Current NGS Deployment and Operations

Andrew Richards

andrew.richards@stfc.ac.uk

STFC, Rutherford Appleton Laboratory

What is the NGS?

- UK National Grid Service (NGS) is a consortium of computational and data resources, making use of defined open standard interfaces to provide services to academia
- Free at the point of use

History of NGS

- Full production since September 2004
- Phase 2 started in October 2006
- New hardware at four core sites in September 2007

Goals

- ## To enable a production quality e-infrastructure
  - Expand towards all Higher Education Institutes.
  - Continue to support research

- ## To deliver core services and support
  - Collaborative research
  - Computation and Data.

- ## Integrate with International infrastructures
- ## Transition to a sustainable set of activities

Overall Approach

- Support an open standards based infrastructure
- Develop and operate a policy and best practice framework for the operation, inter-operation and sharing of research computing services across the UK.
- A repository of appropriate user and system documentation.
- The ongoing review of member services
- A UK help desk and support centre, integrated into related international developments
- Operation of the core services required to support coherent exploitation of the full range of UK e-resources for research
- Targeted training and outreach

UK e-Infrastructure

Users get common access, tools, information, Nationally supported services, through NGS
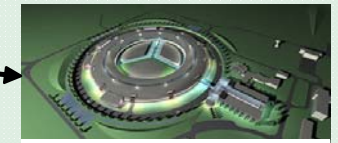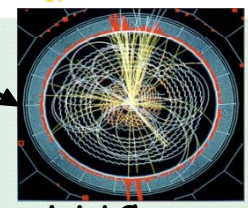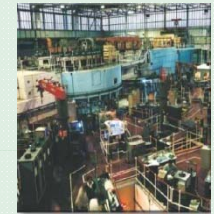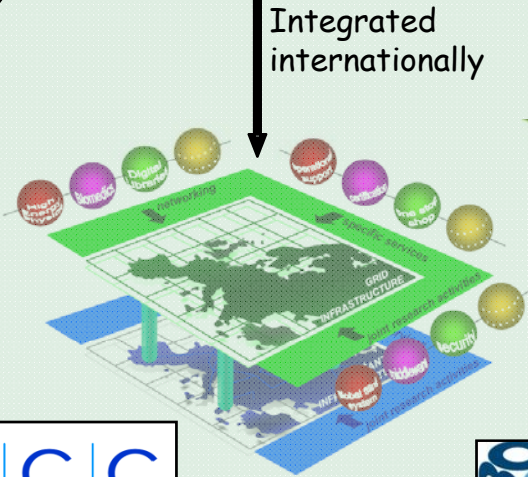
Types of Member Site

- **Core**
  - Dedicated compute and/or data focused hardware purchased through the project

- **Partner**
  - Regularly tested installation of NGS defined interfaces
  - Supporting the NGS users Virtual Organisation
  - Complete a service level description (SLD)

- **Affiliate**
  - Regularly tested installation of NGS defined interfaces
  - Maintains control over permitted users

The NGS Core, Partners & Affiliates, Summer 2008

+ Royal Holloway, Durham, Brunel

New Members in the pipeline

- NW-Grid
  - NW England regional grid, Manchester, Liverpool, Lancaster and Daresbury Lab.
- HECToR
  - UK National Supercomputer
- Liverpool University
  - GridPP, Tier2
- EDINA and MIMAS
  - National Data Centres

- Aberystwyth
- Aston
- Daresbury
  - CATS hybrid cluster
- Hull
- Plymouth
- RAL
  - Visualization Cluster
- WRGrid
  - NE England regional grid, Sheffield, York and Leeds
- DIAMOND
  - National Synchrotron resource

NGS Core Services

- **A1 Helpdesk**
- **A2 Certification Authority**
- **A3 Registration Authority**
- **A4 NGS Resources**
- **A5 User Support**
- **A6 Website**
- **A7 Training**
- **A8 Documentation**
- **A9 User Account Management**
- **A10 Promotion, Outreach and Education**
- **A11 Global Activities and Collaboration**

Additional Services Provided by the NGS Support Centre

- **B1. Monitoring Services**
  - **B1.1 Ganglia Monitoring Service**
  - **B1.2 Inca Monitoring Service**
- **B2 NGS Portal**
- **B3 GSISSH Terminal**
- **B4 MyProxy Upload Tool and MyProxy Server**
- **B5 BDII Information Aggregation Service**
- **B6 Advanced Reservation**
- **B7 Wiki**
- **B8 GOCDB**

Additional Services

- **Additional Services provided by the NGS in conjunction with partners and collaborating projects**

