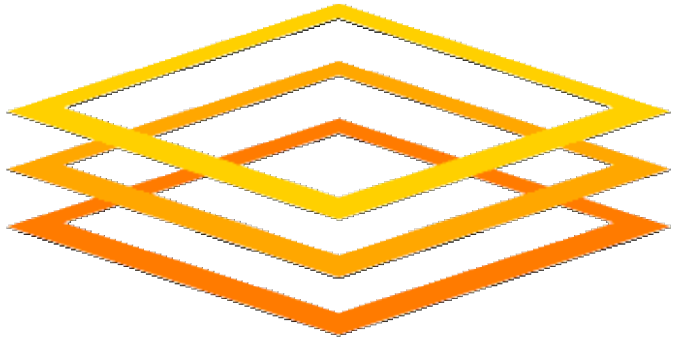
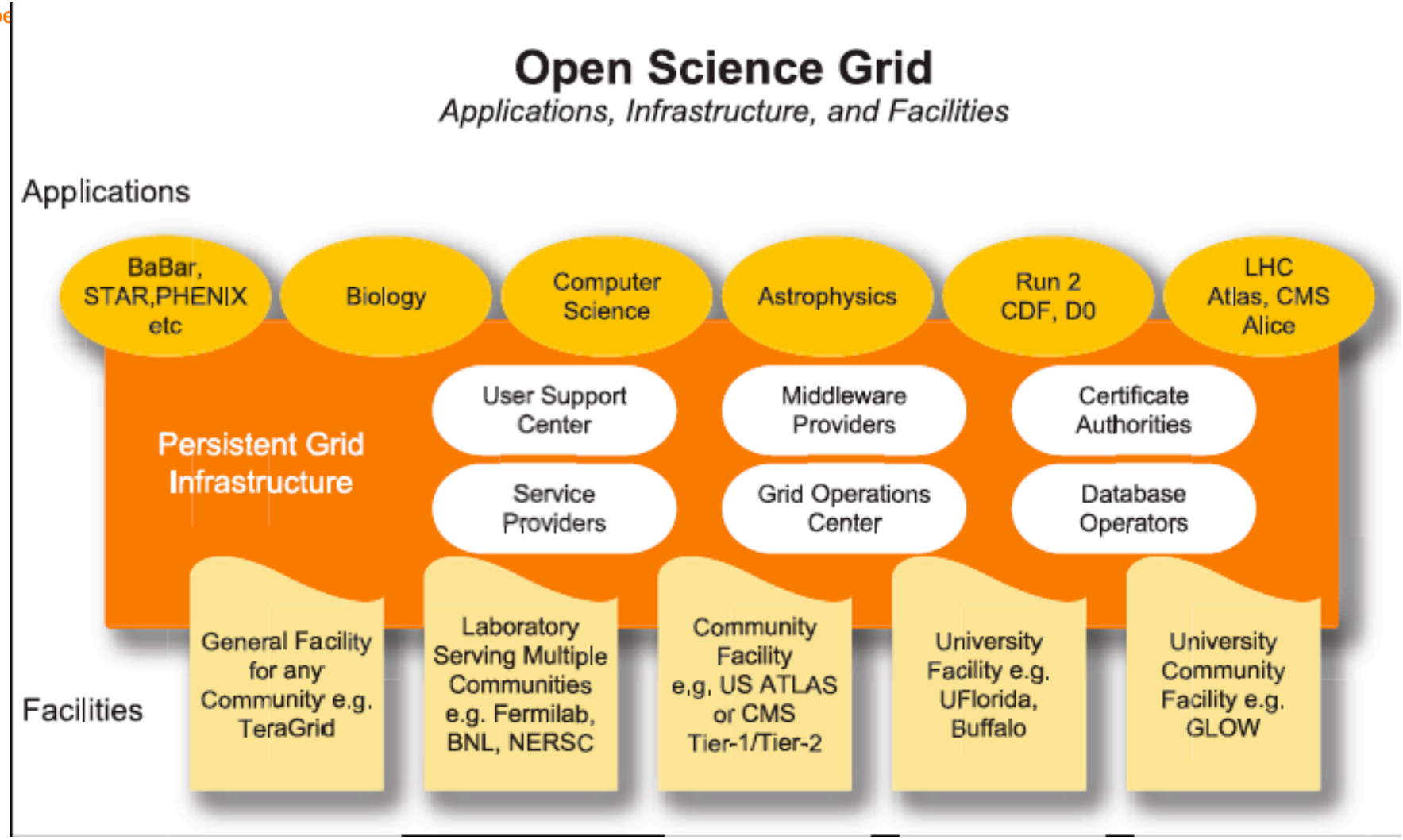


