



UK NGS

Andrew Richards
Executive Director

Connecting Infrastructure

Connecting Research



Overview

- Our Mission and Goals
- Services and Resource Providers
- Supporting User Communities

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NGS Mission and Goal

To enable 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.

Goal:

- To enable a production quality e-infrastructure
 - Expand towards all Higher Education Institutes and UK based research institutions
 - Continue to support cutting edge research
- To deliver core services and support
 - Research computing groups within universities and research organisations to help them support users
 - Highlight Collaborative research in key communities
- Integrate with international infrastructures following user community demand

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Vision / What we do

- Enable Collaborative Research
- Support HEIs and Research Facilities
 - Enable sharing of resources
 - Tools / Services to integrate resources
- Gateways to European (international) e-infrastructure (NGI)
- Investigate new technologies and develop into production
- Centre of Excellence
 - Support Centre
 - Training
 - Outreach Activities
 - Deployment Expertise / Trial services
 - Standards engagement

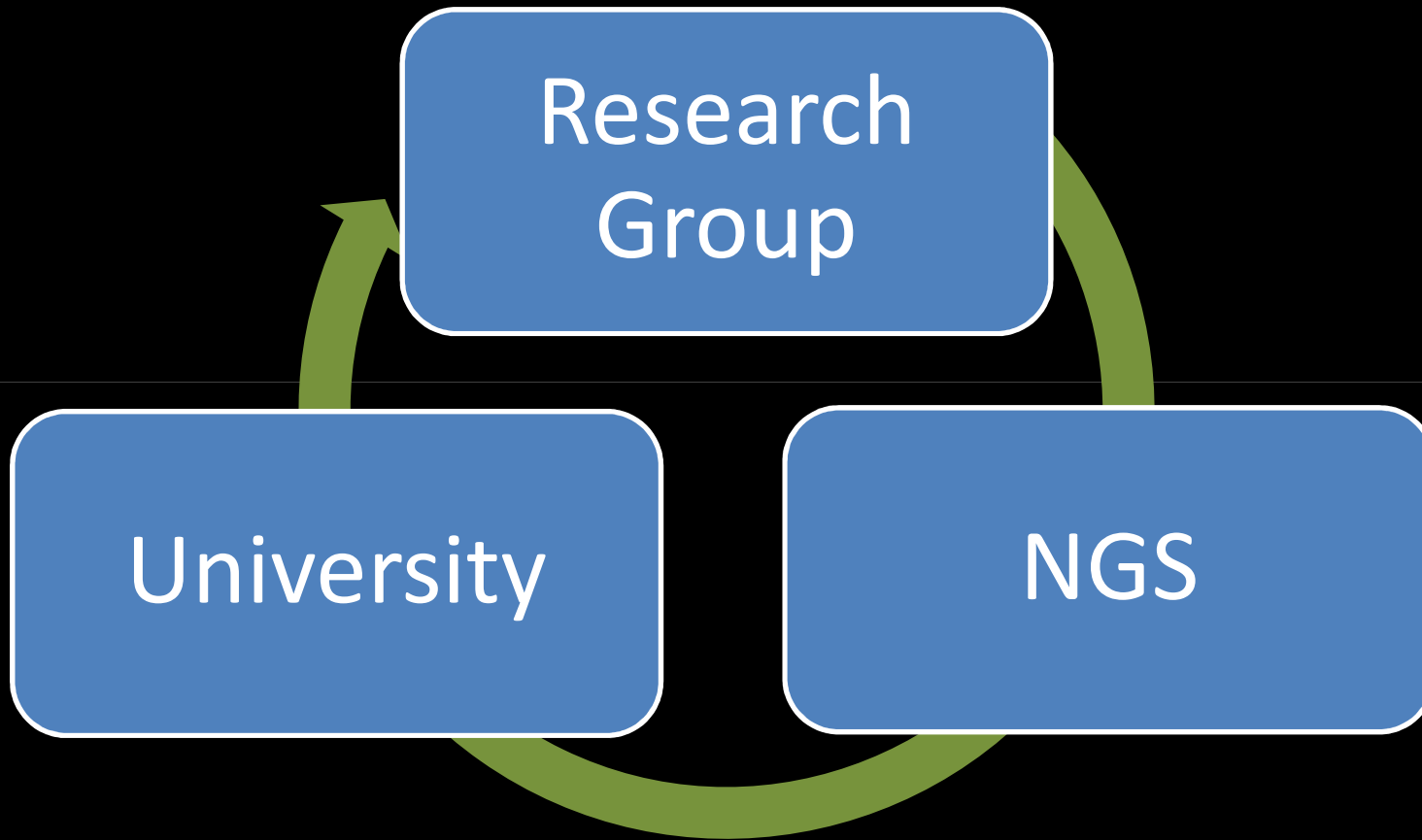
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Research to Service



