XSEDE Cyberinfrastructure Integration (XCI) Area Overview - XAB Meeting

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XSEDE Proposal - XCI Related Goals

- Advance and Sustain e-infrastructure
- XSEDE aims to be a connector of cyberinfrastructure (CI) resources, software, and services that enable collaborations to seamlessly access advanced computing resources and share data.

XCI Mission

- To facilitate interaction, sharing and compatibility of all relevant software and related services across the national CI community building on and improving on the foundational efforts of XSEDE. … including seamlessly integrating new CI resources supported by XSEDE and CI resources located on campuses throughout the US.
XCI Activities Overview

- Identify and Prioritize Needs
  - Use Cases
  - Software Partners

- Operational CI
- Prepare Solutions
  - CI Providers

- CI Users
- CI Providers

Process
XCI Provided Capabilities (in blue)

Enterprise Services

- User Portal
- Security Services
- Login Services
- Data Services
- Information Services
- Accounting Service
- Monitoring Services

Service Provider Resources

- Description & Status
- Execution
- Login
- Data Movement
- Accounting & Allocations

XSEDE Federation

Common User Environment
RACD Subteam Focus Areas

- **Requirements analysis**
  - Maintaining the Use Case Registry
  - Coordinating the prioritization process

- **Software delivery**
  - In coordination with partners and vendors
  - Deliver software to Service Providers
  - Deliver XSEDE Enterprise Services

- **Software evaluations and testing**
  - Evaluate potential new components
  - Quality assurance testing before components are delivered

- **Support and maintain**
  - Security and bug fixes
  - Enhancements
  - Operator and user support
RACD Subteam Current Efforts

- Coordinate Web SSO rollout
- New Research Software Portal
  - Many embedded features
- New Kepler Workflow Service
- Globus toolkit replacement
  - Globus Auth based SSH login
  - Globus Connect V5 data access endpoint
- Evaluations:
  - Metadata based data discovery
  - Group management capabilities
- Resource Description Repository improvements
- Adopting common approaches to federated access across cyber infrastructures
- Instrumenting for usage tracking in support of ROI analysis
XCRI Subteam Focus Areas

- **Service Provider Coordination**
  - Coordinate SP Meetings
  - Ensure SP deployment of XSEDE Software stack
  - Get input on SP needs and requirements for CI support

- **Software Toolkits**
  - Evaluate potential new components
  - Create toolkits for a variety of CI needs at local campuses
    - Easing access to CI by enabling XSEDE-like environments at a local level
  - Provide on-site and remote consultations for new-to-CI institutions
  - Provide training and workshops in CI administration

- **Support and maintain**
  - Updates, evolving features, and bugfixes to Toolkit stack
  - Maintain a user community of collaborating institutions
  - Engage with new and existing XCRI partners in the Requirements -> Solutions cycle
XCRI Software Toolkits

- **XCBC**
  - Build an XSEDE-like Basic Cluster based on OpenHPC

- **XNIT**
  - Get open-source scientific software

- **Globus Connect Server configuration management**
  - Easily set up a local globus connect server using Ansible

- **Jetstream Virtual Clusters**
  - Build an elastic cluster in the Jetstream cloud, with Openstack and Ansible

- **Cluster Monitoring Toolkit**
  - Easily set up Ganglia and XDMoD for cluster load and usage statistics