

"Understanding 5G as the ultimate Software-based Next Generation Network for integrated Human and Machine type Communications"

Monday, 25 July 2016, 1.00 – 4.00 pm.

Venue: DSP Room 13th Floor, Eng 4 Building, Faculty of Engineering, Chulalongkorn University
Bangkok, THAILAND



Prof. Thomas Magedanz

Thomas Magedanz (PhD) is professor of the chair for Next Generation Networks (AV - Architektur der Vermittlungsknoten in German) within the electrical engineering and computer sciences faculty of the Technische Universität Berlin, Germany, where he is educating Master and PhD students in the converging fields of 5G, SDN/NFV-based control platforms for multimedia and M2M/IOT applications on top of converging fixed and mobile broadband networks.

In addition, he is director of the Next Generation Network Infrastructures (NGNI) Competence Center at Fraunhofer Institute FOKUS in Berlin, Germany, which is the biggest German research organisation for applied research. As independent technology experts he and his team is responsible for the provision of 5G/SDN/NFV/IOT/M2M testbeds for key operators, integrators, and vendors around the globe. In this context he is since more than 25 years a globally recognized pioneer for the development of advanced network and service technology software toolkits, namely the OpenIMSCore, OpenEPC, OpenMTC, and the new Open5GCore, enabling cloud-based Testbed2Go implementations, such as the FUSECO-Playground, and the new 5G-Playground being part of the 5GBerlin testbed.

More at https://www.av.tu-berlin.de/menue/team/prof_dr_thomas_magedanz/

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Today 5G is in the center of global research and development activities of industry and academia. The reason for this is on the one hand the evolution and resulting convergence of various fixed and mobile network infrastructures driven by Software-defined Networking paradigms and, and on the other hand the need to support a broad variety of application uses cases ranging from massive low latency M2M/IOT/Industrial Internet communications up to high speed broadband multimedia communications in high speed trains. There is no doubt, that 5G will be a highly complicated, agile complex system, which will have to unite a lot of existing and ongoing standardization activities in different ICT domains, while providing high flexibility for future adaptations and extensions to new business models, application domains and networking technologies.

This tutorial will provide first an overview of the current definitions, roadmaps, and approaches of the major global 5G initiatives, such as NGMN, 5GPPP, IMT-2000, IEEE, 5GMF, etc to set the floor and gaining an understanding, that 5G will become the ultimate – mainly software-based – global communications infrastructure for any type of applications, including both human to human and machine type communications. Major emphasis will be placed on the 5G central architectural pillars, namely network slicing and virtual network operator enablement, based on recent Software defined Network (SDN), Network Function Virtualization (NFV) and Mobile Edge Computing (MEC) concepts and technologies.

In the second part will concentrate on providing the technical background on the influencing technology domains, such as SDN, NFV, MEC and the evolution of multimedia and M2M/IOT control platforms, which in emerging 5G architectures might be realized in dedicated network slices. In addition, we will illustrate how disruptive control and end-to-end architectures for new tactile internet like applications might look like in other network slices.

The last part of this tutorial motivates the need for 5G Testbeds enabling the practical experimentation – proof of concepts – of 5G infrastructures and applications, going beyond pure simulation and emulation. Therefore a short overview of available 5G Testbed initiatives will be given, including the new 5G Berlin Testbed (www.5GBerlin.org), which is based to a large extend on the Fraunhofer FOKUS OpenXXX software toolkits, such as Open5GCore, OpenSDNCore, and OpenBaton.

A final Q&A Session will conclude this 90 minutes tutorial.

Please register : <http://goo.gl/forms/Hbv4Ts1fZ4GBGFwv1>