XSEDE Capability Delivery Plan
RC-02: Manage usage within an allocation
Last revised Thu November 30th, 2017

Background

Use cases describe community needs, requirements, and recommendations for improvements to cyberinfrastructure "CI" resources and services. A Capability Delivery Plan "CDP" is an executive summary of use case support gaps, of plans to fill those gaps with new or enhanced capabilities, and of existing operational components that already support aspects of a use case.

Use Case Summary

A **researcher**, **campus champion**, or **educator** needs to manage the use of the resources in an XSEDE allocation by individual project members. The researcher/champion/educator (hereafter referred to as the *project manager*) has registered with XSEDE, already has an approved and active allocation, and has already added other people to the allocation project. The allocation will frequently be a community allocation (researchers and campus champions) or an education allocation (educators), but it could be any kind.

Use case document(s): https://software.xsede.org/use-case/rc-02.

CDP Summary

The functionality described in this use case is partially supported by the operational components listed below.

Gap(s) that we currently plan to address:
- Manage usage within an allocation

Gap(s) that will not be addressed at this time:
- As with all accounting directives between XSEDE central accounting and Site Providers, the effect in practice depends on local Site Provider actions and responsiveness. This CDP defines a process sufficient to achieve the desired outcome centrally, but does not provide any guarantees or Service Level Agreements on the part of Site Providers.

Time and effort summary:
- 8 total person weeks to Manage usage within an allocation
  - 4 person weeks for setting up the XUP User Interface – this includes both the user interface informing the user of the limit set, and the admin interface for PI/co-PI/AM to set limits for users.
  - 2 person weeks to enhance the XDCDB to accomodate account limits, including activating and inactivating user accounts

- ○ 1 person week for documentation
- ○ 1 person weeks for end-to-end testing

Functionality Gaps

1. RC-02 Manage usage within an allocation

RC-02 describes the process by which XSEDE project managers can set limits to user allocations, through the User Portal.

Plans:
- The XUP needs a UI accessible to PIs, Co-PIs, or Allocation Managers, to set per-user limits or percentage limits. This UI could be simple or complex, with lots of options for setting values for all/some/one user(s) and/or all/some/one resource(s). Whether any limit needs to be applied to storage resources should be discussed.
- There will need to be a way to display the limits to the end user and warn the user when they are approaching the limit. Site Providers are expected to notify users when they have reached their limit.
- The data entered in the UI needs to be communicated to the XDCDB (XSEDE Central Database).
- The XDCDB records the per-user limits for the appropriate allocation. These limits may be stored only in the XDCDB (easy), or communicated to affected Site Providers (difficult, since this requires changes to AMIE packet structure and protocol; also, not clear if local Site Provider accounting systems can accommodate user-based limits).
- There will need to be a mechanism by which the XDCDB inactivates accounts and can identify the reason to do so: account limit exceeded, project inactivated, etc.
- As usage records (NPUs) come in from Site Providers, a mechanism checks for per-user limits being exceeded. This requires appropriate triggers to be implemented, or a cron job that looks for any overuse and in that case it inactivates the account (easy).
- When the per-user limit is exceeded, the XDCDB issues a RAI (Request Account Inactivate) to the affected SP. A RAI packet may include an overuse reason.
- The Site Provider will need to inactivate the account on the specified project to enforce the exceeded limit. This is handled on a per-Site Provider basis. Enforcing the limits can only be done by the Site Providers; the XDCDB can only communicate status changes or advise on the account limits set by the PIs.
- Several actions may cause the user account to be reactivated: Supplements, Transfers (in the case of percentage limits) or increases to the per-user limit by the PI (for fixed SU limits). For such cases, a RAR (Request Account Reactivate) packet will be sent to the affected SP to reactivate a user.
- If/when allocations on a project are renewed, per-user limits are reset to the default (none specified) until set by the PI. (Fixed SU limits may not be meaningful for the new allocation amounts; percentage limits could conceivably be carried forward with additional development effort.)

System Components That Support This Use Case

The following XSEDE operational components currently support this use case:

Component	Supported Functionality
AMIE	The Accounting and Account Management (AMIE) system provides account information exchange between the XSEDE Central Database (XDCDB) and the different Site Providers' local accounting systems
XDCDB	The XSEDE Central Database stores projects allocations and their user accounts. It exchanges AMIE packets with the different Site Providers to manage these allocations centrally and locally.
XUP	The XSEDE User Portal (XUP) provides the interfaces for managing accounts and allocations.