

CARDIFF
UNIVERSITY
PRIFYSGOL
CAERDYDD

WeSC and e-Science

- UK e-Science CA Registration Authority
- Engineering Task Force
- National Grid Service
- Integrating the campus and the grid

Edit View Go Bookmarks Tools Help

https://ca.grid-support.ac.uk/cgi-bin/pub/pki?cmd=getStaticPage&name=index

Certificates CA Info Certificate Lists Request Lists Help

home Request a Certificate Import Certificate into Browser Test Certificate Renew a Valid Certificate Revoke Certificate

Basic Certificate Request

- ◆ Please enter your data in the following form.
- ◆ You should select the Registration Authority corresponding to your organization. Please click [here](#) for a list of all RAs.
- ◆ If you are at all in doubt, please consult the [user documentation](#).
- ◆ After completing the form, use the **Continue** button to proceed

Certificate Data

Name (firstname lastname)

Jonathan Giddy

User Data

Email

J.P.Giddy@wesc.ac.uk

Registration Authority (choose the RA where you will be authenticated)

Cardiff WeSC

PIN (min 10 chars. Please remember it, your RA will ask for it.)

Re-type your PIN (for confirmation)

Continue


Certificates

- CA Info
- Certificate Lists
- Request Lists
- Help

- Request a Certificate
- Import Certificate into Browser
- Test Certificate
- Renew a Valid Certificate
- Revoke Certificate

Check Request Details

- You can see the data you have entered below. Please check it carefully and follow the instructions to continue.
- Please check the keysize for your new certificate (this must be at least 1024 bits).
- If there are any problems with the displayed data, use your browser's back button to change any of the inserted data.
- If there are no errors, use the **Continue** button for requesting your certificate.

 The eScience Certificate Authority will use the email address you provide to return this information held in the certificate - e.g. PIN, and email

Generating A Private Key

Key Generation in progress... This may take a few minutes....

Please wait...

...ate a digital certificate. Your email
g Continue below, you agree that the
on (including that which is not held in

Certificate Data

Name (first last)	jonathan gddy
L	WeSC
OU	Cardiff

User Data

Email	J.P.Giddy@wesc.ac.uk
Role	User
Registration Authority	Cardiff WeSC
Keysize for the new certificate (at least 1024 bits)	2048 (High Grade)

