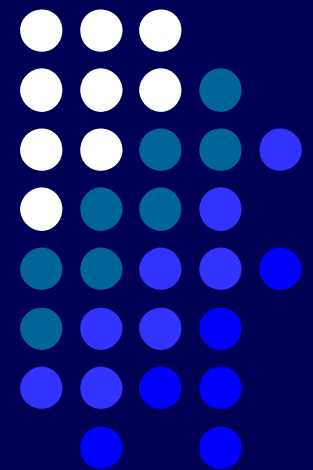


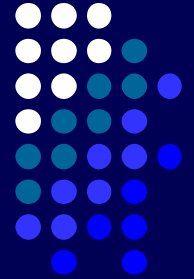
From Wireless Technologies to Mobile Services – The Specifications Development in OMA

Wen-Pai Lu

Presenting to IEEE SVC Comsoc Seminar

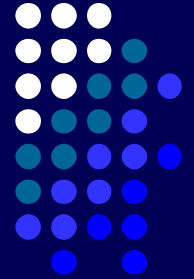
January 14, 2004





Agenda

- ✍ **Motivation**
- ✍ **OMA Mission and Objective**
- ✍ **OMA Organizations**
- ✍ **Mobile Web Service Working Group**
- ✍ **Enterprise BOF**
- ✍ **References**



Challenges

✍ The standard groups

- ✍ 3GPP and 3GPPs

- ✍ IEEE

- ✍ IETF

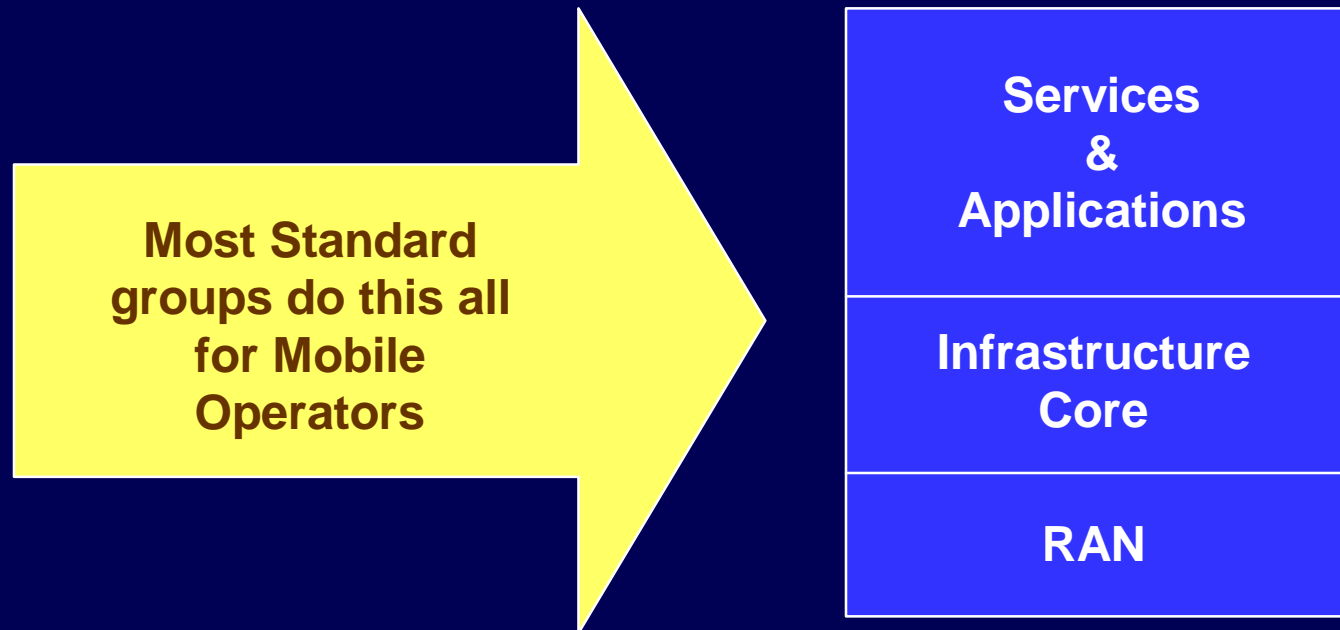
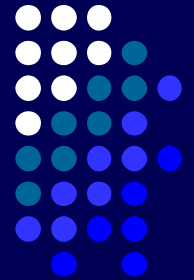
- ✍ Etc.

✍ Slow revenue on Mobile Data services for mobile operators

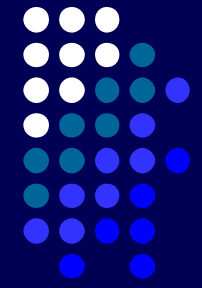
- ✍ Everyone in the value chain is frustrated – operators, internet providers, software vendors, consumers/users

