

ICENI: An integrated Grid middleware to support e-science

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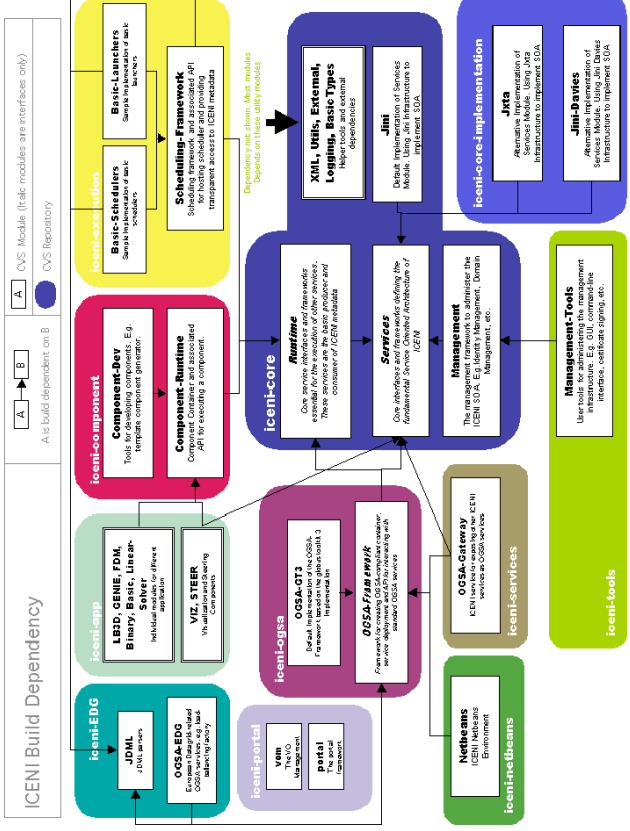
‘Enabling the e-Scientist’

- Established applied multi-disciplinary research
- Industrial Collaborations:
 - Sun Centre of Excellence in e-Science
 - Intel Virtual European Centre of Grid Computing
- Cross-campus collaborations:
 - Bioinformatics
 - High Energy Physics
 - Computational Engineering
- Specialisation: Next Generation Grid Middleware
- <http://www.lesc.imperial.ac.uk/>

*The Iceni, under Queen Boudicca,
united the tribes of South-East
England in a revolt against the
occupying Roman forces in AD60.*



- **IC e-Science Networked Infrastructure**
- Developed by LeSC Grid Middleware Group
- Collect and provide relevant Grid meta-data
- Use to define and develop higher-level services
- Interaction with other frameworks: OGSA, Jxta etc.

