



London e-Science Centre

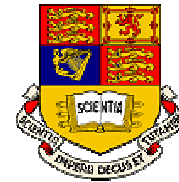


www.lesc.ic.ac.uk

Utility Computing: Security & Trust Issues



Dr Steven Newhouse
Technical Director



London e-Science Centre
Department of Computing, Imperial College London



ICENI

London e-Science Centre



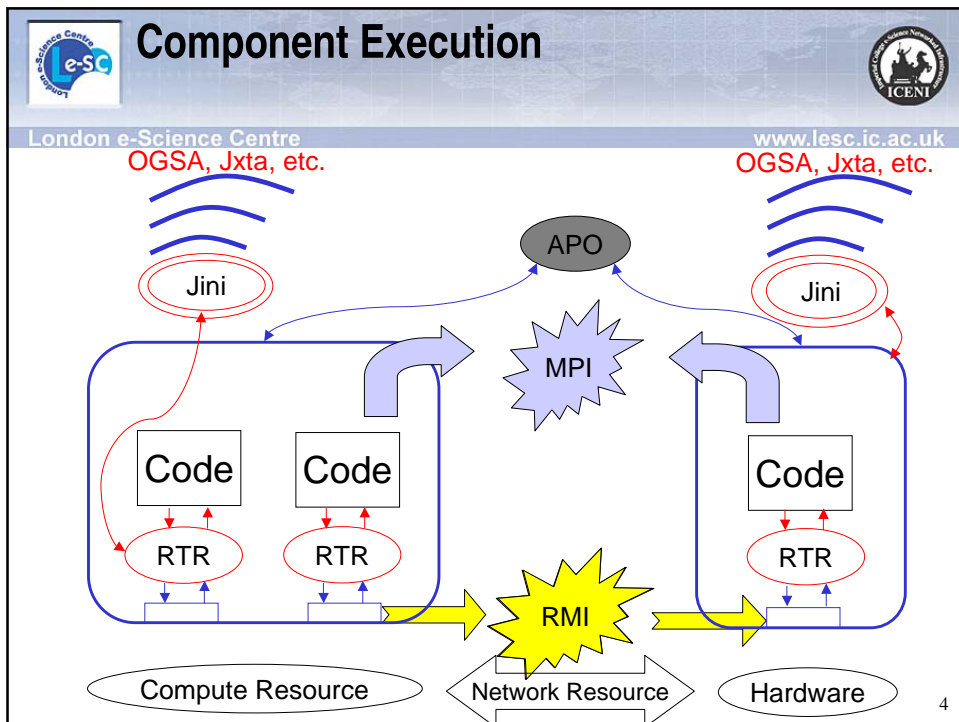
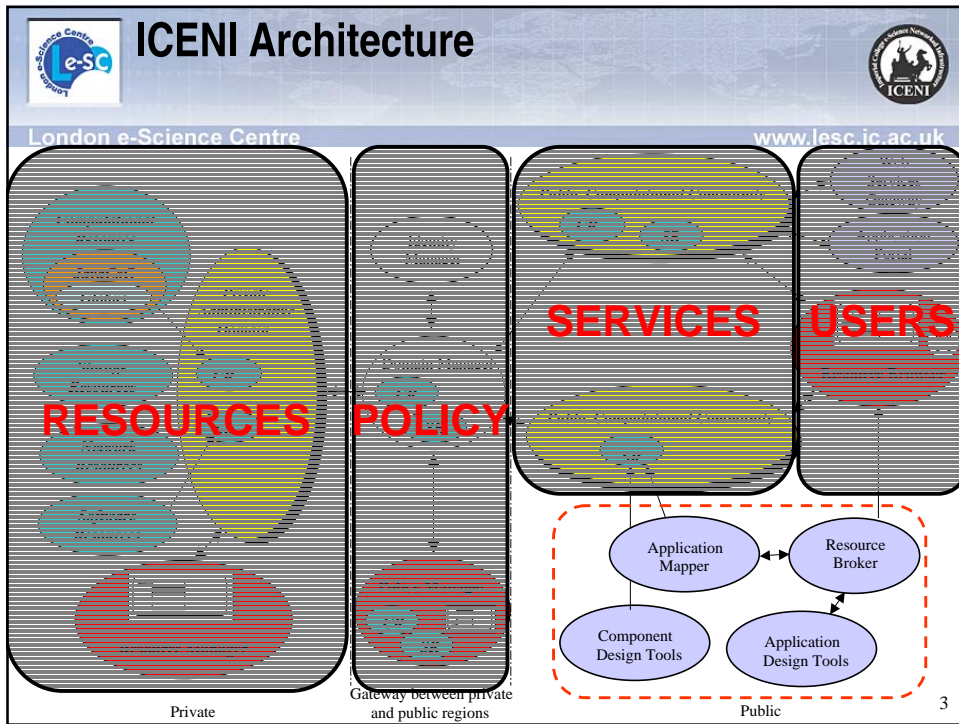
www.lesc.ic.ac.uk