-

- **C1 - OGSA-DAI**

- **C2 – NGS GridSAM Services**

- **C3 – National Services Registry**

- **C4 – P-Grade Portal and GEMLCA**

User access to the NGS

- Directly submit jobs using an installation of the Globus Toolkit on user workstation
- GSI-SSH terminal to connect to the resource broker or a site
  - Web applet or easy install stand alone application
- Applications repository for web-based access running applications
- P-GRADE portal for workflow
- Application Hosting Environment for MPI across the WAN
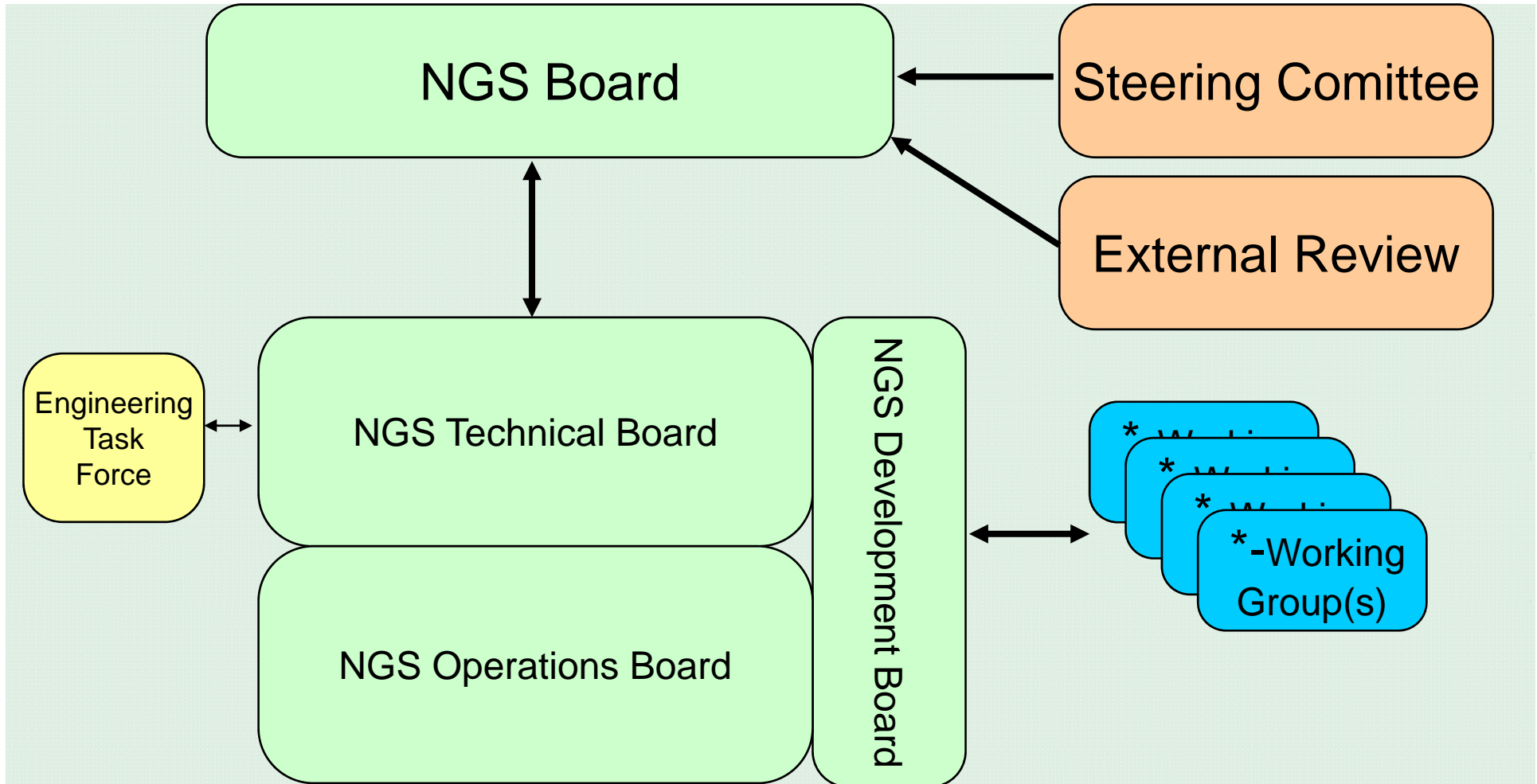- gLite UI system

Applications

- Many applications installed on the NGS!
- Standard compilers on all core sites
- Other applications include:
  - Abaqus
  - Amber
  - Siesta
  - Gaussian
  - Octave
  - Gadget
  - Fasta
  - NAMD
  - LAMMPS
  - BLAST
  - R
  - ROOT
  - GAMESS
  - DOCK
  - DL_POLY
- And more…..

Operational Structure

Governance(NGS-3)