



GT3 and WSRF Practice

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CCLRC AHM

2-3 August 2004

1. GT3.2

- Installation
- Test

2. GT3.9.1 (WSRF Core)

- Introduction
- Test
- Demo Service Development

3. Application

- OGSA-DAI Portlet Application
- GT3.2 Information Service Portlet Application

4. Next



- Installation

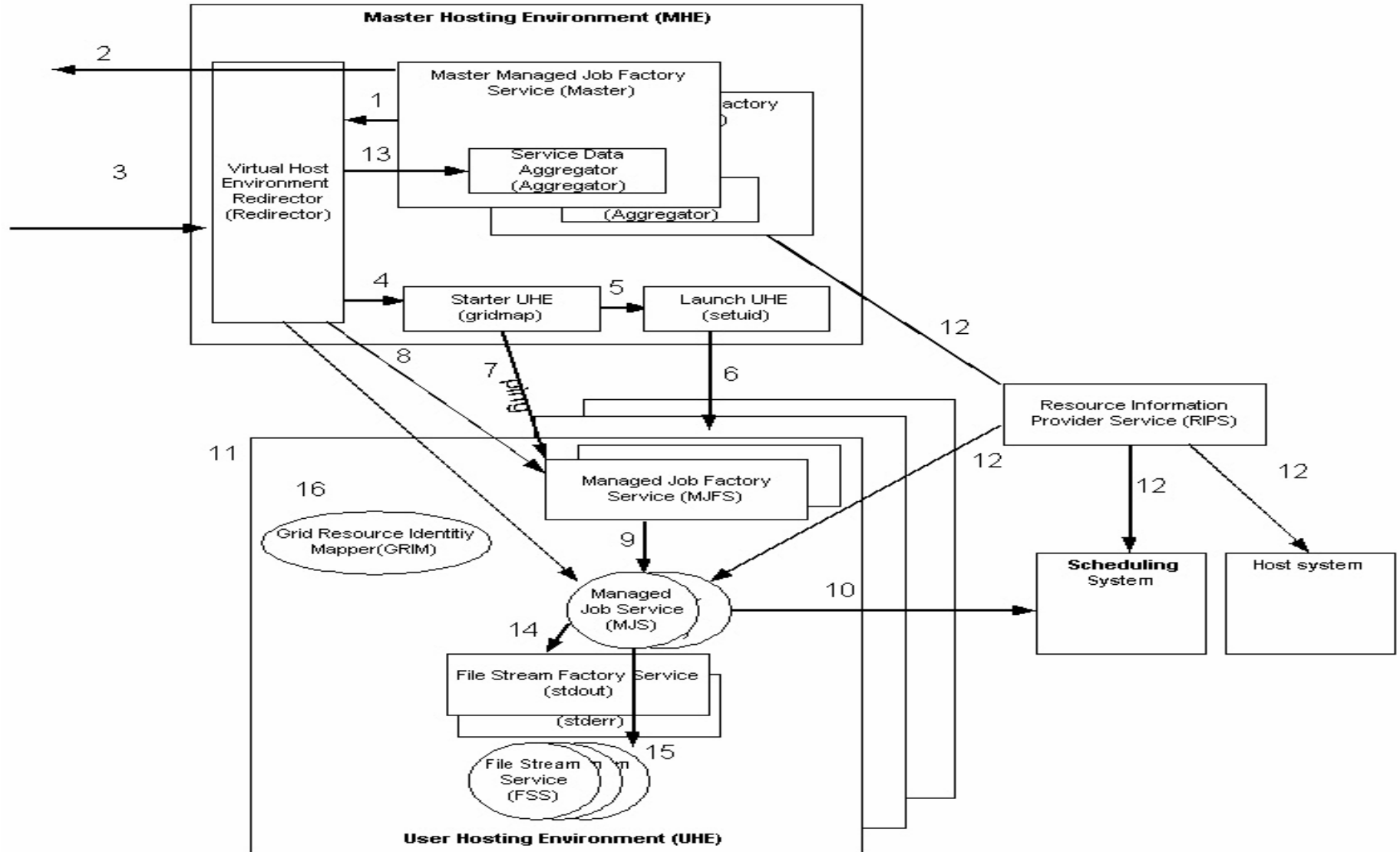
<http://tyne.dl.ac.uk/Testbed/gt3.2-installation.pdf>

- Test

- MMJFS Fault Tolerance Test
- MMJFS Scalability and Throughput Test

	Server	Client
Machine	grid13.esc.rl.ac.uk	grid12.esc.rl.ac.uk
OS	RH ES3.0	RH ES3.0
RAM Memory	512 MB	512 MB
VM Memory	1.0 GB	1.0 GB
Processor	AMD Athlon (TM) 1.4 GHz	AMD Athlon (TM) XP 2500+ 1.8 GHz
Cache	256MB	512MB

GT3.2 GRAM Architecture

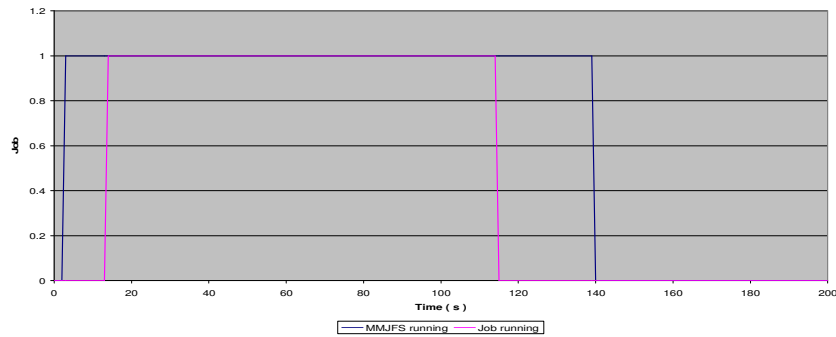




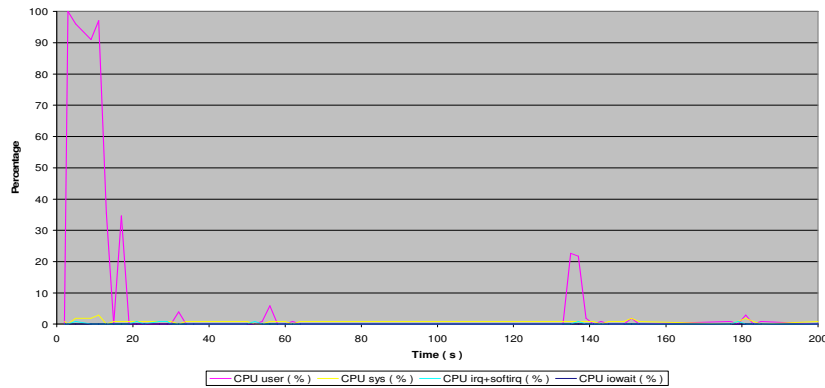
- Fault Tolerance Test
 - MHE crash and recovery
 - UHE crash and recovery
 - MHE and UHE crash and recovery
- Scalability and Throughput Test
 - The MMJFS job will run date, sleep 100 seconds and date again, then save the data in server hard disk.
 - Job running script: *managed-job-globusrun –factory factory –file file*
 - During MMJFS job running, collecting **top** script messages of server and client sides and then saving them in server and client side respectively.

	Job submitted	Job finished	Job failed
1. MHE crash and recovery	1	1	0
2. UHE crash and recovery	1	1	0
3. MHE and UHE crash and recovery	1	1	0
4. Scalability and Throughput	1	1	0
5. Scalability and Throughput	10	10	0
6. Scalability and Throughput	15	15	0

