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Tuesday, 6 May 2014 • 10:15 - 12:00
Room: Alfa 2

TS 1: Software-defined Networks
Chair: Jerome Francois

Towards Test-driven Software-defined Networking
David Lebrun, Stefano Vissicchio, Olivier Bonaventure
(Université catholique de Louvain, Belgium)

Enabling SDN Applications on Software-defined Infrastructure
Thomas Lin, Joon-Myung Kang, Hadi Bannazadeh,
Alberto Leon-Garcia (University of Toronto, Canada)

PayLess: A Low-cost Network Monitoring Framework for Software-defined Networks
Shihabur Chowdhury, Md. Faizul Bari, Reaz Ahmed, Raouf Boutaba
(University of Waterloo, Canada)

OpenNetMon: Network Monitoring in OpenFlow Software-defined Networks
Niels van Adrichem, Christian Doerr, Fernando Kuipers
(Delft University of Technology, Netherlands)

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TS 2: Clouds/Network Virtualization
Chair: Steven Latre

Identity and Access Management in Multi-tier Cloud Infrastructures
Mohammad Faraji, Joon-Myung Kang, Hadi Bannazadeh,
Alberto Leon-Garcia (University of Toronto, Canada)

Optimizing Cost and Performance Trade-Offs for MapReduce Job Processing in the Cloud
Zhuoyao Zhang (University of Pennsylvania, USA)
Lucy Cherkasova (Hewlett Packard Labs, USA)
Boo Thau Loo (University of Pennsylvania, USA)

Characterizing the Performance of Tenant Data Management in Multi-Tenant Cloud Authorization Systems
Pieter-Jan Maenhaut, Hendrik Moens, Veerle Ongenae,
Filip De Turck (Ghent University, Belgium)

Hierarchical Network-Aware Placement of Service Oriented Applications in Clouds
Hendrik Moens, Brecht Hanssens, Bart Dhoedt, Filip De Turck,
(Ghent University - iMinds, Belgium)

Tuesday, 6 May 2014 • 13:30 - 15:15
Room: Alfa 2

TS 3: Wireless and Mobile Networking
Chair: Carol Fung

Urban WiFi Characterization via Mobile Crowdsensing
Arsham Farshad, Mahesh Marina (University of Edinburgh, UK)
Francisco Garcia, Agilent (UK)

Energy-efficient Wi-Fi Management for Smart Devices
Jian Li (POSTECH, Korea)
Jin Xiao (IBM T. J. Watson Research Center, USA)
Huu Nhat Minh Nguyen (Pusan National University, Korea)
James Hong (POSTECH, Korea)
Raouf Boutaba (University of Waterloo, Canada)

New Routing Framework for RPL: Constructing Power-efficient Wireless Sensor Network
Hiroshi Matsuura (NTT, Japan)

An Automatic and On-demand MNO Selection Mechanism
Christos Tsiaras, Samuel Liniger (University of Zurich, Switzerland)
Burkhard Stiller (University of Zurich and ETH Zurich, Switzerland)

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TS 4: Hardware Virtualization and Management
Chair: R. Stadler

vFRM: Flash Resource Manager in VMware ESX Server
Deng Liu, Jack Lo, Xiaoyun Zhu (VMware Inc., USA)
Ningfang Mi (Northeastern University, USA)

Application-driven Dynamic Vertical Scaling of Virtual Machines in Resource Pools
Lei Lu (College of William and Mary, USA)
Rean Griffith, Pradeep Padala, Aashish Parikh, Parth Shah,
Xiaoyun Zhu (VMware, USA)
Evgenia Smirni (College of William and Mary, USA)

Integrating Cloud Application Autoscaling with Dynamic VM Allocation
Michael Tighe, Michael Bauer (University of Western Ontario, Canada)

Managing the File System from the Kernel
Shihabur Chowdhury, Raouf Boutaba
(University of Waterloo, Canada)
Constantin Adam, Frederick Wu (IBM, USA)
John Rofrano, IBM Research, USA

WEDNESDAY, 7 MAY 2014

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TS 5: Software-defined Networks
Chair: Lisandro Zambenedetti Granville

Design and Management of DOT: A Distributed OpenFlow Testbed
Arup Raton Roy, Md. Faizul Bari, Mohamed Faten Zhani,
Reaz Ahmed, Raouf Boutaba (University of Waterloo, Canada)

Joint Allocation and Scheduling of Network Resource for Multiple Control Applications in SDN
Tao Feng, Bi Jun, Ke Wang (Tsinghua University, China)

Software-defined Network Support for Transport Resilience
Joao Taveira Araujo, Raul Landa, Richard Clegg, George Pavlou
(University College London, UK)

A Novel Approach to Virtual Networks Embedding for SDN Management and Orchestration
Riccardo Guerzoni, Ishan Vaishnavi, Riccardo Trivisonno,
Artur Hecker (Huawei ERC, Germany)
Sergio Beker (Huawei Technologies, Germany)
David Soldani (Huawei ERC, Germany)
Zoran Despotovic (Huawei, Germany)

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TS 6: IP and Web Management
Chair: Giovane Moura

A Multi-agent Q-Learning-based Framework for Achieving Fairness in HTTP Adaptive Streaming
Stefano Petrangeli, Maxim Claeys, Jeroen Famaey, Filip De Turck
(Ghent University, iMinds, Belgium)
Steven Latré (University of Antwerp, iMinds, Belgium)

Towards Evaluation of DNS Server Selection with Geodesic Distance
Kensuke Fukuda (National Insutitute of Informatics, Japan)

End-to-End Detection of Compression of Traffic Flows by Intermediaries
Vahab Pournaghshband, Alexander Afanasyev, Peter Reiher
(University of California, Los Angeles, USA)

Effect of Content Charge by ISPs in Competitive Environment
Noriaki Kamiyama (NTT Network Technology Laboratories, Japan)

Wednesday, 7 May 2014 • 13:30 - 15:15
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TS 7: Security, Survivability, and Resiliencey
Chair: Joe Betser

A Deeper Understanding of SSH: Results from Internet-wide Scans
Oliver Gasser, Ralph Holz, Georg Calre
(Technische Universität München, Germany)

Provenance-aware Security Risk Analysis for Hosts and Network Flows
Mohsen Rezvani, Sanjay Jha
(University of New South Wales, Australia)
Aleksandar Ignjatovic (University of New South Wales, Australia)
Elisa Bertino (Purdue University, USA)

RevMatch: An Efficient and Robust Decision Model for Collaborative Malware Detection
Carol Fung (Virginia Commonwealth University, Canada)
Disney Lam, Raouf Boutaba (University of Waterloo, Canada)

Tracking Spoofed Locations in Crowd-sourced Vehicular Applications
Lautaro Dolberg (SnT, University of Luxembourg, Luxembourg
Jérôme François, Thomas Engel
(University of Luxembourg, Luxembourg)

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TS 8: Security, Survivability, and Resiliency
Chair: Nur Zincir-Heywood

A Survivable Virtual Network Embedding Scheme Based on Load Balancing and Reconfiguration
Qingyun Chen, Ailing Xiao,Ying Wang, Xuesong Qiu, Wenjing Li
(BUPT, China)

Distributed Load Balancing for Resilient Information-centric SeDAX Networks
Michael Hoefling, Cynthia Mills, Michael Menth
(University of Tübingen, Germany)

Online Network Performance Degradation Localization Using Probabilistic Inference and Change Detection
Andreas Johnsson, Catalin Meirosu, Christofer Flinta
(Ericsson Research, Sweden)

Dynamic, Context-specific SON Management Driven by Operator Objectives
Christoph Frenzel, Simon Lohmüller
(University of Augsburg, Germany)
Lars Christoph Schmelz (Nokia Solutions and Networks, Germany)

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Thursday, 8 May 2014 • 10:15 - 12:00
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TS 9: Clouds/Network Virtualization
Chair: Jiahai Yang

Algorithms for Efficient Data Management of Component-based Applications in Cloud Environments
Maryam Barshan, Hendrik Moens, Filip De Turck
(Ghent University, Belgium)
Steven Latré (University of Antwerp, iMinds, Belgium)

Design and Evaluation of Learning Algorithms for Dynamic Resource Management in Virtual Networks
Rashid Mijumbi,Joan Serrat, Juan Luis Gorricho (Universitat Politecnica de Catalunya, Spain)
Maxim Claeys, Filip De Turck (Ghent University, iMinds, Belgium)
Steven Latré (University of Antwerp, iMinds, Belgium)

Evaluating Allocation Paradigms for Multi-objective Adaptive Provisioning in Virtualized Networks
Rafael Esteves, Lisandro Zambenedetti Granville (UFRGS, Brazil)
Mohamed Faten Zhani, Raouf Boutaba
(University of Waterloo, Canada)

Managing the Decision-making Process for Opportunistic Mobile Data Offloading
Vinicius Mota, Daniel Fernandes Macedo
(Universidade Federal de Minas Gerais, Brazil)
Yacine Ghamri-Doudane (University of La Rochelle, France)
Jose-Marcos Nogueira (Universidade Federal de Minas Gerais, Brazil)