The problem is much deeper than standards

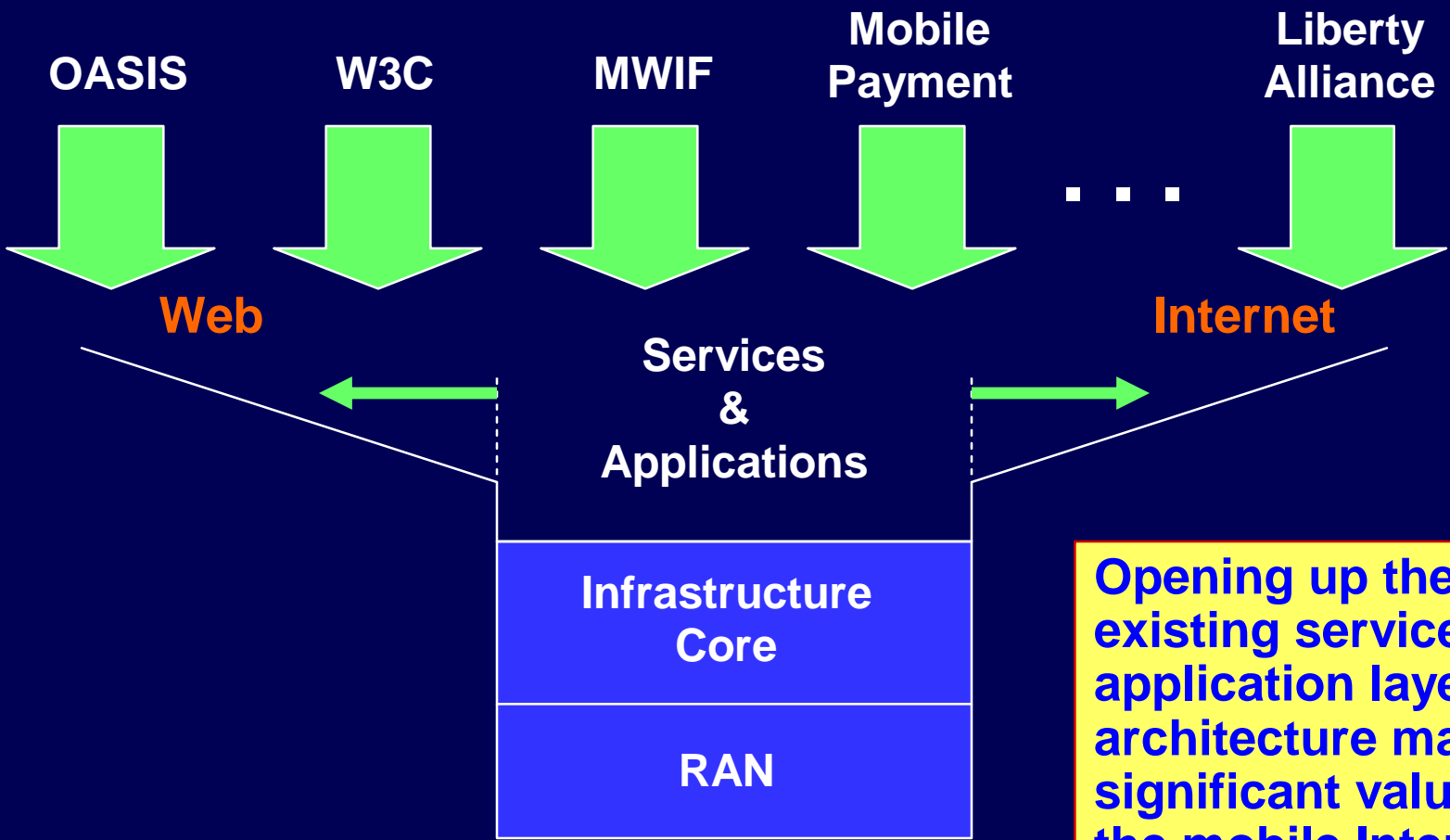
Changing Environment



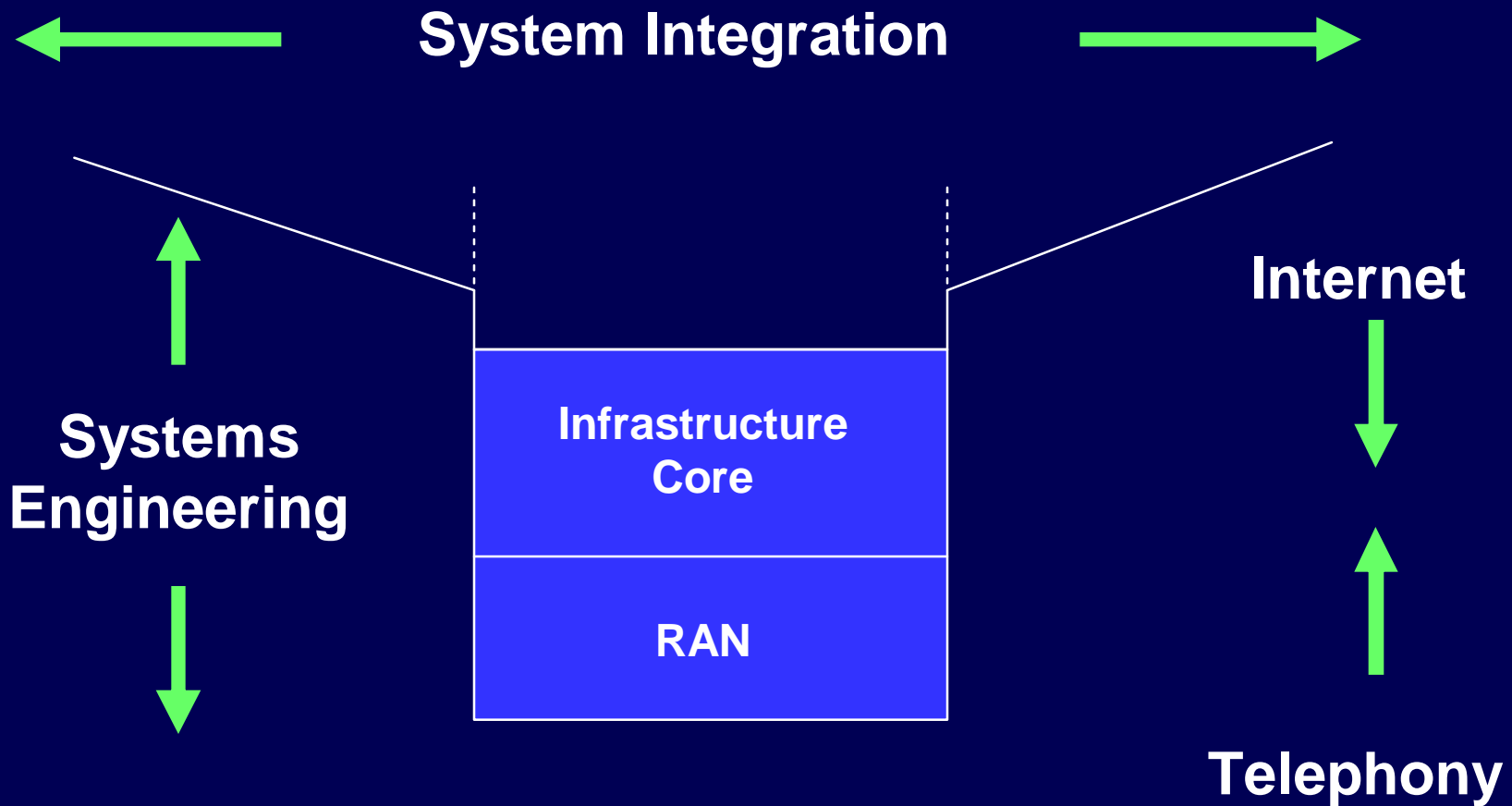
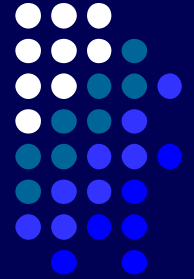
- ✍ **Current mobile wireless market conditions are forcing 3GPP and 3GPP2 to actively seek applications, services, and Web/Internet pieces for their solutions from outside their respective organizations.**

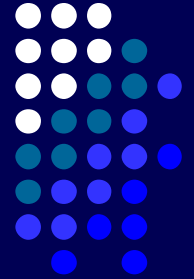


What do we need?



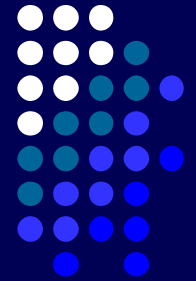
System Integration and Engineering Efforts



