Building a European e-Infrastructure: The View from the UK

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UK e-Science Funding

First Phase: 2001 –2004

- Application Projects
  - £74M
  - All areas of science and engineering
- Core Programme
 - £35M
  - Collaborative industrial projects

Second Phase: 2003 –2006

- Application Projects
  - £96M
  - All areas of science and engineering
- Core Programme
  - £16M + £25M (?)
  - Core Grid Middleware

The UK Grid Experience: Phase 1

- UK Programme on Grids for e-Science
  - £75M for e-Science Applications
- UK Grid Core Programme for Industry
  - £35M for collaborative industrial R&D
- Over 80 UK companies participating
- Over £30M industrial contributions
  - Engineering, Pharmaceutical, Petrochemical
  - IT companies, Commerce, Media

UK e-Science Grid
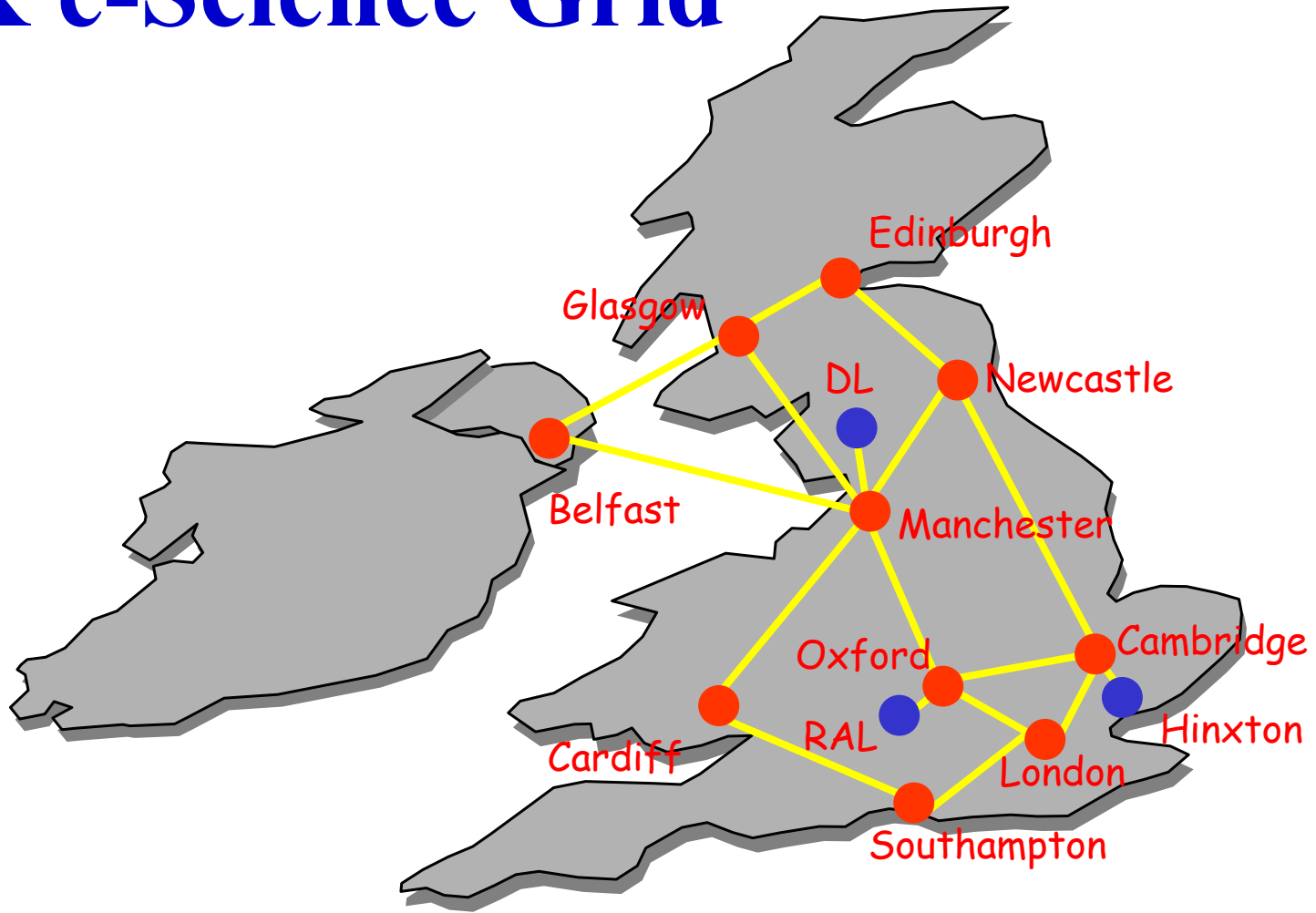
Open Middleware Infrastructure

- Need to develop open source, open standard compliant, middleware stack that will <u>integrate and federate</u> with industrial solutions

- Software Engineering focus as well as R&D

  Aim must be to produce robust, well-documented, re-usable software that is maintainable and can evolve to embrace emerging Grid Service standards

➢ Major focus of Phase 2 of UK e-Science Initiative is creation of an

  'Open Middleware Infrastructure Institute'

Role of UK Open Middleware Infrastructure Institute

- Repository for UK-developed Open Source 'e-Science/Cyber-infrastructure' Middleware

- Documentation, QA and Compliance testing for GGF/WS standards

- Fund software engineering effort to bring 'research project' Grid middleware up to 'production strength'

- Fund middleware development projects for identified 'gaps'

- Work with US, EU Projects and Asia-Pacific

- Supported by major IT companies

An EU Open Middleware Infrastructure Institute?

- Open repository of Middleware from EU Grid Projects

- Compliance testing for GGF standards

- Software engineering to produce 'production quality' middleware

- Work with major IT companies

- Seek partnership with US Cyberinfrastructure Initiative

- Seek Asia-Pacific collaboration

e-Infrastructure: Conclusions

- Many EU R&D projects developing 'proof of concept' Grid middleware

- Urgent need for software engineering effort to develop consistent e-Infrastructure middleware stack
  - Typically requires order of magnitude more effort than required to produce research prototype

- Unless we take co-ordinated action <u>now</u> we will not have a robust e-Infrastructure for deployment for science and industry by 2007

e-Government and the Grid

'[The Grid] intends to make access to computing power, scientific data repositories and experimental facilities as easy as the Web makes access to information.'

Tony Blair, 2002