value chain, and is seeing increased interest and participation from other industries that are now entering the mobile ecosystem.

OMA member companies include:

- Wireless Device and Consumer Electronics Manufacturers
- New and Established Internet and IT Companies
- Mobile Network Operators
- Content Providers
- Application and Service Providers including Automotive, Health, Sensors and Smart Grid

Who benefits from the OMA?

The Open Mobile Alliance is designed to be the center of all mobile application layer standardization work, enabling data services designed to meet the needs of the end-user,

as well as companies that need to deploy applications and services on any kind of network.

What are the primary goals of OMA's technical work?

- Deliver high quality, open technical specifications based upon market requirements that drive modularity, extensibility, and consistency for service implementation efforts across all industries.
- Ensure OMA service enabler specifications provide interoperability across different devices, geographies, service providers, operators, and networks.
- Be the catalyst for the consolidation of standards activity within the data service industry; working in conjunction with other standards organizations and industry fora to reduce fragmentation.
- Provide value to OMA members as well as the ever-expanding mobile industry.

What is the specification development philosophy of the OMA?

- Products and services are based upon open, global standards, protocols and interfaces and are not locked to proprietary technologies.
- All specifications are bearer agnostic and work across all network types.
- The OMA Service Environment (OSE), Applications Programming Interfaces (APIs) and mobile service enablers are independent of Operating Systems (OS), programming languages and development platforms.
- Applications and platforms are interoperable, providing seamless geographic and inter-generational roaming.

How does OMA approach its technical work?

- OMA standardizes service enablers, which serve as modular building blocks that can be mixed and matched into applications. OMA standardizes generic building blocks as well as service-specific building blocks enabling a whole range of current as well as future applications.
- The OMA API Program creates standardized APIs that allow developers to build new applications and services through access to resources and capabilities within operator networks.
- OMA's specifications can easily extend to machine-to-machine (M2M) scenarios, including but not limited to OMA device management specifications as well as its API Program.

What is the relationship and position of the OMA to other standardization bodies?

By monitoring the activities of a number of organizations and sharing requirements, the OMA can address areas that fall outside the scope of other organizations, as well as streamline work that may have been previously duplicated by multiple organizations. OMA maintains robust and well-supported cooperation agreements with more than 50 other standards bodies.