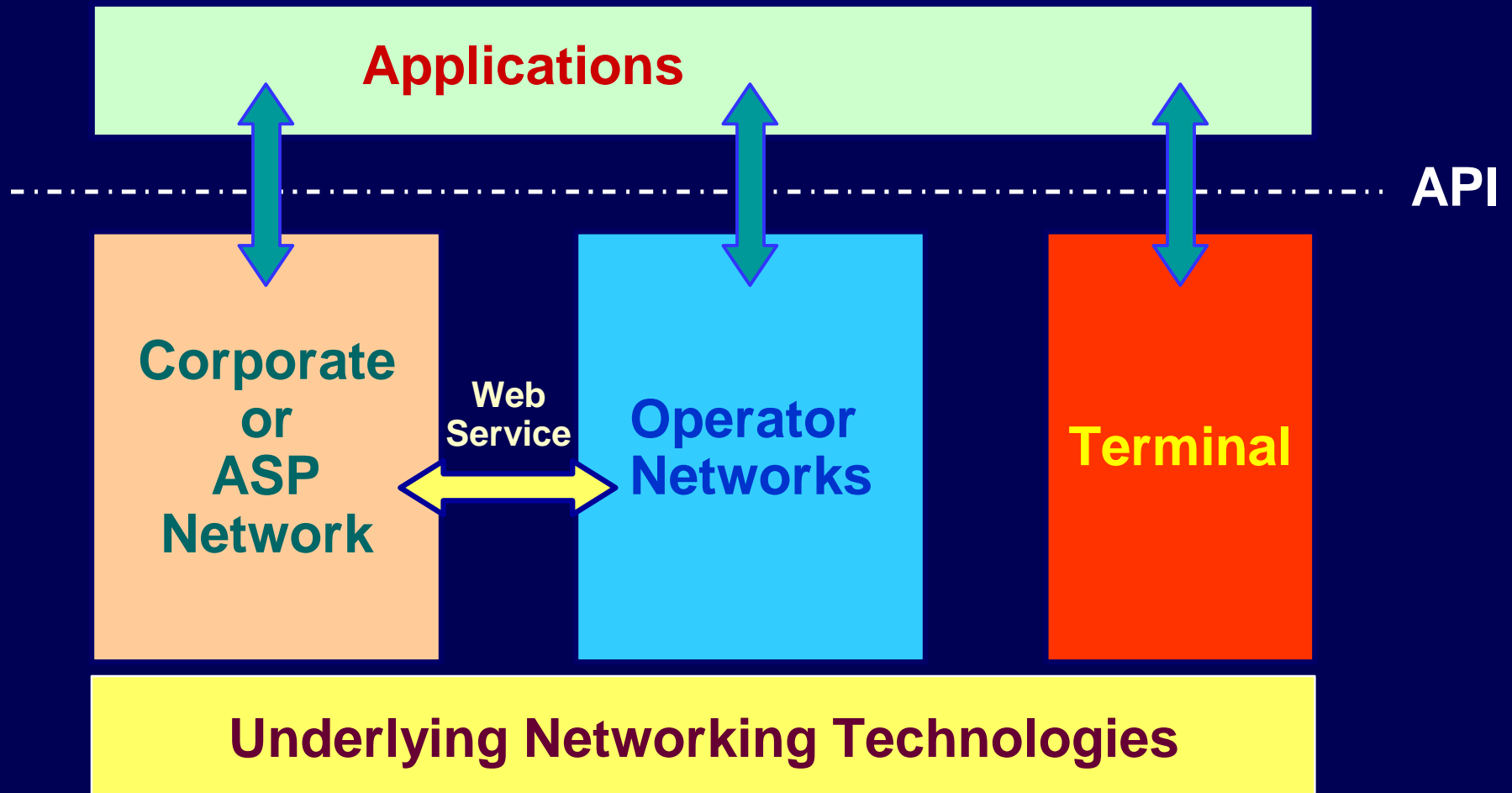


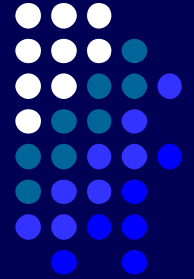
Motivation

- ✍ **Wireless Application Protocol (WAP)**
- ✍ **Open Mobile Architecture Initiative – November 2001**
 - ✍ **Key enablers to stimulate growth**
 - ✍ **Opportunities for all players in the value chain to success – operators, manufacturers, developers, IT companies, and consumers**
 - ✍ **Needs for open standards, and seamless interoperability in the industry**
 - ✍ **Proposed to develop open API's for tools and software**
 - ✍ **Key Elements:**
 - ✍ **Open application development environment**
 - ✍ **Open terminal-network and client-server interfaces**
 - ✍ **Open terminal architecture**
 - ✍ **Open service platform architecture**



System Architecture

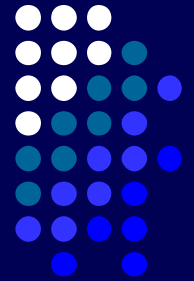





Open Mobile Alliance - OMA

- ✍ **Formed in June 2002**
- ✍ **First TP Meeting in Rome in August 2002**
- ✍ **Consolidation of several foras**
 - ✍ **WAP Forum**
 - ✍ **Location Interoperability Forum (LIF)**
 - ✍ **SyncML Initiative**
 - ✍ **MMS-IOP (Multimedia Messaging Interoperability Process)**
 - ✍ **Wireless Village**
 - ✍ **Mobile Gaming Interoperability Forum (MGIF)**
 - ✍ **Mobile Wireless Internet Forum (MWIF)**
- ✍ **More than 300 companies – mobile operators, device vendors, network suppliers, IT companies, software developers, and content and service providers**


OMA Missions



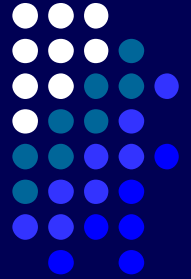
Mission

-  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.





Purpose

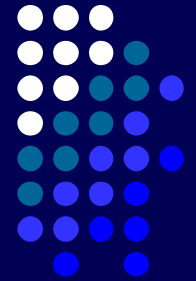
-  To grow the market for the entire mobile industry by removing barriers to interoperability, supporting a seamless and easy to use mobile experience for users and a market environment that encourages competition through innovation and differentiation