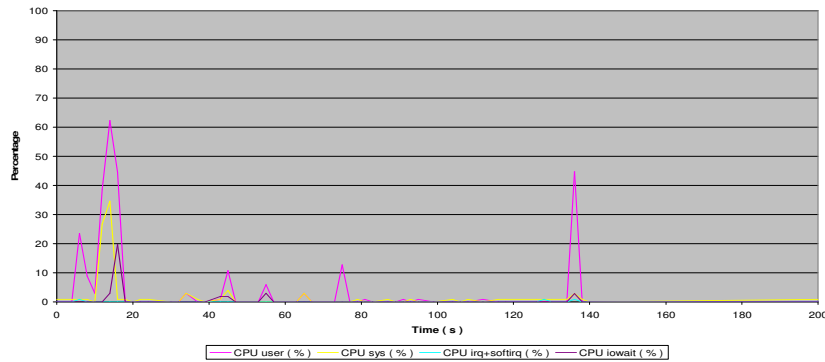
MMJFS



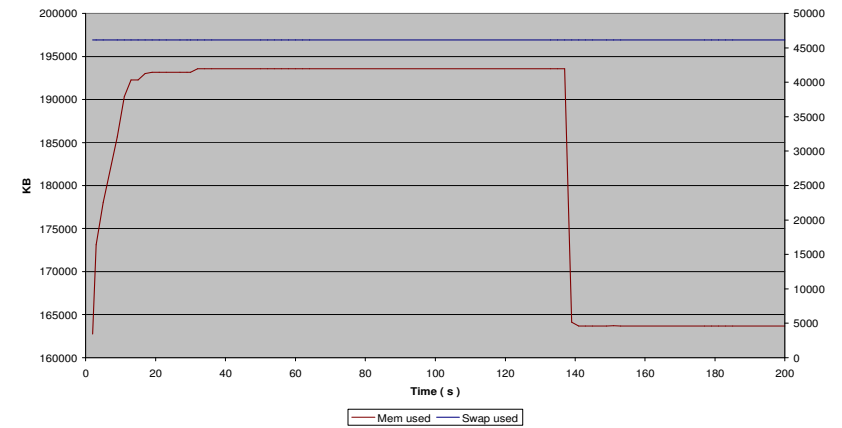
MMJFS --- Client



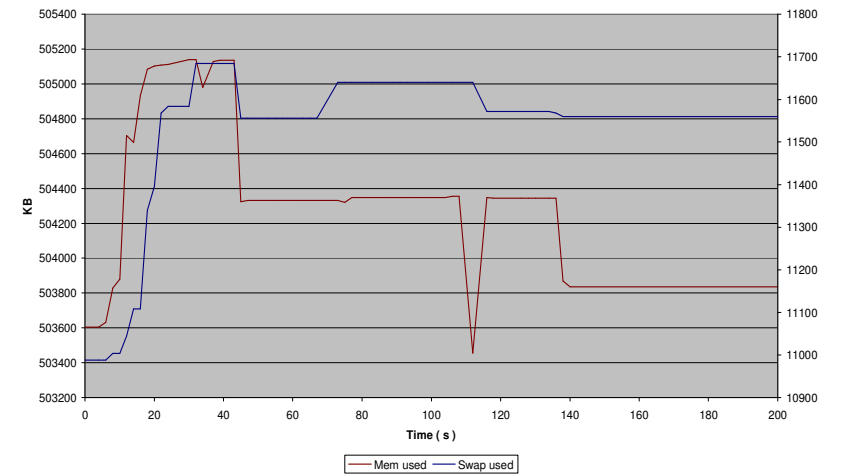
MMJFS --- Server

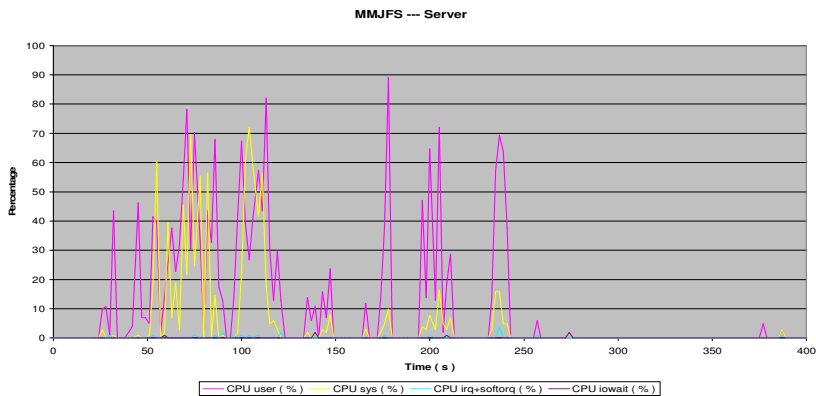
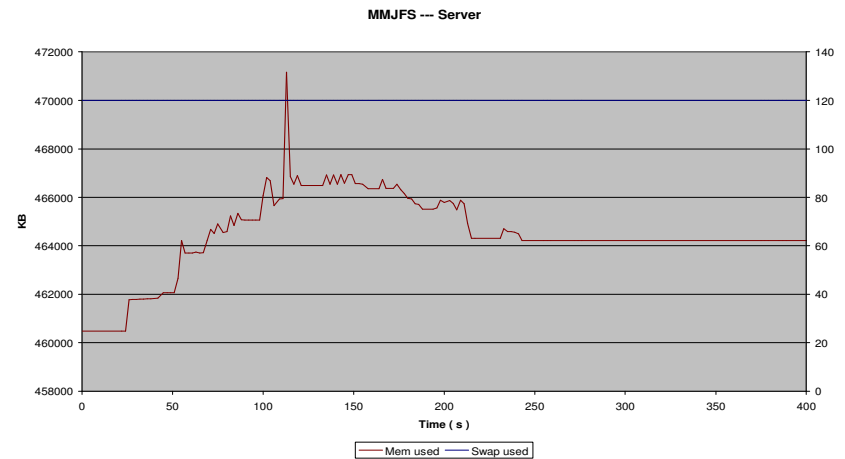
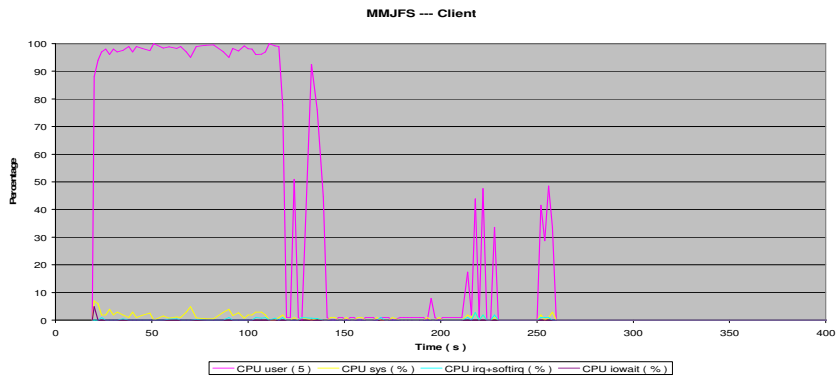
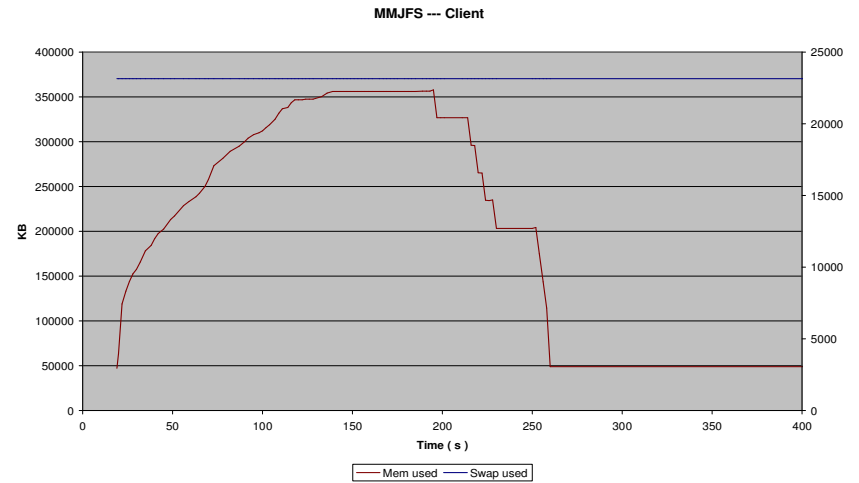
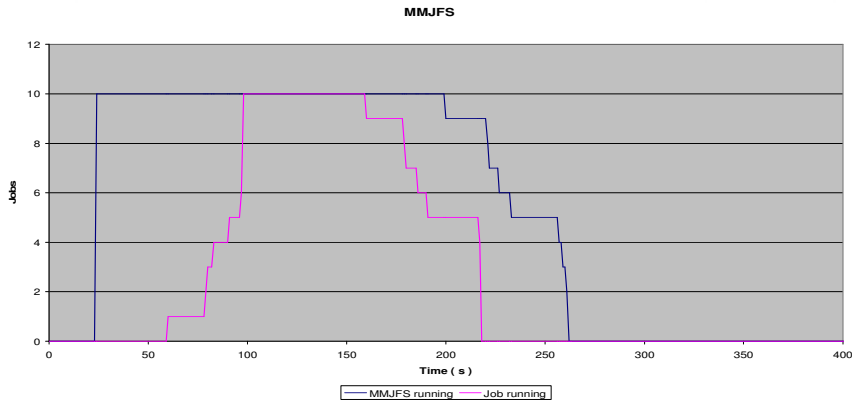


