Open Science Grid

OSG User Support

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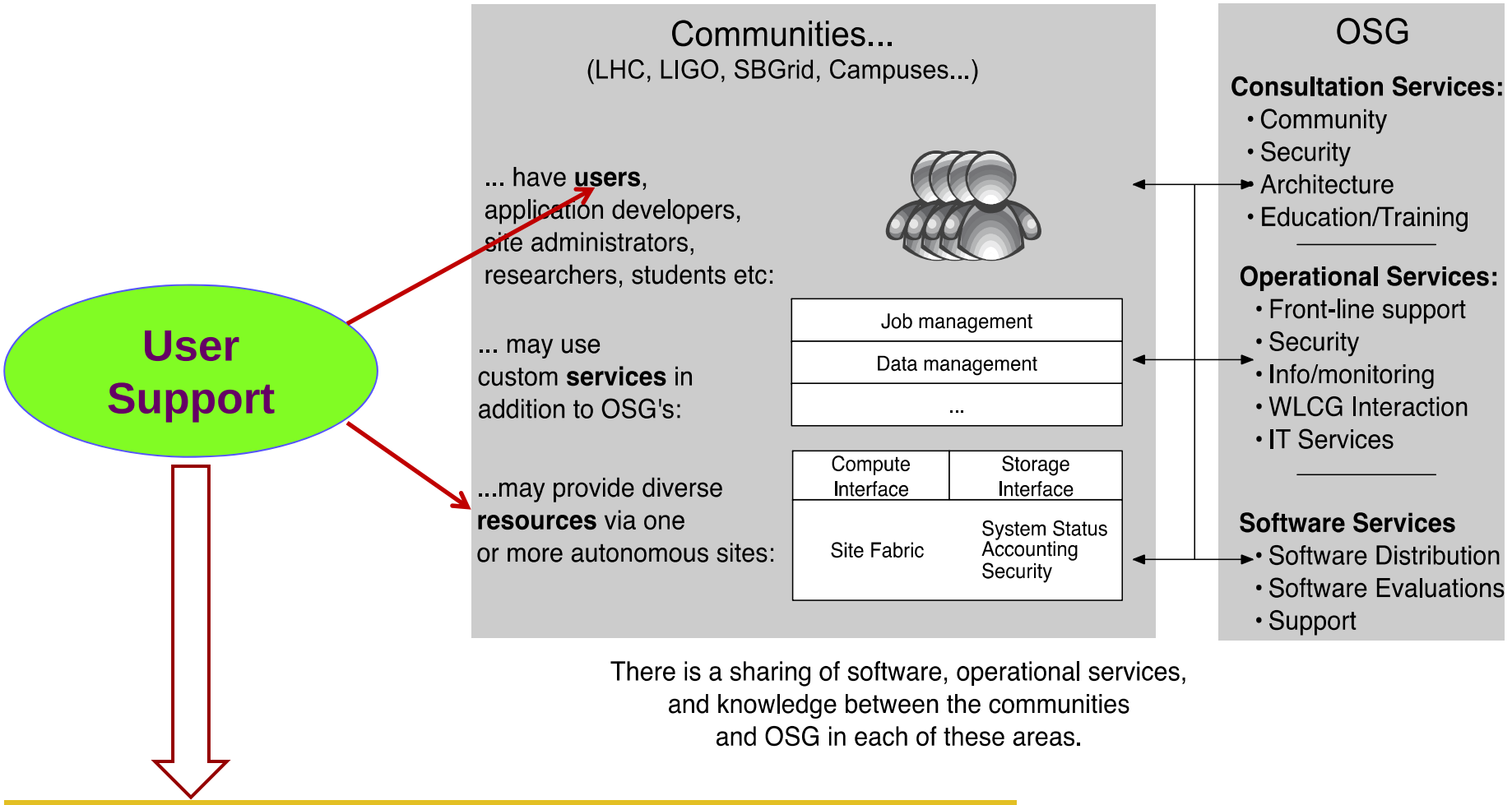
Focus of User Support

Enable new communities to quickly adopt the OSG DHTC model and to improve productivity for all VOs as OSG services and capabilities evolve

- **Research Communities ****
- **OSG as a service provider in XSEDE**
- **New Sites**
- **Supporting technologies**

*** Researcher are also supported by the distributed OSG consortium members including: GLOW/CHTC, HCC, UCSDGrid, CSIU, UC3, RENCI/Engage*

User Support in OSG



There is a sharing of software, operational services, and knowledge between the communities and OSG in each of these areas.