OMA Goals

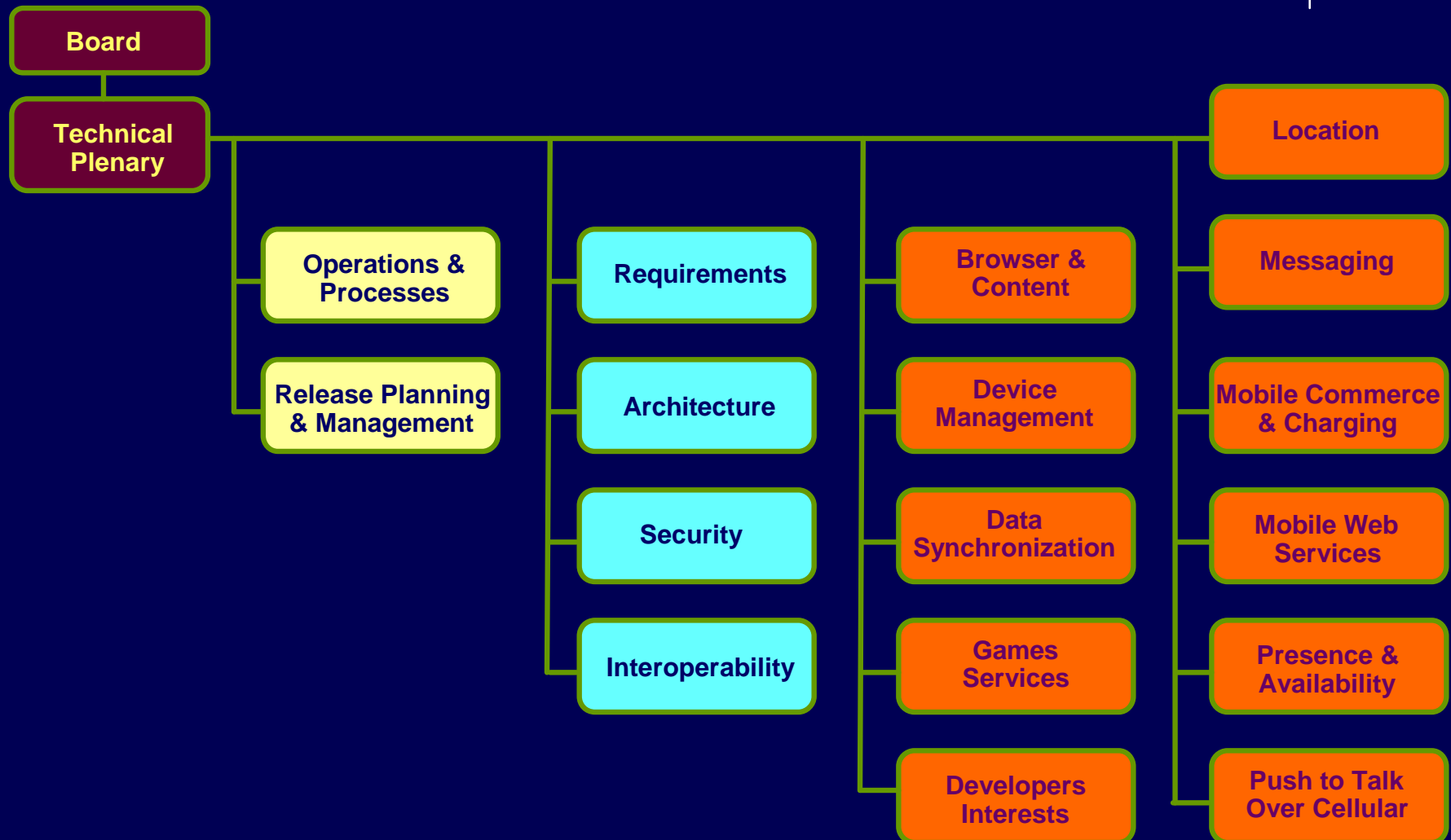


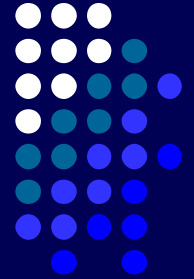
Goals

-  **Deliver high quality, open technical specifications based upon market requirements ..**
-  **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 mobile data service industry,..**
-  **Provide value and benefits to members in OMA from all parts of the value chain ..**



OMA Organizations





OMA Organizations - Missions

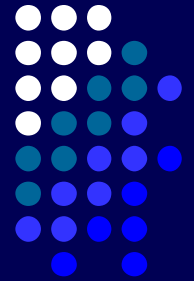
Operations and Processes

-  Provides support on operational and process activities

Release Planning & Management

-  Planning and managing OMA Releases, defining OMA Releases based on OMA specifications and Interoperability Testing programs, and defines the Release planning process

OMA Organizations – Missions (cont.)



Requirements

- Specifies and identifies interoperability and usability requirements within OMA Working Groups

Architecture

- Defines the overall OMA architecture, enabling specification work in work groups and assuring, through review, adherence of specification work to OMA architecture

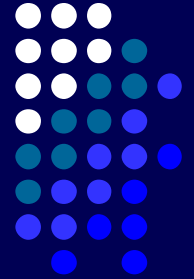
Security

- Develops secure communication protocols between mobile clients and servers at transport and application layers, security and trust services provided by/to mobile clients and servers

Interoperability

- Acts as a center of excellence to identify, specify and maintain the required processes, policies and test programs for ensuring interoperability for OMA specified enablers and end-to-end services

OMA Organizations – Missions (cont.)



✍ **Browser & Content**

- ✍ Responsible for the specification of application technologies used in the open mobile architecture

✍ **Data Synchronization (SyncML)**

- ✍ Continues the work originated in the former SyncML Initiative. Develops specifications for data synchronization, and the development of other similar specifications, including but not limited to SyncML technology

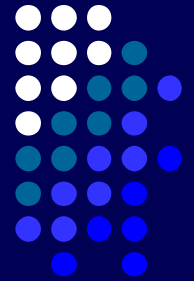
✍ **Developers Interests**

- ✍ collects and publishes data relevant to developers, provides a means for software developers to articulate and specify their needs to OMA and identifies missing or inconsistent developer interfaces

✍ **Device Management (WAP & SyncML)**

- ✍ Defines management protocols and mechanisms that enable robust management of the life cycle of the device and its applications over a variety of bearers. Continue works from WAP and SyncML

OMA Organizations – Missions (cont.)



✍ **Games Services (MGIF)**

- ✍ Develops interoperability specifications, APIs and protocols for network enabled gaming, as well as, enabling game developers to develop and deploy mobile games to efficiently interoperate with OMA platforms and enable cost reduction for game developers, game platform owners and service providers. Continue works from MGIF

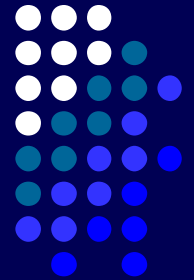
✍ **Location (LIF)**

- ✍ Develops specifications to ensure interoperability of Mobile Location Services on an end-to-end basis

✍ **Messaging**

- ✍ Responsible for the specification of messaging and related enabling technologies

OMA Organizations – Missions (cont.)



✍ **Mobile Commerce and Charging**

- ✍ Brings industry players (companies, forums, etc.) closer together to get a more coordinated effort on m-commerce and to provide an overall m-commerce industry perspective

✍ **Mobile Web Services**

- ✍ Responsible for developing a specification that defines the application of web services within the OMA architecture and ensure that the specification provides for the application of web services that is converged with the work of external activities

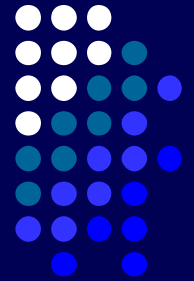
✍ **Presence and Availability**

- ✍ Specify the service enablers to permit the deployment of interoperable mobile presence and availability services

✍ **Push to Talk over Cellular**

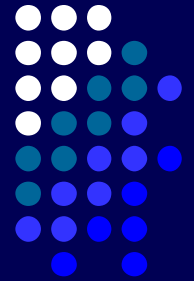
- ✍ develop application enabling specifications to permit the deployment of interoperable PoC services

Mobile Web Services (MWS) Working Group



- ✍ Provide specifications and guidelines for Web Services (WS) technologies, implementations and deployments to integrate and interoperate within the OMA architecture.
- ✍ Ensure interoperability across servers and terminals supporting web services protocols through the use of standardized protocols.

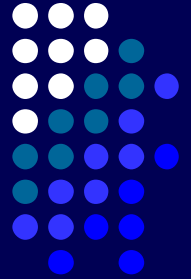
Current Status - MWS Release 1 Documents



