IEEE Technically Sponsored

3rd International Conference on Fog & Mobile Edge Computing (FMEC 2018)

Collocated with

5th International Conference on Software Defined Systems (SDS 2018)

Barcelona, Spain. April 23-26, 2018

PROGRAMME

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PROGRAMME

	Monday 23rd April 2018		Tuesday 24th April 2018		Wednesday 25th April 2018		Thursday 26th April 2018
08:00 – 17:00	On site registration		On site registration		On site registration		
09:00 – 9:30	Opening & Welcome		KEYNOTE 2: Dr. David Carrera, Technical University of Catalonia (UPC), Spain. (Room VS217)		KEYNOTE 3: Dr. Etienne Elie, Intel Corporation, California, USA. (Sala de Actos)		Social Activity: Tickets to be collected during the conference
9:30–10:00	KEYNOTE 1: Prof. Schahram Dustdar, TU Wien, Austria (Sala de Actos)						
10:00 – 10:30			Coffee break		Coffee Break		
10:30 – 10:50	Coffee break						
10:50–12:30	FMEC Session 1 (Room VS217)	SDS Session 1 (Room VS219)	FMEC session 3 (Room VS217)	SDS session 3 & SDNNFV (Room VS219)	FMEC Session 4 (VS217)	SDS Session 5 (Room VS219)	
12:30 – 13:30	Lunch		Lunch		Lunch		
13:30–14:30	TUTORIAL: Prof. Jaime Lloret. UPV, Spain (Room VS217)	SCE (Room VS219)	5GET Session (Room VS217)	MCSMS (Room VS219)	KEYNOTE 4: Mr Gary Spence, Yotta Laboratories Ltd, UK (VS217)		
14:30 – 15:30			Panel Discussion (Room VS217)		SLICE (Room VS217)	IOTNAT session 2 (Room VS219)	
15:30 –16:00			Coffee break				
16:00 – 16:30	FMEC session 2 (Room VS217)	SDS Session 2 (Room VS219)	IOTNAT Session 1 (Room VS217)	SDS session 4 (Room VS219)	Coffee Break and Socialising		
16:30 –18:00							
19:30 – 23:00			CONFERENCE DINNER: Marina's by Moncho (at Olympic Port).Barcelona.				

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08:00 - 17:00	Onsite registration	
09:00 - 09:30	Opening & Welcome	
09:30 - 10:30	Keynote speaker 1: Prof.Schahram Dustdar, TU Wien, Austria Chair: Jaime Lloret	
10:30 - 10:50	Coffee break	
10:50 - 12:30	FMEC Session 1	Chair: Yen-Chiu Chen and Marco Guazzone • **NeiMEC : Automatically Building Neighbor Relationship between Mobile Edge Platforms in Multi-access Edge Computing Environment** Yen-Chiu Chen, Chun-Chieh Wang, Jian-Cheng Chen • **Formal Definition of Edge Computing: An Emphasis on Mobile Cloud and IoT Composition** Charif Mahmoudi, Fabrice Mourlin, Abdella Battou • **OpenStack extensions for QoS and energy efficiency in edge computing** Alessandro Carrega, Giancarlo Portomauro, Matteo Repetto, Giorgio Robino • **Virtualization at the Network Edge: A Technology Perspective** Syed Rameez Ullah Kakakhel, Lauri Mukkala, Tomi Westerlund, Juha Plosila
10:50 - 12:30	SDS Session 1	Chair: Haythem Bany Salameh and Hany Elgala • **A SDN Solution for System-on-Chip World** Soultana Ellinidou, Gaurav Sharma, Jean-Michel Dricot, Olivier Markowitch • **Securing Delay-sensitive Cognitive Radio IoT Communications under Reactive Jamming Attacks: Spectrum Assignment Perspective** Haythem Bany Salameh, Sufyan Almajali, Moussa Ayyash, and Hany Elgala • **LoCoSDN: A Local Controller for Operation of Switches in non-SDN Networks** Mark Schmidt, Frederik Hauser, Bastian Germann, Michael Menth • **Mimicking Prey's Escalation Predation-avoidance Techniques for Cloud Computing Survivability using Fuzzy Cognitive Map** Siyakha Mthunzi, Elhadj Benkhelifa • **Power Consumption Experimental Analysis in Smart Phones** Esraa Ahmadoh and Lo'Ai Tawalbeh
12:30 - 13:30	**LUNCH**	