Continue

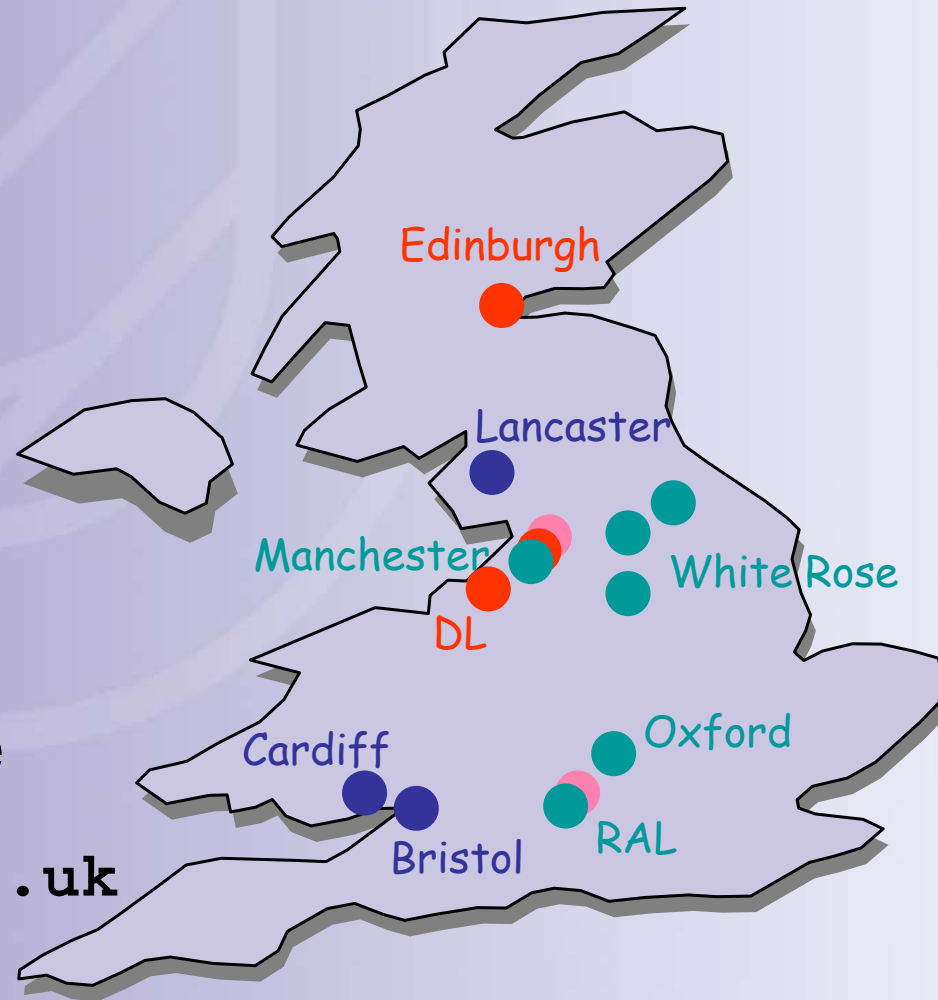
Engineering Task Force

- Evaluations of Service Oriented Grid and other middleware solutions
- Evaluation of UDDI repository
- Evaluations of RAVE and Visualisation



- 4 JISC funded clusters (340px, 36TB)
- HPCx and CSAR
- Partners
- Grid Operations & Support Centre

<http://www.ngs.ac.uk>





National Grid Service

- **4 SGI Origin 300 machines, each with**
 - **SGI Irix 6.5**
 - **8 MIPS R14000 processors**
 - **8Gb of shared memory**
 - **Access to 2TB SAN**
- **Condor jobmanager**

Why we joined the NGS

- To run a production-level system
 - Ensure a quality service for our users
 - Gain experience and tap knowledge
- To do grid computing the right way
 - Stable infrastructure
 - Single account application process
 - Coordinated intersite support infrastructure
- To make it simpler for our users to move from cluster to grid computing
- To get a more authoritative voice for the future direction of NGS

Cardiff Condor Pools

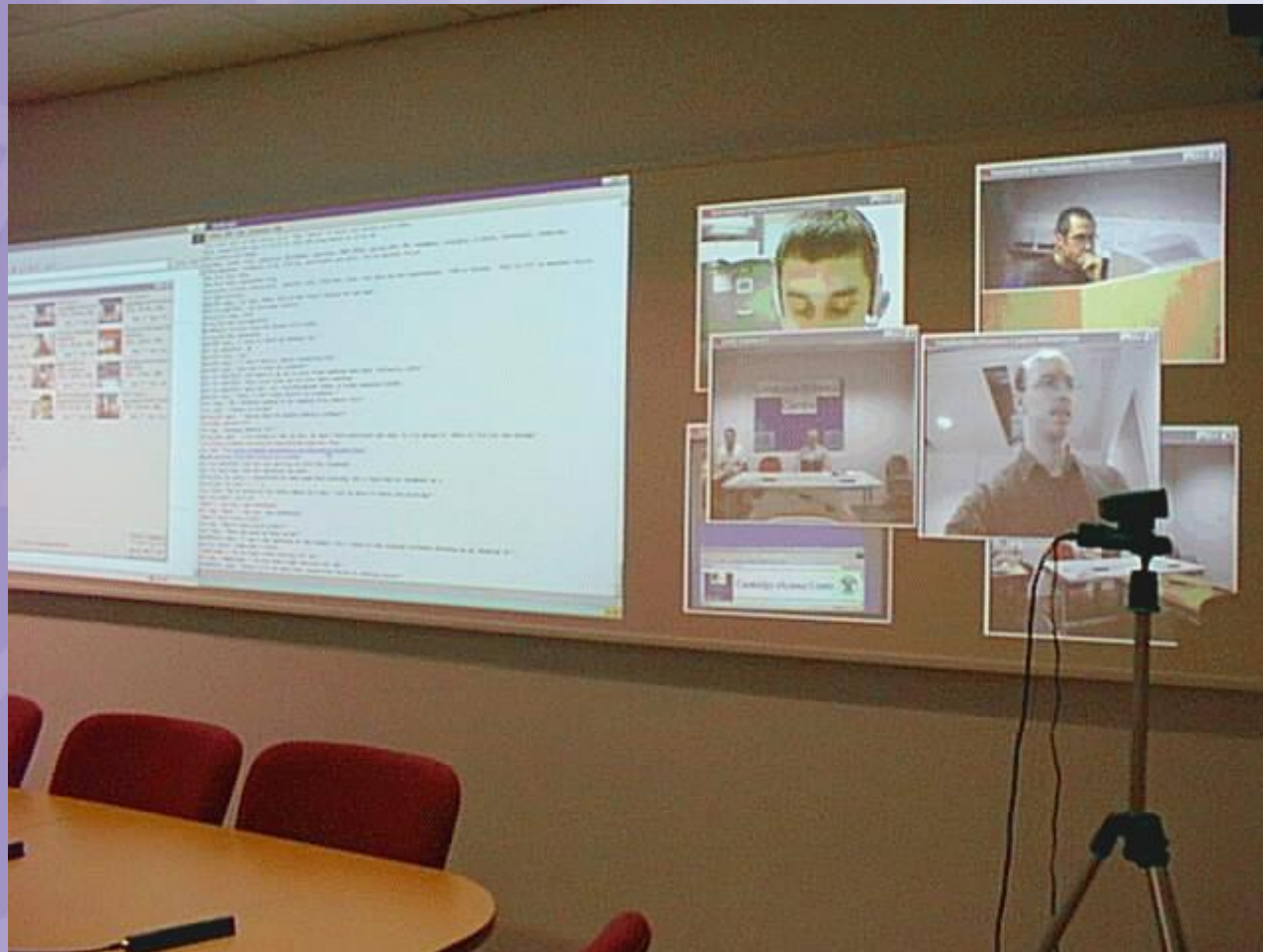
- WeSC pool
 - SGI Irix
 - 32 processors
- Information Services pool
 - Windows XP Open Access Workstations
 - Currently about 800 machines