Thursday, 8 May 2014 • 13:30 - 15:15
Room: Alfa 2

TS 10: Wireless and Mobile Networking
Chair: Shinji Kikuchi

Service Level Agreements for Wireless Sensor Networks: a WSN Operator's Point of View
Guillaume Gaillard,
(Orange Labs Meylan/CITI INRIA-INSA Lyon, France)
Dominique Barthel (Orange Labs, France)
Fabrice Theoleyre (CNRS, France)
Fabrice Valois (CITI INRIA-INSA Lyon, France)

Analysis of Injection Capabilities and Media Access of IEEE 802.11 Hardware in Monitor Mode
Stephan Günther, Maurice Leclaire, Julius Michaelis, George Carle
(Technische Universität München, Germany)

Design of Roadside Infrastructure for Information Dissemination in Vehicular Networks
Cristiano Silva (Universidade Federal de São João del Rei, Brazil)
Andre Aquino (UFAL, Brazil)
Wagner Meira Jr. (UFMG, Brazil)

Data Similarity Aware Dynamic Nodes Clustering For Supporting Management Operations
Fernando Gielow (UFPR, Brazil)
Michele Nogueira, Aldri dos Santos
(Universidade Federal do Paraná, Brazil)

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Room: Alfa 1

TS 11: Service Management
Chair: Hanan Lutfiyya

Predicting Service Delivery Cost for Non-standard Service Level Agreements
Yixin Diao, Linh Lam, Larisa Schwartz, David Northcutt
(IBM Research, USA)

A Framework for Predicting Services Delivery Efforts Using IT Infrastructure-to-Incident Correlation
Joel Branch, Yixin Diao, Larisa Schwartz
(IBM T.J. Watson Research Center, USA)

Hierarchical Multi-label Classification over Ticket Data using Contextual Loss
Chunqiu Zeng, Tao Li (Florida International University, USA)
Larisa Schwartz (IBM T.J. Watson Research, USA)
Genady Grabarnik (St. John's University, USA)

Hybridsourcing: A Novel Work Allocation Mechanism to Provide Controlled Autonomy to Workers
Parshuram S. Hotkar (Indian Institute of Technology, India)
Shivali Agarwal, Sahil Mhaskar (IBM Research, India)

TUESDAY, 6 MAY 2014

Tuesday, 6 May 2014 • 09:45 - 10:15
Room: Foyer

Poster Session #1

Chair: Shingo Ata (Osaka City University, Japan)

A Semantic Self-management Approach for Service Platforms
Jan Schaefer (RheinMain University of Applied Sciences, Germany)

DISCO: Distributed Multi-domain SDN Controllers
Kévin Phemius, Mathieu Bouet, Jérémie Leguay
(Thales Communications & Security, France)

Kameleo: Design of a New Platform-as-a-Service for Flexible Data Modeling
Thomas Vanhove, Jeroen Vandensteen, Gregory Van Seghbroeck, Tim Wauters, Filip De Turck (Ghent University, iMinds, Belgium)

MINA: A Reflective Middleware for Managing Dynamic Multinetwork Environments
Zhijing Qin (University of California, Irvine, USA)
Luca Iannario (HP Enterprise Services, Italy)
Carlo Giannelli, Paolo Bellavista (University of Bologna, Italy)
Grit Denker (SRI International, USA)
Nalini Venkatasubramanian (UCI, USA)

A Database-oriented Management for Asynchronous and Consistent Reconfiguration in Software-defined Networks
Yuki Kawai (Osaka City University, Japan)
Yasuhiro Sato (Japan Coast Guard Academy, Japan)
Shingo Ata (Osaka City University, Japan)
Dijiang Huang (Arizona State University, USA)
Deep Medhi (University of Missouri-Kansas City, USA)
Ikuo Oka (Osaka City University, Japan)

Tuesday, May, 6 • 15:15 - 15:45
Room: Foyer

Data-centric Cloud and Network Management Posters

Traffic Engineering in Cloud Data Centers: A Column Generation Approach
Sara Ayoubi (Concordia University, Canada)
Samir Sebbah (Oracle, USA)
Khaled Shaban (Qatar University, Qatar)
Chadi Assi (Concordia University, Canada)

Virtual Data Center Networks Embedding through Software-defined Networking
Raphael Rosa, Christian Esteve Rothenberg, Edmundo Madeira (UNICAMP, Brazil)

Software System Performance Debugging with Kernel Events Feature Guidance
Junghwan Rhee, Hui Zhang, Nipun Arora, Guofei Jiang, Kenji Yoshihira (NEC Labs America, USA)

M2M Facilitated Wireless Network Coverage Management and Real-time Monitoring
Jizheng Zhang, Lin Yang, Qian Ma, Wei Sun, Wei Zhao
(IBM Research, China)

SUMA: Software-defined Unified Monitoring Agent for SDN
Taesang Choi (ETRI, Korea)
Sejun Song, Hyungbae Park (University of Missouri Kansas City, USA)
SangSik Yoon, Sunhee Yang (ETRI, Korea)

Panoptes: A Monitoring Architecture and Framework for Supporting Autonomic Private Clouds
Rafael Brundo Uriarte
(IMT Institute for Advanced Studies Lucca, Italy)
Carlos Westphall (Federal University of Santa Catarina, Italy)

ATLAS: Accurate Topology Level-of-Detail Abstraction System
Michael Scharf, Thomas Voith, Manuel Stein, Volker Hilt
(Alcatel-Lucent Bell Labs, Germany)

WEDNESDAY, 7 MAY 2014

Wednesday, 7 May 2014 • 09:45 - 10:15
Room: Foyer

Poster Session #2

Chair: Brendan Jennings (Waterford Institute of Technology, Ireland)

A Hybrid Architecture to Manage Performance and Reliability on Cloud-Based Firewalling
Fouad Guenane, Hajer Boujezza
(Université Pierre et Marie Curie - Paris 6, France)
Michele Nogueira (Universidade Federal do Paraná, Brazil)
Guy Pujolle (Université Pierre et Marie Curie - Paris 6, France)

Graph Search for Cloud Network Management
Misbah Uddin, Rolf Stadler (Royal Institute of Technology, Sweden)
Masanori Miyazawa, Michiaki Hayashi
(KDDI R&D Laboratories Inc., Japan)

Self-establishing a Service Level Agreement within Autonomic Cloud Networking Environment
Mohamad Hamze, Nader Mbarek, Olivier Togni
(Le2i Laboratory, University of Burgundy, France)

Sharing Policies for Multi-partner Asset Management in Smart Environments
Christos Parizas, Diego Pizzocaro, Alun Preece (Cardiff University, UK)
Petros Zerfos (IBM Thomas J. Watson Research Center, USA)

DICOM Interception System for Independent Image Backup
Paulo Salvador, António Nogueira
(University of Aveiro, Institute of Telecommunications, Portugal)
Fernanda Gonçalves (Centro Hospitalar São João, E.P.E., Portugal)

Heterogeneous Cores For MapReduce Processing: Opportunity or Challenge?
Feng Yan (College of William and Mary, USA)
Lucy Cherkasova (Hewlett Packard Labs, USA)
Zhuoyao Zhang (University of Pennsylvania, USA)
Evgenia Smirni (College of William and Mary, USA)

Implementing a Novel Load-aware Auto Scale Scheme for Private Cloud Resource Management Platform
Jie Bao, Zhihui Lv, Jie Wu (Fudan University, China)

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Thursday, May 2014 • 09:45 - 10:15
Room: Foyer

Poster Session #3

Chair: Shingo Ata (Osaka City University, Japan)

Towards Practical Use of Bloom Filter-based IP Lookup in Operational Network
Tong Yang (Institute of Computing Technology)
Gaogang Xie (Chinese Academy of Sciences, China)
Xianda Sun (University of Waterloo, Algeria)
Ruian Duan (Georgia Institute of Technology, USA)
Kavé Salamatian (University of Savoie, France)

A Fresh Look at Forwarding Information Base Compression via Mathematical Analysis
Tong Yang, Gaogang Xie (Chinese Academy of Sciences, China)
Kavé Salamatian (University of Savoie, France)

Cognitive Wireless Access Selection at Client Side: Performance Study of a Q-learning Approach
Olli Mämmelä, Petteri Mannersalo
(VTT Technical Research Centre of Finland, Finland)

FME: A Flexible Management Entity for Virtualizing LTE Evolved Packet Core
Karina Gomez, Tinku Rasheed, Leonardo Goratti
(CREATE-NET, Italy)
Laurent Reynaud (Orange, France)

hdFilter: Toward Faster Bloom Filter-based Packet Forwarding
HyunYong Lee, Akihiro Nakao (University of Tokyo, Japan)

POSTER SESSIONS

RRLOC: A Tool for iBGP Route Reflector Topology Planning and Experimentation
Emiliano Gutiérrez, Diego Agriel, Emiliano Saenz, Eduardo Grampin (Universidad de la Republica de Uruguay, Uruguay)