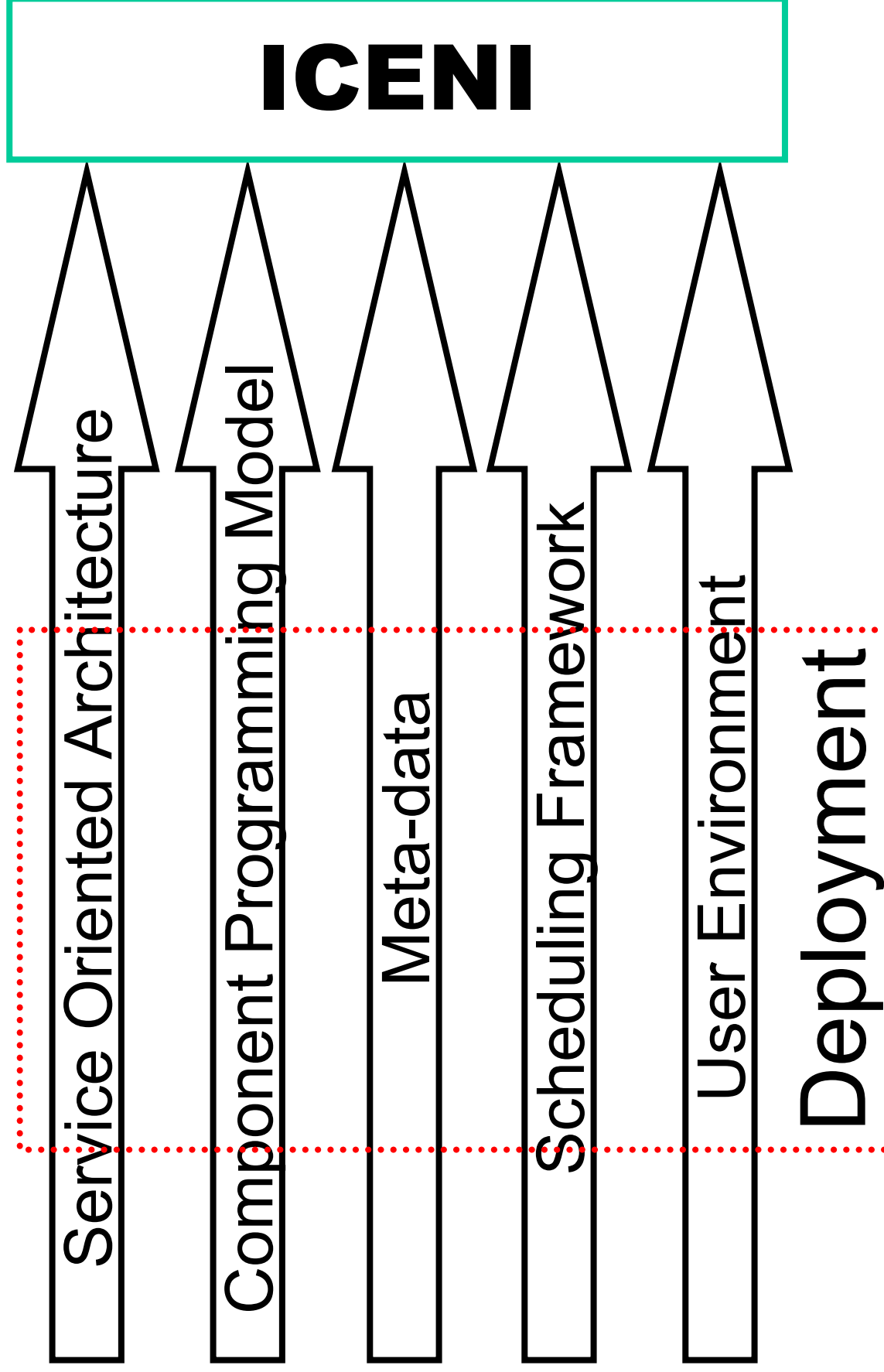


- Project Website & mailing lists
- Daily build
 - Regression tests
 - On success binaries updated
 - Regenerated JavaDoc
 - Deployment tests

