

Mobile Web Services

Course ID: 582496

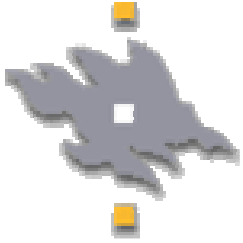
31 October 2005 - 08 December 2005

Monday & Thursday : 16:00-18:00

Mobile Web Service -Overview

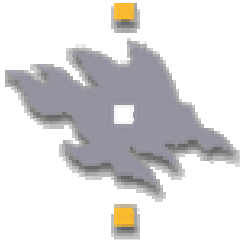
1st December 2005

Suresh Chande
Department of Computer Science
email: chande@cs.helsinki.fi



Mobile Web Services

- Mobile devices enabled with web services can be an equal participant of the web services architectures
 - WSC: Web Services Client
 - WSP: Web Services Provider
- or How about a Broker roles in Future .. You never know this could be true one day not too far..

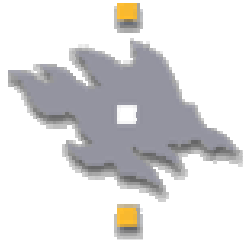


MWS: Deployments

Mobile Web Services are realized in two levels:

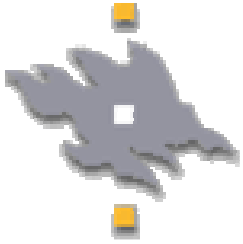
Network hosted Mobile Services :

- The operator and third party mobile services provider have very valuable services that they could offer to the developer and service providers.
- These services are best provide as WSI interfaces.
 - The services such as:
 - Payment,
 - Presence,
 - SMS,
 - MMS interfaces,
 - Locations,
 - Profile



MWS: Deployments

- b. Device hosted Web Services :
- Mobile devices are getting computationally capable, such that they host Web Services on the Mobile devices directly.
- At the same time also allowing great potential for big innovations for applications and services that can be provided by individual mobile device owners
 - i). Mobile device as a Web Services Client:
 - ii). Mobile Device as a Web Services provider:

