„ENUM-Day 2008" , DENIC, Frankfurt, April 18th, 2008

Modern NGN Testbeds

Experiences from FOKUS Technology Playgrounds and the Way forward to Interconnected National and Pan-European Testbeds
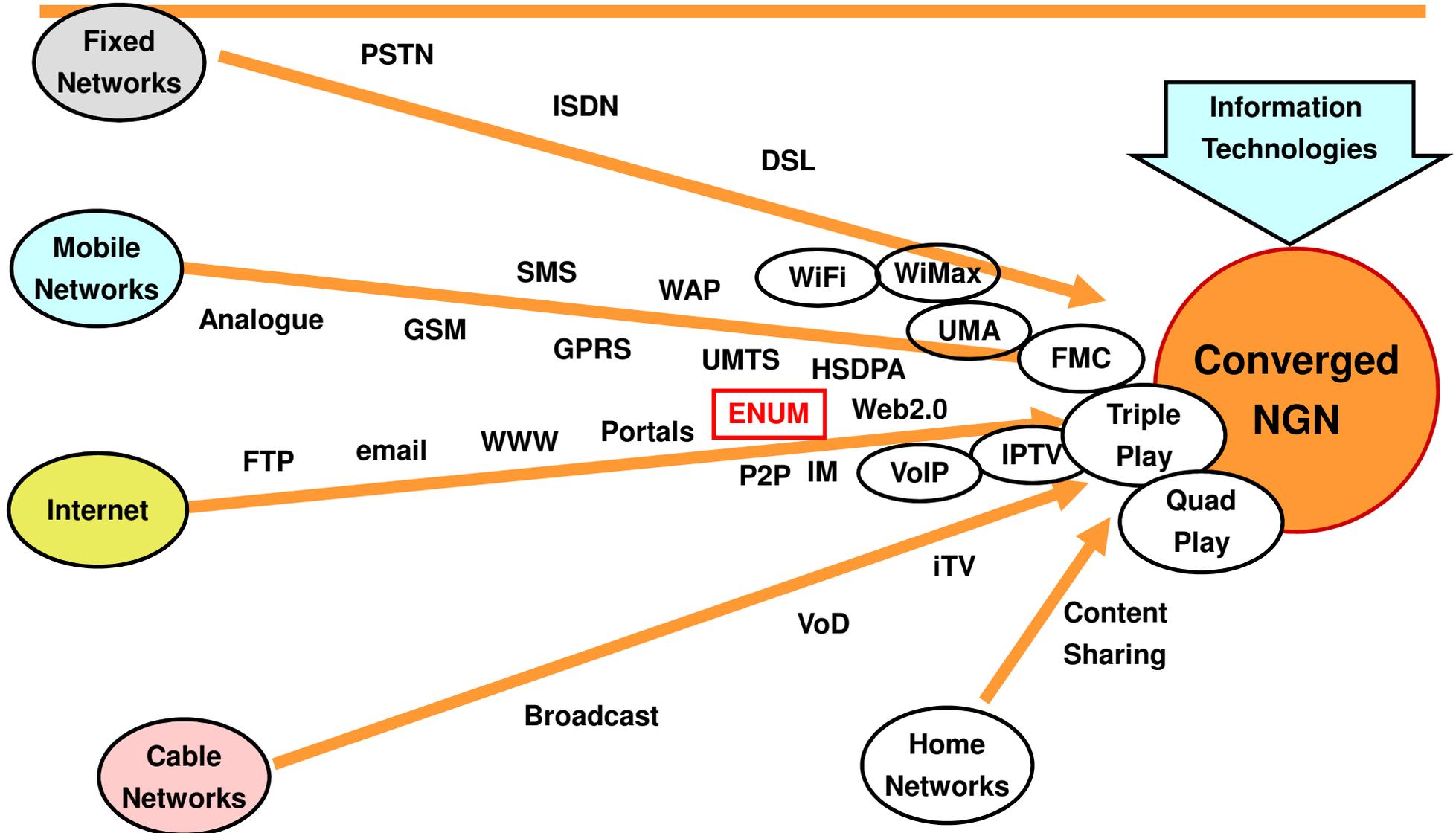
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www.fokus.fraunhofer.de/ims

