EGEE

SA1 – Operations Status Overview

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Information Society

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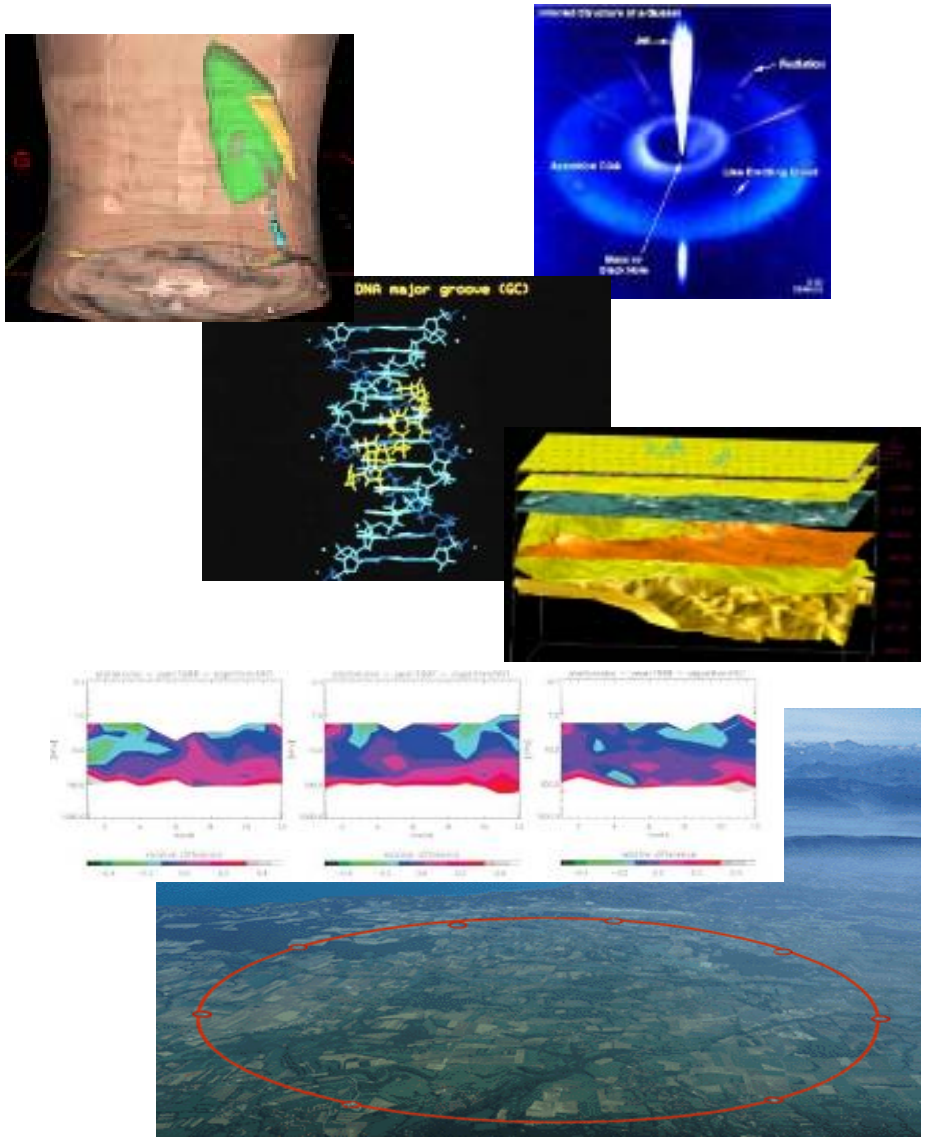
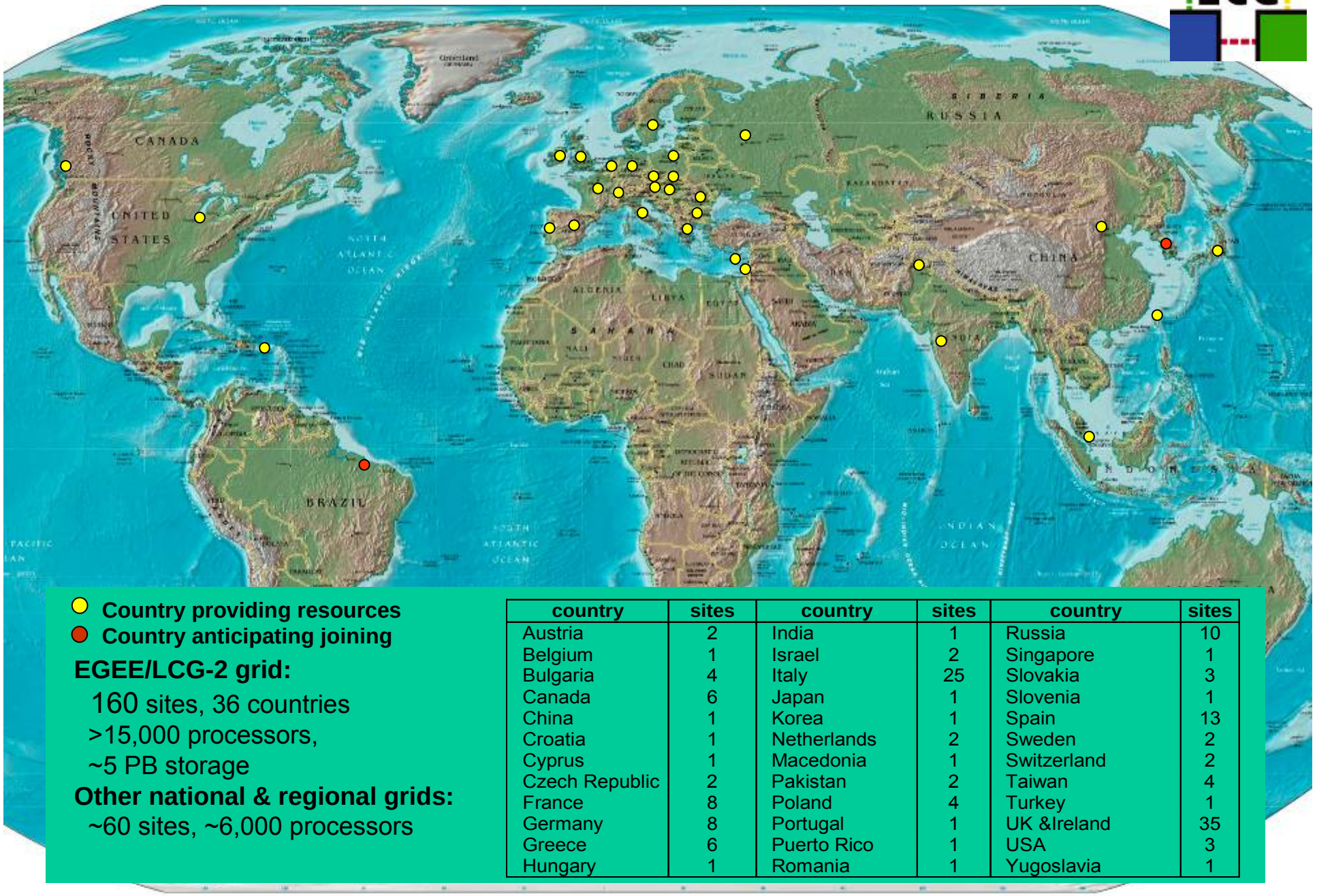
Outline