Contact us at user-support@opensciencegrid.org

Our Method

- Inform science communities about OSG and how best to join OSG and leverage DHTC in their own environment
- Active support for communities who want to join and use OSG
  - Understand the goals of the research community
  - Possibly embed our staff into their team for a limited period to help adapt their applications to DHTC
  - Support the community in resolving technical issues and achieving production goals
- Serve as a general entry point to OSG for information and user support

2012 Research Communities supported by User Support

Science	Researcher	Affiliation	Project Title	Hours	Team	Contact
Astronomy	Ewa Deelman, Bruce Berriman	USC ISI / NASA IPAC	Atlas of Periodicities present in the time-series data sets released by the Kepler satellite	355,382	OSG-XSEDE	Mats Rynge
Biology	Paul Wolberg	University of Michigan	Multi-scale Computational Models to study the Human Immune Response to infection with M. tuberculosis	2,836	OSG-XSEDE	Mats Rynge
Biology	Don Krieger	University of Pittsburgh	Very high resolution functional brain mapping	1,107,068	OSG-XSEDE	Mats Rynge
Civil Engineering	Andre Barbosa, Patricia Clayton	Oregon State University, University of Washington	Simulation of structures' responses to earthquakes, http://nees.org/	3,410	User-Support	Marko Slyz
Mathematics	Alexander Arlange	Rochester Institute of Technology	Ramsey Numbers R(C4,Km)	140,121	User-Support	Mats Rynge
Medicine	Martin Purschke	Brookhaven National Lab	Positron Emission Tomography (PET) at BNL, http://www.bnl.gov/pet/	1,628	User-Support	Alexandr Zaytsev
Physics	Armando Fella	SuperB experiment; CNRS–Orsay	Test jobs in preparation for designing SuperB accelerator, http://superb.infn.it/home	23,239	User-Support	Marko Slyz
Physics	Tobias Toll	Brookhaven National Lab	Electron Ion Collider (EIC) at BNL, https://wiki.bnl.gov/eic/index.php/Main_Page	612,896	User-Support	Alexandr Zaytsev
Physics	Don Petravick, Brian Yanny	NCSA & FNAL	Basic processing of DES exposures, https://cosmology.illinois.edu	129,308	User-Support	Gabriele Garzoglio
Physics	John Peterson	Purdue	Software development for LSST telescope, http://www.lsst.org/lsst/	393,597	User-Support	Gabriele Garzoglio
Physics	Robert McIntosh	University of Texas at Dallas	Global Distribution of Characteristics of Auroral Particles	49,684	OSG-XSEDE	Mats Rynge
Physics	Stefan Hoeche	SLAC	Validation and use of software for particle physics phenomenology, http://www.freacafe.de/physics/index.php	199,536	User-Support	Marko Slyz
Physics	Pran Nath	Northeastern University	Search for Beyond the Standard Model Physics at the LHC	103,679	OSG-XSEDE	Mats Rynge
			Total =	**3,122,384**		

Example #1 - NEES

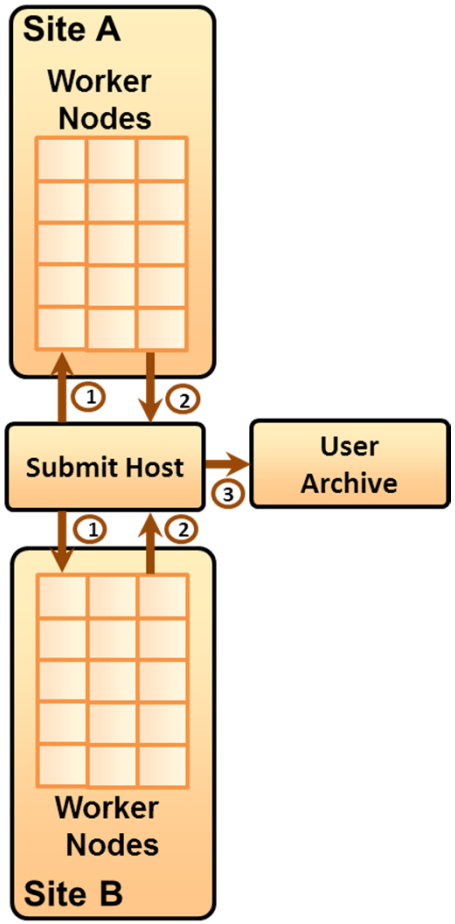
Science Goals

The Network for Earthquake Engineering Simulation (NEES) studies the response of buildings and other structures to earthquakes.