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



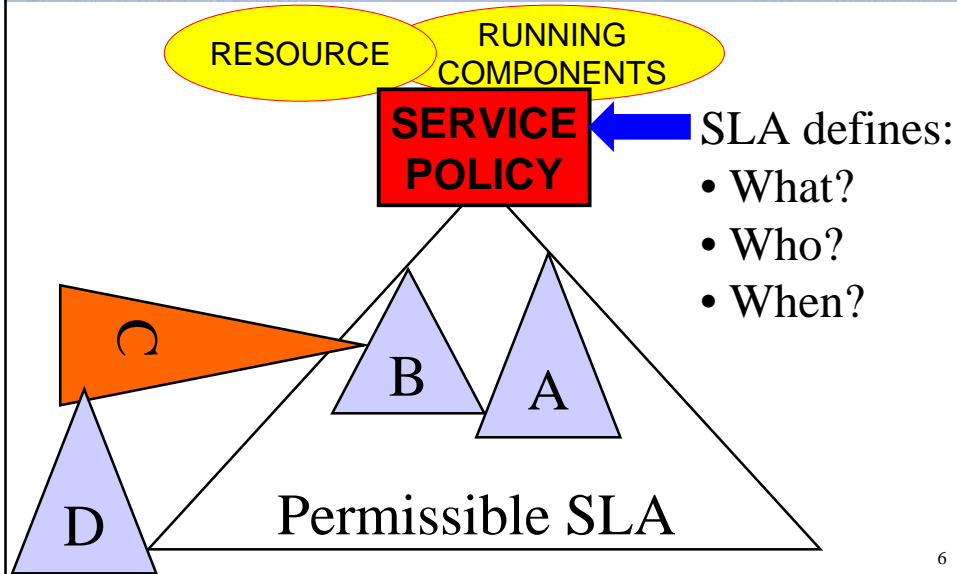
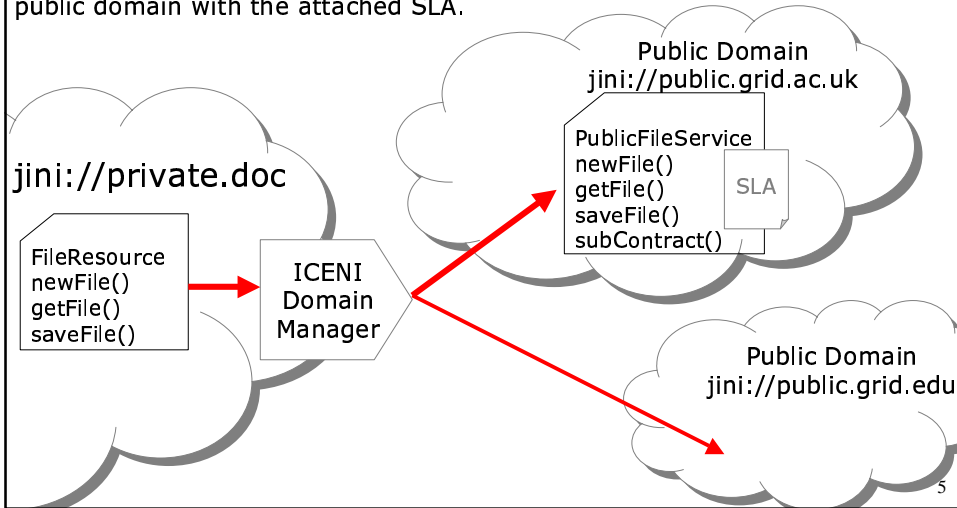
- **IC** e-Science **N**etworked **I**nfrasturcture
- Developed by LeSC Grid Middleware Group
- Collect and provide relevant Grid meta-data
- Use to define and develop higher-level services
- Interaction with other frameworks: OGSA, Jxta etc.

