

EGEE

A multi-national, multi-science Grid infrastructure

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*OGF20 Workshop: campus and community Grids
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- **Infrastructure operation**
 - Currently includes >200 sites across 40 countries providing ~40K CPUs
 - Continuous monitoring of grid services & automated site configuration/management
 - Used by >200 VOs running ~100.000 jobs/day



- **Middleware**
 - Production quality middleware distributed under business friendly open source licence

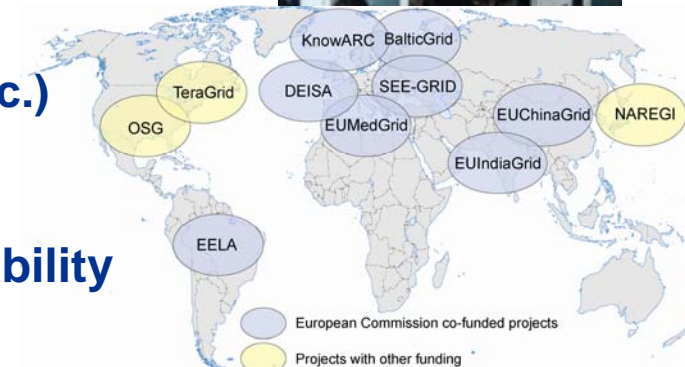


- **User Support - *Managed process from first contact through to production usage***

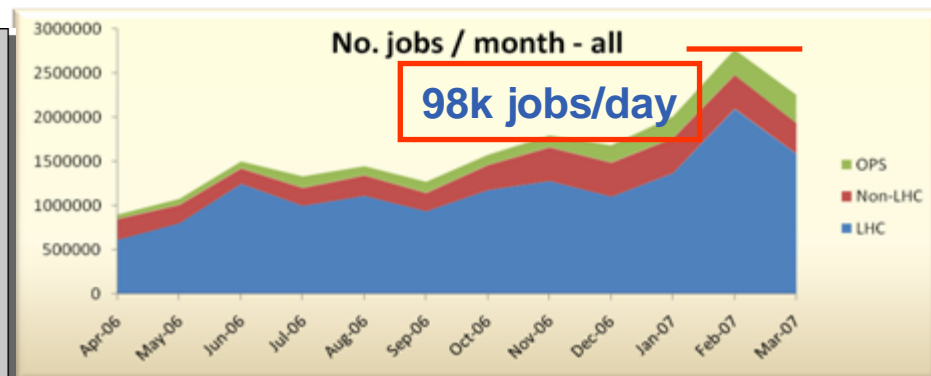
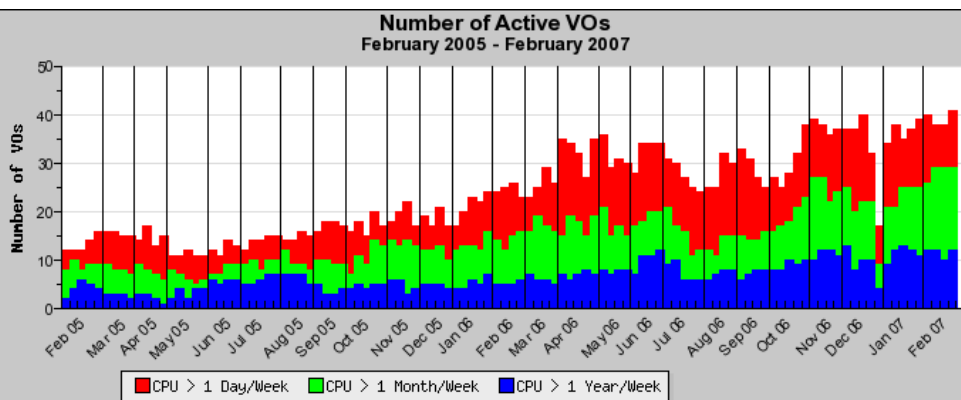
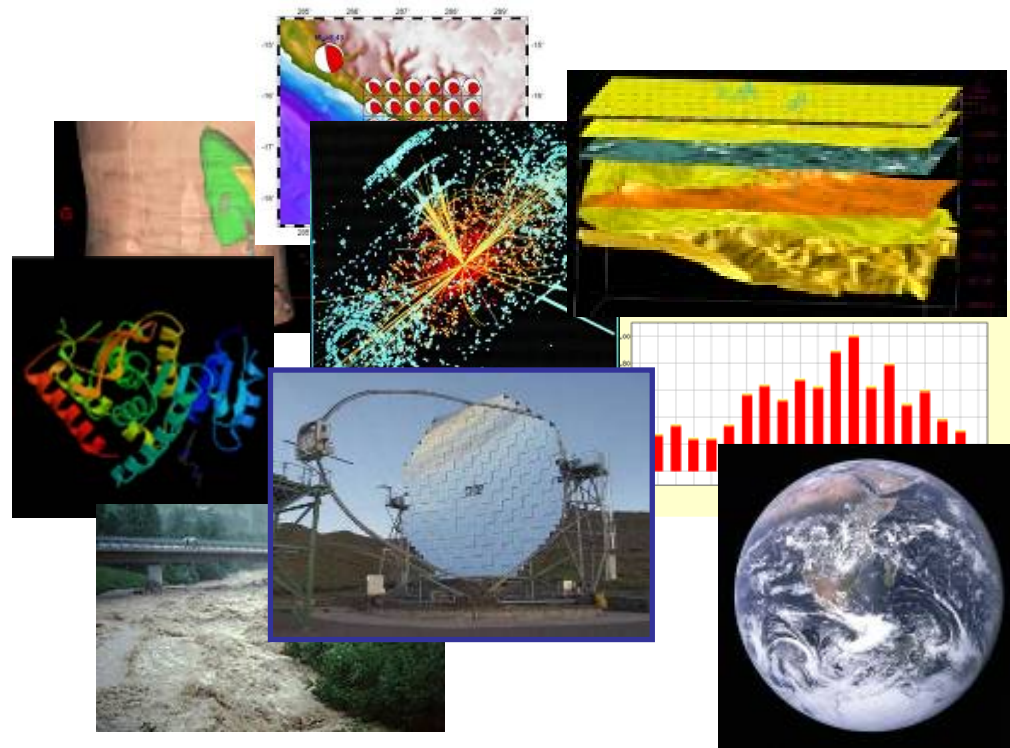
- Training
- Expertise in grid-enabling applications
- Online helpdesk
- Networking events (User Forum, Conferences etc.)

