eXperimental Infrastructures for the Future Internet

# Showcase

## Always best served

### (Wireless Smartcity/Healthcare Scenario)

*German Node*
*15.05.2014, Berlin*
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Fraunhofer FOKUS

Telekom Innovation Laboratories

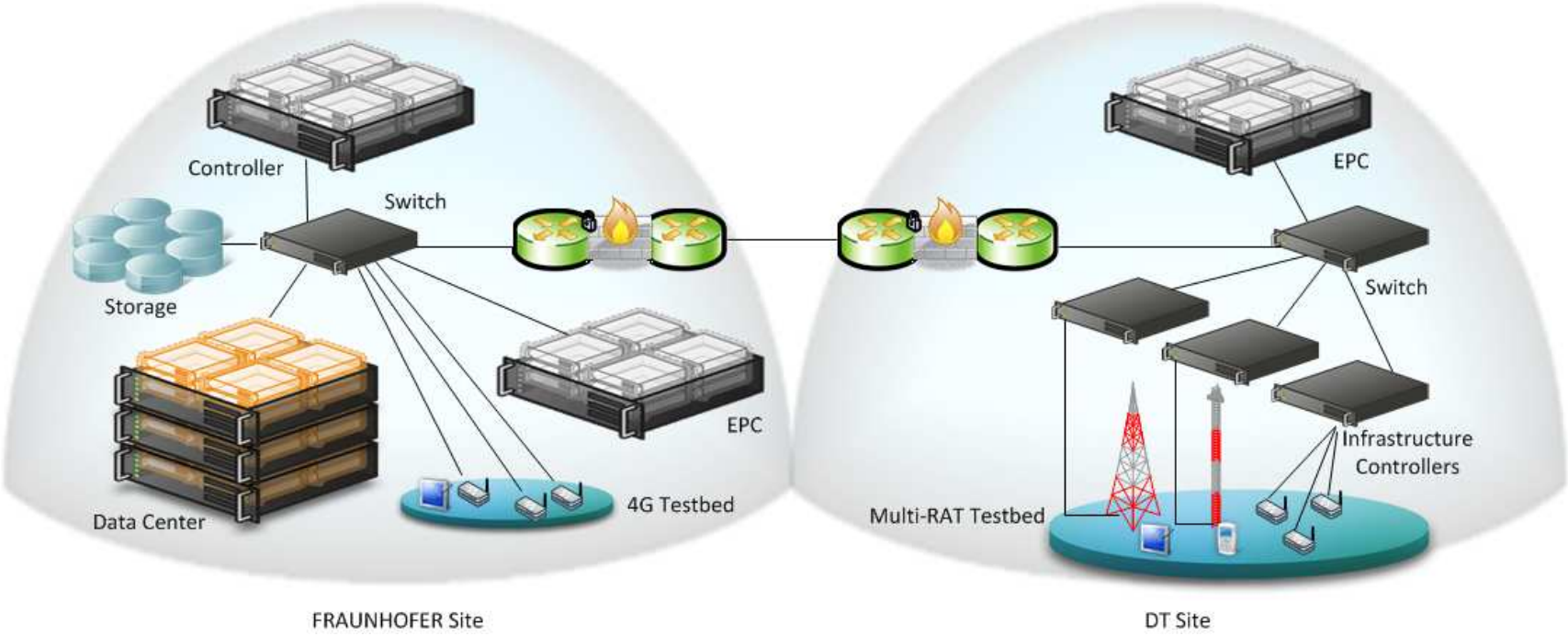
FUTURE INTERNET PPP

SEVENTH FRAMEWORK PROGRAMME

# Agenda

- What you will learn:
  - Infrastructure DT part of Berlin Node is offering
  - Some knowledge about a Generic Enabler offered
  - What can be built with that environment (Showcase/Demo)
  - Some knowledge of how the showcase was build