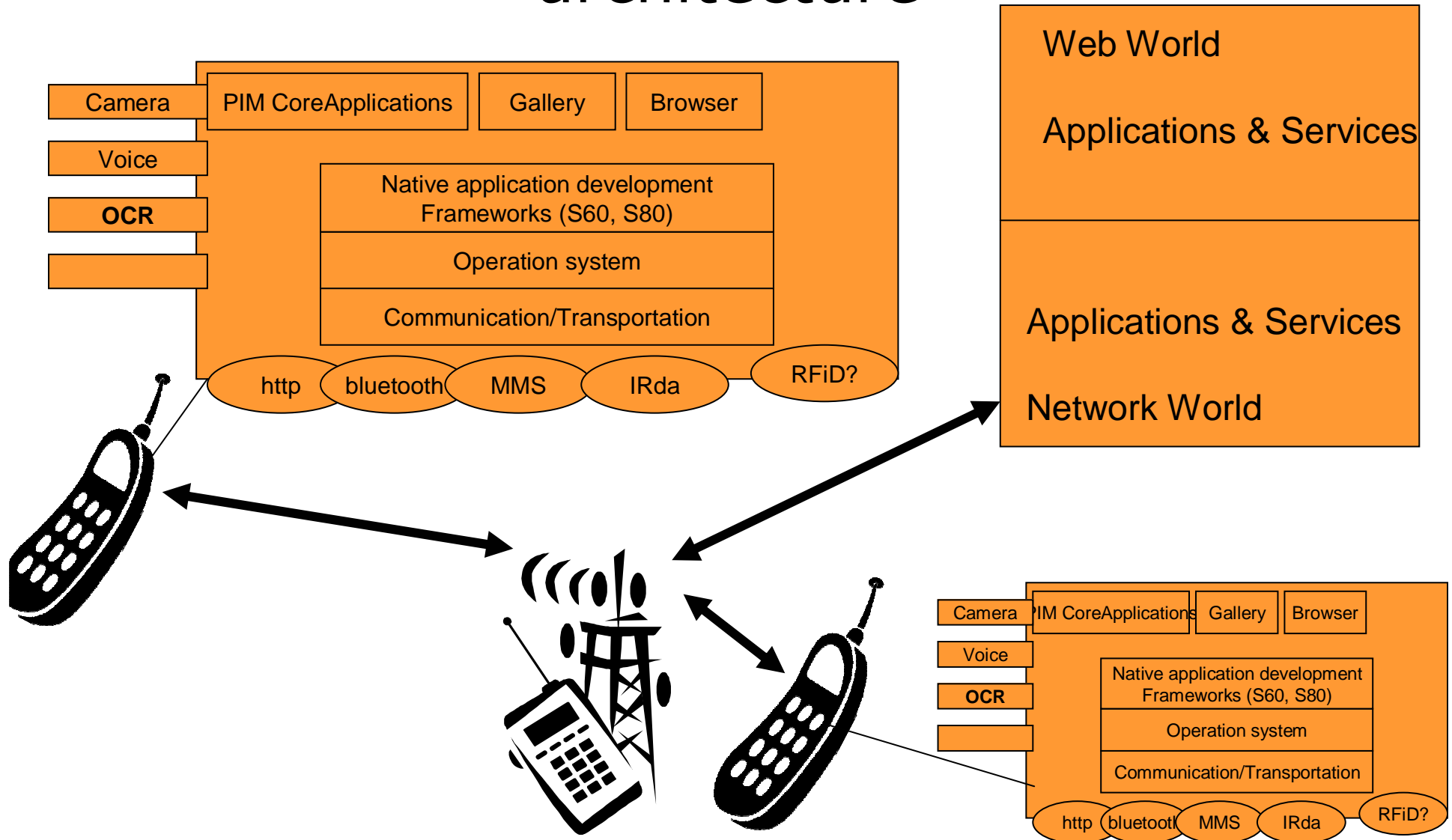


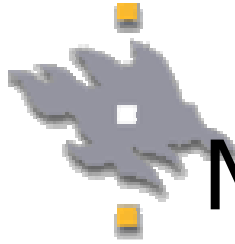
Mobile devices

- Mobile Phone
 - a handheld mobile device with voice call service
 - With optionally some data services (SMS, MMS)
- SmartPhones – A phone(voice calls) with enriched data communication device, atleast more than 1 such application /services available, such as :
 - Wireless e-mail, Internet, Web browsing, and fax
 - Instant messaging
 - Internet
 - Intercom function
 - Personal information management applications
 - Data Connectivity
 - Graffiti style data entry
 - Data Synchronization with PC
 - Remote control of computers
 - Remote control of home or business electronic systems
 - Interactivity with multiple messaging systems



Mobile Device Infrastructure a Generic architecture





Mobile Devices basic properties

Features:

- Personal
- Mobile
- Always on/
reachable
- Near Display
- Data services
- PIM

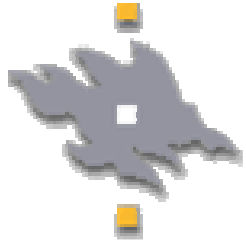
Sparing Resources:

- Network
availability
intermittent
breaks
- Battery Life
- Computation
Capability
- Data creation
capabilities

