



THE WHITE ROSE GRID e-Science Centre

The UK National Grid Service Node at the University of Leeds



Introduction

Since September 2004 the National Grid Service (NGS) has offered a full production service for the UK academic research community. In October 2006 the NGS progressed into a second phase with more clearly defined objectives. The service was originally funded by JISC (Joint Information Systems Committee) and the Council for Central Laboratory of the Research Councils (CCLRC) with backing from the UK e-Science Core Programme [1] and EPSRC. The second phase of NGS is supported through funding from JISC and STFC (Science and Technology Facilities Council).

It forms the foundation of the UK e-Infrastructure, which underpins a broad portfolio of e-Research projects. Furthermore, it plays an instrumental role in ensuring UK leadership internationally.

NGS Resources

Today the NGS offers significant heterogeneous computational and data resources for researchers applying advance innovative methodologies and techniques. At the core of this free service for UK academia there are four nodes. These are hosted, operated and supported by the White Rose Grid (WRG) [3] at the University of Leeds, STFC, and the Universities of Oxford and Manchester. In addition to the core nodes services, NGS partners make their resources available to users. These are provided by the UK national high performance computing HPCx service, and the Universities of Cardiff, Bristol, Lancaster, Westminster and Belfast (Figure 1). The NGS collaborates closely with the National e-Science Centre [5] which has been awarded an affiliate status. Also the Imperial College and the University of Southampton have joined as NGS affiliates. Both partners and affiliates run NGS compatible software, and integrate monitoring and support arrangements with the NGS.

About NGS

The NGS [2] aims to provide coherent electronic access for UK researchers to all computational and data based resources and facilities required to carry out their research, independent of resource or researcher location.



Figure 1: NGS partnership



THE UNIVERSITIES OF LEEDS, SHEFFIELD AND YORK

THE WHITE ROSE GRID

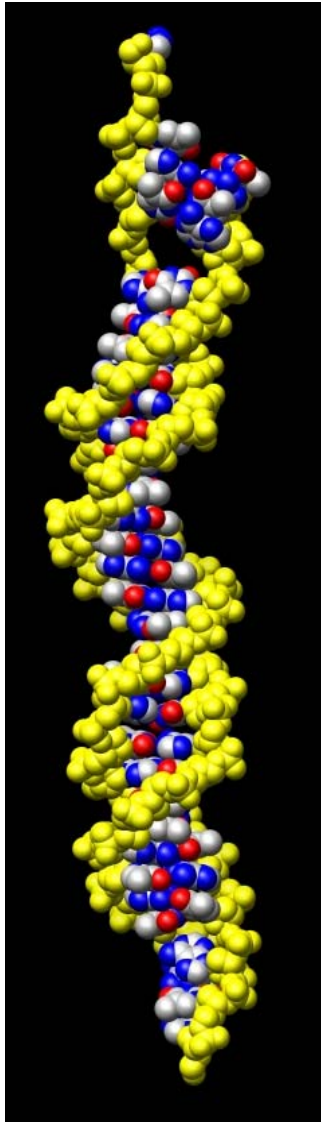


Figure 2: A screenshot of a stretched DNA sequence; the double strands start to separate due to the applied tension.

Moreover, further institutions are currently in the process of joining the NGS and are to be partners or affiliates in this UK collaborative e-Infrastructure offering the production grid service.

Access to NGS

NGS facilities are freely available to UK academic researchers. Registration is available through a web interface [4]. Projects and users requesting a large amount of NGS resources are approved through a light-weight peer-review process. Users need to obtain and use a digital certificate (X509) to access NGS resources [2].

NGS Use

A broad portfolio of e-Research projects are computed on the NGS. For example, Dr Sarah Harris at the University of Leeds uses the NGS to conduct computational research into the mechanical properties of duplex DNA. She has developed computer simulation methods to mimic nanomanipulation experiments (refer to Figure 2), which stretch single molecules in the laboratory.

Training

The training team from the National e-Science Centre (NeSC) offers courses on NGS use as well as on other aspects of effective use of e-Science technologies and e-Infrastructure in many fields of research [5].

More about NGS

The NGS web site [2] contains comprehensive information about this service.

The NGS-2 service enables researchers to take full advantage of grid technologies to

enhance national and international e-Research and collaborations.

With a large number of users and a large number of diverse e-Research projects as well as with the growing number of partners providing further resources, the NGS is in a strong position and is looking confidently towards the future.

Help and Support

For assistance with issues regarding access to and use of the NGS node at Leeds, or getting a digital certificate, or should you wish to talk to a local expert please contact the University of Leeds ISS Helpdesk (helpdesk@leeds.ac.uk or telephone 0113 343 3333).

Other enquiries, in particular those regarding other nodes of NGS, should be directed to the NGS Helpdesk (email: support@grid-support.ac.uk; tel: 01235 446822).

Further Information

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The project web site:

<http://www.grid-support.ac.uk>

References

- [1] <http://www.rcuk.ac.uk/escience/>
- [2] <http://www.grid-support.ac.uk/>
- [3] <http://www.wrgrid.org.uk/>
- [4] <http://www.ngs.ac.uk/access.html>
- [5] <http://www.nesc.ac.uk/training/>