

Why Cloud?

Secure. Private. Resilient. Open.

CNSM Key Note 1

Matthias Kaiserswerth

Director and Vice President IBM Research – Zurich, Switzerland

ABSTRACT

As the cloud grows up, companies come to expect more out of the technology. Yet, we've seen a string of highly visible cloud outages and security breaches that make us wonder whether the cloud is up to the job. The problem, though, isn't that the cloud is inherently unsafe. It's a one-size-fits-all mentality. This presentation will explain the types of clouds, how they are being used and what we need to collectively do to make it secure, resilient and open to drive adoption.

CV

In June 2006 Dr. Matthias Kaiserswerth has been named Director and Vice President IBM Research – Zurich, Switzerland. In addition, he holds a position in the Software Research Strategy Board, in which he coordinates research work in this area across IBM's twelve global research laboratories. From 2002 until the end of 2005 he was the Managing Director of an IBM Integrated Account. In 2000 Matthias Kaiserswerth became the director of IBM's laboratory in Zurich. Additional responsibilities were for the IBM Zurich Industry Solutions Lab where IBM hosts customers to meet with its researchers to discuss future technology and emerging business trends. From 1997 through 1999, Matthias Kaiserswerth was on assignment at the IBM TJ Watson Research Center where he led the networking software and security research. In addition, he was responsible for setting IBM Research's global security research strategy and starting IBM efforts in the emerging field of privacy technology research. From 1988 through 1997 he worked as a Research Staff Member at IBM Research – Zurich on various research projects ranging from high-performance communication systems to message brokering in a medical environment. Most recently, he worked on smart cards and Java security, which lead to the OpenCard industry standard for using smart cards in a Java environment and Visa's Java Cardtm Price Breakthrough program based on the IBM Research – Zurich JCOP platform.

Matthias Kaiserswerth received his MSc and PhD in Computer Science from McGill University in Montreal, Canada and from Friedrich-Alexander University in Erlangen-Nuremberg, Germany respectively.

Since May 2012 Dr. Matthias Kaiserswerth has been President of the Economic Development Agency Zimmerberg-Sihltal. He is also on the founding Board of Trustees at TECHNOPARK @ Zurich and HASLERSTIFTUNG Bern.

Information-Centric Networking and In-Network Cache Management: Overview, Trends and Challenges

CNSM Key Note 2

George Pavlou
University College London, U.K.

ABSTRACT

Information-Centric Networking (ICN), also referred to as content-centric, content-aware or data-oriented networking, is seen as an emerging paradigm that tries to re-focus communications, centering on content access rather than on host-to-host interaction as is the case today. The proliferation of user-generated content and the fact that the vast majority of interactions over the Internet concern media content access has led researchers to think of new communication models in which information/content comes on center stage and is accessed by name in a location-independent fashion; in addition, content chunks are cached in network routers, providing localized access, reducing overall network load and avoiding flash-crowd situations. The resulting communications paradigm is receiver-driven, with "time-phased" multi-casting and access to content from in-network caches being the norm. This presentation will start with an overview of information-centric networking, it will present the state of the relevant research activities and will consider the current trends and challenges, focusing in particular on in-network cache management.

CV

Prof. Dr. George Pavlou is Professor of Communication Networks in the Department of Electronic and Electrical Engineering, University College London, U.K., where he coordinates research activities in network/service management and networking. He holds a Diploma in Engineering from the National Technical University of Athens, Greece, and MSc and PhD degrees in Computer Science from University College London. His research interests focus broadly on network/service management and networking. He has been instrumental in a number of flagship research projects that produced significant results, resulting in standards and widely deployed systems; in this context, he has contributed to standardization activities in ISO, ITU-T, and the IETF.

Prof. Pavlou has previously been the Vice Chair of the IEEE Committee on Network Operations and Management. He is on the editorial board of the IEEE Transactions on Network & Service Management (TNSM), he is editor in IEEE Communications responsible for a bi-annual series in network/service management and he is on the advisory board of the Journal of Network and Systems Management (JNSM). He has published extensively, with his publications having been widely cited, and has also given invited keynote speeches and tutorials in many major international conferences. For his technical contributions to network and service management, he received in 2011 the Dan Stokesberry award which is the highest distinction in the field, presented every two years to "an individual who has made particularly distinguished technical contributions to the growth of the field". See his web pages for more details on his research activities.