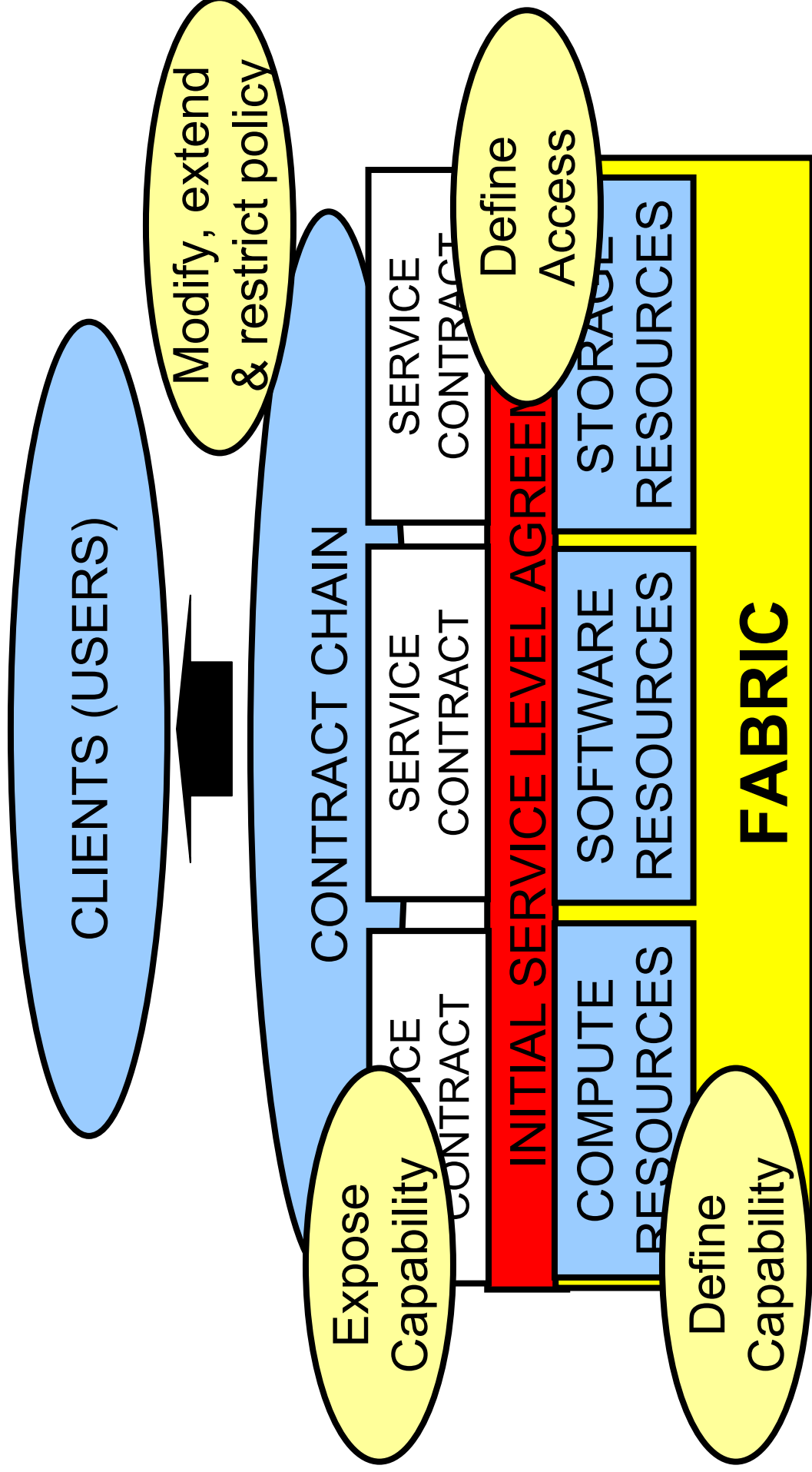
- CVS
 - Code split across multiple repositories & modules
- Documentation, manuals & user guides
- ICENI Open Source License (Extended SISSL)