- Overall status
- Operations evolution
- Monitoring & metrics
- Pre-production service
- gLite certification
  - Middleware distributions
- User support
- Interoperation



EGEE/LCG-2 Grid Sites : September 2005



- Country providing resources
- Country anticipating joining

EGEE/LCG-2 grid:

160 sites, 36 countries

>15,000 processors,

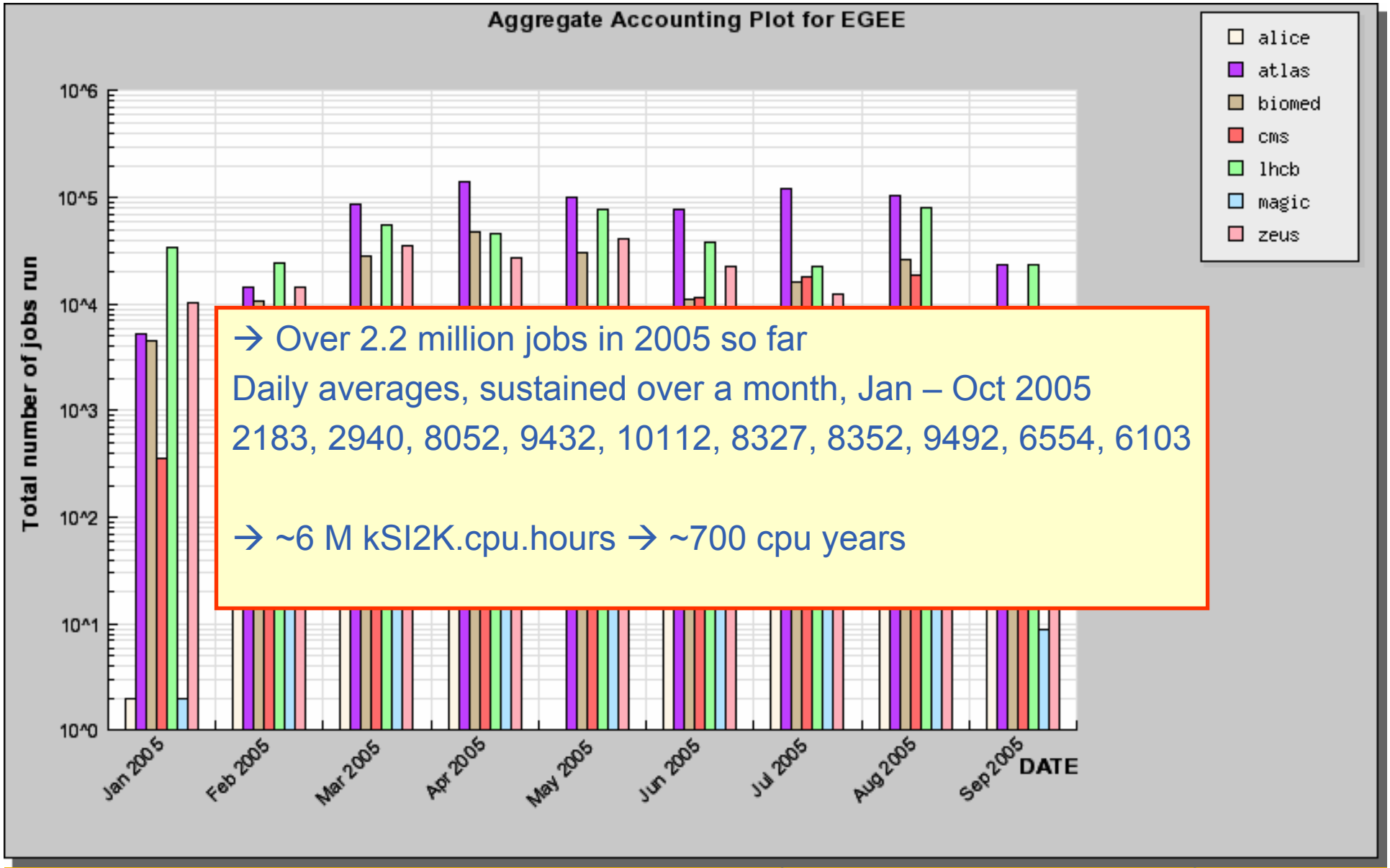
~5 PB storage

Other national & regional grids:

~60 sites, ~6,000 processors

country	sites	country	sites	country	sites
Austria	2	India	1	Russia	10
Belgium	1	Israel	2	Singapore	1
Bulgaria	4	Italy	25	Slovakia	3
Canada	6	Japan	1	Slovenia	1
China	1	Korea	1	Spain	13
Croatia	1	Netherlands	2	Sweden	2
Cyprus	1	Macedonia	1	Switzerland	2
Czech Republic	2	Pakistan	2	Taiwan	4
France	8	Poland	4	Turkey	1
Germany	8	Portugal	1	UK &Ireland	35
Greece	6	Puerto Rico	1	USA	3
Hungary	1	Romania	1	Yugoslavia	1

Close to 10,000 jobs /day



→ Over 2.2 million jobs in 2005 so far

Daily averages, sustained over a month, Jan – Oct 2005

2183, 2940, 8052, 9432, 10112, 8327, 8352, 9492, 6554, 6103

→ ~6 M kSI2K.cpu.hours → ~700 cpu years

Daily operations

CIC on duty – 1 year on

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Back 1 year ago .... Today

- **4 federations involved – CERN, Italy, UK, France**
  - Transparency
  - Information sharing between Core Infrastructure Centres
  - Full Core Infrastructure Service functionality on a 24x7 basis
- **Procedures, tools, static information and dynamic monitoring**
  - Easy and fast transfer of responsibilities
  - Information sharing
  - Troubleshooting in conjunction with the federations

- **Increase in the reliability, availability and dependability of the grid operations**
  - CIC-on-duty weekly shifts
  - Operations procedure
  - Development of tools
- **6 federations involved – Russia joined March 25th and Taiwan joined October 17th**
