XSEDE
Service Provider Integration
Use Cases

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Version 1.5

This document outlines the XSEDE system features that allow Service Providers (SPs) to integrate their resources with the rest of the XSEDE system. XSEDE defines SPs as “autonomous entities that agree to coordinate with XSEDE and each other to varying degrees.” [1] The use cases in this document describe some of the ways this coordination happens.

SPI-01: Resource integration console

An **XSEDE SP representative** wants to access a console that allows him/her to view the up-to-date status of all XSEDE system integration steps for a specific resource. If authorized, he/she will also be able to change the status for any integration step.

In most cases, the **XSEDE SP representative** wants to experience it like the following steps. We assume that the SP representative has already established an XSEDE identity and has been authorized by XSEDE personnel to view (and possibly manage) the integration console for one or more resources.

1. First, the SP representative opens a web browser and navigates to XSEDE’s Service Provider management site.
2. Then, if the SP representative isn’t already authenticated with XSEDE, the representative clicks the “login” link (or equivalent) and authenticates to XSEDE.
3. Then, the SP representative selects the resource of interest from a list.
4. Then, the SP representative views a dashboard-style display that shows all required and optional system integration steps for the resource, including the current status for each. If the SP representative is authorized to manage the console, an “Edit” link is displayed next to each step.
5. Finally, if the SP representative clicks an “Edit” link, he/she will be presented with a user interface to edit the status details for that step. The details of the user interface will vary depending on what choices are available to the SP for the given step.

It’ll always be like that, except when the SP representative hasn’t previously associated him/herself with the resource, in which case Step 3 won’t list the resource. The representative will need to click “Add a resource” or something like that to file a request to associate his/her identity with the resource, and the request will be submitted for approval by XSEDE staff.

If the SP representative has never associated him/herself with any SP resource, the SP management site may not allow him/her to access the site in Step 2. In this case, the representative will need to submit an XSEDE help desk ticket requesting access to the SP management site.

We’ll take any solution, as long as the following are true.

1. Step 2 should follow a normal XSEDE authentication process.
2. The integration steps displayed in Step 4 should be based on an official/canonical set of steps for all resources, though it can be customized for the specific resource and the current status of the resource. E.g., there might be different steps for different classes of resources (e.g., storage vs. HPC vs. cloud), different SP levels (L1, L2, L3, etc.), and previous decisions entered into the system about the resource (e.g., accepting or declining optional integration steps).
3. In Steps 4 and 5, the interface should provide links for further information/actions for each integration step. E.g., description, documentation, registry data, decisions that need to be made.

SPI-02: Guided resource discovery

XSEDE **users** and **staff** need guided resource information exploration in order to identify or select resources appropriate for tasks to be described in allocation requests. This guided resource discovery will likely be useful for other resource selection needs.

In most cases, **users** and **staff** want to experience it as follows.

1. First, the user opens a web browser and navigates to XSEDE’s resource information pages.
2. The user is presented with a default/initial description of available resources.
3. Then, the user iteratively selects resource characteristics that they are interested in.
4. Finally, the user views a summary of the resources with the appropriate characteristics.

We’ll take any solution, as long as the following are true.

1. The resource discovery information should take advantage of all available XSEDE resource status information, including information from RDR, XCDB, Outages, and Nagios/INCA testing status.
2. The resource discovery system will not create a new source or repository of resource information, but rather provide a task-oriented UI built upon existing information sources and repositories. Improvements or additions to RDR and other resource information may be recommended, however.
3. The resource description information should be available for all XSEDE federated resources, including L1-L3 allocated and unallocated resources, tightly or loosely integrated resources, NSF funded or otherwise, and campus resources that choose to publish their resource descriptions thru XSEDE.
4. The solution should allow for iterative deployment of discovery interfaces with incremental improvements.