Thursday, May 2014 • 15:15 - 15:45
Room: Foyer

Management of the Internet of Things Posters

Managing Things and Services with Semantics: A Survey
Matthias Thoma, Torsten Braun, Carsten Magerkurth, Alexandru-Florian Antonescu
(SAP AG, University of Bern, Switzerland)

REST-based Access to SMIv2-structured Information on Constrained Devices
Olaf Bergmann, Carsten Bormann, Stefanie Gerdes
(University of Bremen, Germany)

Fine-grained Management of CoAP Interactions with Constrained IoT Devices
Floris Van den Abeele, Jeroen Hoebeke, Ingrid Moerman, Piet Demeester (University of Ghent, Belgium)

MINI-CONFERENCE

Monday, 5 May 2014 • 08:00 - 09:45
Room: Alfa 1 & Alfa 2

Mini-conference: Dependability
Chair: Alberto Schaeffer-Filho

Internet Bad Neighborhoods Temporal Attack Strategies
Giovane Moura (Delft University of Technology, Netherlands)
Ramin Sadre (Aalborg University, Denmark)
Aiko Pras (University of Twente, Netherlands)

Elastic Virtualized Infrastructure for Resilient Voice Communication Service
Fumio Machida, Ryota Mibu, Junichi Gokurakuji, Kazuo Yanoo, Yoshiharu Maeno, Tomoyoshi Sugawara, Kumiko Tadano (NEC, Japan)

Design of a Security Mechanism for RESTful Web Service Communication through Mobile Clients
Femke De Backere, Brecht Hanssens, Ruben Heynssens, Rein Houthooft, Alexander Zuliani, Stijn Verstichel, Bart Dhoedt, Filip De Turck (Ghent University, iMinds, Belgium)

A SAT-based Autonomous Strategy for Security Vulnerability Management
Martín Barrère, Remi Badonnel, Olivier Festor
(INRIA Nancy - Grand Est, France)

Understanding Botclouds from a System Perspective: a Principal Component Analysis
Hammi Badis, Guillaume Doyen (UTT, France)
Rida Khatoun (ERA/ICD-FRE CNRS 2848, France)

Improved Reliability of Large-scale Publish/Subscribe-based MOMs using Model Checking
Yue Jia, Eliane Bodaneese, John Bigham, Chris Phillips, Ran Tao, (Queen Mary University of London, UK)

Monday, 5 May 2014 • 10:15 - 12:00
Room Alfa 1 & Alfa 2

Mini-conference: Wireless Networks
Chair Shingo Ata

Mobility-aware Estimation of Content Consumption Hotspots for Urban Cellular Networks
Sahar Hoteit, Stefano Secci, Guy PujolleUniversité
(Pierre et Marie Curie - Paris 6, France)
Vinhoa La, Cezary Ziemlicki, Zbigniew Smoreda (Orange, France)

Mobi-G: Gossip-based Monitoring in MANETs
Dominik Stingl, Reimond Retz, Bjoern Richerzhagen, Christian Gross, Ralf Steinmetz (TU Darmstadt, Germany)

Object Tracking by Mining Movement Trajectories in Wireless Sensor Networks
Tzung-Shi Chen, Chen-Han Wu, Jen-Jee Chen
(National University of Tainan, Taiwan)

Power Allocation and Scheduling in Practical Implementations of Wireless Network Coding
Prashanth Vijayakumar, Jacek Ilow (Dalhouise University, Canada)

Kitsune: A Management System for Cognitive Radio Networks Based on Spectrum Sensing
Lucas Bondan, Marcelo Marotta, Maicon Kist, Leonardo Faganello, Cristiano Both, Juergen Rochol, Lisandro Zambenedetti Granville (UFRGS, Brazil)

A Policy-based Storage Model for Sensor Networks
Nuno Gonçalves, Aldri dos Santos, Carmem Hara
(Universidade Federal do Paraná, Brazil)

Monday, 5 May 2014 • 13:30 - 15:15
Room: Alfa 1 & Alfa 2

Mini-Conference: Clouds and Virtualization
Chair: Clarissa Marquezan

On Virtualization-aware Traffic Engineering in OpenFlow Data Centers networks
Molka Gharbaoui (Scuola Superiore Sant'Anna, Italy)
Barbara Martini, Davide Adami (CNIT-University of Pisa, Italy)
Gianni Antichi (University of Cambridge, UK)
Stefano Giordano (University of Pisa, Italy)
Piero Castoldi (Scuola Superiore Sant'Anna, Italy)

A Dynamic Risk-based Access Control Architecture for Cloud Computing
Daniel dos Santos, Carla Merkle Westphall, Carlos Westphall
(Federal Uiversity of Santa Catarina, Brazil)

Improving Management of Distributed Services Using Correlations and Predictions in SLA-Driven Cloud Computing Systems
Alexandru-Florian Antonescu, Torsten Braun
(University of Bern, Switzerland)

Business-driven Optimization of Component Placement for Complex Services in Federated Clouds
Genady Grabarnik (St. John's University, USA)
Larisa Shwartz (IBM T.J. Watson Research, USA)
Mauro Tortonesi (University of Ferrara, Italy)

Flexible Traffic Management in Broadband Access Networks using Software-defined Networking
Julius Rückert (TU Darmstadt, Germany)
Roberto Bifulco (NEC, Germany)
Muhammad Rizwan-Ul-Haq (TU Darmstadt, Germany)
Hans-Joerg Kolbe (NEC, Germany)
David Hausheer (TU Darmstadt, Germany)

Management Patterns: SDN-enabled Network Resilience Management
Paul Smith (AIT Austrian Institute of Technology, Austria)
Alberto Schaeffer-Filho (Federal University of Rio Grande do Sul, Brazil)
David Hutchison, Andreas Mauthe (Lancaster University, UK)

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Mini-Conference: Service Management

Chair: Piotr Cholda

Link Loss Inference with Link Independence and Nonlinear Programming
Xiangyu Cao, Ying Wang, Xuesong Qiu, Meng Luoming (BUPT, China)

A Case Study for a Secure and Robust Geo-fencing and Access Control Framework
Hossein Rahimi, Tuerxun Maimaiti, Nur Zincir-Heywood (Dalhousie University, Canada)

A Value-based Framework for Provider Selection of Regional ISPs
Miao Li, Hui Wang, Jiahai Yang, Chenxi Li (BUPT, China)

Improving Content Delivery Through Coalitions
Ghida Ibrahim (Orange Labs, Télécom ParisTech, France)
Daniel Kofman (Télécom ParisTech, France)

Uscope: A Scalable Unified Tracer from Kernel to User Space
Junghwan Rhee, Hui Zhang, Nipun Arora, Guofei Jiang, Kenji Yoshihira (NEC Labs America, USA)

EXPERIENCE SESSIONS

TUESDAY, 6 MAY 2014

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Room: Beta 1 & Beta 2

ES1 - Data Analytics -

Chair: Alberto Gonzalez

Understanding the Role of Sentiment Analysis in Contract Risk Classification
Sinem Guven, Mathias Steiner, Niyu Ge, Amit Paradkar
(IBM Thomas J. Watson Research Center, USA)

Scalable Data Analytics Platform for Enterprise Backup Management
Yang Song, Ramani Routray (IBM Research, USA)
Yangyang Hou (Purdue University, USA)

Abnormality Analysis of Streamed Log Data
Arnak Poghosyan, Ashot Harutyunyan, Naira Grigoryan, Mazda Marvasti (VMware, USA)

Which Phone Will You Get Next: Observing Trends and Predicting the Choice
Yi Wang (University of California Riverside, USA)
Hui Zang (Sprint, USA)
Pravallika Devineni, Michalis Faloutsos
(University of New Mexico, USA)
Krishna Janakiraman, Sara Motahari (Sprint, USA)

WEDNESDAY, 7 MAY 2014

Wednesday, 7 May 2014 • 10:15 - 12:00
Room: Beta 1 & Beta 2

ES2 - Automation and Autonomics

Chair: Henning Sanneck

Autonomic Networking - From Theory to Practice
Michael Behringer (Cisco Systems, France)
Amit Dutta (Cisco Systems, India)
Yves Hertoghs (Cisco System, Belgium)
Steinthor Bjarnason (Cisco Systems, Norway)

Managing Risks in Multi-node Automation of Endpoint Management
Sai Zeng, Constantin Adam, Fredrick Wu, Shang Guo, Yaoping Ruan, Cashchakanithara Venugopal, Rajeev Puri
(IBM Thomas J. Watson Research Center, USA)

Diagnostic Signatures - OnDemand Troubleshooting Automation
Joe Clarke, Chidambaram Arunachalam (Cisco Systems, USA)

SON Management Simulator - Implementation and Findings
Sören Hahn (Technische Universität Braunschweig, Germany)
Lars Christoph Schmelz (Nokia Solutions and Networks, Germany)
Andreas Eisenblaetter (ATESIO, Germany)
Thomas Kürner (Technische Universität Braunschweig, Germany)