FOKUS

Evolution towards Converged Networks
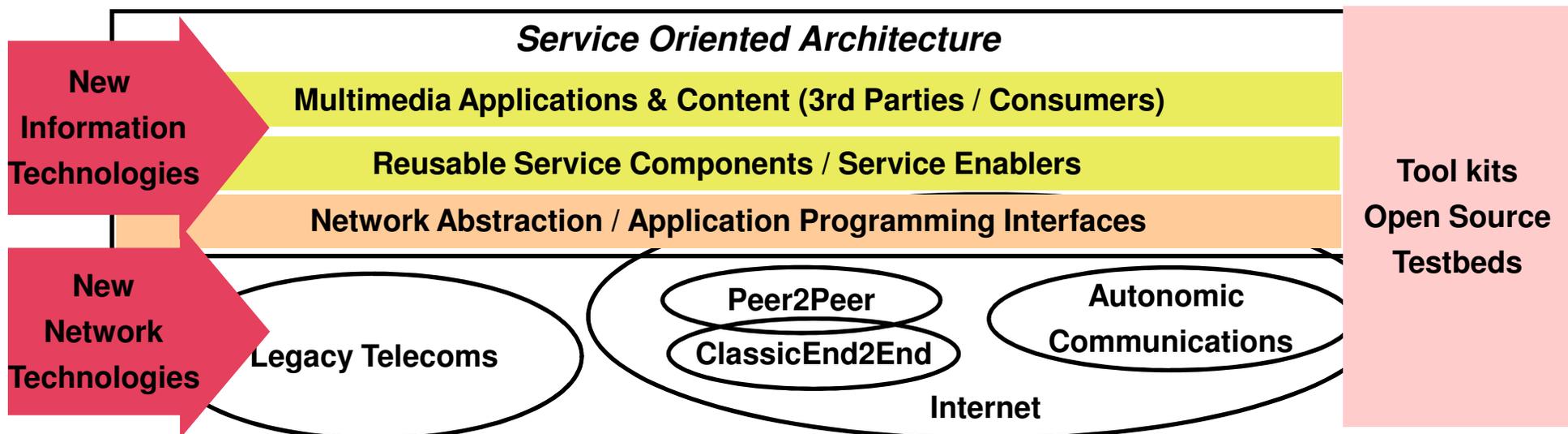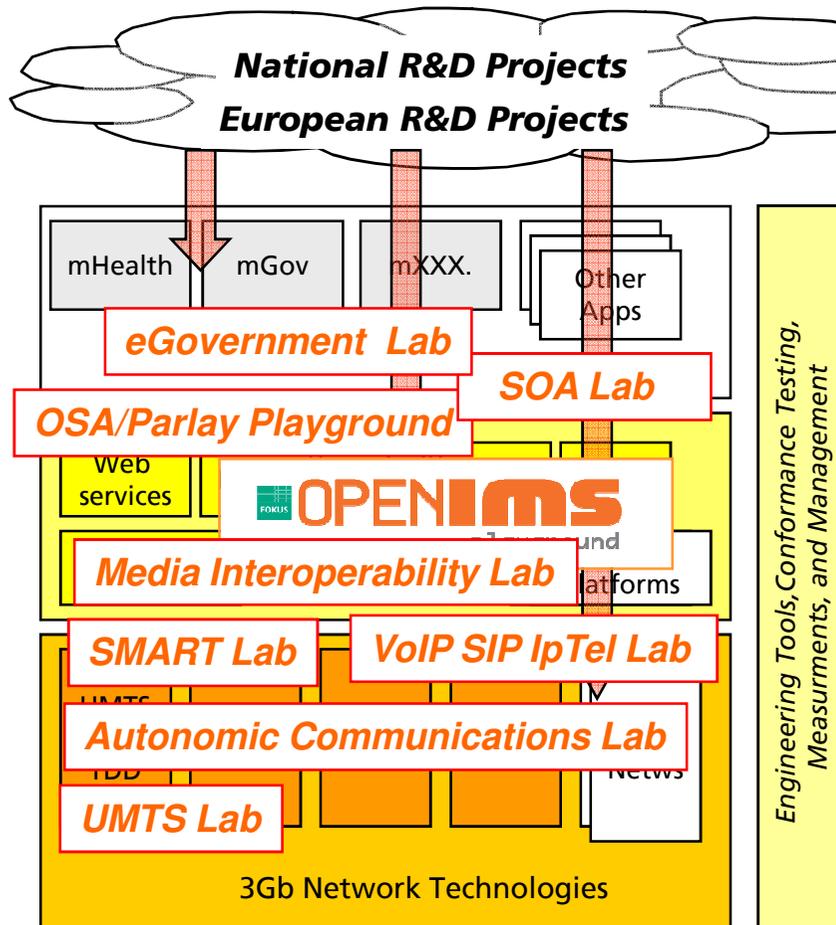
Open (Research) Testbeds

