CloudComp 2013

The 4th International Conference on Cloud Computing

October 17 – 19, 2013

Wuhan, China

http://cloudcomp.eu/

Technical Sponsorship:

Message from the CloudComp 2013 Chairs

Welcome to the **4th International Conference on Cloud Computing (CloudComp 2013),** which will be held in Wuhan, China on October 17-19, 2013**.** This year's Conference continues its tradition of being the premier forum for presentation of results on cutting-edge research in Cloud Computing. The mission of the conference is to share novel basic research ideas as well as experimental applications in the Cloud Computing area in addition to identifying new directions for future research and development. CloudComp 2013 gives researchers a unique opportunity to share their perspectives with others interested in the various aspects of Cloud Computing. The conference consists of six symposia that cover a broad range of research aspects. In addition, the program includes three outstanding keynote speakers from academia and industry: Prof. Li-Chun Wang, Prof. Wolfgang Gentzsch and Prof. Roy "Xiaorong" Lai. We hope that the conference proceedings will serve as a valuable reference to researchers and developers in the area.

This year, we have received 84 paper submissions from all over the world. All papers received rigorous peer reviews from our Technical Program Committee (TPC). After carefully examining all the received review reports, the TPC finally selected 30 regular papers for presentation at the conference and publication in the CloudComp Conference Proceedings and by Springer-Verlag in the Lecture Notes of ICST (LNICST).

Putting together CloudComp 2013 was a team effort. First of all, we would like to thank the authors for providing the content of the program. We would also like to express our gratitude to the TPC and reviewers, who worked very hard in reviewing papers and providing suggestions for their improvements. We would like to thank our financial sponsor ICST, technical sponsors CREATE-NET and HPC, for their support in making CloudComp 2013 a successful event. For a list of all individuals who have contributed to CloudComp 2013, please visit the conference website: http://cloudcomp.eu/

We hope that you will find this year's program interesting and thought-provoking and the conference will provide you with a valuable opportunity to share ideas with other researchers from around the world. We look forward to greeting you personally at CloudComp 2013!

Victor C. M. Leung General Chair
Min Chen TPC Chair

CloudComp 2013 Keynote Speakers:

Evolution to 5G Wireless for Personalized Cloud and Communications Services

Abstract: With 1,000 times higher data rates and more flexible spectrum use as compared with current 4G LTE systems, 5G wireless aims at delivering one gigabyte of mobile data for everyone daily by 2020. The challenge is not just delivering one gigabyte per user per day, but personalizing every bit and being profitably. Smart phones play the key role as the gateways to the cloud and the bridges of multiple sensors, and can teach networks to be cognitive. Software defined networking (SDN) enables telecom operators to provide personalized network experiences to each individual in an efficient manner. In this talk, we will discuss the opportunities, challenges, and solutions of broadband wireless communications in the era of cloud computing for providing human-centric cloud and communications services.

Bio: Dr. Li-Chun Wang received the B.S. degree from National Chiao Tung University , Taiwan, R. O. C. in 1986, the M.S. degree from National Taiwan University in 1988, and the Ms. Sci. and Ph. D. degrees from the Georgia Institute of Technology , Atlanta, in 1995, and 1996, respectively, all in electrical engineering.

From 1990 to 1992, he was with the Telecommunications Laboratories of the Ministry of Transportations and Communications in Taiwan (currently the Telecom Labs of Chunghwa Telecom Co.). In 1995, he was affiliated with Bell Northern Research of Northern Telecom, Inc., Richardson, TX. From 1996 to 2000, he was with AT&T Laboratories, where he was a Senior Technical Staff Member in the Wireless Communications Research Department. Since August 2000, he has been an Associate Professor in the Department of Communication Engineering of National Chiao Tung University in Taiwan. His current research interests are in the areas ofadaptive/cognitive wireless networks, radio network resource management, cross-layer optimization, and cooperative wireless communications networks.