Large Scale Network Measurement: What? Why? How? Findings? Impact?

CNSM Key Note 3

Jürgen Schönwälder
Jacobs University Bremen, Germany

ABSTRACT

Network monitoring plays a fundamental role in network management and it is naturally associated with performing measurements. The network management community has over the years produced many widely deployed network monitoring technologies and a significant number of technical papers have been published. Almost independent of this, a slightly different network measurement community has established itself over the last decade producing publications and technologies for large scale network measurements that are less directly linked to network management. This talk aims at taking a look at *what* people measure, *why* people measure, *how* people measure, and which *findings* are typically being produced. This will lead to a discussion of the value produced by typical large scale network measurement research projects and how they relate to traditional network management.

CV

Prof. Dr. Jürgen Schönwälder is leading the computer networks and distributed systems research group at Jacobs University Bremen, Germany. His research interests are Internet management technologies, flow-based network traffic analysis, large-scale Internet measurements, protocols for challenged networks and the Internet of Things, and network security. Prof. Schönwälder is an active member of the Internet Engineering Task Force (IETF). He has edited more than 30 network management related specifications and standards. He is currently co-chairing the NETMOD working group of the IETF. Previously, he co-chaired the ISMS working group of the IETF and the NMRG research group of the Internet Research Task Force (IRTF). Jürgen served on the editorial boards of the IEEE Transactions on Network Management, the Springer Journal of Network and Systems Management and the Wiley International Journal of Network Management. He served as a guest co-editor of special issues of the IEEE Communications Magazine, the IEEE Journal on Selected Areas in Communications, and the Springer Journal of Network and Systems Management. He has been involved in various functions in the organization of several workshops and conferences in the area of network and systems management.

E-Africa by the Horizon 2020. Ultra Wide Band in Africa? A Mainly Political Choice

ICQT Key Note

Claude de Jacquelot

Political Advisor Broadband-Infrastructure Policy Expert, Paris, France

ABSTRACT

On the basis of different experiences and analyses of the African context, wide band and ultra wide band development is a major stake for countries of the African continent in order to be transformed into an E-society and to enter the E-world.

- An economical transformation for governments which have to move to ICT, cash cow of the state budget driven by an E-economy
- Wide band? What for? How do consumers use it?
- How to serve wide band on the short and middle term (2016) and ultra wide band by the horizon 2018-2020
- Impacts on infrastructures and the regional integration problem
- Lessons based on the Program for Infrastructure Development in Africa (PIDA) and country case studies

CV

Claude de Jacquelot is a well-known ICT Infrastructure and Broadband Policy expert. Over the last 23 years, he has worked in the field of telecommunications policy and development in developing countries. He heads his own association of different independent international experts to be able to offer the best expertise to its customers. In 1999-2000 at UNMIK Government as Head of Telecommunication he has rebuilt the Kosovo operator; most recently as PIDA ICT team leader (Head of State-African Union and AfDB study), he was involved in the Broadband development strategic framework in Africa (Policy, Legal, regulatory and Infrastructure). Since 2012 as individual expert for the World Bank, He is involved in Broadband development framework for MENA-UMA countries. Involved in Broadband development model and regulatory frameworks, C. de Jacquelot has an extensive expertise in political (legal, regulatory) and policy framework to implement Broadband strategic framework in developing countries.

DMTF Overview

SVM Key Note

Jeff Hilland

President DMTF and Enterprise Group of Hewlett-Packard Company, U.S.A.

ABSTRACT

DMTF has a 20 year history of management standards development. With many specifications becoming national and international standards, DMTF is the nexus for management standards. This presentation is an insider's guide to the DMTF – who participates, what is happening, how the organization is structured, and opportunities for academics and alliances to engage with DMTF.