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13:30 - 15:30	TUTORIAL : Prof. Jaime Lloret, UPV, Spain	
13:30 - 15:30	SCE	Chair: Cristina Cervello-Pastor and Tassio Vale • **A Mapping Study on Living Labs: Characteristics, Smart Cities Initiatives, Challenges and Software Architecture Aspects** Tassio Vale, Eliazar Carvalho, Marcio Souza, Pedro Raimundo, Igor Faria, Frank Elberzhager, Rodrigo Spinola • **A Smart City Adaptive Lighting System** G. Gagliardi, A. Casavola, M. Lupia, G. Cario, F. Tedesco, F. Lo Scudo, F. Cicchello Gaccio, A. Augimeri • **A Retrofitting Auction Service Business Model Proposal within a Smart City Context** Pedro Torrinha, Carlos E. Salgado, Ricardo J. Machado • **Fog Resource Selection Using Historical Executions** Nour Mostafa, Ismaeel Al Ridhawi, Moayad Aloqaily • **An Architecture for the 5G Control Plane based on SDN and Data Distribution Service** Alejandro Llorens, Cristina Cervello-Pastor, Irian Leyva-Pupo, Juan Manuel Lopez-Soler, Jorge Navarro-Ortiz and Jose´ A´ ngel Expo´sito-Arenas • **Artificial Intelligence Framework for Smart City Microgrids: State of the art, Challenges and Opportunities** Shahzad Khan, Devashish Paul, Parham Momtahan, Moayad Aloqaily
15:30 - 16:00	**Coffee break**	
16:00 - 18:00	FMEC session 2	Chair: Stefano Forti and Attila Kertesz • **Simulation and Perfomance Evaluation of a Fog Systyem** Tychalas Dimitrios, Karatza Helen • **SUMMON: Gathering Smart City Data to Support IoT-Fog-Cloud Simulations** Tamas Pflanzner, Kata Zsofia Leszko and Attila Kertesz • **Bonsai in the Fog: an Active Learning Lab with Fog Computing** Antonio Brogi, Stefano Forti, Ahmad Ibrahim, Luca Rinaldi • **A Game-Theoretic Approach to Coalition Formation in Fog Provider Federations** Cosimo Anglano, Massimo Canonico, Paolo Castagno, Marco Guazzone and Matteo Sereno • **A Framework for Efficient & Secured Mobility of IoT Devices in Mobile Edge Computing** Sufyan Almajali, Haythem Bany Salameh, Moussa Ayyash, Hany Elgala • **Comparing Centrality Indices for Network Usage Optimization of Data Placement Policies in Fog Devices** Isaac Lera, Carlos Guerrero, Carlos Juiz

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16:00 - 18:00	SDS Session 2	Chair: Erdal Tantik and Abdelhakim Hafid • **Routing in Heterogeneous Vehicular Networks using an adapted Software Defined Networking approach** Mehdi Sharifi Rayeni, Abdelhakim Hafid • **Concept of the Asset Administration Shell as a Software-Defined System** Erdal Tantik, Reiner Anderl • **Toward a Hybrid SDN Architecture for V2V Communication in IoV Environement** Lylia Alouache, Nga Nguyen, Makhlouf Aliouat, Rachid Chelouah • **Network Convergence in SDN Versus OSPF Networks** Sarah Abdallah, Ayman Kayssi, Imad H. Elhajj, Ali Chehab • **Analysis of VM Communication for VM-based Cloud Security Systems** Siyakha Mthunzi, elhadj benkhelifa, Mohammed Alsmirat and Yaser Jararweh • **Policy-Based Network Slicing Management for Future Mobile Communications** Alberto Huertas Celdran, Manuel Gil Pérez, Felix J. Garcia Clemente, Fabrizio Ippoliti, Gregorio Martinez Perez
Tuesday 24th April		
08:00 - 17:00		Onsite registration
09:00 - 10:00		Keynote speaker 2: Dr. David Carrera, Technical University of Catalonia, Spain. Chair: Ali Chehab
10:00 - 10:30		Coffee break
10:30 - 12:30	FMEC session 3	Chair: Indrakshi Ray and Andrew P Paplinski • **Dynamic application deployment in federations of clouds and edge resources using a multiobjective optimization AI algorithm** Ram Govinda Aryal and Jörn Altmann • **Optimized load balancing by dynamic BBU-RRH mapping in C-RAN** Erm´ınio Augusto Ramos da Paix˜ao, Rafael Fogarolli Vieira, Welton Vasconcelos Ara´ujo, Diego Lisboa Cardoso • **Exploiting User Provided Information In Dynamic Consolidation of Virtual Machines to Minimize Energy Consumption of Cloud Data Centers** MD Anit Khan, Andrew P Paplinski, Abdul Malik Khan, Manzur Murshed, Rajkumar Buyya • **An Efficient Implementation of Next Generation Access Control for the Mobile Health Cloud** Rejina Basnet, Subhojeet Mukherjee, Vignesh M. Pagdala, Indrakshi Ray