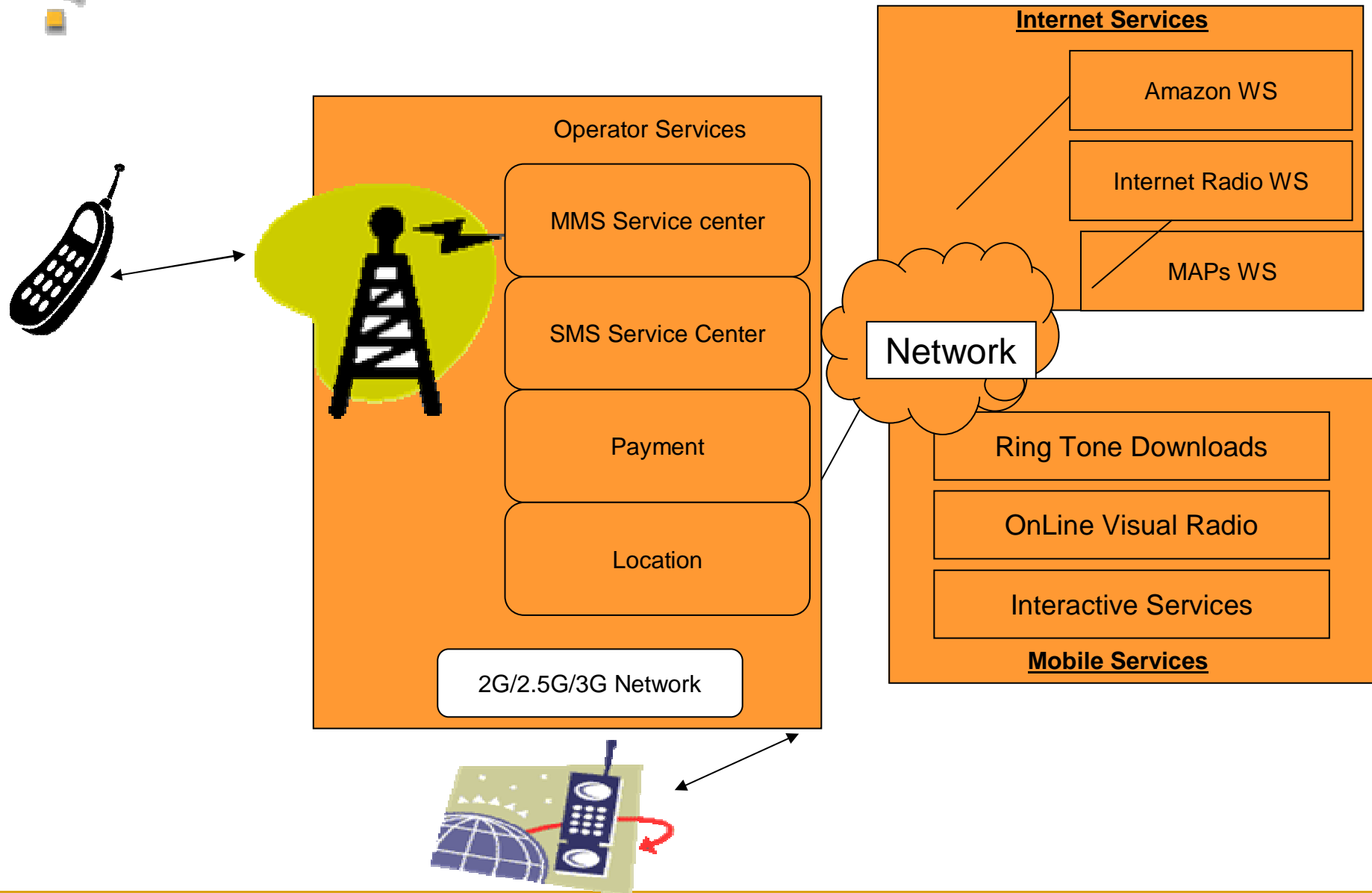


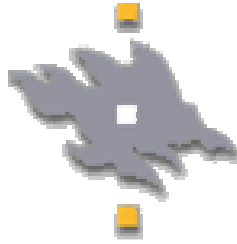
NOTE:

Some the features can be considered as limitation when one traditional compares it to a PC environment or advantageos when consider the mobility aspect.



