Modern NGN Testbeds

Experiences from FOKUS Technology Playgrounds and the Way forward to Interconnected National and Pan-European Testbeds

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Evolution towards Converged Networks

Fixed Networks:
- PSTN
- ISDN
- DSL

Mobile Networks:
- Analogue
- GSM
- GPRS
- UMTS
- HSDPA
- WAP
- UMA
- FMC
- WiFi
- WiMax
- ENUM

Internet:
- FTP
- Email
- WWW
- Portals
- IM
- P2P
- VoIP
- IPTV
- VoD
- Web2.0
- Content Sharing

Cable Networks:
- Home Networks
- Broadcast
- TriPle Play
- Quad Play

Converged NGN

Information Technologies
Open (Research) Testbeds

- The new multimedia service world on top of converging networks is complex and expensive
- Value chain evolution: Networks ➔ Services
  ➔ Network technologies become less important
- Operator specific or vendor specific testbeds are not sufficient
- Learn from the internet: an open infrastructure is needed
- Open Testbeds are needed to stimulate academia and industry
- Adequate software toolkits (open source) is needed
- Research testbeds (proof of concept) versus industry testbeds (interoperability)
Shift from Networks to Service Orientation

- Historically services have been network specific
- IP-fication unifies networks conceptually = competition is on services!
- Internet shows what multimedia services can be = Web 2.0, but where is the money?
- Research: Edge Intelligence (Peer2Peer) vs. Network Intelligence (Autonomic Communications) vs. Legacy migration
- Service Orientation of infrastructures requires application programming interfaces & toolkits & testbeds
Open Testbeds @ Fraunhofer FOKUS

Open NGN Test & Development Center
- Is a set of several technology testbeds
- Provides all NGN layers but focus is on IP and service platform layers
- Foundation for industrial and academic projects
  - Applications development support
  - Applications validation
  - Service Platform prototyping
  - Infrastructure component testing
  - Network Technologies integration
- Officially supported by

T. Magedanz (TU Berlin / Fraunhofer FOKUS) - 2007
Case Study: Open IMS Playground

Universities & R&D Centers
- NGN Open Testbeds

Operators & Vendors
- Industry Testbeds

Remote Testbeds

Free Download

Cooperation

FOKUS IMS Components

Industry IMS Components

Local Operator–specific Testbeds at FOKUS

berliOS Platform

Cooperation
OPEN IMS Playground - Where Academia and Industry meet

Note: This is not a complete Partner List!
• ENUM offers a standardized DNS driven, distributed directory for services.
• Many synergies between ENUM and IMS
• Mapping of ENUM services to IMS services and vice versa is possible.
• ENUM = Repository of services for NGN users.
A Case Study: German Service Line 115

- Based on IT Summit in Potsdam December 2006 - Definition of Serviceline 115 Concept
- Feasibility Study on FOKUS Testbeds for CeBit Fair March 2007 and continuous functional extension since then
  - eGovernment Lab
    - operated by the FOKUS Competence Center ELAN
    - www.fokus.fraunhofer.de/ELAN
  - Open IMS Playground
    - operated by the FOKUS Competence center NGNI
    - www.fokus.fraunhofer.de/NGNI
- Start of Industry Partnering around Testbed
- Definition of the “Deutschland Online“ Project
- More Info about this reference project: www.fokus.fraunhofer.de/bereichsseiten/projekte/ServiceLine_115
Summary

• Academia AND Industry needs open testbeds!
• Open also means integration of MANY operators and vendors as partners
• Open Source helps in lowering the entry barrier for testbed establishment and to achieve a common base for cooperation
• FOKUS has gained a lot of experiences in testbeds and can contribute a lot
  – IMS Playground ➔ SOA Playground
  – AC Lab
  – Panlab / FIRE Interface
• ENUM can still be part of the ongoing NGN converged network evolution.
Any Questions?

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Hope to see you in November on ...

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