Wednesday, 7 May 2014 • 13:30 - 15:15
Room: Beta-1 & Beta-2

ES3 - Simulations and Assessments -

Chair: Shinji Kikuchi

Cloud-based Testbed for Simulation of Cyber Attacks
Jakub Cegan, Martin Drasar, Tomas Jirsik, Daniel Kouril, Tomas Rebok, Martin Vyzvary, Jan Vykopal
(Masaryk University, Czech Republic)

SECCO: A Test Framework for Controlling and Monitoring End User Service Sessions
Liam Fallon (Ericsson, Ireland)
Declan O'Sullivan (Trinity College Dublin, Ireland)

Multi-Resource (In)dependency in Production Datacenters
Robert Birke, Lydia Chen (IBM Research Zurich Lab, Switzerland)
Evgenia Smirni (College of William and Mary, USA)

Workload Configuration and Client Strategy Discovery using Crowdsourcing
Maja Vukovic (IBM Research, USA)
Sriram Rajagopal (IBM India, India)

THURSDAY, 8 MAY 2014

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Room: Beta 1 & Beta 2

ES4 - Deployment and Operations

Chair: Yoshiaki Kiriha

The Network As A Programmable Platform: Scalable Deployment of Network-embedded Applications
Joe Clarke, Jason Pfeifer, Bruno Klauser (Cisco Systems, USA)

Annotation Technology Progress and Evaluation for More Accurate Operations in Global Network Environment
Yuto Kawabata, Takeshi Masuda, Tsutomu Maruyama (NTT, Japan)

I-CaN-MaMa: Integrated Campus Network Monitoring and Management
Shuai Zhao, Kelsey Leftwich, Matthew Owens, Frank Magrone, James Schonemann II, Brian Anderson, Deep Medhi
(University of Missouri, Kansas City, USA)

On the Feasibility of Deploying Cell Anomaly Detection in Operational Cellular Networks
Gabriela Ciocarlie, Ulf Lindqvist, Kenneth Nitz
(SRI International, USA)
Szabolcs Nováczki (Nokia Solutions and Networks, Hungary)
Henning Sanneck
(Nokia Siemens Networks GmbH & Co KG, Germany)

TUESDAY, 6 MAY 2014

Tuesday, May, 6 • 10:15 - 12:00
Room: Alfa 1

Special Track on Data-centric Cloud and Network Management

Chair: Yixin Diao

Impact of HW and OS Type and Currency on Server Availability Derived From Problem Ticket Analysis
Alexander Nus (Technion, Israel)
Jasmina Bogojeska, Ioana Giurgiu, David Lanyi, George Stark, Dorothea Wiesmann (IBM Research, Switzerland and USA)

CLUE: System Trace Analytics for Cloud Service Performance Diagnosis
Hui Zhang, Junghwan Rhee, Nipun Arora (NEC Labs America, USA)
Sahan Gamage (Purdue University, USA)
Guofei Jiang, Kenji Yoshihira (NEC Labs America, USA)
Dongyan Xu (Purdue University, USA)

CloudRank: A Statistical Modeling framework for Characterizing User Behavior towards Targeted Cloud Management
Sakyajit Bhattacharya, Tridib Mukherjee, Koustuv Dasgupta (Xerox Research Center, India)

A Heuristic Correlation Algorithm for Data Reduction Through Noise Detection in Stream-based Communication Management Systems
Faisal Zaman, Sebastian Robitzsch, Zhuo Wu (Dublin City University, Ireland)
John Keeney, Sven van der Meer (Ericsson, Ireland)
Gabriel-Miro Muntean (Dublin City University, Ireland)

WEDNESDAY, 7 MAY 2014

Wednesday, 7 May 2014 • 10:15 - 12:00
Room: Alfa 1

Special Track on Privacy and Analytical Modeling

Chair: Burkhard Stiller
(University of Zurich and ETH Zurich, Switzerland)

Memory-Aware Sizing for In-Memory Databases
Karsten Molka, Giuliano Casale (Imperial College London, U.K.)
Thomas Molka, Laura Moore
(SAP HANA Cloud Computing, Systems Engineering, U.K.)

Migration Plans With Minimum Overall Migration Time
Alexander Nus, Danny Raz (Technion, Israel)

A Heuristic-Based Algorithm for Privacy-Oriented Virtual Network Embedding
Leonardo Bays, Rodrigo Ruas Oliveira, Luciana Buriol, Marinho Barcellos, Luciano Paschoal Gaspary (UFRGS, Brazil)

Privacy Protection of Textual Medical Documents
Montserrat Batet, David Sánchez (Universitat Rovira i Virgili, Spain)

THURSDAY, 8 MAY 2014

Thursday, 8 May 2014 • 10:15 - 12:00
Room: Alfa 1

Special Track on the Management of the Internet of Things

Crowdsourced Context Modeling as Key to Future Smart Spaces
Marc-Oliver Pahl, Georg Carle (Technical University Munich, Germany)

Properties of Advanced Metering Infrastructure Networks Topologies
Slawomir Nowak, Mateusz Nowak, Krzysztof Grochla (Polish Academy of Science and Proximetry, Poland)

Named Data Aggregation in Wireless Sensor Networks
Younes Abid, Bilel Saadallah, Abdelkader Lahmadi, Olivier Festor (INRAI, Université de Lorraine, France)

A Software-defined Networking Architecture for the Internet-of-Things
Zhijing Qin, Grit Denker, Carlo Giannelli, Paolo Bellavista, Nalini Venkatasubramanian, (University of California Irvine, SRI International, University of Bologna, USA, Italy)

TUESDAY, 6 MAY 2014

Tuesday, May, 6 • 13:30 - 15:00
Room: Beta 1 and Beta 2

Securing the Managed World

Recent revelations of the extent of government surveillance and some high profile attempts to hack into critical infrastructure are raising a number of questions on how to protect the reliable operation of managed elements. At the same time, devices become increasingly smarter and connected, and expose even greater functionality to the outside world. The challenges are increasing in a number of industries and applications: smart grid, natural resources, smarter home, connected vehicles, etc.

The panel will examine the latest challenges in securing the management world and encourage a discussion around the most pressing issues in making management secure.

Moderator: Nikos Anerousis (IBM)

Panelists:
Joe Betser (Aerospace Corp.)
Emil Lupu (UCL)
Mark Lacoste (Orange Labs)

Tuesday, May, 6 • 15:45 - 17:30
Room: Beta 1 and Beta 2

DevOps and ITIL: Conflict or Coexistence?

This panel will explore key questions that relate core ITIL management functions to the unique requirements that DevOps brings to the table, and how the latter affects a defined process structure. For example, in managing changes, is a tight adherence to process doable in an IT environment that requires major releases on a weekly basis, often coupled with daily drops of additional functionality? How does Testing work in such an environment? Is there still a need for user acceptance testing (and a set of corresponding test environments) or is it supplanted by rolling out changes to a small(er) part of the production infrastructure? When do you need to break out of the prescribed method and create a new one? How does ITIL view the Agile world and vice-versa? Is there such a thing as rapid ITIL or light weight ITIL management interpretation? Is the domain of ITIL management a better fit for rigorous models with little flexibility compared to development functions or must it do both? And finally, what is the next wave of innovation likely to be, and will it allow coexistence between those planning the management framework or those using it?

For attendees this session will be of interest as several diverse specialists in ITIL management functions will present both reinforcing and alternative view points on this rich subject and allow for extensive audience engagement in a deep but free flowing conversation.

Moderator: Alex Keller (IBM)

Panelists:
Sven Graupner (HP)
Joe Clarke (Cisco)
Gabi Dreo-Rodosek (UniBw)

WEDNESDAY, 7 MAY 2014

Wednesday, 7 May 2014 • 15:45 - 17:30
Room: Beta 1 and Beta 2

Management of the Internet of Things (IoT and M2M)

Tortonesi Mauro (University of Ferrara)

In the near future not only network equipment, servers, and IT services need management, but also a huge number of different types of devices and entities, ranging from industrial systems, to automated machines, to electrical equipment, to waste containers, to basically anything one can attach a microcontroller or a microprocessor to.

While these devices are extremely heterogeneous, their remote monitoring and management presents some common issues and themes. Some of these 'things' have a long history of being remote controlled (usually via proprietary protocols) but our community has largely ignored how this is being done. Other 'things' are new and it is not clear what management is needed or necessary (e.g., light bulbs that can be controlled over the Internet). Besides many technical aspects, the management of a fair share of those smart 'things' needs to keep into consideration how their respective markets work. Finally, the "management-of-things" is a strongly interdisciplinary research topic, which raises the opportunity to explore common themes from/with other research communities.

Moderator: Mauro Tortonesi (University of Ferrara)

Panelists:
Ramin Sadre (Aalborg University)
Juergen Schoenwaelder (Jacobs University)
Olaf Bergmann (Universität Bremen)

THURSDAY, 8 MAY 2014

Thursday, 8 May 2014 • 13:30 - 15:15
Room: Beta 1 and Beta 2

Bridging Network Management and Software-Defined Networking

Software-Defined Networking (SDN) has been extensively sold not only as a new networking paradigm, but also as a network management solution. That can be seen, for example, in the IETF meetings. Although SDN does tackle some classical problems (e.g., network discovery and inventory), introducing SDN also leads to network management challenges. There exists two complementary, yet different perspectives on network management and SDN: (a) the more frequent argument that SDN improves network management, and (b) the fact that SDN is itself also another target of network management. From these two perspective, some questions take place, such as: (a.i) Which classical management functions SDN supports? (a.ii) Which classical functions SDN does NOT support? (b.i) What are the requirements for managing SDN networks? (b.ii) To which extend are these requirements already covered by today's network management solutions?