Dr. Wang was elevatated to be IEEE Fellow in 2010 for his contributions in cellular architecutures and radio resource management techniques in wireless networks. He was a co-recipient (with Gordon L. Stuer and Chin-Tau Lea) of the 1997 IEEE Jack Neubauer Best Paper Award for his paper "Architecture Design, Frequency Planning, and Performance Analysis for a Microcell/Macrocell Overlaying System," IEEE Transactions on Vehicular Technology, vol. 46, no. 4, pp. 836-848, 1997 (best systems paper published in 1997 by the IEEE Vehicular Technology Society). He has published over 150 journal and international conference papers and is holding three US patents . He served as an Associate Editor for the IEEE Trans. on Wireless Communications from 2001 to 2005, the Guest Editor of Special Issue on "Mobile Computing and Networking" for IEEE Journal on Selected Areas in Communications in 2005 and on "Radio Resource Management and Protocol Engineering in Future IEEE Broadband Networks" for IEEE Wireless Communications Magazine in 2006. He is holding 8 US patents. His recent reseach interests are in coginitiv radio, energy-efficient wireless system, heterogeneous cross-network design, and cloud computing for mobile applications.

The UberCloud HPC Experiment - Paving the way to High Performance Computing as a Service in the Cloud

Abstract: There are several million of small and medium-size manufacturers around the world, most of them using workstations for their daily design and development work. However, there is often the need for more computing. Buying an expensive compute cluster is usually not an option, and renting computing power from the Cloud still comes with severe roadblocks, such as the complexity of the applications and their implementation itself, intellectual property and sensitive data, expensive data transfers, conservative software licensing, performance bottlenecks from virtualization, user-specific system requirements, and missing standards and lack of interoperability among different clouds. On the other hand, the benefits of using remote computing resources are extremely attractive: no lengthy procurement and acquisition cycles; shifting some budget from capex to the more flexible opex; gaining business flexibility by getting additional resources on demand, at your finger tip; and scaling resource usage automatically up and down according to your actual needs.
Thus the UberCloud Experiment has been designed to reduce many of the barriers mentioned above. By participating and moving the engineering application onto a remote computing resource, end-users can expect a long list of real benefits, such as: UberCloud is vendor neutral; no hunting for resources in a crowded Cloud market; professional match-making of end-users with suitable service providers; free, on-demand access to hardware, software, and expertise during the experiment; carefully tuned end-to-end, step-by-step process to accessing remote resources; learning from the best practices of other participants; no-obligation, risk free proof-of-concept: no money involved, no sensitive data transferred, no software license concerns, and the option to stay anonymous. With these benefits, the experiment is leading the way to increasing business agility, competitiveness, and innovation, and participants are not getting left behind in the emerging world of Cloud Computing. Last but not least, all participants are encouraged to make use of the interactive UberCloud Exhibit, a directory of professional cloud services to the wider CAE, Life Sciences, and Big Data communities.
This keynote presentation with present all the aforementioned topics in further detail and provide some real SME use cases

Bio: Prof. Wolfgang Gentzsch is consultant for HPC, Grid and Cloud; Co-founder of the UberCloud Experiment together with Burak Yenier; Advisor to the EU funded project EUDAT; and the Chairman of the ISC Cloud Conferences. Previously, he was an Advisor to the EU project DEISA, directed the German D-Grid Initiative, and was a member of the Board of Directors of the Open Grid Forum, and of the US President's Council of Advisors for Science and Technology, PCAST. Before, Wolfgang was a professor of computer science and mathematics at several universities in the US and Germany, and held leading positions at the North Carolina Grid and Data Center in Durham, Sun Microsystems in California, the DLR German Aerospace Center in Gottingen, and the Max-Planck-Institute for Plasmaphysics in Munich. In the 90s, he founded HPC software companies Genias and Gridware, the latter developing what is now Grid Engine