Open Science Grid

A short introduction for the
Operations Workshop

http://opensciencegrid.org/documents/index.html

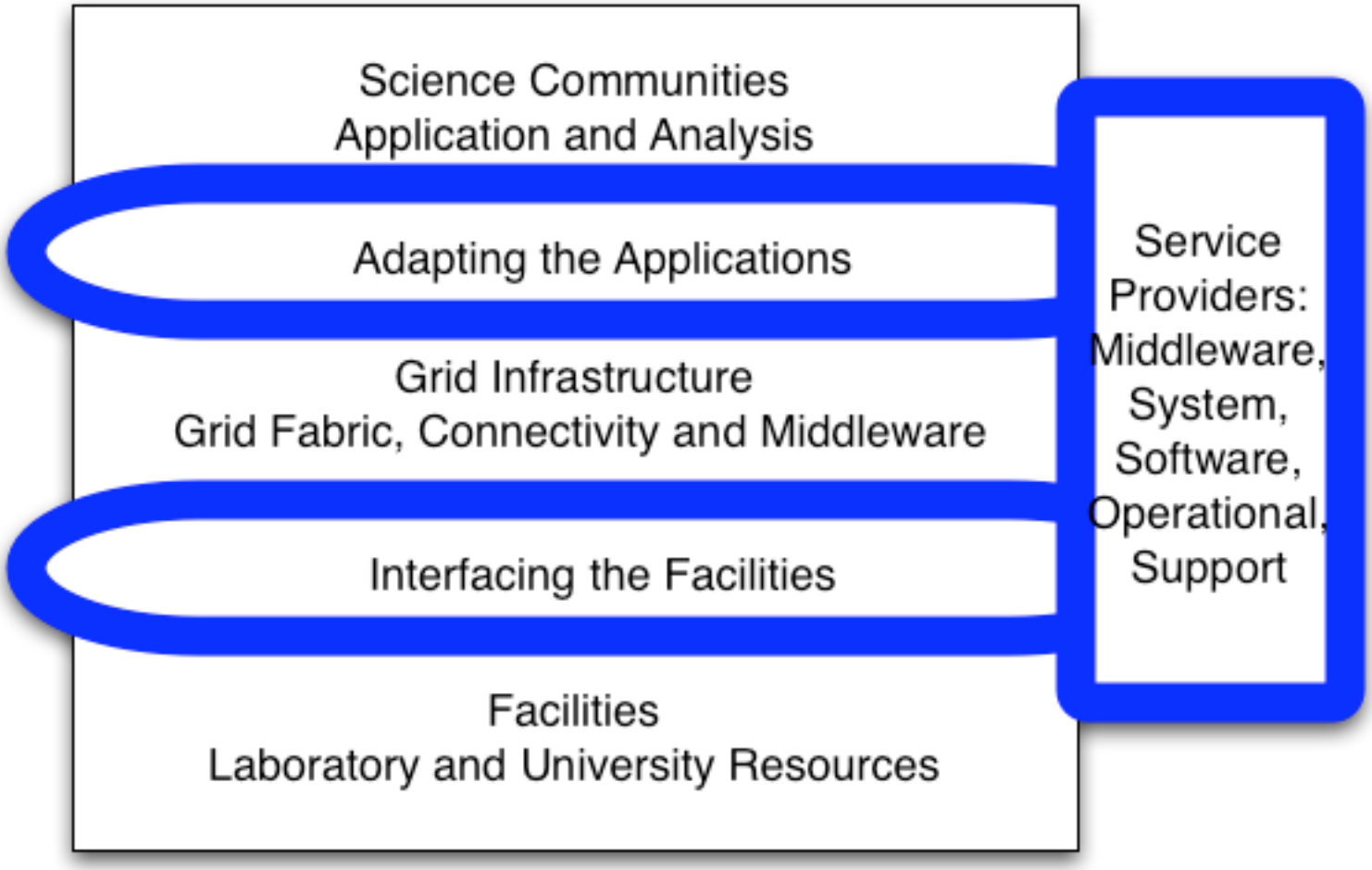
Ruth Pordes, Fermilab


Open Science Grid
Applications, Infrastructure, and Facilities
Applications
BaBar, STAR,PHENIX etc
Biology
Computer Science
Astrophysics
Run 2 CDF, D0
LHC Atlas, CMS Alice
Persistent Grid Infrastructure
User Support Center
Middleware Providers
Certificate Authorities
Service Providers
Grid Operations Center
Database Operators
Facilities
General Facility for any Community e.g. TeraGrid
Laboratory Serving Multiple Communities e.g. Fermilab, BNL, NERSC
Community Facility e.g, US ATLAS or CMS Tier-1/Tier-2
University Facility e.g. UFlorida, Buffalo
University Community Facility e.g. GLOW