Visualisation Facility

- 2x Fakespace Immersadesk
- Fakespace Workwall
- 32-processor SGI Onyx 300
- 4x 8-processor SGI Origin 300



AccessGrid



Storage Facility

- 4TB data store
- RAID with hot-swappable spare disk
- 2x 4-processor Sun Fire V880
Ultrasparc III servers
- 1Gb/s external network connection
- Storage Resource Broker

FPGA / AURA

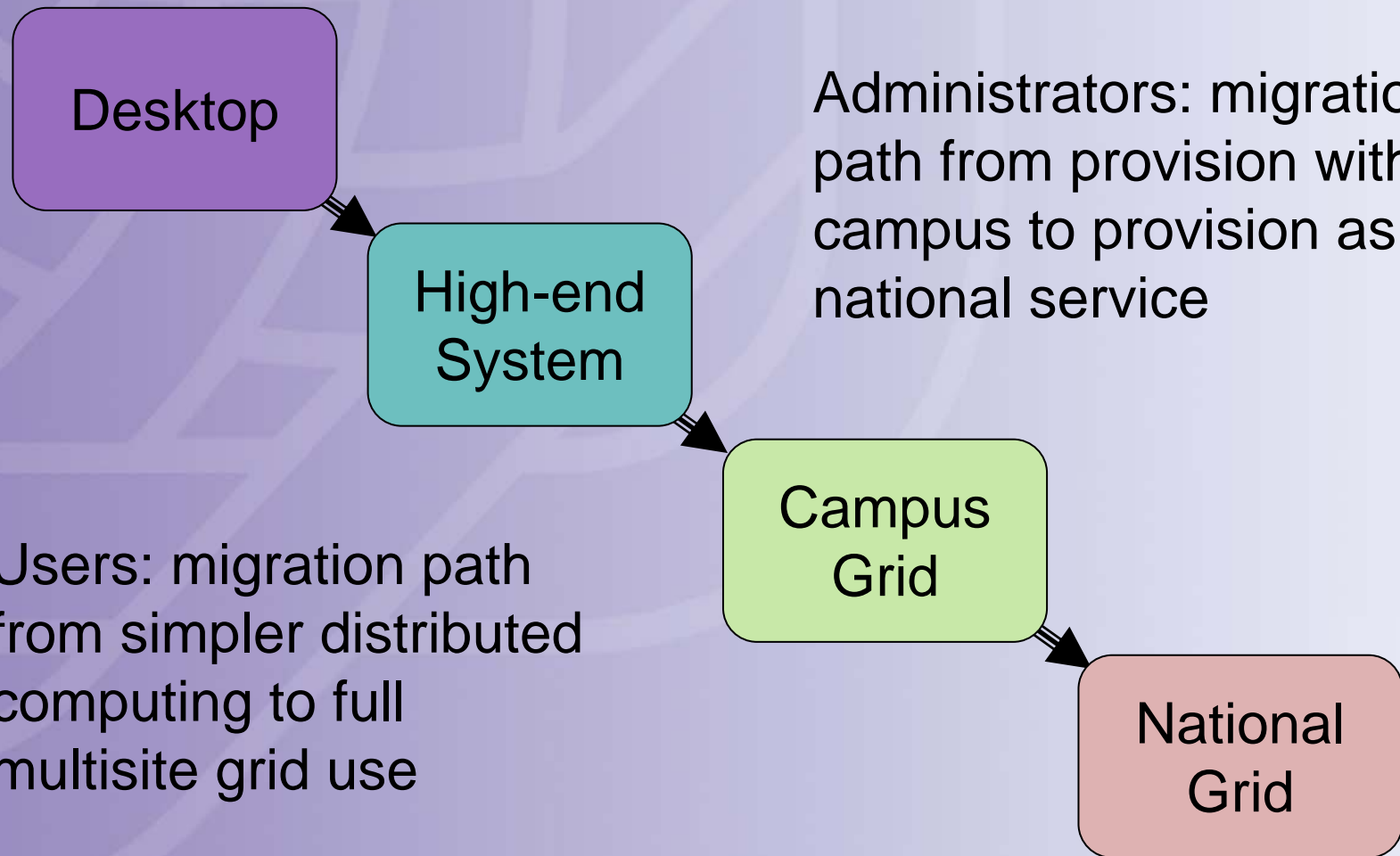
- 10 Cybula PRESCENCE-II FPGA + DSPcards
 - Programmable hardware

<http://www.cybula.com/>
- Preconfigured to provide Aura Correlation Matrix Memory fast pattern matching