How to Build Cloud-based Mobile Network for Enterprise

Abstract: A CDMA network consists of a radio network and a core network. The radio network includes BTS (Base Transceiver System) and BSC (Base Station Controller). A typical core network includes at least one MSC (Mobile Switching Center) and one HLR (Home Location Register). The core network equipments are expensive. To offset high cost of core network, operators need to install many BTS and BSC to increase the coverage and subscribers. This forces an entrepreneur to pay entry price of at least $1 million to become a CDMA operator, this entry price leaves no business sense to set up CDMA network for some enterprises, is there an alternative?
Confederal Networks provides a revolutionary way to build CDMA network. Start with isolated fixed wireless local loop points, operators can escalate their network into the next level, ROAMING, as more and more wireless local loop points keep being added, operators can turn wireless local loop into standard IS41 network by adding MSC and HLR. The Mobility Manager's hardware is re-used by MSC. The local IP PBXs are converted into small media gateway.

Bio: Prof. Roy "Xiaorong" Lai is the co-founder and Chairman of Confederal Networks Inc, one of the leading mobile network providers for enterprises with its headquarter in Seattle, WA. Together with his team, he successfully designed and commercialized the world first CDMA mobile network for coal mines. He also serves as the chief expert of China Coal Automation Research Institute and a Distinguished expert of Ningxia Hui Autonomous Region, China, and the adjunct/guest professor of Chinese Academy of Sciences, Beijing University of Posts and Telecoms, etc. After he became the Managing Director of R&D Department of Concord Telecom in 1993, he has more than 20 years of high-ranking leadership experience in telecom industry. He was ranked No.4 among the 2004' Top 10 Telecom People in China. He is an IEEE senior member.

CloudComp 2013 Tutorials:

Tutorial 1: Advances in Cloud-Assisted Mobile Computing and Pervasive Services

Abstract: Advances in mobile communication networks and increasing deployments of mobile smart devices have brought rich mobile experiences to end users. However, further improvement of service quality and large deployment of mobile pervasive services are hampered by resource constraints of mobile devices and bandwidth limitations of wireless networks. Recently, mobile cloud computing is emerging rapidly as an exciting new paradigm to extend the capabilities of mobile devices and platforms, which, in turn, are changing the industrial production and people's daily life. Developments of innovative pervasive mobile services, e.g., mobile video streaming, rich media dissemination, surveillance, e-gaming, e-health care, etc., can be greatly facilitated by mobile cloud computing platforms employing emerged and emerging technologies. This talk is to introduce some recent issues and applications related to cloud-assisted mobile computing and pervasive services.

Tutorial 2: Big Data, Cloud and Healthcare

Abstract: In this tutorial, it reviews the background and state-of-the-art of big data, cloud and healthcare. It first introduces the general background of big data, cloud and related technologies. It then introduces the general background, discusses the technical challenges, and reviews the latest advances. It finally examines the several representative healthcare applications of big data and cloud. These discussions aim to provide a comprehensive overview and big-picture to researchers of this exciting area.

Bio: Prof. Min Chen is a professor in School of Computer Science and Technology at Huazhong University of Science and Technology (HUST). He was an assistant professor in School of Computer Science and Engineering at Seoul National University (SNU) from Sep. 2009 to Feb. 2012. He was R&D director at Confederal Network Inc. from 2008 to 2009. He worked as a Post-Doctoral Fellow in Department of Electrical and Computer Engineering at University of British Columbia (UBC) for three years. Before joining UBC, he was a Post-Doctoral Fellow at SNU for one and half years. He received Best Paper Award from IEEE ICC 2012, and Best Paper Runner-up Award *from QShine 2008*. He has more than 170 paper publications. He serves as editor or associate editor for *Information Sciences*, Wireless Communications and Mobile Computing, IET Communications, IET Networks, Wiley I. J. of Security and Communication Networks, Journal of Internet Technology, KSII Trans. Internet and Information Systems, International Journal of Sensor Networks. He is managing editor for IJAACS and IJART. He is a Guest Editor for *IEEE Network*, *IEEE Wireless Communications Magazine*, etc. He is Co-Chair *of IEEE ICC 2012-Communications Theory Symposium*, andCo-Chair *of IEEE ICC 2013-Wireless Networks Symposium*. He is *General Co-Chair* for the 12th IEEE International Conference on Computer and Information Technology (IEEE CIT-2012). He is *Keynote Speaker* for CyberC 2012 and Mobiquitous 2012. He is a TPC member for *IEEE INFOCOM 2014*. His research focuses on Internet of Things, Machine to Machine Communications, Body Area Networks, Body Sensor Networks, E-healthcare, Mobile Cloud Computing, Cloud-Assisted Mobile Computing, Ubiquitous Network and Services, Mobile Agent, and Multimedia Transmission over Wireless Network, etc. He is an IEEE Senior Member since 2009.