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10:30 - 12:30	SDS Session 3	Chair: Yunmin Go and Elena Markoska • **Towards an Autonomic Bayesian Fault Diagnosis Service for SDN Environments based on a Big Data Infrastructure** Fernando Benayas, A´ lvaro Carrera, Carlos A. Iglesias • **Towards Smart Buildings Performance Testing as a Service** Elena Markoska, Sanja Lazarova-Molnar • **Software-Defined Data Services: Interoperable and Network-Aware Big Data Executions** Pradeeban Kathiravelu, Peter Van Roy, Lu´ıs Veiga • **Distributed Allocating Algorithm based on Cloud CPU Scheme** Abdul Razaque, Liu Yimu, Tang Minjie, Muder Almiani, Al-Rahayfeh • **SDN-assisted HTTP Adaptive Streaming over Wi-Fi Network** Hwanwook Lee, Yunmin Go, Hwangjun Song • **Enhanced Controller Fault Tolerant (ECFT) Model for Software Defined Networking** Wael Hosny Fouad Aly, Abeer Mohammad Ali Al-anazi
12:30 - 13:30	**Lunch**	
13:30 - 14:30	5GET	Chair: Mahesh G. Gowrishankar and Berber Zakia • **Optimal Choice for Phase Margin on mm-Wave PLL Frequency Synthesizer for 5G Wireless Communications Systems** Berber Zakia, Kameche Samir • **Comprehensive Call Admission Control Tool for Next Generation Wireless Networks** Mahesh G, Gowrishankar, Prakash B Metre • **Unlocking innovation through 5G Testbeds - Evolving today's apps for tomorrow's 5G** Sergio Gonzalez-Miranda, Lorena Bourg, David Fernandez • **Neural Network Approach for Component Carrier Selection in 4G/5G Networks** Radhia Khdhir, Bernard Cousin, Kais Mnif, Khitem ben Ali
13:30 - 14:30	MCSMS	Chair: Jack whitter-jones and Muder Almiani • **Analysis of Traffic Engineering capabilities for SDN-based Data Center Networks** Artur Pilimon, Angelos Mimidis Kentis, Sarah Ruepp, Lars Dittmann • **Intelligent Intrusion Detection System Using Clustered Self Organized Map** Muder Almiani, Alia Abu Ghazleh, Amer Al-Rahayfeh, Abdul Razaque • **Security Review On the Internet of Things** Jack whitter-jones • **Analysis of Cloudlet Models for Energy Optimization in Mobile Devices** Mohammad A. Tawalbeh, Elhadj Benkhelifa
14:30 - 15:30	Panel Discussion	
15:30 - 16:00		Coffee break