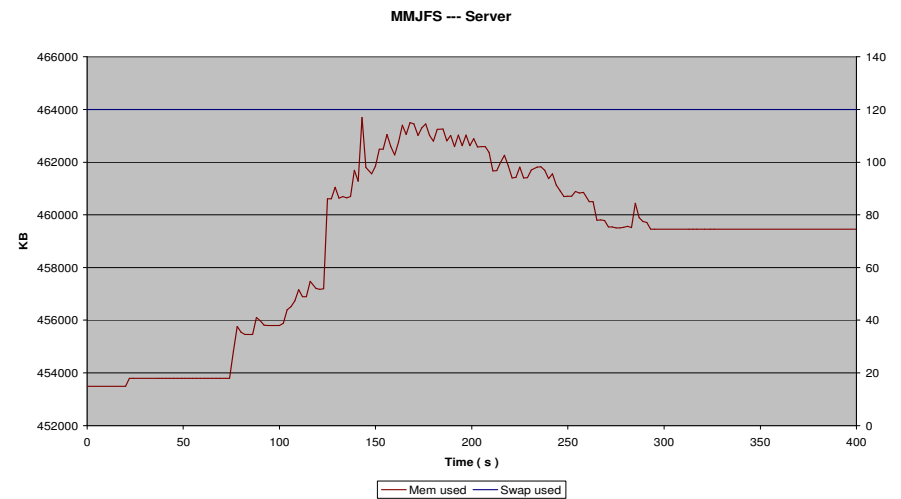
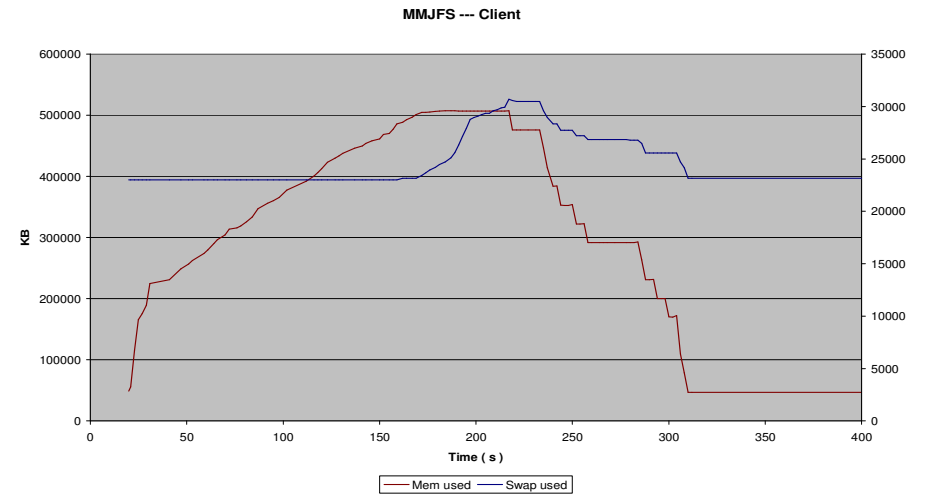
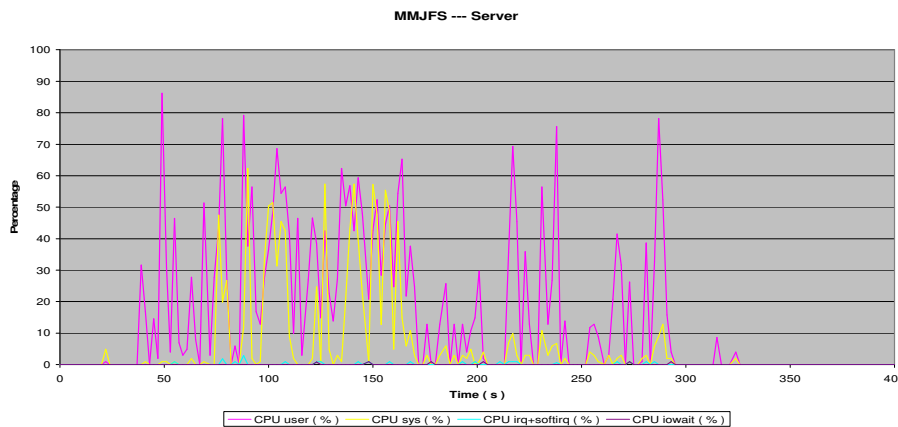
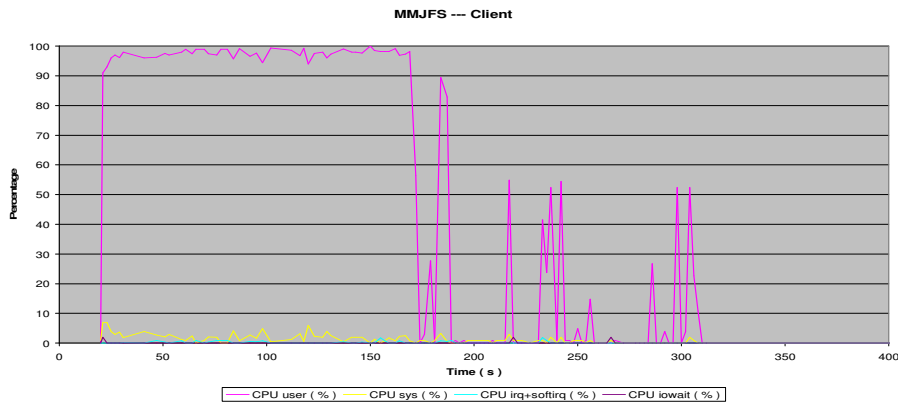
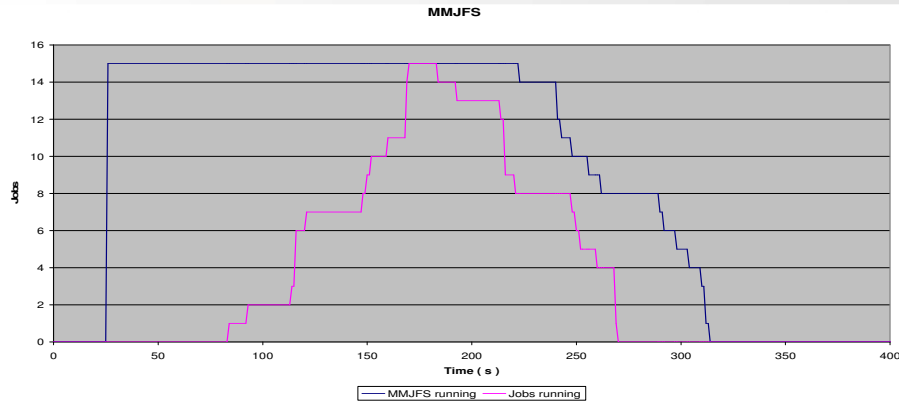
MMJFS --- Client



MMJFS --- Server







- Introduction
- Demo Service Development



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GT3.9.1 Core Architecture

- Service + Resource
- Operation Providers
- JNDI Directory
- Resource State Management
- Resource Properties
- Notification
- Security
- Client side support

- The service is just a plain web service
- Resource is managed/discovered via a ResourceHome with resourceKey.
- Available ResourceHome currently are:
 - SimpleResourceHome
 - SoftResourceHome
 - ServiceResourceHome
 - PersistentResourceHome

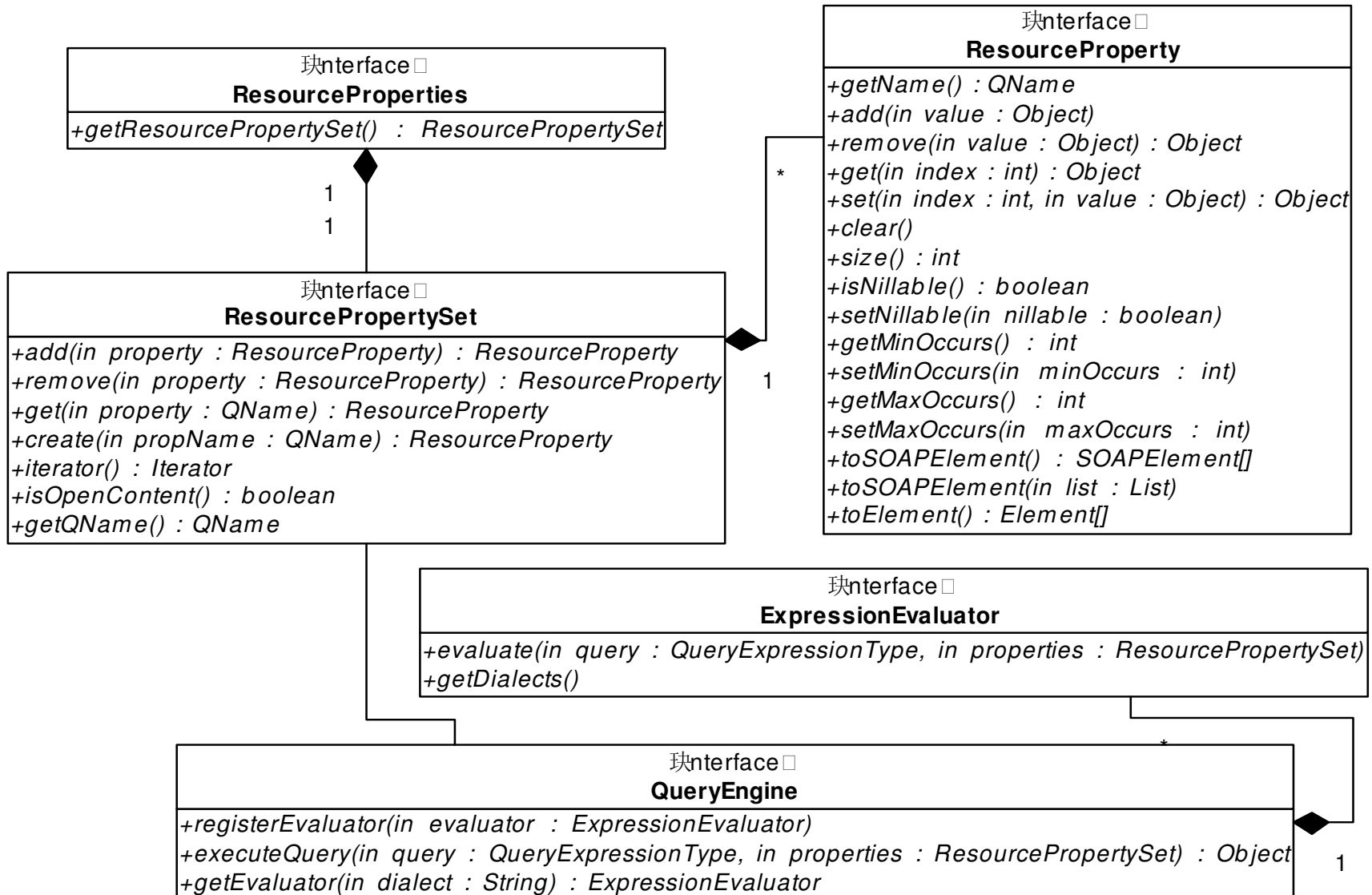
Any service can be an operation provider.

