Steps needed to bring SURAgrid to an Operational State

Philip Smith, Alan Sill and Jerry Perez
Texas Tech University

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Purpose: The purpose of this document is to outline the steps needed to allow SURAgrid members to implement an operational SURAgrid regional grid, and to bring it into production.

Scope: The scope of this document is to describe technical steps required to bring SURAgrid into production as an operational facility. The focus is on implementing pieces already in hand, with minimal extra effort to achieve a functioning operational state. The document is organized as a list of components needed, followed by specific steps, roles and responsibilities that are needed to go into production.

Project components needed for operational production:

- An up to date software infrastructure stack built to conform to the feature requests of the SURAgrid software requirements document, installable and easy to configure even for relative newcomers. Go to the following link to begin the installation process: http://omnius.hpcc.ttu.edu/suragrid/SURAgrid.pacman.

- For a step-by-step set of instructions for installing the stack, please go to: http://omnius.hpcc.ttu.edu/suragrid/SURAgrid_Stack.htm

- A stable SURAgrid central Certificate Authority accessible to all SURA members whether or not they are running a CA of their own and (optionally) associating it with the bridged infrastructure. Another goal here is to have a common, well-managed, central method of obtaining certificates in a secure way while pursuing the larger goals of the 2-tier PKI, InCommon, and/or Shibboleth integration.

- At least one designated SURAgrid administrator is needed at each institution. This should be someone who is familiar with the operation, management, configuration and usage of the SURAgrid resource or resources at that institution. These SURAgrid administrators should meet periodically either by phone/video or in person (perhaps as a session at or extra day or half-day attached to the periodic SURA face-to-face meetings, or on their own).

- A bug tracking system, complete enough to include contact information for all SURAgrid administrators and for the partners, developers and upstream software component suppliers so that problems can be appropriately categorized forwarded and assigned. This responsibility should be shared with one volunteer site and one SURAgrid staff representative. One such system is Footprints: http://www.numarasoftware.com/default.aspx

- An operational support group committed to responding quickly to problems, trouble reports, and to requests for help in installation or operation of the SURAgrid infrastructure. Its purpose is to respond to operational issues and to keep close track on a daily basis of the operations and proper functioning of the SURAgrid computing and storage resources, assisted by and in close communication with the SURAgrid administrators at each institution. This group should meet daily, or at other frequent intervals by phone and/or video to assess the state of resources and to respond to any recent problems that may have occurred since the last check.

- A design group should be formed that operates independently from, but in close communication with, the operational infrastructure support group described above. Its purpose is to field requests for new features, respond to bug reports that require feature correction or software redesign, and in general be present to field such issues so as to keep them from interfering with or gumming up the operations of SURAgrid.

Steps needed to bring SURAgrid to an Operational State :

1. Update the SURAgrid packaged stack to include a version based on the newest VDT (2.0.0). This is needed to set the base conditions needed to add AIX support later, as requested by SURA from the VDT team. **Assigned to:** Texas Tech (J. Perez, A. Sill) **Status:** DONE

2. Build a SURA Certificate Authority (CA) distribution containing the base certificates from each institution, along with scripts if necessary to customize the installation at each site. **At minimum, this must include the SURAgrid central CA** or provisions for enough CAs to allow all participating institutions to obtain and use certificates. Develop a set of best practices that document the following: How does a site install and use a CA file? What is the process to obtain grid credentials? What type of policy do we use? Who physically vets participating sites and individual users at each site? What minimum criteria must each SURAgrid CA meet to be included in the distribution? **Assigned to:** Access Management group **Status:** IN PROGRESS

3. Extend the above procedure so that SURAgrid optionally can accept certificates from existing IGTF-accredited Certificate Authorities for in use at SURAgrid sites. Develop a procedure to register an existing user certificate into a central VO server. **Assigned to:** Access Management group **Status:** DONE: prototype complete. To use this, load the certificate into your web browser and visit the SURAgrid VO registration page to complete the process. Note: not all existing SURAgrid CAs meet the technical requirements to work without problems in any system of this type at this time.

4. Conduct an "install-fest" for the SURAgrid software, encouraging new institutions to join and existing institutions to update to the latest VDT-based packaged stack. This could be in the form of a one-day in-person meeting, perhaps attached to a SURA face-to-face meeting, or a virtual event by phone and/or video. Another alternative would be "installation week" in which all SURAgrid institutions are encourage to install or update to the latest software on their own, with special one-hour call-in consulting times available at various times throughout the week. **Assigned to:** SURA technical representative and the SURAgrid infrastructure and package stack groups **Status:** NOT STARTED - early planning stages

5. Initiate quarterly SURAgrid users group meetings to discuss and demonstrate active grid projects in production in SURAgrid. A participating site may host the meeting or the meeting, which can be conducted via video, phone+web, or any other multimedia meeting mechanism. The meetings should facilitate new participants with tutorials that demonstrate how to run grid jobs as well as how to prepare their code for grid execution. **Assigned to:** Texas Tech (Jerry Perez). **Status:** PLANNING

6. Schedule relatively infrequent SURAgrid review and design meetings, and complement these with frequent operations support (daily or weekly) or call-in consulting sessions. The latter of these should be focused on solving problems that keep things from running properly and can generally be kept to 15 minutes or less under normal conditions. All issues that require extensive redesign or bug fixes beyond the nature of operations should be referred to the design meetings, upstream developers, contact team or to the SURAgrid management team. **Assigned to:** SURAgrid operations group **Status:** NOT STARTED

7. Gather feedback from SURAgrid participants at frequent intervals (every few months at most) by the above mechanisms to ensure that SURAgrid resources are being properly configured and run, and are of service to the science users in the user community. This process should produce a report or document of the nature of this one (the current document you are reading). **Assigned to:** SURAgrid management team **Status:** NOT STARTED (this document is a beginning)

8. Initiate a project to support the integration of campus grids (for example, ones based on Condor or BOINC) into the SURAgrid infrastructure. This can be a distinguishing characteristic of SURAgrid, in addition to cluster support. Develop a prototype software stack that addresses how to integrate such systems into the existing SURAgrid operational production infrastructure, and produce a document

specifically oriented to the topic of integrating campus grids with a wide-area operational grid infrastructure. **Assigned to**: SURAgrid packaged stack group **Status:** NOT STARTED

Summary:

The above recommendations are those that are needed to provide the minimal subset of steps needed to bring SURAgrid into operational production. To keep this effort on track, we recommend that science users for SURAgrid be recruited, consulted and polled frequently as part of the transition to an operational state.

We suggest that this document be reviewed or a new summary be created of this nature periodically, with feedback from SURAgrid participants as mentioned above.