Character of Open Science Grid

- Distributed ownership of resources. Local Facility policies, priorities, and capabilities need to be supported.
- Mix of agreed upon performance expectations and opportunistic resource use.
- Infrastructure based on the Virtual Data Toolkit.
- Peer collaboration of computer and application scientists, facility, technology and resource providers - "end to end approach".
- Support for many VOs from the large (thousands) to the very small and dynamic (to the single researcher & high school class)
- Loosely coupled consistent infrastructure - "Grid of Grids"
- Users need to run their jobs - transparently and seamless - and access their data across many grid infrastructures
- Communities span Grids
  - Facilities need to make their resources accessible to multiple grid environments
  - Grid infrastructures need to interoperate and federate with standard interfaces and secure and accessible services.
  - OSG users need dynamically installed, VO specific environments.

Applications, Infrastructure, Facilities



Open Science Grid

Principles, Best Practices and Service Decomposition captured in a Blueprint

Examples of Principles in the Blueprint

OSG will provide baseline services and a reference implementation. Use of other services will be allowed.

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

Users are not required to interact directly with resource providers.

The requirements for participating in the OSG infrastructure should promote inclusive participation both horizontally (across a wide variety of scientific disciplines) and vertically (from small organizations like high schools to large ones like National Laboratories).

The OSG architecture will follow the principles of symmetry and recursion

The OSG infrastructure must always include a phased deployment, with the phase in production having a clear operations model adequate to the provision of production-quality service.

Open Science Grid

the Blueprint

The OSG architecture is VO based.

Most services are instantiated within the context of a VO.

The infrastructure will support multiple versions of services and environments, and also support incremental upgrades

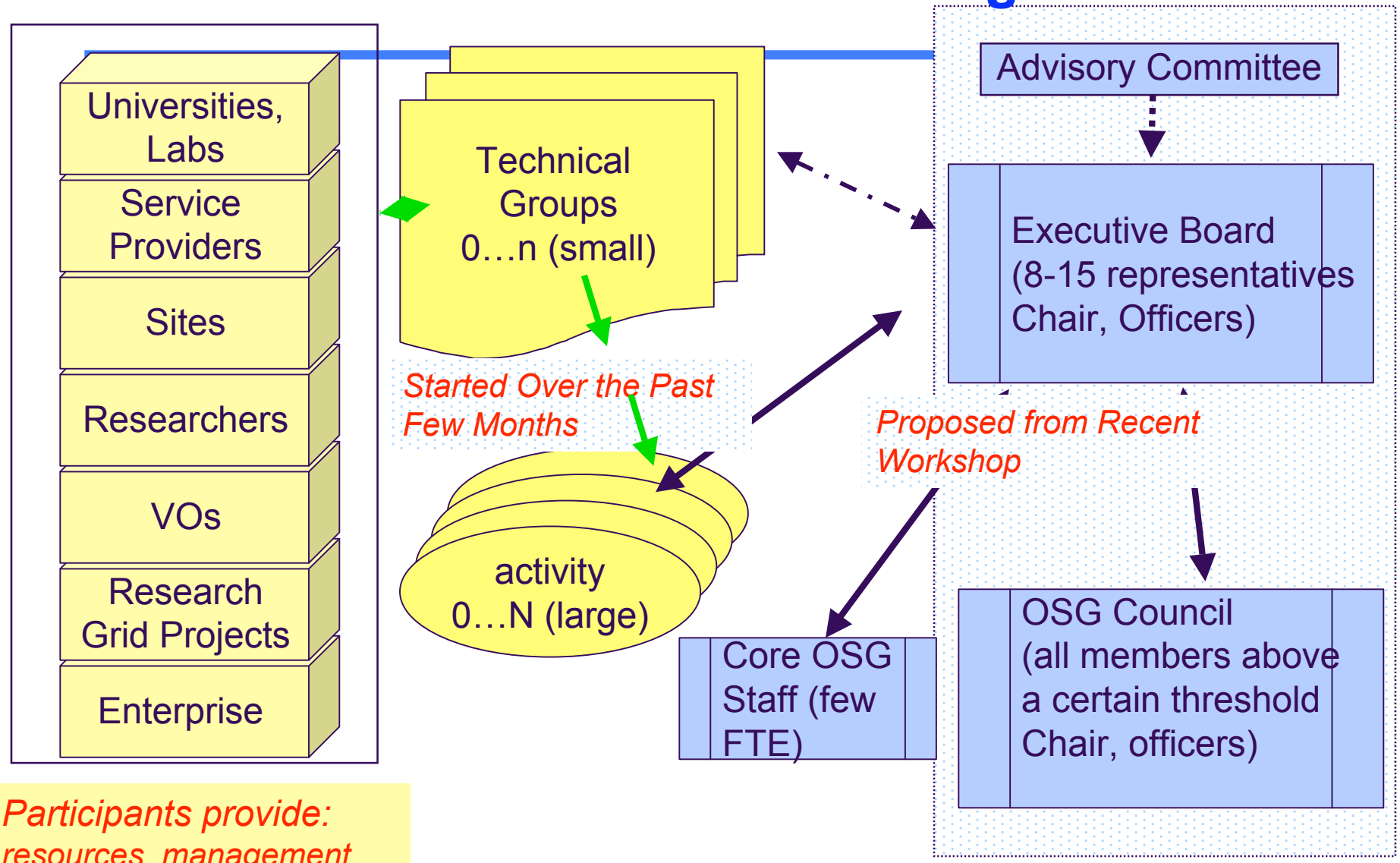
The OSG infrastructure should have minimal impact on a Site. Services that must run with superuser privileges will be minimized

