



Open Mobile Alliance: Current Work and Pipeline for Location Based Services

Mobile Location Services '09

London, 13 May 2009

Shekhar Somanath, Open Mobile Alliance LOC Working Group

Agenda



- » Overview of the Open Mobile Alliance
- » Current Work Program and Objectives of the OMA LOC Working Group
- » Overview of the OMA LOC Working Group Pipeline
- » Summary

OMA - Vision and Background



» Vision

- » **No matter what device I have**
 - » **No matter what service I want**
 - » **No matter what carrier or network I am using**
 - » **I can communicate, access and exchange information**
-
- » **The Open Mobile Alliance is an international organization, developing open, market driven interoperable specifications for global adoption of data services**
 - » **Created in June 2002 by leading mobile operators, device and network suppliers, information technology companies, content and service providers**
 - » **Nearly 225 Global Members developing open, market driven interoperable specifications for global adoption - representation from across the widening mobile value chain**
 - » **40 Formal Cooperation Agreements avoiding fragmentation and duplication**
 - » **More than 40 Enablers published and over 100 active work items**

OMA - Deliverables



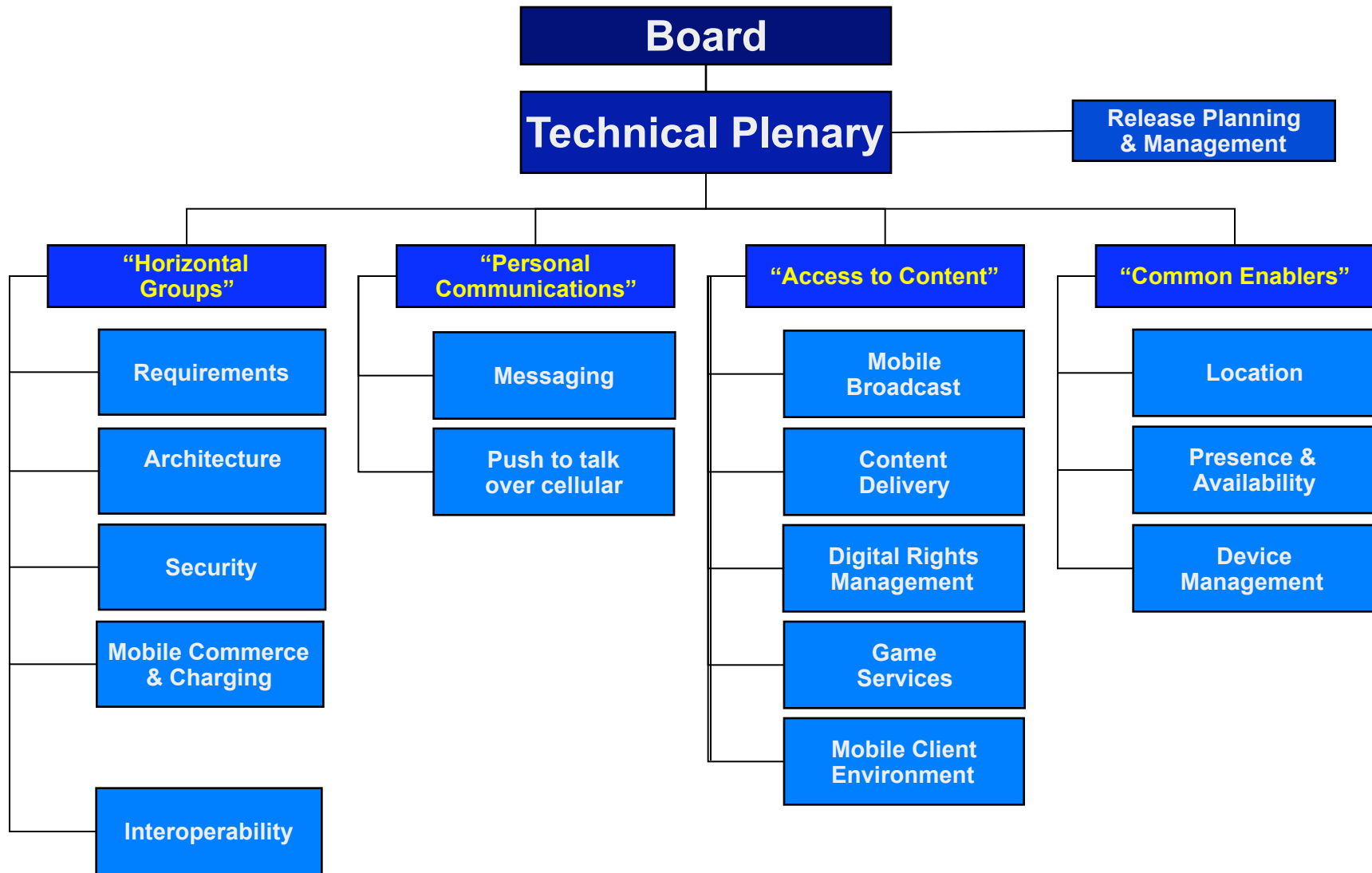
- » **Principal Forum for support of interoperable data services across multiple domains**
 - » Creating specifications driving adoption of multimedia and data services