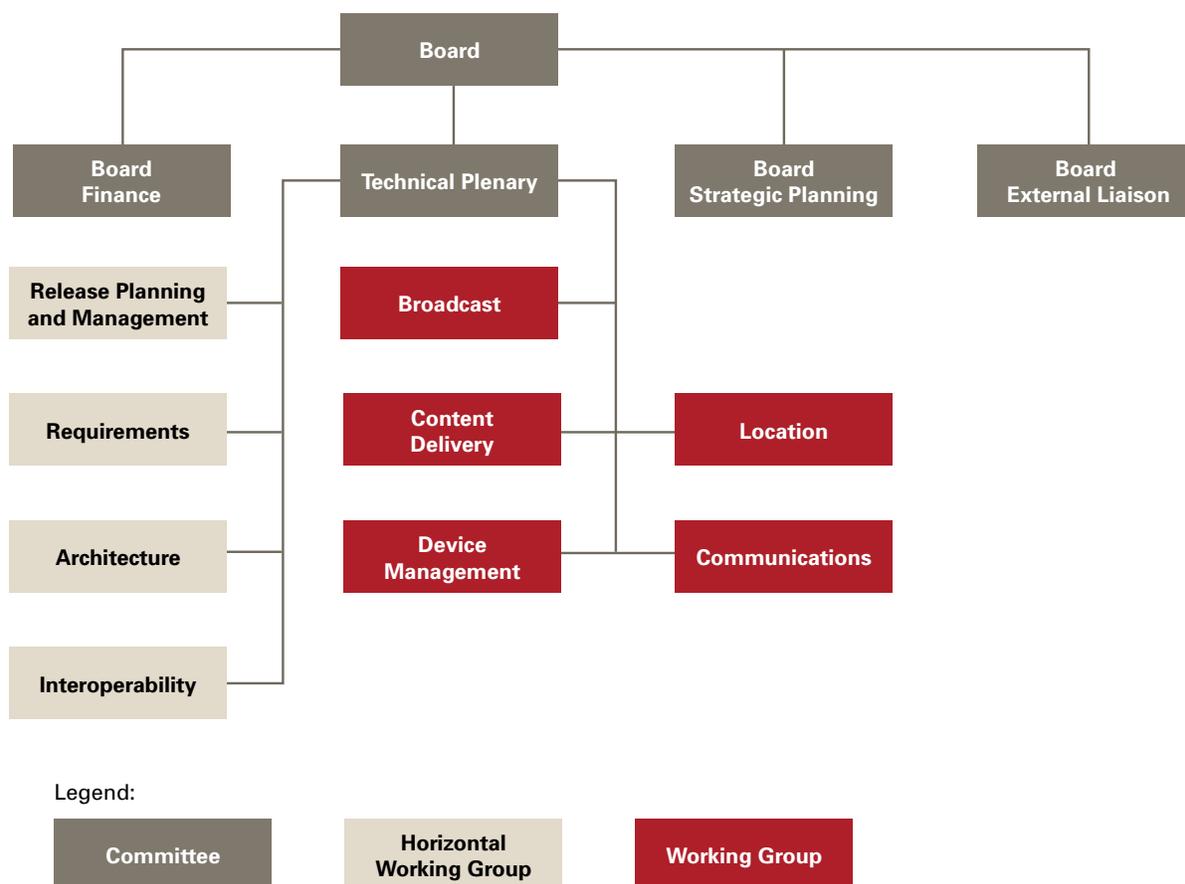
Where is OMA currently deployed?

OMA specifications are deployed in every region of the world on operator networks and in billions of devices including smart phones, consumer electronics and appliances, in-car applications and services, sensors and location services.

What is the Open Mobile Naming Authority (OMNA)?

OMNA is the operational naming authority established by the WAP Forum (as WAP Interim Naming Authority—WINA) and inherited by OMA. The goal of OMNA is to foster interoperability and compatibility

between implementations utilizing OMA technology through the registration and mediation of assigned names and numbers. OMNA is specifically concerned with names and numbers not already administered by other bodies (e.g., [IANA](#)).



- OMA Board of Directors oversee the strategic and financial governance of OMA
- OMA Technical Plenary is responsible for technical deliverables and execution of work program
- OMA Working Groups are directly responsible for creating and maintaining specifications

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

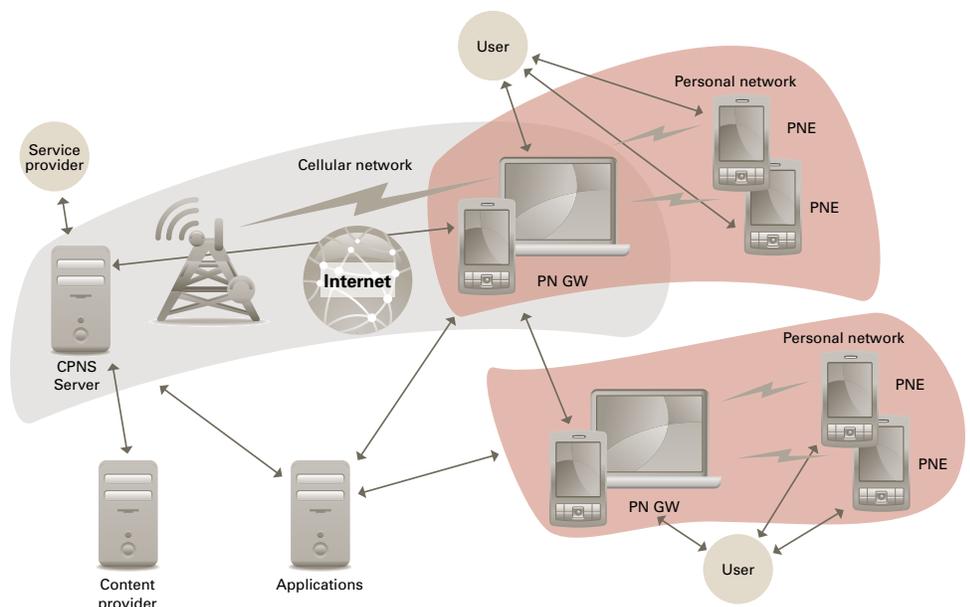
What about proprietary solutions, for example IBM MQTT—how does OMA expect to deal with that?