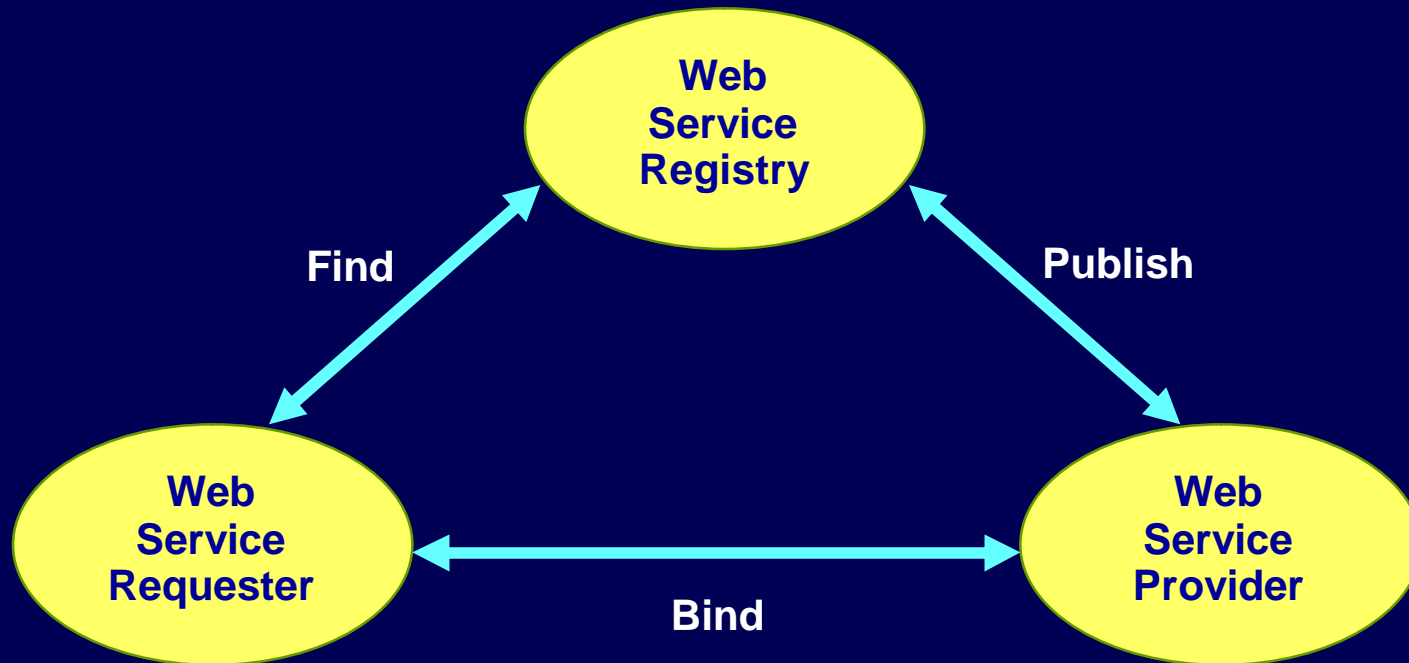
✍ Current Release Documents for Review

- ✍ **OMA Web Service Enabler (OWSER): Overview – This also serves as Architecture document**
- ✍ **OMA Web Service Enabler (OWSER): Core Specifications – Define the technology used**
- ✍ **OMA Web Service Enabler (OWSER): Network Identity Specifications**
- ✍ **OMA Web Service Enabler (OWSER) Best Practices: WSDL Style Guide**
- ✍ **OMA MWS Requirements**
- ✍ **OMA MWS Network Identity Requirements**
- ✍ **Enabler Test Requirements (ETR) for OWSER**
- ✍ **Enabler Release Definition (ERELD) for OWSER**

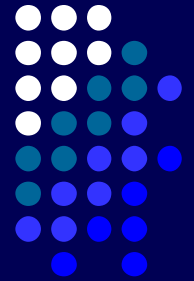
Service Oriented Architecture (SOA)



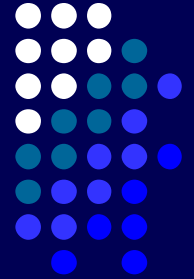
✍ A underlying technology that forms the basis for the OMA Web Service Enabler (OWSER)



OMA Web Service Enabler (OWSER)

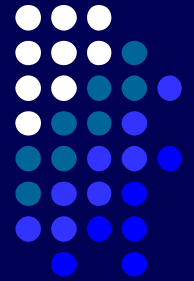


- ✍ **The capabilities that are common across most Web Services within OMA.**
- ✍ **Enabler capabilities can be implemented in various ways involving WSRs, WSPs, Web Service intermediaries, or legacy elements.**
- ✍ **Designed to be extensible**
- ✍ **Leverages works within the broader industry where applicable**



OWSER Phase 1 Capabilities

- ✍ **WSR authentication**
- ✍ **WSR authorization**
- ✍ **Message and data confidentiality**
- ✍ **Message and data integrity**
- ✍ **Service Registry Management**
 - ✍ **WSP registration**
 - ✍ **Web Service publication**
 - ✍ **Web Service discovery**
 - ✍ **Web Service binding**



OWSWE Protocol Architecture

WS Messaging

SAML

WS Security

Canonical XML
XML Encryption
XML Signature

SOAP

XML + Namespaces
+ Information Set

WS Description

WSDL

XML Schema

WS Discovery

UDDI

subscribe

Search

Register

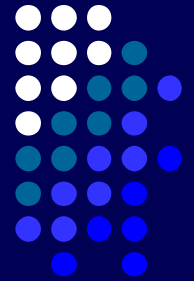
Envelop (MIME)

Transfer (HTTP)

Transport Security (SSL, TLS)

Transport (TCP/IP)

Security Considerations in MWS



⚡ Threats to be protected

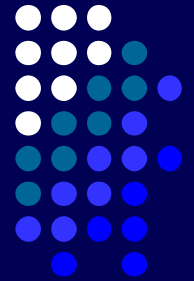
- ⚡ Inappropriate content modification
- ⚡ Denial of service
- ⚡ Eavesdropping
- ⚡ man-in-the-middle attack
- ⚡ masquerade attack
- ⚡ replay attack Trojan Horse

Note: These threats are considered most relevant in the initial version of the OWSER. Additional threats will be identified and provided

⚡ Security Services

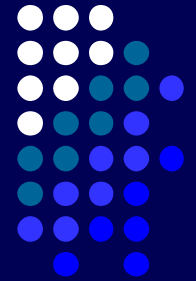
- ⚡ Authentication
- ⚡ Data Confidentiality
- ⚡ Data Integrity
- ⚡ Access Control
- ⚡ Non-repudiation