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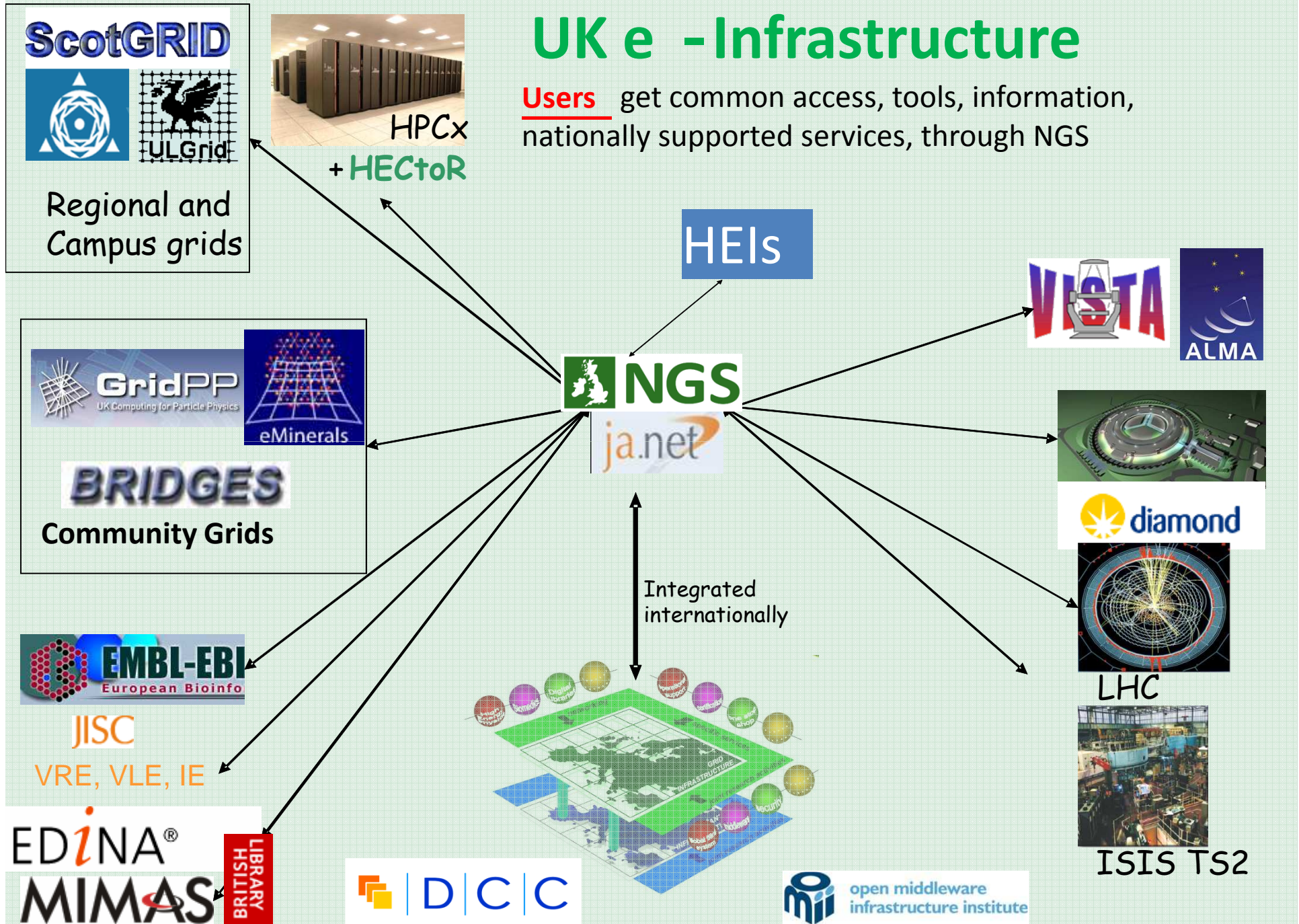


