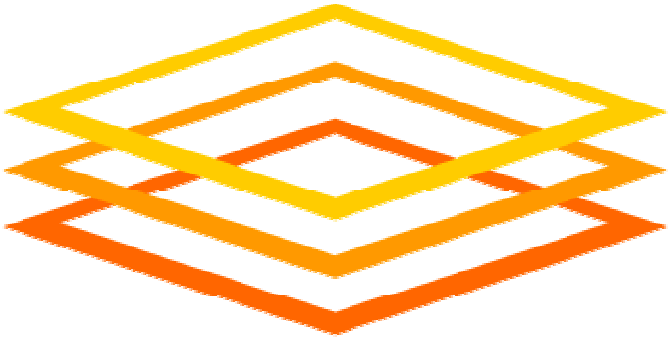


Open Science Grid

The Open Science Grid Blueprint Activity

Open Science Grid

Open Science Grid is a Consortium…

It is not a project.

Activities are where the work is done and rely on contributions from external projects and commitments of the participants.

The Participants share common goals and the vision and make things happen through their contributions.

like an Experiment Collaboration…

Of course - to get anything done need funding of the effort and the infrastructure. Currently funding is distributed through many paths in order for contributions to happen.

Open Science Grid

Common Grid Infrastructure - an evolution of Grid3 adding resources, partners, services, performance

Inclusive participation of Sites/Facilities, Users/Organizations and Technology/Service Providers to provide benefit to (large scale) Science in the US.

http://opensciencegrid.org/documents/index.html (+ Chep paper)

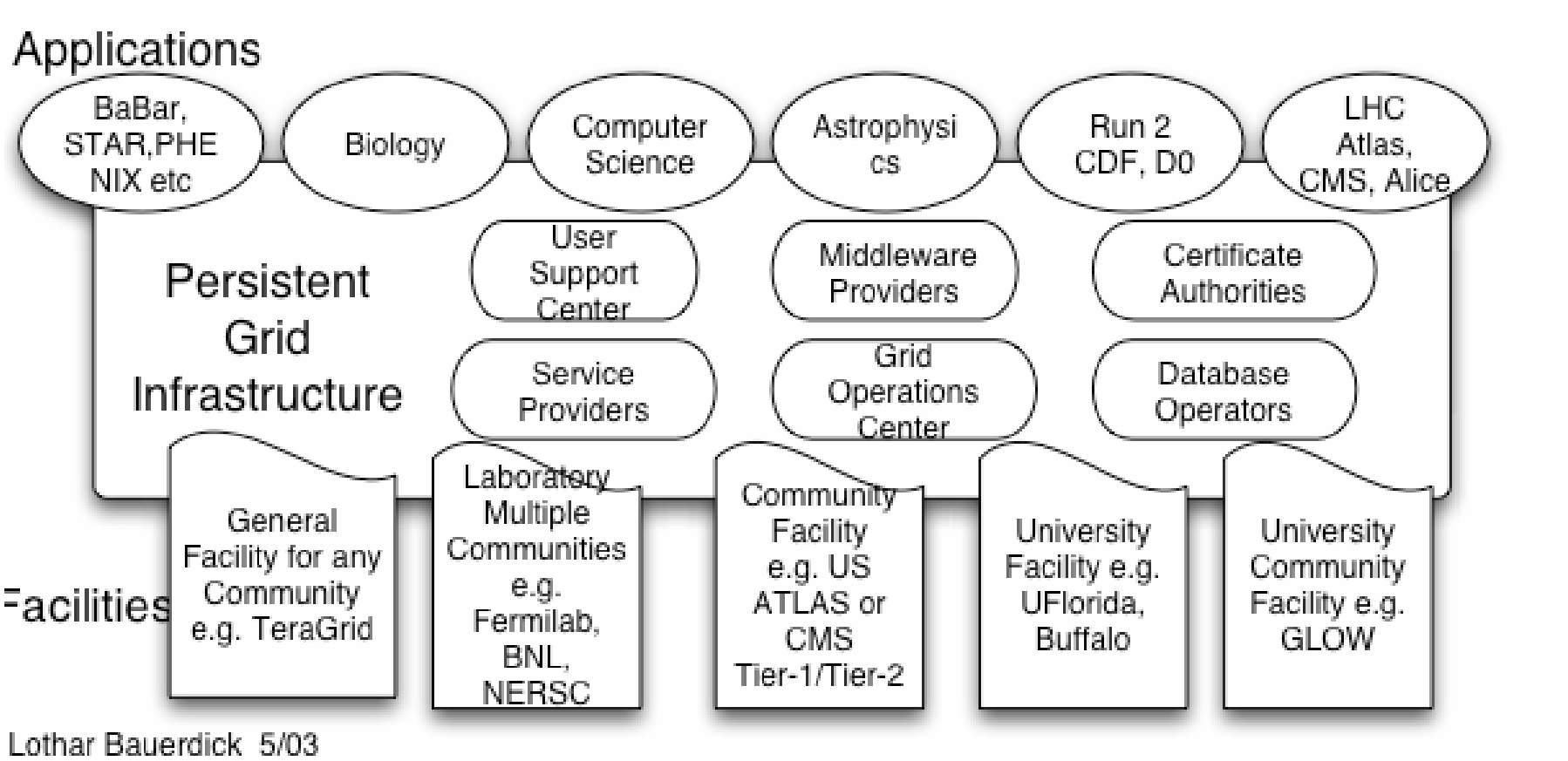
Facilities/Grids e.g. Fermilab, BNL, SLAC, LBNL, JLAB, GRASE, partner with TeraGrid

