OMA Overview and Current Work

Presented to GSMA Executive Management Committee

Fred Harrison, Chairman of the Board, OMA
Agenda

OMA Overview

OMA Recent Work

APIs

Device Management

Converged Personal Network Service

Communications Working Group

2011 Pipeline

Summary
OMA – Overview

Over 175 members from across the mobile value chain
• Founded June 2002
• Operators, terminal and software vendors, content and entertainment providers

Interoperable service enablers across multiple domains
• Architecture, Security, Charging and Network APIs
• Person-to-Person Communications
• Device Capabilities
• Access to Content
• Services Access Interface
• Service Customization

Current and Ongoing Technical Deliverables – more detail in presentation
• 44 service enablers delivered in 2010 with 80 planned for 2011
• Ongoing refinement of interoperability testing program with Test on Demand in Q3 2011
• API Framework—building on success of GSMA OneAPI and Parlay affiliation
• M2M Communications—enabling terminals as gateways and converged personal networks

New and improved organizational structures and efficiencies
• Fast track process for omitting or combining steps and deliverables in OMA Process
• Min Max procedure for an alternative path to traditional testing of every OMA enabler

Collaboration with other bodies—including GSMA & ETSI
• Reduce duplication and fragmentation
• New strategic program of liaisons with appointed Board level champions to other bodies
• OMA maintains formal cooperation agreements or frameworks with nearly 50 industry bodies
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Summary
Highlights of OMA Service Enablers

Over 50 Candidate and Approved Enablers Published in the Last 18 Months

Candidate Enabler Releases

• OMA Device Management Smart Card V1.0
• OMA Lock and Wipe Management Object V1.0
• OMA Converged Address Book V1.0
• OMA XML Document Management V2.1
• OMA Secure Content Identification Mechanism V1.0
• OMA SIP Push V1.0
• OMA Location in SIP/IP Core V1.0
• OMA Secure User Plane Location V2.0
• OMA Mobile Search Framework V1.0
• OMA Mobile Codes V1.0
• OMA Mobile Advertising V1.0
• OMA Mobile Spam Reporting V1.0

Approved Enabler Releases

• OMA Device Management V1.2
• OMA Smart Card Web Server V1.1
• OMA Presence SIMPLE V1.1
• OMA Global Service Architecture V1.0 (Reference Release)
• OMA IMPS Implementation Guidelines V1.3 (Reference Release)

A Candidate Enabler Release (CER) delivers an approved set of open technical specifications that can be implemented in products and solutions, and then tested for interoperability.

An Approved Enabler Release (AER) represents Candidate Enabler Releases that have gone through the Interoperability Program (IOP) of OMA. The IOP tests interoperability between different member company’s implementations—either within the OMA or through other means.
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Summary
OMA API Key Messages

• OMA specified the requirements of GSMA’s OneAPI Profile of Parlay X Web Services.

• OMA provides a standard API framework which can include an abstract definition or specific protocol bindings.

• OMA APIs expose a functional interface, which exposes OMA service enablers and generic service functionality to the wider developer community.

• The channel from OMA to third party developers is through the implementation of OMA APIs by other SDOs, network operators and wholesale or open application environments and communities.

• OMA affiliated Parlay in 2008, making the valuable technical work of Parlay a part of OMA’s body of technical work. This demonstrates OMA member commitment to interoperability with legacy Web Services.

• OMA has thus far specified more than 30 service access layer interfaces, including five packages of protocol bindings and profiles designed to expose generic and OMA specific functionality to developers outside of OMA.

• OMA accepts requirements for APIs from its members as well as external bodies and organizations.
APIs: What, Why, Who, Where?

Use Application Programming Interfaces (APIs) to open up service capabilities and assets in the core network to application developers.

OMA APIs provide an abstracted view of these capabilities:

- Application developers do not require comprehensive knowledge of arcane telecommunication signaling protocols and call state models.
- Applications built towards the API can be ported across network types and access technologies.
API Dimensions in OMA

Abstract APIs
• Focus on functional aspects
• Protocol independent

API Binding Technologies
• SOAP/WSDL Web Services
• HTTP protocol binding using REST architectural style

Network APIs & Device APIs
• Network API—exposed by a resource residing in the Network
• Device API—exposed by a resource residing/running on a Device
OMA APIs and the Rest of the Industry

OMA: Technical Specifications
Standards publication

Parlay REST v1.0
Parlay REST v2.0
PX PROF v1.0

GSMA: Developer outreach
Go-to-market
Business models

OMA: Has adopted the API work from 3GPP/ETSI
Has affiliated the API activities from Parlay

Parlay Service Access

(draft) RCS API work item

GSMA: Requirements

OMA: Technical Specifications
Standards publication
OMA Current and Future API Work

Ratified APIs
1. Next Generation Service Interfaces
2. SOAP for Next Generation Service Interfaces
3. Client Side Enabler API
4. RESTful Bindings for Web Services
5. Parlay Service Access
6. ParlayREST (OMA PXPROF) and its GSMA OneAPI Profile

Pipeline APIs
1. Web Runtime API
2. APIs for Rich Communications
3. Converged Address Book APIs
4. Open Connection Manager API
5. RESTful Bindings for OMA Push Access Protocol

Others under consideration…
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Summary
OMA Device Management Overview

OMA DM helps operators and IT departments manage access capabilities, diagnose problems, fix and update devices over the network.