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Technical Program

Thursday, 17th of October (Room 211, Building No. 1)

8:00	**Registration**
9:00-9:15	**Opening Ceremony: Prof. Victor C. M. Leung, IEEE Fellow**
9:15-10:20	**Keynote I** • **Evolution to 5G Wireless for Personalized Cloud and Communications Services** Prof. Li-Chun Wang, IEEE Fellow
10:20 - 10:30	**Coffee Break**
10:30 - 11:30	**Keynote II** • **The UberCloud HPC Experiment Paving the way to High Performance Computing as a Service in the Cloud** Prof. Wolfgang Gentzsch, Chairman of the UberCloud HPC Experiment, Executive HPC Consultan
11:30 - 12:20	**Keynote III** • **How to Build Cloud-based Mobile Network for Enterprise** Prof. Roy "Xiaorong" Lai, Chairman of Confederal Networks Inc., USA
12:20 - 13:30	**Lunch Break**
13:30 - 15:00	**Session 1: Mobile Cloud Computing** **(Chair: Manohara Pai M. M., MIT, Manipal, India)** • **Environment Perception for Cognitive Cloud Gaming** Wei Cai, Conghui Zhou, Victor C.M. Leung, Min Chen • **Adaptive Multimedia Cloud Computing Center Applied on H.264/SVC Streaming** Wei-Ting Cho, Chin-Feng Lai • **Vehicular Cyber-Physical Systems with Mobile Cloud Computing Support** Hehua Yan, Jiafu Wan, Yingying Wang, Zhonghai Wang, Zhumei Song

15:00 - 15:30	**Coffee Break**
15:30 - 17:00	**Session 2: Services, Applications, IoT on Cloud (Chair: Manohara Pai M. M., MIT, Manipal, India)** • **A Simulation Study of Connected Vehicle Systems Using Named Data Networking** Tao Jiang, Xiaowei Xu, Lu Pu, Yu Hu, Zhijun Qiu • **Interchanging Cloud Providers Instances through Ubiquitous Devices** Tiago M. C. Simões, Jorge E. F. Costa, Joel J. P. C. Rodrigues, Long Hu • **Mobile Cloud Computing in Service Platform for Vehicular Networking** Yingying Wang, Hehua Yan • **Performance Analysis of Cloud DVR for Energy Efficiency Clustering Strategy** Zhen Zhao
18:30 - 20:00	**Social Event: Dinner at HUST**
20:00	**End of Day 1**

Friday, 18th October 2013 (Room 211, Building No.1)

