Motivation

The centre is involved in a number of Grid-related research projects:
- GOLD, OGSA-DAI, Polar*, BASIS, GridMIST, GridSHED, eSyS, e-Demand, myGrid, Microbase, Neuroinformatics
- Issues identified:
  - Commonalities in software requirements
  - Possibilities of reusing software components
  - Testing
  - User education/tutorials
- Experience required in transforming existing Web Services to Grid Services

Building Grid Applications

- Current approach by many UK e-Science projects
- The OGSA approach
  - Grid Applications
  - Basic Grid Services (OGSA)
  - Grid Services Standards (OCSI)
  - Web Service Standards
Plans/Deliverables
- Quality control
- Packaging
- User documentation
- Tutorial material
- Courses on building Grid Services
- UK Level 3 Grid deployment

Future
- OGS-compliance throughout
- Incorporate “best-of-breed” OGS services
- Develop some if necessary
- Available outside Newcastle

Initial release
- September 2003
- Subsequent releases depending on availability of resources

Use the myGrid Web Services as test cases
- Workflow Enactment Service
- Notification Service

myGrid Workflow Enactment Service
- Produced by IT-Innovations (Southampton)
- Supports WSFL, SCUFL

myGrid Notification Service
- Produced by University of Southampton
- Publisher/Subscriber – Push/Pull
- Of course, it could be consumed as is
- Could be converted to a very simple Grid Service
  - A Grid Service instance just provides the same interface – No lessons to be learned
- OGSI defines the optional Notification portType
  - Expose topics as SDEs
  - Still provide operations for pulling messages
  - Significant changes
myGrid Notification Service

- Experiences
  - Notification Service implemented as a servlet
    - Dependencies on mysql, OpenJMS, Tomcat
  - Versioning nightmare if to be combined with other services
  - Very difficult to use the servlet directly
  - A Grid Service Instance sends SOAP messages to the local Notification Service
  - A Grid Service Instance is created for each subscription
    - Interface compatible with OGSI
    - Implementation time-consuming (still in progress)
  - Knowledge of OGSI architecture and concepts required
  - Time spent on learning GT3 and the available tools

Conclusions

- Experience in moving from Web Services to Grid Services
- Smaller, existing projects difficult to persuade
- Larger projects, like myGrid, are considering
- New projects, like GOLD, keen
- Workflow
  - “Named” workflows using a GSH
  - Stateful interactions with a “named” workflow
  - Expose workflow status through an SDE
- Notification
  - OGSI-standard interface
  - Topics as SDEs
  - Value in such a transition?
    - Cost of learning OGSI/OGSA, GT3 or other implementation
    - Costs of porting/wrapping
  - Are Web Services enough to build Grid applications?
  - Look at the Grid Application Framework based on Web Services Specifications and Practices document
    ([http://www.neresc.ac.uk/projects/gaf](http://www.neresc.ac.uk/projects/gaf))

Read SDEs names

Notification Grid Service Instance

Publisher

SDEs names

Subscribe to SDE (GSR)

Subscriber

ok

Delivery

Subscriber

Notification Grid Service Instance

Publisher