Device Management is well established and reliable in the mobile value chain.

- DM 1.2, Client Provisioning and Management Objects

Interoperability is the key to seamless maintenance and integration of devices, services and applications.

Many implementations deployed globally.

- 89% deployment rate of OMA DM according to major handset vendors around the globe*
- 90% deployment rate of OMA DM in operator implementations of services*

*According to iSupply Research Analytics
New Enabler – OMA Gateway Management Object

Facilitates interaction between a management server and a management client in situations where direct and unaided interaction between the management server and the management client is not possible

1. Device does not have a publicly routable address
2. Device sitting behind a firewall
3. Device supports a management protocol other than OMA-DM

Enables a single OMA-DM message, issued by a DM Server, to be fanned out to multiple end devices, and an aggregated response to be sent back to the DM Server
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Summary
Introduction – What is CPNS?

- OMA CPNS enables universal access to services across a convergence of Personal Networks and Wide Area Networks/Cellular Networks.
- OMA CPNS facilitates the service provision between two different networks that can be interconnected by means of a Personal Network Gateway (PN GW) using a variety of mobile and fixed devices.

*Figure 1: High Level CPNS Diagram*
OMA CPNS Use Cases – Multimedia Content Delivery

• An end user can watch high-quality movies on a big screen using a mobile device serving as a gateway between a movie-streaming server via Cellular network and home consumer electronic device via Wireless Personal Access Network technologies.

• The mobile phone or fixed gateway provides access to the global network for devices that only have local area connectivity (e.g. WiFi, Bluetooth).

Figure 2: CPNS Multimedia Content Delivery
OMA CPNS Use Cases – Multimedia Content Delivery

• With an OMA CPNS enabled mobile phone connected to both a non-cellular navigation device and an MP3 player with wireless personal access, a user can simultaneously request relevant traffic updates and navigation information while downloading music files.

• To provide multiple services simultaneously, OMA CPNS manages various factors such as the personal network setup, service profiles, device profiles, and usage statistics.

![Figure 3: Simultaneous Content Delivery](image-url)
OMA CPNS Use Cases – In-Home Network

• OMA CPNS enables extension of Internet-based services to home appliances. This extension enables interaction with M2M services and applications.

• An end user can access in-home appliances from outside the home using CPNS connections between personal networks and the CPNS Server. This allows for remote control, monitoring and content delivery.

Figure 4: Remote Connection of Personal Networks
OMA CPNS Use Cases – e-Health

- OMA CPNS provides an extension for e-health scenarios. Using a PN GW, Health Sensors can access the CPNS server in the global network. This enables regular monitoring and simple daily care.

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

- Other e-Health uses could allow parents to access health sensors for their children remotely.

*Figure 5: CPNS Application for e-Health Services*
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Summary
OMA Communications  Responding to Market Trends and Demands

Demonstrated through collaboration with other bodies.

- IMPS 1.1/1.2/1.3
- MMS 1.1/1.2/1.3
- Mobile email
- PoC 1.0/2.0/2.1
- SIMPLE IM 1.0
- Presence 1.0/2.0
- PDE 1.0/1.1/1.2
- PAL 1.0
- CPM 1.0
- CAB 1.0
- SpamRep 1.0

- MMS stage 2/3 collaboration
- IM-SMS & CPM-SMS interworking
- 3GPP Project 3G
- Referencing of OMA COM Enablers
- Socialization of OMA CPM & CAB
- COM-related API discussions

- Mobile email collaboration
- Referencing of IETF work
- Proposal of new fields
- Alignment between OMA CAB and DAP Contacts API

3rd Generation Partnership Project 2/3GPP2

IETF

W3C
Market Opportunity for Mobile Messaging – Continuously Increasing…

Reported Data Applications Used on Device - Prepaid
Prepaid subscribers (n=4, 170)

