Cluster Software Packages: Local Builds Supporting National Integration

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ABSTRACT

One of the goals of Campus Bridging (CB) is bidirectional interoperability – making it easier for users from local campuses to get to/from XSEDE and for campus resources to participate in national cyberinfrastructure created by XSEDE. To meet this goal, we are producing a combination of software tools and documentation to make it straightforward for local cluster admins to make their local cluster act as a "basic XSEDE cluster." Admins will be able to use a Rocks Rolls distributed by CB to build/re-build a cluster from scratch. For campuses that already have a cluster installed, the CB team will provide software packages and Puppet and Cobbler configuration management details that allows an existing cluster to install software that allows for closer integration with XSEDE. Open source/free-to-use software packages will be stored in a repository at software.xsede.org. RPMs will be released on an as-needed basis to allow clusters of either type to be updated and new software added as needed. Plans for this project, including a definition of the software stack that comprises the "basic XSEDE cluster," are published online at http://hdl.handle.net/2022/15459. The current list of software packages for Campus Bridging is over 80 packages, including a single compiler (GCC), scheduler (TORQUE/Moab), and MPI implementation (Open MPI). Scientific software includes packages for mathematical science, nanotechnology, performance analysis, genomics, and Fast Fourier transforms. The CB team will be responsible for testing the installation packages with a test plan approved by XSEDE Software Development and Implementation (SD&I). Rocks Rolls distributions will be released by the summer of 2013 and future work will consist of selecting additional packages, and creating documentation and training sessions for implementing the CB Rocks Rolls on campus resources.

Categories and Subject Descriptors

D.2 Software Engineering

General Terms

Design, Documentation, Human Factors, Standardization

Keywords

Campus Bridging, cyberinfrastructure, interoperability, software packages, usability