Initial discussions with RAS noted the following desired “Phase 1” approach to this use case:

- Updating user documentation is priority #1, and providing non-technical, allocation-related resource information (e.g., description, recommended use, startup limits) more prominently. It'd be nice to have a portal/web page with resource information before users get to XRAS.
- Listing L2 and L3 non XSEDE resources on the resource selector page would also be ideal, in case users can take advantage of these other resources.
- RDR may need to be updated with information we want there from the SPs so that the APIs that use it have access to it. SP forum would update those fields that would be more visible on documentation.

SPI-03: View resource information

A **Service Provider (SP)** or an **XSEDE staff member** needs to view all available resource description information from all available XSEDE sources. *NOTE: At the time of this document’s publication, this use case was still under active development and review by stakeholders.*

In most cases, the **SP** or **staff member** wants to experience it as follows.

1. First, the user opens a web browser and navigates to XSEDE’s Service Provider management site.
2. Then, the user selects the resource of interest from a list.
3. Finally, the user views the resulting dashboard-style view that shows all the XSEDE managed resource description information.

We’ll take any solution, as long as the following are true.

1. The resource operational status information should include all available XSEDE resource status information, including information from RDR, XDCDB, Outages, and Nagios/INCA testing status.
2. The resource description information should be available for all XSEDE federated resources, including L1-3 allocated and unallocated resources, tightly or loosely integrated resources, NSF

funded or otherwise, and campus resources that choose to publish their resource descriptions thru XSEDE.

SPI-04: Access resource information from an application

An **application developer** needs to add a feature to an application that retrieves and displays up-to-date description and status information about an XSEDE resource from all available XSEDE sources.

In most cases, the **developer** wants to experience it as follows.

1. First, the developer accesses XSEDE's online information services documentation and locates the material describing application programmer interfaces (APIs) for resource information.
2. Then, the developer uses one of the documented APIs to add resource information to his/her application, configuring the information retrieved and displayed to the application's needs.
3. Finally, the users of the application view the resulting resource information while using the application.

We'll take any solution, as long as the following are true.

1. The API should enable applications to retrieve information in a web browser format (for direct inclusion in websites) or in machine readable form (for application processing).
2. The API should allow the developer to customize the information details to be retrieved and (for web browser formats) how the details are displayed.
3. The API should enable applications to retrieve (and optionally display) all available XSEDE resource description and status information, including information from RDR, XCDB, Outages, and Nagios/INCA testing status.
4. The API should enable applications to retrieve information about any XSEDE resource, including Levels 1-3 resources, both allocated and unallocated resources, tightly or loosely integrated resources, NSF-funded or otherwise, and campus resources that choose to publish resource information thru XSEDE.

SPI-05: Active account information

An **XSEDE staff member** needs to obtain a list of all resources and services on which a specific XSEDE user identity has an active account. (Examples: an XSEDE operational security team member is responding to an account compromise, or an XSEDE help desk team member is assisting an XSEDE user with logging into a resource.)

In most cases, the **staff member** wants to experience it as follows. We assume that the staff member has already established an XSEDE identity and has been authorized by XSEDE personnel to access the relevant interfaces.

1. First, the staff member accesses an information interface either via a remote login session or a web interface.

2. Then, the staff member enters a username. (This may be an XSEDE username or a local username on an SP resource.)
3. Finally, the staff member is shown a list of XSEDE usernames and, for each XSEDE username, the resources and/or services on which the user has an active account, along with any resource-specific identity information (e.g., local username). (Matches may be in the XSEDE username itself or in the local username on a resource.)

We'll take any solution, as long as Step 1 requires the staff member to authenticate him or herself to the system and access is permitted only to authorized individuals.

SPI-06: Emergency account suspension

While responding to an account compromise, an **XSEDE operational security team member** needs to temporarily prevent a specific XSEDE user account from being used on XSEDE resources and services.

In most cases, the **XSEDE operational security team member** wants to experience it as follows. We assume that the team member has already established an XSEDE identity and has been authorized by XSEDE personnel to access the relevant interfaces.