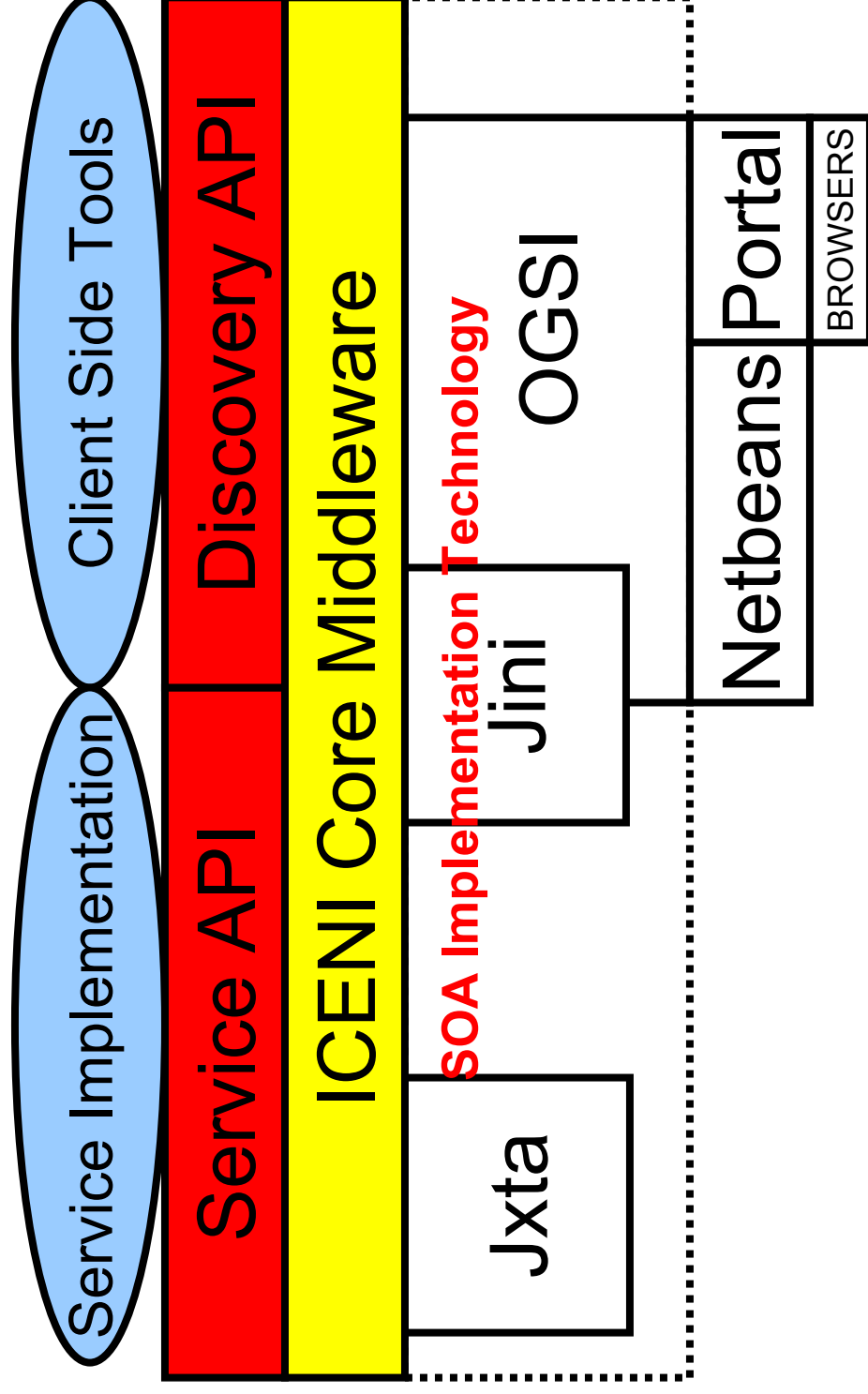
Name	Value
binary.root	http://www.lesc.ic.ac.uk/iceni/downloads
gateway.cacert.dir	\${user.home}/.globus/ca
gateway.cert.file	\${user.home}/.globus/host/hostcert.pem
gateway.handler.threads	60
gateway.http.port	8081
gateway.key.file	\${user.home}/.globus/host/hostkey.pem
global	INFO
iceni.console.debug	true
iceni.domain.http.port	9086
iceni.home	/Volumes/wwhl/work/iceni-binary
iceni.jini.home	\${iceni.home}/iceni-services-jini/lib/jini1_2
iceni.jini.home.lib	\${iceni.jini.home}/lib
iceni.jini.policy	\${iceni.jini.home}/policy/policy.all
iceni.private.domain.jini.http.port	8090
iceni.private.domain.jini.log	\${iceni.temp}/jini
iceni.private.domain.jini.mahalo.log	\${iceni.private.domain.jini.log}/mahalo
iceni.private.domain.jini.port	8091

Centralised configuration and service execution



Contract (SLA) Specified Services within ICENI





ICENI OGSA Service Browser

The screenshot displays the ICENI OGSA Service Browser interface. The top section shows a list of services grouped by community, port types, and host. The bottom section shows a circular diagram illustrating the relationships between various services.