The OSG infrastructure will support development and execution of applications in a local context, without an active connection to the distributed services.

Services manage state and ensure their state is accurate and consistent.

Organization & Activities

Details of Governance In Progress



Participants provide: resources, management, project steering groups

Technical Groups and Activities

Technical Groups address and coordinate a technical area.

- propose, endorse, form and oversee activities related to their given areas.
- liaise and collaborate with their peer organizations in the U.S. and world-wide,
- participate in relevant standards organizations.
- chairs participate in the Blueprint, Grid Integration and Deployment.

Activities are well-defined, scoped set of tasks contributing to the OSG.

- has deliverables and a plan.
- self-organized and operated.
- overseen & sponsored by one or more technical groups

Open Science Grid

Technical Groups & Activities - I

Security

- Representatives from DOE Laboratories, US LHC Regional Centers, Grid Operations Centers, TeraGrid, ESNET, University Partners (e.g. Dartmouth).
- Propose Security Model and Oversee Security Infrastructure
- Write Registration Policies (evolution of Grid3), Acceptable Use Policies etc.
- Collaborate with peers in other Grid organizations:
- Members of the EGEE JRA3 and LCG Joint Security Group

Incident Response Activity

- Write & Execute a Security Incident Response Plan for iVDGL and OSG.
- Interfacing also with LCG/EGEE & TeraGrid.

Technical Groups & Activities - II

Monitoring and Information Services

- Extension of Grid3 Monitoring Group..
- Includes Accounting which will evolve from Grid3 accounting.
- Includes some testing/validation and publishing services. Test Harness or Grid Exerciser ?
- Execution Environment requirement and framework?

Policy

- Includes Authorization & Access Policies of Organizations (Sites, VOs) and Services (Resource Providers)

Storage

- Coordinate activities related to data storage & management.
- Identify requirements and technology gaps.

Integration, Support Centers, Operations, Deployment…more on these in this workshop!

Short Term Plans

Maintain Grid3 operations in parallel with extending Grid3 for OSG.

OSG Technology Advances for Deployment in Spring '05:

- Add full Storage Elements
- Extend Authorization services
- Extend Data Management services
- Interface to sub-Grids.
- Extend monitoring, testing, accounting.
- Add VOs. Add OSG(-VO) Wide VO Services.
- Add Discovery Service.
- Service challenges & collaboration with the LCG

Switch the switch to "Open Science Grid" in Spring 2005

- Now starting to understand the details of what this would mean, how this can be done etc. Will make progress on this at this weeks workshop.