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?

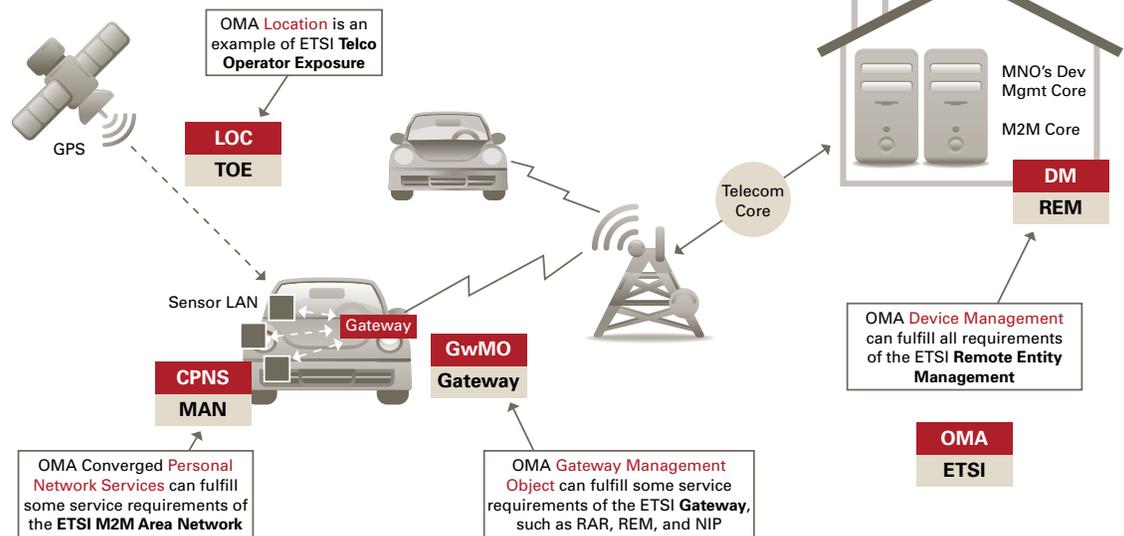
OMA has liaison relationships with more than 50 industry partners, including ITU-T, ETSI, IETF, ADIS, ARIB, OASIS and 3GPP, as well as industry consortia such as GSM Association, Small Cell Forum, Broadband Forum, Continua Health Alliance, and many others.



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.