1. First, the team member accesses an interface either via a remote login session or a web interface.
2. Then, the team member issues a suspend request on one or more XSEDE usernames.
3. Finally, the team member is shown a list of the specific resources and services where the account is known to be active and the status of the suspend request for each resource and service.

We'll take any solution, as long as the following are true.

1. Step 1 requires the team member to authenticate him or herself to the system and access is permitted only to authorized individuals.
2. When Step 2 is completed, the system must be able to take different actions for each resource or service, depending on the various agreements between the service provider (SP) and XSEDE. For example, some SPs may give XSEDE a mechanism to deactivate their local accounts, while others may require XSEDE to submit a request that is acted on by SP personnel.
3. The information display in Step 3 must accurately reflect the action taken for each resource or service. (E.g., the account was disabled, a suspension request was submitted to the SP, no action was taken, etc.)

SPI-07: Enable a research community to install software or data on a resource

A **service provider** wants to enable research communities to install software and/or data on a resource they administer so that the software/data can be used by the community. The XSEDE-specific need is to have a way to populate the XSEDE website with resource-specific instructions that XSEDE researchers can find and follow. The resource has already been integrated with the XSEDE system.

In most cases, the **service provider** wants to experience it as follows.

1. First, the service provider opens a web browser and navigates to the resource integration console for his/her resource. (See use case SPI-01.)
2. Then, the service provider opens the "Community Software Area" (CSA) interface within the console and is presented with a brief overview of how most XSEDE resources offer this capability to their users and an interface for managing public information about the resource's CSA.
3. The service provider can use the interface to indicate that the resource offers a CSA and to provide specific instructions for researchers who wish to install software or data on the resource.
4. The researcher can use the interface to add information about a specific software tool or data collection that has been installed by a researcher for his/her community.
5. Finally, any data entered in the console will appear on the XSEDE public website.

We'll take any solution, as long as…

1. In Step 2, the overview text has been provided by a representative of the SP forum and accurately reflects current practices by service providers.
2. In Step 3, the CSA availability indicator is a binary "yes" or "no," but the instructions should be entirely left to the service provider without prescribed format or structure. (In practice, the instructions could be used by a service provider to explain how the resource's CSA differs from other CSAs.)
3. In Step 4, the interface should require enough structure in the data to ensure that researchers searching for a specific software tool or data collection will find a copy on this resource if it exists.
4. In Step 5, the service provider should be able to see how the new data appears on the public site before moving on to other work. This implies that data entered via the resource integration console should appear on the XSEDE public website as soon as possible: immediately would be best, but not longer than a few hours.

SPI-08: Register availability of a specific application or service for use

A service provider or science gateway operator (hereafter referred to as **"service provider"**) needs to advertise an application or service they make available for use as part of a resource or gateway. We assume that the service provider's resource or gateway has already been registered with the system and the service provider is registered as one of its administrators (see SPI-01).

In most cases, the **service provider** wants to experience it as follows.

1. First, the service provider opens a web browser and logs in to the service provider management site.

2. Then, the service provider selects the resource of interest from a list of resources he or she administers.
3. Then, the service provider selects an option to manage the list of software and services offered by the resource.
4. Finally, the service provider uses the interface to add, remove, or change the configuration of the application or service on her resource or gateway.

It will always be like this, except when, in Step 4, the software or service to be registered hasn't been added to the system yet. In this case, the interface must allow the service provider to add it.

We'll accept any solution as long as in Step 1, the service provider management site must use XSEDE's standard web authentication mechanism.

References

[1] https://www.xsede.org/xsede-federation

History

	Version	Date	Changes	Author
Entire document	1.0	5/18/2017	First version, described use cases (01-06)	Liming, Navarro
Entire document	1.1	6/22/2017	Minor edits based on feedback	Liming
Use cases 07-08	1.5	8/17/2018	Added use cases 07 and 08	Liming