Introduction to e-Infrastructure: Enabling the Research of the Future

Report of Contributions

https://indico.cern.ch/e/431502

Contribution ID: **1** Type: **not specified**

Welcome and Introduction

Monday, 20 March 2006 09:30 (10 minutes)

Session Classification: e-Infrastructure

Contribution ID: **2** Type: **not specified**

Overview of e-Infrastructure

Monday, 20 March 2006 09:40 (40 minutes)

The concepts of the different aspects of e-Infrastructure are explained, including networks connecting resources of data and computation; Grids that enable these resources to be perceived as "virtual computers"; tools that support collaboration.

The impact that e-Infrastructure is beginning to have on research and learning is described with emphasis on the enabling of collaboration and the potential for multi-disciplinary research.

The talk sets the context for the remainder of the day, which explores e-Infrastructure at different scales - the campus, nationally and internationally.

Author: MIKE MINETER (NeSC training team)

Presenter: MIKE MINETER (NeSC training team)

Session Classification: e-Infrastructure

Contribution ID: **3** Type: **not specified**

Closing discussion

Monday, 20 March 2006 16:30 (30 minutes)

Session Classification: e-Infrastructure

Contribution ID: **4** Type: **not specified**

e-Research Support in the North West

Monday, 20 March 2006 16:00 (30 minutes)

We describe the support available for e-Research in the North West. There are e-Science Centres at Manchester, Daresbury and Lancaster and national services such as the National Centre for e-Social Science has its hub at Manchester and a major spoke at Lancaster.

Author: JOHN BROOKE

Presenter: JOHN BROOKE

Session Classification: e-Infrastructure

Contribution ID: **5** Type: **not specified**

Campus grids: e-Infrastructure within a University

Monday, 20 March 2006 10:20 (40 minutes)

Many UK universities and institutes have already deployed e-Infrastructures. Their motivations, methods, problems and opportunities are summarised.

Current emphasis is often on the better use of computational resources - so for example, teaching laboratories with many PCs can be used overnight as a high-throughput resource for computation.

The potential for e-Infrastructure to contribute more widely to research and learning is explored.

Author: MIKE MINETER (NeSC training team)

Presenter: MIKE MINETER (NeSC training team)

Session Classification: e-Infrastructure

Contribution ID: **6** Type: **not specified**

case study / The North-West Grid

Monday, 20 March 2006 11:20 (30 minutes)

We describe the structure of the North-West Grid which will operate between 4 partners at CCLRC Daresbury and the Universities of Lancaster, Liverpool and Manchester, starting in April 2006, providing access to over 1000 high performance processors connected by fast intranet and internet links.

Author: JOHN BROOKE (ESNW)

Presenter: JOHN BROOKE (ESNW)

Session Classification: e-Infrastructure

Contribution ID: **7** Type: **not specified**

UK-wide e-Infrastructure

Monday, 20 March 2006 11:50 (45 minutes)

UK e-Infrastructure comprises the networks (JANET, SuperJANET, UKLight), the National Grid Service and the supporting organisations such as the Grid Operations Support Centre and the Open Middleware Infrastructure Institute (OMII). An introduction to these is given. Related developments emerging from JISC are also summarised.

Author: MIKE MINETER (NeSC training team)

Presenter: MIKE MINETER (NeSC training team)

Session Classification: e-Infrastructure

Contribution ID: **8** Type: **not specified**

Pulsar Astronomy on the Grid 1999-2006

Monday, 20 March 2006 13:35 (40 minutes)

We describe the use of Grid resources to process data from the Jodrell Bank radio telescope in the search for new pulsars. This work spans the period from the birth of Grid computing to current implementations on clusters at Jodrell and on the NGS.

Author: JOHN BROOKE

Presenter: JOHN BROOKE

Session Classification: e-Infrastructure

Contribution ID: **9** Type: **not specified**

International e-Infrastructure

Monday, 20 March 2006 14:15 (40 minutes)

Many research collaborations are international. These can be empowered by an international e-infrastructure. Examples are given.

The major European initiatives that integrate national initiatives in networking (GEANT), high performance computing (DEISA) and grid computing (EGEE) are described.

