



open middleware
infrastructure institute uk

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User requirements for and concerns about a European e-Infrastructure

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Background

- Experience in academic HPC provision
 - As researcher, developer and service provider
- UK e-Science programme since inception
 - 2001-2004 LeSC Technical Director
 - 2004-2006 OMII Deputy-Director
 - 2006-2007 OMII-UK Director
- Open (& Global) Grid Forum
 - Active in scheduling and OGSA working groups
 - Area Director for Applications (standards)



Why OMII?

- Requirements emerged mid-programme
 - Dealing with the software legacy from projects
 - Installation effort was turning away new users
 - Stability & support needed to encourage adoption
- Solution
 - Import industrial engineering & testing expertise
 - Fund development beyond research prototypes
 - Provide integrated supported release of software

The OMII-UK Partnership

University of Manchester
European Bioinformatics Institute

- Southampton: 14 FTEs
- Manchester: 9 FTEs
- Edinburgh: 8 FTEs
- Community: ~8 FTEs



University of Edinburgh

myGrid



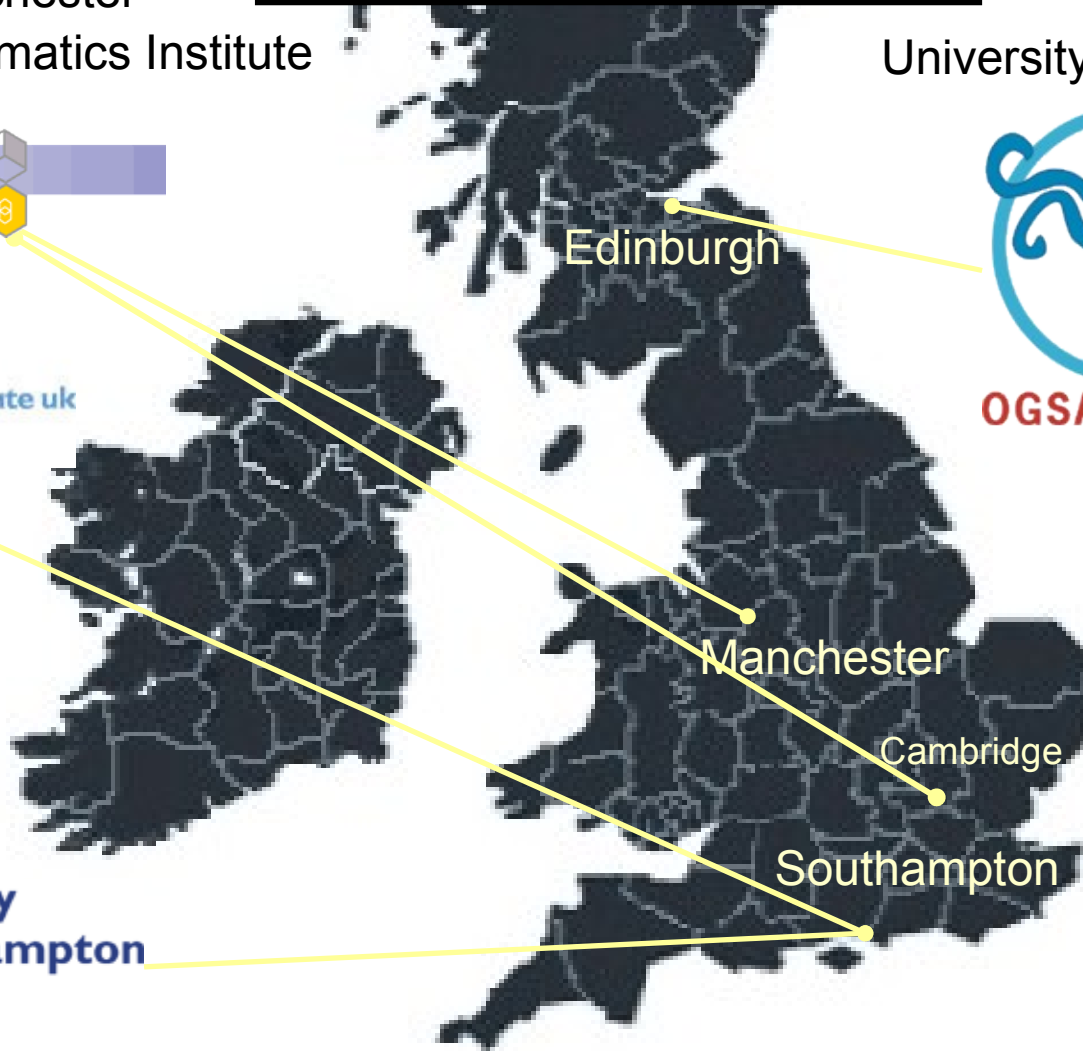
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Electronics and
Computer Science



University
of Southampton





Our Mission...