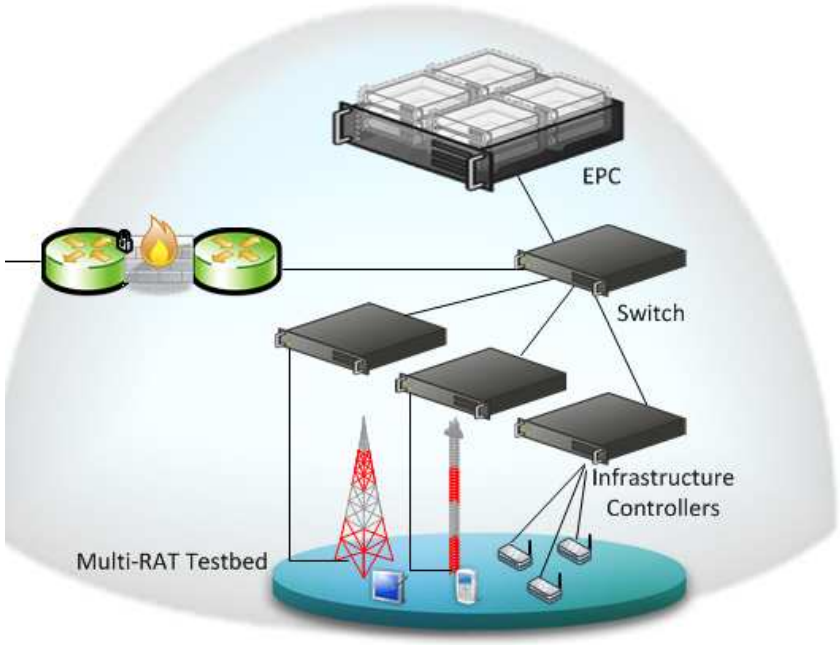
# Architecture of German Node




- German Node is a collaborative Node of
  - FRAUNHOFER (Datacenter part) and
  - Deutsche Telekom (Mobile Testbed part).

# Deutsche Telekom (T-Labs) Site

- Current MultiRAT Testbed:
  - 9 Linux-based outdoor Wi-Fi nodes (4 Wi-Fi interfaces per node)
  - 30 Linux-based indoor Wi-Fi nodes (2 Wi-Fi interfaces per node)
  - 2G femto base station
  - 4G (LTE) femto base station
  - IP-controlled power control for each access node

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# Deutsche Telekom (T-Labs) Site

- Main components

  - Evolve Packet Core (EPC) – OpenEPC implementation by Fraunhofer that offers control of the underlying wireless network (WIFI, LTE, 2G). Enables policy based handovers and information exchange with the network.

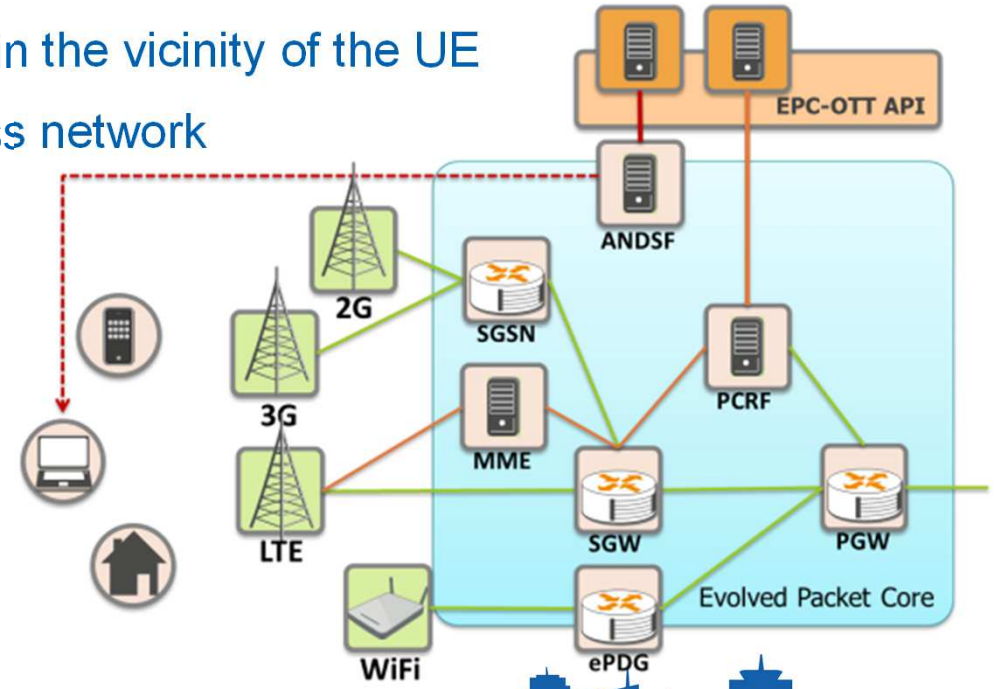
  - IP Multimedia Subsystem (IMS) – architectural framework for delivering IP Multimedia services. OpenIMS implementation – currently mainly used for user/device management on service level.