Impact

- Improve accessibility to local resources
- Widen accessibility to local resources
- Use once Use anywhere
- Share/Trade/Buy/Sell resources
- Facilitate collaboration nationally and internationally

UK e - Infrastructure

Users get common access, tools, information, nationally supported services, through NGS





NGS

eGee
Enabling Grids
for E-scienceE



eGI

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Organisational Membership

- Community Membership
 - Appointment of an institutional Campus Champion
 - Liaison between HEI/research organisation and NGS
- Resource Membership
 - Regularly tested installation of NGS defined interfaces as described in the NGS Site Level Services Document
 - Partner
 - Supporting access by a significant body of NGS users
 - Publish a service level description (SLD) detailing the services offered
 - Affiliate
 - Maintains control over permitted users



NGS

NGS Member Institutions, Summer 2010



MANCHESTER
1824



Imperial College
London

Royal Holloway
University of London

HPCx
CAPABILITY COMPUTING



Rutherford Appleton Laboratory

University of Westminster



UNIVERSITY OF
Southampton

CARDIFF
UNIVERSITY



University
of Glasgow



The University of Reading



Brunel
UNIVERSITY
WEST LONDON



KEELE
UNIVERSITY



Durham
University



UNIVERSITY OF
BIRMINGHAM



UNIVERSITY OF
LIVERPOOL



The
University
Of
Sheffield.

THE UNIVERSITY of York

welcome trust
sanger
institute

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What does the NGS offer users?

- Compute services
 - Access to more and different resources
 - Different ways of running jobs e.g. multi site MPI
- Data services
 - Access to data storage
 - Support and advice
 - New ways of accessing data
- Access Services
 - User facing services providing methods to use available resources
- Central Support services
 - Individual services needed to support user access, control and management



NGS Site Level Services

- Description of the different solutions to service requirements challenges
- A set of different modules describing a particular function, each with a number of solutions which are grouped together as profiles
- Supported interfaces are community driven, we will not/cannot dictate what we make available.
- Computational interfaces:
 - VDT
 - gLite
 - Globus 4
 - GridSAM
- Data Services
 - Databases (Oracle), SRB, global filesystems, Service access to structured data (OGSA-DAI)



NGS

Specialist services

Westminster

- Operates and supports P-GRADE portal and GEMLCA legacy application support services



Belfast e-Science Centre

- Web Service Hosting Container Service
 - Web service containers into which projects or VOs can deploy their own Web or Grid services, using automatic deployment technology

Oxford e-Research Centre

- OMII-UK GridSAM
 - OGF HPC-Basic Profile compliant Job submission
 - Promoting interoperability with international grids
- Eucalyptus Cloud system
 - Exposing AWS compatible interfaces and functionality to NGS users

Edinburgh

- Eucalyptus Cloud system

STFC Rutherford Appleton Laboratory

- Visualisation using specialised cluster from within the STFC e-Science Viz group