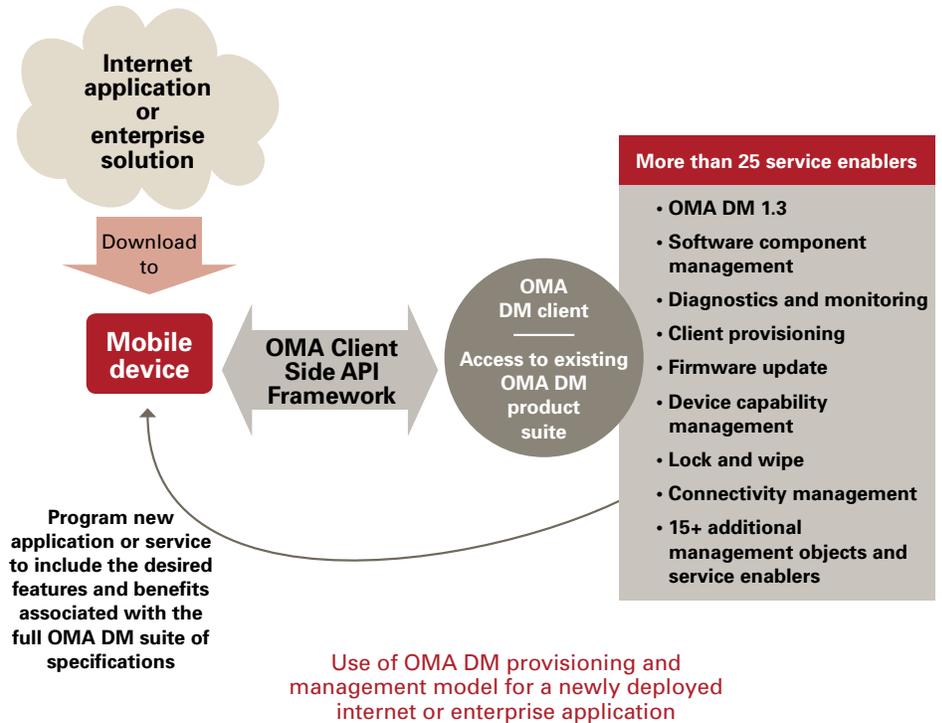
What are some other examples of OMA deployment scenarios for M2M?

- 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.

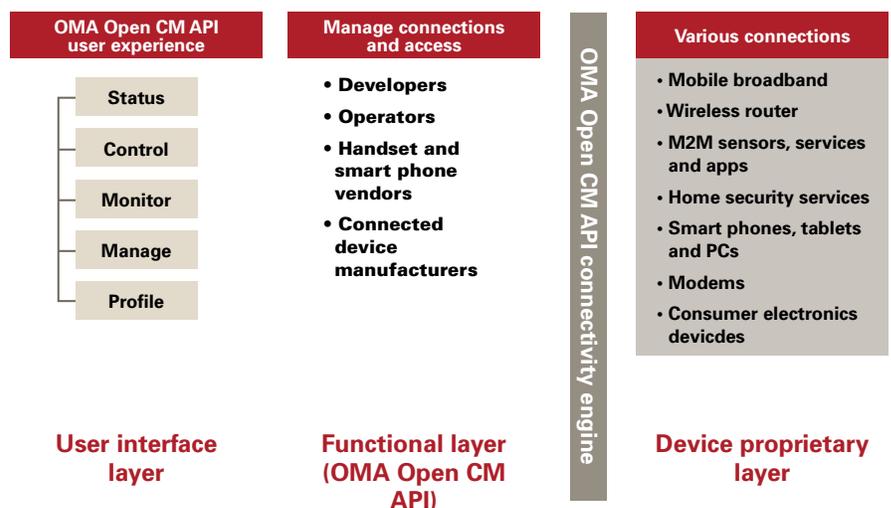
Is OMA writing any interface specifications for DM and M2M?

- 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



OMA API Program Q&A

What is the OMA API Program?

The OMA API program is a comprehensive framework supporting all of OMA's API-related activities. The OMA API Program maintains an inventory of all the API specifications produced and published by OMA, allowing you to view all the APIs, and sort through the list by API name, functional category, protocol binding, etc. In addition, the OMA API program ensures API governance, maintains the API roadmap and API best practices. Further useful information can be found by consulting the API News column.

What is an API?

API stands for Application Programming Interface. This is an interface exposed to application developers, focused on a specific development community (e.g. Web 2.0). An API acts as an abstraction layer that encapsulates application level protocols and associated data formats, hiding complexity that is not needed by the API users.

Why standardize APIs?

As the number of APIs that perform the same functionality proliferate, fragmentation occurs. This limits developer access to subscribers, and operator and service providers' choices of development platforms and communities. The OMA API Program, through standardization, solves this problem.

What core network assets does the OMA API program allow operators to expose?