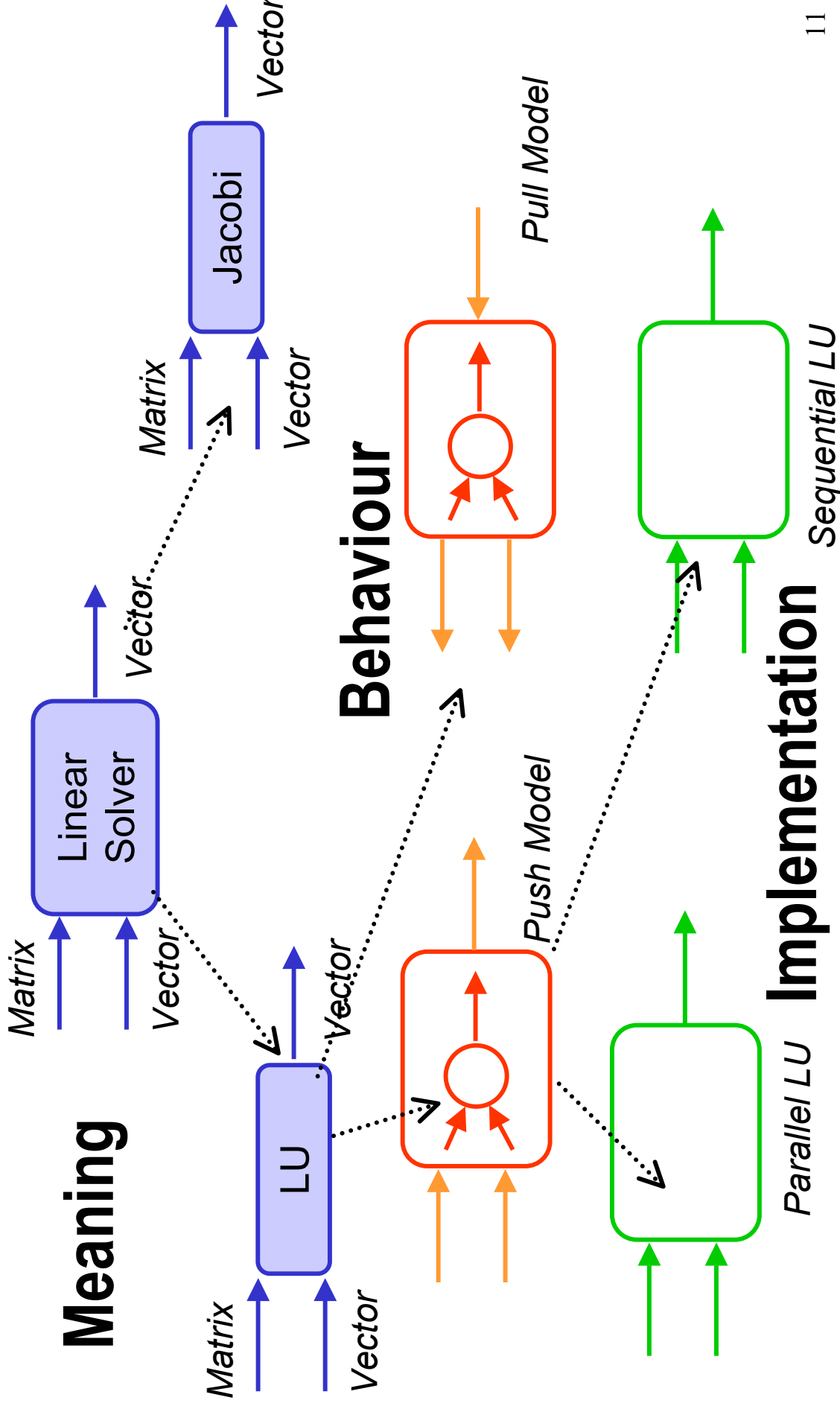
Services List:

- ICENI
- Services
- Group by Community
- Group by Port Types
- Factory
- FactoryServiceGroup
- GridService
- ICENIGridService
- NotificationFactory
- NotificationServiceGroup
- NotificationSource
- PublicResourcePortType
- Scheduler
- SchedulerPortType
- SecureContextEstablishmentPortType
- ServiceGroup
- TestService
- org.icenigrd.ogsa.gateway.test.TestService
- Group by Host
- rhea.lesc.doc.ic.ac.uk
- Authentication Service
- Basic Counter Factory
- Container Registry Service
- Generic Persistent Grid Service
- Handle Resolver
- ICENI OGSA Service
- Notification Subscription Service
- saturn.icpc.doc.ic.ac.uk
- Group by ICENI Component Types
- Applications
- Compositions
- LB3D
- Running Applications