- Destroy
- Set Termination Time
- Get Current Message
- Notification Consumer
- Pause/Resume Subscription
- Subscribe
- Get/Set Resource Properties
- Query Resource Properties

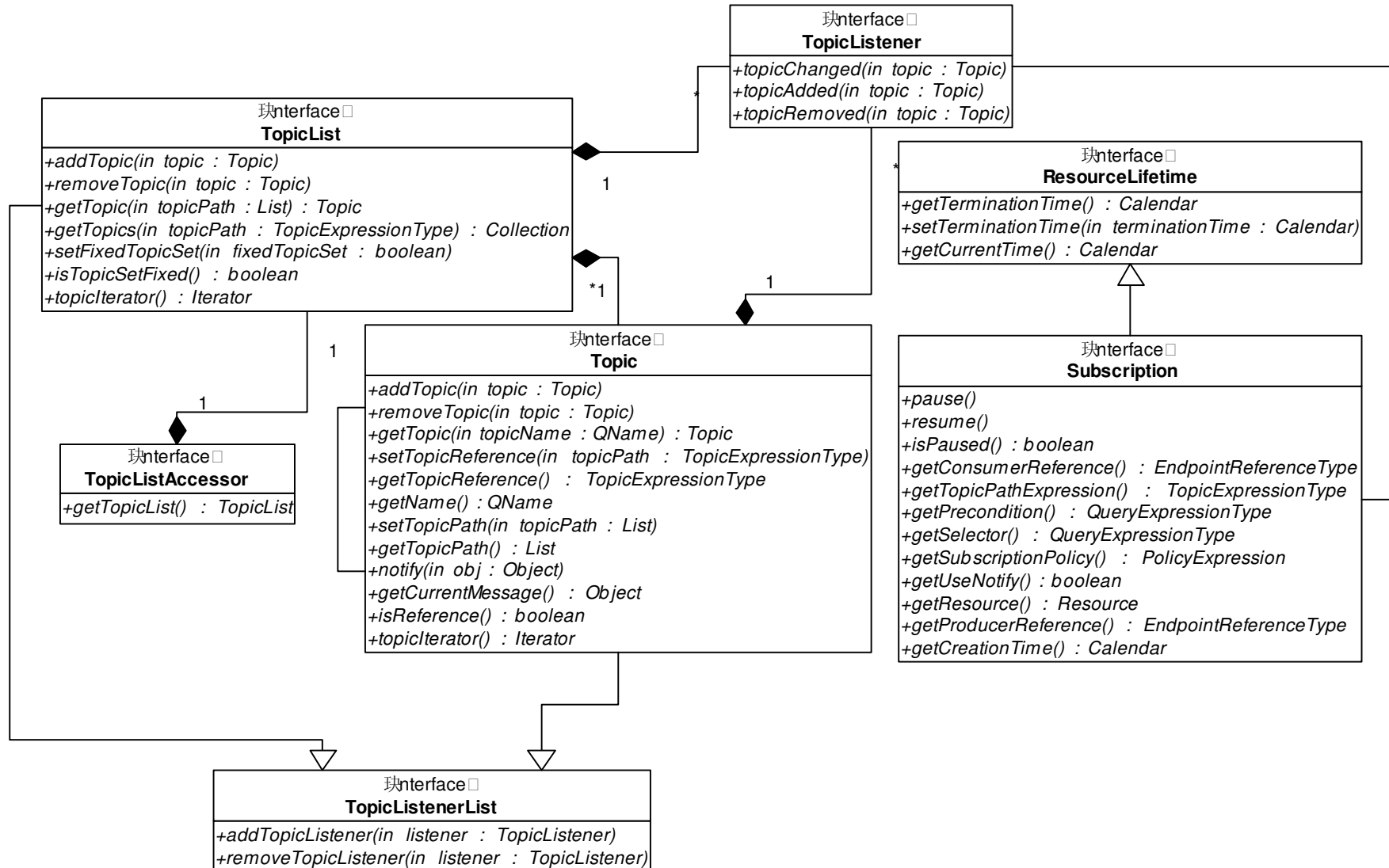


- JNDI Directory
 - <http://jakarta.apache.org/tomcat/tomcat-5.0-doc/jndi-resource-howto.html>
- Resource State Management
 - soft references
 - persistent resources
- Security
 - WS-Security
 - XML Encryption
 - XML Signature

