



National Grid Service

core production computational and data grid

The UK National Grid Service. A Service Description

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Neil Geddes (n.i.geddes@rl.ac.uk)

Peter Oliver (p.m.oliver@rl.ac.uk)

and the NGS Technical Board

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21/03/06	2.4	Typos and clarified preamble
23/01/06	2.3	Changed to reflect the NGS Minimum Software Stack and NGS Partner and Affiliate Joining Guide Documents. Added version information and revised formatting.
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Abstract

This document outlines the National Grid Service.

DISTRIBUTION

This document is now available publicly, although it should not be re-distributed without the consent of the NGS-Technical Board.

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1. PREAMBLE

This document defines, in outline, the National Grid Service for the UK and the Grid Operations Support Centre charged with deploying and operating this infrastructure.

1.1 Background

The UK's National Grid Service (NGS) forms a core of e-Infrastructure that underpins UK research, providing standardised access to data management and compute resources and supporting collaborative computing across the UK. The NGS also provides a "gateway" to international facilities through collaboration with related e-infrastructures internationally. The National Grid Service was created in October 2004, funded by JISC and CCLRC. The service entered full production in October 2005 based around 4 core nodes (hosted by CCLRC, The University of Manchester, The University of Oxford and the White Rose Grid at the University of Leeds) together with the two UK HPC facilities (CSAR and HPCx). Today the NGS is a collaborative infrastructure provided by partner institutions across the UK. The core of the NGS is supported by JISC, EPSRC and CCLRC and coordinated and managed by the Grid Operations Support Centre (GOSC).

1.2 Aims and Objectives

The goal of the NGS is to provide coherent electronic access for UK researchers to all resources and facilities that they require to carry out their research. This access will be independent of location of resource or researcher. Ultimately the National Grid Service will provide integrated, single sign on, access to the full range of the UK's computation and data based research facilities, together with a range of sophisticated services to support novel collaborative and cross resource activities. The resources will span the complete space from advanced real time facilities such as the DIAMOND synchrotron through to complex queries of historical data stored in national or institutional data centres. This goal can not be achieved by NGS alone and the GOSC will collaborate with resources and resource providers across the full spectrum of UK academic research to achieve full and effective integration. Researcher identity and authorisation will be established through standard institutional mechanisms, allowing full integration of all aspects of research, education and training. Close integration with international partner infrastructures will provide UK researchers, through the NGS, with direct access to international facilities.

As well as supporting access to regional, national and international facilities, the partnership and affiliation programme of the NGS will provide a mechanism whereby local institutional or even departmental resources can be fully integrated into the NGS infrastructure. This integration will support straightforward migration of work from local to national or international resources as required (and as authorised) and will provide a standard set of interfaces and services whereby local systems can be shared across institutions to optimise use and return on investment.

1.3 Overall Approach

The NGS must pioneer systematic arrangements that relieve the load on both resource providers and resource users. The GOSC will administer the processes and agreements required to operate the NGS, will operate the core services required to exploit the NGS (and international partner facilities), will provide support to the users of the service, and will monitor and troubleshoot the services provided by all partners and the underlying infrastructure.

2. REQUIREMENTS FOR JOINING THE NGS

In principle, two levels of NGS membership are possible, although in future we anticipate the distinction may become fluid. At present, however, institutions may either affiliate with the NGS or become a partner of the NGS by providing wider access to resources or services. A Partner or an Affiliate will be appointed an NGS Buddy to guide them through the procedure as defined in the "NGS Partner and Affiliates Joining Guide". An outline of NGS Partner and NGS Affiliation requirements are given below.

2.1 Affiliation with the NGS

To affiliate with the NGS an institution or resource provider must:

- Deploy and support the minimum required set of NGS software to enable interoperability with the NGS central services and other NGS sites. Details of the required software stack are subject to change (and appropriate change control), as agreed by the GOSC Management Board. Please refer to the companion document "The NGS Minimum Software Stack" for details.
- Provide access to allow NGS monitoring
- Agree to the NGS conditions of use and security practices.
- Sites should accept certificates issued by the UK e-Science Certificate Authority and those CAs with which the UK e-Science Programme has reciprocal agreements. The Certificate Revocation Lists are updated on a regular basis.

NGS affiliates may be excluded from the NGS if they fail to meet any of the above criteria, if the required interfaces are not supported or if continued connection would jeopardise the normal functioning of any NGS member site.

Affiliation with the NGS does not guarantee representation on the GOSC Management Committee.

2.2 NGS partnership

NGS partners are sites that meet the requirements for affiliation with the NGS and in addition:

- Contribute additional services, as agreed with the GOSC Management Board and defined in a Service Level Description (SLD), to NGS approved users or projects.
- Allow additional monitoring and accounting for verification of the services provided.
- Allow inclusion of the SLD services in a national registry, the structure for which is to be decided.

Services offered may include access to hardware resources, data archives or appropriately licensed software in addition to that required by the NGS provided that they do not adversely affect the operation of the site in question, any other NGS site, or any core services.

NGS partnership entitles sites to representation on the GOSC Management Board. Initially this may be through direct membership of the board; however, representation through functional or regional consortia is a longer term goal.

All of the documents mentioned can be found on the NGS website at <http://www.ngs.ac.uk>

2.3 NGS users

All users of the service are required to accept the *Regulations for Use of the NGS* stated at:

<http://www.ngs.ac.uk/NGS-tacu.shtml>

3. SERVICE LEVEL DESCRIPTIONS

Sites which become NGS Partner must define the services provided in Service Level Descriptions. These should be detailed and, at some point in the future, it should be possible to represent them in a structure information system, given a suitable future schema. The SLD should include:

- Definition of the service to be provided over and above the minimal requirements for membership of the NGS. Details of any agreed exemptions should also be included.
- Details of user support