OMII-UK aims to provide **software and **support** to enable a **sustained** future for the UK e-Science community and its international collaborators**

- Promote the use of good-quality open-source software
- Reduce the risk of moving to new e-infrastructure world
- Recognise distinct user communities: by domain and function

Software for Science from Science



- Fund short-term open-source community development work
 - Responsive mode
 - Specific Calls
- Support consolidation from one project to enable reuse in others (NB: Not research)

Increase confidence & accelerate adoption of open-source software



Perspectives on the future

- Two studies on user requirements
 - July 2004:
 - 25 Conversations with e-Science users (The Roadtrip)
 - With Jennifer Schopf
 - Autumn 2006:
 - Study of User Priorities for e-infrastructure for e-Research
 - With Jennifer Schopf, Andrew Richards, Malcolm Atkinson
- The changing face of UK e-Science
 - The need to deliver on Science goals
 - Technology is necessary but not sufficient



The Roadtrip: What We Found

- Need for Training
 - Complexity for little benefit
- Need for simple & usable Security
 - Mishandling of certificates, firewalls, data integrity
- Functionality
 - Jobs: OK but issues around error detection & handling
 - Files: GridFTP (& RFT)
 - Not: Registries, Discovery, Brokering, Migration, Accounting
- Tools: Simple, Composable, Installable, Stable, APIs
- Operational Infrastructure:
 - Builds & Installation verification



SUPER: Major Common Topics

- Distributed file management and policy
- Tools to support dynamic Virtual Organisations
- Long-term project support:
 - Tools, services, training and consultancy
- Provision of authentication, software licensing, and reliable consistent environments
- User Interaction with e-infrastructure services



Have things improved?

- Fewer concerns about jobs more on files
 - An understood problem?
- Fewer issues on installing software
 - More use of provided infrastructure?
- Not the same issue as two years ago
 - Stopped complaining and just living with it?



BUT...

- Why are there no happy users...?
 - Well there are some... the one-eyed kings!
 - But generally the backlash is in progress...
- Why has e-Infrastructure not been universally adopted?
 - Pioneering projects & communities have had success
 - Required dedicated non-trivial levels of support
 - The current complexity is a barrier to adoption & deployment



European Grid Infrastructure

- It is more than just operational concerns
- It is more than just federated management
- It is *only* about the users and the science they can do
- It *must* be easy for them to migrate to this infrastructure

How are users going to access the EGI?



- Programmatic interfaces
 - e.g. Java, .NET, C/C++
- Command Line Tools
 - e.g. Windows, UNIX, OSX
- Scripting environments
 - e.g. Perl, Python, Matlab, BASH
- Portals
- GUIs
 - e.g. Tools, workflows



How are users going to be supported?

- Good support costs effort
 - Cannot just be left to mailing lists and wikis
- Training and education
 - This is a new way of working
- Consultancy and advice
 - Flexible response dependent on the question
 - From: Email → F2F → Embedded Engineer

How are users going to collaborate?



- Web 2.0 is the solution...
 - What was the question?
- Need to share resources & artefacts
 - Resources: Job execution, File movement, ...
 - Artefacts: Workflows, files, ...
- User centric virtual organisations
 - The resources I have access to:
 - University, NGI, person I met in the pub last night!



e-Infrastructure Requirements

- To justify investment it has to be for all researchers
 - Core programme covers all research councils
- It has to be usable by all researchers
 - No need to be ace Java programmer
- Has to be deployable
 - Easily installed into local environments
- It has to be open to all
 - Open to use & to contribute → Standards



Software is a facility

- It needs investment
- It needs to be sustained
- It needs to be supported
- It is not just about middleware... but software
- It needs multiple providers around standards
- Recognised by OMII-UK, OMII-Europe, OGF



Summary

- Acknowledgements
 - SUPER: Jennifer Schopf & Malcolm Atkinson
- More Information:
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