



THE WHITE ROSE GRID e-Science Centre



Empowering e-Research

Dr Joanna Schmidt & NGS Leeds Team



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The way we were

- Full production service started in September 2004 (funded by JISC, EPSRC and CCLRC)
- NGS = 4 core nodes + HPCx & CSAR:
 - 2 compute resources (WRG Leeds, Oxford)
 - 2 data resources (Manchester, RAL)
- Support staff:
 - 1 FTE at each Leeds & Oxford
 - 1.5 FTE at each RAL and Manchester
 - + EPSRC supported staff
- The goal:
to provide coherent electronic access to all computational and data based resources and facilities required to carry out research, independent of resource or researcher location



NGS in 2004

NGS today

- Second phase from Oct 2006 to March 2009 - JISC funding £5m
- New clusters: core nodes upgraded in 2007; production service from Sept 2007
- 4 core sites- 5 systems: Leeds, Oxford (1 & 2); RAL (comp + data resource), Manchester (comp+ data resource)
- Partner sites: Belfast (2 resources), Cardiff (2), HPCx, Lancaster, Westminster, Glasgow (2)
- Affiliate sites: Birmingham, Bristol, Edinburgh, Imperial, Keele, Oxford, Reading, Southampton
- Partners to be approved: NW-Grid (Daresbury, Lancaster, Liverpool, Manchester)
- Affiliates to be approved: RAL SCARF, HECToR, Westminster(new clstr), Manchester, IGER Aberystwych

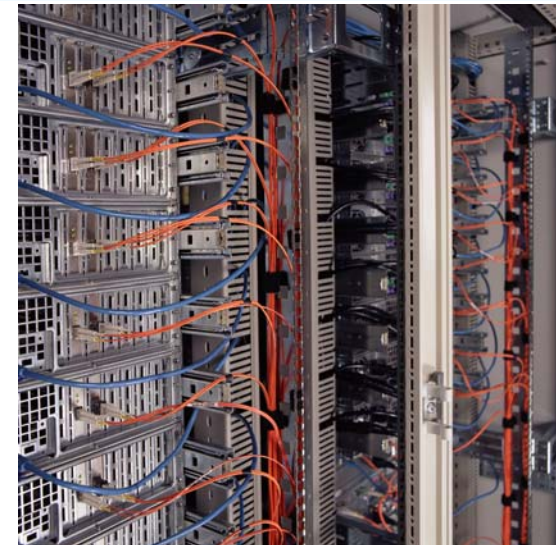


NGS in 2008



A collection of services

- Computational services
- Certification Authority -X.509 certificates
- GSI-SSHTerm application
allows users to easily access the grid using GSISsh
- Resource Broker
allows users to easily submit jobs to the NGS, and to retrieve their output when the jobs are executed
- NGS Applications Repository (NGS portal)
open access portal used to describe, list applications and submit jobs
- MyProxy upload tool
tool to upload and download credentials to and from a MyProxy server
- Data services
 - Oracle 10g - database
 - Storage Resource Broker - data storage service to store data in geographically distributed locations, but access them all using only the logical filename
 - OGSA-DAI provides middleware that helps users access and integrate data from separate structured data sources such as XML or Oracle databases

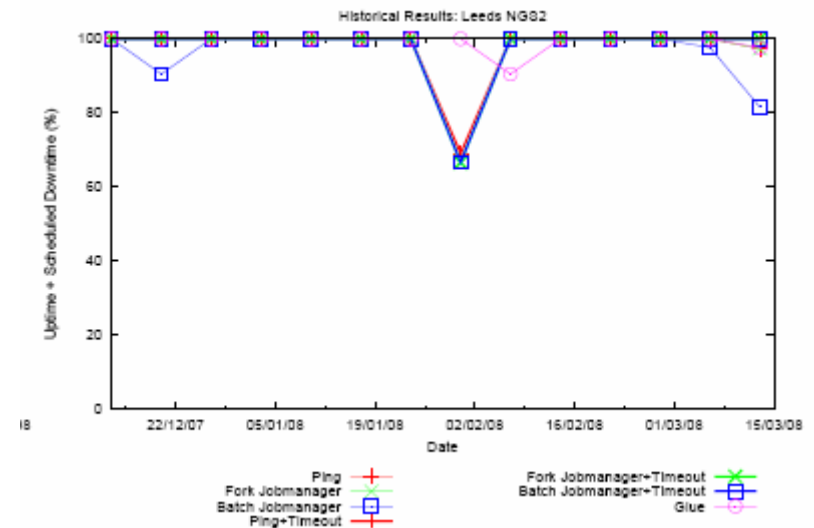


Inside an NGS node
supplied by ClusterVision

NGS services

- NGS Account Details - shows NGS account details
- BDII Information Server - Berkeley Database Information Index
- Monitoring services:

- Ganglia shows system load
- Inca Monitoring Service – flexible framework for the automated testing, benchmarking and monitoring of Grid system



Inca results for Leeds NGS node

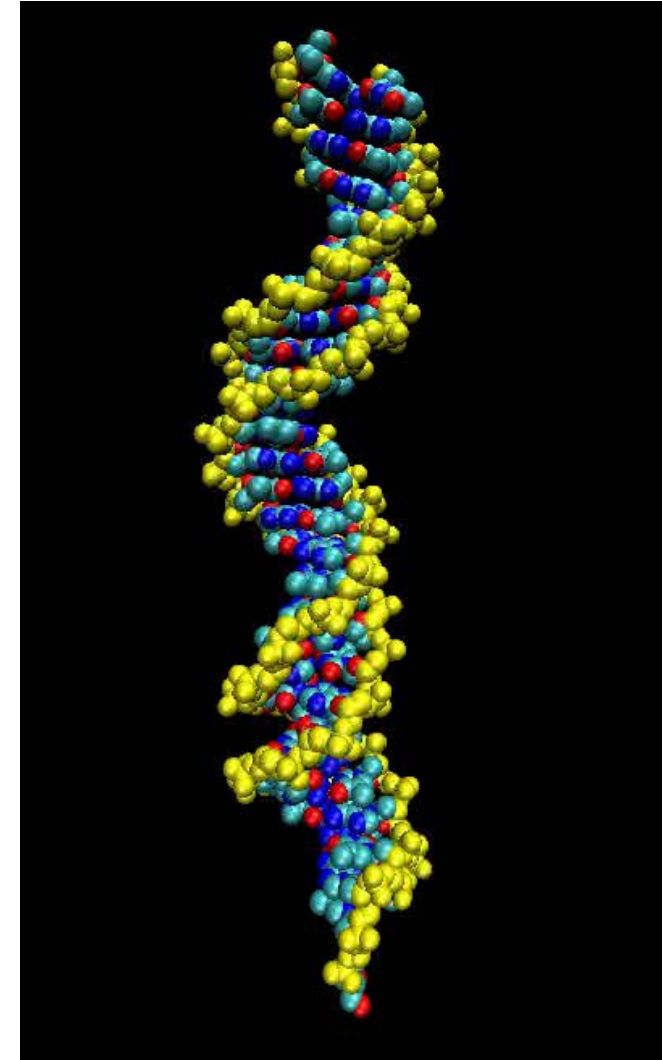
- NGS GridSAM Services - an open-source job submission and monitoring web service
- National Services Registry (using GRIMOIRES) - an open-source UDDI (Universal Description, Discovery and Integration) service registry web service that allows arbitrary metadata to be associated with UDDI entities
- VOMS Service - Virtual Organisation Membership Service



About NGS users

- Over 720 individual registered users
- The largest number of NGS projects are funded by EPSRC
- There are a number of Leeds users on NGS but only a few from York or Sheffield
- Top 10 largest users include Dr Sarah Harris, University of Leeds, who uses the NGS to conduct computational research into the mechanical properties of duplex DNA

Courtesy of Dr S Harris: A stretched DNA sequence; the double strands start to separate due to the applied tension.





Why should you use NGS

- Free resource to academia
- Offers a variety of novel grid services (e.g. it may help your researchers/students to get familiar with digital certificates, resource broker, JSDL)
- Large choice of resources
- Easy on-line application for resources
- Good support (~ 27 staff)
- Central Helpdesk
- Support staff installs required applications
- **IMPORTANT:** local support - Dr Shiv Kaushal & Dr Jason Lander + WRG team
- Local Leeds documentation: <http://docs.ngs.leeds.ac.uk>
- Further information at:
<http://www.grid-support.ac.uk>



The big question

**Why the White Rose Grid
is still **NOT** a partner or affiliate
in the **NATIONAL GRID SERVICE?****



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Thank you for your attention