- » **Published specifications only part of OMA story**
 - » Development is market driven with members observing industry demand
 - » Use cases identify market requirements
 - » OMA facilitates market adoption through member-driven specifications

- » **Convergence**
 - » Not just mobile: applicable to fixed AND mobile networks
 - » In 2005 OMA expanded its mandate to include : “...*other present and future wireline and wireless network standards supporting the Internet Protocol family*”
 - » OMA enables enhanced seamless and integrated services

- » **Interoperability test programme**
 - » Product testing for conformance in trusted zone key differentiation point for OMA
 - » Verifies specification interoperability
 - » Communicates value to market
 - » Test Specs, TestFests (**27 to date**), 1300+ implementations tested, Test Reports
 - » Facilitates certification outside OMA

OMA - Hierarchy



Highlights of OMA Service Enablers



» Over 20 Candidate and Approved Enablers Published in the Last 20 Months

» Candidate Enabler Releases

- » OMA Push to talk over cellular V2_0
- » OMA Secure User Plane Location V2_0
- » OMA Mobile Location Service V1_2
- » OMA Secure Removable Media V1_0
- » OMA Instant Messaging - SIMPLE V1_0
- » OMA Presence V2_0
- » OMA XML Document Management V2_0
- » OMA Mobile Broadcast V1_0
- » OMA Download V2_0

» Approved Enabler Releases

- » OMA Email Notification V1_0
- » OMA vObject V1_0
- » OMA Charging V1_0
- » OMA Client Side Content Screening Framework V1_0
- » OMA Secure User Plane Location V1_0
- » OMA Online Certificate Status Protocol Mobile Profile V1_0
- » OMA Standard Transcoding Interface V1_0
- » OMA Smart Card Web Server V1_0
- » OMA Presence SIMPLE V1_0

- » **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.

- » Overview of the Open Mobile Alliance
- » Current Work Program and Objectives of the OMA LOC Working Group
- » Overview of the OMA LOC Working Group Pipeline
- » Summary

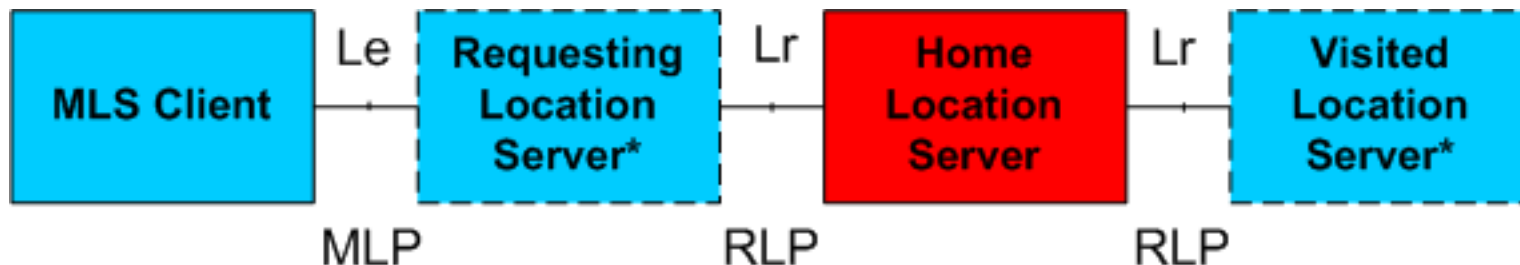
OMA Mobile Location Service (MLS)



