COLLABORATIVE PARADIGMS FOR DEVELOPING HPC IN CONSTRAINED ENVIRONMENTS.

Abstract

Computational science and engineering provides the potential for addressing many problems facing countries on the African continent. HPC in Africa is in its embryonic stage, and growth requires significant increases in resources. Challenges include increased investment in infrastructure, accompanied by increased scope and innovation in the basic STEM disciplines. The newly chartered Special Interest Group on High Performance Computing for Resource Constrained Environments (SIGHPC-RCE) provides a forum for industry, academics, and government entities for building partnerships, collaborations, and outreach initiatives towards addressing these challenges. We invite everyone interested in learning about and solving these problems to attend this session.

Long Description

Computational science and engineering research, in combination with high performance computing technologies, provides an effective and efficient means for accelerating advancement of national competitiveness, global security, and economic success. Strong investment in these areas will also provide a well-prepared, diverse 21stcentury-capable workforce. The combination of academia, industry, and government research organizations is required to achieve these goals. Scarce computational resources, in particular basic infrastructure for computation and core competencies, must be shared with well-defined mutually beneficial purposes, through active outreach initiatives. We laid the foundations with a well-attended ad-hoc SC14 BoF session, titled: “Developing HPC in Resource Constrained Environments”, identified the need for the formation of a formal organization dedicated to addressing these challenges. The result is a new ACM Special Interest Group on High Performance Computing chapter, named Resource Constrained Environments ACM (SIGHPC-REC). Active solicitation for membership in SIGHPC-REC has received positive feedback, which will be strengthened and solidified by presentations in this SC15 session. The prospective audience includes academia and research scientists from the aforementioned environments, HPC vendors interested in providing product and service solutions for the emerging market of HPC infrastructure in Africa, and anyone else interested in the success of these efforts. Following a brief introductory overview presentation, this session will consist of an interactive panel discussion with a diverse set of experts in various HPC outreach initiatives. We will seek to develop pragmatic paradigms that will create synergistic collaboration among members (academia, research scientist and HPC administrators) of the chapter, vendors and leaders of HPC outreach initiatives such as STEM-Trek and Center for High Performance Computing South Africa (CHPC). One outcome of the session will be a roadmap for procuring computational infrastructure and developing competencies for computational research in Africa.

Description of the session format

Based on discussions with previous successful BOF organizers, this session will be based on informal presentations, in an interrupt-driven format, providing the means for developing an active community for addressing our goals. We will begin with an overview motivating the issues to be addressed. This overview will be followed by brief presentations from leaders of HPC outreach initiatives like STEM-Trek and Center for High Performance Computing South Africa (CHPC). Then a panel session of leaders in outreach initiatives, groups who have previously overcome these sorts of barriers, and those who can directly help develop access to necessary resources. Within this context, we will then formulate a roadmap toward addressing our goals, including the means for enabling future collaborations with other organisations.

Preferred data and time: Wednesday noon (18th Nov. 2015).