Mobile Applications and Services for NGN networks

Anett Schülke

NEC Network Laboratories Heidelberg

NEC Europe Ltd.

Content

o Trends for Mobile Application and Services

o OMA architecture (OSE)

o Mobile Services evolving from OMA

- Over IMS
  - Push-to-talk Over Cellular,
  - Presence,
  - Group Management
- Selective other services

o NEC's view on OSE Model for Service Integration

ITU-T

o **Multimedia**
  - Services are becoming more visual as the phones will be able to capture and display pictures, graphics and video
  - Rich Service Creation

o **Contextual and Personal**
  - communication networks → know more about users → influence the services users receive
  - gather more information about others → share more information about ourselves with others
  - Context awareness leads to higher degree of personalization → requirement for successful new services

o **Social and Community Focused**
  - People are social animals. We build social networks
  - Modern networks and services offer the chance to build services that allow users to interact in groups, as they do in the "real world"

Grouping, Presence, Context
Drivers for Enhanced Communication

o 3G and Internet Technologies enable many new services

o How to provide applications & services while taking advantage of the new network capabilities efficiently?
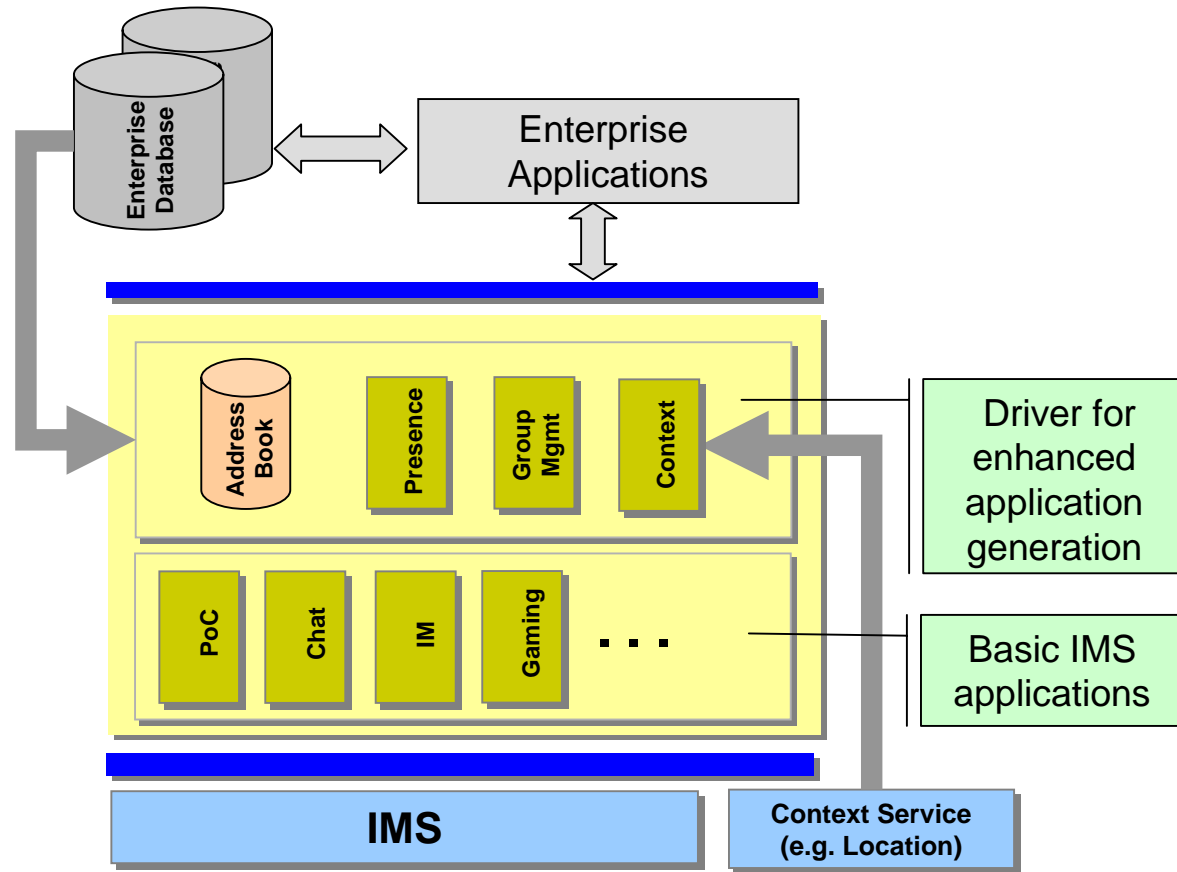
Presence / Context / Group Communication are the drivers for advanced application scenarios