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User access

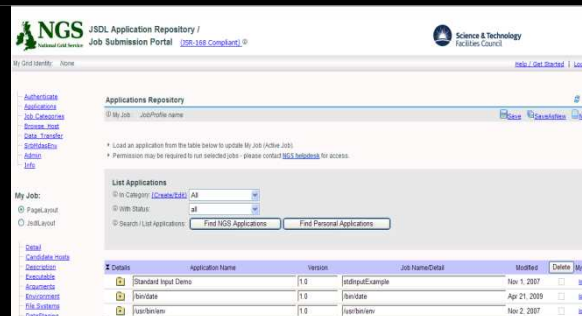
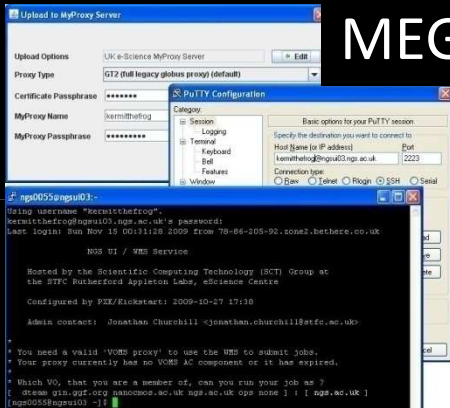


Direct access

GSI-SSH terminal



MEG



NGS Portal/
Applications
Repository

- SARoNGS
- WMS
- Application Hosting Environment (AHE)



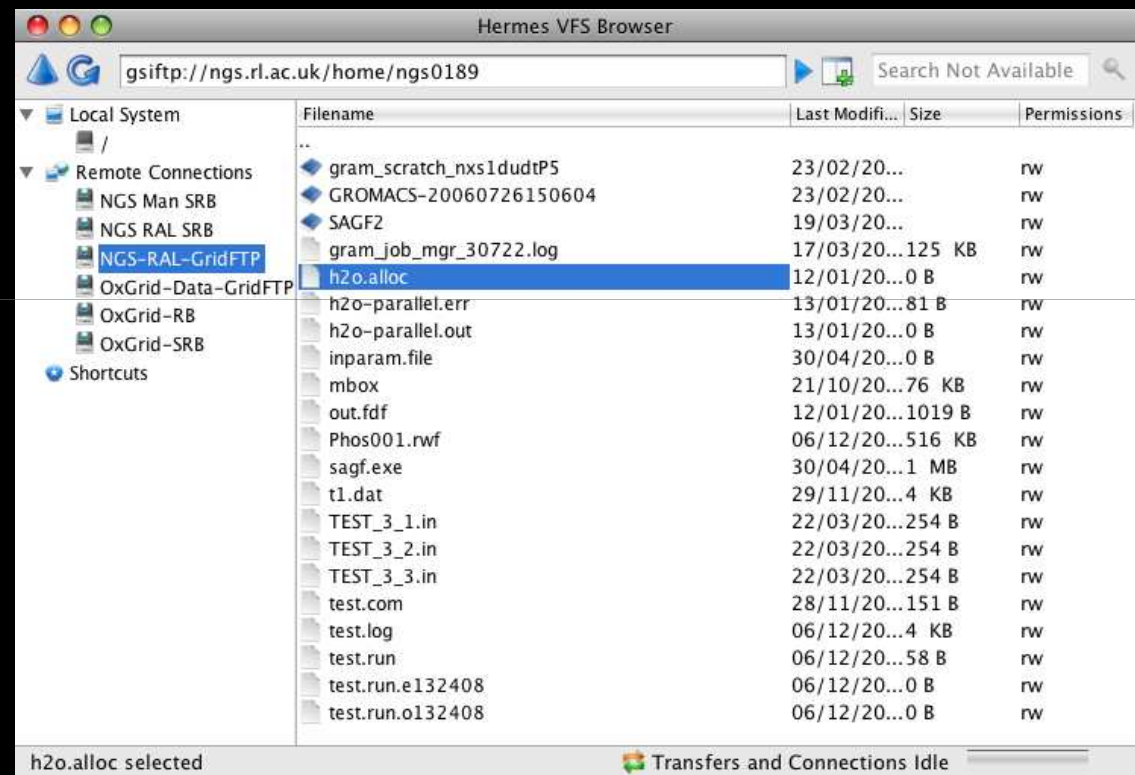
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HERMES data client