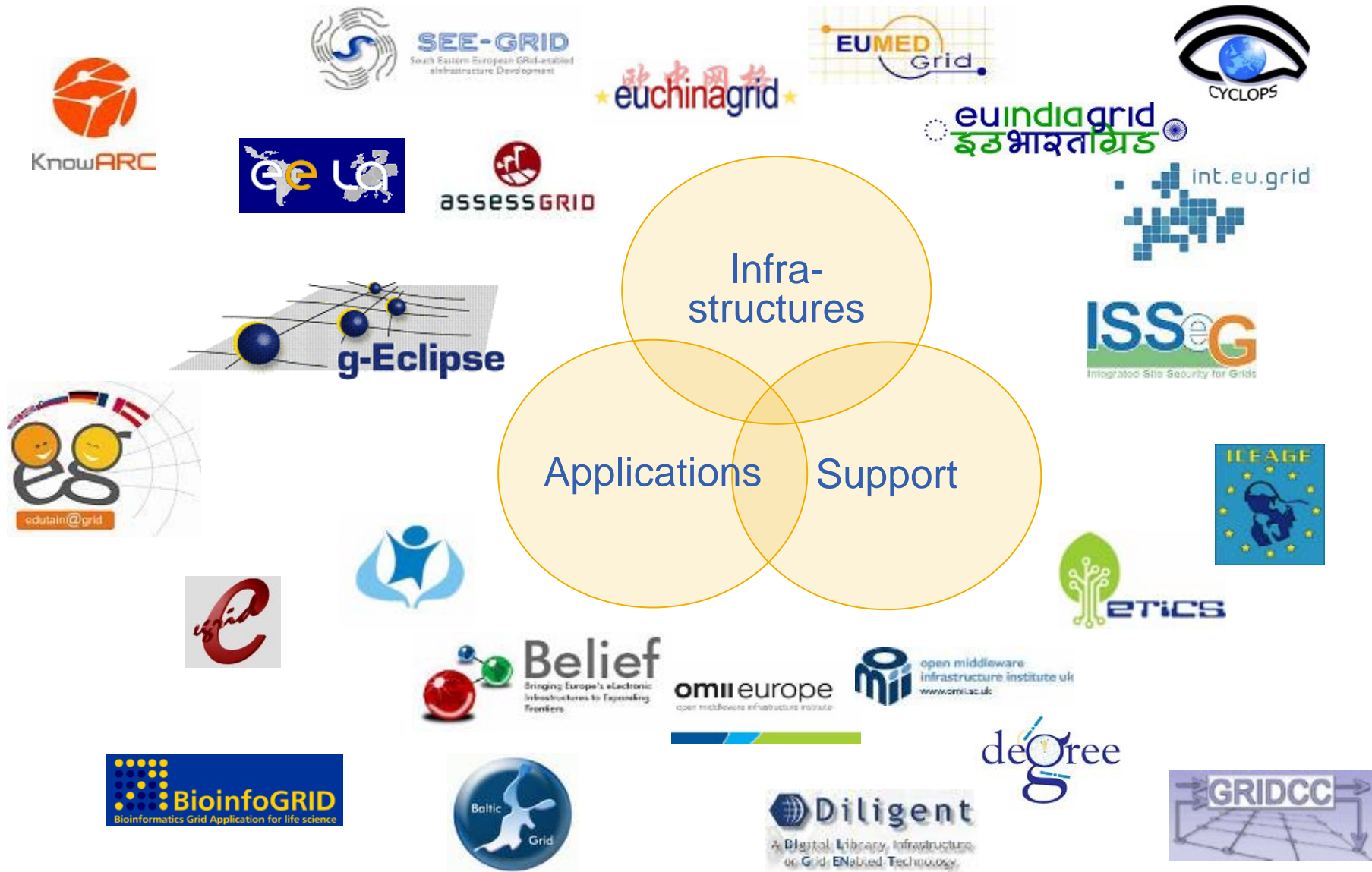


- **Interoperability**
 - Expanding geographical reach and interoperability with collaborating e-infrastructures



- >200 VOs from several scientific domains
 - Astronomy & Astrophysics
 - Civil Protection
 - Computational Chemistry
 - Comp. Fluid Dynamics
 - Computer Science/Tools
 - Condensed Matter Physics
 - Earth Sciences
 - Fusion
 - High Energy Physics
 - Life Sciences