The implications of international e-Infrastructure are summarised with reference to emerging standards and interoperability between grids that support many reseach communities.

Author: MIKE MINETER (NeSC training team)

Presenter: MIKE MINETER (NeSC training team)

Session Classification: e-Infrastructure

Contribution ID: **10** Type: **not specified**

ConvertGrid

Monday, 20 March 2006 15:20 (40 minutes)

At present, social scientists and students wishing to exploit the vast resources of data available have to spend considerable amounts of time converting these data sets to an exploitable geographic format.

ConvertGrid demonstrates the ways in which social sciences can benefit from grid technologies.

Author: KEITH COLE

Presenter: KEITH COLE

Session Classification: e-Infrastructure

Contribution ID: **11** Type: **not specified**

Practical: data services on the NGS: SRB

Tuesday, 21 March 2006 15:30 (30 minutes)

Session Classification: Induction to the National Grid Service

Contribution ID: **12** Type: **not specified**

An Overview of the myGrid Project

Tuesday, 21 March 2006 14:00 (30 minutes)

myGrid is a suite of middleware components designed to support in silico experiments in biology. In the Life Sciences domain in silico experiments generally involve accessing disparate and heterogeneous biological data and analysis tools. Traditional approaches have involved 'cutting and pasting'or writing bespoke programmes to run over local copies of resources. The myGrid workbench, Taverna, enables the construction and enactment of complex workflows over resources on local and remote machines, allowing the automation of otherwise labour-intensive multi-step bioinformatics tasks. The use of distributed compute technology enables easy interoperation between biological resources, and the harnessing of semantic web technologies enables myGrid to support the e-Science experiment life cycle. Workflows can be designed and executed; monitored and recorded; and shared and re-used.

This talk will give an overview of the myGrid project, its users in the Life Science community and future directions for the project.

Author: KATY WOLSTENCROFT (ESNW University of Manchester)

Presenter: KATY WOLSTENCROFT (ESNW University of Manchester)

Session Classification: Induction to the National Grid Service

Contribution ID: **13** Type: **not specified**

An Overview of the RealityGrid Project

Tuesday, 21 March 2006 16:00 (30 minutes)

The focus of the RealityGrid project is the use of the Grid to facilitate the simulation of condensed-matter systems such as material surfaces, miscible fluids and macro-molecules. The scientists doing such work typically have existing codes (written in a variety of languages) for doing the calculations and require access to powerful, parallel computing resources.

The RealityGrid project has provided a set of tools for use by the application scientists. These tools include functionality for launching, cloning and migrating calculations on Globus Toolkit 2.x-based Grids, monitoring and interacting with a running job (including the provision of on-line visualization) and managing the checkpoints produced by a job or set of jobs.

In this talk I will discuss how RealityGrid has used evolving Grid technology to construct tools that enable computational scientists to extract greater value from their existing simulations and to tackle problems that were previously too difficult or costly with traditional approaches.

Author: JOHN BROOKE (ESNW University of Manchester)

Presenter: JOHN BROOKE (ESNW University of Manchester)

Session Classification: Induction to the National Grid Service

Contribution ID: **14** Type: **not specified**

Practical - gaining access to the NGS

Tuesday, 21 March 2006 09:30 (1 hour)

A short talk on authorisation, authentication and security, followed by a practical introduction to the use of UK e-science certificates.

Author: MIKE MINETER, GUY WARNER (National e-Science Centre)

Presenter: MIKE MINETER, GUY WARNER (National e-Science Centre)

Session Classification: Induction to the National Grid Service

Contribution ID: **15** Type: **not specified**

Practical: Creating and Running an application on the NGS

Tuesday, 21 March 2006 10:30 (45 minutes)

Session Classification: Induction to the National Grid Service

Contribution ID: **16** Type: **not specified**

Practical continues

Tuesday, 21 March 2006 11:30 (1h 30m)

Session Classification: Induction to the National Grid Service

Contribution ID: **17** Type: **not specified**

Practical - data services on the NGS: OGSA-DAI

Tuesday, 21 March 2006 14:30 (45 minutes)

Session Classification: Induction to the National Grid Service