2013 17th International Conference on Intelligence in Next Generation Networks (ICIN 2013): Unlocking Value from the Networks

Venice, Italy
15 – 16 October 2013
### Program

#### Tutorial 1: Network Functions Virtualization Demystified

Network functions virtualization is both a concept and a broad initiative to use CPU virtualization and other Cloud Computing technologies to “cloudify” the functions and allow them to run on general-purpose hardware. The concept, as introduced by a group of network service providers in October 2012, is applicable to a range of network functions in mobile and fixed networks from the data plane to control plane to applications. Examples of such network functions are routers, Evolved Packet Core (EPC), IP Multimedia Subsystem (IMS), load balancers, and firewalls.

This tutorial is geared to telecom professionals skilled in networking technologies, but it assumes no prior knowledge of computing virtualization technologies. The latter will be explained so as to demystify the "virtualization" part. After that, the tutorial will briefly describe the ETSI Industry Specification Group for Network Functions Virtualization effort. Key economic and technological issues will be outlined - security among them. With that the benefits of NFV in developing new services will be demonstrated.

#### Tutorial 2: WebRTC Opportunities and Challenges

WebRTC brings real-time voice, video and data communications into the browser, providing web programmers with the tools to build communications into their apps. It also gives communications providers/telcos easy access to a new web platform for their services. WebRTC is already "live" in various web and enterprise scenarios, and several of the more forward-looking telcos are already exploring commercialisation options. By early 2014 there will be a billion devices supporting it - rising to almost 4bn by end-2016.

This tutorial will describe the technical underpinnings of WebRTC and its future roles in telco networks, services and business models. The technical part of the session focuses on key differences from more conventional VoIP deployments.

The rest of the session discusses the key contextual changes in the telecoms business, user behaviour, and wider technology ecosystem that are driving WebRTC to become a pivotal enabler. It will analyse the trend away from traditional "per-minute" telephony towards other new forms of voice or video. For operators, it will make the opportunities bigger; the threats worse; and everything much faster-evolving.

The tutorial will briefly cover the key protocols and codecs used (ICE, STUN, TURN, DTLS, SRTP, RTCP defined by the IETF) and their behaviour on the network. It will also provide an introduction to the API (‘JSEP’ defined by the W3C) used to access WebRTC and associated options for signalling. We will discuss how well various signalling options (SIP, websockets, XMPP etc) and protocols fit into carrier networks (both IMS and conventional) and what sorts of additional features can be built with WebRTC. Further, it will consider how identity will form a part of WebRTC, whether using e164, oAuth or other techniques.

Smartphone and tablet apps will also form a part of the WebRTC ecosystem, either via WebRTC capable browsers (like chrome) or apps that use 3rd party APIs that are compatible with WebRTC on the wire. We'll describe the continuum from dedicated single purpose softphone, through applications with real-time audio and video functionality (eg dating apps), to voice enabled web pages (eg customer services) and their respective value propositions.

This session is geared towards telecoms professionals with basic understanding of VoIP and network technology, but who may have had limited exposure to WebRTC itself, Javascript or mobile phone architecture. The business and market contexts should be of relevance to all.

#### Opening and Keynotes

- **Leveraging Cultural Heritage Through ICTs**
  Roberto Minerva (Telecom Italia, Italy)

- **Architecture Evolution - Some Observations on Recent Developments**
  Ulf Olsson (Ericsson AB, Sweden)

- **New Security Challenges Facing Cloud and Mobile Expansion**
  Juan Miguel Velasco (Aiuen Solutions, Spain)

- **Strategies for the Creation of New Network Services**
  Naoki Uchida (NTT, Japan)
**S1: Network Functions on the Move**

*The Virtual Set-Top Box: On the Shift of IPTV Service Execution, Service & UI Composition Into the Cloud*

Alexandra Mikityuk (TU Berlin & Security in Telecommunications, Germany); Jean-Pierre Seifert (Technical University, Berlin, Germany); Oliver Friedrich (Telekom Innovation Laboratories, Deutsche Telekom AG, Germany)

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*Manifesto of Edge ICT Fabric*

Antonio Manzalini (Telecom Italia, Italy); Roberto Minerva (Telecom Italia, Italy); Eliezer Dekel (IBM Research - Haifa, Israel); Yoav Tock (IBM Haifa Research Lab, Israel); Ernest Kaempfer (Intel Corporation, The Netherlands); Wouter Tavernier (Ghent University - iMinds, Belgium); Koen Casier (University of Ghent, Belgium); Sofie Verbruggen (Ghent University - IBBT, Belgium); Didier Colle (iMinds - Ghent University, Belgium); Franco Callegati (Università di Bologna, Italy); Aldo Campi (University of Bologna, Italy); Walter Cerroni (University of Bologna, Italy); Ricard Vilalta (Centre Tecnològic de Telecomunicacions de Catalunya, Spain); Raul Muñoz (CTTC, Spain); Ricardo Martinez (CTTC, Spain); Noel Crespi (Institut Mines-Télécom, Télécom SudParis, France); Maria Victoria Beltran (Institut Telecom, France)