A. R. Barbosa, J. P. Conte, J. I. Restrepo, UCSD

Workflow

1. Use Condor/glideinWMS to submit the OpenSees simulation application to sites. Condor transfers input data.
2. Return the data using Condor to the submit host.
3. Use Globus Online to transfer the data to the user's archive.

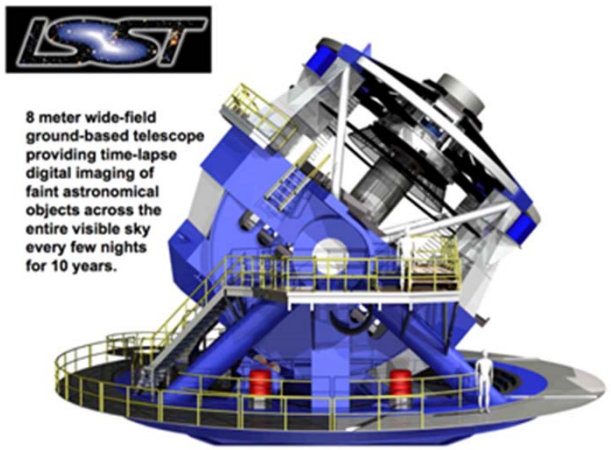


Example #2 - LSST

Science Goals

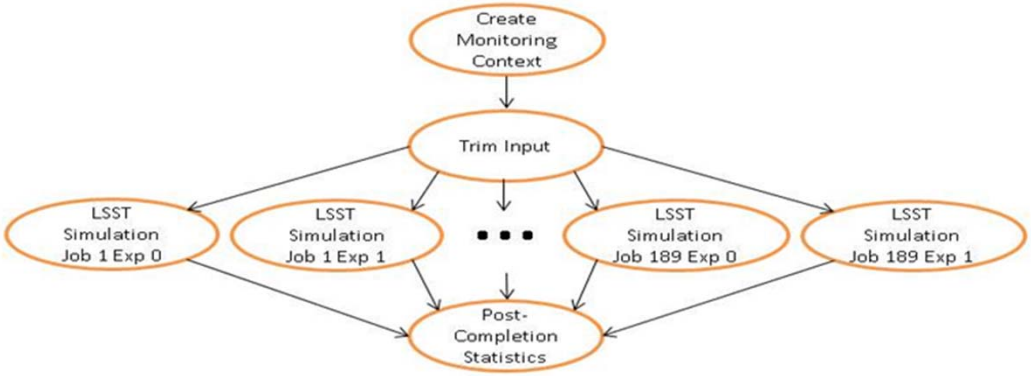
Produce simulated images for the Large Synoptic Survey Telescope (LSST) project for use in verifying the LSST software. LSST will be an 8 meter wide-field telescope that will image the entire visible sky every few nights for 10 years.

LSST Image Simulation team



Workflow

1. (Only once) Pre-stage star catalog and focal plane configuration files.
2. Submit 1 job to trim the pre-staged catalog file into 189 files, one per CCD chip in the camera.
3. Submit 2 x 189 jobs: simulate 1 image pair (same image with 2 exposures). Transfer "instance catalog" (telescope position, wind speed, etc.) with each job.
4. Gather output, perform bookkeeping, etc.