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16:00 - 18:00	IoTNAT Session 1	Chair: Roberto Rojas-Cessa and Haythem Bany Salameh • **Experimental Evaluation of Power Distribution to Reactive Loads in a Network-Controlled Delivery Grid** Zhengqi Jiang, Haard Shah, Roberto Rojas-Cessa, Haim Grebel, Ahmed Mohamed • **A Digital Approach to Energy Networks: Allocation and Distribution of Energy Requests** Camila Fukuda, Henrique Pita, Haim Grebel, Roberto Rojas-Cessa, Ahmed Mohamed • **A Hybrid-based 3D Streaming Framework for Mobile Devices over IoT Environments** Mohammad Al Ja'afreh, Moayad Aloqaily, Ismaeel Al Ridhawi, Nour Moustafa • **LoRaWan Capacity Simulation and Field Test in a Harbour Environment** Alexander Victor Tietgen Bardram, Mikkel Delbo Larsen, Krzysztof Mateusz Malarski, Martin Nordal Petersen, Sarah Ruepp • **Embedding Web Apps in Mixed Reality** Antti Peuhkurinen, Tommi Mikkonen
16:00 - 18:00	SDS Session 4	Chair: Marios Touloupou and Zhen Jia • **Cheapo: An Algorithm for runtime adaption of time intervals applied in 5G Networks** Marios Touloupou, Evgenia Kapassa, Athanasios Kiourtis, Dimosthenis Kyriazis • **Implementing Energy Saving Algorithms for Ethernet Link Aggregates with ONOS** Pablo Fondo-Ferreiro, Miguel Rodr´ıguez-P´erez and Manuel Fern´andez-Veiga • **Energy Saving and Maximize Utilization Cloud Resources Allocation via Online Multi-Dimensional Vector Bin Packing** Liang Guo, Pu Du, Abdul Razaque, Muder Almiani, Amer Al-Rahayfeh • **Pushing Intelligence to the Network Edge** Ola Salman, Louma Chaddad, Imad H. Elhajj, Ali Chehab, Ayman Kayssi • **Opportunistic Guard-band-aware Spectrum Assignment under Dynamically Varying Channel Conditions: Optimization Framework** Haythem Bany Salameh, Saham Al-Masri • **Process Design of a Capability-based Weapon Equipment Requirements Analysis System** Zhen Jia, Lushun Ding, Yufang Zhou
19:30 - 23:00	**GALA DINNER – Awards and Best Papers** **Marina Bay,** Calle de la Marina, 19-21 C.P. 08005 Barcelona	

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Wednesday 25th April		
08:00 - 15:30	Onsite registration	
09:00 - 10:00	Keynote talk 3: Dr. Etienne Elie, Intel Corporation, USA. Chair: Abdelhakim Hafid	
10:00 - 10:30	Coffee break	
10:30 - 12:30	FMEC Session 5	Chair: Omar Nasr and Kalpana Singh • **Cache-Based Side-Channel Attacks Detection through Intel Cache Monitoring Technology and Hardware Performance Counters** Mohammad Mahdi Bazm, Thibaut Sautereau, Marc Lacoste, Mario Sudholt and Jean-Marc Menaud • **On the Development of IoT Systems** Antero Taivalsaari, Tommi Mikkonen • **A novel pflua-based OpenFlow implementation for VOSYSwitch** J´er´emy Fangu`ede, Michele Paolino, Dimitar Dimitrov and Daniel Raho • **The Droplet: a New Personal Device to Enable Fog Computing** Omar Nasr, Yasser Amer, Mohammed Abobakr • **An Architecture Pattern for Trusted Orchestration in IoT Edge Clouds** Claus Pahl, Nabil El Ioini, Sven Helmer, Brian Lee • **Practical Personalized Genomics in the Encrypted Domain** Kalpana Singh, Renaud Sirdey, Sergiu Carpov
10:30- 12:30	SDS Session 5	Chair: Ali Chehab and Sandra Sendra • **Software Defined Networks for Traffic Management in Emergency Situations** Albert Rego, Laura Garcia, Sandra Sendra, Jaime Lloret • **Machine Learning for Network Resilience: The Start of a Journey** Ali Hussein, Ali Chehab, Ayman Kayssi, Imad H. Elhajj • **An Approach to Secure Smart Homes in Cyber-Physical Systems/Internet-of-Things** Shafiq ur Rehman, Volker Gruhn • **Feasibility Study and Requirements for Mobile Cloud Healthcare Systems in SA** Suhaila Alzahrani, Lo'Ai Tawalbeh • **An Application to Manage Widespread Social Media Accounts with One Smart Touch** Moayad Aloqaily, Alyaa Alostad, Ghadeer Seraj, Farah Malallah, Jamayel Alhajri, Hawraa Ali, Ahmed Bani-Mustafa • **A New Approach for Energy Efficiency in Software Defined Network** Madhu Krishna Priyadarshini, Padmalochan Bera, Mohammad Ashiqur Rahman • **Embyronic Model - a Bio-Inspired Approach for Highly Resilient Cloud Environments** Thomas Welsh, Elhadj Benkhelifa, Tomasz Bosakowski