Resource Properties



Notification

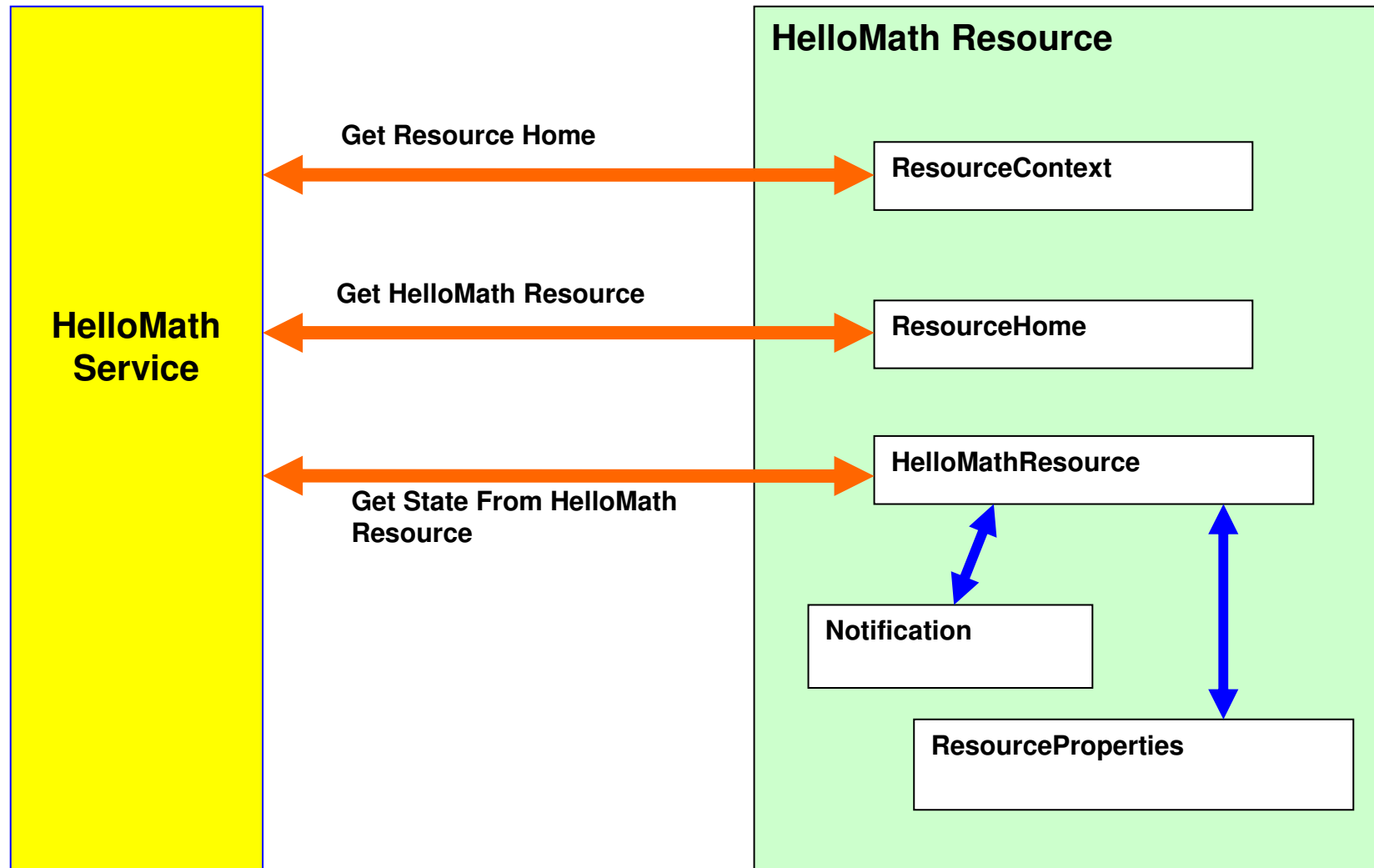




- Scenario:
 - Web service: HelloMath
 - Function:
 - add(float)
 - subtract(float)
 - multiply(float)
 - divide(float)
 - With notification
 - With and without security
 - Client support



CCLRC HelloMath Service Structure (1)

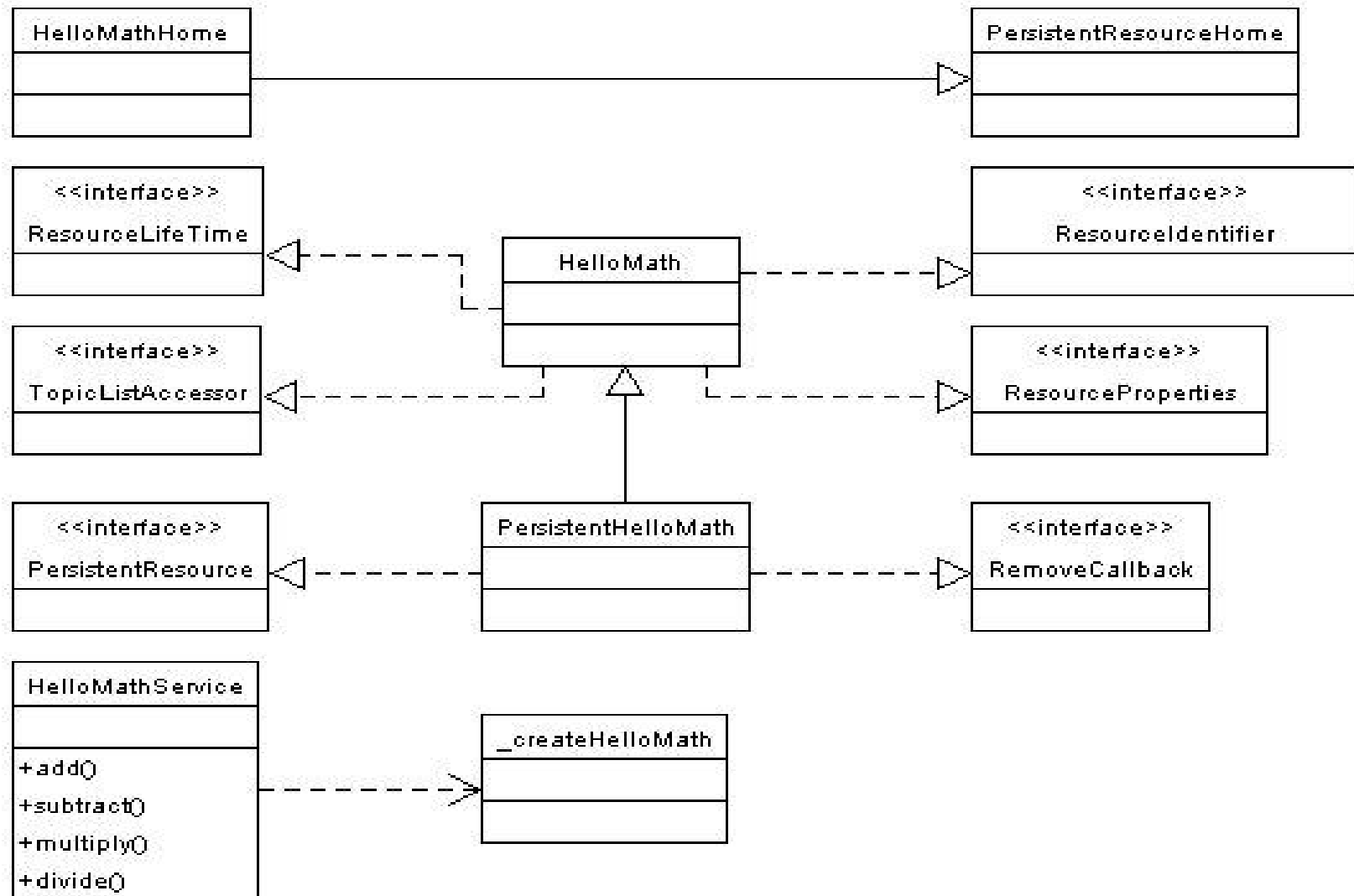


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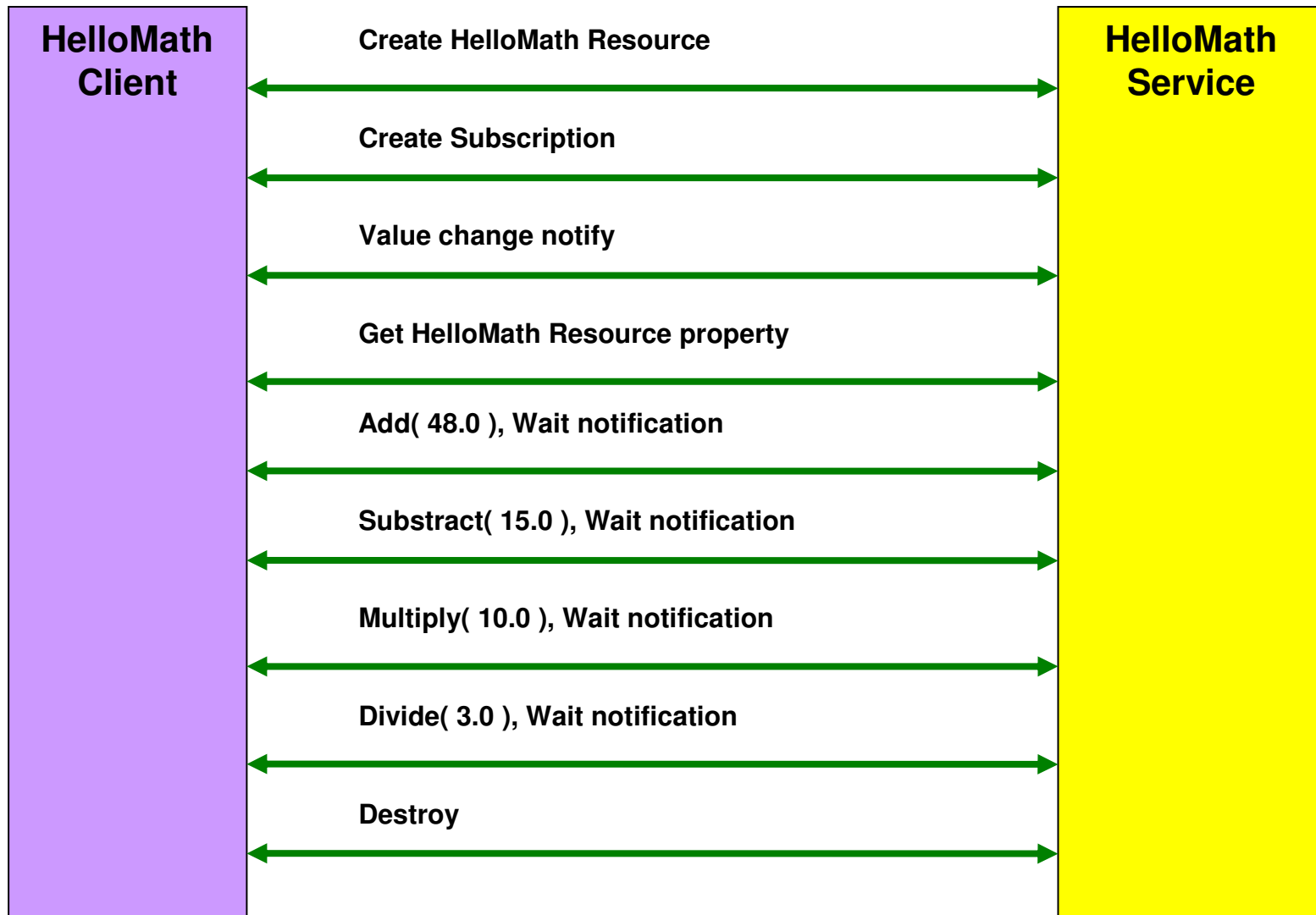


