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Imperial College London

L2G: ICENI – An Integrated Grid Middleware

2nd e-Science Grid Applications Workshop

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ICENI Architecture

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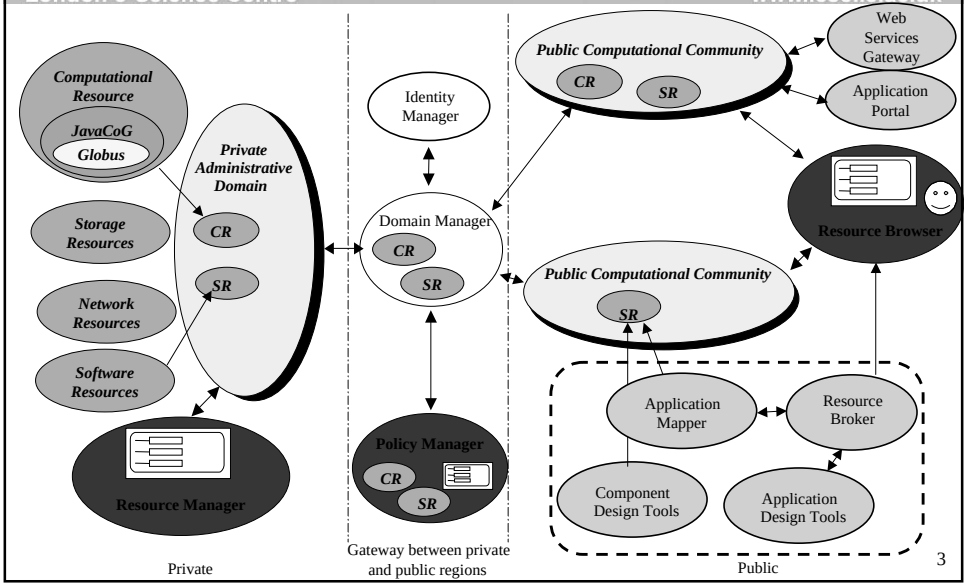

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Visual Component Composition

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- The movie showing the composition and submission of an ICENI application from the Netbeans graphical tool is available at:

http://www.lesc.ic.ac.uk/iceni/demos.html

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Mapping of components on resources

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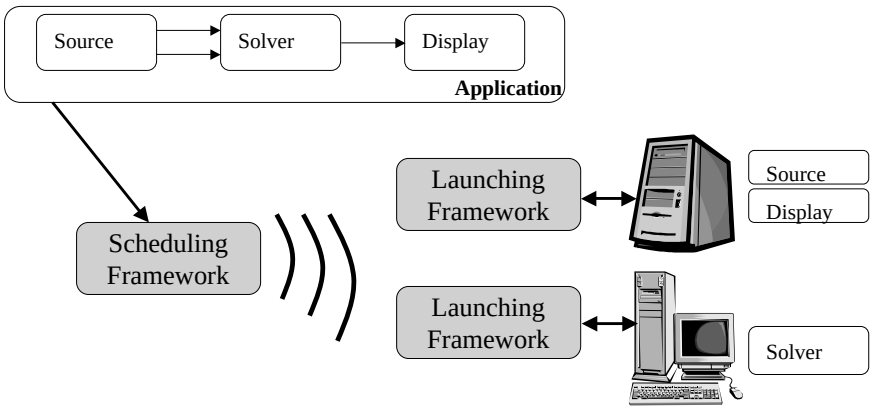

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ICENI Nightly Build

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- ICENI is automatically built every night. On success, the API documentation and the binary modules are uploaded on the LeSC web server.
- Following the build, a local grid is started and tested.
  - Start all the required services to submit a toy application.
  - Check the output of the application

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Automatic deployment of ICENI (1)

- Download the latest version of the binary modules
  - CVS access to the iceni repositories
  - X.509 certificate + proxy
  - Globus access to the machine *saturn.icpc.doc.ic.ac.uk*
  - *globus-url-copy* command line tool
- Update the configuration files
- Start the required resources

Automatic deployment of ICENI (2)

- The process can be started automatically at frequent interval (crontab)
- Can either start its own private administrative domain with specific resources. Or start resources to connect to a already running administrative domain.

Demo at the London Open Day

- Administrative domain running in London
- One launcher running in Cardiff
- One launcher running in Newcastle
- Scheduler running in London
  - Components running either in Cardiff or in Newcastle

Problems with deployment

- *Cardiff*: No problem
- *Newcastle*: outgoing HTTP traffic from the campus is blocked unless it goes through the proxy server *wwwcache.ncl.ac.uk:8080*.
  - Define the following properties in the local configuration file:

    http.proxyHost=wwwcache.ncl.ac.uk

    http.proxyPort=8080

What next ...

- Other sites: Belfast, Cambridge, Daresbury, Manchester, Southampton, Glasgow, Oxford, UCL, Edinburgh
- Some of these sites have a firewall Ł Deployment of the JXTA version of ICENI.

MDS Gateway

- Connect to a specific MDS server to retrieve all the resources
  - grid-info-search -x -h giis.lesc.ic.ac.uk -b "mds-vo-name=lesc,o=grid" -s sub "(object=class=MdsHost)"
- For each host returned, start a launcher on that host with information such as clockspeed, memory

What next ...

- Number of launchers started can be very high
- Need to start specific launchers according to the type of the host Ł several hosts can be grouped and managed by the same launcher (condor launcher, globus launcher, ...)

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