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12:30 - 13:30	**LUNCH**	
13:30- 14:30	**Keynote talk 4: Gary Spence, Yotta Laboratories Ltd, UK** **Chair: Elhadj Benkhelifa**	
14:30 - 16:30	SLICE	Chair: Alberto Huertas Celdran and Attila Kertesz • **A Simulation Study of a Smart Living IoT Solution for Remote Elderly Care** David Perez, Suejb Memeti, Sabri Pllana • **Law and IoT: How to see things clearly in the Fog** Szilvia Varadi, Gizem Gultekin Varkonyi, Attila Kertesz • **Node Localization for Indoor Tracking using Artificial Neural Network** Riya Samanta,Chandni Kumari,Novarun Deb,Sagar Bose,Agostino Cortesi,Nabendu Chaki • **Energy-aware Data Collection from the Internet of Things for Building Emotional Profiles** Martín G. Salido Ortega, Luis-Felipe Rodríguez, J. Octavio Gutierrez-Garcia • **Augmenting the Industrial Internet of Things with Emojis** Andreas Seitz, Dominic Henze, Jochen Nickles, Markus Sauer, Bernd Bruegge • **Energy Efficient Dijkstra-Based Weighted Sum Minimization Routing Protocol for WSN** Madiha Razzaq, Goo-Rak Kwon, Seokjoo Shin
14:30 - 16:30	IoTNAT Session 2	Chair: Stefanos Peros and Muazzam A Khan • **Detection and Prevention of Black Hole Attacks in IOT & WSN.** Shoukat Ali, Muazzam A Khan, Jawad Ahmad, Asad W. Malik, Anis ur Rehman • **On Wearable Devices for Motivating Patients With Upper Limb Disability Via Gaming and Home Rehabilitation** Ali Al-Mahmood, Michael Opoku Agyeman • **An IoT-based Smart Pillow for Sleep Quality Monitoring in AAL Environment** Alejandro Veiga, Laura García, Lorena Parra, Jaime Lloret, Vivian Augele • **A Resource Sharing Platform for Resource-Constrained Software Defined Cognitive Radio Networks** Rami Halloush, Mohammed Halloush, Islam Almalkawi, Ahmed Musa and Haythem Bany Salameh • **Real-time Optimized HVAC Control System on top of an IoT Framework** Anjali Rajith, Sakurai Soki, Mine Hiroshi • **Dynamic QoS support for IoT backhaul networks through SDN** Stefanos Peros, Hassaan Janjua, Sven Akkermans, Wouter Joosen, Danny Hughes • **Automatic Detection for online Games Bot with APP** Chin-Ling Chen, Chang-Cheng Ku, Yong-Yuan Deng and Woei-Jiunn Tsau
16:30- 17:30	Coffee, Tea and Refreshments Certificates of Attendance	

Thursday 26th April:
FREE DAY FOR SOCIAL ACTIVITIES – Tickets will be collected during the conference

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PROGRAMME

Keynote Speech 1

Edge Computing in Context - Research and Engineering Challenges.

Prof. Schahram Dustdar, TU Wien, Austria

Abstract: This talk explores current challenges for research and engineering in Edge Computing. In particular, we will discuss how to integrate the Internet of Things (IoT) with software, people, and systems, considering modern Cloud and Edge Computing technologies and paradigms. I will address a set of novel problems related to modeling, programming, and deployment of large-scale systems. These novel paradigms have major consequences on how we view, build, design, and deploy ultra-large scale distributed systems.