Network Identity Management in MWS

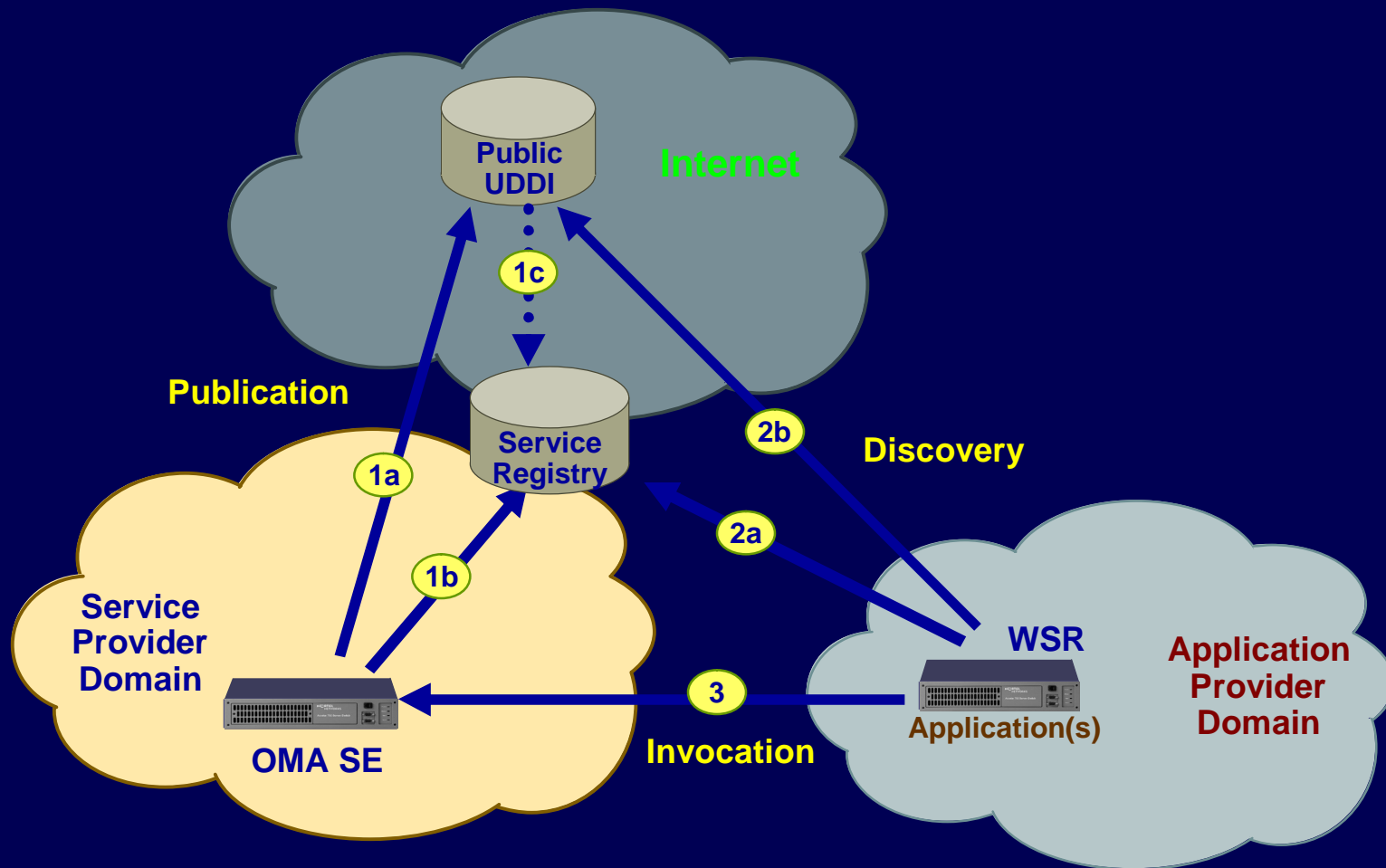


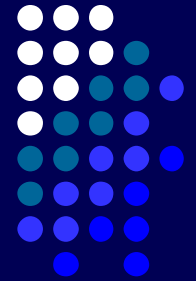
- ✍ Focus on Principles, the end users/subscribers
- ✍ Federated Network Identity
 - ✍ Federate various “personas” of an individual without compromise of privacy or loss of ownership of the associated data
- ✍ User Identity Federation
 - ✍ A notion of trusted or third party – Identity Provider
 - ✍ Sharing of the *authentication event* by a trusted party
 - ✍ Protocol for User Identity Federation
 - ✍ Interaction between identity provider and service provider
- ✍ Service based on Federated Identity
 - ✍ Single Sign On
 - ✍ Single Sign Out