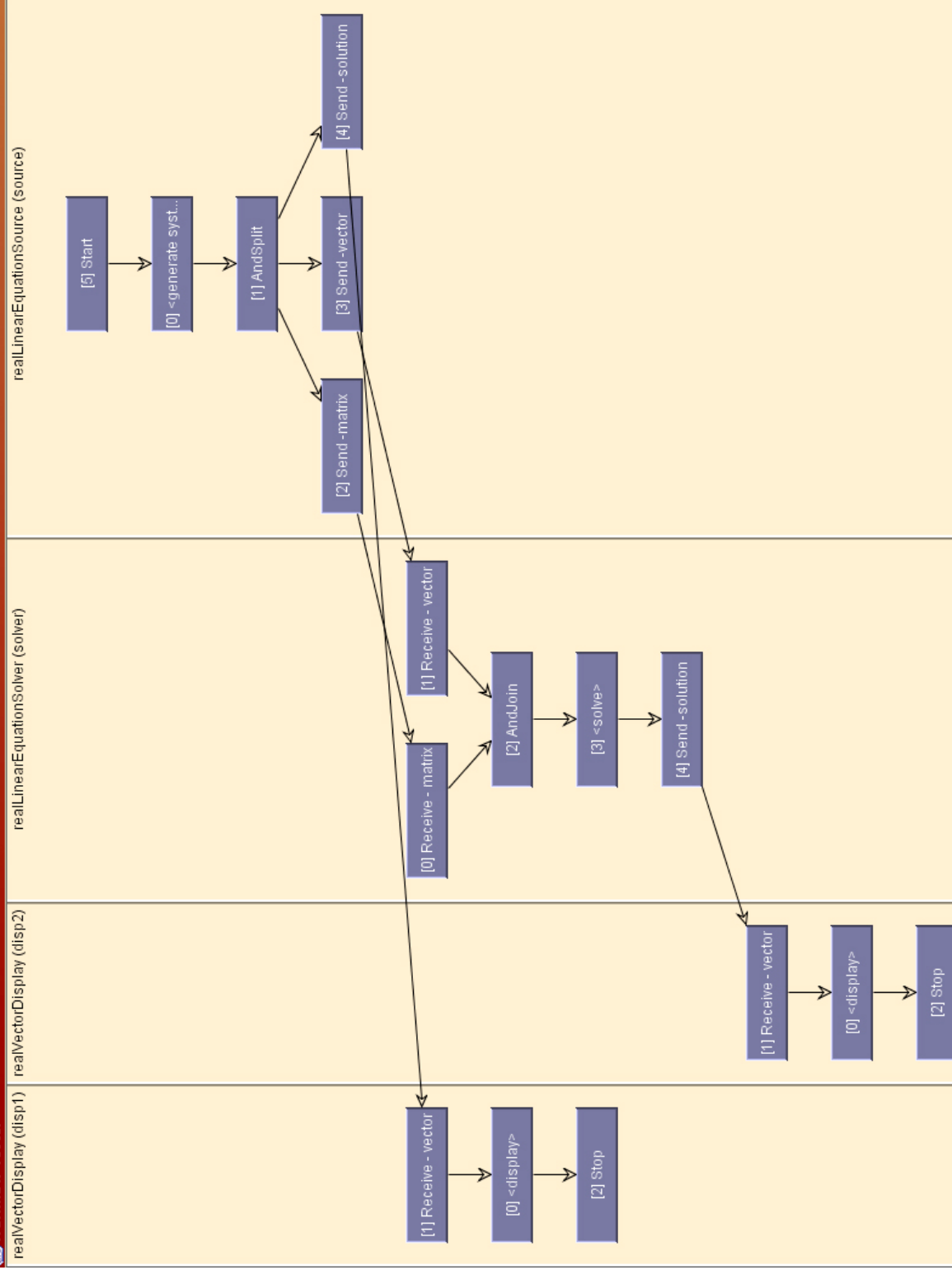
Service Relationships Diagram:

The diagram shows a circular arrangement of services, each represented by a blue circle containing green dots. The services are labeled as follows:

- Factory
- Scheduler
- FactoryServiceGroup
- NotificationSource
- NotificationServiceGroup
- SecureContextEstablishmentPort...
- ICENIGridService
- TestService
- NotificationFactory
- GridService
- PublicResourcePortType
- SchedulerPortType
- Factory