Biography:
Schahram Dustdar is Full Professor of Computer Science and head of The Distributed Systems Group at the TU Wien, Austria. From 2004-2010 he was also Honorary Professor of Information Systems at the Department of Computing Science at the University of Groningen (RuG), The Netherlands. From Dec 2016 until Jan 2017 he was a Visiting Professor at the University of Sevilla, Spain and from January until June 2017 he was a Visiting Professor at UC Berkeley, USA. He is an Associate Editor of IEEE Transactions on Cloud Computing, IEEE Transactions on Services Computing, ACM Transactions on the Web, and ACM Transactions on Internet Technology and on the editorial board of IEEE Internet Computing and IEEE Computer. He is the Editor-in-Chief Computing (Springer). Dustdar is recipient of the ACM Distinguished Scientist award (2009), the IBM Faculty Award (2012), an elected member of the Academia Europaea: The Academy of Europe, where he is chairman of the Informatics Section, and an IEEE Fellow (2016).

PROGRAMME

Keynote Speech 2

City of Barcelona's deployment of fog computing for improved citizen and city services

Dr. David Carrera, Technical University of Catalonia (UPC), Spain.

Abstract: Like mobile edge computing, fog computing operates at the edge of networks to allow content, services and applications to be computed, resulting in faster response times. Yet fog computing is a superset of MEC, providing additional functionality in the Internet of Things (IoT), robotics, artificial intelligence, the tactile Internet and other scenarios. This keynote will discuss what fog is and how it works with mobile edge and cloud, and discuss how the fog computing architecture supports compute, control, networking and storage at the edge, across all access modes. It will also discuss the city of Barcelona's own deployment of fog computing for improved citizen and city services.

Biography: David Carrera received the MS degree at the Technical University of Catalonia (UPC) in 2002 and his PhD from the same university in 2008. He is an associate professor at the Computer Architecture Department of the UPC. He is also the Head of the "DataCentric Computing" research group at the Barcelona Supercomputing Center (BSC). His research interests are focused on the performance management of data center workloads. In 2015 he was awarded an ERC Starting Grant for the project HiEST, and ICREA Academia award and an ERC Proof of Concept grant ('Hi-OMICS') in 2017 to explore the commercialization of an SDI orchestrator for genomics workloads. He has participated in several EU-funded projects and has led the team at BSC that has developed the Aloja project (aloja.bsc.es) and the servIoTicy platform (servioticy.com). He is the PI for several industrial projects and collaborations with IBM, Microsoft and Cisco among others.He was a summer intern at IBM Watson (Hawthorne, NY) in 2006, and a Visiting Research Scholar at IBM Watson (Yorktown, NY) in 2012. He received an IBM Faculty Award in 2010. He is an IEEE and ACM member.

PROGRAMME

Keynote Speech 3

Intel Optane™ Technology as Differentiator for Internet of Everything and Fog Computing

Dr. Etienne Elie, Solutions Architect/Engineering Lead,
Intel Corporation, California, USA.

Abstract: Traditional network and cloud solutions cannot address effectively the infrastructure and data architecture challenges introduced by the emergence of the Internet of Everything (IoE). IoE creates unprecedented volume of complex data which must be stored, transferred, processed and analyzed in real time for time sensitive applications. Indeed, most of the applications in IoE domain (autonomous driving, health monitoring, banking, industrial control systems ...) are time and quality of service sensitive and need new solutions for data integrity and data availability for successful decision. At Intel, we are working on new computer paradigm and storage technologies such as Intel® Optane™ SSDs and Intel® 3D NAND SSDs that can address some of these challenges. These solutions deliver enhanced levels of agility and performance to modern data centers and enterprise level cloud solutions. These new technologies also help towards enterprise businesses modernization of legacy infrastructure by enabling hybrid-clouds and emerging technologies such as Fog Computing and Artificial Intelligence while keeping up with performance, data integrity and security demands of a thriving digital business. With Intel® Optane™, it is now possible to create a high performance and real time available Software-Defined Infrastructure (SDI) by enabling full dis-aggregate and pool of the underlying hardware resources, creating distributed memory/storage imperatives and giving research community and enterprise the performance and capabilities to benefit from revolutionary technologies such as Fog Computing and Artificial Intelligence by dynamically assigning compute, storage and network resource in real-time time sensitive workloads. In this keynote, we will discuss data storage, availability, integrity, quality of service and movement in this compute paradigm shift. We will also touch on how it impacts mobile edge, fog computing and cloud infrastructures. We will then conclude with the challenges and opportunities this new solution will bring.