- The new multimedia service world on top of converging networks is complex and expensive

- Value chain evolution: Networks ➔ Services

  ➔ Network technlogies 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

New Information Technologies

New Network Technologies

Service Oriented Architecture

Multimedia Applications & Content (3rd Parties / Consumers)

Reusable Service Components / Service Enablers

Network Abstraction / Application Programming Interfaces

Legacy Telecoms

Peer2Peer

ClassicEnd2End

Autonomic Communications

Internet

Tool kits Open Source Testbeds
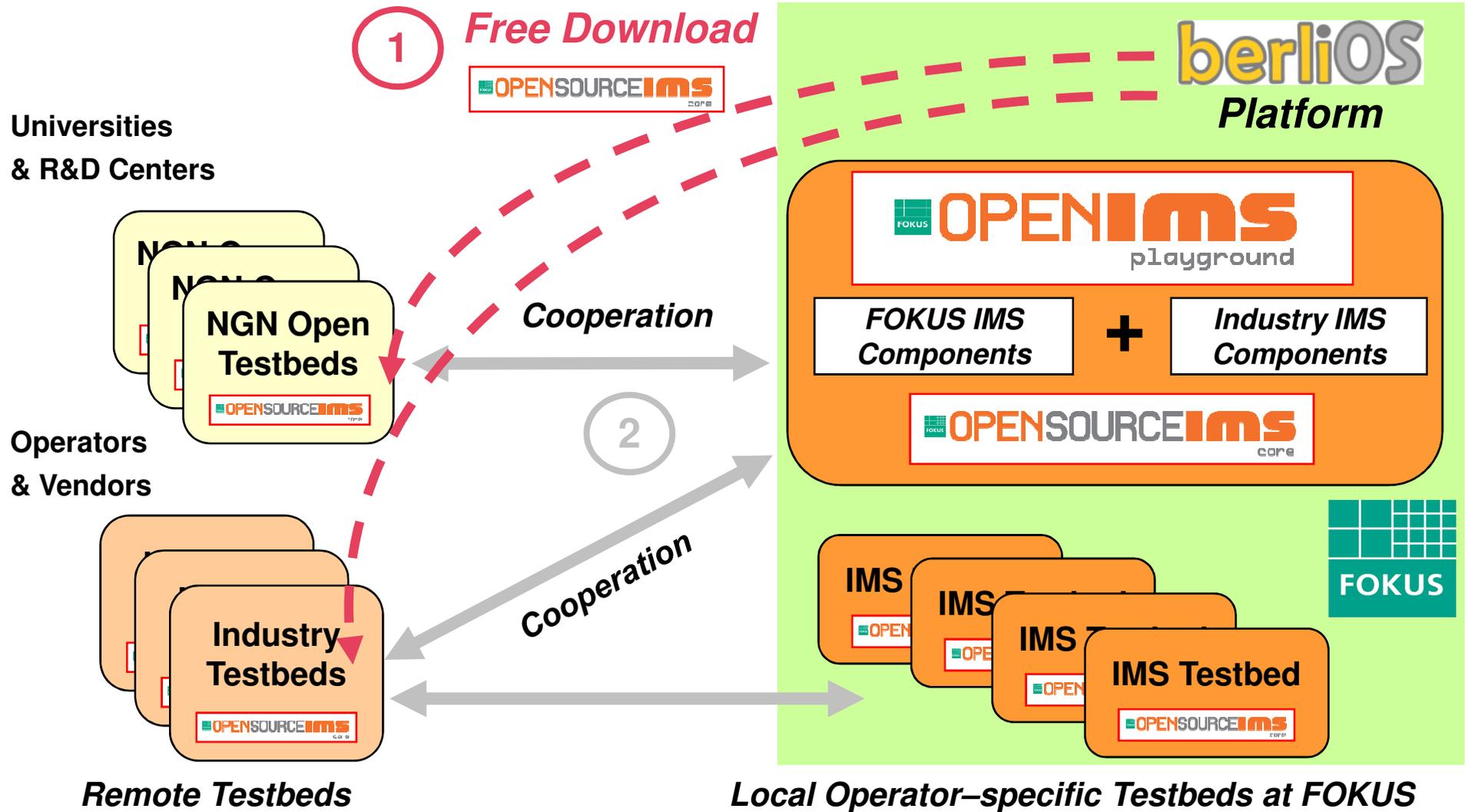
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Open Testbeds @ Fraunhofer FOKUS