- Drag and drop file movement between local filesystem, SCP, GridFTP, and SRB
- Java based desktop application
- Authentication and authorisation using UK e-Science certificates

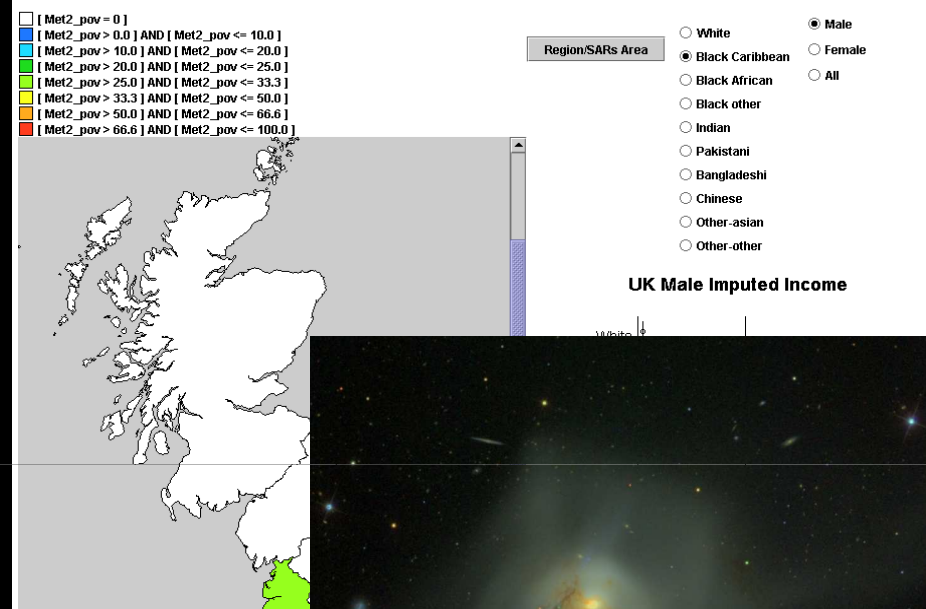
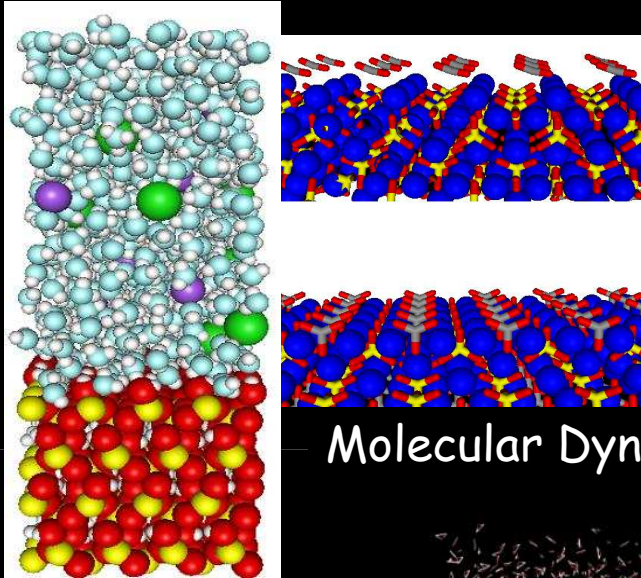




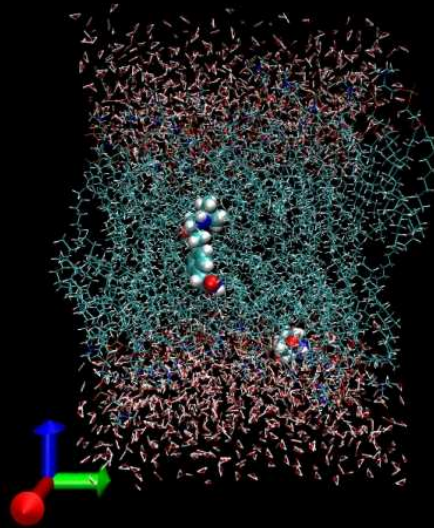
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Examples