Example #3 – EIC

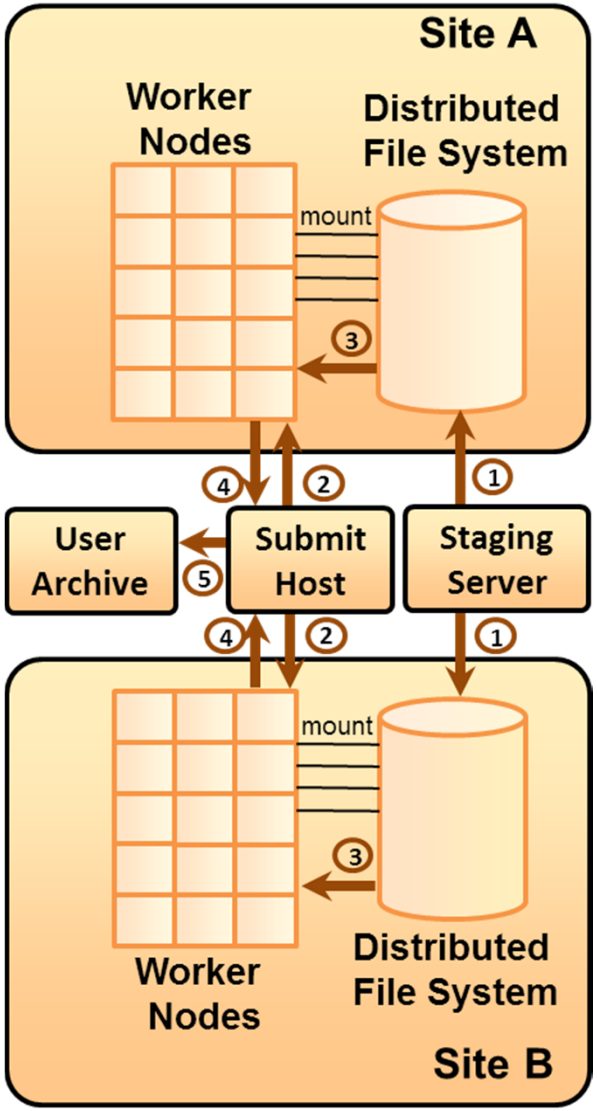
Science Goals

The Electron Ion Collider (EIC) is a proposed facility for studying the structure of nuclei. Engineers need a large amount of computations to define its design.

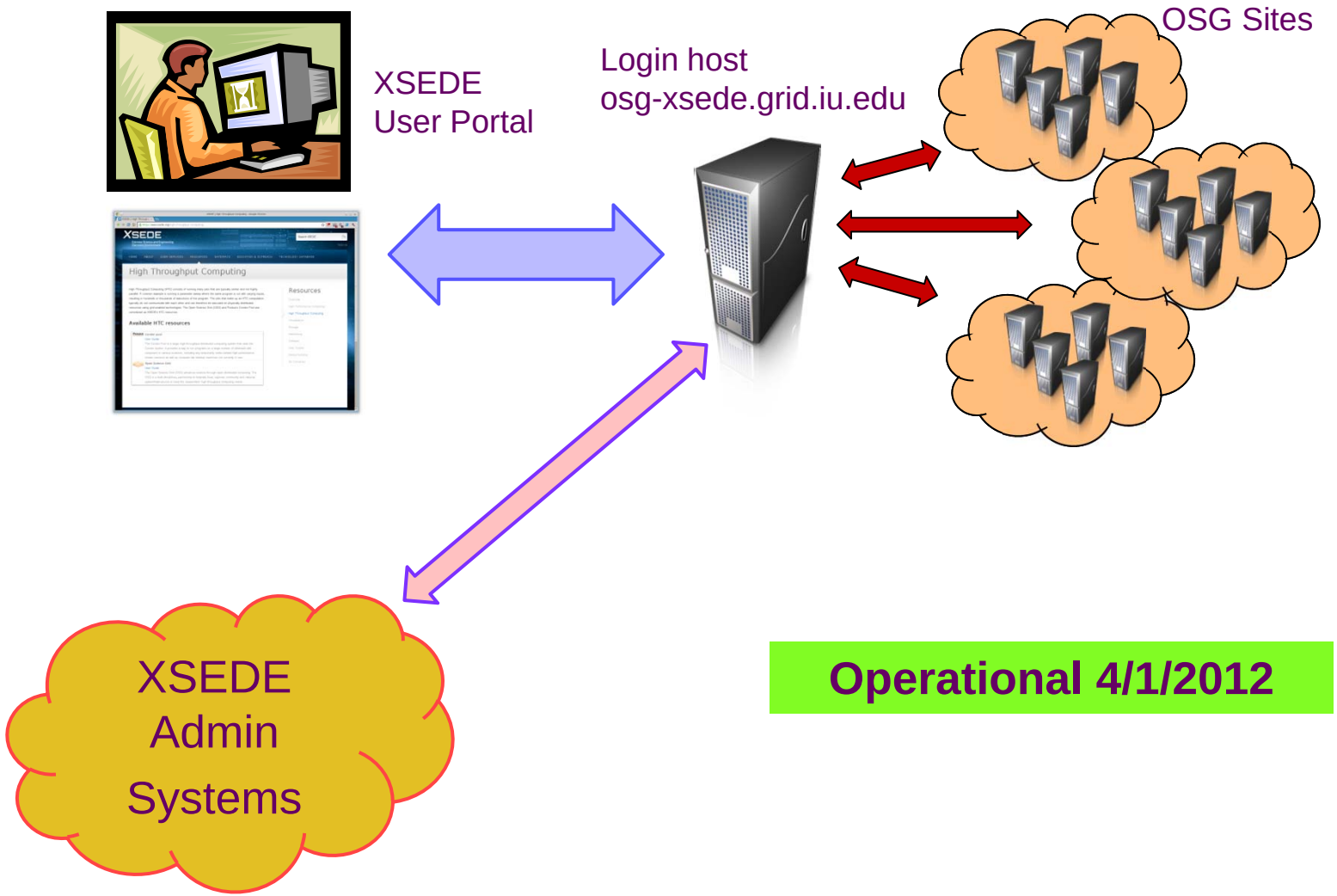
Tobias Toll, Thomas Ullrich
Brookhaven National Lab