Moderator: Lisandro Zambenedetti Granville

Panelists:
Alex Clemm (Cisco Systems)
Slawomir Kuklinski (Orange Telecom)
Daiv Meyer (IRTF SDNRG)

DEMO SESSION

Wednesday 7 May • 12:00 - 13:30 • Room: Foyer

Improved Delivery of Live SVC-based HTTP Adaptive Streaming Content
Niels Bouten, Maxim Claeys, Robin Bailleul
(Ghent University, iMinds, Belgium)
David Lou (Bell Labs, Alcatel-Lucent, Belgium)
Jeroen Famaey (Ghent University, iMinds, Belgium)
Steven Latré (University of Antwerp, iMinds, Belgium)
Jan De Cock, Filip De Turck (Ghent University, iMinds, Belgium)

Automatic and On-demand Mobile Network Operator (MNO) Selection Mechanism Demonstration
Christos Tsiaras, Samuel Liniger, Burkhard Stiller
(University of Zurich, Switzerland)

DCAD: Dynamic Cell Anomaly Detection for Operational Cellular Networks
Gabriela Ciocarlie, Ulf Lindqvist, Kenneth Nitz
(SRI International, USA)
Szabolcs Nováczki, Henning Sanneck
(Nokia Siemens Networks GmbH & Co KG, Germany)

Cloud-based Security Research Testbed: A DDoS Use Case
Tomas Jirsik, Martin Husak, Zdenek Eichler, Pavel Celeda
(Masaryk University, Czech Republic)

DISCO: Distributed SDN Controllers in a Multi-domain Environment
Kévin Phemius, Mathieu Bouet, Jérémie Leguay
(Thales Communications & Security, France)

Joule: SoftwareDefined Energy Metering
Roberto Riggio, Dejene Boru, Tinku Rasheed (CREATE-NET, Italy)

POCO-Framework for Pareto-Optimal Resilient Controller Placement in SDN-based Core Networks
David Hock, Steffen Gebert, Matthias Hartmann, Thomas Zinner,
Phuoc Tran-Gia (University of Würzburg, Germany)

SON Management Demonstrator
Lars Christoph Schmelz (Nokia Solutions and Networks, Germany)
Sören Hahn (Technische Universität Braunschweig, Germany)
Andreas Eisenblätter (ZIB, Berlin, Germany)
Simon Lohmüller,Christoph Frenzel (University of Augsburg, Germany)
Thomas Kürner (Technische Universität Braunschweig, Germany)

IT and Network SDN Orchestrator for Cloud Data Center
Andrea Sgambelluri (Scuola Superiore SantAnna, Pisa, Italy)
Davide Adami, Lisa Donatini (University of Pisa, Italy)
Molka Gharbaoui (Scuola Superiore SantAnna, Pisa, Italy)
Barbara Martini (CNIT, Italy)
Stefano Giordano (University of Pisa, Italy)
Piero Castoldi (Scuola Superiore SantAnna, Italy)

NETCONF Interoperability Lab
Vaibhav Bajpai, Juergen Schoenwaelder
(Jacobs University Bremen, Germany)

Managing SamKnows Probes using NETCONF
Vaibhav Bajpai (Jacobs University Bremen, Germany)
Radek Krejci (CESNET, z.s.p.o., Czech Republic)

Customized Subscriptions from Analytics Insights
Icaro Da Silva, Åsa Bertze, Jing Fu, Yu Wang (Ericsson, Sweden)

An SDN Solution Empowering Users' Capability to Tune Application-level QoE
Antonio Marsico (University of Trento, Italy)
Matteo Gerola, Elio Salvadori, Federico Facca,
Roberto Doriguzzi Corin (CREATE-NET, Italy)

Demonstrating a Distributed and Version-agnostic OpenFlow Slicing Mechanism
Daniel Depaoli (University of Trento, Italy)
Roberto Doriguzzi Corin, Matteo Gerola, Elio Salvadori
(CREATE-NET, Italy)

PiCsMu: A System to Aggregate Multiple Heterogeneous Cloud Services Storage
Guilherme Sperb Machado, Thomas Bocek, Burkhard Stiller
(University of Zurich, Switzerland)

DISSERTATION SESSIONS

Tuesday, 6 May • 15:45 - 17:30
Room: Alfa 2
Chair: Aldri Santos

Replication Management and Cache-aware Routing in Information-centric Networks
Vasilis Sourlas, Leandros Tassiulas (University of Thessaly, Greece)

Semantic-based Service Analysis and Optimization
Liam Fallon (Ericsson, Ireland)
Declan O'Sullivan (Trinity College Dublin, Ireland)

Taking on Internet Bad Neighborhoods
Giovane Moura (Delft University of Technology, Netherlands)
Ramin Sadre (Aalborg University, Denmark)
Aiko Pras (University of Twente, Netherlands)

Improving Reliability in Management of Cloud Computing Infrastructure by Formal Methods
Shinji Kikuchi (Fujitsu Laboratories Limited, Japan)
Kunihiko Hiraishi (JAIST, Japan)

Wednesday, 7 May • 15:45 - 17:30
Room: Alfa 2
Chair: Aldri Santos

Towards Scalable Routing for Wireless Multi-hop Networks
David Palma, Marilia Curado (University of Coimbra, Portugal)

Effective Resource and Workload Management in Data Centers
Lei Lu, Evgenia Smirni (College of William and Mary, USA)

Dynamic Workload Management in Heterogenous Cloud Computing Environments
Qi Zhang, Raouf Boutaba (University of Waterloo, Canada)

Slowing Down to Speed Up: Protecting Users Against Massive Attacks in Content Distribution Systems
Flávio Roberto Santos, Luciano Paschoal Gaspary,
Marinho Barcellos (UFRGS, Brazil)

Monday, 5 May 2014 • 8:00 – 12:00
Room: Gamma 1

TUTORIAL T1 – Practical Cloud Deployment and Management with Openstack and Programmable Networking

Speakers:
Masum Z. Hasan, Cisco Systems, USA
Horst Dumcke, Cisco Systems, France

Openstack has emerged as a major Cloud Framework (note the use of the term "framework" as a generalization for Cloud OS, Cloud controller, Cloud Management System, relevant software/API framework) for deploying large-scale public and private Clouds. Openstack allows deployment of both computer and storage Clouds with the addition of other value-added services, such as VM image, identity, load-balancing and network-related services. Programmable networking or PN (aka SDN) is another area that is changing the landscape of networking in a major way. In a Cloud all the services are on-demand and programmatic. That is, computational and storage resources are requested on-demand and via programmatic interfaces (aka API) with the resources made available to the requester almost immediately or in a short time interval since the request. In general, the CRUD (create, read, update, delete) of resources are performed on-demand and programmatically. Cloud requires that network resources are also CRUD on-demand and programmatically. Hence PN or SDN comes in handy in a Cloud environment. This tutorial includes the following:

- General Cloud concepts
- Programmable Cloud and networking concepts
- Illustrations of how these concepts are realized in the Openstack framework and PN/SDN framework, such as Cisco OnePK and Open source OpenDaylight (withe more focus on Openstack)
- User management and access control framework (Keystone)
- (VM) image management framework (Glance)
- Compute Cloud framework (Nova)
- Elastic block storage framework (Cinder)
- Network services framework (Neutron; this is Openstack version of PN to support PN/SDN of server access network) object storage Cloud framework (Swift).
- Introduction of Cisco OnePK
- Introduction of Open Daylight
- Deployment of an Openstack-controlled Compute Cloud in a multi-node or cluster environment
- Inclusion of neutron controlled network for the Compute Cloud
- Deployment of an Openstack- (Swift) controlled Storage Cloud over a pool of distributed storage (distributed on general-purpose computer servers)
- Orchestration of multiple services in Openstack Cloud
- A case demonstrating use of on-demand QoS for compute/storage Cloud using PN/SDN/OnePK
- Openstack Cloud spanning multiple DCs and MAN/WAN (Seamless Cloud)
- Real Cloud infrastructure and programmingdemonstrations/ examples

Monday, 5 May 2014 • 8:00 – 12:00
Room: Gamma 2

TUTORIAL T2 – Manageability, Embedded Automation, Network Programming and Autonomic Networking: Contradicting Concepts or Complementary Evolutions?

Speakers:
Michael Behringer, Cisco Systems, France
Patrick Charretour, Cisco Systems, France
Joe Clarke, Cisco Systems, USA
Bruno Klauser, Cisco Systems, Switzerland
Jason Pfeifer, Cisco Systems, USA

While software-defined approaches in many IT domains, including network programming, enjoy a lot of attention currently, evolutions of network-embedded automation are powering an increasing number of innovative operational scenarios. At the same time decades of research, development and investment are being leveraged into basic manageability and operational experience to define control loops which tackle routine tasks autonomously.