Open Mobile Alliance (OMA)
The Leading Standardization Organization for Mobile Service
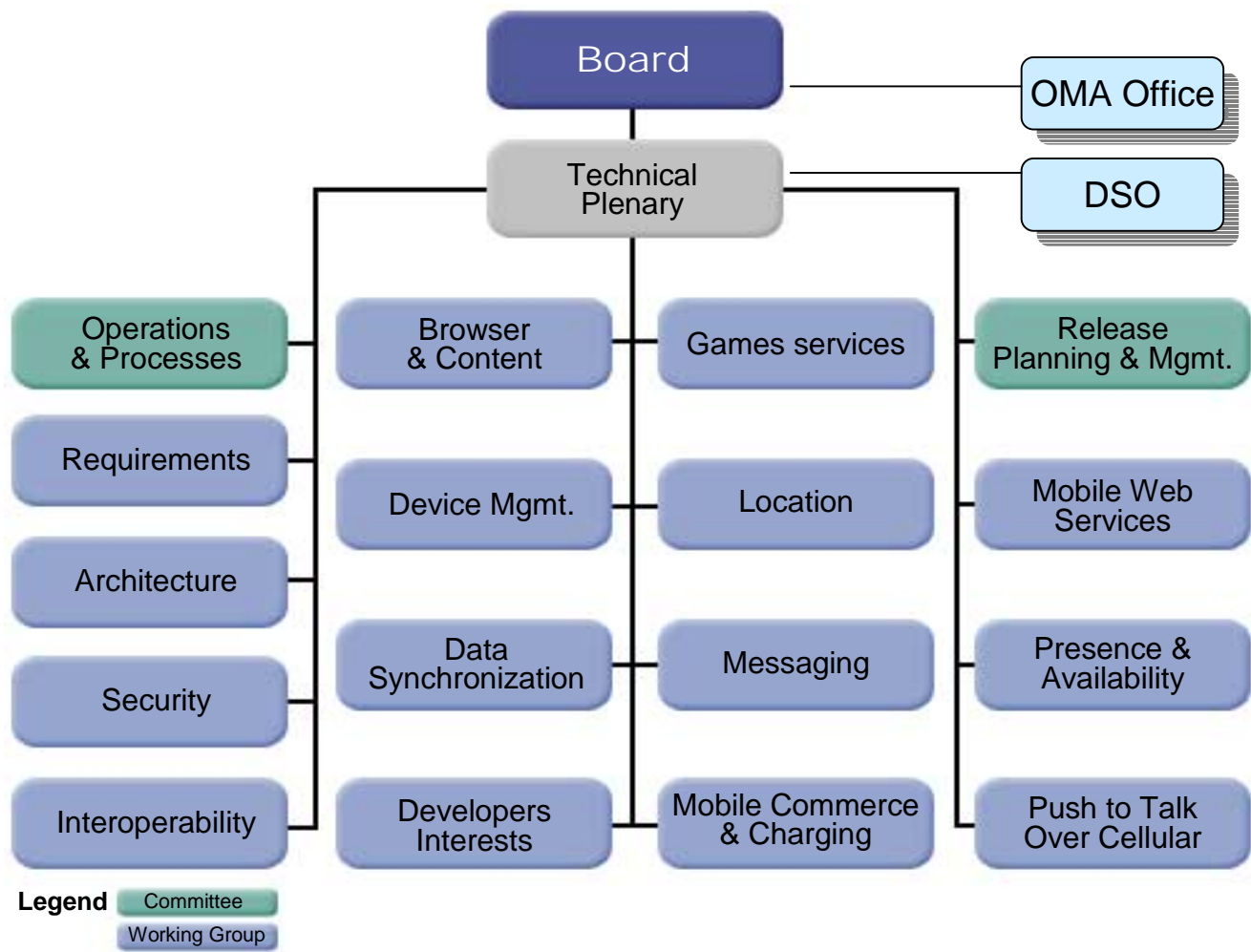
ITU-T

o **Brief history**
  - formed in June 2002 by 200 companies (now over 400 memberships)
  - major parent body was WAP Forum

o The Mission of OMA is to grow the market for the entire mobile industry by removing barriers for global user adoption, ensuring seamless application interoperability, while allowing business to compete through innovation and differentiation.

o **OMA aims for a uniform service architecture for:**
  - Compelling new mobile services
  - Interoperability between infrastructure, devices and services
  - Healthy competition
  - Less market fragmentation
  - Lower cost in service development
  - Faster global service deployment
  - Enriched user experience across service providers

Source: http://www.openmobilealliance.org;

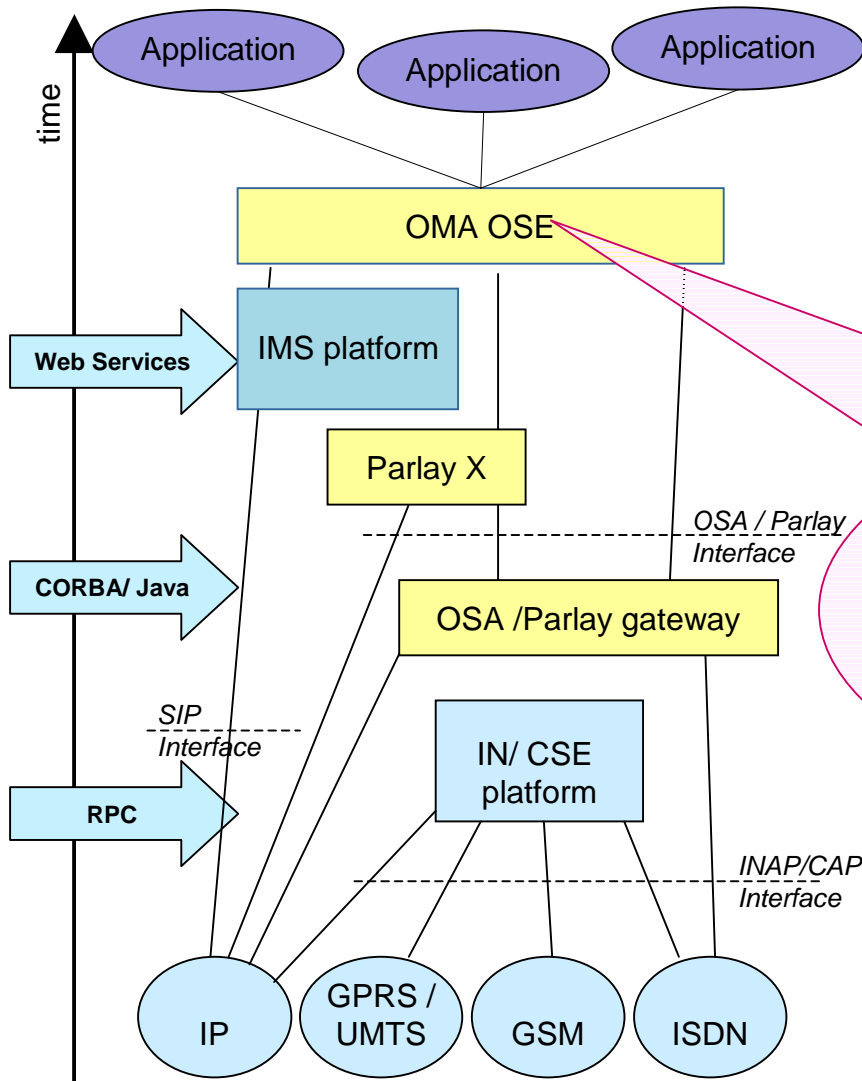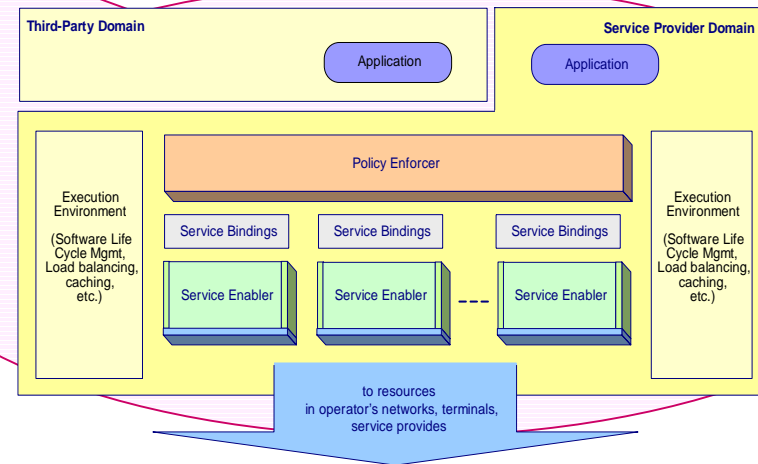# OMA Organization Chart

