Case Study:
XSEDE Leverages Globus Nexus for Identity and Group Management

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XSEDE

Extreme Science and Engineering Discovery Environment

globus®

What is XSEDE?

- **NSF cyberinfrastructure for research and engineering community**

- **Used by 10,000s of researchers**

- **16 computing, data, and visualization resources**

- **Integrated via common set of services**

- **Leveraged by many applications and science gateways**

What is Globus?

- **Research data management as a service**
  - Big data transfer, sharing, publication, discovery
  - Evolution of 20 years of research services

- **Provided by University of Chicago**

- **Professional team and technology**

- **Sustainability model**
  - Subscriptions for support and premium services

- **And…**
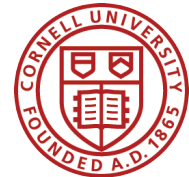
XSEDE Identity & Access Use Cases

https://www.xsede.org/web/guest/project-documents-archive

- **Single sign-on to all XSEDE services**
- **Integration between XSEDE services**
- **Use of federated identities for SSO**
- **Can be leveraged by and integrated with science gateways and campuses**
- **Common groups across XSEDE services ecosystem**

XSEDE user identity functions

- **Create an identity**
- **Manage the identity profile**
- **Add and verify an email address**
- **Link to a federated identity**
- **Reset password**
- **Disable one's own identity**
- **Disable and enable an identity**

XSEDE group functions

- **Create a group**

- **Manage the group profile**

- **Manage group membership and assign member roles**

- **Invite members to a group**

- **Request membership in a group**

- **Disable and enable a group**

- **Delete a group**

- **List groups in which one is a member**

- **View a group profile**

XSEDE Authentication & Authorization

- **Obtain credentials of a particular type (e.g., OAuth2) from an XSEDE identity provider**

- **Use [OAuth2] credentials to authenticate with a relying party**

- **Delegate a credential to a relying party**

- **Use a credential to make an authorization decision**

- **Use a delegated credential to access another service on user's behalf**

- **Use a group in an authorization policy**

XSEDE Build vs Buy

- **Supports XSEDE use cases**
- **Plays well with XSEDE model**
- **Leverage (modern web) standards**
- **Sustainable**

Globus Nexus platform

- **(Almost) meets XSEDE criteria**
- **Provides identity and access broker:**
  - Broker use of federated identities
  - Group management (and federation)
  - Profile management (and federation)
  - Authorization consent manager
- **Currently used by:**
  - Globus: transfer, sharing, genomics, publication
  - 3rd parties: KBase, CI/OSG Connect, ESGF, …

Approach

- **Enhance Globus Nexus to not require a Globus username & password**

- **Extend XSEDE IdP to integrate well with Globus Nexus**

- **Add WS-Trust STS w/ SAML gateway**

- **Integrate user-facing XSEDE services with Nexus authentication (e.g., XUP, GFFS, …)**

- **Integrate XSEDE services with Globus groups**

- **Open Globus Nexus for use by other services**

- **Continued evolution of Globus benefits XSEDE**

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