**Detailed Network Identity Specification:
OMA-OWSER-Network_Identity-Specification-V1_0-20031218-D**

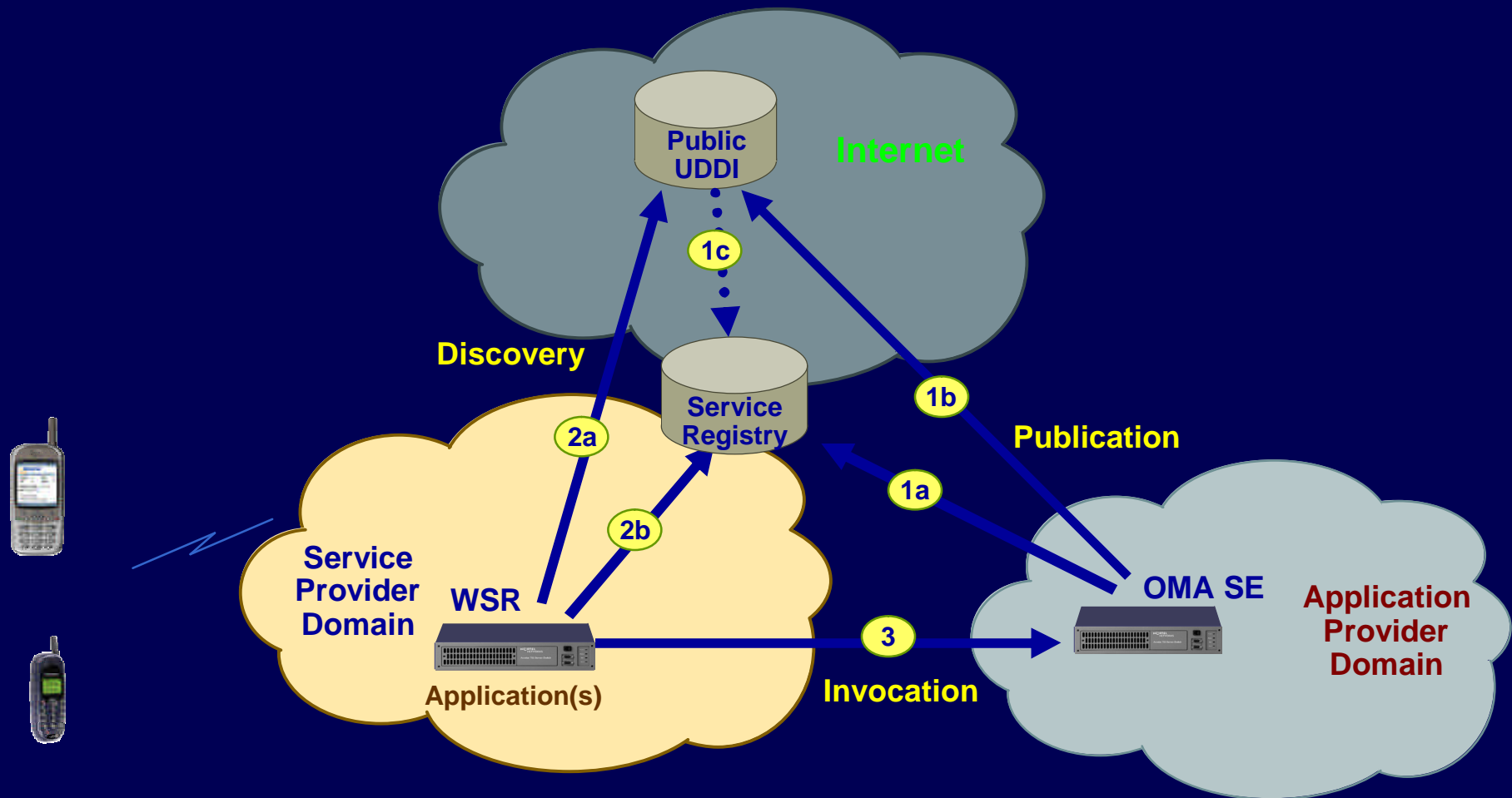


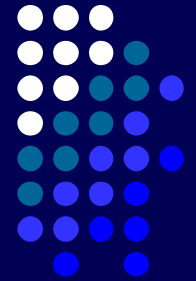
How OWSER Works – Scenario 1



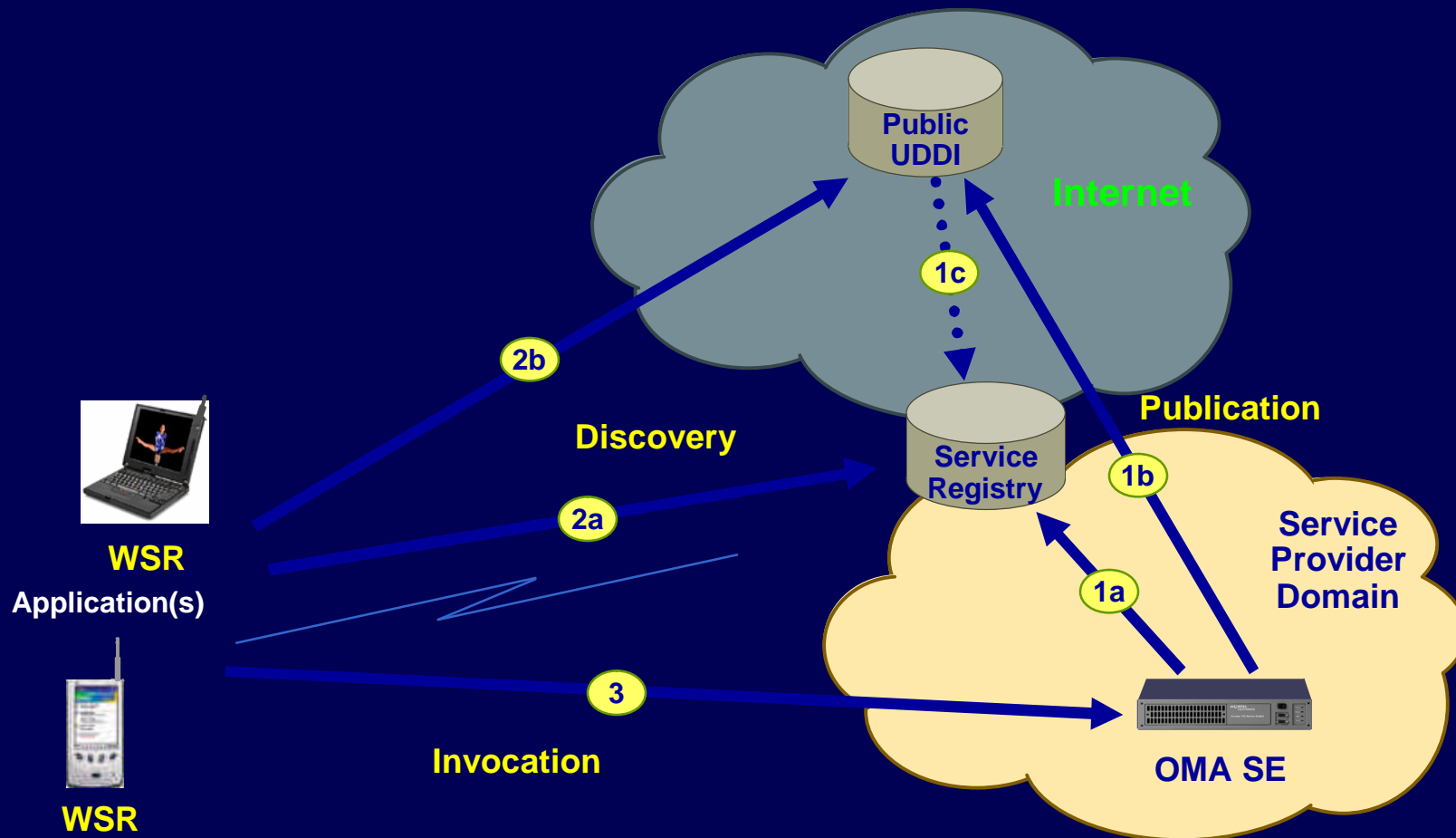


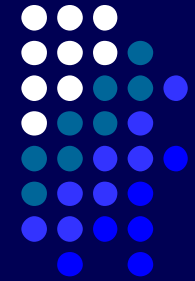
How OWSER Works – Scenario 2



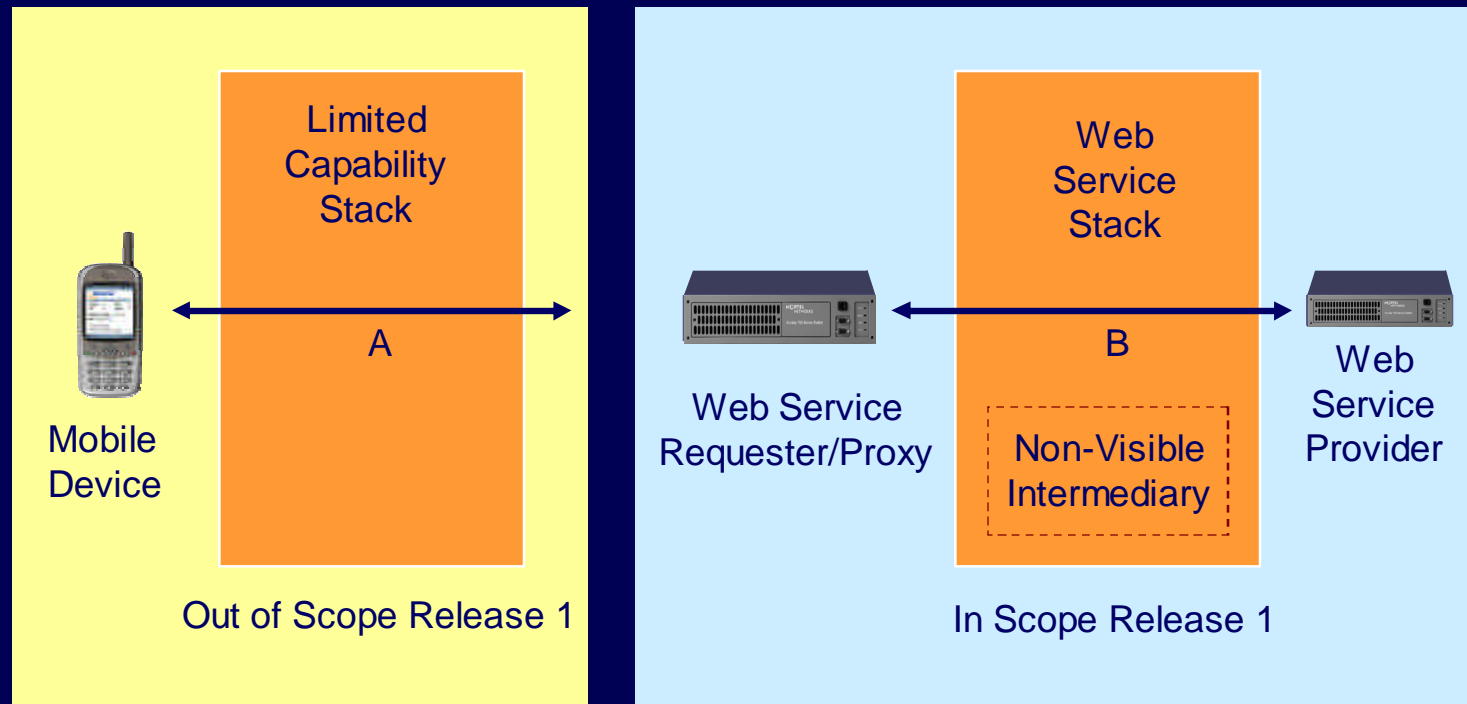


How OWSER Works – Scenario 3

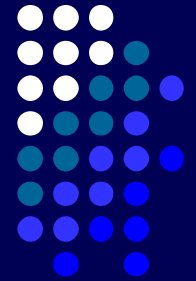




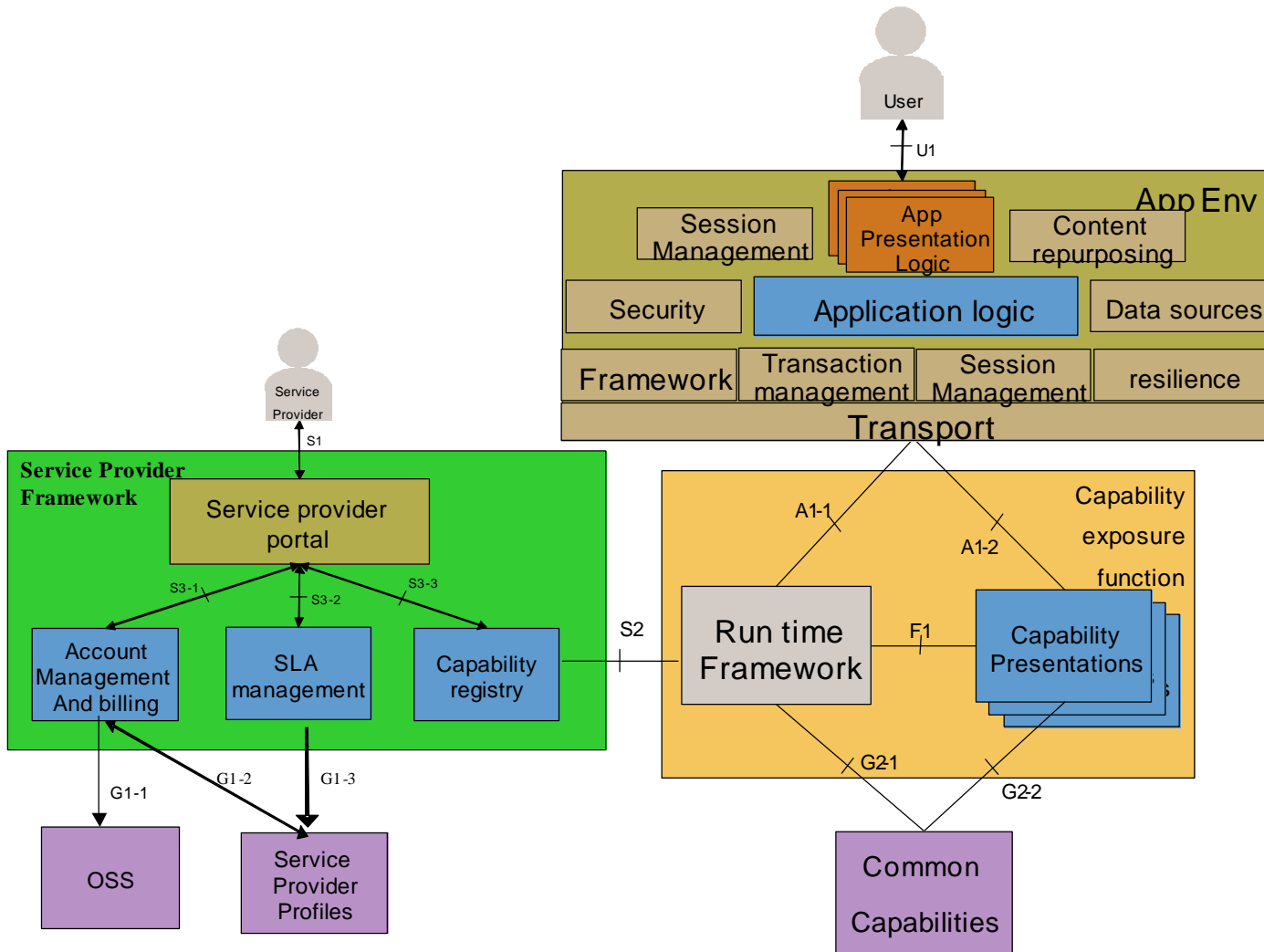
Architectural Model

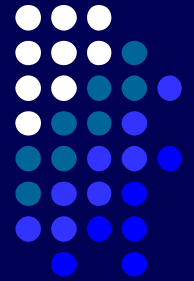


Indirect Model = Interface A + Interface B
Direct Model = Interface B



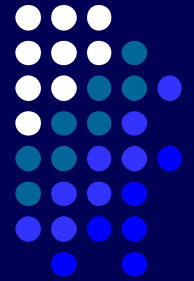
OMA Architecture WG





Enterprise OMA Concerns

- ✍ **Service Provider centric**
- ✍ **Enterprise users have different needs from providers, IT vendors as well as consumers that create huge challenges**
- ✍ **Enterprise can create huge mobile market opportunity that will be significant for everyone**
- ✍ **Enterprise IT would adopt early if data solutions readily integrate into current IT environments**
- ✍ **Enterprise IT could help broaden & further accelerate mobile data adoption**

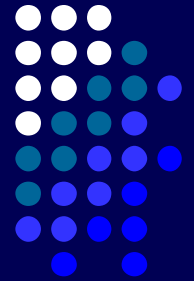


Enterprise BOF

✍ Scope of BOF

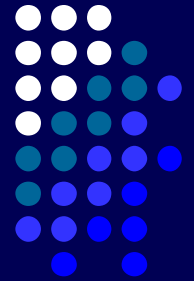
- ✍ Identifying and analyzing the challenges met today by enterprise when mobilizing their existing and new applications
- ✍ Providing technical recommendations to address these challenges:
 - ✍ Through recommendations for ongoing and future OMA activities
 - ✍ By providing a gap analysis on existing OMA enablers
 - ✍ By proposing new enablers
 - ✍ Through guidelines for the mobile industry

http://member.openmobilealliance.org/ftp/TP/Enterprise_BOF/Enterprise-BOF-Home.shtml