OMA Service Environment (OSE)
New Service Platform Paradigm in Standardization

ITU-T

- o The OMA specifies service enablers.
- o The OMA enablers → the decomposition into these components and the interactions between them.
- o OMA is defining a new paradigm for an integrated service architecture: OSE (OMA Service Environment)
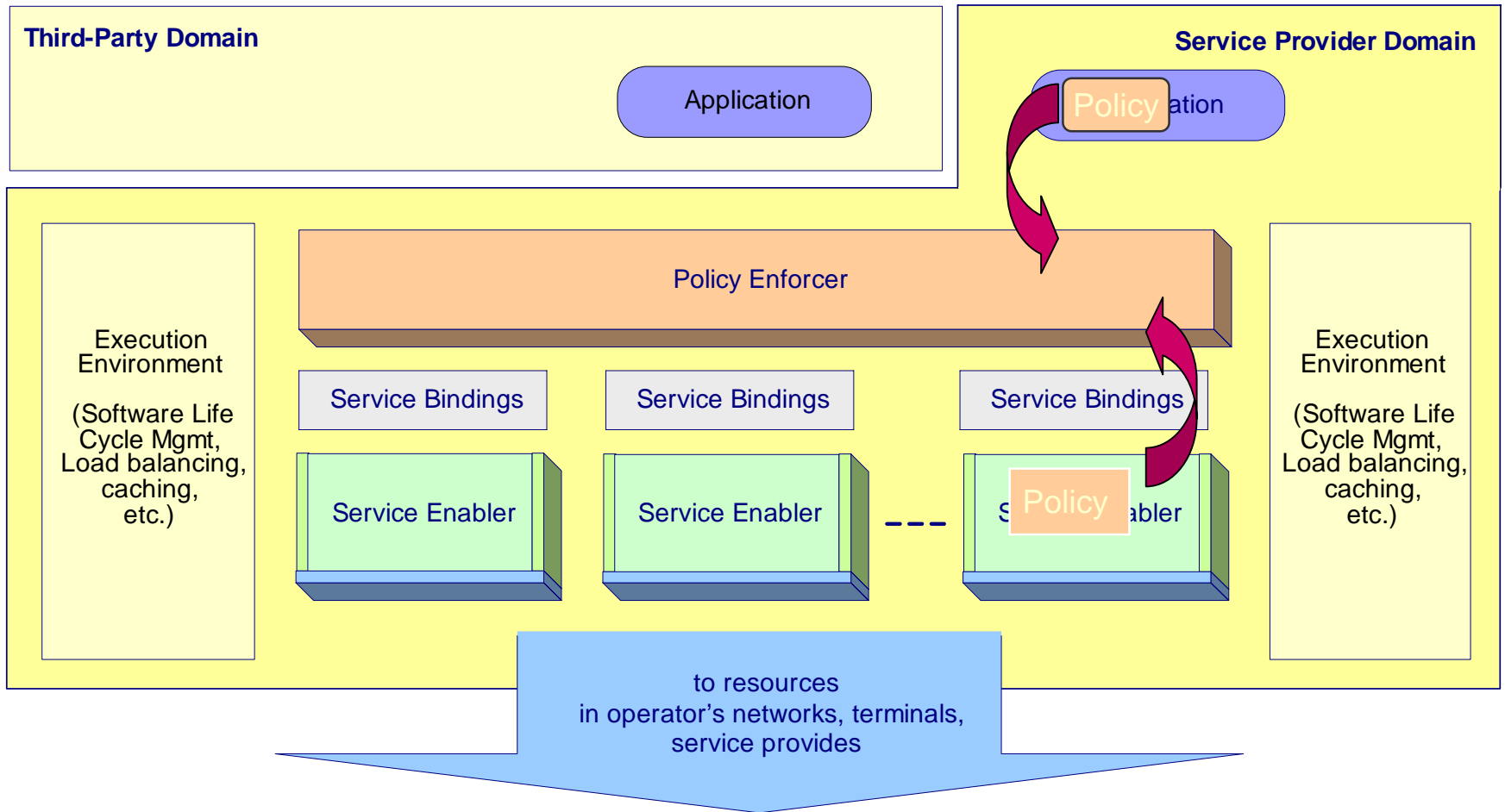
OMA analysis how OSE and Parlay/OSA architectures could be integrated and how components implementation/ realizations coexist for OSA/Parlay, Parlay X Web Service and OSE.
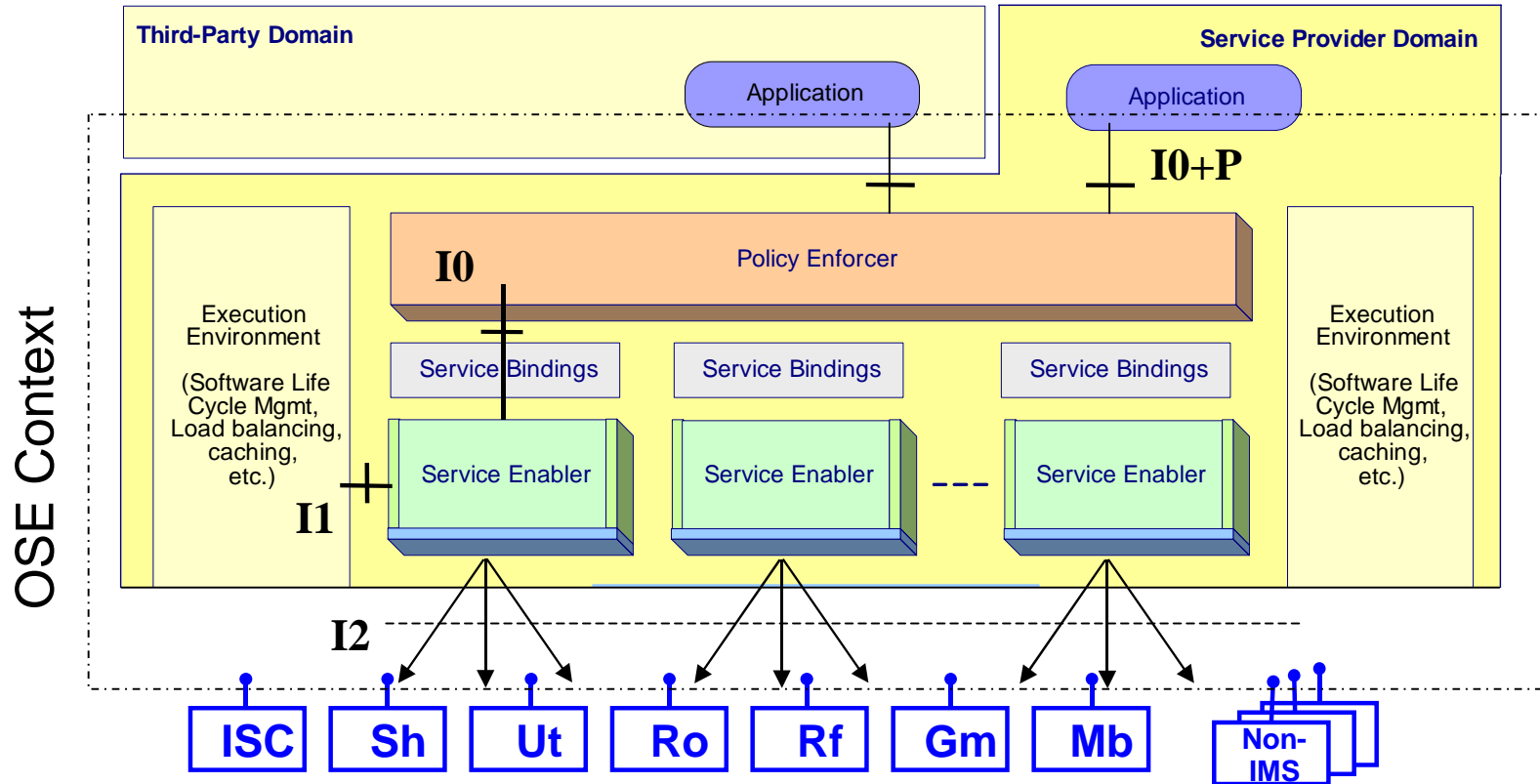
OMA Service Environment (OSE)
Logical Architecture

ITU-T

Third-Party Domain

Service Provider Domain

Application

Policy ation

Policy Enforcer

Execution Environment

(Software Life Cycle Mgmt, Load balancing, caching, etc.)

Service Bindings

Service Enabler

Service Bindings

Service Enabler

Service Bindings

Policy

S ____ abler

Policy

Execution Environment

(Software Life Cycle Mgmt, Load balancing, caching, etc.)

to resources
in operator's networks, terminals,
service provides

Source: http://www.openmobilealliance.org; OSE Architecture

IMS interfaces are I2 interfaces in the OSE context

Source: http://www.openmobilealliance.org; IMS in OMA

o   IMS provides an integration environment for all communication media, such as Voice, Video & Text.

o   IMS realizes the Rich Communication:

- Real-time Multi-media,
- Group and community centered services

o   Example IMS Services:

- Instant Messaging, Presence List
- Rich Voice Call (Presence based call forwarding & barring, voice enabled games, bearer change, etc.)
- Group Text Chatting
- Live Goals: Video Streaming Service (let your phone watch..)
- Phone trader: Automatic call set up when stocks hit their sell price
- Push-to-Talk
- Multimedia Multiparty Conferencing (e.g. Multiparty Games)
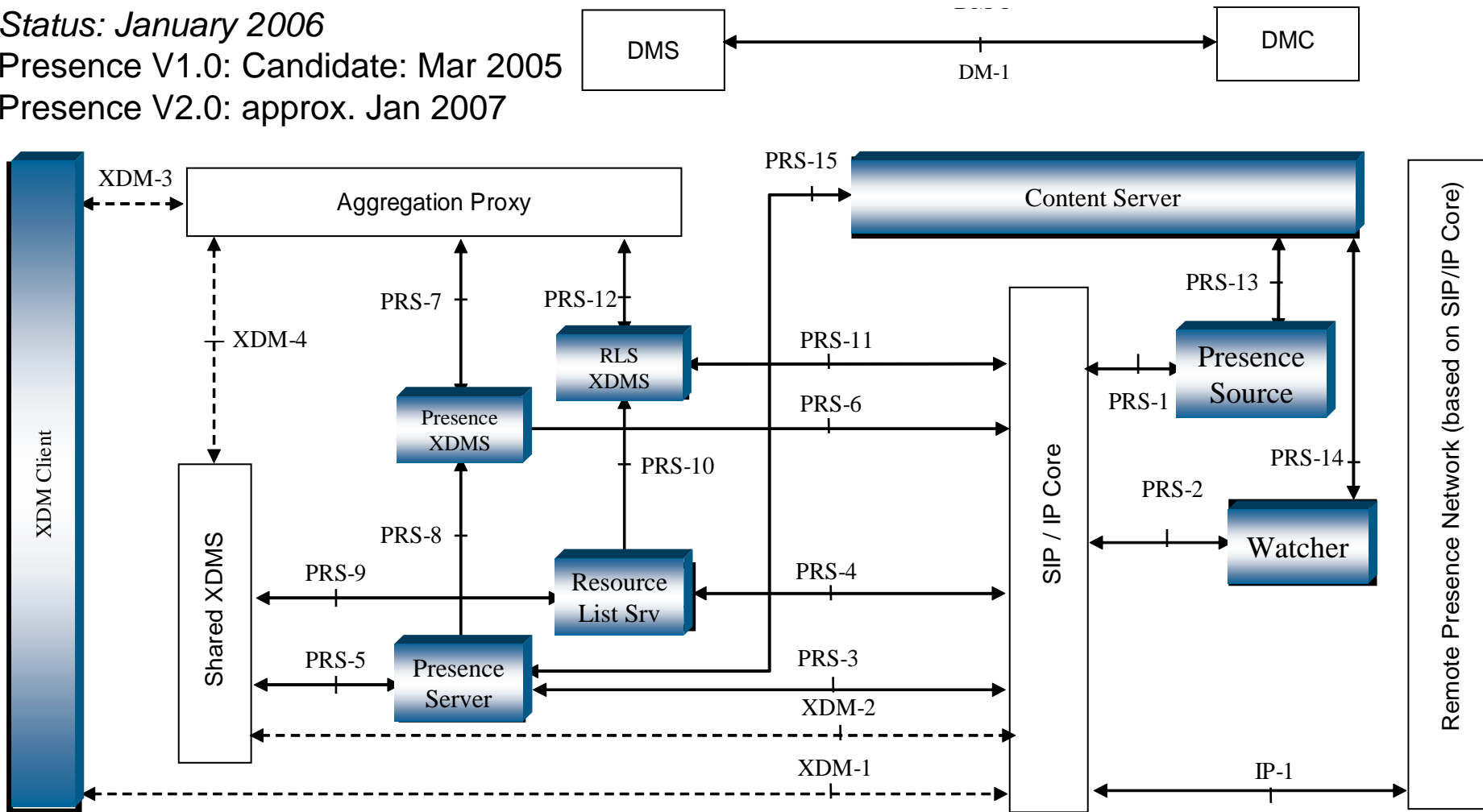- Personalized Information Services

Presence Service
OMA Presence SIMPLE V1.0 Architecture

ITU-T

Status: January 2006
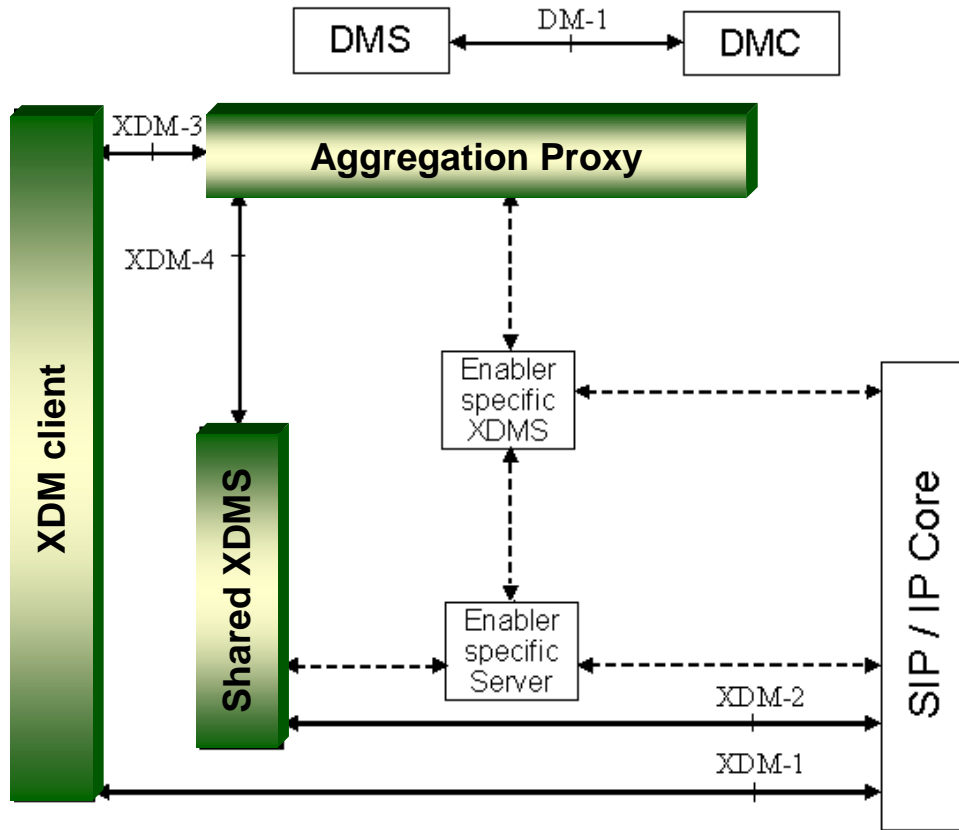Presence V1.0: Candidate: Mar 2005
Presence V2.0: approx. Jan 2007