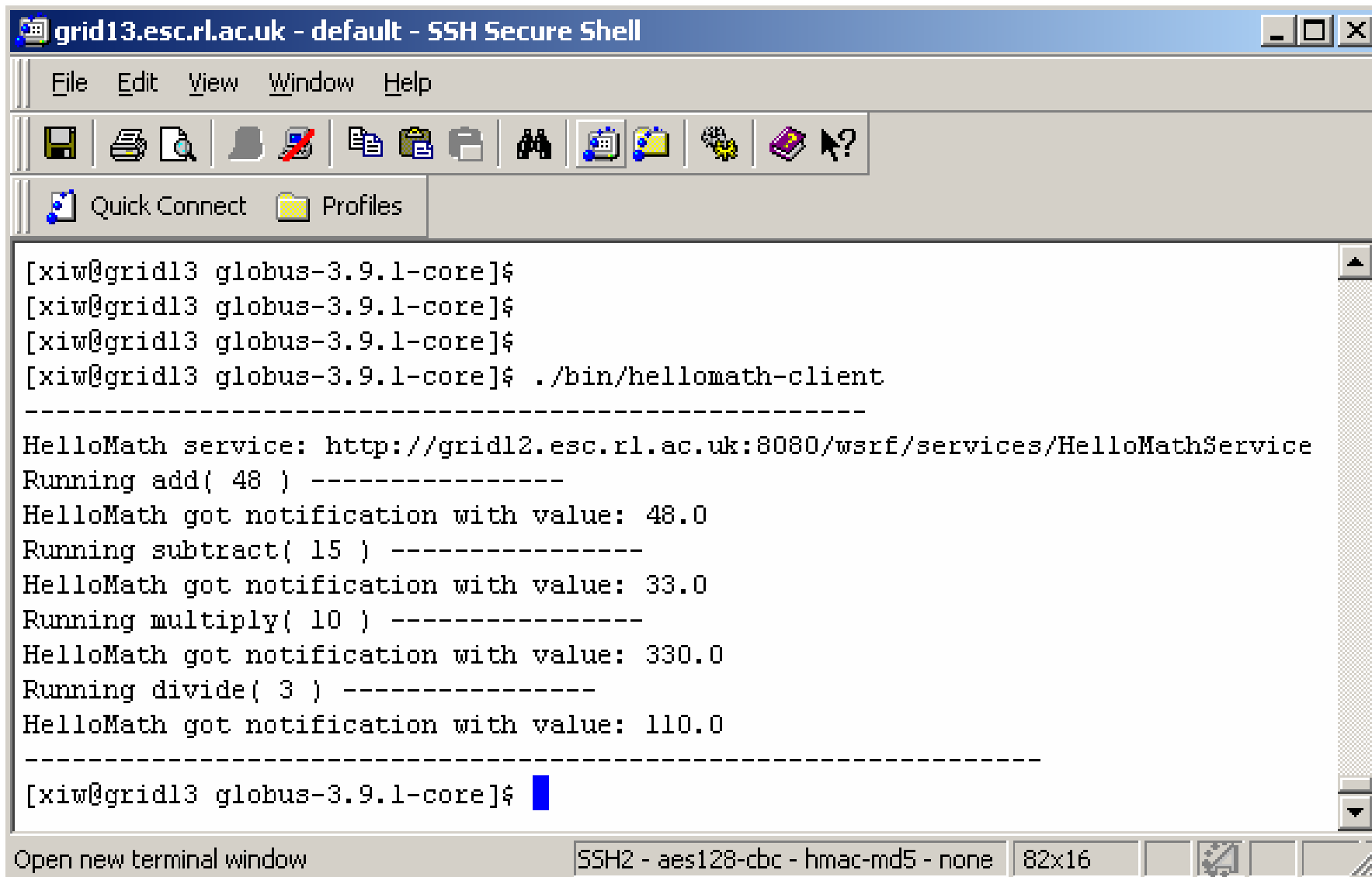
CCLRC HelloMath Service Structure (2)



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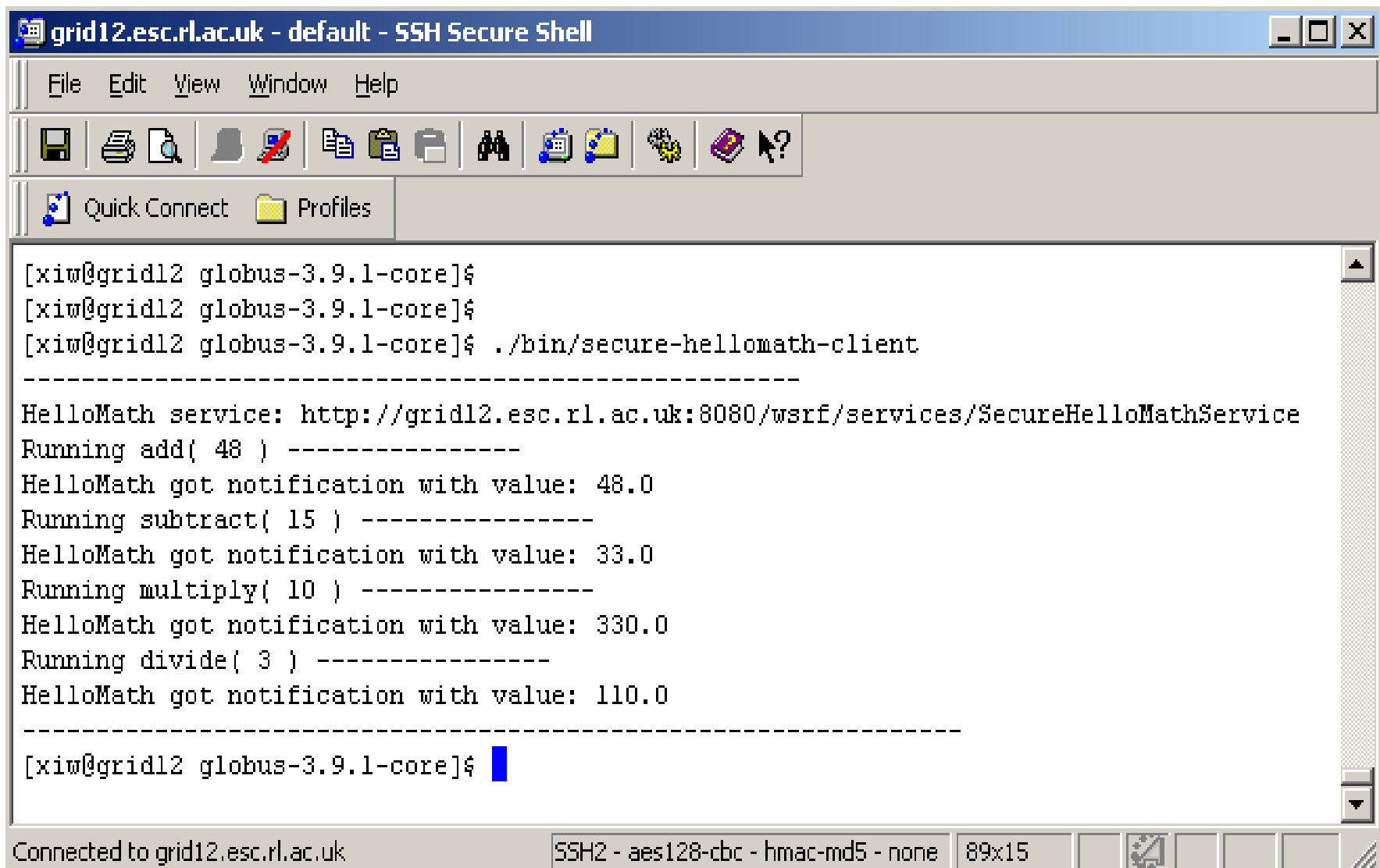
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```
grid13.esc.rl.ac.uk - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
[xiw@grid13 globus-3.9.1-core]$
[xiw@grid13 globus-3.9.1-core]$
[xiw@grid13 globus-3.9.1-core]$
[xiw@grid13 globus-3.9.1-core]$ ./bin/hellomath-client
-----
HelloMath service: http://grid12.esc.rl.ac.uk:8080/wsrf/services/HelloMathService
Running add( 48 ) -----
HelloMath got notification with value: 48.0
Running subtract( 15 ) -----
HelloMath got notification with value: 33.0
Running multiply( 10 ) -----
HelloMath got notification with value: 330.0
Running divide( 3 ) -----
HelloMath got notification with value: 110.0
-----
[xiw@grid13 globus-3.9.1-core]$
```

Open new terminal window SSH2 - aes128-cbc - hmac-md5 - none 82x16