2



DomainManager publishes resource to public domain with the attached SLA.

Life in the Public Domain





Trading Grid Services



London e-Science Centre

www.lesc.ic.ac.uk

- UK Core e-Science Programme
 - Partially funded by Department of Trade & Industry
 - Adoption by UK business is a key success criteria
 - Joint projects between Industry & Academics
- Computational Markets project
 - Requested by Tony Hey, UK e-Science Director
 - Led by Professor John Darlington, Director, LeSC
 - Define service interfaces & protocols to enable the trading of services

7



Partners



London e-Science Centre

www.lesc.ic.ac.uk

- Research
 - London e-Science Centre
 - Manchester e-Science Centre
 - Southampton e-Science Centre
 - UK Grid Support Centre (Deployment & Support)
- Commercial
 - SME's: Software & service provision
 - Multi-national's: Hardware & Software vendors

8



Proposed Scope



London e-Science Centre

www.lesc.ic.ac.uk

- Core Logging & Accounting Services
 - For contribution to GT3
- Secure Charging and Payment Mechanisms
 - Define interfaces that leverage existing infrastructures
- Performance Engineering
 - Prediction and optimisation of execution time
- Computational Economics
 - Development and reference implementation of protocols
 - Exploration of advanced mechanisms (e.g. futures)
- Deployment within UK e-Science Grid
 - Utilise UK's Grid Infrastructure
 - Exposure to real environment, users & applications

9

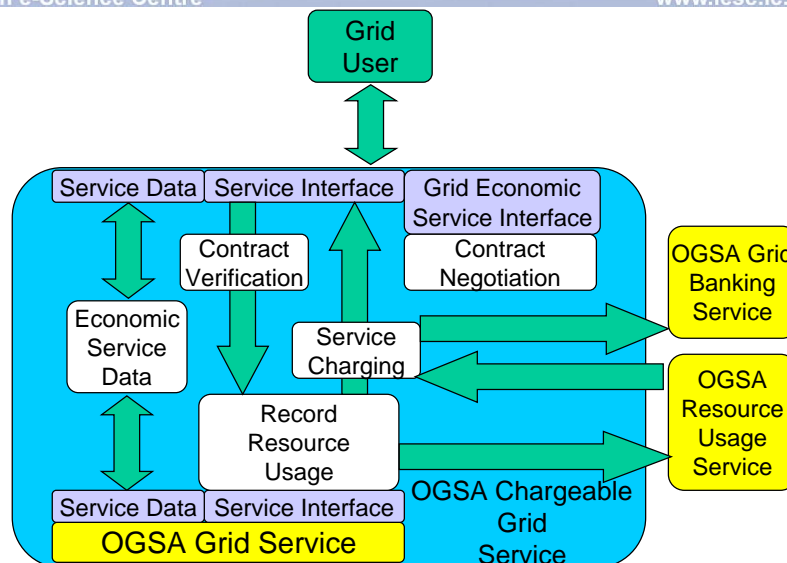


Architecture



London e-Science Centre

www.lesc.ic.ac.uk





Issues in Selling Services



London e-Science Centre

www.lesc.ic.ac.uk

- Reliability:
 - Will they deliver as advertised?
- Trustworthiness:
 - Can I rely on what is advertised?
- Liability:
 - Who do I prosecute if it goes wrong?
- Contract:
 - How can the contract be broken?
- Secure execution:
 - Can I rely on the provider?

11



RealityGrid



London e-Science Centre

www.lesc.ic.ac.uk

- Applications: LB3D, ...
- Resources: UCL, LeSC, Manchester, EPCC
- Runtime access: Visualisation & Steering
- Using Globus, OGSA & Unicore
- Output data: Post-processing & publication

12



Grid Enabled Integrated Earth Systems Model - GENIE



London e-Science Centre

www.lesc.ic.ac.uk

- NERC Pilot Project
- Distributed ESM's located at various sites
- Visualisation and steering of running simulations
- Portals
- Data Sets: For simulation initiation & output