Source: http://www.openmobilealliance.org; OMA Presence SIMPLE AD

o **XDM V1.0**
  - Candidate status since February 2005

o **XDM V2.0**
  - Requirements: expected to be completed by June 2006
  - Enabler package: expected to be completed for candidacy by January 2007
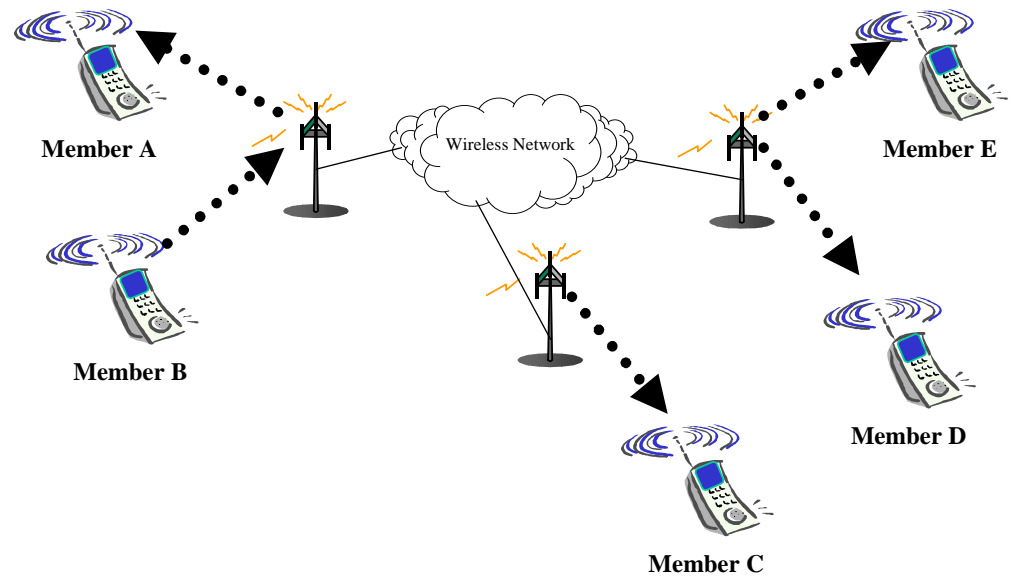
Status: January 2006

Source: http://www.openmobilealliance.org; OMA XDM AD

A form of communication that allows users to engage in immediate communication with one or more users, providing a "walkie-talkie" like P2P and group service.

Member A

Member B

Wireless Network

Member E

Member D

Member C

o The communication is half-duplex

o Right-to-Speak amongst different participants is controlled

o The receiving participants hear the sender's voice either by Auto Answer without any action on their part, or by Manual Answer, i.e. being prompted/alerted and accepting the call before hearing the sender's voice.

o PoC utilizes the Group Management and Presence enablers to support Group List, Access Lists, and Presence.
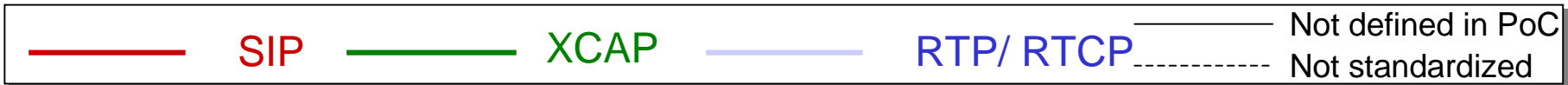
Push-to-Talk over Cellular
OMA Push-to-Talk over Cellular V1.0 Architecture
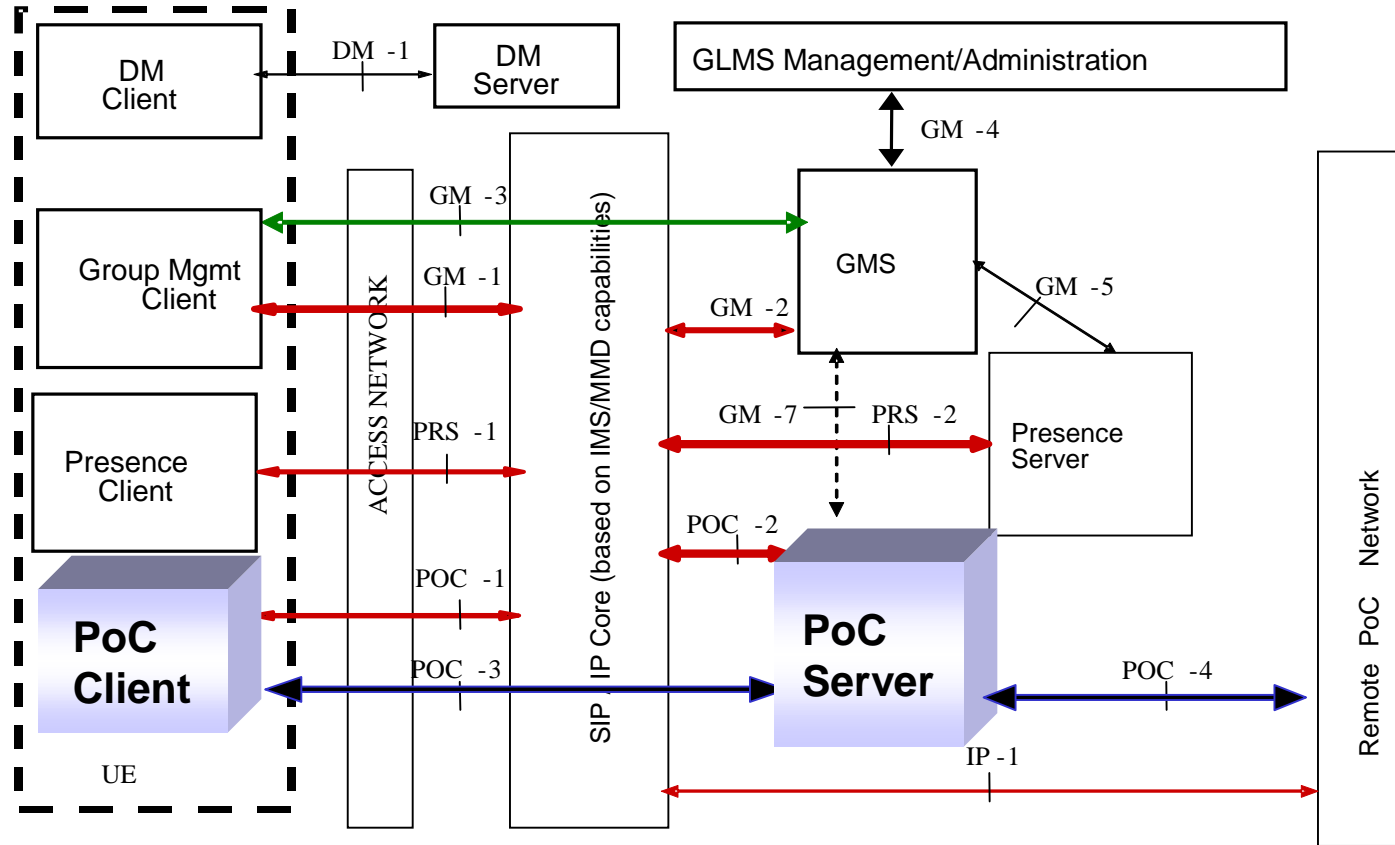
ITU-T