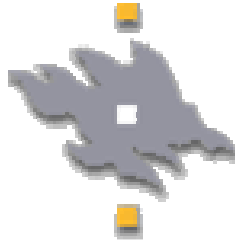
Mobile Infrastructure



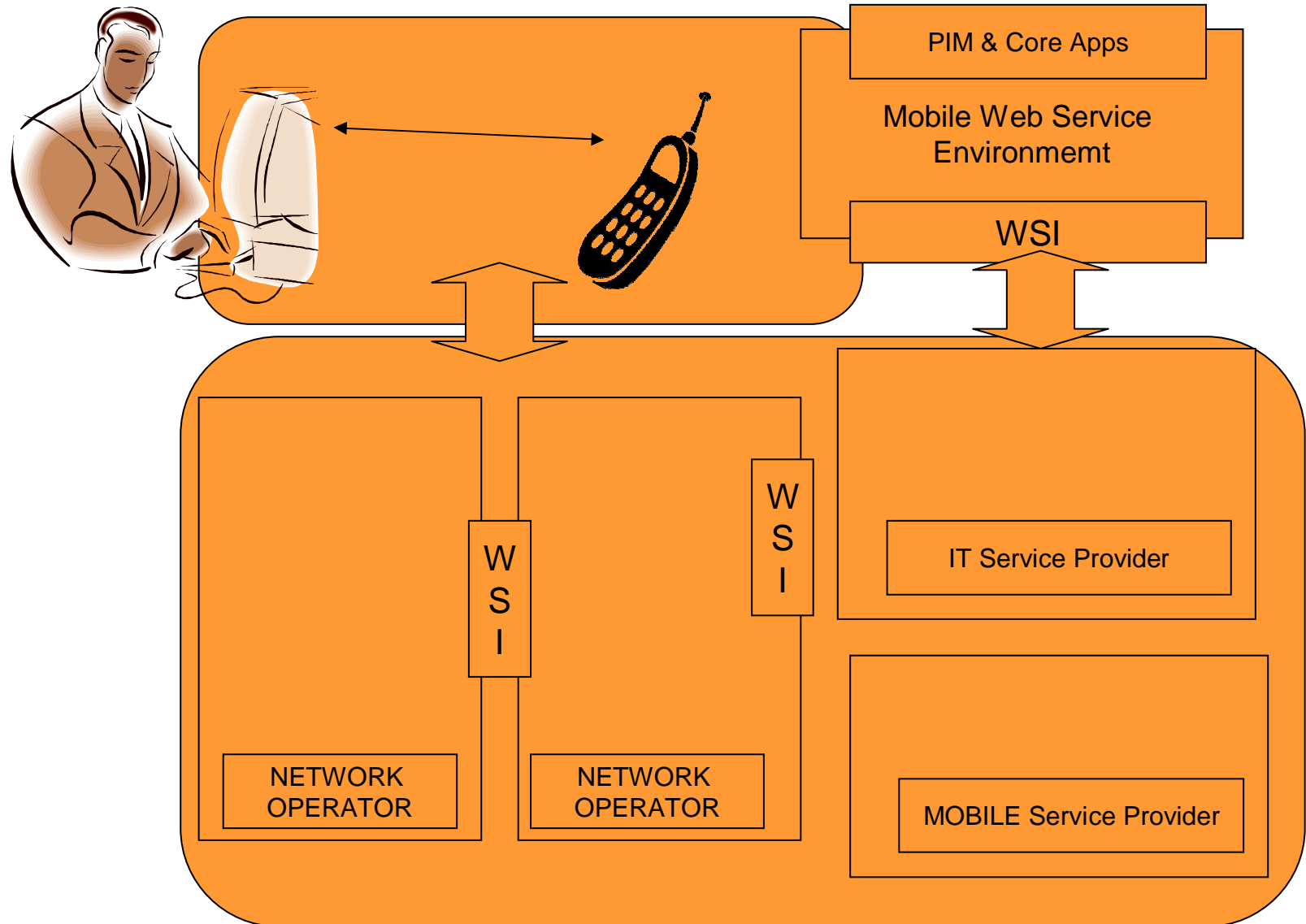


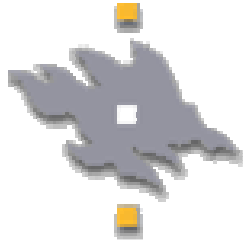
Mobile Applications & Solution

- Connected
 - Browser
 - Media Player
 - Messaging applications
 - Video calls
- Disconnected
 - Office Applications
 - Major Games
 - Productivity Tools: Clock, Calendar, etc..
 - Camera