Experiments e.g. ATLAS, CMS, CDF, D0, BaBar, STAR, PHENIX, LIGO, SDSS, BTeV

Grid projects & CS Middleware providers: Trillium, NMI, Condor, Globus, VDT, Virginia Tech

Governance & Oversight from leading participants and funding sponsors

Grid3 -> OSG, Spring '05



Open Science Grid Blueprint

Guiding Principles and Roadmap

Basis for Planning a coherent technical program of work

Not the plan itself Nor a capture of decisions on technologies or implementation.

At any point in time the Blueprint is a 'snapshot'

Open Science Grid

What and Why a Blueprint….

Questions to ask and measure Designs, Architectures and Implementations

Framework to support Evolution and Advances in Technology and Methods

Method to Explore our Vision independent of Implementation

OSG in Partnership

a **NON-Goal** to have an **ARDA like Architecture or Design** Document.

a **Goal** to **understand ARDA** Architecture and Design and **comment against the Blueprint Principles**

We would like if possible to discuss 2 of these today:

Namespaces and VOs

Blueprint is not the only document to be written … of course

- There is a **Plan for Deployment** of OSG and Evolution of Grid3.
- There will be an **Operational Model**
- There will are **Performance Metrics and Goals**
- There will be a **Services and Technologies Document**

the **Blueprint Activity** is only one of many areas in which OSG is and will work with EGEE/LCG

the **Foundation** is via the **Blueprint Activity**

the **Technical Engineering** will evolve from the Blueprint via the Satellite Activities and Projects **including Deployment, Integration, Operations**

Driving Principles for OSG Infrastructure:

Simple and flexible

Built from the bottom up

Coherent but heterogeneous

Performant and persistent

Maximize eventual commonality

Principles apply end-to-end.

Open Science Grid

Example of Principle: #1 (Simple and Flexible)

The OSG architecture will follow the principles of symmetry and recursion wherever possible

This principle guides us in our approaches to

- Support for hierachies of and property inheritance of VOs.
- Federations and interoperability of grids (grids of grids).
- Treatment of policies and resources.

Example of Principle: #2 (Coherent but Heterogeneous)

The OSG architecture is VO based.

Most services are instantiated within the context of a VO.

This principle guides us in our approaches to

- Scope of namespaces & action of services.
- Definition of and services in support of an OSG-wide VO.
- No concept of “global” scope.
- Support for new and dynamic VOs should be light-weight.

Example of Principle: #3 (Built from the Bottom Up)

All services should function and operate in the local environment when disconnected from the OSG environment.

This principle guides us in our approaches to

- The Architecture of Services. E.G. Services are required to manage their own state, ensure their internal state is consistent and report their state accurately.
- Development and execution of applications in a local context, without an active connection to the distributed services.

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Examples of Principles: #4

OSG will provide baseline services and a reference implementation.

The infrastructure will support support incremental upgrades

The OSG infrastructure should have minimal impact on a Site. Services that must run with superuser privileges will be minimized

Users are not required to interact directly with resource providers.