o **PoC V1.0**
  - Candidate status since February 2005

o **PoC V2.0**
  - planned to be completed for candidacy by October 2006

DM Client — DM-1 — DM Server

GLMS Management/Administration

GM-4

GM-3

GMS

GM-1

Group Mgmt Client

ACCESS NETWORK

SIP / IP Core (based on IMS/MMD capabilities)

GM-2

GM-5

PRS-1

GM-7 — PRS-2

Presence Server

Presence Client

POC-2

POC-1

PoC Client

PoC Server

POC-3

POC-4

Remote PoC Network

IP-1

UE

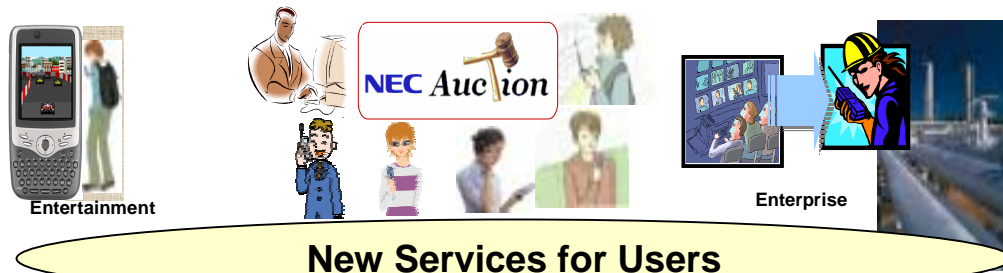SIP ——— XCAP ——— RTP/ RTCP ——— Not defined in PoC
-------- Not standardized

Ongoing Service Developments in OMA
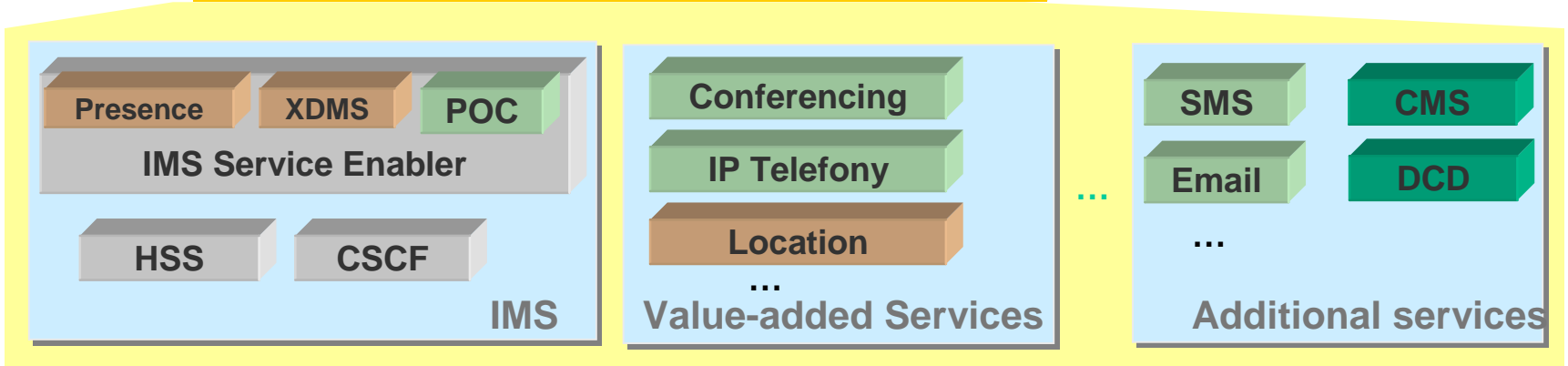## over IMS and beyond (selection)

