Heterogeneous and Hybrid High-Performance Computing in the Cloud BoF

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ABSTRACT
The Heterogeneous and Hybrid High-Performance Computing on Cloud BoF will discuss frameworks that use the cloud as a modern massively-parallel computation environments. Invited guests from both industry and academia will discuss a range of subjects, including core fundamentals, hardware architectures, parallel programming, workload scheduling as well as various scientific applications utilising NeCTAR cloud infrastructures and technologies such as CloudMan, OpenMPI, OpenMP, StarCluster, Hadoop, Pig, Hive, HBase, Impala, workflows systems. The BoF will provide the audience with a forum to follow up on many of the issues raised at the NeCTAR Interest Group on Clusters & Computational Frameworks in the Cloud workshop in April 2013 [1, 2], including High-Throughput computing, Hybrid solutions connecting HPC Cluster with Cloud-based clusters, cloud storage, AAA, programming models and patterns. It will be also great opportunity to meet members of Australia cloud computing and high performance computing communities.

SCHEDULE
1. NeCTAR Clouds and Compute Projects. Nigel Ward will introduce and facilitate discussion with a few NeCTAR funded projects that use computational frameworks in the cloud. 10 minutes
2. Compute Frameworks in Clouds. Tomasz Bednarz and Piotr Szul will introduce concept of use of hybrid solutions for computational science in clouds with the focus on image analysis applications. They will also discuss use of Hadoop and its ecosystems projects for computational sciences. 10 minutes
3. Supporting eResearchers in Heterogenous HPC World. Luke Domanski will share his experience in supporting multi-disciplinary researchers inside CSIRO and describe the challenges and goals to make computational resource more easy to use. 10 minutes
4. Audience Voice. Nigel Ward and Tomasz Bednarz will facilitate an open discussion about the solutions, challenges and directions of cloud computing supporting scientific compute and eResearch. 25 minutes

REFERENCES

ABOUT THE SPEAKERS

Nigel Ward is deputy director of the NeCTAR (National eResearch Collaboration Tools and Resources) project, where he primarily co-ordinates NeCTAR's program of 16 eResearch Tools projects developing cloud-based software tools for the Australian research community. Nigel is currently based at the University of Queensland, and before joining NeCTAR managed projects within the UQ ITEE eResearch Group aimed at improving research capability through the provision of IT infrastructure. In previous roles he worked on interoperability and standards for research and learning technologies in the Higher Education sector.