- » OMA MLS is a continuation of work begun in LIF (Location Interoperability Forum)
- » OMA MLS was initially based on a commitment to deliver Technical Specifications for the Le and Lr reference points defined in 3GPP TS 23.271
- » OMA MLS is comprised of
 - » Mobile Location Protocol (MLP) – protocol between application server and location server to enable service invocation
 - » Roaming Location Protocol (RLP) – protocol between location servers to enable roaming
 - » Privacy Checking Protocol (PCP) – protocol between home location server and location privacy checking entity to support user privacy (was discontinued with MLS 1.2 due to lack of industry interest)
- » Although OMA MLS is primarily based on 3GPP specifications, there is no explicit restrictions to use it in other contexts (e.g. OMA SUPL)

OMA MLS v1.2 Architecture

- » OMA MLS v1.2 is the latest version of MLS (and fully supports SUPL 2.0)
- » The OMA MLS architecture is defined by reference points and message flows as specified in 3GPP TS 23.271
- » The reference points are labelled Le and Lr, in 3GPP TS 23.271
 - » Le is instantiated by MLP (Mobile Location Protocol)
 - » Lr is instantiated by RLP (Roaming Location Protocol)



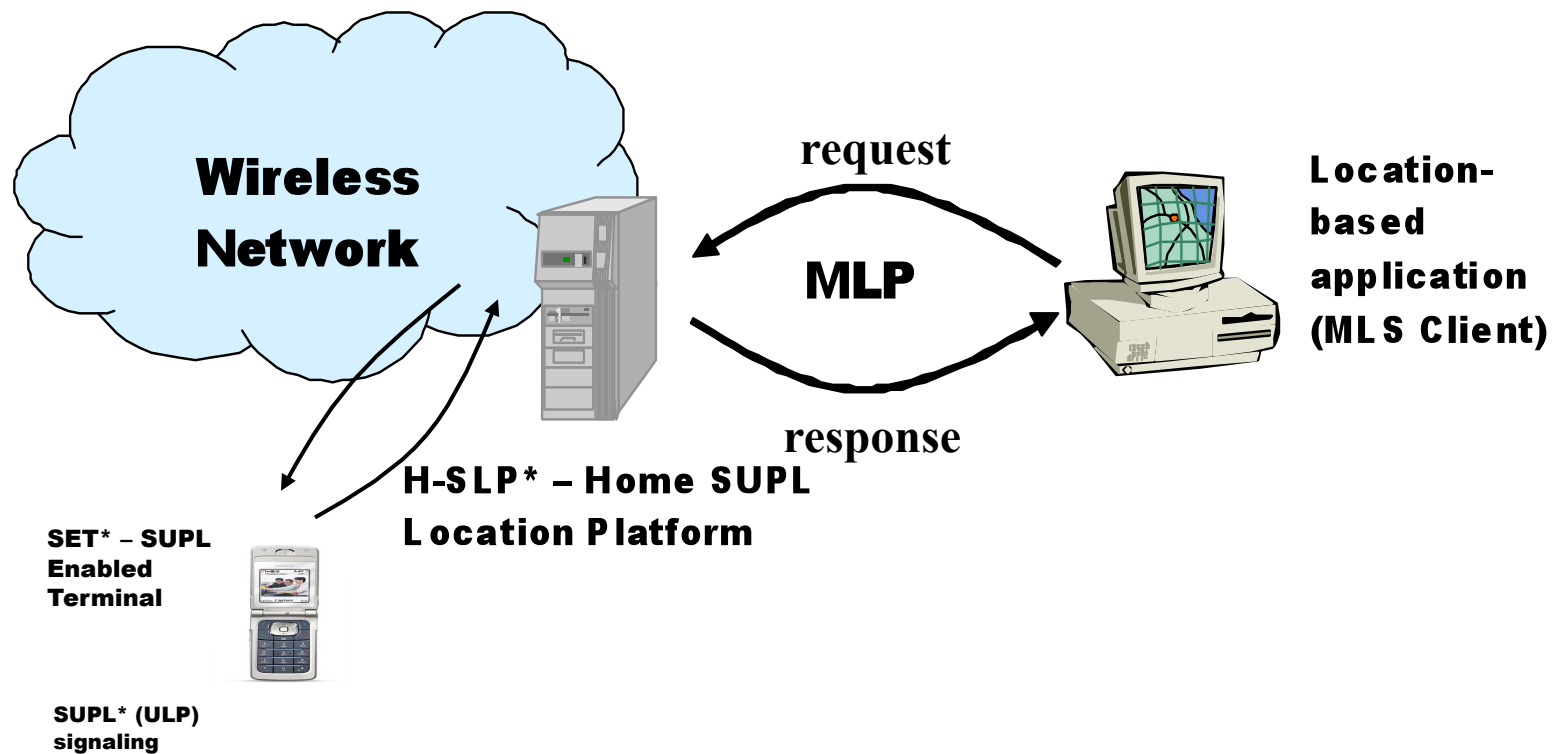
**Requesting and Visited Location Server are optional*