- **Strong complementarity between the ever evolving set of project-wide tools "4 pillars of daily grid operations":**
  - Static information : GOC→GOCDB2
  - Monitoring tool set : SFT→SFT2 and gstat
  - Problem tracking tool : SAVANNAH→GGUS and TPM
  - Integration of operations : web prototype→CIC portal

Present situation…Workplan

- **Weekly operations meetings.**
- **Quarterly CIC-on-duty meetings**
  - from COD-0 at EGEE2 to COD-5 at EGEE4
- **Number of tickets in Problem Tracking Tool: av. 100/week**
  - ie. created, escalated, closed.
  - NB : Since the integration of the CIC-on-duty operations with the current tracking tool, mid-March 2005.
- **Ratio of sites that pass monitoring tests has doubled ie. from 45% to >80%.**
  - NB : No. Sites increased and monitoring tests are more stringent
- **Beyond the initial scope, operations portal provides:**
  - Enhanced communication tool: EGEE broadcast,
  - VO management tools: Freedom of Choice for Resources and VO dashboard,
  - VO administration section for the Operations Advisory Group,
  - ROC weekly reports, and proposals to ROC managers.
- **The mission scales up:**
  - grid services monitoring for operations and applications' specific usage.
  - up to 10 ROCs and towards grid interoperability.
- **The team evolves… to meet:**
  - VO oriented and LHC production phase early 2007 – metrics and full production service.
  - Interoperability in operations OSG/EGEE – monitoring jobs and follow-up of tickets.

Operations coordination

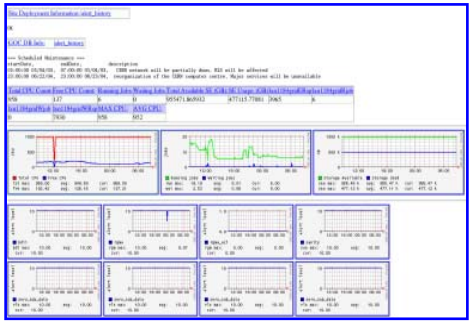
- **Weekly operations meetings**
- **Regular ROC, CIC managers meetings**

- **Series of EGEE Operations Workshops**
  - Nov 04, May 05, Sep 05
  - Last one was a joint workshop with Open Science Grid
- **These have been extremely useful**
  - Will continue in Phase II
  - Bring in related infrastructure projects – coordination point
  - Continue to arrange joint workshops with OSG (and others?)