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*What LTE Policy Control Features Can Operators Execute to Differentiate Themselves From OTT Players?*

Jonathan Hart (British Telecom, United Kingdom); Ruth Brown (BT, United Kingdom)

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**S2: WebRTC**

*Catalysing the Success of WebRTC for the Provision of Advanced Multimedia Real-Time Communication Services*

Luis López Fernández (Universidad Rey Juan Carlos, Spain); Miguel Paris Díaz (Universidad Rey Juan Carlos, Spain); Raul Benitez Mejias (Universidad Rey Juan Carlos, Spain); Francisco Javier López (Naeva Tec, Spain); José Antonio Santos (Naeva Tec, Spain)

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*Some WebRTC Opportunities for RCS*

Romain Carbou (Orange Labs, France)

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*Office in the Cloud: Web-based Cloud Platform for Telcos Services*

Masafumi Suzuki (NTT Service Evolution Laboratories, NTT Corporation, Japan); Kentaro Shimizu (NTT, Japan); Shinyo Muto (NTT, Japan); Naoki Uchida (NTT, Japan)

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*WebRTC, the Day After*

Emmanuel Bertin (Orange Labs, France); Sébastien Cubaud (Orange Labs, France); Stephane Tuffin (France Telecom R&D, France); Stéphane Cazeaux (Orange Labs, France); Noel Crespi (Institut Mines-Télécom, Télécom SudParis, France); Maria Victoria Beltran (Institut Telecom, France)

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**S3: Network Transformation using Cloud**

*Cloud-enabled NGN Architecture with Discovery of End-to-End QoS Resources*

Silvana Greco Polito (Università degli Studi di Enna Kore, Italy); Tommaso Nicoletti (Libera Università degli Studi di Enna KORE, Italy); Vincenzo Maniscalco (Università di Palermo, Italy)

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S4: Improving Customer Experience

**Real-Time Privacy-Preserving Cobrowsing with Element Masking**
Jorn Franke (NEC Europe Ltd., Germany); Bin Cheng (NEC Labs Europe Ltd., Germany)
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**A Web Synchronization Method for Supporting Real and Non-Real-Time Web Communication**
Kazuyuki Tasaka (KDDI R&D Laboratories Inc., Japan); Tomohiko Ogishi (KDDI R&D Lab., Japan); Akira Idoue (KDDI R&D Labs. Inc., Japan)
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**Wallet-on-wheels Using Vehicle’s Identity for Secure Mobile Money**
Rebecca Copeland (Core Viewpoint Limited, United Kingdom); Noel Crespi (Institut Mines-Télécom, Télécom SudParis, France)
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**A User-Centric Context-Aware Mobile Assistant**
Bachir Chihani (Orange Labs & Telecom SudParis (TSP), France); Emmanuel Bertin (Orange Labs, France); Noel Crespi (Institut Mines-Télécom, Télécom SudParis, France)
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S5: Business Models

**Roaming Unbundling - Challenges and Opportunities**
Rogier Noldus (Ericsson, Germany); Lennart Norell (Ericsson, Sweden)
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**Constructing a Multi-Sided Business Model for a Smart Horizontal IoT Service Platform**
Frank Berkers (TNO, The Netherlands); Marc Roelands (Alcatel-Lucent, Belgium); Freek Bomhof (TNO, The Netherlands); Thomas Bachet (TNO, The Netherlands); Martin van Rijn (TNO, The Netherlands); Wietske Koers (TNO, The Netherlands)
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**Recommendation as a Service (RaaS): New Challenges for, and Evaluation Metrics of Recommender Systems**
Gerald Eichler (Telekom Innovation Laboratories, Germany); Karl-Heinz Lüke (Leibniz FH School of Business, Germany)
pp. 133-140
S6: New Architectures for Service Delivery

**Moving to Content-Centric Networks**
Barry Crabtree (British Telecommunications PLC, United Kingdom); Steve Appleby (British Telecommunications Plc, United Kingdom); Mike E Nilsson (British Telecommunications plc, United Kingdom); Tim Stevens (BT, United Kingdom); Brahim Allan (British Telecommunications PLC, Spain)
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**An Approach to Expose M2M Services Over OMA Next Generation Service Interface**
Asma Elmangoush (Technical University Berlin & Fraunhofer FOKUS Institute, Germany); Hakan Coskun (Technische Universität Berlin, Germany); Thomas Magedanz (TU Berlin / Fraunhofer FOKUS, Germany); Niklas Blum (Fraunhofer Institute FOKUS, Germany)
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**Hybrid Composition of Telecom and Internet Services: The Telecom Operator Perspective**
Pierpaolo Baglietto (CIPI - University of Genova, Italy); Massimo Maresca (CIPI - University of Padova, Italy); Michele Stecca (CIPI - University of Genova, Italy); Corrado Moiso (Telecom Italia, Italy)
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Conference Review

Summary of presentations and discussions
Agile telco networks for innovative services
Roberto Minerva (Telecom Italia, Italy)
The future of real-time communications
Dean Bubley (Disruptive Analysis, UK)

Best Paper awards
Best Presentation awards