Workflow

1. (Only once) Pre-stage a 1GB read-only file to each site. This way, that file does not need to be repeatedly transferred over the wide area network.
2. Submit the jobs to the sites with the pre-staged files. Transfer the application.
3. Jobs run and read the pre-staged files.
4. Condor transfers output data back to submit host.
5. User takes possession of the results.



OSG as an XSEDE Service Provider



Operational 4/1/2012

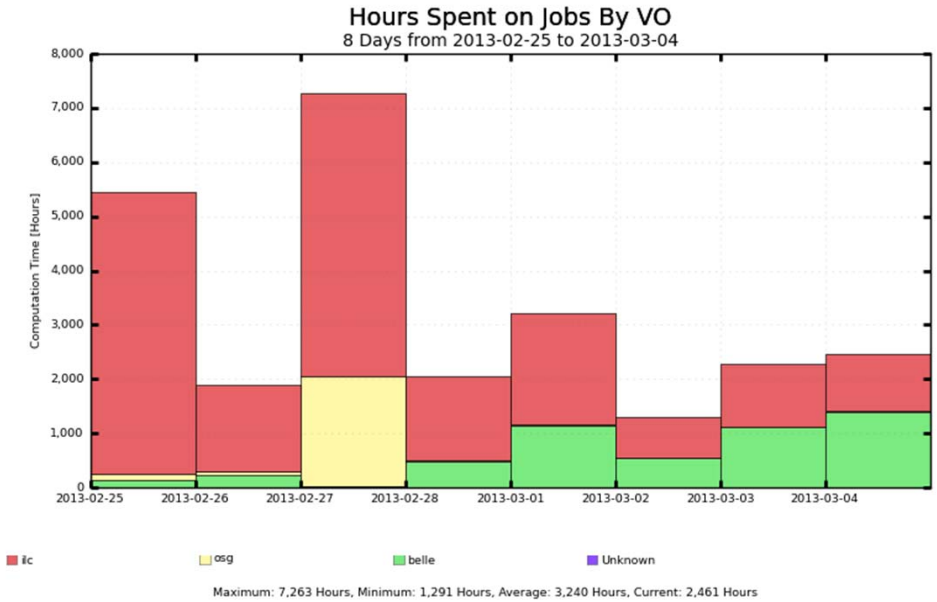
OSG/XSEDE Integration Challenges

- XSEDE is based on allocations / OSG on opportunistic use
- XSEDE has a central database with allocations and users / OSG has distributed VOs
- XSEDE users assume there is a login host for each resource
- Integration of XSEDE and OSG software stacks
- Collecting and reporting accounting data to both XSEDE and OSG

Site Support

Assist communities in connecting new resources to OSG; in collaboration with Production (Marco Mambelli)

- Pacific Northwest National Lab - Complete
- University of Maryland – Institute for Genome Sciences
- Ohio Supercomputer Center
- North Dakota State University