- Text messaging/SMS: 87%
- Preinstalled games: 39%
- Mobile internet: 37%
- Ringtone downloads: 28%
- Instant messaging: 23%
- Picture messaging/MMS: 21%
- Application downloads: 18%
- Text alerts: 15%
- Wallpaper/screensaver downloads: 15%
- Fition: 13%
- Picture downloads: 12%
- Full-track music downloads: 12%
- Game downloads: 11%
- Streaming online music/radio: 10%
- Email: 8%
- Mobile newspaper: 8%
- Online game playing: 5%
- Video/Mobile TV: 4%
- Uploads: 4%
- Location-based services/GPS: 4%
- Video messaging: 1%
- VoIP programs: 1%
- Video calling: 1%

Facts and Predictions—Worldwide
- SMS still the highest revenue: USD 102 bil in 2009
- MMS is becoming a success: 22%/48% increase in revenue/traffic (2008 → 2009)
- Mobile IM and email to grow with SMS/MMS together


Application of OMA COM Enablers in the Market

GSMA—Rich Communication Suite (RCS)

• Collaborative effort to facilitate the introduction of commercial, IMS based rich communication services.

• Involves participation from many network operators, vendors and other telecommunication companies

• Main features of the first release include the following:

UNI

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<thead>
<tr>
<th>Enhanced address book</th>
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<td>1-1/group conversational messaging</td>
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<td>Multimedia sharing capabilities</td>
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<td>File transfer</td>
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<td>1-1 file transfers in and out of session</td>
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NNI

Based on OMA
Presence-related and XDM

Based on OMA
SIMPLE IM, SMS/MMS

Based on GSMA PRD IR.74 and IR.79

Based on OMA
SIMPLE IM
Application of COM Enablers in the Market (2/2)

Korean Mobile IM Initiative – Major Success for Korean Operators

- National initiative to make IMS-based Mobile IM service interoperable among three Korean operators (SK Telecom, KT, LGT)
- Feature sets (common to all operators)
  - Presence (log in/out, nickname): OMA Presence SIMPLE 1.0.1, OMA XDM 1.0.1
  - IM (text, emoticon, flashcon, picture / 1:1, 1:N): OMA SIMPLE IM 1.0
New and Future Activities

Enhanced Visual Voice Mail (EVVM) 1.0
• Develop a common mechanism to offer enhanced voicemail service
• Builds upon the OMTP/GSMA VVM 1.3 Specifications
• Leverages OMTP/GSMA VVM 1.3 to add new functions and interfaces as needed
• Offers the following features:
  • Flexible user greetings to cover different scenarios
  • Extension of voicemail to LTE deployment with multi-device supports
  • Easier sharing a voice message with a 3rd party
  • Converging voicemail service with existing and future messaging services
• Status: Candidate Enabler planned for Nov 2011

Definition of Communication APIs
• Definition of service APIs focused on exposing features of COM-related Enablers
• Target Enablers: CPM 1.0, CAB 1.0, Presence 2.0, changes to PDE 1.2
• Status: Under discussion

*And even more innovative features to come!*
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2011 Pipeline

Summary
What’s in the Pipeline for 2011? (partial list)

**Architecture, Security, Charging & Network APIs**
- Application Layer Security Common Functions
- Global Permission Management
- Next Generation Service Interfaces
- RESTful bindings for Web Services
- Charging Data Elements
- General Service Subscription Management
- Categorization Based Content Screening

**Person-to-Person**
- Mobile Email
- Presence Data Elements
- Mobile Spam Reporting
- Multimedia Messaging System
- Converged IP Messaging
- SIMPLE Instant Messaging

**Devices**
- Management of Software Components
- Diagnostics and Monitoring of Terminals
- Evolution of Device Profiles
- Management of Device Capabilities
- Scheduling
- Lock and Wipe
- Device Smart Card Management
- Device Management
- Software and Application Control
- Converged Personal Network Services
- Managing Terminals as Gateways
- Client Side API Framework
- Data Synchronization
What’s in the Pipeline for 2011? (partial list)

**Access to Content**
- Push and Push over SIP
- Push Point to Multipoint
- Games Services Client/Server Interface
- In Game Advertising
- Secure Removable Media
- Content Management Interface
- Dynamic Content Delivery
- Digital Rights Management
- Mobile Search Framework
- Customized Multimedia Ringing
- Mobile 2D Bar Codes
- Mobile Advertising

**Services Access Interface**
- RESTful bindings for OMA Push Access Protocol
- Policy Evaluation, Enforcement and Management

**Service Customization**
- Presence_SIMPLE
- Scheduling
- Connectivity Management Object
- Diagnostics and Monitoring
- Device Capabilities Management Object
- Data
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Summary

OMA continues a robust yearly release of technical work
• 44 service enablers delivered in 2010
• 80 releases in 2011
• Maintenance of existing specifications with new work in APIs, M2M communications and Mobile Search

OMA continues as the industry leader in Device Management standardization

OMA membership is smaller, but the core founders of the organization are still in place
• New work still coming in
• Improved process and efficiencies

Collaboration with other bodies is strong—including GSMA