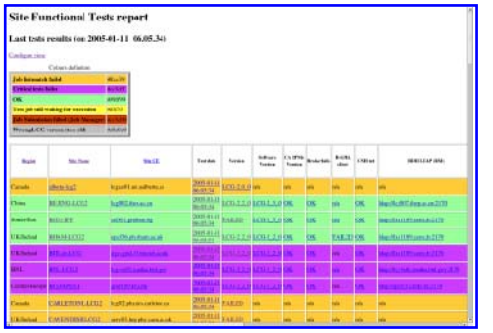
A Selection of Monitoring tools

Enabling Grids for E-sciencE

1. GIIS Monitor

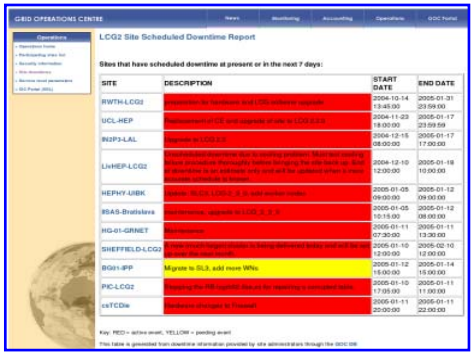


2. GIIS Monitor graphs

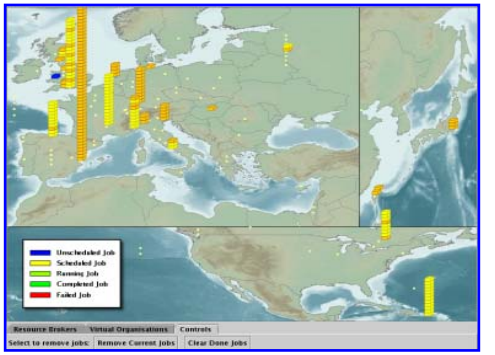


3. Sites Functional Tests

4. GOC Data Base

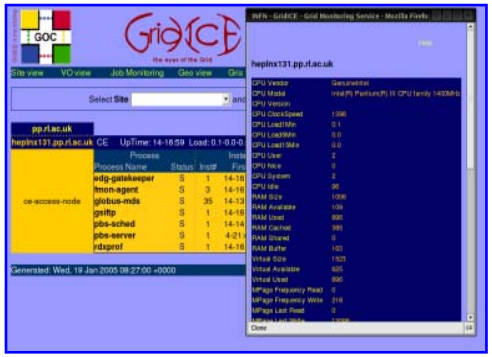


5. Scheduled Downtimes

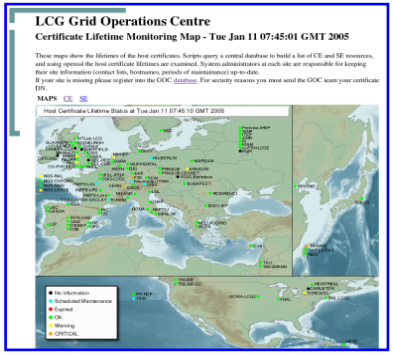


6. Live Job Monitor

7. GridIce – VO view



8. GridIce – fabric view

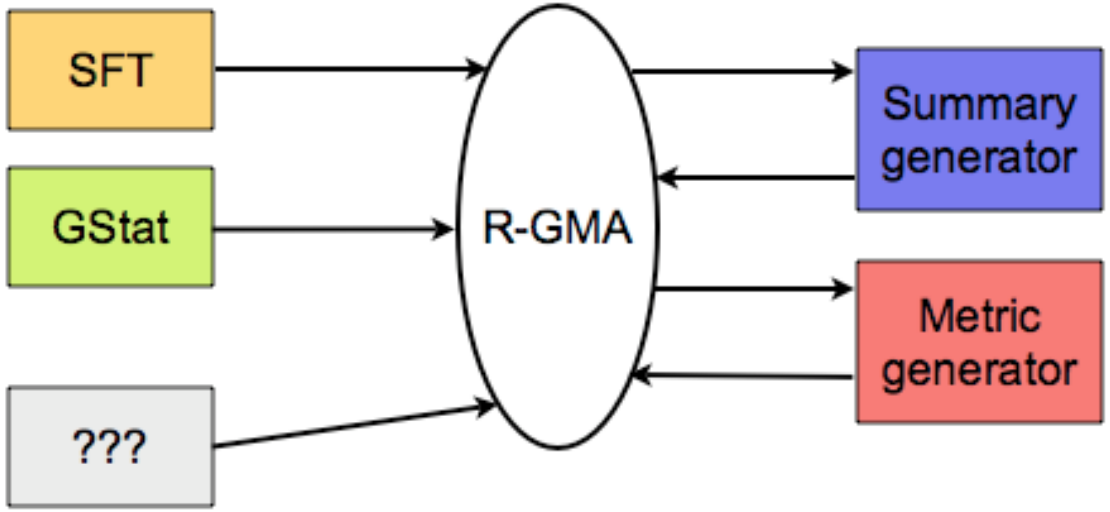


9. Certificate Lifetime Monitor

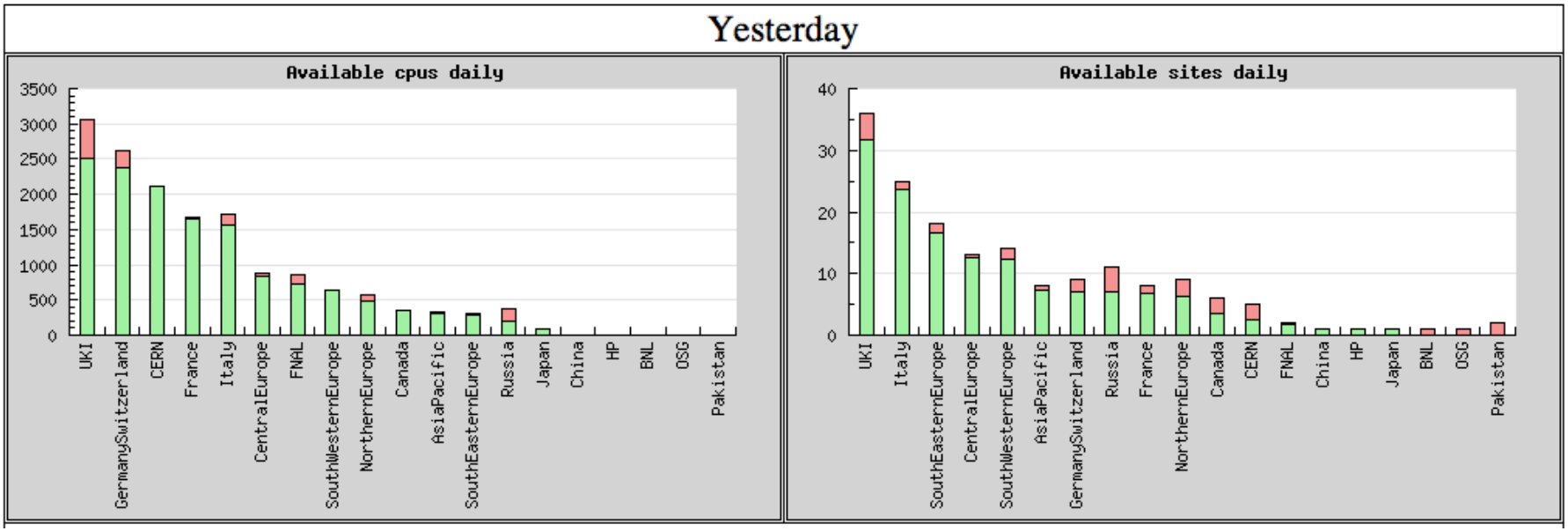
Note: Those thumbnails are links and are clickable.

Integration of monitoring information

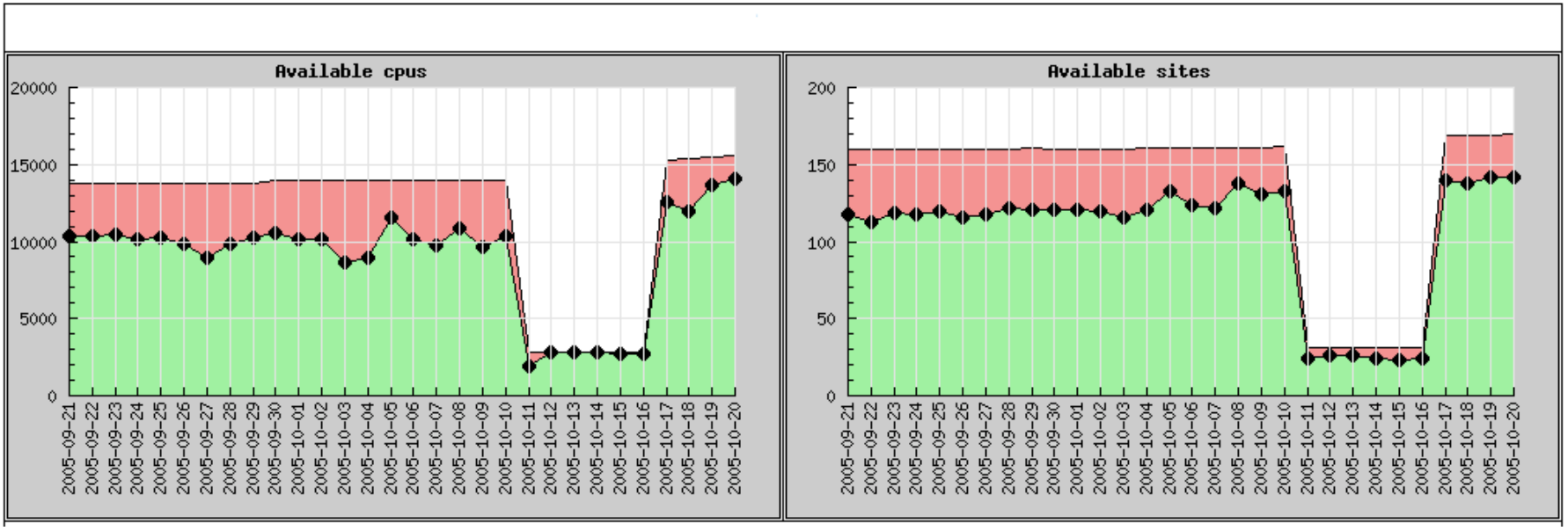
- Monitoring information from various tools is collected in R-GMA archiver
- Summary generator calculates overall status of each monitored object (site, CE, ...) - update: 1h
- Metric generator calculates numerical value for each monitored object + aggregation (CE → site → region → grid) - update: 1 day



Averaged metrics



History metrics (monthly)



Pre-production Service Status 1

- **Current PPS is a “pure” gLite service**
  - BDII, SRM SE and MyProxy server are also needed
- **The PPS is now open to many VOs**
  - all those which have supplied details of their VOMS server.
- **User groups currently running jobs on the PPS are:**
  - HEP VOs (CMS, LHCb, Atlas, Alice)
  - DILIGENT
  - BioMed
  - ARDA
- **Currently is upgrading from gLite 1.3 to gLite 1.4**
  - As the service is now in use, upgrades are phased to minimize the impact
- **Day-to-day operations of the PPS needs to be moved under the production operations team**
- **PPS needs to move to being a real pre-production service (it needs to offer a beta version of the production system)**

Pre-production Service Status 2

- **Resources**

#CPUs #Job Submit Storage

CERN

PPS has access to the **CERN production batch** a dedicated gLite CE and LSF queue. WNs are running gLite raries. Currently self-limited to **50** running jobs but ex **1400** CPU.