Service Oriented Grid

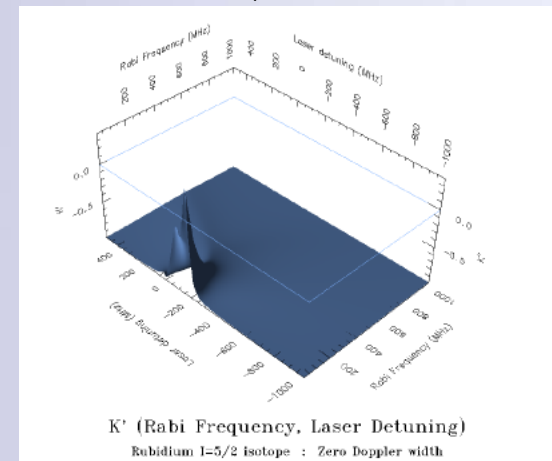
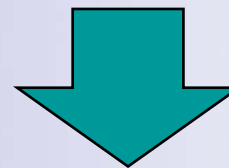
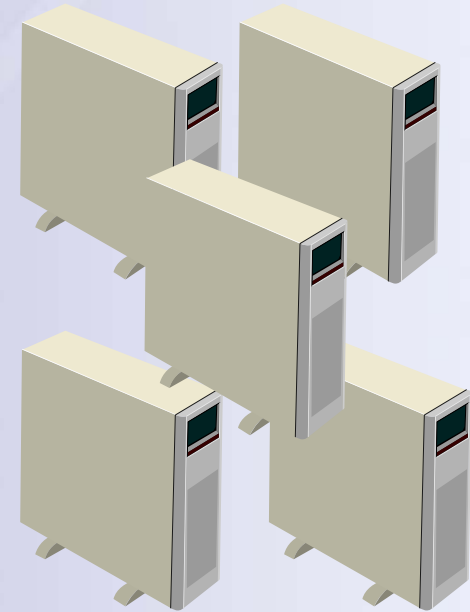
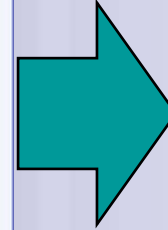
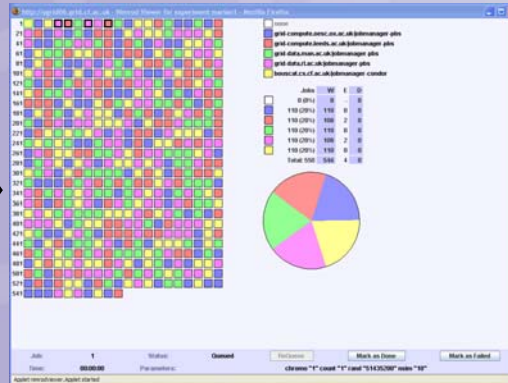
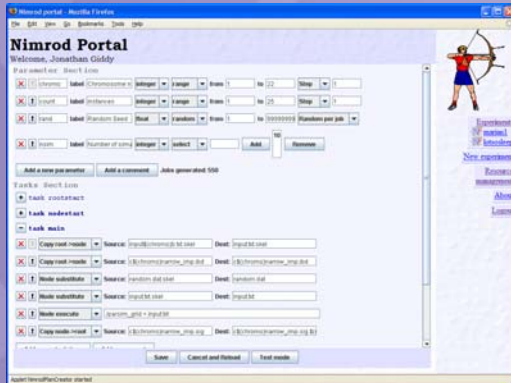
- Define many different services
- Expose limited functionality
 - Lower access cost
 - Higher security
 - Access to more resources
- Machine to machine communication
 - WSDL for language-independent interfaces
 - SOAP for extensible message format
 - UDDI for discovering resources

