



Towards the Wireless Future Internet

Understanding the Role of Future Broadband Mobile Networks and the Evolved Packet Core

May 17th 2010, 14:00h – 17:30h

Location:

Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Einsteinufer 37, 10587 Berlin, Germany

Presenters:

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Required Background Knowledge:

Basic knowledge in NGNs and mobile communications

Short Description:

The Future Internet represents a global research topic, denoting a new omnipresent communications and service platform, which enables the smart interconnection of an open set of sensors, devices, things, humans, systems, data, and applications. Various application domains, such as eHealth, eGovernment, eTransport, eEnergy, eLearning, smart / human centric communications, etc. should be supported by such a platform.

In this context wireless broadband access represents an important factor and the incorporation of existing and emerging network technologies will be of fundamental importance the smooth introduction of the future internet. Particular the starting deployment of novel wireless broadband technologies as defined by the NGMN Alliance (www.ngmn.org) will mark an important cornerstone in mobile network evolution towards the Future Internet.

This half-day tutorial will provide an overview of the future mobile networks and the corresponding 3GPP standards related to the Long term Evolution (LTE) and the Evolved Packet Core (EPC), which form together the Evolved Packet System (EPS). Major focus of this tutorial is on the EPC concepts, architecture, components, interfaces and functional capabilities. As the EPC provides a unified control platform for linking different IP application platforms with various broadband wireless access networks, the tutorial also addresses potential EPC application domains, namely the IP Multimedia Subsystem (IMS), as well as potential open internet service architectures.

The tutorial terminates with an introduction to the TU Berlin / Fraunhofer FOKUS OpenEPC (www.openepc.net) software toolkit enabling rapid prototyping for applied academic and industry research. In particular, it introduces the new open Future Seamless Communication (FUSECO) Playground (www.fuseco-playground.org) established in Berlin, Germany in the beginning of 2010.

Outline:

Session 1: Future Mobile Network Overview

- Convergence: Network Evolution towards all IP
- Mobile Network Evolution
- Requirements as defined by the NGMN Alliance
- Potential mobile broadband services
- Related Fora & Standards
- Service Architecture Evolution (SAE) = Evolved Packet System (EPS) Overview
- EPS = E-UTRAN + Evolved Packet Core (EPC)
- Comparing future fixed and mobile network concepts

Session 2: EPS Overview

- Introducing the 3GPP EPS Specifications
- E-UTRAN = Long-term Evolution (LTE) Overview
- 3GPP Evolved Packet Core (EPC) Overview
 - EPC Motivation (= access network diversity)
 - EPC Key capabilities (QoS, charging, handover, security, IP connectivity)
 - EPC architecture for LTE (MME, S-GW, PDN-GW, PCC, etc.)
 - EPC architecture for other access networks
 - EPC in operation

Session 3: Future Mobile Application Domains: Telecommunications / IMS vs. ABC Internet

- Applications over EPC: IMS vs. always best connected (ABC) Internet
- IMS as common service platform
- IMS service example over EPC: Voice, 3Play, IPTV, etc.
- Future mobile network voice challenges and architectural options

Session 4: Enabling Future Seamless Communication Application Prototyping

- Comparing NGN and future mobile network concepts
- Motivation for open testbeds to accelerate future mobile network adoption and application prototyping
- Experiences from the Fraunhofer FOKUS open technology testbeds and tools
- An EPC testbed toolkit for academia and industry R&D: The OpenEPC (www.openepc.net)
- Showcase: The Berlin FUSECO Playground based on OpenEPC (www.fuseco-playground.org)

Session 5: Evolution towards the Future Internet (FI)

- Definition of the Future Internet
- Related FI R&D and testbeds
- The role of future mobile networks on the way to the FI
- Research Challenges ahead
- Questions and Answers

Visit www.fuseco-playground.org/epc-tutorial in order to register for free.