CNAF

PPS has access to **CNAF production batch fa** are running LCG-2 client libraries.
~150 slots are available.

DPM

PIC

PPS now has access to **CNAF production bat** WNs are running LCG-2 client libraries.
177 slots are available.

DPM

Castor

Castor

DPM

To date CERN, CNAF and PIC have access to their production farms.

Pre-production Service Status 3

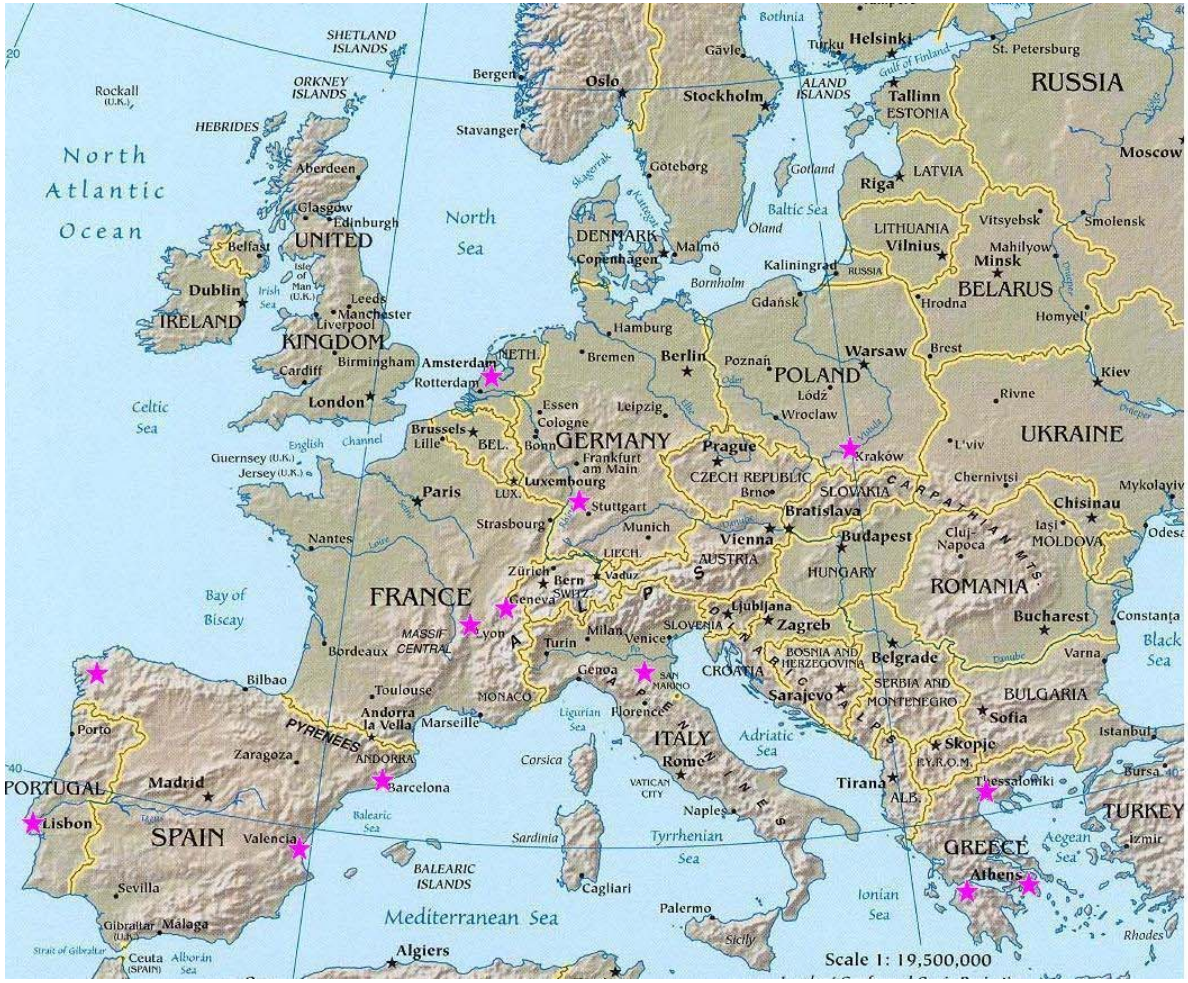
- **Core Services**

	Work Flow Management	VO Management	Information System	Catalogues	Authentication	Data Management
IN2PN3,Lyon	FTS					
FZK, Karlsruhe						
UOA, Athens						
UOM, Thessaloniki						
UPATRAS, Patras	WMS + LB					
CNAF, Bologna	WMS + LB	VOMS	BDII	IO(DPM)		
NIKHEF, Amsterdam	VOMS					
CYFRONET, Krakow						
LIP, Lisbon	MyProxy	IO(DPM)				
CESGA, S. de Compostela	R-GMA					
IFIC, València	IO(DPM)					
PIC, Barcelona	WMS +	Fireman(	IO(castor)			
CERN, Geneva	WMS + LB	IO(DPM)	FTS			
ASGC, Taipei	WMS + LB					