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

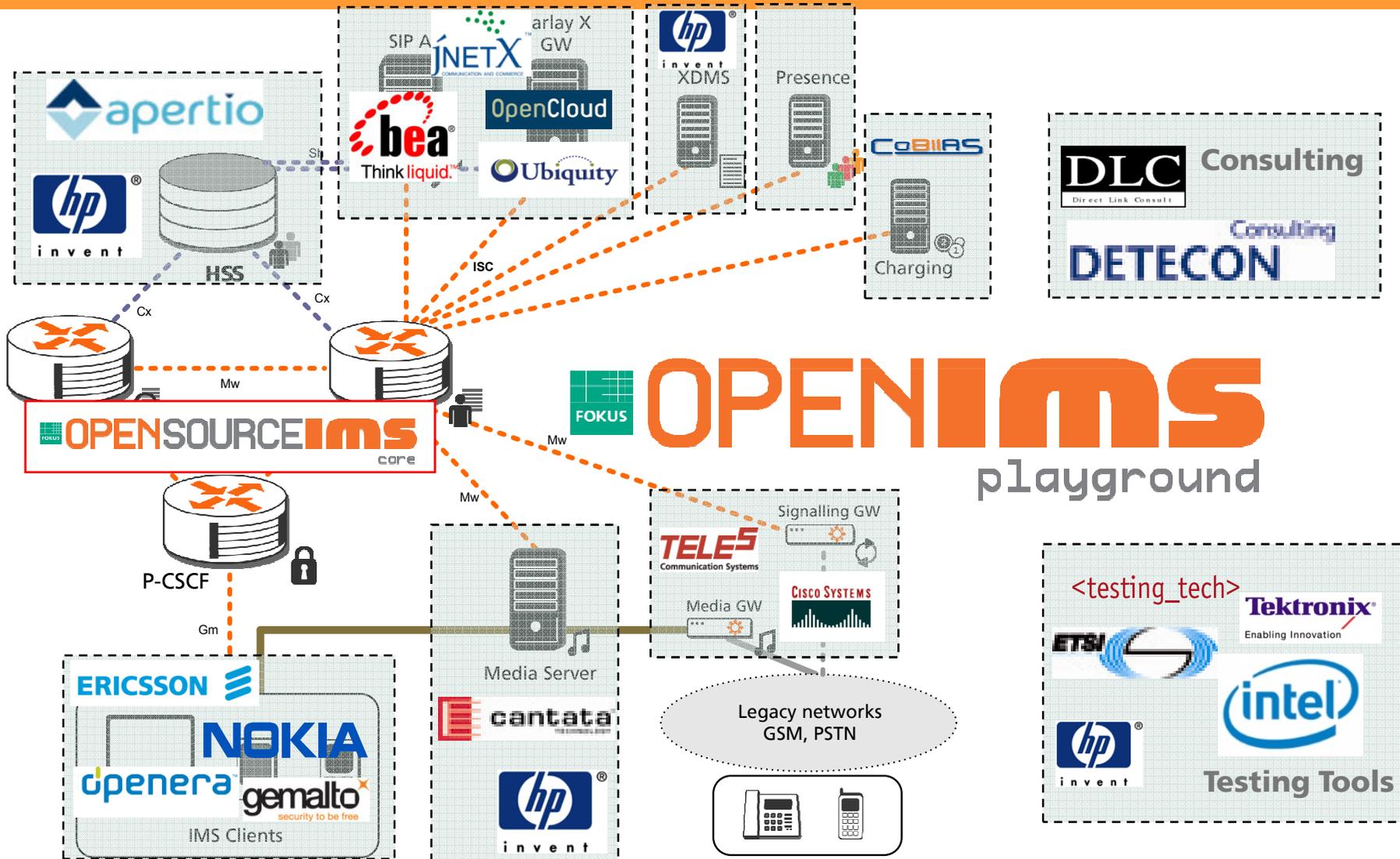- Network Technologies integration

– Officially supported by

GEFÖRDERT VOM