CV

Jeff Hilland is a Senior Systems Architect in the Enterprise Group of Hewlett-Packard Company (HP). Jeff served as VP of Technology for the DMTF for 6 years before being appointed President of the DMTF. Jeff has served in various leadership roles in the DMTF since 2003, including co-chair of both the Server Management Work Group and the Desktop & Mobile Work Group. Jeff has spent the last 19 years driving industry standards and has served in chairing roles in both the RDMA Consortium and the InfiniBand Trade Association. Jeff's 30-plus year career in the computing industry includes systems and server management, management protocols, data modeling, distributed systems architecture, system software integration, automated deployment and configuration tool development, device driver, services architecture and development, and performance analysis. It has also included significant contributions to high speed intercommunications protocol development and standardization including RDMA, InfiniBand, and the Virtual Interface Architecture.

Opportunities for Exploiting Social Awareness in Overlay Networks

SETM Key Note 1

Bruce Maggs

Department of Computer Science, Duke University and Vice President, Research Akamai Technologies, U.S.A.

ABSTRACT

This talk describes two network overlays that are used heavily by the customers of Akamai Technologies today. The first protects the banking industry from distributed denial of service attacks, whereas the second reduces the latency experienced by users of a major search engine. In the context of these two overlays, the talk discusses limitations in the functionality that a content distribution network (CDN) like Akamai can provide on behalf of its customers (the content providers), and suggests that there may be opportunities to address these limitations by exploiting social awareness.

CV

Bruce Maggs received the S.B., S.M., and Ph.D. degrees in computer science from the Massachusetts Institute of Technology in 1985, 1986, and 1989, respectively. His advisor was Charles Leiserson. After spending one year as a Postdoctoral Associate at MIT, he worked as a Research Scientist at NEC Research Institute in Princeton from 1990 to 1993. In 1994, he moved to Carnegie Mellon, where he stayed until joining Duke University in 2009 as a Professor in the Department of Computer Science. While on a two-year leave-of-absence from Carnegie Mellon, Maggs helped to launch Akamai Technologies, serving as its Vice President for Research and Development, before returning to Carnegie Mellon. He retains a part-time role at Akamai as Vice President for Research.

Maggs's research focuses on networks for parallel and distributed computing systems. In 1986, he became the first winner (with Charles Leiserson) of the Daniel L. Slotnick Award for Most Original Paper at the International Conference on Parallel Processing, and in 1994 he received an NSF National Young Investigator Award. He was co-chair of the 1993-1994 DIMACS Special Year on Massively Parallel Computation and has served on the steering committees for the ACM Symposium on Parallel Algorithms and Architectures (SPAA) and ACM Internet Measurement Conference (IMC), and on the program committees of numerous ACM conferences including STOC, SODA, PODC, and SIGCOMM.

Network-Awareness and Virtualization Meets Cloud

SETM Key Note 2

Volker Hilt

Alcatel-Lucent Bell Labs, Germany

ABSTRACT

Cloud computing has revolutionized the way services are provided over the Internet. Cloud-based services scale up and down seamlessly using the resources needed to meet current demand. While services can easily manage computing resources such as CPU and storage, it is challenging to gain visibility into the network infrastructure and configure network resources for the delivery of a service. This limitation of today's clouds is impacting in particular telecommunication services that are time-sensitive, media-based, mission-critical, or persistent (long-lived).

Network virtualization and network-awareness are key enablers for a new type of cloud that supports a wider range of services at greater efficiency. New research on network-awareness and virtualization is enabling services to quickly respond to changing network conditions and jointly orchestrate network and computing resources. These clouds can use resources more efficiently and deliver highly available services with superior end-to-end performance.

CV

Dr. Volker Hilt is the head of Networked Services Research at Bell Labs/Alcatel-Lucent in Stuttgart, Germany. Dr. Hilt received his master's degree in Information Systems in 1996 and his Ph.D. in Computer Science in 2001 both from the University of Mannheim in Germany. He joined Bell Labs/Alcatel-Lucent in New Jersey, U.S.A. in 2002 and moved to Germany in 2012.

His field of research is computer networking where he has made contributions in the area of cloud computing, content distribution, peer-to-peer applications, distributed multimedia systems and the Session Initiation Protocol (SIP). Dr. Hilt is a contributor to the Internet Engineering Task Force (IETF) and chairs the SIP Overload Control Working Group. He has published over 50 papers and co-authored more than 15 Internet drafts and RFCs.