```
grid12.esc.rl.ac.uk - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
[xiw@grid12 globus-3.9.1-core]$
[xiw@grid12 globus-3.9.1-core]$
[xiw@grid12 globus-3.9.1-core]$ ./bin/secure-hellomath-client
-----
HelloMath service: http://grid12.esc.rl.ac.uk:8080/wsrp/services/SecureHelloMathService
Running add( 48 ) -----
HelloMath got notification with value: 48.0
Running subtract( 15 ) -----
HelloMath got notification with value: 33.0
Running multiply( 10 ) -----
HelloMath got notification with value: 330.0
Running divide( 3 ) -----
HelloMath got notification with value: 110.0
-----
[xiw@grid12 globus-3.9.1-core]$
```

Connected to grid12.esc.rl.ac.uk SSH2 - aes128-cbc - hmac-md5 - none 89x15



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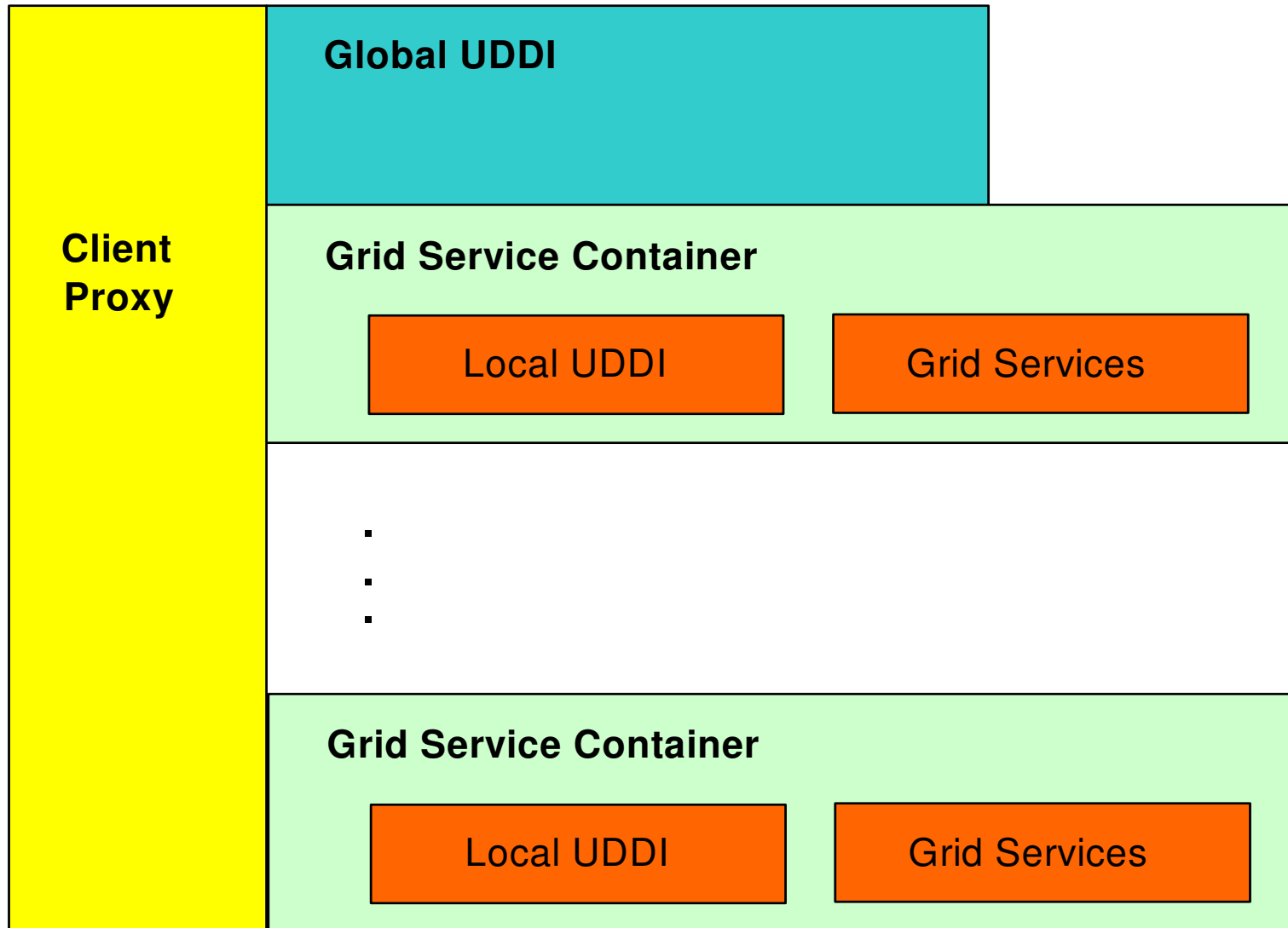
Grid Service Application

- OGSA-DAI Portlet Application
- GT3.2 Information Service Portlet Application



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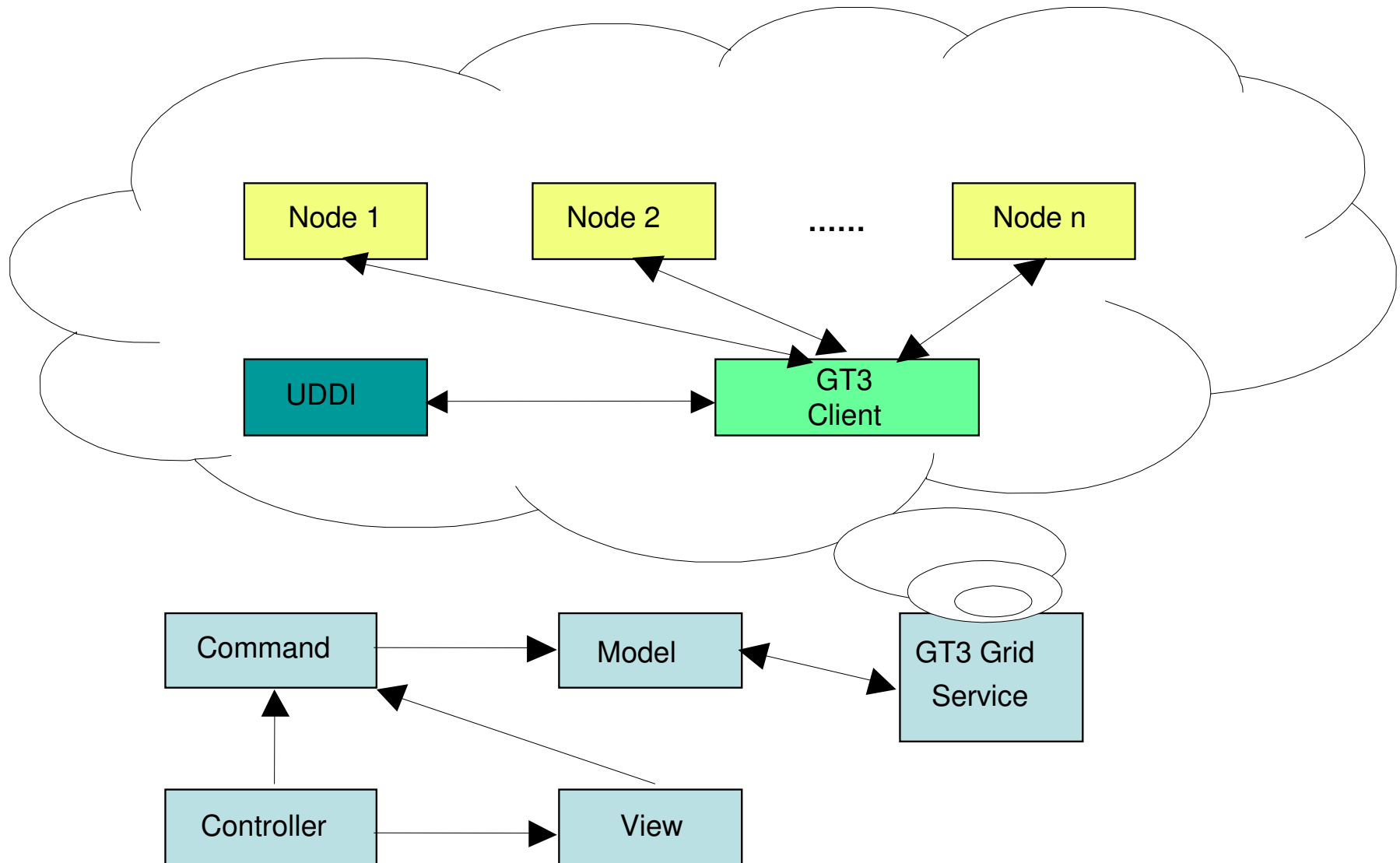
Grid Service Register Architecture



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Portlet Architecture



CCLRC IeSE Portal: Default Jetspeed page - Microsoft Internet Explorer provided by DL

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History

Address http://esc4.dl.ac.uk:7080/ieSE/portal

Welcome to CCLRC IeSE ----
Programming the Grid

Welcome **Xiao Wang**
Customize: [HTML](#) [WML](#)
[Edit account: Xiao Wang](#)
[Logout](#)

CLRC
Home


infoPortal (JSP)

InfoPortal Resource TestBed (Using OGSA-DAI)
Please enter the Using Time (HOUR) :

Get Result

CCLRC IeSE Portal - Version 10
© CCLRC-DL 2003-2005

[Support and Additional Information](#)



http://www.clrc.ac.uk/ Internet

CCLRC IeSE Portal: Default Jetspeed page - Microsoft Internet Explorer provided by DL

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail

Address http://esc4.dl.ac.uk:7080/ieSE/portal

Welcome to CCLRC IeSE ----
Programming the Grid

Welcome **Xiao Wang**
Customize: [HTML](#) [WML](#)
[Edit account: Xiao Wang](#)

CLRC
Home

infoPortal (JSP)

Resource	HeadNode	WorkerNode
Blue02	1	59 + 17 + 32 + 32 + 32 + 40
Blue05	1	null
bouscat	1	null
columbus0	1	5
e3000	1	null
esc	1	null
esc4	1	null
esc5	1	null
esc5	1	null
frik	1	null
fruit	1	null
esc	1	null
green	1	1
Grid2	1	null
esc9	1	null
herschel	1	null
Hrothgar	1	16
inca	1	null

HPCx resource information

Resource Title	HPCx UK National Supercomputing Facility