# Service Capability, Connectivity and Control (S3C)

- Introduction – What is the S3C
- Developed Features of S3C
  - EPC OTT
  - SMS/MMS Enabler
  - API Mediation
  - Telecom AS
  - Network Identity Management
  - Seamless Network Connectivity

# Feature: S3C EPC-OTT Enabler

- 3GPP EPC provides transparent IP connectivity **based on operator internal policies** (Access network selection, Mobility Management and Handover support, and QoS and Charging support)
- Access Network Selections Indications
  - Providing access networks in the vicinity of the UE
  - Indicating a preferred access network
- QoS Reservations
  - Modifying reservations
  - Deleting reservations
  - QoS status of devices

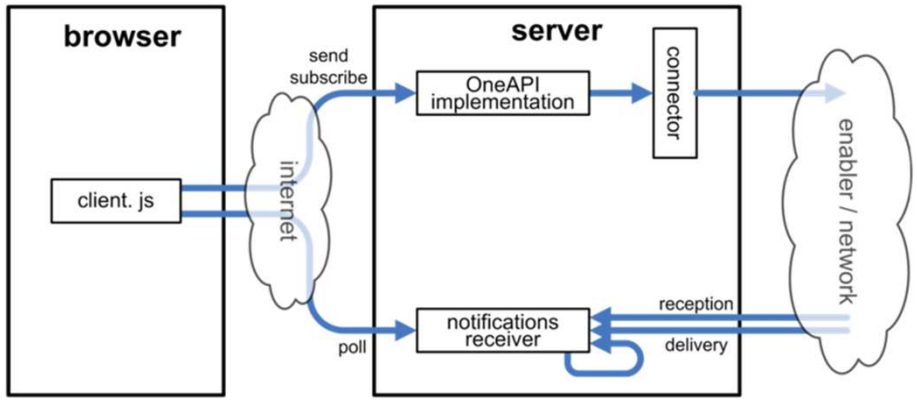


# Feature: S3C API Mediation

- Open Service Access is a Web Services gateway designed as a security element of your network, dedicated to WebService protection and publishing. It supports:
  - Publish backends on different networks
  - Ensure https encryption and (basic) authentication and authorisation
  - Apply user and global quotas (per second, day and month) for a backend
  - Forward consumer identity and publishing endpoint to provider
  - Provide advance service usage logging to administrators.
  - REST Full compliant error management (for OSA errors)
  - Simple GUI to administrators

# Feature: S3C SMS/MMS Enabler

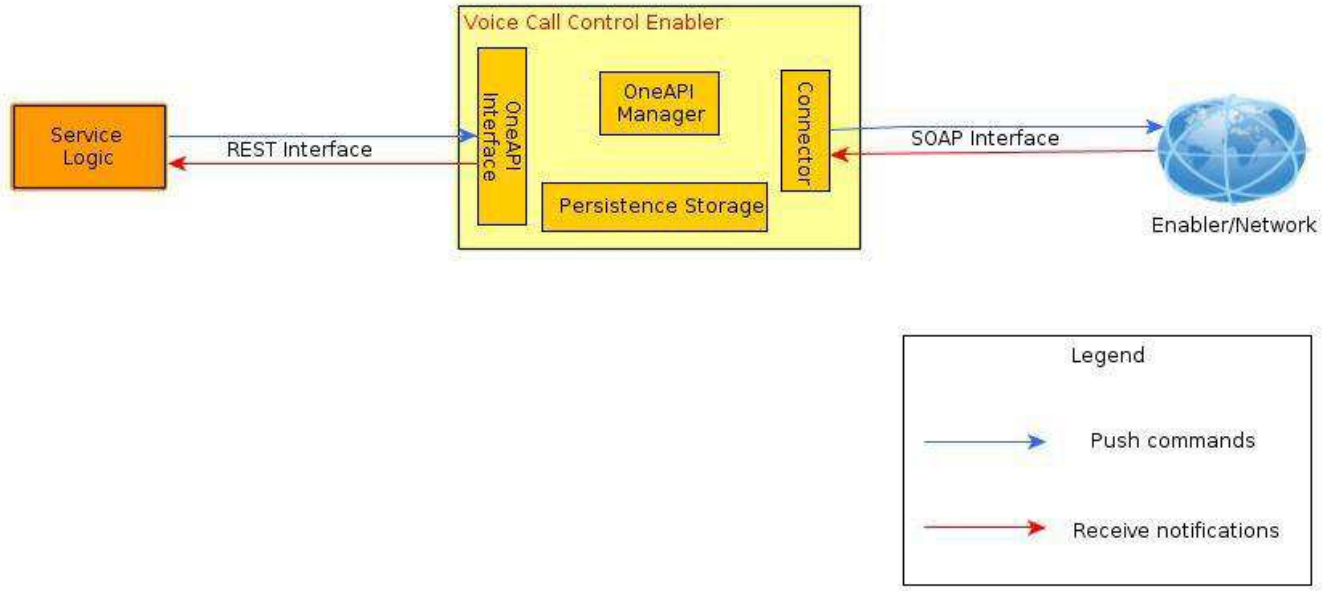
- Allows easily to send short messages from any application or Web Browser.
- This specification is intended for both software developers and re-implementers of this API.
- OneAPI SMS can actually be used (authentication credentials required) on Orange French mobile network: https://nursery-ssg.rd.francetelecom.fr/xml/OneApiEnabler/V1.0/SMSSenderSEI/outbound/21238/requests