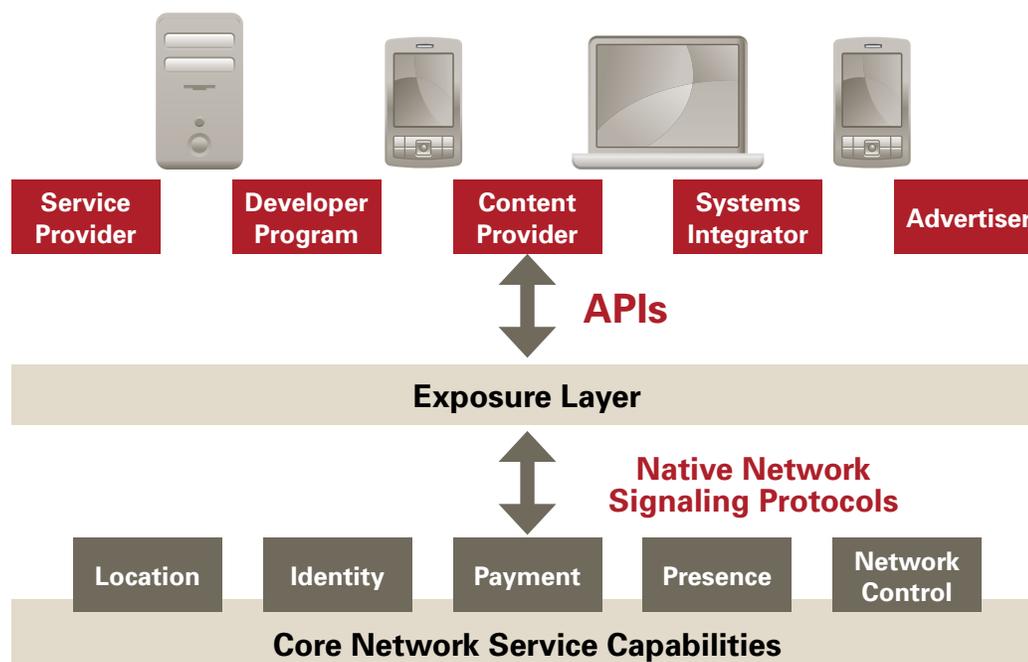
Any service capability, resource or asset in the operator's core network or on the device, can be made available through Application Programming Interfaces. These are the assets that developers need to build new apps and services on top of existing systems. Examples include Location, Messaging and Payment.

What specific OMA APIs are currently being deployed by operators?

Replace with: Besides the three Canadian operators who have commercially deployed the OneAPI profile of OMA RESTful Network APIs, OMA is not aware of many other public announcements of commercial rollout. However, in discussion with some of OMA's operator members, there is anecdotal confirmation of commercial deployments or pending rollouts, but no hard confirmations to date.

What is the primary benefit to developers who will create applications and services using the OMA API program?

The OMA set of APIs increases the portability of applications and services in order to reach the subscriber base of operators and service providers that deploy OMA APIs.



What is the relationship between the OMA API Program and GSMA OneAPI?

OMA and GSMA collaborate on the promotion of Network APIs, in a complementary fashion. GSMA OneAPI focuses on the commercial and regulatory aspects of deploying a third party portal that provides access to core network assets and capabilities. As such, GSMA describes commercial strategies, payment reconciliation, business models, and developer outreach and submits market requirements to OMA. OMA creates and publishes the technical API specifications and supporting files with formal operation definitions and protocol bindings, as well as test collateral and conformance requirements. OMA has also profiled several of its API specifications for GSMA OneAPI.

Does OMA specify Network APIs or Device APIs?

Applications may execute on a device or on a network server. Each has different characteristics (e.g. different run-time environment) and may be targeted at different developer communities. OMA specifies both Network APIs and Device APIs and distinguishes them as follows:

- Network APIs are exposed by a resource residing in the Network (e.g. a Server), explicitly NOT residing in or running on a Device
- Device APIs are exposed by a resource residing in or running on a Device (e.g. a client of an Enabler running on a mobile device)

Can I profile an OMA API?

