SA2 IPv6 activities for gLite in EGEE III

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EGEE SA2 – IPv6 task

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Information Society and Media

Outline

- **Summary on achievements in EGEE II SA2 IPv6** ***(TSA2.1.3)***
  - The joint EuChinaGRID/EGEE/ETICS collaboration on IPv6
- **Current status of gLite with respect to IPv6**
- **Current status of IPv6 resources, testebed, tools**
- **Recent achievements and issues**
- **Workplan for the future / EGEE III**
- **Conclusions**

Summary on achievements in EGEE II

- **With EGEE II started systematic activities on IPv6 and on gLite IPv6 compliance**
- **First tests starting from autumn 2006:**
  - Workload Management System
  - BD-II
  - NAT-PT
  - Set up a gLite testbed based on gL 3.0 on SLC3 in Paris & Rome
    - WMS-LB
    - BDII
    - CE
    - WNs
    - UI
    - VOMS

Summary on achievements in EGEE II

- **A methodology defined to assess the IPv6 compliance of gLite**
  - Agreement on terms / tools / procedures
  - Methodology document published
  - Started a joint collaboration on the IPv6 compliance of gLite with ETICS and EUChinaGRID (E/E/E) – Feb 2007
  - Started a test ETICS project
  - Key Idea: provide to the gLite developers, through ETICS, with an IPv6 capable testbed and a methodology
    - 2 limits scenarios envisaged:
      - *ETICS jobs pointing to already existing IPv6 capable testbed*
      - *Full fledged deployment of all services via ETICS*

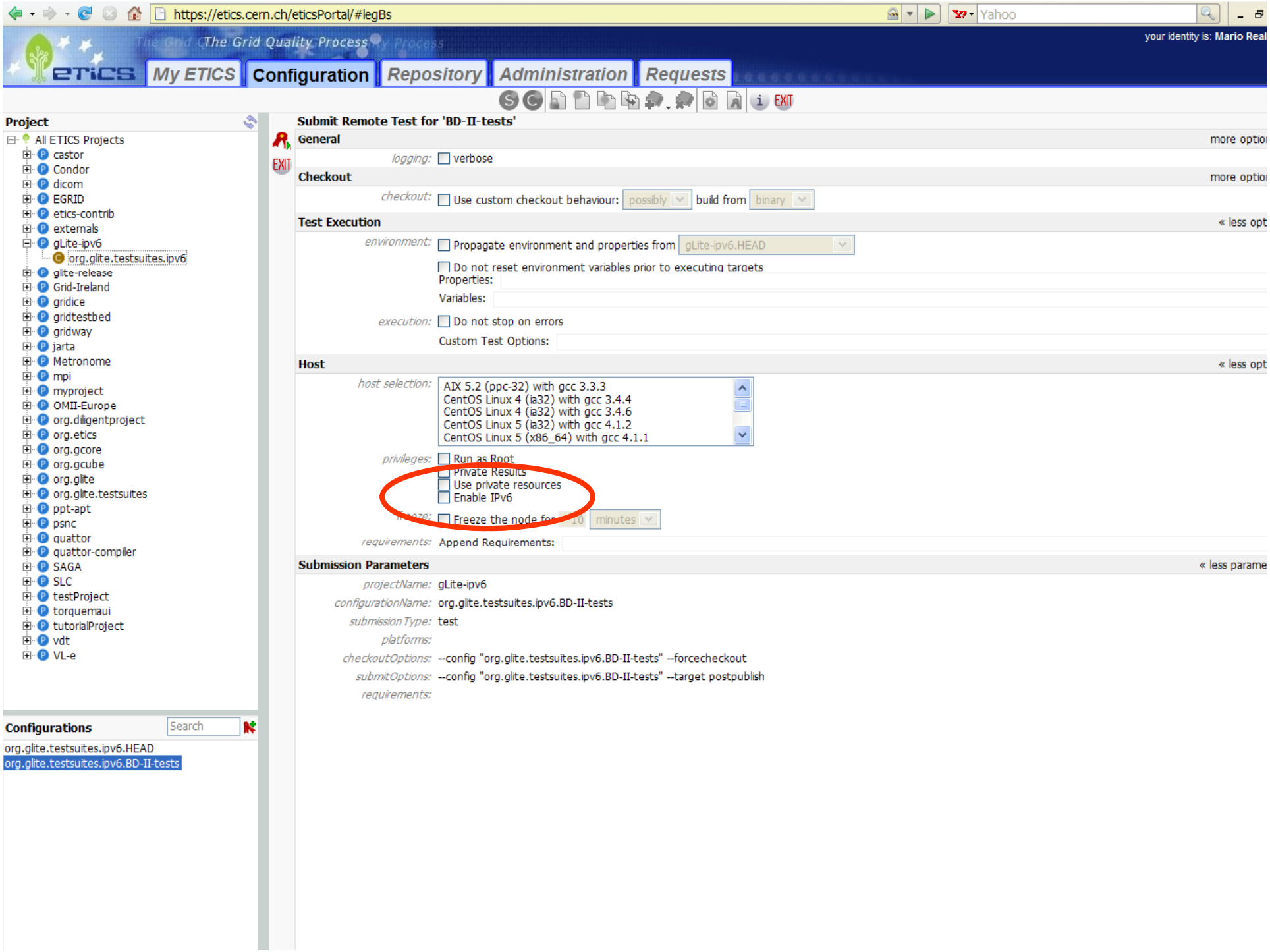
Summary on achievements in EGEE II

- **On April 5, 2007 we demonstrated this idea**
  - Successful ETICS test job sent by GARR running on an ETICS NMI node querying the IPv6 ported BD-II server in Paris
  - After this, many other tests involving WMS, BD-II, UI