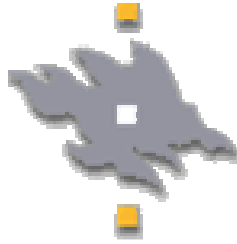
Mobile Services Infrastructure





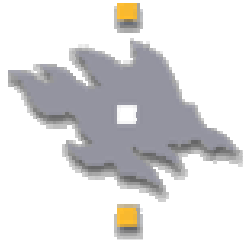
Heterogenous Mobile Computing Environments

- More and More devices are getting Mobile:
 - Phone
 - Music Player
 - Navigation Systems
 - Special purpose hardware
- Development Environments:
 - Symbian / C++
 - Windows CE /.Net
 - Linux / C-C++
 - Java on Mobile (JDK1.x, Midp-CDC/CLDC)



Mobile Web Services Domains

- Consumer Services
 - Personalized Services
 - Device Inter-working
 - Connected Services with Community services
- Entertainment:
 - Gaming
- Enterprise Services
 - Backend Integration
 - Mobilizing Business processes



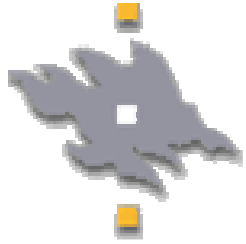
Current solutions in Mobile Web Services

Key Players :

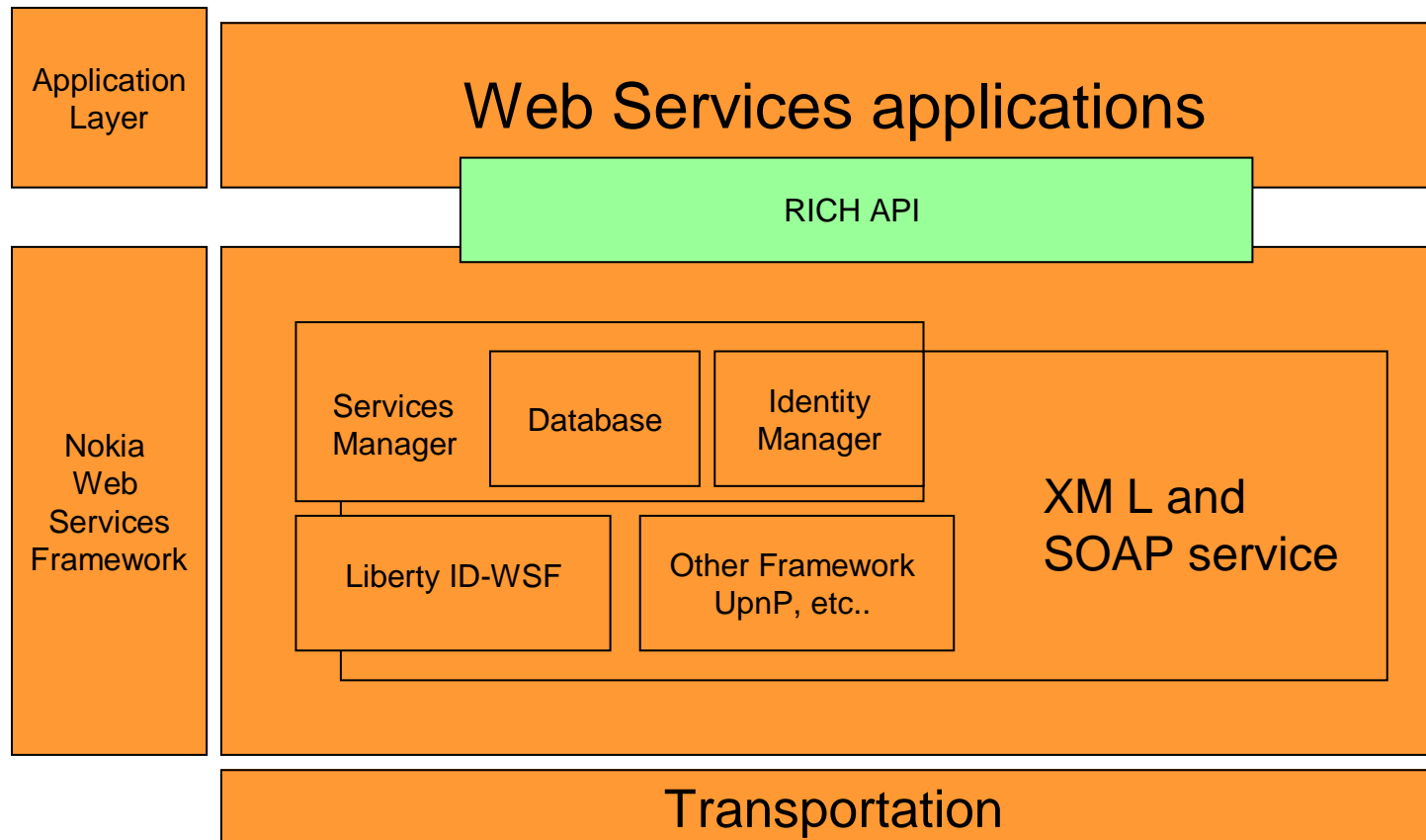
- Nokia : <http://www.nokia.com/webservices>
- Microsoft : <http://microsoft.com/mobilewebservices>
<http://msdn.microsoft.com/mobility/windowsmobile/>
- Sun Microsystems : <http://java.sun.com/products/wsa/>
- IBM : Web Services Tool Kit for Mobile Devices,
<http://www.alphaworks.ibm.com/tech/wstkmd>
- Operators/Vodafone: Roadmap for Mobile Web Services along with Microsoft