Are these independent developments or even competitive concepts? Should 'pure' implementations rely on a single approach? Can they be combined to reap all the benefits in parallel? Or might they be an integral part of the bigger picture as networking evolves? Why are software-defined approaches seeing a surge in popularity now despite the fact that many of the fundamentals already have been described for years? In this tutorial, although we may not provide the ultimate answers to all of those questions, we will review existing definitions and approaches as well as underlying common concepts across them. Based on experience from real-life deployments we'll be able to share design considerations and implementation choices as well as emerging common design patterns. Since current real-life deployments and early adopters tend towards incremental innovation and selective combinations of approaches, we will explore combinations of the following concepts:

- Application Visibility and Control: aims to optimize application experience in an increasingly dynamic and complex environment where applications across private/hybrid and public cloud, voice/video/collaboration demand proactive management of quality of service (QoS) and the paths of application traffic flows.

- Network Automation: concepts and lessons learned from the recent steep increase in industry adoption of network-embedded manageability and automation. Included will be a review of technologies and current best practices as well as challenges going forward.

- Autonomic Networking: based on the groundwork laid by research and academia, early validation and adoption of autonomic networking concepts became a reality.

- Network Programming: seemingly contradictory to some while perceived as complementary by others, software defined networking and network programming introduce new degrees of freedom to architect how operational procedures and business applications interact with the network.

Background theory and concept presentation will be combined with practical validation and examples of current practice, as well as early adoptions and emerging capabilities from the perspective of individual contributors from Cisco, based on its own technology as well as open source and standardized network technology. Current and future work will be discussed, including open questions and interest areas for research collaboration as well as opportunities for practical validation of upcoming concepts.

Monday, 5 May 2014 • 13:30 – 17:30
Room: Gamma 1

TUTORIAL T3 – Configuration, Management and Enablement in a Software Defined Platform

Speakers:
Salman A. Baset, IBM Thomas J. Watson Research Center, USA
Theo Benson, Duke University, USA
Sambit Sahu, IBM Thomas J. Watson Research Center, USA

Cloud computing has evolved tremendously to become a truly viable virtualized platform for enterprise applications and services. These large-scale virtualized platforms often need complex configurations – both static and dynamic – at compute, storage and network resource levels to meet various demands from application and services. Configuration, enablement and management of such dynamic and virtualized resources and services pose significant research and engineering challenges. Towards these, several interesting areas have evolved such as automated and dynamic configurations, software defined networking, and management across layers for dynamic workloads.

Building upon three highly successful prior tutorials: (1) "Provisioning and Management of Enterprise Services in a Cloud", IM 2011; (2)"Cloud Enablement Services: Technologies and Challenges", NOMS 2012; and (3) "Leveraging Cloud for Extreme Scale Applications", IM 2013, this tutorial will focus on the configuration, management and enablement of cloud services in a software-defined platform, covering both hands-on technologies as well as recent advancements in these areas.
The tutorial consists of three parts:

1.Configuration and Management
- Overview of Chef and Puppet
- Chef-based automated deployment and upgrade – OpenStack example
- Opsworks for Amazon

2.Enablement
- Challenges in workload deployment and management
- Recent progresses in automation of workload deployment
- Hands-on exposure to various automation concepts through AWS CloudFormation, OpsWorks, Storage Gateway, Redshift

3. Software-defined network as an enabler for SDE
- SDN overview in OpenStack and challenges
- Diagnosing problems in OpenStack-based SDNs

Monday, 5 May 2014 • 13:30 – 17:30
Room: Gamma 2

TUTORIAL T4 – Wearable Computers: A Holistic Design Approach

Speakers:
Roozbeh Jafari, University of Texas-Dallas, USA
Hassan Ghasemzadeh, Washington State University, USA

Wearable computers bring to fruition many opportunities to continuously monitor human body with sensors placed on the body. They provide new avenues to continuously monitor individuals, whether intended to detect an early onset of a disease or to assess the effectiveness of the treatment. In the past few years, the community has observed a large number of applications that have been developed using wearable computers. Yet, not many have been deployed on a large scale. There are still several challenges that must be addressed before realizing the ubiquitous use of wearable computers.

In this tutorial, we present a review of wearable computing systems and their applications. We highlight several components of wearable computers including signal processing, software, hardware architectures, sensors and actuators. In particular, we will review signal processing techniques suitable for time-series data acquired from wearable sensors -- namely, dynamic time warping and hidden Markov models. We provide a review for existing software platforms for wearable computers, along with the current state-of-the-art hardware architectures. We emphasize the need for holistic approaches optimizing and enhancing the performance of wearable computers (e.g., reducing their form). We will review several cross-layered techniques aimed at creating hardware accelerators for wearable computers. We will conclude the talk by highlighting opportunities and future directions in wearable computer design.

IEEE YOUNG PROFESSIONALS SESSION

Part 1: Reception Gathering (17:30-18:15)
Room: Foyer

Part 2: Plenary Speech (18:15-19:00)
Room: Alfa 2

The IEEE Young Professionals Session is aimed to help career development for young professionals (defined by IEEE as within 15 years from first professional degree such as Bachelor's or equivalent), and get the next generation of NOMS/IM participants more actively involved in our conferences and in our field.

The session is to be held on Tuesday, May 6, from 17:30 to 19:00, and is composed of two parts

Part 1: Reception Gathering
(17:30-18:15)

- A reception style free gathering with multiple stations hosted by representatives from both industries and academia
- Help to form both focused and diversified conversations to fit young professional's interests and needs

Part 2: Plenary Speech
(18:15-19:00)

- Distinguished speakers and plenty of speaker/audience interactions
- Address various career development topics such as academia/industry trend, impact of global economy, and personal career path

6th IEEE/IFIP International Workshop on Management of the Future Internet (ManFI 2014)

Monday, 5 May 2014 • Room: Beta 1

Workshop Co-Chairs:
Kazuhiko Kinoshita, Osaka University, Japan **Jae-Hyoung Yoo**, Postech, Korea **Filip De Turck**, Ghent University, Belgium

WORKSHOP

The Sixth IEEE/IFIP International Workshop on Management of the Future Internet (ManFI 2014) will be held in conjunction with the IEEE/IFIP Network Operations and Management Symposium (NOMS 2014) in Krakow, Poland, May 5-9, 2014. The workshop is sponsored by the IEEE Communications Society and is endorsed by the Technical Committee on Network Operations and Management (CNOM) and by the EU FP7 Flamingo Network of Excellence research project.

Following the success of the previous editions of this workshop, the main goal of the workshop is to present state-of-the-art research results and experience reports in the area of Future Internet Management, addressing --amongst others -- currently important topics such as efficient network and service monitoring for the Future Internet, management of virtualized networks and services, management of IaaS, PaaS, SaaS offerings, content-aware and information-centric networks, management of software defined networks, federated management of the Future Internet, and economic-based network and service management.

9:00 - 9:15
Welcome Address by Kazuhiko Kinoshita, Jae Hyoung Yoo, Filip De Turck

9:15 - 10:15
Keynote by Prof. Olivier Festor,
INRIA - University of Lorraine, France
"Management of the Future Internet: status and interesting challenges!"

10:15 - 11:00
Coffee Break + Short Paper Session 1

11:00 - 12:15
Technical Session 1: Virtualization Management
Session chair: Alexander Clemm,
Cisco, USA

The Price of Virtualization: Performance Isolation in Multi-Tenants Networks
Roberto Riggio, Francesco De Pellegrini, Domenico Siracusa (CREATE-NET, Italy)

A Hybrid Management Substrate Structure for Adaptive Network Resource Management
Daphne Tuncer, Marinos Charalambides, Hisham El-Ezhabi, George Pavlou
(University College London, UK)

Toward Enterprise Virtual Power Consumption Monitoring with Joule
Roberto Riggio, Tinku Rasheed
(CREATE-NET, Italy)

12:15 - 13:30
Lunch Break

13:30 - 15:10
Technical Session 2: Future Internet Management
Session chair: Abdelkader Lahmadi,
INRIA-Nancy University, France

An On-demand Multi-Path Interest Forwarding Strategy for Content Retrievals in CCN
Asanga Udugama, Xinyi Zhang, Koojana Kuladinithi, Carmelita Goerg
(University of Bremen, Germany)

ONSIDE: Socially-Aware and Interest-Based Dissemination in Opportunistic Networks
Radu-Ioan Ciobanu, Radu-Corneliu Marin, Ciprian Dobre, Valentin Cristea
(University Politehnica of Bucharest, Romania)
Constandinos Mavromoustakis
(University of Nicosia, Cyprus)

Sharing Smart Environment Assets in Dynamic Multi-Partner Scenarios
Christos Parizas, Diego Pizzocaro, Alun Preece (Cardiff University, UK)
Petros Zerfos
(IBM T.J. Watson Research Center, USA)