8:00	**Registration**
9:00-10:00	**Session 3: Architecture and Big Data** **(Chair: Wei Fu, PLA's National University of Defense Technology, China)** • **Boosting MapReduce with Network-Aware Task Assignment** Fei Xu, Fangming Liu, Dekang Zhu, Hai Jin • **Towards a Trusted Launch Mechanism for Virtual Machines in Cloud Computing** Juan Wang, Xuhui Xie, Qingfei Wang, FeiYan, Hongxin Hu, Sijun Zhou, Tao Wang • **Dynamic Resource Provisioning in Cloud Computing: A Heuristic Markovian Approach** Hamid Reza Qavami, Shahram Jamali, Mohammad K. Akbari, Bahman Javadi
10:00-10:30	**Coffee Break**
10:30-12:00	**Session 4: Cloud-assisted Pervasive Computing and Services** **(Chair: Wei Fu, PLA's National University of Defense Technology, China)** • **Research on Sports Teaching Resource Platform Based on Cloud Computing** Zhang Jian, Song Wanjuan • **Delay-Optimized Offloading for Mobile Cloud Computing Services in Heterogenous Networks** Kan Zheng, Hanlin Meng, Hua Zhu, Kai Lin, Wei Cai, Hang Long • **Exploring Critical Risks Associated with Enterprise Cloud Computing** Guo Chao, Alex Peng, Arnab Dutta, Alok Choudhary
12:00-13:30	**Lunch Break**
13:30-15:00	**Session 5: Management and Virtualization for Cloud** **(Chair: Juan Wang, Wuhan University, China)** • **A Capability-based Matchmaking Mechanism Supporting Resource Aggregation within Large-Scale Distributed Computing Infrastructures** Feng Liang, Hai Liu, Yunzhen Liu, Shilong Ma, Siyao Zheng, Pan Deng • **The Framework of SCADA System Based on Cloud Computing** Liu Miao, Changbing Guo, Mancang Yuan

	• **Cloud services platform of public resources trading integration** Jianbin Xiong, Qinruo Wang, Jianqi Liu, Qiong Liang, Keliang Zhou
15:00-15:30	**Coffee Break**
15:30-17:00	**Session 6: Cloud Security** **(Chair: Juan Wang, Wuhan University, China)** • **Trusting identity based authentication on hybrid cloud computing** Hazem A. Elbaz, Mohammed H. Abd-elaziz, Taymoor Nazmy • **A Dual Cloud Based Secure Environmental Parameter Monitoring System: A WSN Approach** Pooja. B, Manohara Pai M.M, Radhika M. Pai • **Data Possession Provability on Semi-Trusted Cloud Storage** Wei Fu, Bo Yan, and Xiaoping Wu
17:00	**End of Day 2**

Saturday, 19th October 2013 (Room Western 216, Building Southern No.1)

8:00	**Registration**
9:00-10:00	**Tutorial I** • **Advances in Cloud-Assisted Mobile Computing and Pervasive Services** Prof. Min Chen, Huazhong University of Science and Technology, China
10:00-10:30	**Coffee Break**
10:30-12:00	**Workshop Session 1** **(Chair: Jiafu Wan, South China University of Technology, China)** • **A BPEL-Based Web Service Flow Engine in the Early Warning of the Volcano Effusion** Jingyuan Pang, Chen Wang, Pan Deng, Yanhong Lu, Hao Liu • **Oriented Research of Color Emotion in E-Commerce Website Interface** Xiaoling Zhang, Fengmei Qin • **An Adaptive Variable Structure Control Approach Based on Neural Networks and Filter for Four-wheel Omnidirectional Mobile Robots** Wang Jianbin, Chen Jianping, Yang Yimin • **Radar Decision Criteria Based on Fuzzy Test of Hypotheses** Ahmed K. Elsherif, Chunming Tang, Lei Zhang
12:00-13:30	**Lunch**
13:30-15:00	**Tutorial II:** • **Big Data and Cloud** Prof. Min Chen, Huazhong University of Science and Technology, China
15:00-15:30	**Coffee Break**
15:30-17:00	**Workshop Session 2** **(Chair: Jiafu Wan, South China University of Technology, China)** • **An Efficient Adaptive Neighbor Selection Algorithm in Pear-to-Pear Networks** Xian Li, Aili Zhang • **Design Support Tools of Cyber-Physical Systems: A Brief Survey** Keliang Zhou, Binbin Liu, Cen Ye, Ling Liang

	• **Study on Collaborative Awareness Model based on Working Tree** Zuomin Luo, Yinzhao Lin, Haolu Hou • **Study on the transformation method of AADL-based reliability model in the embedded system** Liu Jianjun, Meng Haining, Huang Yinglan, Zhong Shan • **Distributed IPv6 Sensor Network Networking Method Based on Dynamic Regional Agents** Jiye Wang, Zhihua Cheng, Jinghong Guo
16:30	**End of the conference**

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