# Feature: S3C Telecom AS

- It allows to manage outgoing calls from a service logic via a REST interface.

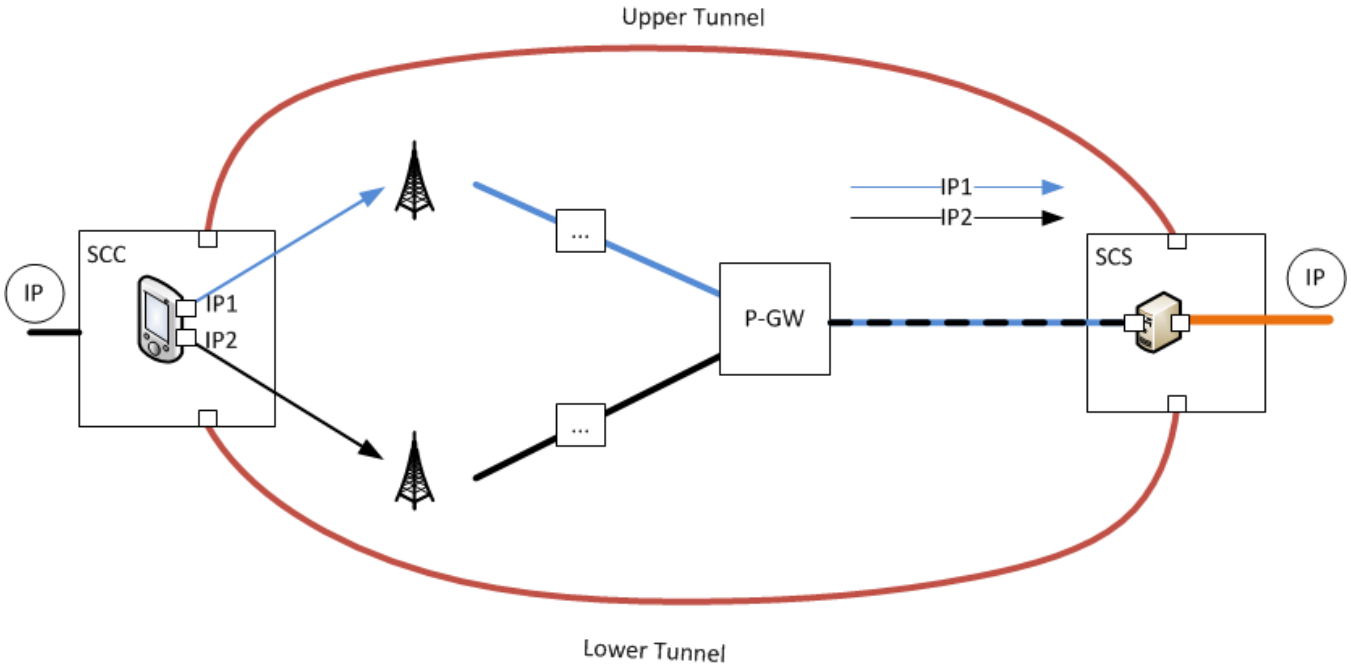
- Setup calls and manage conference bridges