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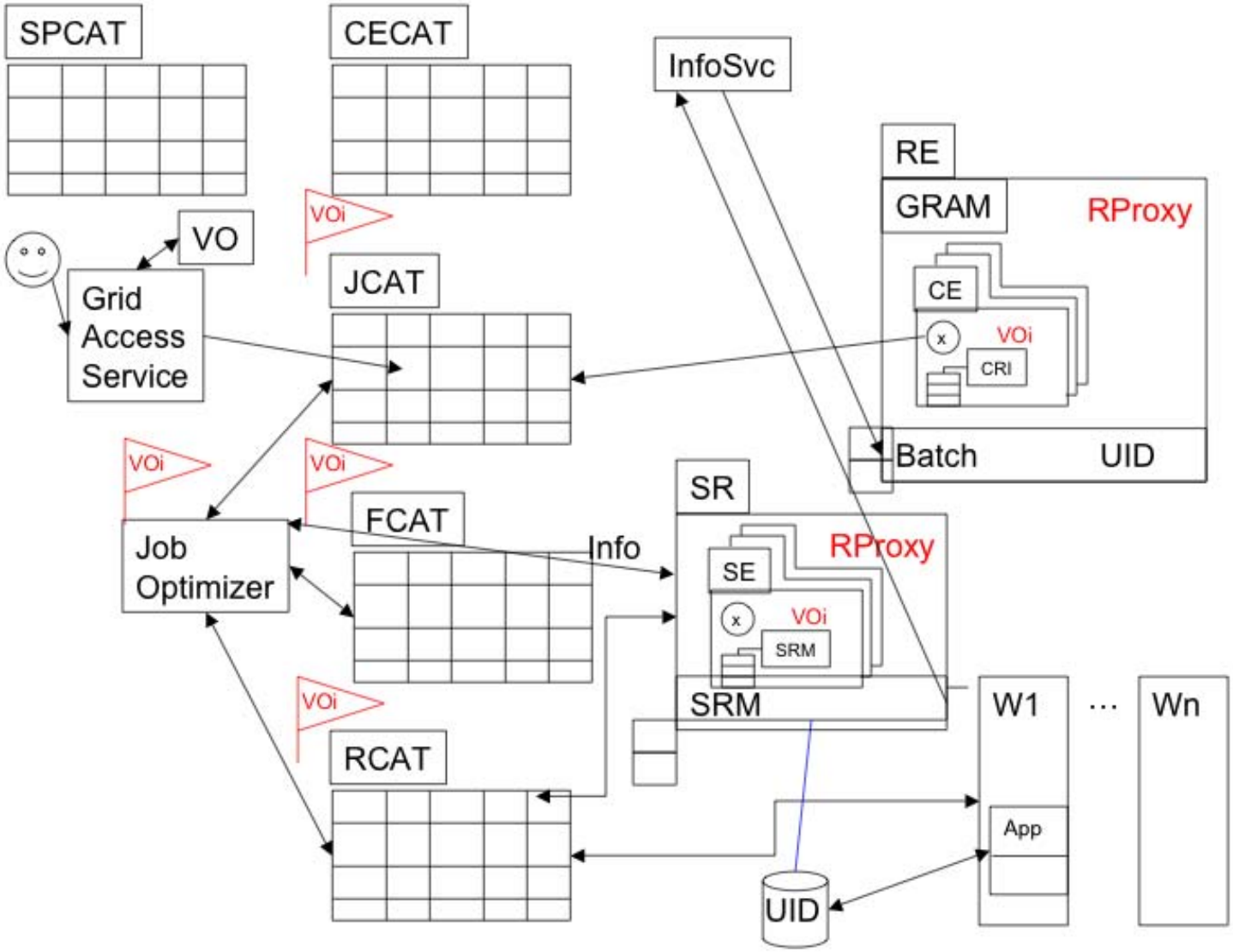
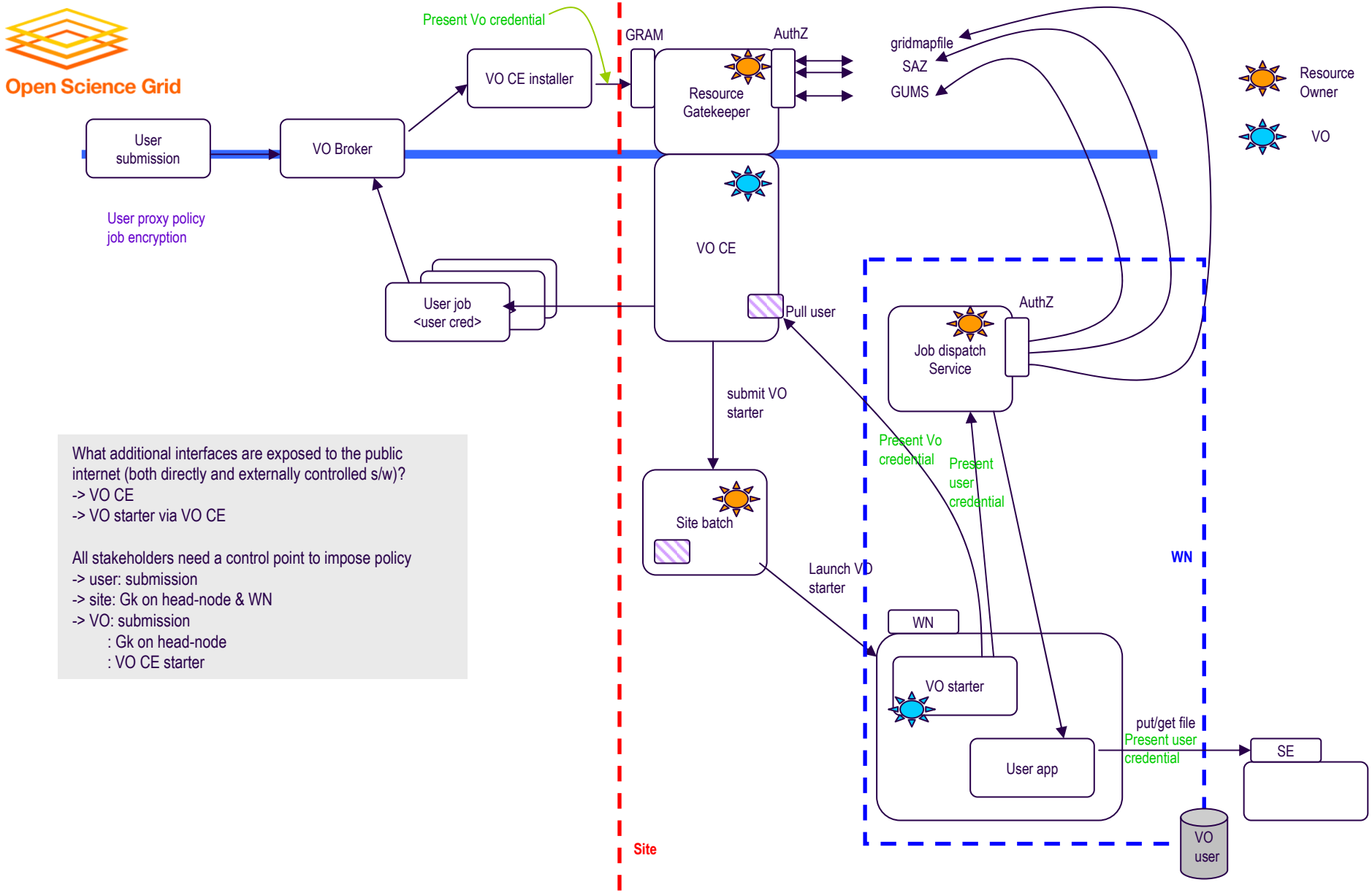
you'll recognise the architecture…




Open Science Grid
Present Vo credential
GRAM
AuthZ
gridmapfile
SAZ
GUMS
Resource Owner
VO
VO CE installer
Resource Gatekeeper
User submission
VO Broker
User proxy policy
job encryption
VO CE
User job
<user cred>
Pull user
AuthZ
Job dispatch Service
submit VO starter
Present Vo credential
Present user credential
Site batch
Launch VO starter
WN
WN
VO starter
put/get file
Present user credential
User app
SE
VO user
Site
What additional interfaces are exposed to the public internet (both directly and externally controlled s/w)?
-> VO CE
-> VO starter via VO CE
All stakeholders need a control point to impose policy
-> user: submission
-> site: Gk on head-node & WN
-> VO: submission
: Gk on head-node
: VO CE starter

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Following up?

Is it useful to make this Joint Session the first in a series?

Our next Blueprint meeting is 15-17th Dec at UCSD.