OMA Mobile Location Protocol (MLP)



- » OMA MLP is a simple request/response protocol between an MLS Client and a Location Server
- » Each OMA MLP request/response is expressed as an XML document
- » OMA MLP is defined by a set of Document Type Definitions
- » Different underlying transports are possible - though only HTTP mapping is provided today
- » OMA MLP messages carry all information elements needed for authentication, authorization, terminal to be located, subscriber privacy check, QoS, ...

OMA MLP Architecture

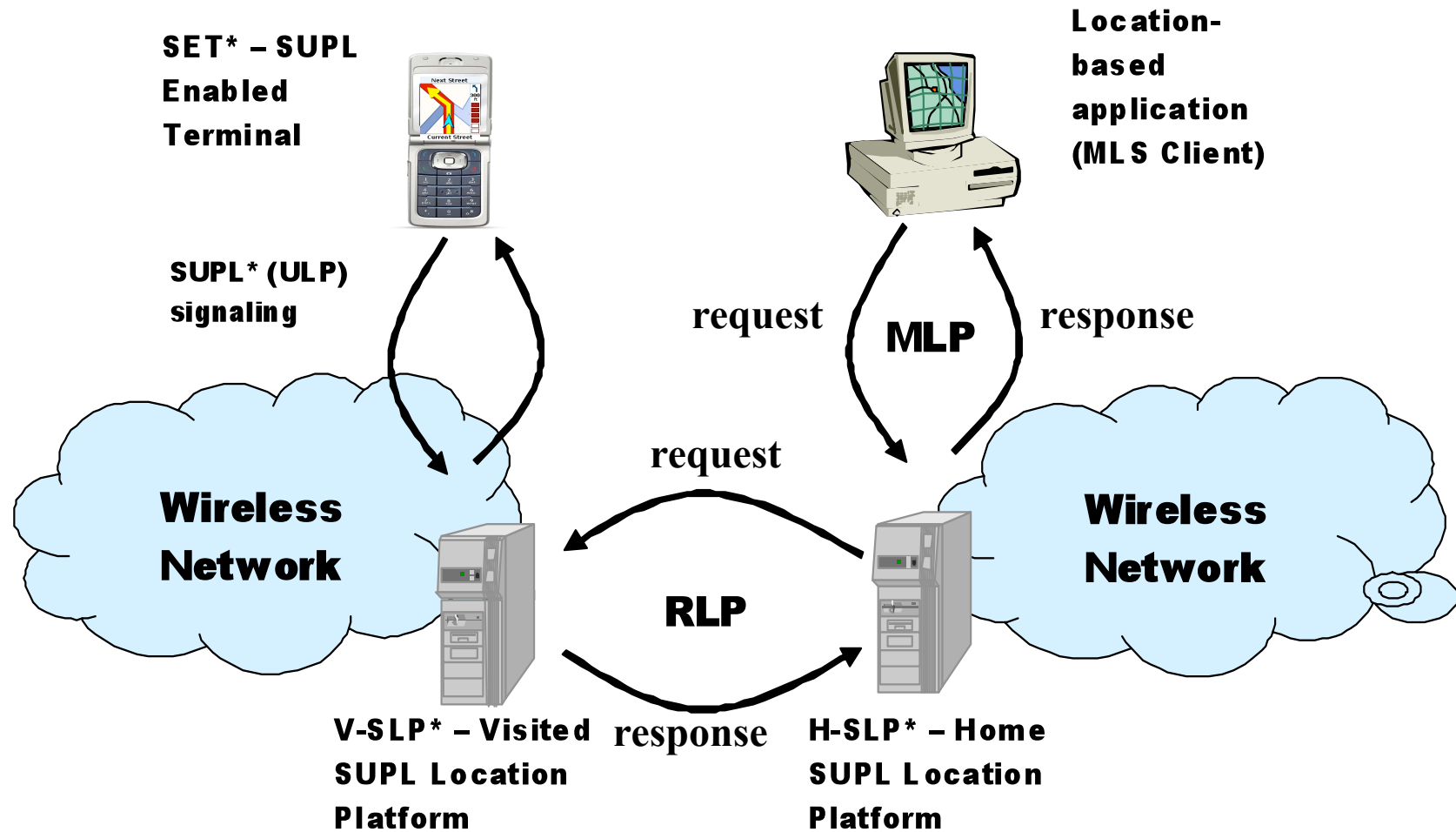


**Please note that SUPL is just an example in this context (could also be a e.g. 3GPP control plane terminal)*

OMA Roaming Location Protocol (RLP)

- » **OMA RLP describes the protocol between two Location Servers**
 - » In the 3GPP context, OMA RLP is an instantiation of the stage 3 specifications for the Lr reference point and [23.271 Rel-7]
 - » In the OMA SUPL context, OMA RLP is an instantiation of a reference point between SUPL Location Platforms (SLPs) with the purpose to transport information between Home/Requesting/Visiting SLPs to enable positioning of roaming SUPL Enabled Terminals
- » **OMA RLP is based on the same technology as OMA MLP**
 - » Simple request/response protocol
 - » Each OMA RLP request/response is expressed as an XML document
 - » OMA RLP is defined by a set of DTDs
 - » HTTP transport (other protocols also possible)

