

Hosting Cloud, HPC and Grid Educational Activities on FutureGrid

Overview:

FutureGrid is an XSEDE resource which has, at the core of its educational mission, the ability to create consistent, controlled and repeatable educational environments in all areas of computer science related to parallel, large-scale or distributed computing and networking as well as the availability, repeatability, and open sharing of electronic educational materials. FutureGrid has deployed a distributed platform where educators and students can create and access such customized environments for hands-on activities on cloud, HPC and grid computing. This Birds-of-a-Feather session will provide a forum for users to get informed about the opportunities available to use FutureGrid in education, present user stories describing different ways in which it has been used in classes, and encourage discussion from the participants on features that they would like to see in this infrastructure to support their educational needs.

The general format of the BOF includes brief overview presentations to provide context, followed by discussions with attendees, focused on their needs in education and how FutureGrid can help, facilitated by the BOF organizers. The primary target audience for this BOF session draws from attendees of the conference's typically well-attended EOT track, but the BOF will also be of interest to a broader set of XSEDE users interested in use of a flexible platform for education and training.

Overview presentations will describe FutureGrid capabilities supporting educational activities – including the user portal, creating classes and user accounts, available tutorials and community materials, and cloud/HPC/Grid platforms available in FutureGrid, such as Nimbus, OpenStack, and Eucalyptus. Given the increased interest in the use of cloud computing in educational activities, the presentations will describe, in particular, FutureGrid support for user-customized virtual machine appliances which integrate pre-configured software such that educational environments can be easily created, customized, shared among users, and deployed on FutureGrid's cloud resources, as well as support for users to collaborate on the development of curriculum for classes using FutureGrid.

Tentative outline:

FutureGrid overview (Geoffrey Fox, 10 minutes)

Educational activities using FutureGrid's cloud, HPC and Grid resources: examples and opportunities (Renato Figueiredo, Barbara Ann O'Leary, 10-20 minutes)

Structured discussion on capabilities required by users for educational activities

Participants:

Dr. Geoffrey Fox, FutureGrid PI, Indiana University

Dr. Renato Figueiredo, FutureGrid TEOS and University of Florida

Barbara Ann O'Leary, FutureGrid TEOS and Indiana University