- o Messaging
  - Ideas to bring IM, PoC, and other messaging enablers together
- o Content-related
  - Content Screening
    - Terminal-based framework
    - Categorized content screening on server and terminal side
  - Dynamic Content Delivery
    - Periodic/on-demand content push
  - Digital rights Management
- o Delivery Mechanism
  - Mobile Broadcast
- o For more interesting aspects coming from OMA see: http://openmobilealliance.org

NEC's view on OSE Model for Service Integration
Service Integration for Advanced Applications

Entertainment

Enterprise

New Services for Users

Application Application Application

Service Integration Environment

SIE

- ▢ **Communication services**
- ▢ **Content services**
- ▢ **Group and Context support**

IMS
- Presence | XDMS | POC
- **IMS Service Enabler**
- HSS | CSCF

Value-added Services
- Conferencing
- IP Telefony
- Location
- …

Additional services
- SMS | CMS
- Email | DCD
- …

…

o Group Communication over IMS enlarges the possibilities of communication but requires more personalized and context-aware service.

- Individual participants have different preferences and can be in different situations regarding time, location, activity etc., which must be taken into consideration.

o Personalization and Context-aware service are key technologies.

- E.g. based on IMS user profile information.

o Context-awareness as a presence-enhanced service.

- Context, as background information, to adapt the service to the user's situation can be fed by the IMS Presence Service, with emerging sets of sensors like GPS, RFID, etc.,.

- Application can be a watcher of its serving users to tailor services it offers according to individual users' presence information.

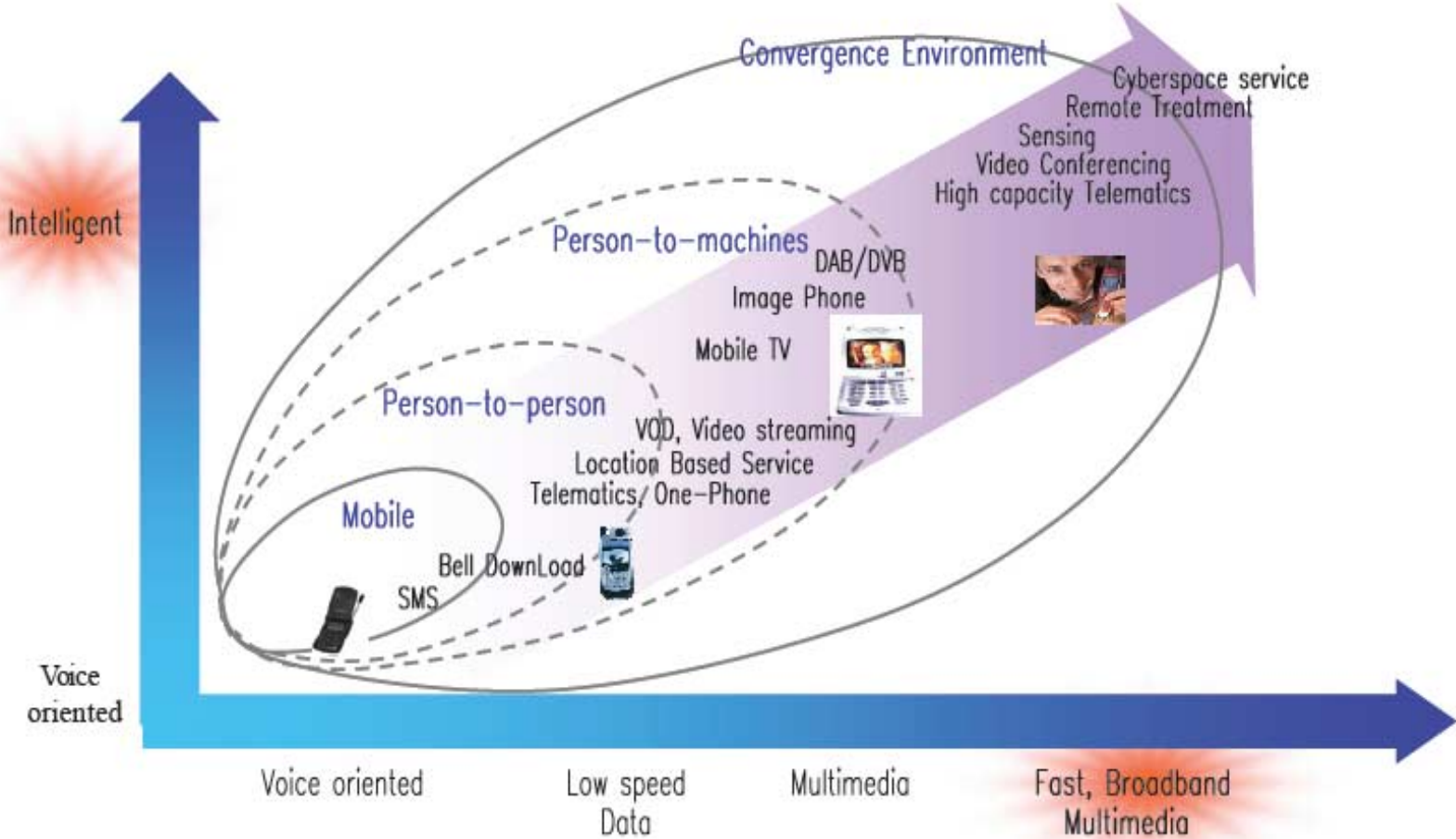*Source: http://www.ebrc.info/kuvat/2152_04p.pdf*

Thank you !

ITU-T

Dr. Anett Schülke
NEC Network Laboratories Heidelberg
NEC Europe Ltd
Kurfürstenanlage 36
D-69115 Heidelberg
Germany

Questions, please ?

schuelke@netlab.nec.de
Tel.: +49-6221-90511-20
Fax: +49-6221-90511-55