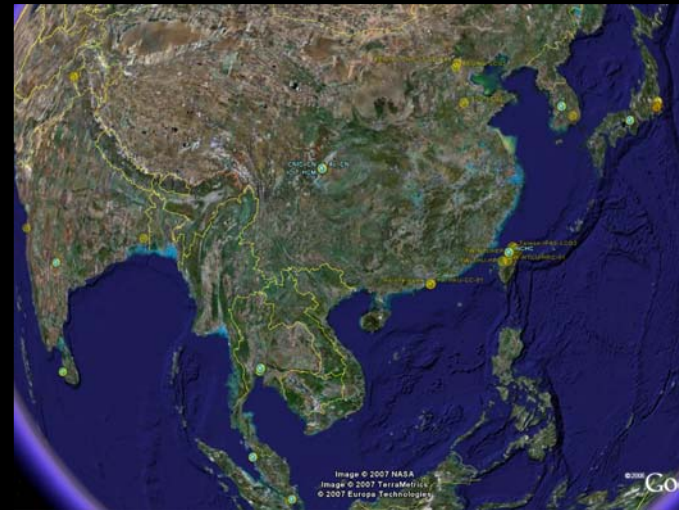


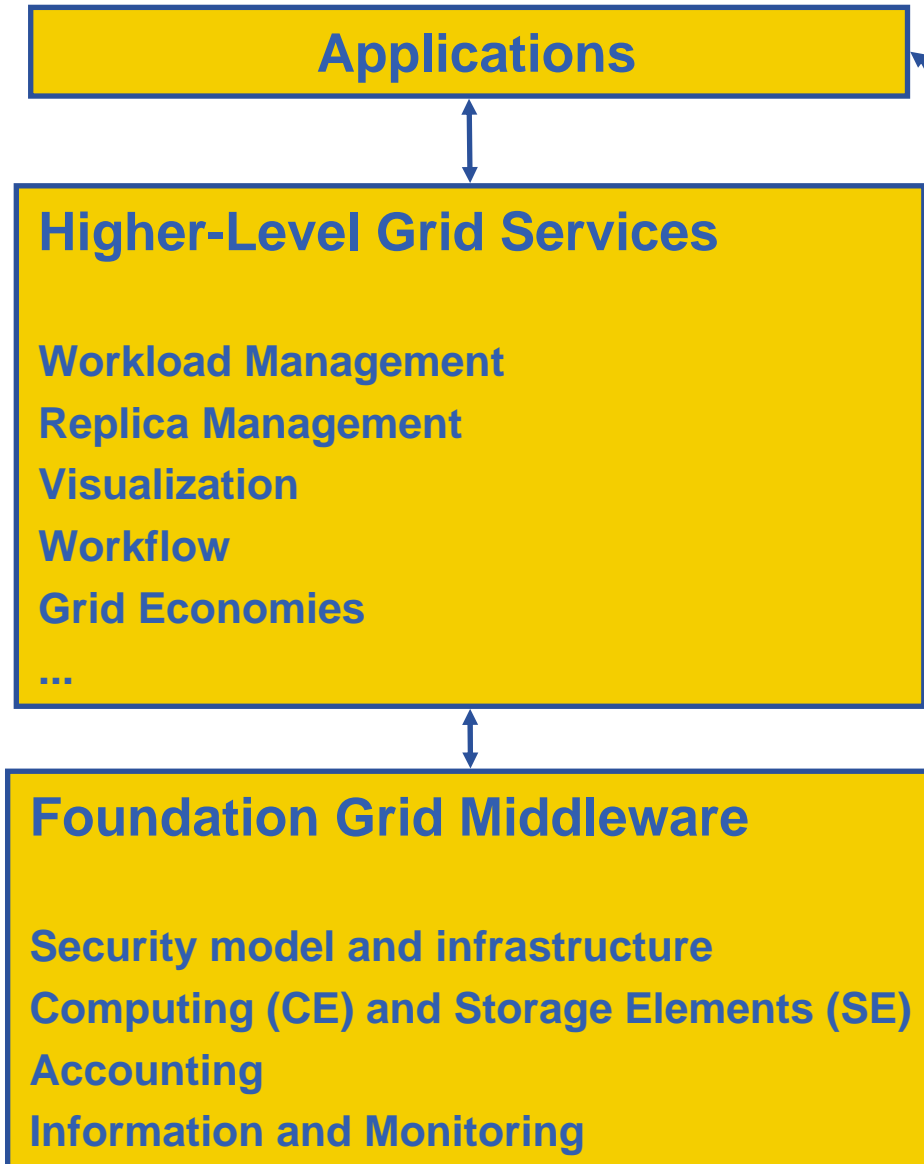


- **We currently see different flavors of Grids deployed worldwide**
 - Because of application needs, legacy constraints, funding, etc.
 - **Diversity is positive!** – Competition to find the best solutions
- **Many applications need to operate on more than one Grid infrastructure**
 - Pragmatic approach to interoperability is key
 - Applications need **interoperable Grid infrastructures now**
 - A production infrastructure cannot be an early adopter of quickly changing standards
 - Changing the infrastructure takes time and must not be disruptive
 - *For instance: following the OGSF – WSRF move would have had serious effects on EGEE's operation*



APAC
DEISA
EGEE
Naregi
NDGF
NGS
OSG
Pragma
Teragrid





- Applications have access both to Higher-level Grid Services and to Foundation Grid Middleware
- Higher-Level Grid Services are supposed to help the users building their computing infrastructure but should not be mandatory
- Foundation Grid Middleware will be deployed on the EGEE infrastructure
 - Must be complete and robust
 - Should allow interoperation with other major grid infrastructures
 - Should not assume the use of Higher-Level Grid Services