Biography: Dr. Elie is Solutions and Systems Architect and Engineering Lead at Intel Corporation, California, USA, where he leads the architectural and front-end design modeling solutions in the Non-Volatile Memory Solutions Group (NSG). Prior to joining Intel Corporation, Dr. Elie was the technology and engineering manager for CARTaGENE, a public research platform and biobank of the Sainte-Justine Learning Hospital, created to accelerate health research. In this role, he led data center and infrastructure architecture, data access security, and oversaw technical aspects of the M&A. He also served as ASIC Architecture Engineer at Nortel Networks and Advanced Micro Devices (AMD). Before moving to the US, Elie spent a short period of time with PSP Investments, one of Canada's largest pension investment managers, where he served as infrastructure Enterprise Architect, leading the inception of the new disaster recovery data center. Beside his role at Intel Corporation, Dr. Elie is a key contributor for the development of a large-scale general-purpose neuromorphic Community Infrastructure (CI). This proposed infrastructure architecture based on Intel® Optane™ technology, will support the first CI to be broadly available and open to the community at large for research into deep learning using brain-inspired architecture for cognitive computing. Dr. Elie holds a Ph.D. in Computer Architecture from Université de Montréal, with focus on optimization of data movements in computer systems. He also holds a Masters degree, and Bachelor of Science in Engineering with great distinction.

PROGRAMME

Keynote Speech 4

Blockchain based systems and Edge computing working together as a decentralized public ledger

Gary Spence CEO, Yotta Laboratories Ltd, UK

Abstract

Blockchain based systems and Edge computing work together as a decentralized public ledger which can store and transfer data. We already know that Blockchain has many benefits however in a commercial setting transparency is not ideal but permissioned distributed ledgers can and are transforming how supply chains interact. Edge computing allows for this in a new way, from farming to industry the provenance and ability to check inventory in seconds is vital but this can also be reverse engineered to reduce waste and over manufacturing and therefore save millions to both industry and the planets ever growing waste stock pile. The recent advancements in both edge computing and also 5G is allowing us to research and prototype new methodologies for new solutions; and decentralized cloud networks, and Blockchain is just one of them, which will be the focus of this talk.

Gary Spence is a senior seasoned leader. A certified supply chain expert with the Institute of supply chain management and an elected branch chairman of the FSB (Federation of Small Businesses) An Ambassador for Stoke on Trent and is currently working with local colleges to establish tomorrows IT students, He has worked with DHL for over 10 years, where he established their first interactive IT drivers management system, and in the supply chain industry for over 20 years together regularly managing business contracts over £300m. Designing and developing IT systems for the supply chain industry including WMS and TMS systems. Gary is ISO Lead auditor for ISO9001, ISO 14000, ISO18000, ISO27000 and holds the Six Sigma Black Belt.

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Tutorial 1

Smart Multimedia Services Distribution Using Software Defined Adaptive Cognitive Networks

Prof. Jaime Lloret
Universitat Politècnica de València (UPV), Spain

Abstract: Intelligent Systems for Multimedia delivery in Software Defined Networks

Current networks have much limitation due to their rigidity, which is given by static configurations in the network devices, mainly based on commands or static scripts. The resource provisioning is less automatic and the efficiency decreases. Moreover, virtualization and cloud are changing radically the traffic patterns of the data center. This is caused by the communication between servers, because the applications are split in many virtual machines that must communicate. Software Defined Networks (SDNs) are able to divide the control plane from the data plane, which allow higher programmable, automatic and flexible networks. In SDNs, we do not need to program node by node, but by a centralized manner through software that can be implemented independently of the manufacturer or the model (if they are supporting the same communication protocol). SDNs provide a more open network and allow accessing better to certain intelligent functions, which can contribute higher intelligence to the network operating. These features make SDNs ideal to have a system that is able to adapt with the aim of having higher performance. Artificial intelligence and automatic learning can be used in the information gathered from the network, such as traffic patterns for different network devices or used protocols, the behavior of the users and servers, and the additional information that can be taken from the wireless networks (user movement, location, etc.), in order to implement a series of procedures. This will allow improving a specific objective and achieve higher system performance. This speech will review the most used artificial intelligence techniques in communication networks and network data. Moreover, the most important network parameters and how they affect to multimedia delivery will be revised. We will also show the design and development of a network architecture and the communication protocol, that use the information taken from the data frames, the users and servers behavior, and the traffic patterns (traffic changes, quality of service parameters, state of the frames, etc.) with the aim of improving the multimedia delivery performance. The designed network is able to self adapt in each case. Network devices gather network parameters and patters that are used by a smart network algorithm to evolve behaviors based on the empirical data. The cognitive adaptive software defined network can be implemented in a wide range of multimedia applications.