An API Profile is a subset of supported operations and/or parameters, selected from an OMA API or API Protocol Binding.

For a full list of OMA's API inventory, click [here](#).

What is a Protocol Binding?

APIs are specified in terms of abstract operations that can be invoked on a client or a server. A protocol binding is the formal set of rules to represent these abstract operations as messages of a specific communication protocol across the network. OMA API specifications can contain one or more protocol bindings, or can only contain abstract API definitions.

What is an Abstract API?

An API specification, which does not include a specific protocol binding for its operations, is referred to as an Abstract API.

What protocol bindings does the OMA API Program support?

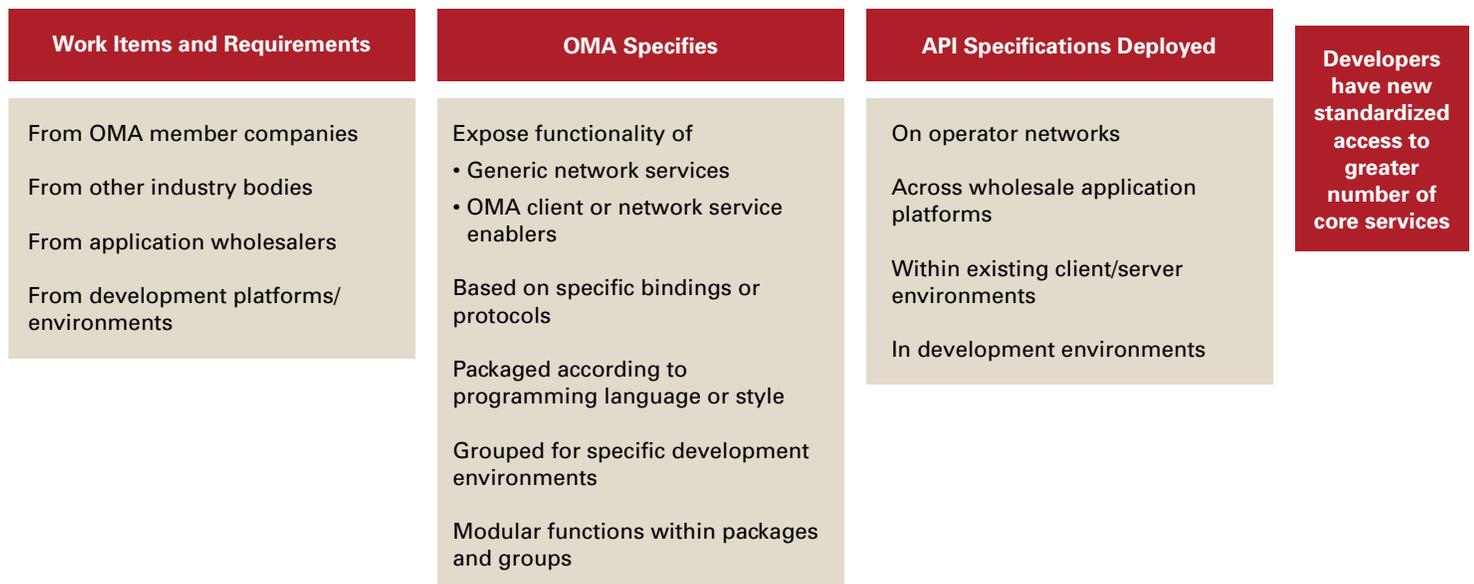
OMA APIs presently provides the following bindings (this list is not exhaustive):

- *RESTful APIs:* These APIs use an HTTP protocol binding using the REST architectural style. The API operations are represented by HTTP methods (GET, POST, PUT, and DELETE) to allow the client to query the current state of a resource, or to change it
- *SOAP Web Service APIs:* These APIs include a SOAP binding which represents the API operations and their input parameters as an XML document within an HTTP POST method.
- *LDAP APIs:* These APIs represent their operations as LDAP AddRequest, SearchRequest, ModifyRequest, and DelRequest messages.