gLite Certification Status

- **Currently certifying gLite 1.4**
  - The job submission chain was “fast tracked” to get it into the PPS
    - Job submission = WMS, CE, WN, UI
    - Fast track: regression testing + basic testing of new functionality.
  - Data management (concentrating on FTS / FTA) is now being tested.
- **Certification testbed resides at CERN with 4 virtual sites.**
- **Within the certification area there is also a “Mix” testbed for investigating the interoperability of gLite with LCG-2.**
- **The automated test suite is being updated (with the help of Bulgarian colleagues) to cover the new functionality provide by gLite**

Pre-production sites



Middleware distribution

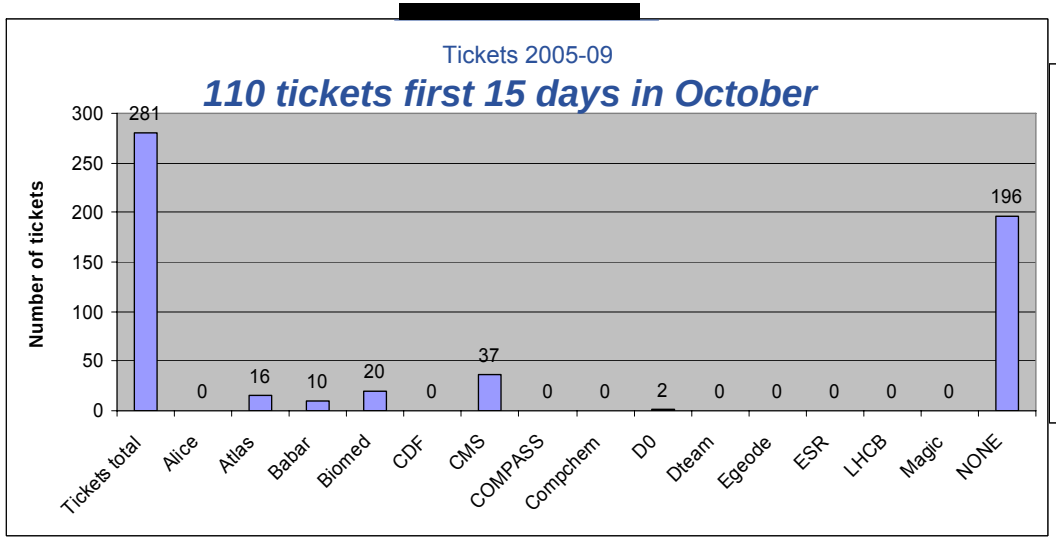
- **Distinguish between**
  - gLite releases
  - Deployable middleware distribution

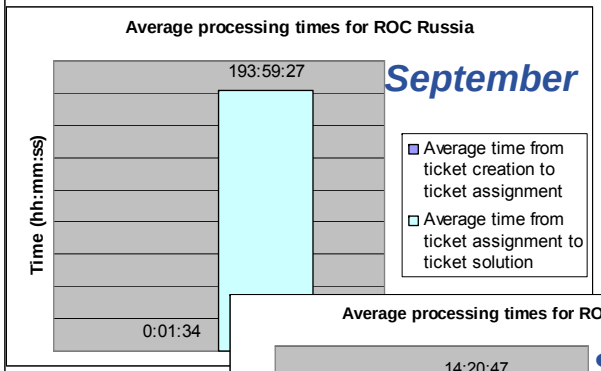
- **The current EGEE middleware distribution:**
  - Unfortunately labelled “lcg-2.6.0”
  - contains gLite components:
    - File Transfer Service (FTS)
    - R-GMA – used as accounting and monitoring framework
    - VOMS
  - Anticipate soon including new WMS (CE+RB)
    - But these will surely exist in parallel with existing WMS components for some time
- **Must change ideas:**
  - gLite should produce components with version numbers
    - The existing concept of a “gLite release” is extremely confusing
  - The deployable middleware distribution will be an evolution of what is there now, with new components added or replacing existing
  - The deployable middleware distribution needs to be renamed
    - As gLite-2.7.x, or <newname>-2.7.x ???