PROGRAMME

Biography: Prof. Jaime Lloret (jlloret@dcom.upv.es) received his M.Sc. in Physics in 1997, his M.Sc. in electronic Engineering in 2003 and his Ph.D. in telecommunication engineering (Dr. Ing.) in 2006. He is a Cisco Certified Network Professional Instructor. He worked as a network designer and administrator in several enterprises. He is currently Associate Professor in the Polytechnic University of Valencia. He is the Chair of the Integrated Management Coastal Research Institute (IGIC) and he is the head of the "Active and collaborative techniques and use of technologic resources in the education (EITACURTE)" Innovation Group. He is the director of the University Diploma “Redes y Communications de Ordenadores” and of the University Master "Digital Post Production". He has been Internet Technical Committee chair (IEEE Communications Society and Internet society) for the term 2013-2015. He has authored 22 book chapters and has more than 380 research papers published in national and international conferences, international journals (more than 140 with ISI Thomson JCR). He has been the co-editor of 40 conference proceedings and guest editor of several international books and journals. He is editor-in-chief of the “Ad Hoc and Sensor Wireless Networks” (with ISI Thomson Impact Factor), the international journal "Networks Protocols and Algorithms", and the International Journal of Multimedia Communications, IARIA Journals Board Chair (8 Journals) and he is (or has been) associate editor of 46 international journals (16 of them with ISI Thomson Impact Factor). He has been involved in more than 400 Program committees of international conferences, and more than 150 organization and steering committees. He leads many national and international projects. He is currently the chair of the Working Group of the Standard IEEE 1907.1. He has been general chair (or co-chair) of 38 International workshops and conferences. He is IEEE Senior and IARIA Fellow.

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Workshops in conjunction with FMEC 2018 and SDS 2018

1. **IoTNAT 2018**: The Fourth International Workshop on Internet of Things: Networking Applications and Technologies. http://emergingtechnet.org/IOTNAT2018/index.php

2. **MCSMS-2018:** The Fourth International Workshop on Mobile Cloud Computing systems, Management, and Security. http://emergingtechnet.org/MCSMS2018/

3. **SDN-NFV 2018**: The Second international workshop on Software Defined Networks and Network Function Virtualization. http://emergingtechnet.org/SDN-NFV2018/

4. **SCE 2018:** The Second International Workshop on Smart Cities Systems Engineering. http://emergingtechnet.org/SCE2018/index.php

5. **FCST 2018:** The First International Symposium on Future Cyber Security Technologies. https://sds2018.000webhostapp.com/

6. **5GET 2018:** The Second International Symposium on 5G Emerging Technologies. http://www.ru.is/kennarar/mhamdaqa/5-GET_2018/index.html

7. **SLICE 2018:** The First International Workshop on Smart Living with IoT, Cloud, and Edge Computing. http://faculty.iitr.ac.in/~drpskfec/events/slice/2018/index.html

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The Venue

The conference will be held at **Universitat Politècnica de Catalunya, Barcelona (Campus Nord)**, one of the World leading universities, close and very well connected to both the airport, the city main attractions. The conference venue is surrounded by many conveniently -close by- hotels and reasonable rates.

Conference Venue Address: Campus Diagonal Nord, Edifici Ω (Omega). C. Jordi Girona, 1-3 08034 Barcelona. **All conference rooms will be in the Vertex Building.**

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