Campus Grid



Nimrod Portal

- How do we create and manage 800 jobs?
- How do we ensure the right files are available on each cluster?
- How do we divide 800 jobs among 7 clusters to complete ASAP?
 - Different processor architectures / speeds / counts
 - Competing workloads
 - Downtime



Description of Parameters

Nimrod Portal

Nimrod Portal

Welcome, Jonathan Giddy

Parameter Section

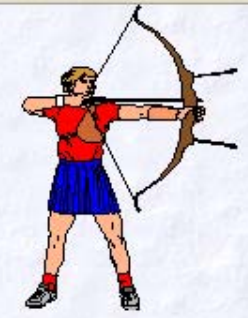
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="text" value="chromo"/>	label	<input type="text" value="Chromosome n"/>	<input type="button" value="integer"/>	<input type="button" value="range"/>	from	<input type="text" value="1"/>	to	<input type="text" value="22"/>	Step	<input type="button" value="1"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="text" value="count"/>	label	<input type="text" value="Instances"/>	<input type="button" value="integer"/>	<input type="button" value="range"/>	from	<input type="text" value="1"/>	to	<input type="text" value="25"/>	Step	<input type="button" value="1"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="text" value="rand"/>	label	<input type="text" value="Random Seed"/>	<input type="button" value="float"/>	<input type="button" value="random"/>	from	<input type="text" value="1"/>	to	<input type="text" value="99999999"/>	<input type="button" value="Random per job"/>	
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="text" value="nsim"/>	label	<input type="text" value="Number of simu"/>	<input type="button" value="integer"/>	<input type="button" value="select"/>		<input type="button" value="Add"/>	<input type="text" value="10"/>	<input type="button" value="Remove"/>		

