IEEE CloudNet'14 Special Session

SS6: Cloud Computing and Sustainability

Call for Papers

With the advent of ultrascale computing systems, envisioned as large scale complex systems joining parallel and distributed computing systems that will be two to three orders of magnitude larger that today's systems, clouds will play a major role as an integration and support platform to provide every kind of virtual computing environment (HPC, HTC, data centers, etc.). However, as the scale grows, it is more and more difficult to provide efficient and sustainable solutions. To cope with this problem, the research in large scale cloud computing is addressing a large variety of challenges related to sustainable scalability such as economy-of-scale, agile elastic scalability, energy efficiency, scalable storage, computing accelerators, automatic management of resources, resilience, hybrid clouds, etc.

This special session is focused on novel contributions towards increasing the sustainability of ultrascale cloud computing systems with a holistic approach. Papers submitted should provide new techniques toward sustainable cloud computing systems, including better programmability of applications and system software stack, sustainable data management, energy efficiency, system resilience, and deployment in distributed ultrascale cloud platforms.

Topics:

- Development, evaluation, and optimization of sustainable cloud architectures.

- Cloud Composition, Federation, and hybrid cloud infrastructure.

- Virtual HPC architectures on the Cloud: techniques for a sustainable implementation and deployment.

- Software engineering approaches for ultra Scale systems.

- Sustainable cloud management through self-managing techniques.

- Ultra-scale performance monitoring techniques.

- Dynamic provisioning techniques to increase utilization of servers.

- Dynamic run-time adaptation for heterogeneous cloud platforms.

- Data Flow Management and Load Balancing.

- Sustainable software tools and techniques for clouds.

- Agile (semi)automatic cloudification techniques and frames.

- Sustainable big data processing techniques in cloud environments.

- Techniques for reduction of energy consumption of applications and services by using Clouds.

- Energy aware multi-Tenant environments.

- Hardware and software tailoring techniques for greener infrastructures.

- Resilience techniques to enhance sustainability of large-scale cloud systems.

- Benchmarking and Modeling cloud sustainability in several aspects (applications, frameworks, IaaS, etc.).

◼ Important dates

Paper Submission: July 3, 2014 (Extended)
Notification of Acceptance: August 1, 2014
Final Paper: August 15, 2014

Submit online at EDAS website »

◼ Session organizers

Ivona Brandic.
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Bio: Dr. Ivona Brandic is Assistant Professor at the Distributed Systems Group, Information Systems Institute, Vienna University of Technology (TU Wien). She was involved in the European Union's SCube project and she led the Austrian national FoSII-Foundations of Self-governing ICT Infrastructures project funded by the Vienna Science and Technology Fund (WWTF). She was management committee member of the European Commission's COST Action on Energy Efficient Large Scale Distributed Systems. From June to August 2008 she was visiting researcher at the University of Melbourne, Australia. Dr. Brandic is on the Editorial Board of the IEEE Transactions on Cloud Computing. In 2011 she received the Distinguished Young Scientist Award from the Vienna University of Technology for her HALEY project on Holistic Energy Efficient Hybrid Clouds. Her interests comprise Service Level Agreement and Quality of Service management in large scale distributed systems, autonomic computing, workflow management for scientific applications, and energy efficient large scale distributed systems (Cloud, Grid, Cluster, etc.). She published more than 50 scientific journal, magazine and conference publications and she co-authored a text book on federated and self-manageable Cloud infrastructures. I. Brandic co-authored European Union's Cloud Computing report paving future research directions of the EU. In 2010 she chaired the International Conference on Utility and Cloud Computing held in Chennai, India. She has been serving more than 50 program committees (among others EuroPar, COMPSAC, CloudCom) and was invited reviewer of more than 10 international journals. In 2011 she edited two special issues for Future Generation Computer Systems (Elsevier) and Scientific Programming Journal (IOS Press). I. Brandic has been invited expert evaluator of the European Commission, French National Research Organization (ANR), National Science and Engineering Research Council Canada (NSERC) and Netherlands Organization for Scientific Research (NWO).

Jesus Carreter
University Carlos III of Madrid, Spain

Bio: Jesus Carretero is a Full Professor of Computer Architecture and Technology Universidad Carlos III de Madrid (Spain), where he is responsible for knowledge area since 2000. He is also Director of the Master in Administration and Management of Computer Systems, which he founded in 2004. He also serves and has served as a Technology Advisor and in applied projects with several companies such as RENFE, EADS, INDRA, SIEMENS or ISOLUX, developing research and innovation projects. He is a project reviewer for Spanish research ministry and also European Union. His research activity is centered on high-performance computing systems distributed systems and real-time systems. He has participated and leaded several national and international research projects in these areas, founded by Madrid Regional Government, Spanish Education Ministry and the European Union. He was teaching in Facultad de Informática of the Universidad Politécnica de Madrid (Spain) since 1989 until 1997. In 1997 and 1998 he was a visiting scholar at the NorthWestern University of Chicago (Ill, USA), where he was researching with Prof. Alok Choudhary. He works currently at Universidad Carlos III de Madrid, where he has been teaching since 2000. Carretero is a senior member of the IEEE Computer Society and member of the ACM.

Javier Garcia-Blas
University Carlos III of Madrid, Spain

Bio: Javier Garcia-Blas has been a teaching assistant of the University Carlos III of Madrid since 2005. He received the MS degree in Computer Science in 2007 at the University Carlos III of Madrid. He also received a PhD with honors in Computer Science from University Carlos III in 2010. He has cooperated in several projects with researchers from various high performance research institutions including HLRS (funded by HPC-Europe program), DKRZ, and Argonne National Laboratory. He is currently involved in various projects on topics including parallel I/O, cloud computing and accelerators for high-performance platforms. He is currently involved in bioinformatics projects. He has participated in many conference organization committees, and in the last two years he has been Program Chair of EuroMPI 2013, C4Bio 2014, and ESAA 2014. He counts with 33 research publications in international journals and conferences.