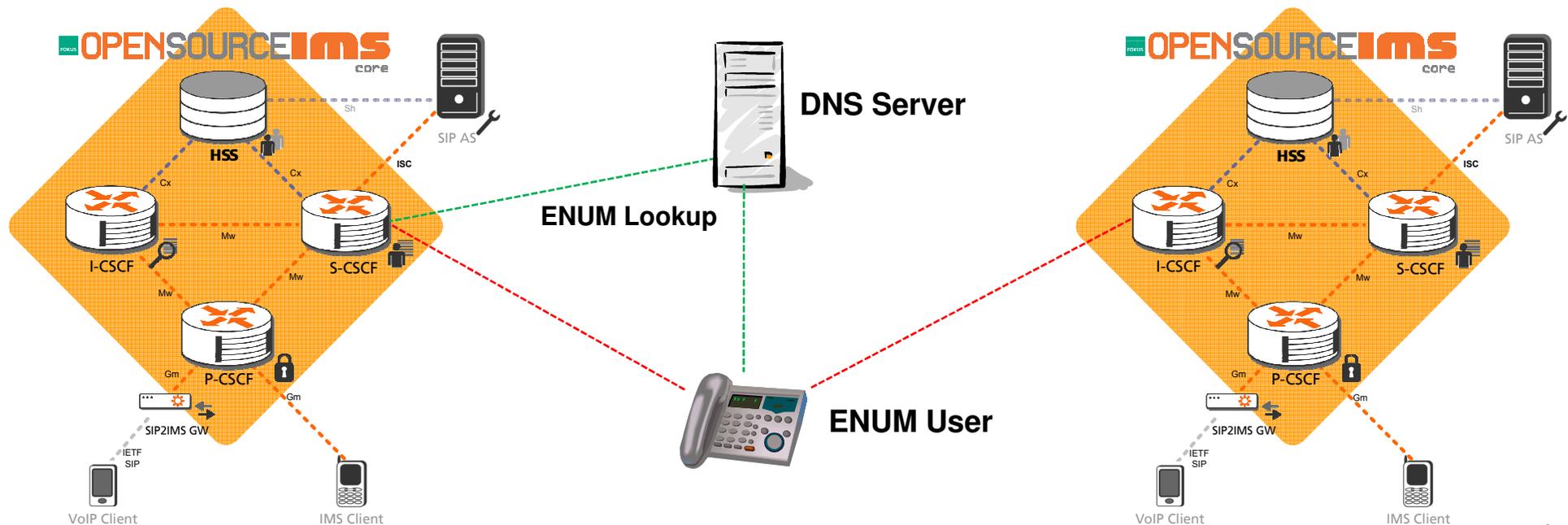Bundesministerium für Bildung und Forschung

ist information society technologies

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Case Study: Open IMS Playground