OMA RLP Architecture



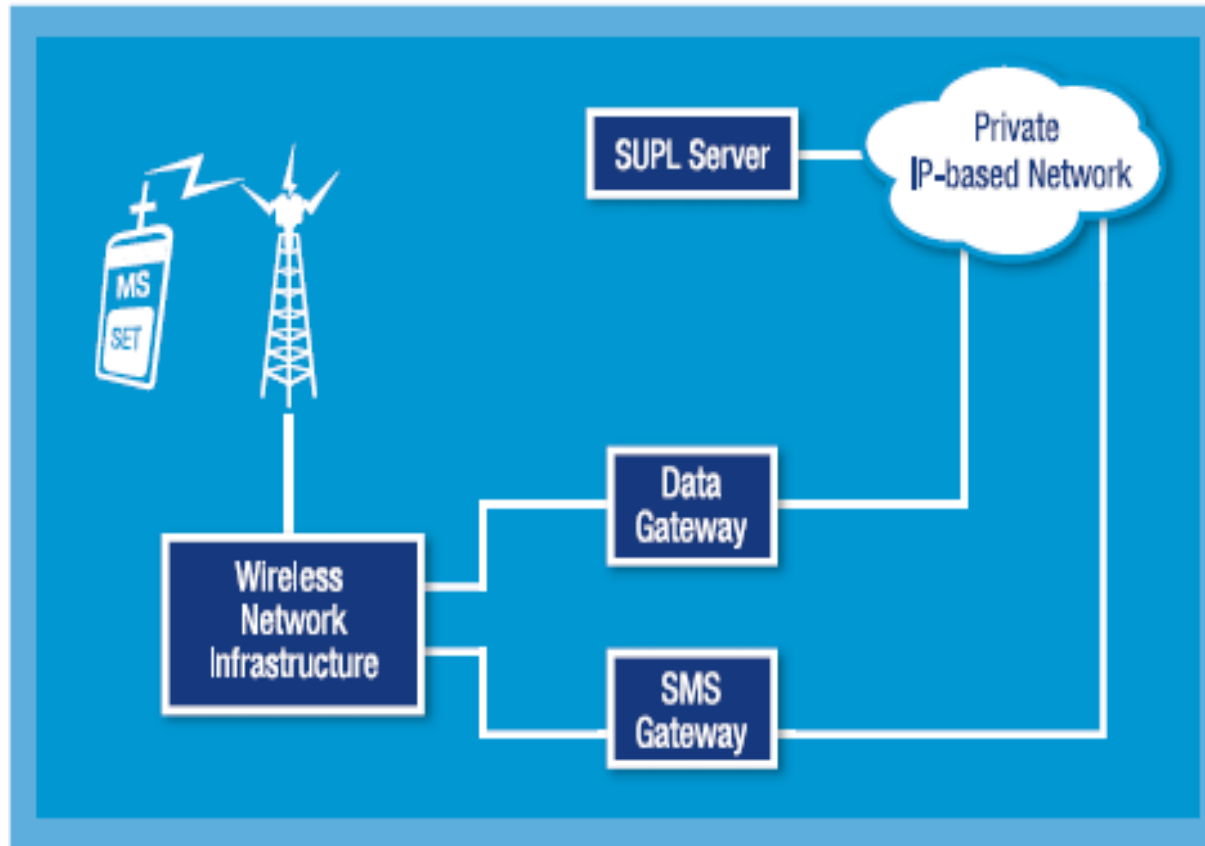
**Please note that SUPL is just an example in this context (could also be a e.g. 3GPP control plane terminal)*

OMA Secure User Plane Location (SUPL)



- »OMA SUPL v1.0 was started as an OMA LOC work item in 2003 based on the following concept
 - »Bearer independent (GSM, WCDAM and CDMA) position location user plane standard
 - »No changes required in the underlying network for service deployment
 - »Guaranteed security and privacy
 - »Roaming support
 - »Support of established positioning methods (Cell-ID, Assisted GPS, Autonomous GPS, E-OTD, OTDOA and AFLT)
- »Services supported by OMA SUPL v1.0 are limited to single shot (immediate) position determination initiated by either the mobile device or the network
- »OMA SUPL v1.0 was approved as Enabler Release in June 2007

OMA SUPL High Level Architecture



Data Gateway:
used for SUPL
“traffic”

SMS Gateway:
used for SUPL
service initiation
for network
initiated SUPL
applications

SET - SUPL Enabled Terminal

SUPL Server - SUPL Location Platform (SLP)

OMA SUPL v1.0 Commercial Deployments