Jobs generated: 550

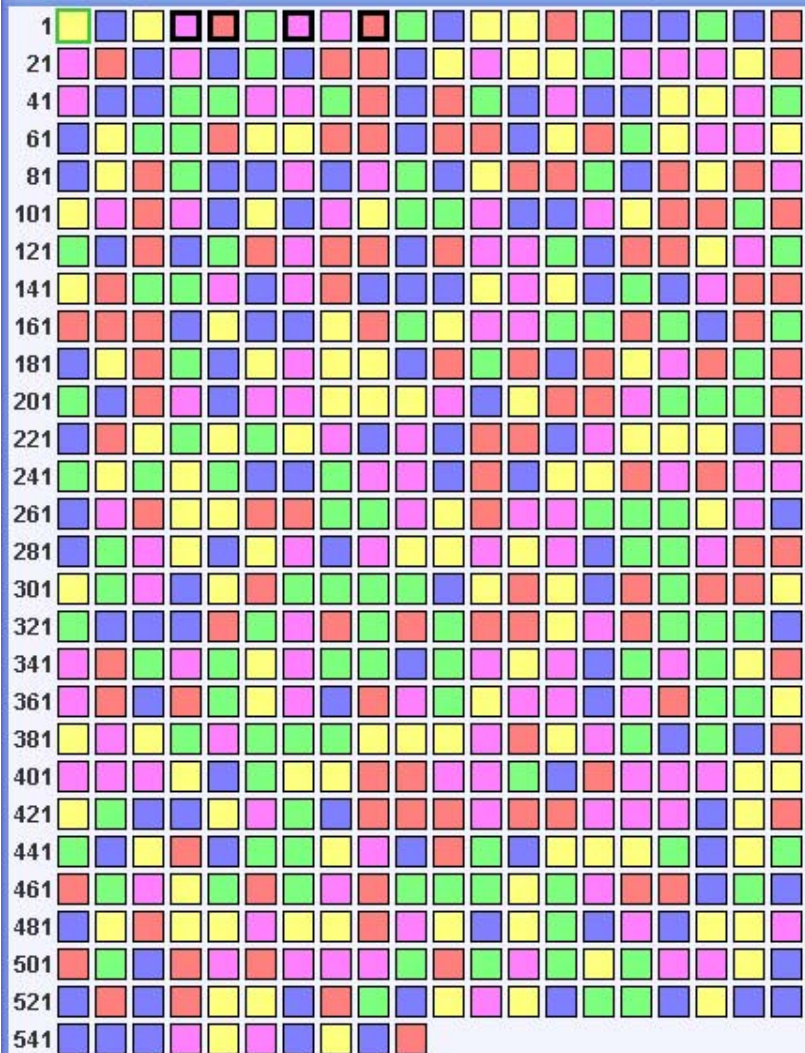
Tasks Section

task rootstart
 task nodestart
 task main

<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Copy root->node"/>	Source:	<input type="text" value="input\${chromo}b.txt.skel"/>	Dest:	<input type="text" value="input.txt.skel"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Copy root->node"/>	Source:	<input type="text" value="c\${chromo}narrow_imp.ibd"/>	Dest:	<input type="text" value="c\${chromo}narrow_imp.ibd"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Node substitute"/>	Source:	<input type="text" value="random.dat.skel"/>	Dest:	<input type="text" value="random.dat"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Node substitute"/>	Source:	<input type="text" value="input.txt.skel"/>	Dest:	<input type="text" value="input.txt"/>
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Node execute"/>	<input type="text" value="./parsim_grid < input.txt"/>			
<input type="checkbox"/>	<input type="button" value="↑"/>	<input type="button" value="Copy node->root"/>	Source:	<input type="text" value="c\${chromo}narrow_imp.sig"/>	Dest:	<input type="text" value="c\${chromo}narrow_imp.sig.\${"/>

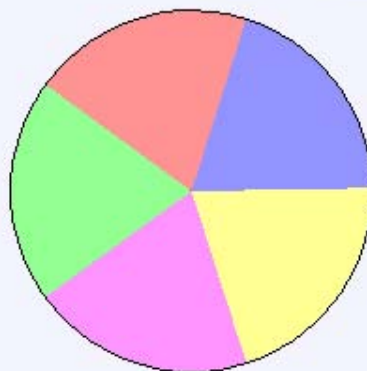


- [Experiments](#)
- [marian1](#)
- [lotsosleep](#)
- [New experiment](#)
- [Resource management](#)
- [About](#)
- [Logout](#)



- none
- grid-compute.oesc.ox.ac.uk/jobmanager-pbs
- grid-compute.leeds.ac.uk/jobmanager-pbs
- grid-data.man.ac.uk/jobmanager-pbs
- grid-data.rl.ac.uk/jobmanager-pbs
- bouscat.cs.cf.ac.uk/jobmanager-condor

