Fraunhofer FOKUS

OpenEPC

The Evolved Packet Core Prototype

At a Glance

Fraunhofer FOKUS' OpenEPC is a software implementation inspired by the innovative all-IP aspects of the 3GPP Evolved Packet Core (EPC). OpenEPC enables prototyping of IP connectivity-related features like QoS (Quality of Service) and charging, mobility management, access and security for 3GPP and non-3GPP wireless technologies including 3GPP Long Term Evolution (LTE). It supports the new paradigms such as Machine Type Communication, Mobile Clouds, and IP Multimedia Subsystem (IMS). OpenEPC toolkit is currently at Release 3, further extending the core network functionality based on and updated to Release 11.

About OpenEPC

The deployment of wireless technologies like LTE, UMTS/HSPA and WiFi/WiMAX, together with the adoption of IP-based mobile devices and of wireless services, requires a highly complex control platform. Through Internet protocols and paradigms, 3GPP EPC provides this seamless, secure and subscription-based wireless IP connectivity, customized according to applications' requirements.

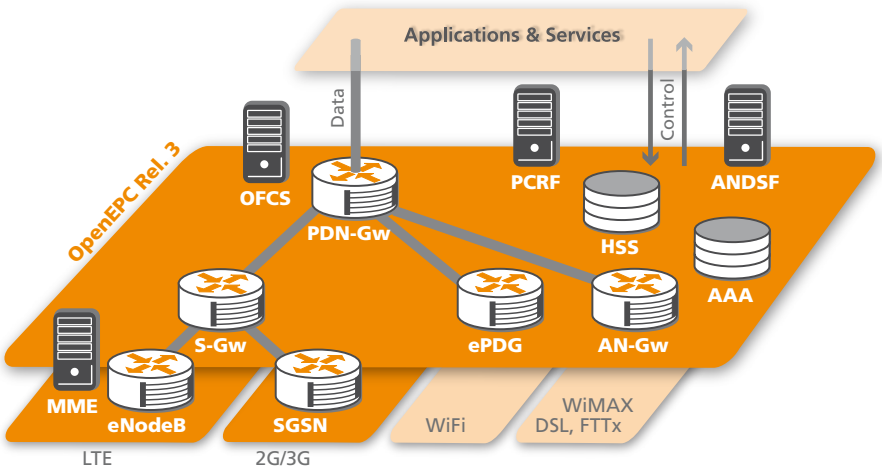
OpenEPC addresses the need for innovation, rapid prototyping and testing required for fast deployment of the EPC technology. OpenEPC aims to push forward R&D, technical understanding and the adoption of the EPC technology.

New with Rel. 3:

- Overhauled core network for LTE
- Offline charging system, correlated with IMS charging incl. billing system stub
- Flexible gating, QoS and monitoring
- AAA for non-3GPP accesses
- Overhauled mobile device support
- 2G/3G core network support

OpenEPC Key Features:

- Core network mobility management support (GTP and PMIP)
- Heterogeneous access networks (UMTS, WiFi and LTE)
- Policy and Charging Control
- Subscription Management
- Core network for LTE: MME, S-GW
- eNodeB simulation with WiFi
- Access Network Discovery and Selection



OpenEPC at a glance

open epc

Fraunhofer FOKUS

Technical Aspects of OpenEPC Toolkit

The OpenEPC toolkit offers a self-contained environment running on off-the-shelf hardware for starting testbed setups of Evolved Packet Core systems. The testbeds allow developers to prototype, to measure, to test or simply to perform research for future mobile applications and for optimizing core network functionality.

Core Network Mobility Management

OpenEPC Rel. 3 provides integrated GPRS Tunneling Protocol (GTP) and Proxy Mobile IP (PMIP) mobility management for the 3GPP and non-3GPP accesses and for the core network, including proprietary optimizations for seamless handovers.

Policy and Charging Control

Along with complete policy control, OpenEPC Rel. 3 adds novel data path entities enabling gating and QoS control, monitoring and packet tracking as well as an Offline Charging System, correlating information with IMS and a Billing System stub.

Subscription Management and AAA

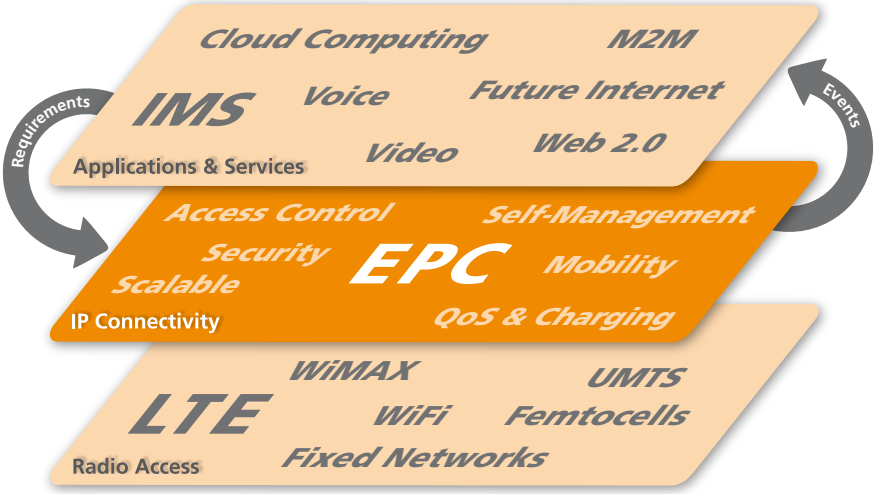
OpenEPC enables subscriber-based AAA through an extended Home Subscriber Server (HSS) interacting with an SGSN prototype, MME and a 3GPP AAA Server. The AAA Server includes EAP authentication and IPsec association establishments for non-3GPP accesses and flexible PDN GW selection.

Client Mobility Management

OpenEPC supports policy-based access network discovery and operator-assisted access selection through an Access Network Discovery and Selection Function (ANDSF) in the core network and a small user space application on the mobile devices.

Core Network for LTE

OpenEPC Rel. 3 features updated LTE core network including MME and Serving GW functionality. Additionally an eNodeB emulator is offered for testbeds without radio license.



Wireless Broadband Access Networks and the Evolved Packet Core

Contact

OpenEPC
info@openepc.net
www.openepc.net

Fraunhofer Institute for Open Communication Systems
Kaiserin-Augusta-Allee 31
10589 Berlin
+ 49 30 3463 7000
www.fokus.fraunhofer.de

Fraunhofer FOKUS

NGNI
Next Generation
Network Infrastructures

Licensing

OpenEPC Rel. 3 is available under a multitude of paid binary, source code or redistribution licenses. Please contact us for individual OpenEPC testbed, technical support and license offers.

Additional missing features and new components or extensions can be developed under the umbrella of R&D projects with Fraunhofer FOKUS.