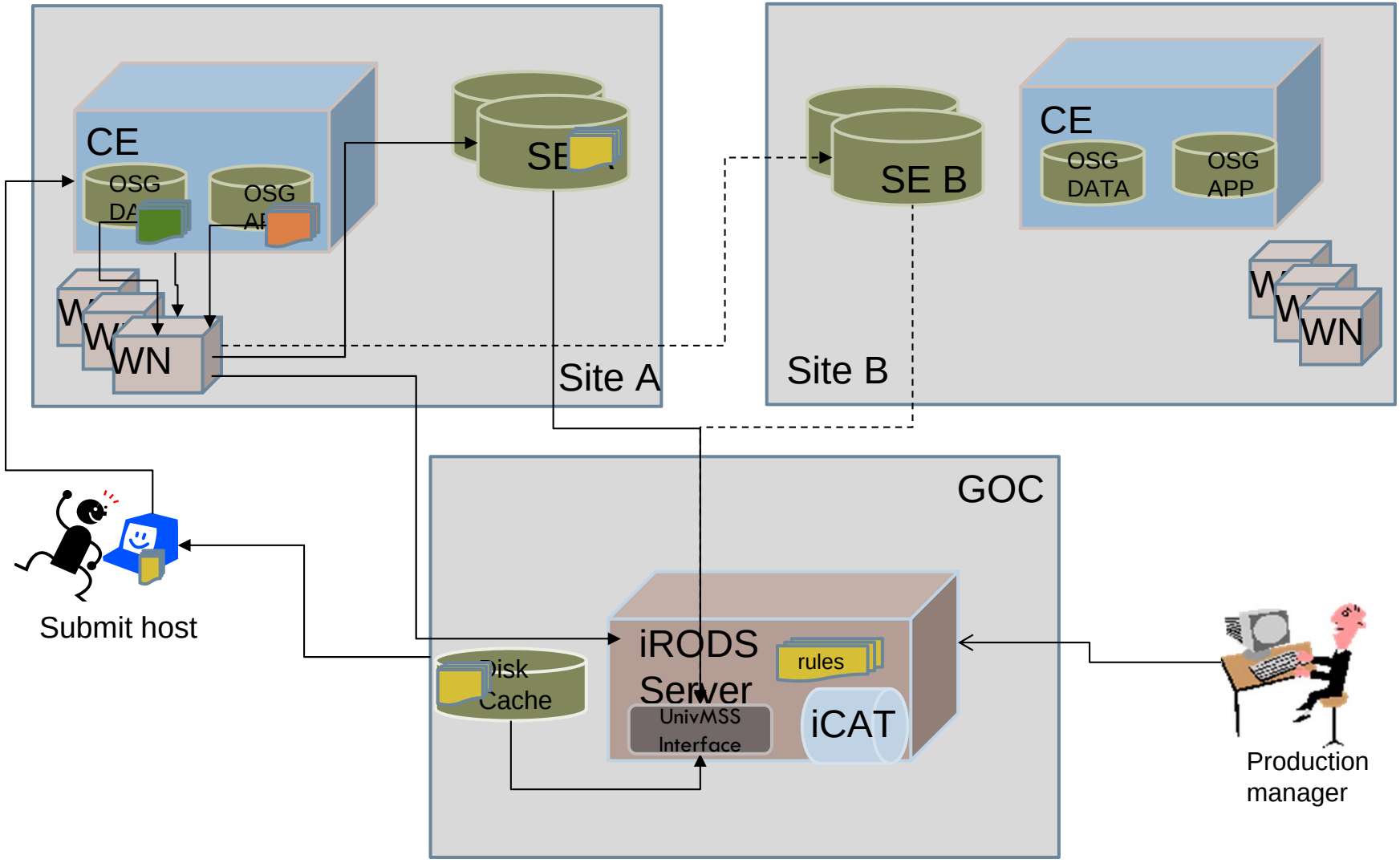


OSG Public Storage using iRODS

- Enable non-LHC VOs whose computation requires "large" data to use OSG sites more easily
- Ease the task of VO data management:
  - Providing quota management
  - Moving data and software to the sites for caching
  - Retrieving the output data from the sites
  - Providing metadata catalog

- Demonstrated for certain use cases: EIC, Pheno, SAGA
- Available as a "alpha" grade service today; working to determine next steps for the prototype

OSG Public Storage Architecture



What's Next

Continue active support of current communities and identify and assist new communities

Recently Active

- SAGA - Community portal back-end connection to OSG
- iPlant – Community portal back-end connection to OSG
- Snowmass Group – Theoretical Physics

Make it easier for researchers to leverage OSG

Initiatives

- Streamline the process of integrating new sites into OSG
- Improve the time for new VOs to be accepted at most sites
- Monitor production of VOs that use via gWMS; pro-actively identify issues; and assist VOs in resolving those issues
- Improved support for Egress (a.k.a. "flocking") from Campus Grids to OSG Production Fabric

The User Support Team

- *Gabriele Garzoglio - FNAL*
- *Tanya Levshina - FNAL*
- *Mats Rynge – USC ISI*
- *Marko Slyz - FNAL*
- *Alex Zaytsev - BNL*
- *Chander Sehgal – FNAL (Coordinator)*

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