Jobs	W	E	D
 0 (0%)	0	-	0
 110 (20%)	110	0	0
 110 (20%)	108	2	0
 110 (20%)	110	0	0
 110 (20%)	108	2	0
 110 (20%)	110	0	0
Total: 550	546	4	0



Job: 1 Status: Queued

ReQueue

Mark as Done

Mark as Failed

Time: 00:00:00

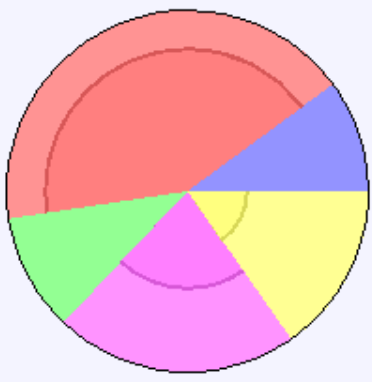
Parameters:

chromo "1" count "1" rand "51435200" nsim "10"



- none
- grid-compute.oesc.ox.ac.uk/jobmanager-pbs
- grid-compute.leeds.ac.uk/jobmanager-pbs
- grid-data.man.ac.uk/jobmanager-pbs
- grid-data.rl.ac.uk/jobmanager-pbs
- bouscat.cs.cf.ac.uk/jobmanager-condor

Jobs	W	E	D
 0 (0%)	0	-	0
 56 (10%)	56	0	0
 234 (42%)	48	5	181
 57 (10%)	57	0	0
 120 (21%)	54	2	64
 83 (15%)	54	2	27
Total: 550	269	9	272

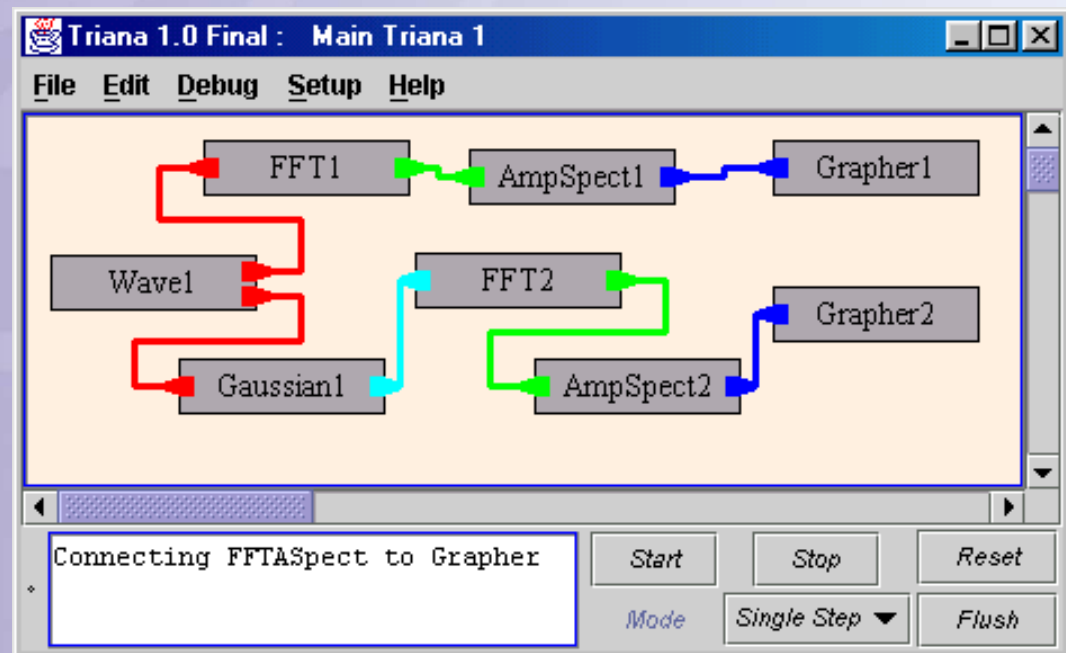


Job: **1** Status: **Done**

Time: **00:03:08** Parameters: **chromo "1" count "1" rand "51435200" nsim "10"**

Triana

- Visual workflow composition environment
- Varied box of generic tools (audio, text and image processing, maths functions, signal processing)
- Workflow distribution and management engine



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Welsh e-Science Centre

Canolfan e-Wyddoniaeth Cymru