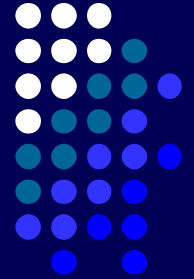
Conclusion

- ✍ **OMA is becoming the driver for mobile applications (service providers as well as enterprises)**
- ✍ **Most of the current specifications are the productions of previous foras**
- ✍ **MWS produces the first OMA documentations**
- ✍ **Applications focus will be more than just data – e.g., Push to talk WG**



References

- ✍ **Open Mobile Alliance Main Site** <http://www.openmobilealliance.org>
- ✍ **Enabler Release Definition**
http://www.openmobilealliance.org/ftp/PD/OMA-ERELO-OWSER-V1_0-20031218-D.zip
- ✍ **Enabler Test Requirement**
http://www.openmobilealliance.org/ftp/PD/OMA-ETR_OWSER-V1_0-20031218-D.zip
- ✍ **Overview**
http://www.openmobilealliance.org/ftp/PD/OMA-OWSER-Overview-V1_0-20031218-D.zip
- ✍ **Core Specification**
http://www.openmobilealliance.org/ftp/PD/OMA-OWSER-Core-Specification-V1_0-20031218-D.zip
- ✍ **Network Identity Specification**
http://www.openmobilealliance.org/ftp/PD/OMA-OWSER-Network_Identity-Specification-V1_0-20031218-D.zip
- ✍ **Best Practice: WSDL Style Guide**
http://www.openmobilealliance.org/ftp/PD/OMA-OWSER-Best_Practice-WSDL_Style_Guide-V1_0-20031218-D.zip
- ✍ **Requirements**
http://www.openmobilealliance.org/ftp/PD/OMA-MWS_RD-V1_0-20031120-A.zip
- ✍ **Network Identity Requirements**
http://www.openmobilealliance.org/ftp/PD/OMA-RD_MWS_NI-V1_0-20031120-A.zip
- ✍ **Requirements Review Report**
http://www.openmobilealliance.org/ftp/PD/OMA-RDRR_MWS-V1_0-20031120-A.zip
- ✍ **Network Review Requirements Review Report**
http://www.openmobilealliance.org/ftp/PD/OMA-RDRR_MWS_NI-V1_0-20031120-A.zip
- ✍ **Architecture Review Report**
http://www.openmobilealliance.org/ftp/PD/OMA-MWS_AD_RR-V1_0-20031217-D.zip



Thank You!