# S3C Network Identity Management

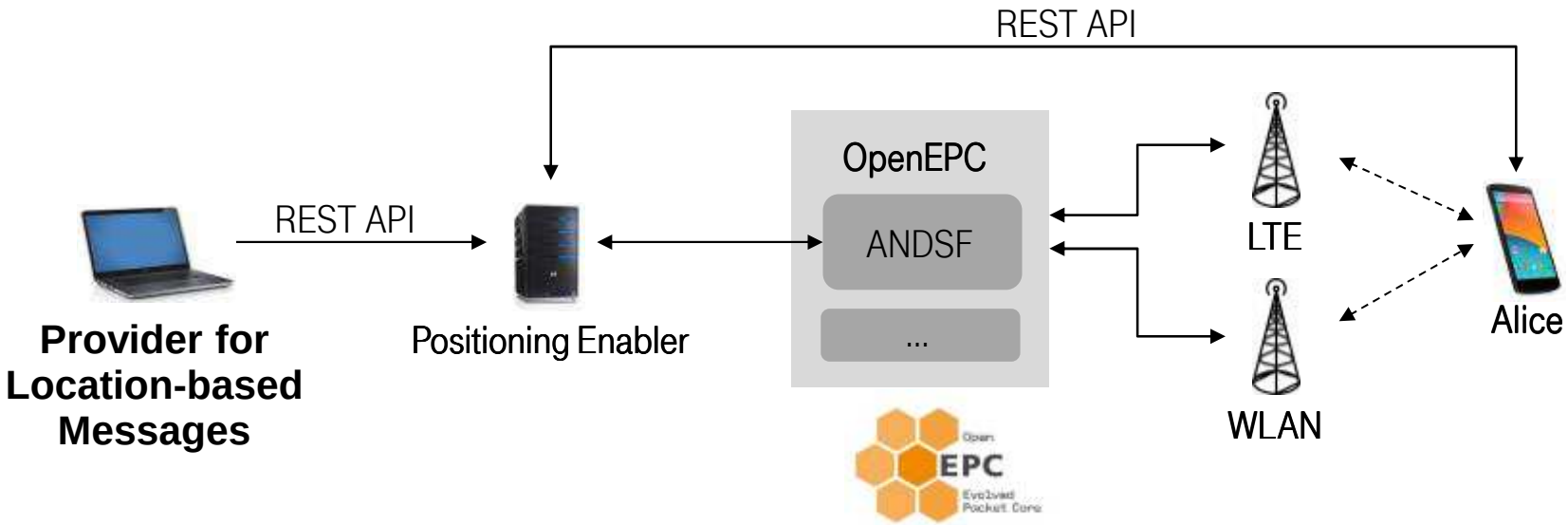
- Allows services to gain information of the subscribers in an NGN (IMS based) domain
- Intelligent Device Identification (published in R.2.3)
    - (GSMA OneAPI DeviceCapabilities & V(oice/ideo)CallControl)
- This specification is intended for service developers
- Possible consumers are services, service providers, or end-user

# S3C Seamless Network Connectivity




SCC: Seamless Connectivity Client
SCS: Seamless Connectivity Server
P-GW: PDN Gateway