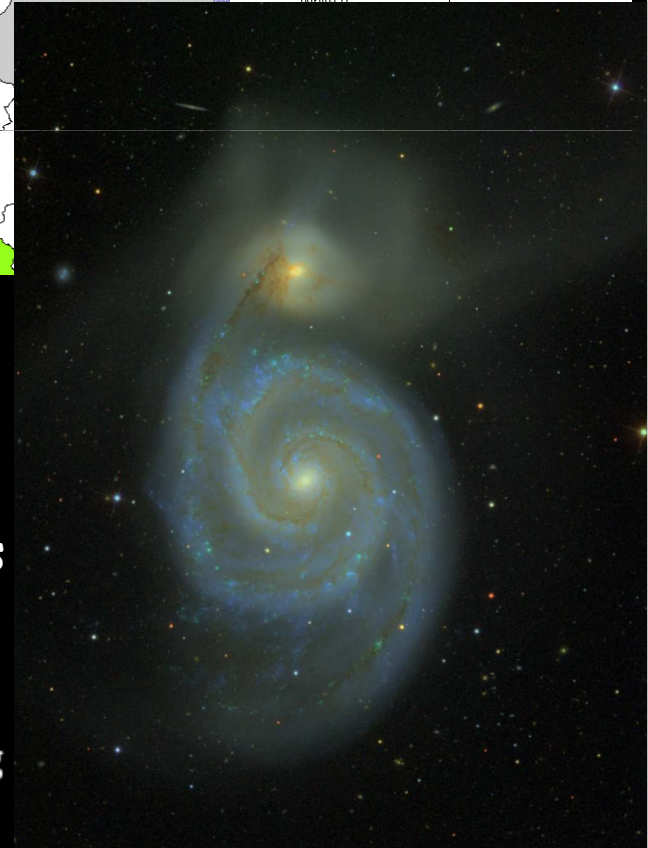
Econometric
analysis



Protein - drug
interactions



Astrophysics
data storage
and analysis





NGS

Prediction of dose in radiotherapy patients

Climate modelling

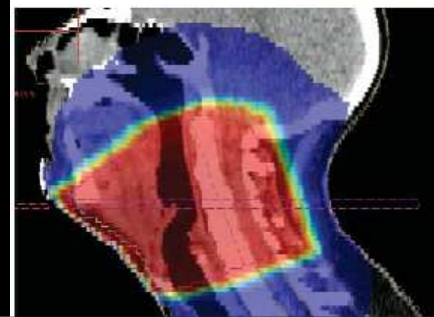
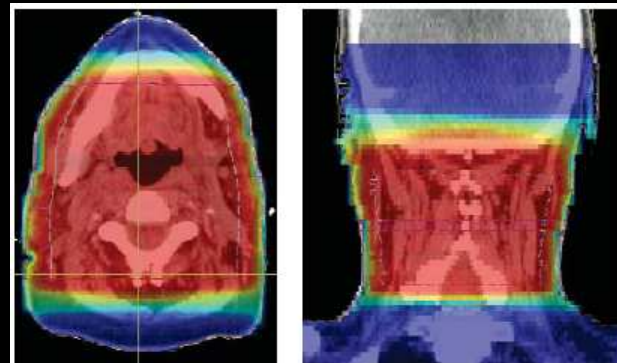
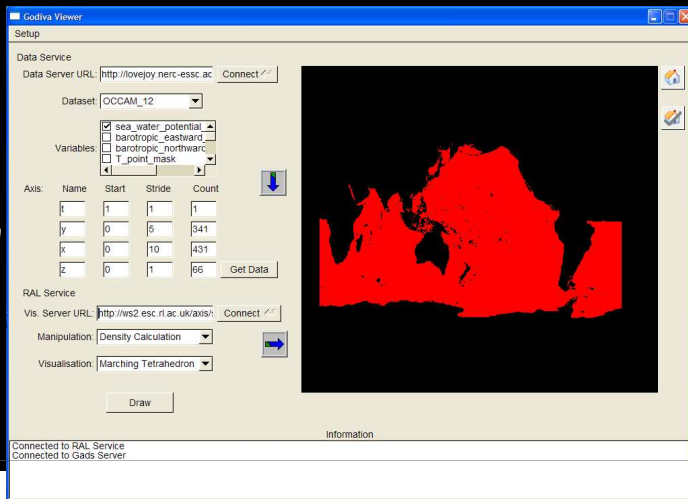
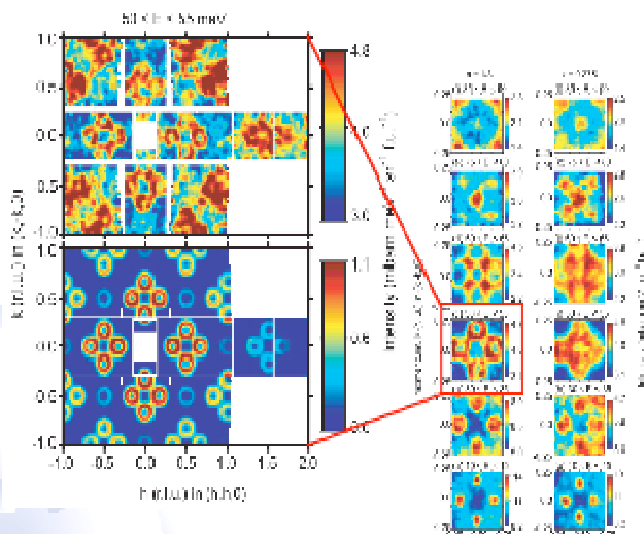
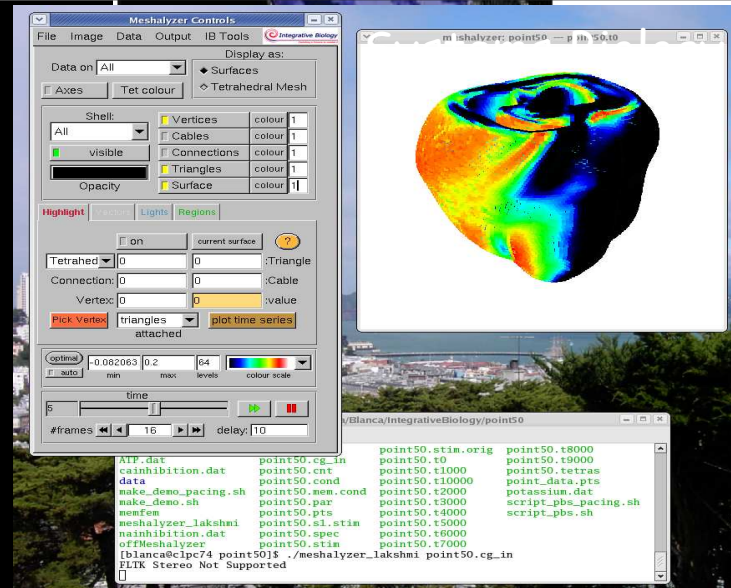


FIGURE 1: Clockwise from top left: tomographic, coronal and sagittal views of a 3-D dose distribution for a head-and-neck cancer treatment. Radiation dose has been color-coded from low (blue) to high (red).

Example: $La_{2-x}Sr_xNiO_4$



H. Woo et al, Phys Rev B 72 064437 (2005)



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Conclusions

- NGS is here to support university research computing services support their research communities by making connection of ITS enabled resources easier
- Existing usage models of NGS enabled resources can be reused quickly and easily by different communities
- Connectivity using standard interfaces will include national data sources including EDINA, MIMAS, as well as experimental facilities such DIAMOND, e-Merlin, ISIS and JET
- The NGS should be a first port of call for large inter-institutional collaborative projects who require ITS enabled services
- We don't do everything....



[Thank You](#)

<http://www.ngs.ac.uk>

support@grid-support.ac.uk

andrew.richards@stfc.ac.uk

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