Resource UUID	a38fd68d-4dd8-4c5a-8dad-08b45c2feca
Contact Person	Mike Brown
Contact Email	m.brown@epcc.ed.ac.uk
WebSite	http://hpcx.ac.uk

The HPCx system consists of 40 IBM pSeries 690 Regatta nodes, each containing 32 POWER4 processors, a total of 1280 processors. It is located at the UK's CLRC Daresbury Laboratory and operated by the HPCx Consortium

The early user machine consists of 2 IBM pSeries 690 Regatta nodes, each containing 32 POWER4 processors.

The HPCx system has a total of 1280 processors available for large-scale

http://esc4.dl.ac.uk:7080/ieSE/process/infoportal... Internet



The screenshot shows a Microsoft Internet Explorer browser window with the following content:

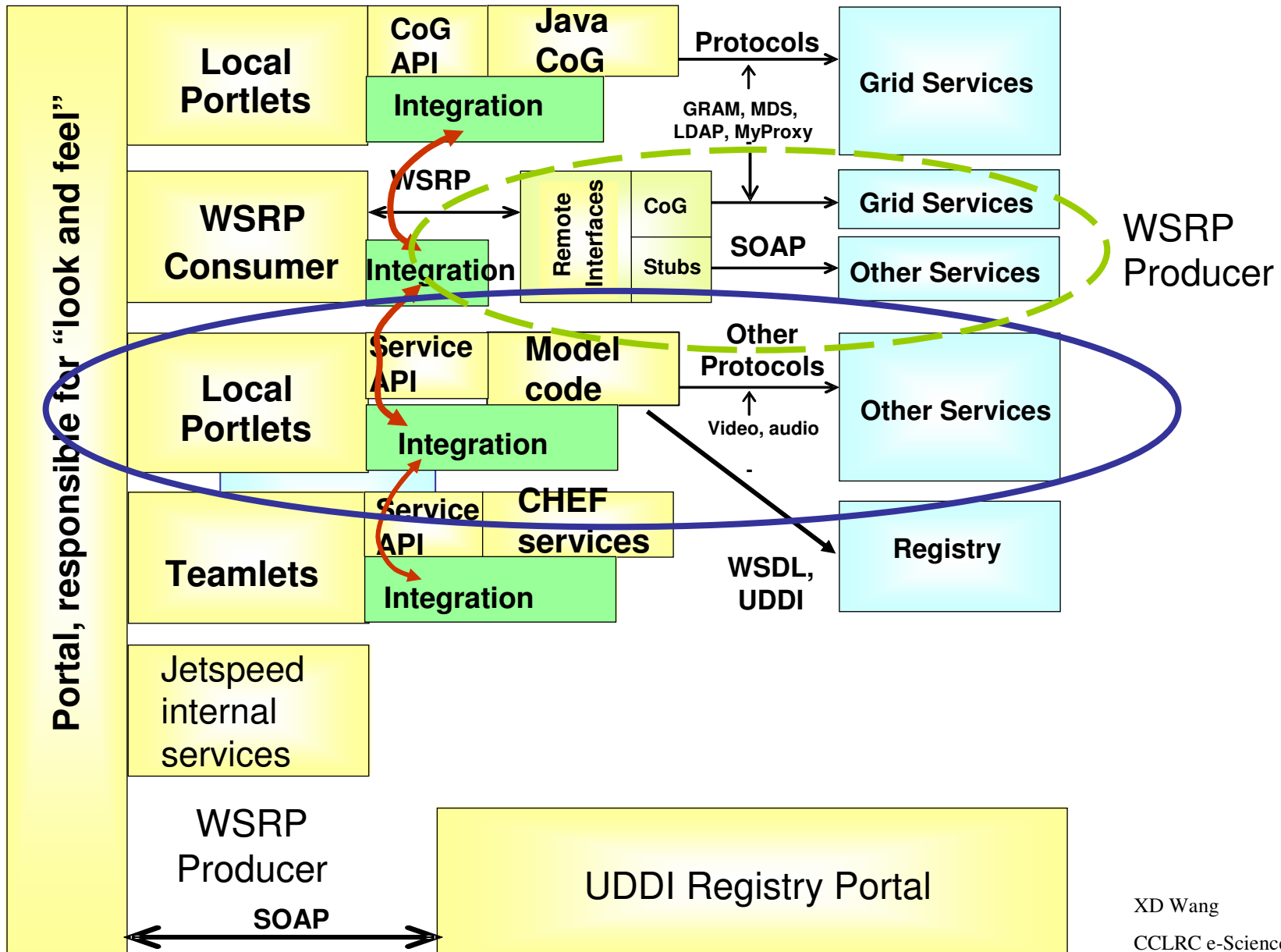
- Browser Title:** CCLRC IeSE Portal: Default Jetspeed page - Microsoft Internet Explorer provided by DL
- Address Bar:** http://wk-ibm2.dl.ac.uk:9080/Info/portal;jsessionid=0AC1AEDF6D07910BAC375C378E39A706
- Main Page Content:**
 - Header: Welcome to CCLRC IeSE ---- Programming the Grid
 - Navigation: Home
 - Section: Resource Explorer - OGSA-Testbed Resource Explorer
 - Node List: grid12.esc.rl.ac.uk, wk-ibm2.dl.ac.uk, node30 of Westminster, grid12.esc.rl.ac.uk
 - Text: Please contact [Xiao Dong Wang](#) to add up your new node.
 - Footer: CCLRC IeSE Portal - Version 10 © CCLRC-DL 2003-2005
 - Link: [Support and](#)
- Pop-up Window: Node Information - Microsoft Internet Explorer provided by DL**
 - Node:**
 - Cluster Name: grid12.esc.rl.ac.uk
 - Cluster ID: grid12.esc.rl.ac.uk
 - Host Name: grid12.esc.rl.ac.uk
 - Host ID: grid12.esc.rl.ac.uk
 - IP Address: 130.246.140.68
 - IP Address: 127.0.0.1
 - Operating System:**
 - Name: Linux
 - Version: #1 Fri Oct 3 17:52:56 EDT 2003
 - Release: 2.4.21-4.EL
 - Memory:**
 - Free RAM (MB): 253
 - Total RAM (MB): 501
 - Free VM (MB): 1019
 - Total VM (MB): 1019
 - Processor:**
 - Model: AMD Athlon(TM) XP 2500+
 - Clock (MHZ): 1833
 - Cache (MB): 512
 - Version: 6.10.0
 - Vendor: AuthenticAMD
 - Processor Load:**

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Next

Local and Remote Portlets Development



- GT3.2Beta Installation Step by Step
<http://tyne.dl.ac.uk/Testbed/gt3.2-installation.pdf>
- GT3.2Beta MMJFS Test Report
<http://tyne.dl.ac.uk/Testbed/mmjfs.pdf>
- WSRF Core Practice Experience
http://tyne.dl.ac.uk/Testbed/9_july_04.pdf
- OGSA-DAI Stuff
<http://tyne.dl.ac.uk/Testbed/ogsa-dai.html>