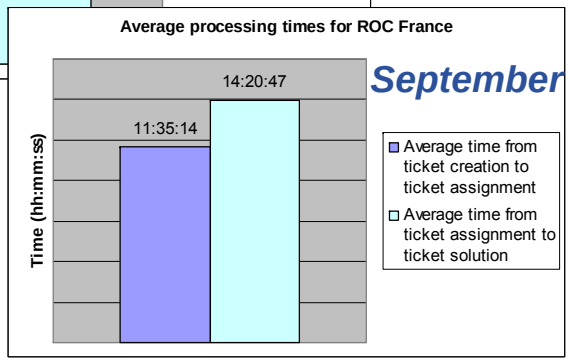
GGUS Status

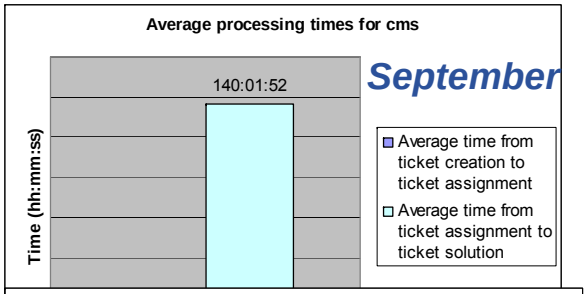
- GGUS ***model of operations*** defined, tested and documented.
  - It foresees a first line support team (TPMs) composed by Grid experts from participating ROCs (20 active people from CERN, SEE, SWE, CE, Russia).
  - They process, solve and follow tickets forwarded to other second level specialized units (VOs, middleware, other Grids, etc.)
- ***GGUS/ESC coordinates*** the effort
  - with representatives from ROCs, NA3, VOs, GGUS/FZK, CERN.
- ***7 ROCs out of 9 have interfaced*** their local support system with central GGUS.
  - ROC_France,ROC_UK, OSG, NorduGrid, coming soon.
- The ticket ***traffic is*** still low but ***increasing***.
  - At the moment teams of 2-3 TPMs on shift can potentially process up to 100 tickets/day (CERN Helpdesk processes 1000 tickets/week with first line support teams of 5 people for a total of 28 people).
- ***Support for all VOs*** available (global and regional).
- A lot of ***metrics established*** to measure the performance of the system
  - performance of a supporter/support unit, tickets solved/week/VOs, # of tickets filed in Wiki pages, etc.
- Still some ***open issues*** to solve
  - responsiveness of supporters, VO involvement, portal improvements, resilience to failures, improving interfaces with ROCs, etc.

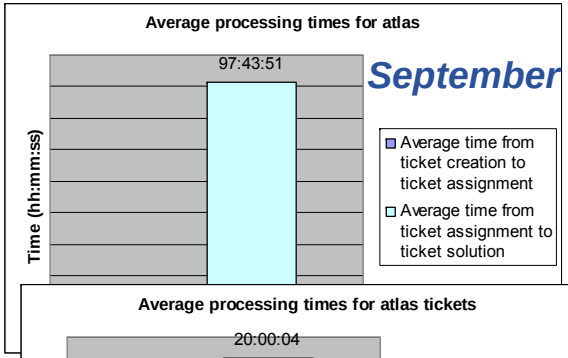
Example of ROCs and VO Support performance

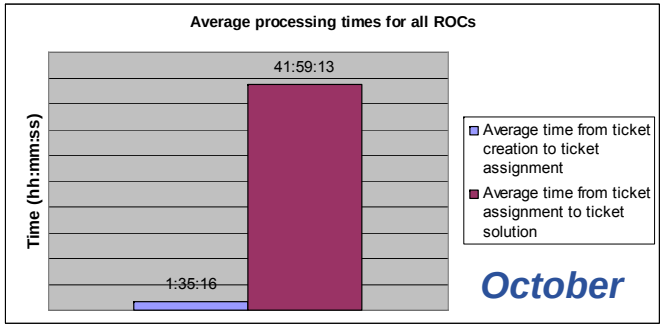


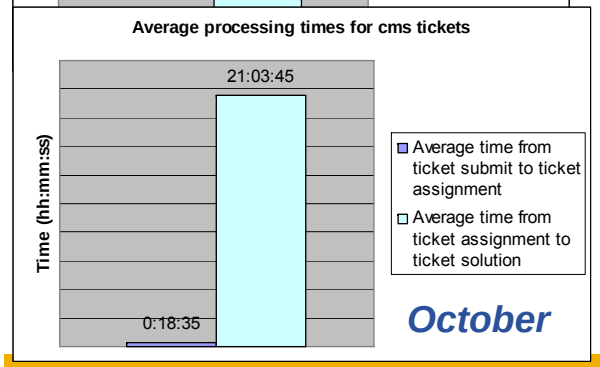


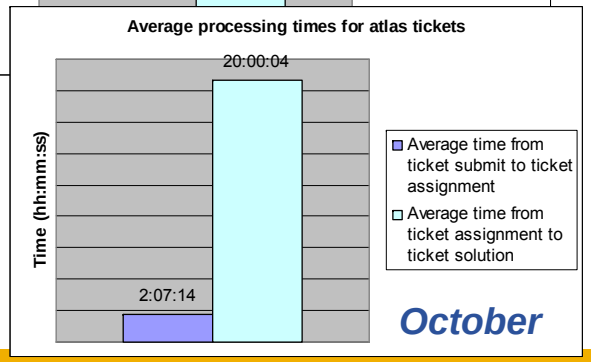












Interoperability and Inter-operation

- **Successful demonstration of cross job submission with Open Science Grid sites**
  - Works in both directions
  - Based on BDII, GIP (→ VDT)
  - Small changes to allow correct app environment to be set up
  - Is sustainable – not just a one-off demonstration
- **Inter-operation –**
  - Can we share operational oversight?
    - Gain more coverage (2 shifts/day)
  - Share monitoring tools and experience (SFT)
  - Common application environment tests
  - Strong interest from both sides
  - Follow up in operations workshops

Summary

- **The infrastructure continues to grow moderately**
- **The operation is becoming more stable with time**
- **Problem of bad sites is under control**
  - Operational oversight – quite strict
  - Through SFT, VO tools
  - Affect of bad sites is much reduced
- **Significant work loads are being managed and significant resources being delivered to applications**
- **User support is also becoming stable and usable**
- **Successful interoperability with OSG**
  - With strong interest in building inter-operation
- **EGEE-II must consolidate and build on this work**