- Allow same resources to be accessed via different WM systems
- Prototype by ICEAGE on GILDA training infrastructure

```
Applications Places System
emidio@bonnie:~
File Edit View Terminal Tabs Help
root@glite... emidio@bo... emidio@bo... emidio@bo... globus@ice... gilda009@... giorgio@gli... root@grid0... root@voms... fmarco@bo... p1
Status info for the Job : https://glite-rb3.ct.infn.it:9000/PK45v-rqW0rz-8foThe2dA
Current Status: Scheduled
Status Reason: Job successfully submitted to Globus
Destination: iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-short
Submitted: Mon Mar 5 14:50:21 2007 CET
[bonnie] /home/emidio > glite-job-status https://glite-rb3.ct.infn.it:9000/PK45v-rqW0rz-8foThe2dA
*****
BOOKKEEPING INFORMATION:
Status info for the Job : https://glite-rb3.ct.infn.it:9000/PK45v-rqW0rz-8foThe2dA
Current Status: Done (Success)
Exit code: 0
Status Reason: Job terminated successfully
Destination: iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-short
Submitted: Mon Mar 5 14:50:21 2007 CET
[bonnie] /home/emidio > glite-job-output https://glite-rb3.ct.infn.it:9000/
Retrieving files from host: glite-rb3.ct.infn.it ( for https://glite-rb3.ct.infn.it:9000/ )
*****
JOB GET OUTPUT OUTCOME
Output sandbox files for the job:
- https://glite-rb3.ct.infn.it:9000/PK45v-rqW0rz-8foThe2dA
have been successfully retrieved and stored in the directory:
/tmp/emidio_PK45v-rqW0rz-8foThe2dA
[bonnie] /home/emidio > cat /tmp/emidio_PK45v-rqW0rz-8foThe2dA/stdout.log
iceage-wm-14.ct.infn.it
[bonnie] /home/emidio > voms-proxy-info -all
subject : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/
issuer : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/
identity : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/
type : proxy
strength : 512 bits
path : /tmp/x509up_u500
timeleft : 8:22:32
```

```
Applications Places System
emidio@bonnie:~
File Edit View Terminal Tabs Help
root@glite... emidio@bo... emidio@bo... emidio@bo... globus@ice... gilda009@... giorgio@gli... root@grid0... root@voms... fmarco@bo... p1
[bonnie] /home/emidio > grid-proxy-info
subject : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/emailAddress=emidio.giorgio@ct.infn.it/CN=proxy
issuer : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/emailAddress=emidio.giorgio@ct.infn.it
identity : /C=IT/O=GILDA/OU=Personal Certificate/L=INFN,CN=Emidio Giorgio/emailAddress=emidio.giorgio@ct.infn.it
type : full legacy globus proxy
strength : 512 bits
path : /tmp/x509up_u500
timeleft : 8:20:49
[bonnie] /home/emidio >
[bonnie] /home/emidio > globusrun-ws -submit -F https://iceage-ce-01.ct.infn.it:8443/ysrf/services/ManagedJobFactoryService -F
t PBS -S -c /bin/hostname
Delegating user credentials...Done.
Submitting job...Done.
Job ID: uuid:eaf408be-cb3d-11db-b5b4-00304859
Termination time: 03/06/2007 17:21 GMT
Current job state: Pending
Current job state: Active
Current job state: CleanUp-Hold
iceage-wm-14.ct.infn.it
Scientific Linux CERN Release 3.0.6 (SL)
Current job state: CleanUp
Current job state: Done
Destroying job...Done.
Cleaning up any delegated credentials...Done.
[bonnie] /home/emidio >
```

emidio@bonnie:~/OMICLIENT/cauchy

Running the Cauchy client...

OMII Distribution - Cauchy Demonstration (on bonnie.trigrid.it)

open middleware infrastructure institute

Parameters

Account: Account-0503 Service Provider: http://grid009.ct.infn.it:180 Offer: 24.00 Use: 1 XSize: 2 YSize: 2

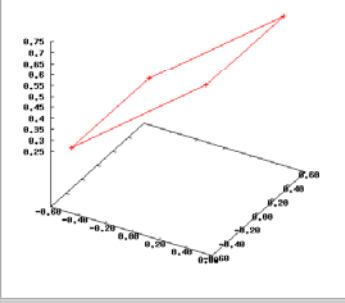
Status

Account-0503

Report

Checking jobs for completion...
 o Jobs complete: 1
 o Updating 3D surface graph...
 o Cauchy Client successful and complete.

Cauchy Graph



gLite

GT4

OMII

- **As resource provider**

- Distributed operations organized via Regional Operations Centers - ROCs (~10)
 - Support new sites in installing gLite foundation services etc.
 - Operation guides: <http://cern.ch/egee-sa1/joining.html>
 - Standardized tests run regularly to check service status

- **As community**

- Application support activity provides documentation and help
- <http://egeena4.lal.in2p3.fr/index.php>
- Essential first steps:
 - Set up of a Virtual Organization and a VO mgmt service (VOMS)
 - Identification of requirements
 - *Resource usage*
 - *Software and services*
- Most successful if supported via local EGEE sites and ROCs

- **Campus Grids**

- Co-location limited
 - gLite platform support
- Interoperation and standardization at infancy levels
 - Seamless interoperation between EGEE and OSG achieved
 - *Similar middleware stack*
 - Work through OGF essential to move forward

- **Community Grids**

- Customized, non-interoperable foundation services; sometimes difficult to interface with
 - Common interfaces and semantics key
- Hosting of application level services
 - VM technology could help
- Resource allocation mechanisms at infancy levels
 - Need to scale to ~500 VOs and sites

Need to prepare permanent **Common Grid infrastructure**

- High quality of service for all user communities
- Independent of short project funding cycles
- Managed in collaboration with National Grid Initiatives (NGIs)

