



Enabling Grids for
E-science in Europe

*EGEE 3rd parties Advanced Induction Course,
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HellasGrid Hardware Tender

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Contents of this session

- HellasGrid Hardware Procurement Tender administrative details
- Technology choices
- Projected timeline
- Discussion

HellasGrid RFP

- Single tender with 3 sub-tenders (sections):
 - Servers, storage and network infrastructure
 - Tape library
 - Access Grid nodes
- A separation of these three was necessary due to:
 - The structure of the HellasGrid project and the budget restrictions
 - The nature of each group of items
 - Different companies are specialists in each part

- Section 1 (servers, storage and network infrastructure):
 - 930.000 € including VAT
- Section 2 (tape library)
 - 120.000 € including VAT
- Section 3 (Access Grid nodes)
 - 80.000 € including VAT
- Budget is not redistributable between sections

Section 1

- 352 dual processor 1U servers (24 of them with FC-HBAs)
 - 2 GB memory, single hard disk (ATA/SATA SCSI), Dual GbE
 - Distribution described elsewhere
- 6 storage arrays (SATA/SCSI) 4TB
 - FC host interface
- 5 routers (all nodes except Demokritos)
 - 3 GbE ports, ACL support
- 6 Ethernet switch stacks or systems
 - GbE ports for all servers and other subsystems
- 12 racks (2 for each node)
- Optional RHEL licenses (to be revised due to transition towards SL)

Section 2

- 50 TB tape library
- Expandable in situ to 100 TB
- FC connectivity
- 250GB/hour native throughput (at least 2 drives)
- 6 client licenses (one for each node)
- Used for data backup and archiving

Section 3

- 4 Access Grid nodes (AUTH, FORTH, GSRT, GRNET) consisting of:
 - An audio/video capture host PC
 - A multiple screen projection host PC (3 monitor outputs)
 - 2 plasma screens 50"
 - Audio installation (tabletop microphones, amplifier, speakers)
 - 3 Pan/Tilt/Zoom cameras
 - Access Grid software
 - H.323/SIP software as an alternative

Technology choices – Section 1

- **Servers**
 - 64-bit compatible processor architecture (Intel Pentium4 EM64 or AMD Opteron)
 - Single disk drive (ATA/SATA/SCSI)
 - No CD-ROM
 - 1U architecture
 - RHEL 3.0 compatibility
 - Network boot support
- **Storage arrays**
 - 4 TB raw storage
 - Cheap disks (SATA) preferred
 - 4 FC host interfaces
 - RAID 0,1,0+1,5 support
 - Will be served by 4 hosts on each site (through NFS or other)
 - No distributed file system support

Technology choices – Section 1 cont'd

- **Routers**
 - Cisco 7200 or equivalent
 - 3 GbE ports will allow sufficient connectivity with the hosting institution's network and GRNET
 - ACL support for basic security configuration
- **Switches**
 - Sufficient GbE ports for all servers and other devices
 - Stack or integrated architecture
 - Could possibly be combined with routers (such as in a Cisco 6500 or other)
- **Other**
 - Standard system 19" racks
 - Power, Ethernet, FC cabling

Technology choices – Section 2

- 50 TB automated tape library (estimated with 250 tapes of native 200GB capacity each at least)
- Expandable to 100 TB at least (future plans)
- Back-up (disaster recovery – system images)
- Transparent HSM optional
- 250 GB/hour native throughput (2 drives at least estimated)
- LTO-2 or newer technology drives
- FC connectivity
- Optional interoperability with existing system (12 TB)

Technology choices – Section 3

- Access Grid software
 - Free for use, very good features:
 - Audio/video multiple streams
 - Multicast or unicast
 - Slides tool
 - Shared browser tool
 - Visualisation extensions (future use)
- Dual plasma displays
 - Will provide a single unified desktop
 - A third monitor will be used for control by the operator
- Three cameras per site
 - Enable global view of each site and also individual participants view

Timeline

- 24/12/2004: Submitted for public comments
- 18/1/2004: End of public comments period

Estimations:

- 4/2/2004: Official RFP released
- 29/3/2004: Proposal submission date
- 31/5/2004: Contract awarded
- 1/7/2004: Beginning of deployment
- 30/10/2004: Final acceptance

NOTE: The above constitute the most optimistic scenario, and providing that nothing goes wrong....

Thank you for your attention

- Draft available at www.infosoc.gr
- Final RFP will be circulated after official release
- Comments ?
- Discussion....