»SUPL v1.0 has been commercially deployed in many regions around the world

- »CMCC - China
- »Softbank Mobile - Japan
- »eMobile - Japan
- »KTF - Korea
- »SKT - Korea
- »Telstra - Australia
- »Chunghwa Telecom - Taiwan
- »Orange – France
- »SFR - France
- »AT&T - USA
- »T-Mobile - USA

OMA SUPL v2.0 Overview – New Features



- » **Support for additional bearers: WiFi, LTE, UMB, HRPD, WiMAX**
 - » Includes network measurements for Enhanced Cell ID (E-CID) positioning
- » **Support of Galileo and Additional Navigation Systems (GANSS)**
 - » Includes Galileo, GLONASS, Modernized GPS, etc.
 - » Utilizes existing 3GPP/3GPP2 positioning protocols (i.e. RRLP, RRC and TIA-801)
- » **Emergency call support**
 - » Network initiated SUPL position determination after establishment of an emergency call
- » **Enhanced security**
 - » Full GBA support for 3GPP and 3GPP2 bearers
 - » SEK based security model for WiMAX bearers

» Triggered periodic service

- » Periodic position determination of a target SET
- » Both Network Initiated and SET Initiated are supported
- » Use cases: fleet management/monitoring, parcel tracking, etc.