Can I contribute requirements or ideas for new or existing APIs for the OMA API Program?

Any OMA member company can propose a Work Item for the creation of a new API or for profiling or updating an existing one. As per OMA processes, every Work Item requires four supporting companies and subsequent review and approval by the

OMA API Development Process



Technical Plenary. If you are not an OMA member yet, please consider Joining OMA.

How do I submit technical comments to one of the OMA APIs?

Technical comments and feedback should be addressed to OMA through the Technical Comments Form.

For most operators, there is still confusion and questions about the need for standardized APIs. What kind of uptake and support has OMA seen for its API program?

OMA has strong support among operator members for its API program. Operators have indicated that the repeated engagement on the level of technical interfaces is a problem. In September 2011, more than 30 OMA member companies endorsed the OMA API Program including 11 operators from around the globe.

What specific OMA APIs are you seeing deployed by operators?

Among the developer community, payment apps are very popular for obvious reasons. Among the operator community traditional telco apps such as location and SMS are popular. There is a focus on increased content and media driven requirements as well as feature enhancements to image, video and file share (GSMA RCS).

Are there any other operators (in addition to Rogers Communications, Telus, and Bell Mobility) who have implemented GSMA OneAPI – a profile of OMA RESTful Network APIs?

Besides the three Canadian operators who have commercially deployed the OneAPI profile of OMA RESTful Network APIs, we are not aware of many other public announcements of commercial rollout. However, in discussion with some of our operator members, we do have anecdotal confirmation of commercial deployments or pending rollouts, but no hard confirmations to date.

How is the data model defined between SOAP vs. RESTful APIs—do you see a pattern with regards to "popularity" between SOAP vs. RESTful APIs?

The high-level functionality is the same, and both SOAP/WSDL as well as REST APIs use the same, or similar, abstractions of the resources and capabilities residing in the networks or on devices. However, both types of API are used by different sets of developers. The more web-savvy developers of web/internet (HTML) applications predominantly use the REST APIs, which are very appropriate for client-server communications. SOAP/WSDL APIs are more popular in business-to-business settings, and server-to-server communications. SOAP/WSDL Web Services provide more elaborate transactional support and are well suited for business solutions such as finance and banking.

A recent Oracle press release announced that they were embedding OneAPI to expose networks to developers. Do you know of any other vendors who are doing the same?

Most vendors have implemented parts or all of the OneAPI profile of the OMA RESTful Network APIs, as part of their SDP or Application Layer portfolio.

Some operators are introducing proprietary add-ons to standard APIs in order to differentiate their offering. Doesn't that defy the purpose of standardization?

Modifications and proprietary extensions will happen. OMA expects this. However, many of these operators and their vendors actively participate in the standards development process. Within OMA, we use clear and open change management procedures to manage extensions, modifications and error corrections to existing and published standards. Part of these proprietary extensions make their way into the next version of the API

specifications. Our procedures and best practices for backwards compatibility allow us to manage this change process. Besides the changes that make it back into the standards, there will be proprietary extensions to differentiate various offers. As long as these extensions concern a delta on top of a standardized API, the extended interface still uses the same data model, design patterns, name space, authorization framework, etc. Therefore, much of the infrastructure and much of the application developer expertise can still be used. This is not a significant issue—80% standard-20% delta is definitely manageable.

Can you talk about proprietary operator solutions vs. standards and the perception of time-to-market issues?

- Standards are important for many reasons: change control is a powerful aspect of APIs—it is important to know that, once you have implemented your application, your API will work and that there is a mechanism for backwards compatibility—not the case with Facebook which uses a proprietary solution which may change at any time without prior notification.
- Regarding time-to-market, standards do take time, but not as long as people may think. For APIs, the time to publication is 6 months on average, which represents a considerable improvement of other standards development cycles.

For a full list of OMA's API inventory, click [here](#).