

XSEDE

Extreme Science and Engineering
Discovery Environment

Initiatives for Campus Cyberinfrastructure Providers

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Oct 15, 2018

University of Michigan MICDE Symposium

Cyberinfrastructure Resource Integration

- Translates best practices from national centers to campus CI providers
- Set of toolkits that provide extensive capabilities and ease of implementation on campus
- Consulting services for those looking to adopt
- Support and coordination for membership in the XSEDE Federation

Toolkits

- XSEDE Compatible Basic Cluster – OpenHPC cluster implementation with scheduler (slurm), openmpi, scientific software
- Monitoring and analysis toolkit for campus clusters
- XSEDE National Integration Toolkit – Scientific software packages, configurable installation path
- Virtual Cluster Toolkit – install a cluster within OpenStack cloud

Consulting and support

- Site visits for campus cluster implementations
- Building community of campus CI implementers to support each other
- Service Provider forum assistance with integration with the XSEDE Federation


Impacts and future work

- 7 clusters, soon to be 8, implemented through our site visits
- Over 700 TeraFLOPS of computing using the clustering toolkit
- Site visit supported creation of a data analytics program at Bentley University <http://bit.ly/xsede-ba>
- Toolkits in planning: Campus Gateway implementation, Guidelines for OpenStack implementation

Campus Compute Cooperative



Use Case

- ▶ Campuses make varying investments in cyberinfrastructure
 - ▶ Sharing resources in a cooperative model allows for cross-campus utilization
 - ▶ Campus Compute Cooperative provides utilities for sharing resources across campuses
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Implementation

- ▶ Common resource and job description format
- ▶ No administrator privileges needed, just local user with access to queues
- ▶ Capability for staging data in and out for execution
- ▶ <http://genesis2.virginia.edu/wiki/Main/HomePage> for details

Current Progress

- ▶ Cross-Campus grid centered at University of Virginia
 - ▶ Draft Memorandum of Understanding between current co-op members
 - ▶ Exchange rates sheet for between-resources sharing
 - ▶ Online demo being scheduled for end of October/first week November
 - ▶ Contact me or grimshaw@virginia.edu for details
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