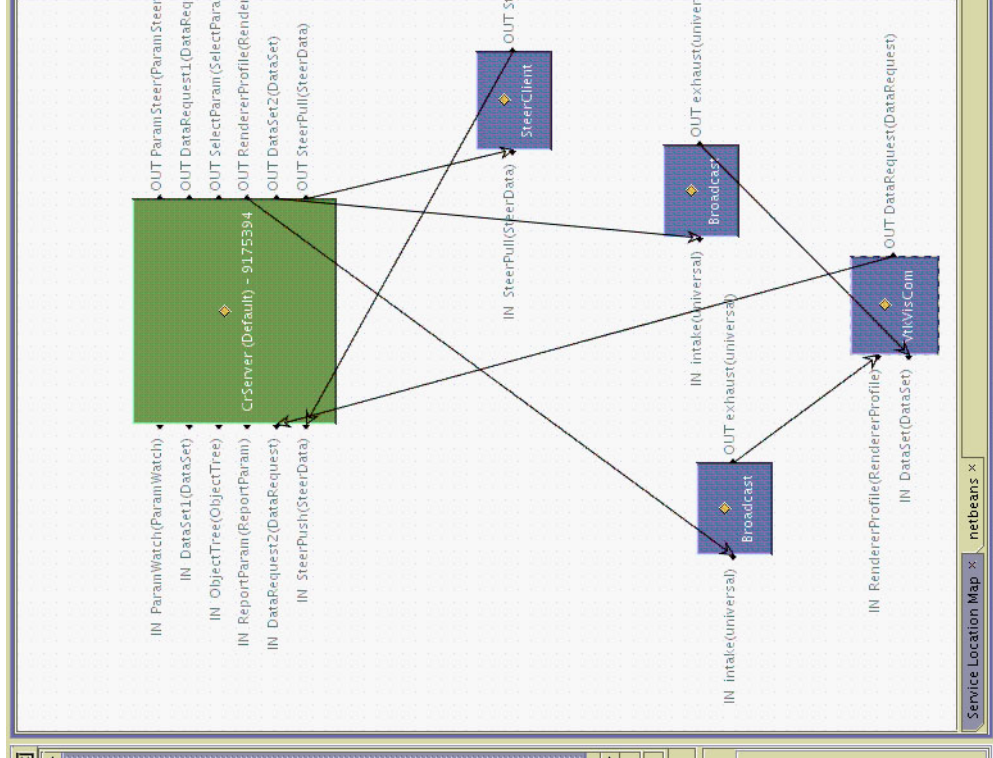
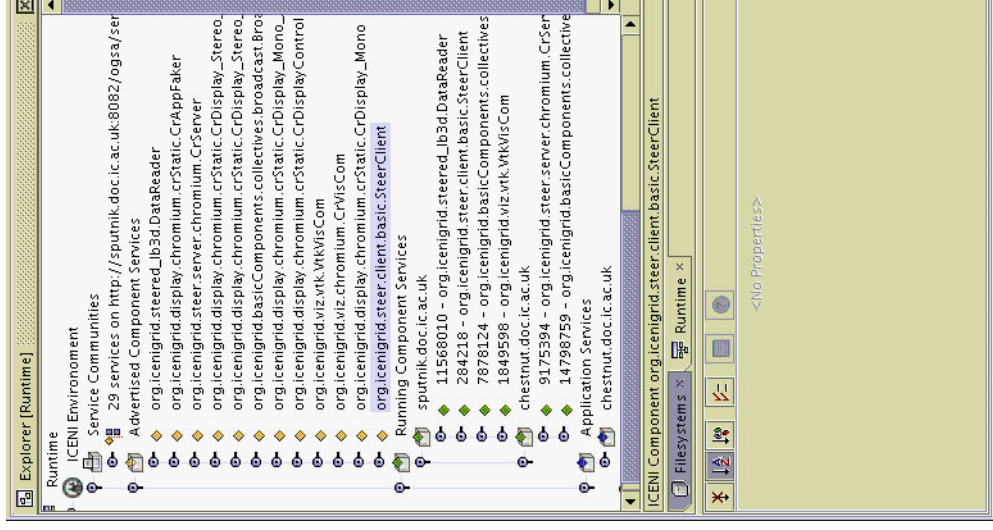


