INSE 7110 – Winter 2005
Value Added Services Engineering in Next Generation Networks

Roch H. Glitho- Ericsson/Concordia University
INSE 7110 – Semester Long Project - Goal

Provisioning of value added services in ad hoc networks
- Multiparty sessions with as minimum a dial out voice conferencing service
- Implementation of the required functionality
  - End user service
  - A simplified service gateway
  - A simplified signalling system for ad hoc networks
  - A simplified media handling system for ad hoc networks

Notes:
1 - Groups of 3 students should provide two service gateways instead of one
2 - the demo can be done in a fixed network environment
End-user service provider
- Any actor in an ad hoc network, with the infrastructure for providing services to end-users

Service gateway providers
- Any actor in an ad hoc network, with the infrastructure for mediating between end-user services and network infrastructure

Subscribers
- Any actor in the ad hoc network who subscribes to specific services
INSE 7110 – Semester Long Project – High Level Architecture

Service provisioning interface
Signaling interface
Media handling interface

Application/Service

Service Gateway

End user

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INSE 7110 – Semester Long Project – High Level Architecture

- Service provisioning interface
- Signaling interface
- Media handling interface

Application/Service

Service Gateway

End user

End user

End user

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INSE 7110 – Semester Long Project - Logistics

Freeware To be selected and installed

Media handling
- RTP/RTCP/JMF

Signalling
- SIP

Service gateway
- SIP servlet reference implementation – An alternative is to design/implement a SIP container with minimal functionality
  or
- Web service platform
5 nodes
- Service provider
- Service gateway provider
- End user A
- End user B
- End user C
INSE 7110 – Semester Long Project - Software in each node

Service provider

- Graphical user interface for introducing the addresses of the three nodes which should be part of the conference
  - No automatic registration / security / authentication and so on ..
  - Just a GUI allowing the introduction of the participants’ addresses

- Module that interacts with the service gateway
  - Takes as input the participants’ addresses
  - Generate the calls to the service gateway
    - SIP message(s) with appropriate body/parameters if the SIP servlet architecture is used
    - Java RMI or CORBA IDL calls if the Parlay paradigm is used
    - SOAP/HTTP calls if the Web service architecture is used
    - Mobile agents if the mobile agent paradigm is used

- End user A
- End user B
- End user C
Gateway provider
- Module that interacts with the service provider
  - Accepts and processes the call(s) from the service provider. May be:
    - SIP message(s)
    - Java RMI or CORBA IDL
    - SOAP/HTTP calls
    - Mobile agents
- Module that interacts with the end-users
  - Send actual SIP messages to end-users
Technologies for gateway provider

- SIP servlet API
  - Can be based on SIP servlet reference implementation
    http://www.sipservlet.org/:
    - Boils down to coding a DoInvite servlet if DoInvite is used

- PARLAY
  - No freeware gateway exists. However a gateway limited to the conference initiation functionality can be easily implemented

- Web services
  - Can be based on any of the popular Web services development tool kit (e.g. Web logic, Apache Axis)

- Mobile agents
  - Can be based on any of the popular agent development platforms (e.g. Jade)
End-User

Graphical user interfaces for accepting / ending calls
May come with the SIP tool kit