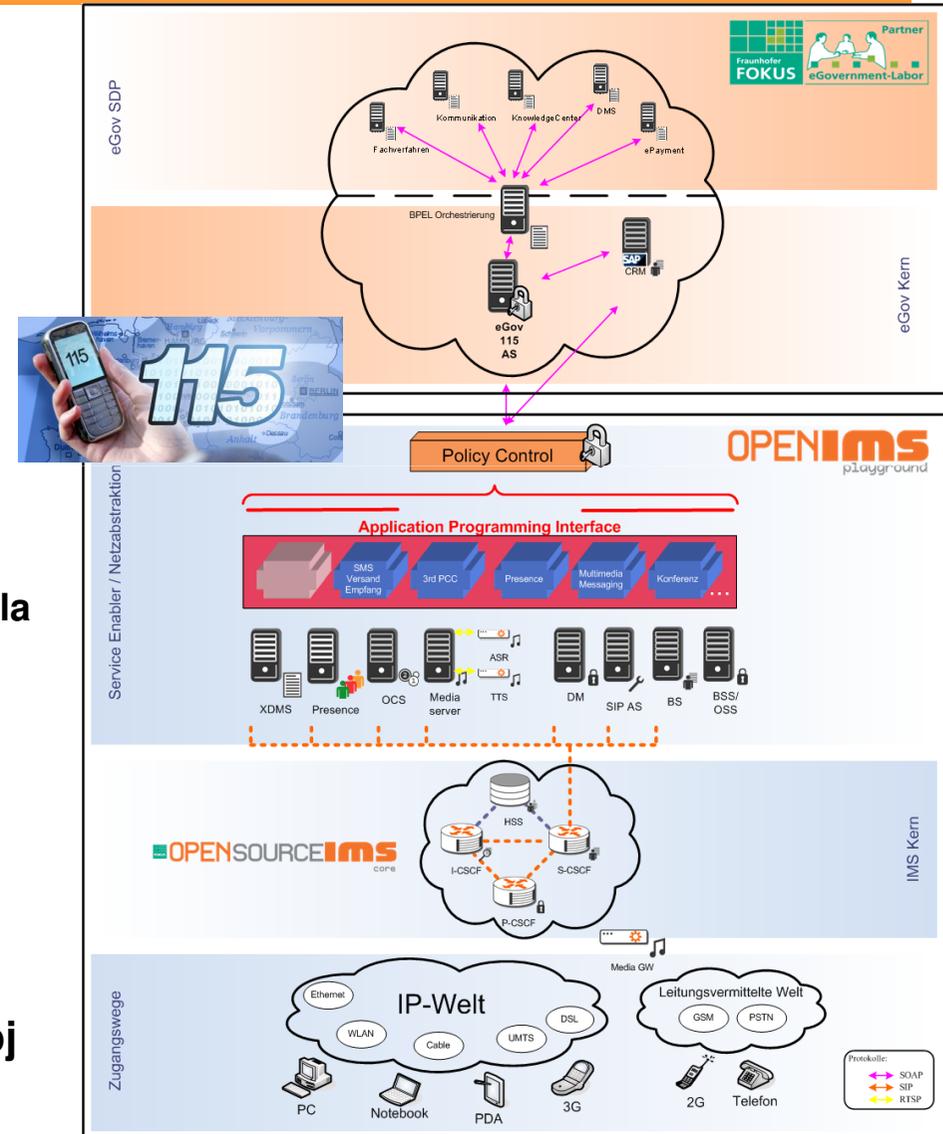# OPEN IMS Playground - Where Academia and Industry meet

ENUM in an NGN Testbed

- 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.

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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**
    - **www.fokus.fraunhofer.de/testbeds/egov-labor/index.php?lang=en**
    - **operated by the FOKUS Competence Center ELAN**
    - **www.fokus.fraunhofer.de/ELAN**
  - **Open IMS Playground**
    - **www.fokus.fraunhofer.de/testbeds/ims_playground/index.php?lang=en**
    - **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 ...

Fraunhofer FOKUS

www.fokus.fraunhofer.de/go/ims-event

Challenges and Opportunities in a Converged Services World – an Update on IMS, IPTV, SDPs, SOA and Web X.0

4th International FOKUS IMS Workshop

Berlin, November 6–7, 2008