

The NW-GRID Computer Systems

NW-GRID

Daresbury

- 96-node Streamline/Sun cluster with 2.4 GHz twin dual-core Opteron processors.
- IBM BlueGene-P, 4096 processor cores.
- Streamline 32 node cluster with twin quad-core Intel Harpertown processors with InfiniBand.
- 2560-node IBM 1.5 GHz Power5 processors (HPCx, requires grant approval)

Manchester

- 44 node IBM cluster with dual-processor twin core Opteron processors.
- 25-node Streamline/Sun cluster with 2.4 GHz twin dual-core Opteron processors.
- SGI Prism visualization engine with 8 x Itanium-2 processors and 4 x ATIFireGL X3 graphics pipes.

Lancaster

- 48-node Streamline/Sun cluster with 2.6 GHz twin dual-core Opteron processors.
- 124-node Streamline/Sun cluster with 2.6 GHz twin dual-core Opteron processors (HPCF for local users).
- 67-node Streamline/Sun cluster with 2.3 GHz twin quad-core Opteron processors.
- 12TB Streamline/Sun data Grid

Liverpool

- 104-node Streamline/Sun cluster with 2.2 GHz twin dual-core and 2.3 GHz twin quad-core Opteron
- 96-node POL-IBM cluster, with twin Xeon processors.
- 960-node Dell cluster, Pentium IV processors (Physics).
- 108-node Streamline/ Sun cluster with 2.4 GHz twin dual-core and 2.3 GHz twin quad-core Opteron with InfiniPath network.

Commercial interest:

For further information about NW-GRID Services contact John Bancroft on 01925 603148 or visit the DaComS Web,

www.dacoms.ac.uk

Academic Interest:

For access and further information, please visit the NW-GRID Web site. NW-GRID is also available via the National Grid Service.

www.nw-grid.ac.uk



What are NW-GRID Services ?



NW-GRID hardware
Sun Cluster

North West Grid Services provide access to unrivalled expertise and resources to support your projects and research. With a network of high performance computers and a group of experts in computational science, modelling, systems and customer support, NW-GRID Services is capable of working with a wide variety of simulation, modelling and data analysis applications to provide solutions to support your work and to help achieve results.

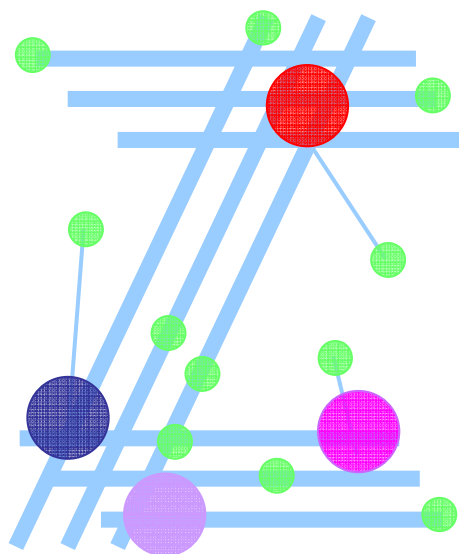
About the NW-GRID

The NW-GRID is a collaboration between Daresbury Laboratory and the Universities of Lancaster, Liverpool and Manchester. With the support of NWDA funding, a computational grid comprised of four high-performance computing systems was established in 2006 and extended in 2007. In early 2008, the latest addition to our resources were Quad Core AMD Opteron Sun systems. The NW-GRID aims to strengthen the position of the North West of England as a cornerstone of research, development, implementation and use of computational science technologies.

World Class Services

The NW-GRID partners offer world-class services founded in the deployment and exploitation of Grid middleware technologies, thereby fully enabling the capabilities of the Grid to be realised in leading-edge research applications, primarily in computational science and engineering. Over the past few years, services were offered to leading research projects in the region and have resulted in publications in high-profile journals such as Nature. With the confidence gained from these successes, NW-GRID Services are now being made available to academic and non-academic users.

Connectivity throughout the North West.



NW-GRID is an important infrastructure for North West England's science strategy and its capabilities resonate strongly with the key elements of the NWDA's regional strategy. In particular, through working with targeted emerging sectors in the environment, biotechnology, pharmaceutical, energy and complex materials areas, the NW-GRID strengthens the North West as a global player in the development and use of Grid technologies and research thereby embedding competencies across the region's business, academic and industrial base.

Grid Computing

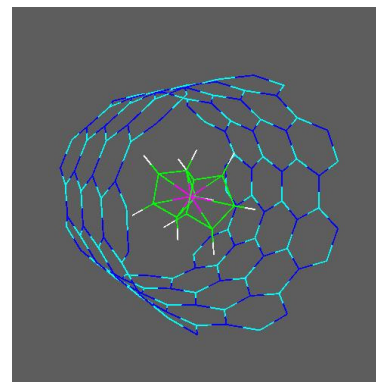
The compute clusters at the partner sites are coupled by a high-speed private network. By using systems at all sites, the NW-GRID can offer high-performance compute resources on demand. In the surprisingly competitive world of science and research, this novel approach has been very successful; it enabled scientists to move their research forward at great pace when required.

Our network and systems can be enhanced and configured to meet your requirements for secure and encrypted access and data transfer. Of course our systems are supported by appropriate disk storage and data backup.

Not just hardware!

The NW-GRID is an initiative involving leading computer experts and research specialists at Daresbury Laboratory and top Universities in the North West of England. Therefore the computational grid is underpinned by a collaborating network of scientists, computers experts, software developers and administrators. The existence of this "people grid" has been an important outcome of the NW-GRID initiative. It has enabled staff at our institutions to work together as a large pool of experts benefiting the region and beyond. Working in concert has helped us to find focussed, innovative solutions to research challenges in less time than otherwise possible.

What can NW-GRID Services offer?



Computational power in itself is of no immediate benefit. Where NW-GRID creates real value for your projects is the combined access to hardware, open source and commercial application codes together with our expert knowledge and experience.

NW-GRID Services is able to offer services from a basic pay-as-you-go service for access to computational resources to complete projects where our computational, application experts and scientists use our systems and collaborate with you to effectively identify solutions and opportunities.

This way we are able to competitively meet your growing demands through a number of flexible pricing models .

Example:

In collaboration with physicists from Lancaster University, the NW-GRID designed and implemented an improved secure access mechanism, made performance improvements to existing application codes and created an access window to over a 1000 cores at short notice, thereby enabling scientists to complete their nano-technology research and win the race for publication of results in "Nature".

Applications Areas for NW-GRID Services:

- Mechanical Engineering;
- Chemistry (atomistic, quantum and meso-scale);
- Physics;
- Biochemistry and Bioinformatics;
- Medical and Pharmaceutical;
- Social Science (statistical analysis and modelling);
- Data and Text Mining;
- Economics and Financial;
- Geo-spatial and Geological;
- Nano-technology;
- Fluid Dynamics and Capillary Flow;
- Materials Science;
- Anatomy and Movement;
- Aerodynamics and Aircraft Engineering;
- Weather and Climate modelling and prediction;
- Energy and the Environment.

Separate technical case studies for applications in the above areas are available.