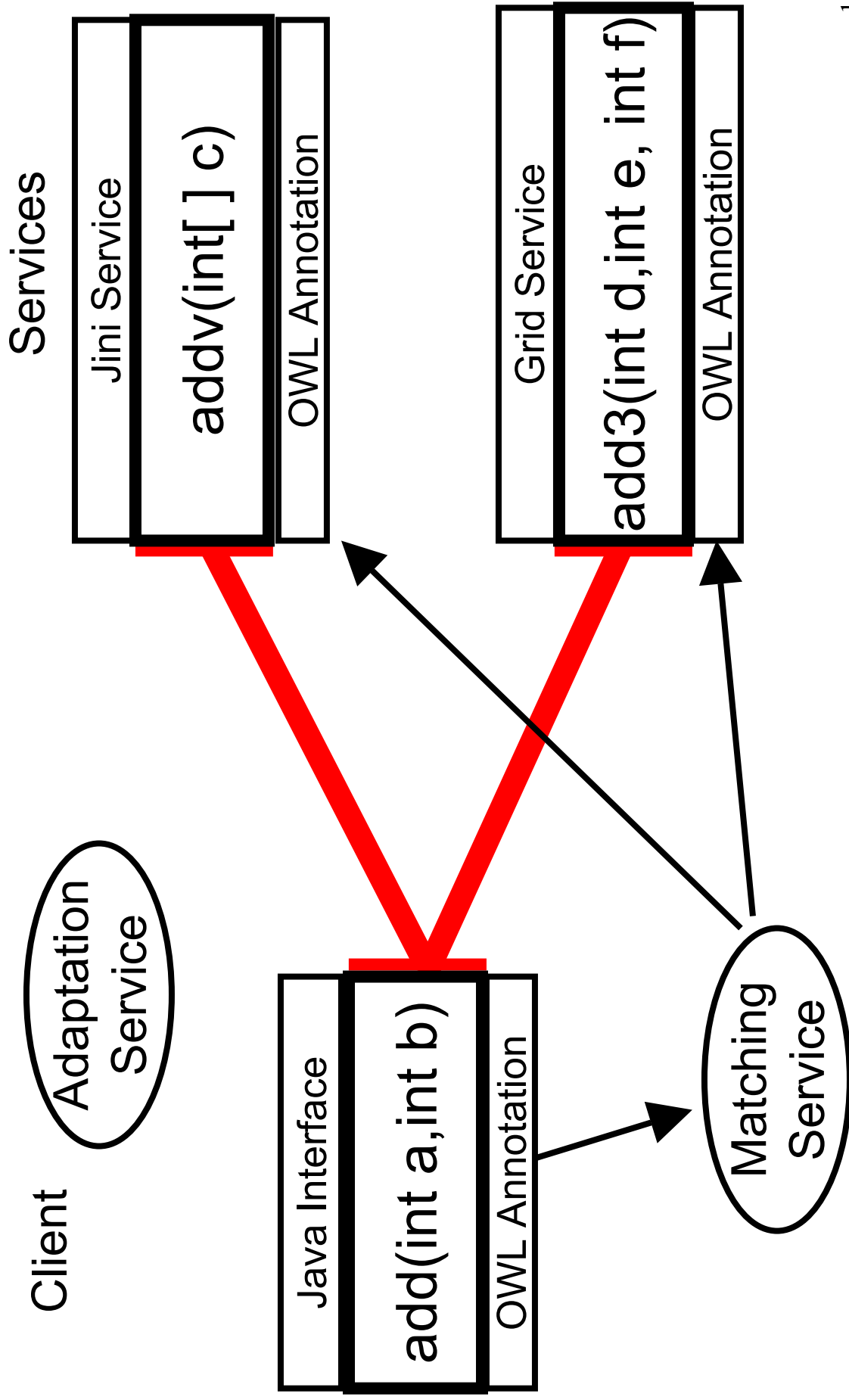




- Exploit common meta-data within SOA
 - Service description
 - Inter and intra component workflow
 - Access & control at service & method level
- Extensible Scheduling framework & simulator
 - Random
 - Round Robin
 - Game Theory
 - Simulated Annealing

- Discover running applications
- Compose with visualisation workflow
- Dynamic scheduling of new components
- Integration with AG





- UK Core e-Science Programme project
- Interfaces & protocols to trade Grid Services
- Funded by Department of Trade & Industry
- Collaborators
 - London e-Science Centre (LeSC)
 - e-Science North West (ESNW)
 - Southampton e-Science Centre (SeSC)
 - UK Grid Support Centre



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