» Area event service

- » Detecting – and notifying the requesting entity - when a target SET enters or leaves a predefined geographical target area
- » Sending of periodic position updates as long as a target SET is either inside or outside a predefined geographical target area
- » Use case: notify the parents whenever their child leaves the school campus and send periodic position updates as long as the child is outside the campus

» Location request of a 3rd party target SET

» Self location with transfer of position to 3rd party

» Different reporting modes for periodic trigger services

Agenda



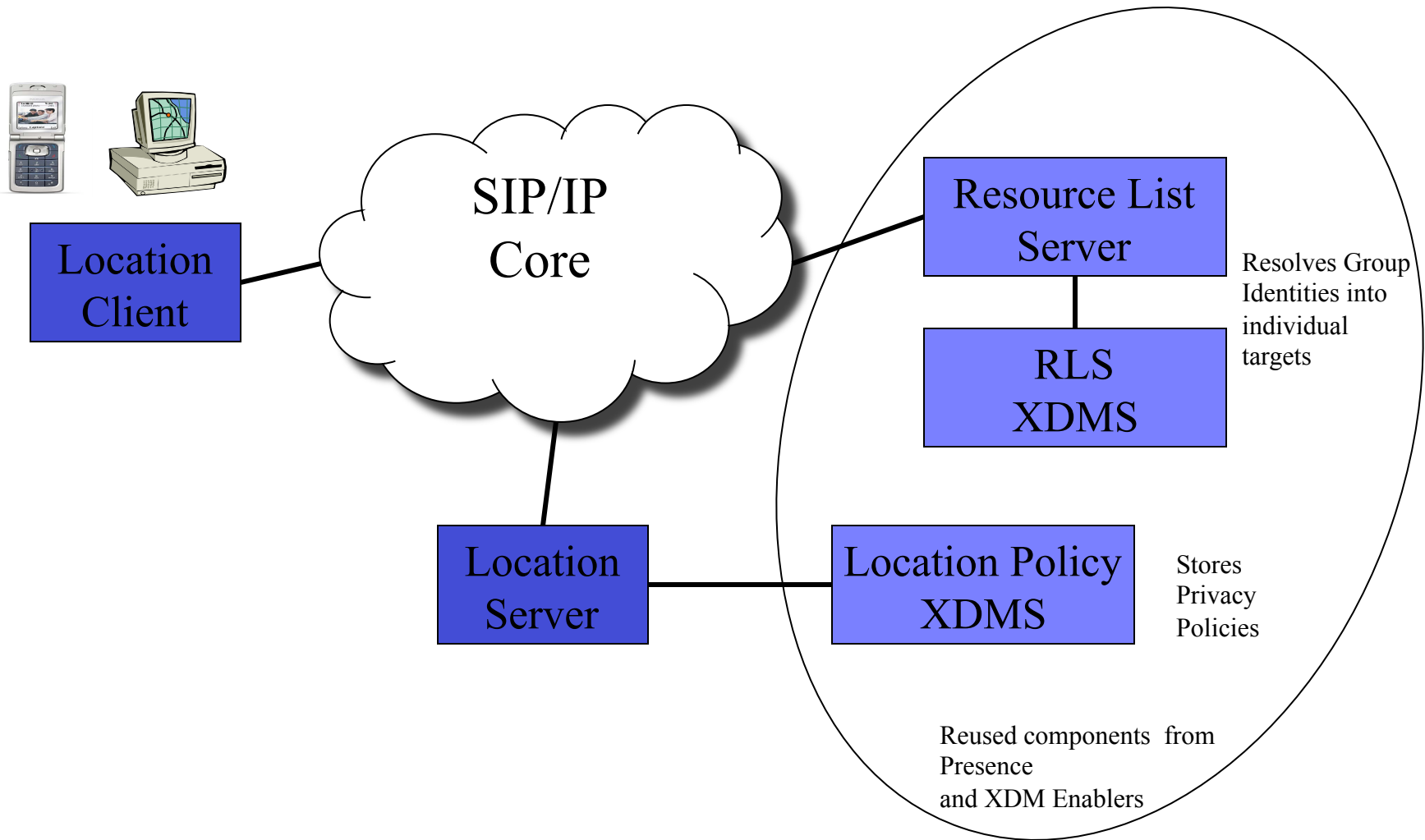
- » Overview of the Open Mobile Alliance
- » Current Work Program and Objectives of the OMA LOC Working Group
- » Overview of the OMA LOC Working Group Pipeline
- » Summary