Credential Translations In Future Internet Testbeds Federation
Edelberto F. Silva, Natalia C. Fernandes, Debora C. Muchaluat-Saade (UFF, Brazil)
Noemi Rodriguezy (PUC-Rio, Brazil)

15:10 - 15:55
Coffee Break + Short Paper Session 2

15:55 - 17:10
Technical Session 3: Management of Data Center Network
Session chair: Roberto Riggio,
CREATE-NET, Italy

Scalable Failover Method for Data Center Networks Using OpenFlow
Jian Li, JongHwan Hyun, Jae-Hyoung Yoo, James Won-Ki Hong (POSTECH, Korea)
Seongbok Baik (KT AIT, Korea)

Flow-Level Traffic Matrix Generation for Various Data Center Networks
Yoonseon Han, Sin-seok Seo, Jae-Hyoung Yoo, James Won-Ki Hong (POSTECH, Korea)
Chankyou Hwang (KT AIT, Korea)

A Hierarchical, Topology-aware Approach to Dynamic Data Centre Management
Gaston Keller, Michael Tighe, Hanan Lutfiyya and Michael Bauer
(Univ. of Western Ontario, Canada)

17:10 - 17:30
Wrapup + Best paper awards
Kazuhiko Kinoshita, Jae Hyoung Yoo, Filip De Turck

Short Paper Session

Optimizing Scalable Video Delivery Through OpenFlow Layer-based Routing
Sebastiaan Laga, Thomas Van Cleemput, Filip Van Raemdonck, Felix Vanhoutte, Maxim Claeys, Niels Bouten, Filip De Turck
(Ghent University, Belgium)

FanTaaStic: Sustainable Management of Future Internet Testbed Federations
Alexander Willner, Stephan Albrecht, Stefan Covaci (Technische Univ. Berlin, Germany)
Florian Schreiner, Thomas Magedanz (Fraunhofer FOKUS, Germany)
Susanna Avessta, Ciro Scognamiglio, Serge Fdida
(UPMC Sorbonne Université, France)

RepoSDN: An Repository Organization and Coordination Method of Software Defined Networks Applications
Romulo S. Pinheiro, Billy A. Pinheiro, Antonio J. G. Abelem (UFPA, Brazil)

Virtual Set-top Box in the Cloud: Enabling Interactive Third Party Applications
Jorn Franke, Andreas Beye, Bin Cheng,
(NEC Labs Europe, Germany)

Focus on Accuracy and Consistency of Advanced Applications for Monitoring the Future Internet
Hiroshi Tsunoda
(Tohoku Institute of Technology, Japan)
Glenn Mansfield KEENI
(Cyber Solutions Inc., Japan)

IPv4 and IPv6 Troubleshooting Enhancement through Reverse Path Discovery
F. Valentini, M. Pratesi, F. Santucci
(University of L'Aquila, Italy)
Tiziano Ionta (Telecom Italia Labs, Italy)

In-network Real-time Performance Monitoring with Distributed Event Processing
Masanori Miyazawa and Michiaki Hayashi,
(KDDI R&D Lab, Japan)

Clustering-based Anomaly Detection for Smartphone Applications
Ali El Attar, Rida Khatoun, Marc Lemercier
(University of Technology of Troyes, France)

9th International Workshop on Business-driven IT Management (BDIM 2014)

Date: Mon, May 5 • Room: Beta 2

Workshop Co-Chairs:
Owen Appleton (Emergence Tech, UK)
Michael Brenner (Leibniz Supercomputing Centre, Germany)
Thomas Schaaf (LMU Munich, Germany)
Mauro Tortonesi (University of Ferrara, Italy)

Information Technology (IT) management has evolved significantly over the past few years as IT-based solutions have become increasingly critical to the functioning of organizations. A recent shift in perspective brought to bear a more customer-centric approach to IT management, putting IT managers in condition to look at IT not just from the IT department's traditional point of view, but from the customers' and users' points of view. This is termed Business-driven IT Management (BDIM) and is the main subject of this Workshop. BDIM focuses on the impact of IT on business processes and business-level objectives and vice versa; besides the conventional IT metrics such as availability and response time, it looks at other key performance indicators (KPIs), that is metrics that have significance from the point of view of the business supported by the IT. The BDIM approach aims at rethinking IT management from a business perspective. BDIM is not restricted to IT environments in enterprises, but encompasses techniques and decision making that involve thinking about IT in terms of objectives that are at business level, of organizations that may not traditionally be classified
as"businesses."

WORKSHOP

8:00-9:15
Welcome networking session

9:10-9:45
Paper presentation and discussion

Assessing Cloud Computing SaaS adoption for Enterprise Applications using a Petri net MCDM framework
Maristella Ribas (Techne Engenharia e Sistemas)
Alberto Sampaio (Universidade Federal do Ceará)
José De Souza (UFC)
Antão Moura (Universidade Federal de Campina Grande)
Flávio R. C. Sousa (Universidade Federal do Ceará)
Germano Fenner (Universidade Federal do Ceará)

9:45-10:15
Coffee break

10:15-10:50
Paper presentation and discussion

A hierarchy of e-Research needs: Understanding value delivery in distributed IT services
Owen Appleton (Emergence Tech Ltd.)
Matti Heikkurinen (Emergence Tech Limited)

10:50-11:25
Paper presentation and discussion

Ecosystem for Business Driven IT Management
Tim Reimer (Athabasca University)

11:25-12:00
Paper presentation and discussion

CMDB Patterns
Michael Brenner (Leibniz Supercomputing Centre)
Markus Gillmeister (Leibniz Supercomputing Centre)

12:00-13:30
Lunch

13:30-14:15
Keynote
(to be announced)

14:15-14:35
Short Paper presentation and discussion

A system dynamics model to support strategic decision making on IT Outsourcing: A case study at a state revenue agency in Brazil
Tarcio Bezerra (Federal Center of Technological Education)
Antão Moura (Universidade Federal de Campina Grande)
Alberto Sampaio (Universidade Federal do Ceará)

14:35-14:55
Short Paper presentation and discussion

Study on Efficient Analyzing Method of Operation Manuals for Runbook Automation
Sachiko Onodera (Fujitsu Laboratories LTD.)
Mashiro Asaoka (Fujitsu Laboratories Ltd.)
Takashi Yanase (Fujitsu Laboratories Ltd.)
Isao Namba (Fujitsu Laboratoies Ltd.)

14:55-15:15
Short Paper presentation and discussion

EGI: Implementing Service Management in a large-scale e-Infrastructure
Sy Holsinger (EGI.eu)
Sergio Andreozzi (EGI.eu)

15:15-15:45
Coffee break

15:45-16:20
Paper presentation and discussion

Testing performance of IT service associates under variable load
Genady Grabarnik (St. John's University)
Yefim Haim Michlin (Technion – Israel Institute of Technology),
Larisa Shwartz (IBM T.J. Watson Research)

16:20-16:55
Paper presentation and discussion

S3MS – A Simple Service & Security Management System Thomas Schaaf (MNM Team)
Robert Kuhlig (mITSM Munich Institute for IT Service Management)

16:55-17:30
Closing Discussion

Future BDIM and ITSM research

1st IEEE Workshop on SDN Management and Orchestration (SDNMO 2014)

Friday, 9 May 2014 • Room: Beta 2

Workshop Co-Chairs:
David Soldani (Huawei Technologies Düsseldorf GmbH)
Antonio Manzalini (Future Centre, Innovative Architectures, Torino, Italy)
Alex Galis (University College London, London U.K.)
Sergio Beker (Huawei Technologies Düsseldorf GmbH)
Stuart Clayman (University College London, London U.K.)
Dr. Bobby Wong (IEEE, USA)

WORKSHOP

The progressive integration of advanced Information Technologies (IT) and Communication Technologies (CT) calls for a complete rethinking, restructuring and redesigning of the current end-to-end architecture. Network programmability and dynamic configurability are essential requirements for future carrier networks. Software defined networking (SDN), along with network virtualization, is envisaged as one of the key technology enablers for meeting these necessities. Within this framework, in order to fully exploit the potential of network and application virtualization and efficiently handling heterogeneous physical resources, e.g., across network and datacenter domains, network operators need orchestration platforms. Key platform ingredients are algorithms to allocate physical resources to virtual requests and find the optimal location of network functions, IT and CT resources, services and corresponding states, especially at the edge of the network. Equally important are the APIs at the different interfaces between individual resources and their controllers to implement the orchestration functionality. This timely workshop will shed light on the fundamental technology components for SDN management and orchestration, as primary building blocks of the network of the future.

9:00 - 10:30
SDN Management and Orchestration (SDNMO) Keynote & Panel
Chair/moderator: A. Galis – University College London, U.K.