# S3C Network Positioning Enabler

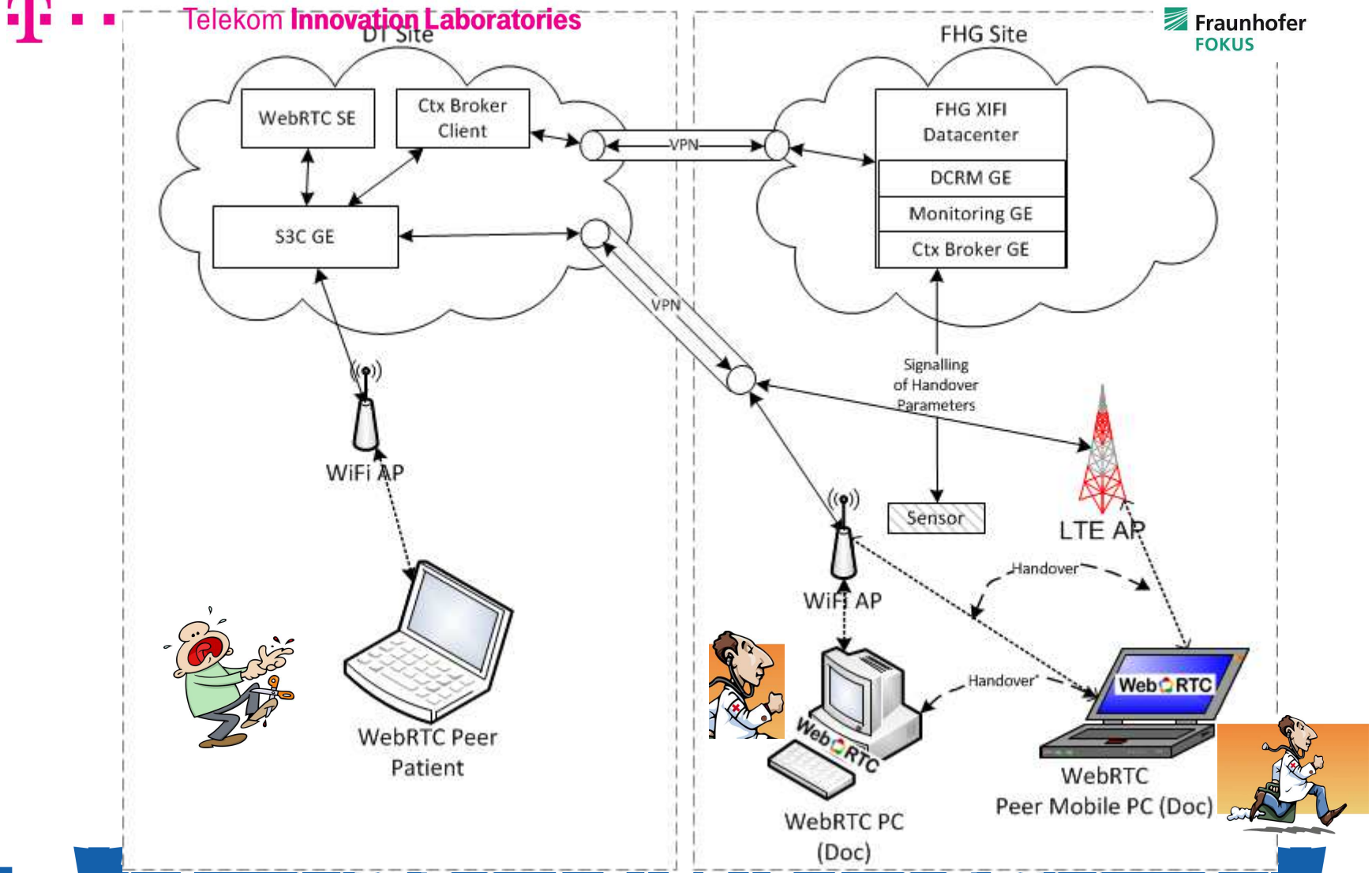


# Showcase Scenario Description

- A doctor on emergency service get a WebRTC call from an accident. As he moves to the accident he stays connected with the people at the place of the accident while he changes the devices and access networks on the move.

- This demo is built upon generic enablers of FIWARE and Infrastructure of XIFI.

# Showcase Demo



# How to built the showcase

- Decide which Generic Enablers to use
  - http://catalogue.fi-ware.eu/
- For the given Showcase we decided to use:
  - S3C GE
  - Orion Context Broker
- Decide on additional specific enablers to implement:
  - WebRTC SE

# Used Generic Enablers

- Used features of S3C Generic Enabler:
  - EPC OTT API
  - Network Identity Manager

# Used Generic Enablers

- Orion Context Broker Generic Enabler:
  - Register a context
  - Update (e.g. values from an IoT sensor)
  - Subscribe or getContext
- Sensor:
  - Knowledge Adaptive Yell – Sensor (KAY-Sensor)

# Build Specific Enablers

- WebRTC Specific Enabler:
  - Registers users to OpenIMS of Testbed
  - Connect multiple device-IDs to one user-ID using Network Identity manager
  - Call handover from one device to another device of the same user.

# That’s it!

**Thank you for your attention!**