OMA LOCSIP v1.0



- » The Location in SIP/IP core network (LOCSIP) provides a SIP based interface to expose the location information of Targets. The location information may be processed and utilized by other applications or services in the SIP/IP core network to enrich the end user experience.
- » Position determination functionalities are out of scope of LOCSIP and it is assumed that positioning determination is performed by other enablers.

OMA LOCSIP v1.0 Architecture



OMA LOCSIP v1.0 Use Cases



- » **Immediate Location Delivery**
 - » This use case shows how a location client in an VoIP SIP Application server requests location information of a user and uses location to give e.g. advice of charging to call originator.
- » **Periodic Location Delivery**
 - » This use case shows how a location client in a Presence SIP Application server subscribes to periodic notification of location information group defined by a Presence user.
- » **Area Trigger Location Delivery**
 - » This use case shows how a Location client in a PoC Server subscribes to be notified when a target that is member of a group moves inside or outside a geographical area.

OMA SUPL v3.0



- » OMA SUPL v3.0 was agreed as new OMA LOC work item in December 2008
- » OMA SUPL v3.0 introduces the following new features into SUPL
 - » Improved Location for IP Emergency Calls (e.g. support of SET Initiated emergency calls)
 - » Improved Location performance (e.g. higher accuracy, better time to first fix)
 - » Triggered Location Enhancement (e.g. new trigger types)
 - » Improved Indoor Location Accuracy (e.g. hybrid positioning methods)
 - » SET to SET Location (e.g. streaming of location/measurements)
 - » Authentication Enhancements
 - » Privacy Enhancements
 - » Additional access networks (e.g. fixed broadband)
 - » Support for Extended Location Information (e.g. sensor information)
- » Work on OMA SUPL v3.0 use cases and requirements currently in progress in OMA LOC

Agenda



- » Overview of the Open Mobile Alliance
- » Current Work Program and Objectives of the OMA LOC Working Group
- » OMA LOC Working Group Pipeline
- » Summary

Summary



- » Two enabler releases published by OMA LOC (MLP and SUPL) are already widely deployed in the industry
- » OMA LOC is active in helping to deploy current releases of SUPL
 - » Interoperability testing to optimize SUPL v1.0 is still ongoing
- » OMA is actively helping SUPL v2.0 progress toward commercial deployment
 - » Interoperability testing for SUPL v2.0 is in progress
- » By defining the new work item SUPL v3.0, OMA LOC is prepared to take advantage of latest developments in position location
- » OMA LOC is specifying a SIP based interface to expose location information in the SIP/IP Core
 - » Detailed specification work on LOCSIP V1.0 ongoing
- » OMA provides the principal forum for the development and standardization of service enablers including Location Based Services

More Information



- » **OMA Communications Contact**
 - » Bobby Fraher, External Communications Manager
bfraher@omaorg.org

- » **Interested in joining the OMA**
 - » <http://www.openmobilealliance.org/Membership/default.aspx>

- » **Full list of OMA Enablers**
 - » <http://www.openmobilealliance.org/Technical/releaseprogram.aspx>

- » **List of upcoming OMA Plenary Meetings and OMA TestFests**
 - » <http://www.openmobilealliance.org/Meetings/>
 - » <http://www.openmobilealliance.org/TestFests/overview.aspx>