Standardization activities:

- OMA: Open Mobile Architecture
- Liberty: Identity
- Java: Java Community process
- Parlay: Parlay X



Nokia - Mobile Web Services Framework





Microsoft-Vodafone MWS RoadMap

- A Technical Roadmap for Mobile Web Services was initiated by Microsoft & Vodafone:
Aim: To provide a Web Services architecture to expose the mobile Security and Payment Services to wider develop communities and exploit the Location, Messaging and several value added services of the operator infrastructure to PC / Mobile environments

Benefits:

Customers:

- Seamless access to services across wired and wireless networks i.e. in PC and mobile devices respectively

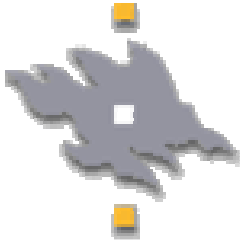
Developers:

- Application developer use open and standard interfaces
- Seamlessly development environments across PC and mobile environments
- Applications can access mobile network services from mobile network terminals and PCs
- Innovate ontop of the existine network services: Messaging, Location, Authentication and Billing into new applications

Mobile Operators :

- extend their businesses by making their network services available to the broadest audience of developers and software users
- new breed of value-added services for their users spanning PC and mobile devices

Further Reading: <http://www.microsoft.com/serviceproviders/resources/bizresmws.msp>



Mobile Domain –Needs

- Users
 1. Developers:
 - Develop and re-use existing services and applications
 - Build services for Mobile Consumption
 - Build services for consuming Mobile application Data
 2. End users:
 - Use the same service both from Mobile / PC
 - Use services across several devices
 - Communicate with any other devices
- Players:
 1. Mobile
 - Service enable already deployed applications
 - Reuse of deployed applications
 - provide capability to access the abundant services (build an eco-system)
 2. Operator
 - Like to exploit the services available over the Web
 - provide services to multiple device environments in a common way
 - Provide means to add new mobile services without application specific manner: MMS/SMSC/PoC/
 3. Service Providers
 - Make use of the enablers available in the Mobile or PC vice Vers