Key Note Presentation: "Softwarization: A Shift of Paradigm"
Antonio Manzalini – Telecom Italia

Panel: "Managing softwarization in modern networking and future networks and services including 5G Networks"
Slawomir Kuklinski (Orange Lab, Poland)
Antonio Manzalini (Telecom Italia, Italy)
Zoltan Turanyi (Ericsson, Hungary)

10:30 - 10:50 **BREAK**

10:50 - 12:10
Orchestration and Management (I)
Chair/Moderator: Antonio Manzalini - Telecom Italia, Italia

"OrchSec: An Orchestrator-Based Architecture For Enhancing Network-Security Using Network Monitoring And SDN Control Functions"
Adel Zaalouk (RWTH Aachen University)
Rahamatullah Khondoker (Fraunhofer SIT)
Ronald Marx, Kpatcha Bayarou (Fraunhofer SIT)

"Programmable Management Framework for Evolved SDN"
Slawomir Kuklinski (Telekomunikacja Polska)

"Towards Software-Defined Network Virtualization Orchestration"
Zdravko Bozakov, Panagiotis Papadimitriou
(Leibniz Universitat Hannover)

"The Dynamic Placement of Virtual Network Functions"
Stuart Clayman (University College London)
Elisa Maini (University of Naples Federico II, Naples)
Alex Galis (University College London)
Antonio Manzalini (Telecom Italia)
Nicola Mazzocca (University of Naples Federico II, Naples)

"SLA Management and Service Composition of Virtualized Applications in Mobile Networking Environments"
Giada Landi (Nextworks)
Thijs Metsch (Intel GmbH)
Pedro Miguel Neves (Portugal Telecom Inovação)
Julius Mueller (TU Berlin)
Andy Edmonds (Zurich University of Applied Sciences)
Paolo Secondo Crosta (Italtel)

12:10 - 1:00 **LUNCH**

1:00 - 2:20
Orchestration and Management (II)
Chair/Moderator: Slawomir Kuklinski (Orange Lab, Poland)

"Zoning for Hierarchical Network Optimization in Software Defined Networks"
Xu Li, Petar Djukic (Huawei Technologies Canada)
Hang Zhang (Huawei)

"Design and Implementation of a Carrier Grade Software Defined Telecommunication Switch and Controller"
Julius Mueller, Yuwen Chen, Benjamin Reichel (TU Berlin)
Valentin Vlad, Thomas Magedanz (Fraunhofer Institut FOKUS)

"An Analytical Tool for Performance Evaluation of Software Defined Networking Services"
Alfio Lombardo (University of Catania)
Antonio Manzalini (Telecom Italia)
Vincenzo Riccobene, Giovanni Schembra (University of Catania)

"A Method for Evolving Networks by Introducing New Virtual Node/link Types using Node Plug-ins"
Yasusi Kanada (Hitachi, Ltd.)

2:20 - 2:30 **BREAK**

2:30 - 3:40
Network and Management Abstractions
Chair/Moderator: Julius Mueller
(Technical University of Berlin, Germany)

"QoE-based Bandwidth Allocation with Software Defined Networking in FTTH Networks"
Li Kailong, Guo Wei, Zhang Wenyu (Shanghai Jiao Tong University)

"VCell: Going Beyond the Cell Abstraction in 5G Mobile Networks"
Roberto Riggio, Karina Gomez, Leonardo Goratti, Riccardo Fedrizzi, Tinku Rasheed (CREATE-NET)

"ovstack : A Protocol Stack of Common Data Plane for Overlay Networks"
Ryo Nakamura (University of Tokio)

"Traffic Engineering for Software-Defined Radio Access Networks"
Hamid Farmanbar, Hang Zhang (Huawei)

2nd IEEE/IFIP International Workshop on Quality of Experience Centric Management (QCMan 2014)

Friday, 9 May 2014 • Room: Beta 1

Workshop Co-Chairs:
Christian Timmerer (Klagenfurt University, Austria)
Filip De Turck (Ghent University - iMinds, Belgium)
Steven Latré (University of Antwerp - iMinds, Belgium)

In recent years, the Internet has evolved from a pure packet forwarder to a provider of complex and high demanding services and applications (e.g., video, voice, on-line gaming, cloud applications). These services and applications are typically managed through a set of Quality of Services parameters (e.g. packet loss, delay, jitter). However, it is widely agreed that the management of these services and applications should be centered on their quality as perceived by the end user: the Quality of Experience (QoE). However, this QoE centric management is greatly challenged in today's Internet by (i) the stringent QoE requirements of the supported services and applications (e.g., timing constraints, loss intolerance) and users (e.g., unpredictability of user behavior, request for high quality services); (ii) the plethora of service consumption possibilities (e.g. for video: live vs on-demand, managed vs over-the-top); (iii) the inherent complexity of services and applications which can be offered to users in several ways to reach the same QoE level; and (iv) the difficulty in assessing the quality as perceived by the end user also due to insufficient insight in the psychological and sociological factors of the service and application consumption.

WORKSHOP

8:00 - 9:00:
Welcome & keynote
Keynote speaker: Antonio Liotta,
Technical University Eindhoven
Title: Streaming beyond 2020: are neutrality and speed sufficient?

9:00 - 9:45:
HTTP Adaptive Streaming
QoE-aware Rate-Conservative Dynamic HTTP Streaming Over Mobile Cellular Networks
Milos Radosavljevic
(University of Novi Sad),
Srdjan Sladojevic (University of Novi Sad)
Dubravko Culibrk (University of Novi Sad)
Dejan Vukobratovic (University of Novi Sad)

Deadline-based Approach for Improving Delivery of SVC-based HTTP Adaptive Streaming Content
Niels Bouten
(iMinds - IBCN - Ghent University)
Maxim Claeys (Ghent University - iMinds)
Jeroen Famaey (Ghent University - iMinds)
Steven Latre (University of Antwerp - iMinds)
Werner Van Leekwijck
(Bell Labs, Alcatel-Lucent),
Filip De Turck (Ghent University - iMinds)

10:15 - 12:00:
Network-aware QoE management
A Network Cost Provision Framework for Network-Aware Applications
Georgios Gardikis (NCSR Demokritos)
George Xilouris (N.C.S.R "Demokritos")
Katia Sarsembagieva (NCSR Demokritos)
Anastasios Kourtis (N.C.S.R "Demokritos",
Digital Communications Lab.)
Daniel Negru (University of Bordeaux)

Dynamic Application-Aware Resource Management using Software-Defined Networking: Implementation Prospects and Challenges
Thomas Zinner (University of Wuerzburg)
Michael Jarschel (University of Wuerzburg)
Andreas Blenk
(Technische Universität München)
Florian Wamser (University of Wuerzburg)
Wolfgang Kellerer
(Technische Universität München)

QoE-based Management of Medical Video Transmission in Wireless Networks
Tiia Ojanperä
(VTT Technical Research Centre of Finland)
Mikko Uitto
(VTT Technical Research Centre of Finland)
Janne Vehkaperä
(VTT Technical Research Centre of Finland)

13:30 - 15:15:
Short papers
A QoS Enabled WiFi AP
Padraig O Flaithearta
(National University of Ireland, Galway)
Hugh Melvin
(National Univ. of Ireland, Galway)
Michael Schukat
(National University of Ireland, Galway)

Analysis of the Impact of Temporal, Spatial, and Quantization Variations on Perceptual Video Quality
Andreas Rossholm
(Blekinge Institute of Technology)
Muhammad Shahid
(Blekinge Institute of Technology)
Benny Lövström
(Blekinge Institute of Technology)

Quality of Experience Modeling with Psychological Effect for Interactive Web Services
Tatsuya Yamazaki (Niigata University)
Masato Eguchi
(NTT Communications Corporation)
Takumi Miyoshi
(Shibaura Institute of Technology)
Kyoko Yamori (Asahi University)

A Case-Study on Correlating Video QoS and QoE
Peter Orosz (University of Debrecen)
Pal Varga (Budapest University ot Technology and Economics)
Tamas Skopko (University of Debrecen)
Laszlo Gyimothi (Budapest University of Technology and Economics)
Zoltan Nagy (AITIA International Inc.)

When does lower bitrate give higher quality in modern video services?
Decebal Constantin Mocanu
(Eindhoven University of Technology)
Antonio Liotta
(Eindhoven University of Technology)
Arianna Ricci
(Eindhoven University of Technology)
Maria Torres Vega
(Eindhoven University of Technology)
George Exarchakos
(Technische Universiteit Eindhoven)

15:45 - 17:30:
QoE assessment & video coding
A Subjective Evaluation using Crowdsourcing of Adaptive Media Playout utilizing Audio-Visual Content Features
Benjamin Rainer
(Alpen-Adria-Universität Klagenfurt)
Christian Timmerer
(Alpen-Adria-Universität Klagenfurt)

Saliency and Texture Information Based Full-Reference Quality Metrics for Video QoE Assessment
Qian Luo (Beijing University of Posts and Telecommunications)
Yang Geng (Beijing University of Posts and Telecommunications)
Jichun Liu (Beijing University of Posts and Telecommunications)
Wenjing Li (Beijing University of Posts and Telecommunication)

Guided Depth Filtering to Improve the Quality of Experience for Autostereoscopic Displays
Sebastiaan Van Leuven
(Ghent University - iMinds - Multimedia Lab)
Glenn Van Wallendael
(Ghent University - iMinds - Multimedia Lab)
Robin Bailleul (Ghent University - iMinds)
Jan De Cock (Ghent University - iMinds)
Rik Van de Walle (Ghent University)