  - Relevant Issues:
    - No IPv6 connectivity at CERN
    - Availability of full deployment test modules within ETICS
    - Condor IPv6 compliance – need at least Dual Stack nodes
    - Missing features which have been progressively added to the ETICS system
      - *IPv6 resource-matching flag*
      - *IPv6 nodes added to the pool*

Summary on achievements in EGEE II

- ***gLite IPv6 compliance*** **ETICS test project**
  - Use the natural, right tool for gLite developers in the process of porting gLite to IPv6 : ETICS
  - ETICS is the **gLite build system**, daily accessed by all gLite developers to implement new code, functionality, tests
- **This test project has been set up aimed at implementing IPv6 tests on selected gLite components *(for example the IPv6 ported BD-II)***
- Succeeded **in the first demo test job on April 5, 2007**
  (http://etics.cern.ch/nmi/index.php?page=results/runDetails&runid=452)
  - Manually pre-installed IPv6 BD-II server in Paris
  - Test commands defined within ETICS gLite IPv6 compliance project
    - ldap query to the top level IPv6 BD-II in Paris(UREC) from the IPv4 NMI node (CERN) – job run and managed from GARR
- **Both client CLI submisison and remote test via Web Application successfully exploited**
- **ETICS team very collaborative and responsive to our requests related to IPv6**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CentOS Linux 5 (x86_64) with gcc 4.1.1
privileges:
Run as Root
Private Results
Use private resources
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Freeze the node for
10
minutes
requirements:
Append Requirements:
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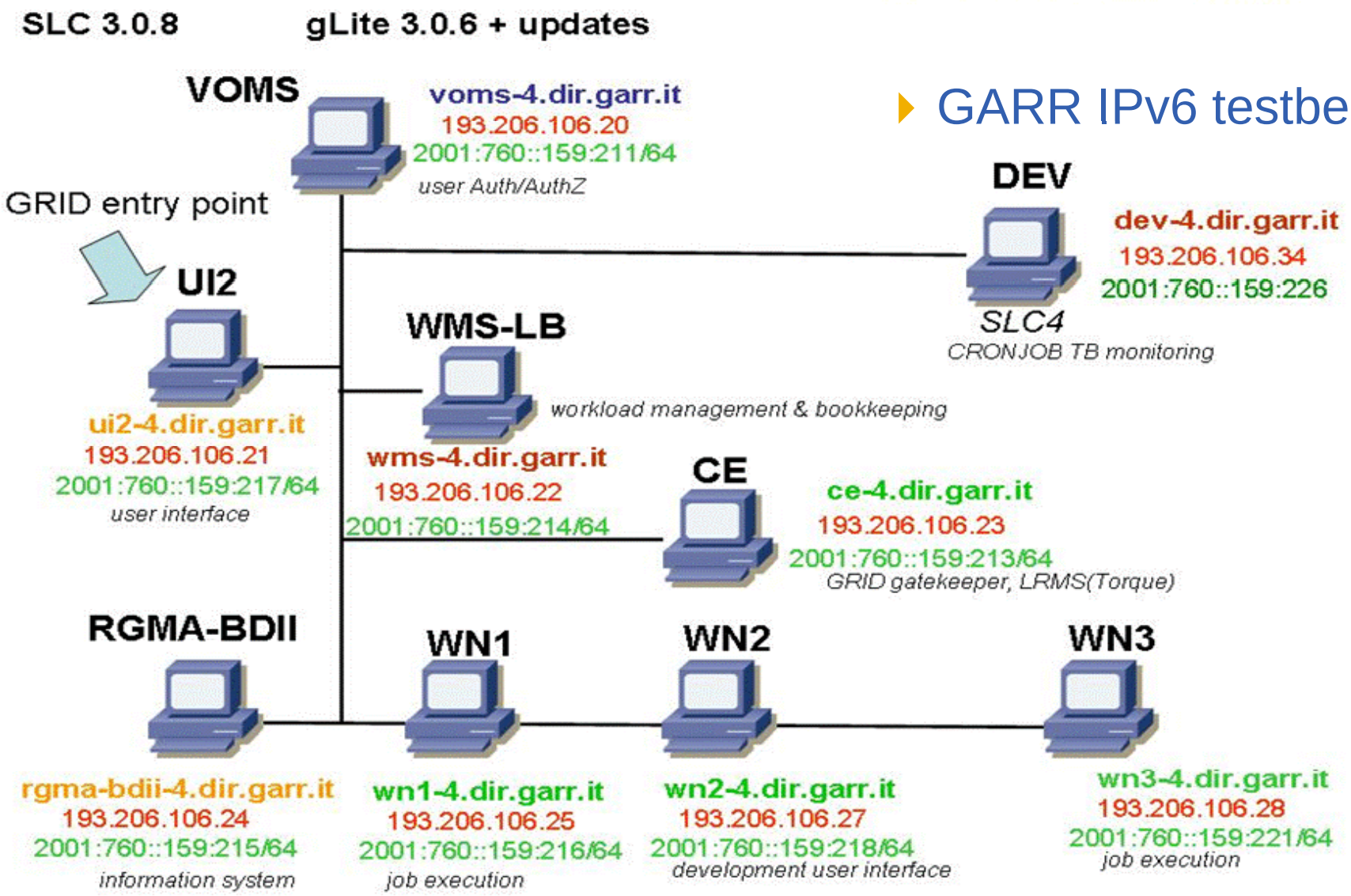
projectName: gLite-ipv6
configurationName: org.glite.testsuites.ipv6.BD-II-tests
submissionType: test
platforms:
checkoutOptions: --config "org.glite.testsuites.ipv6.BD-II-tests" --forcecheckout
submitOptions: --config "org.glite.testsuites.ipv6.BD-II-tests" --target postpublish
requirements:

Achievements in EGEE II

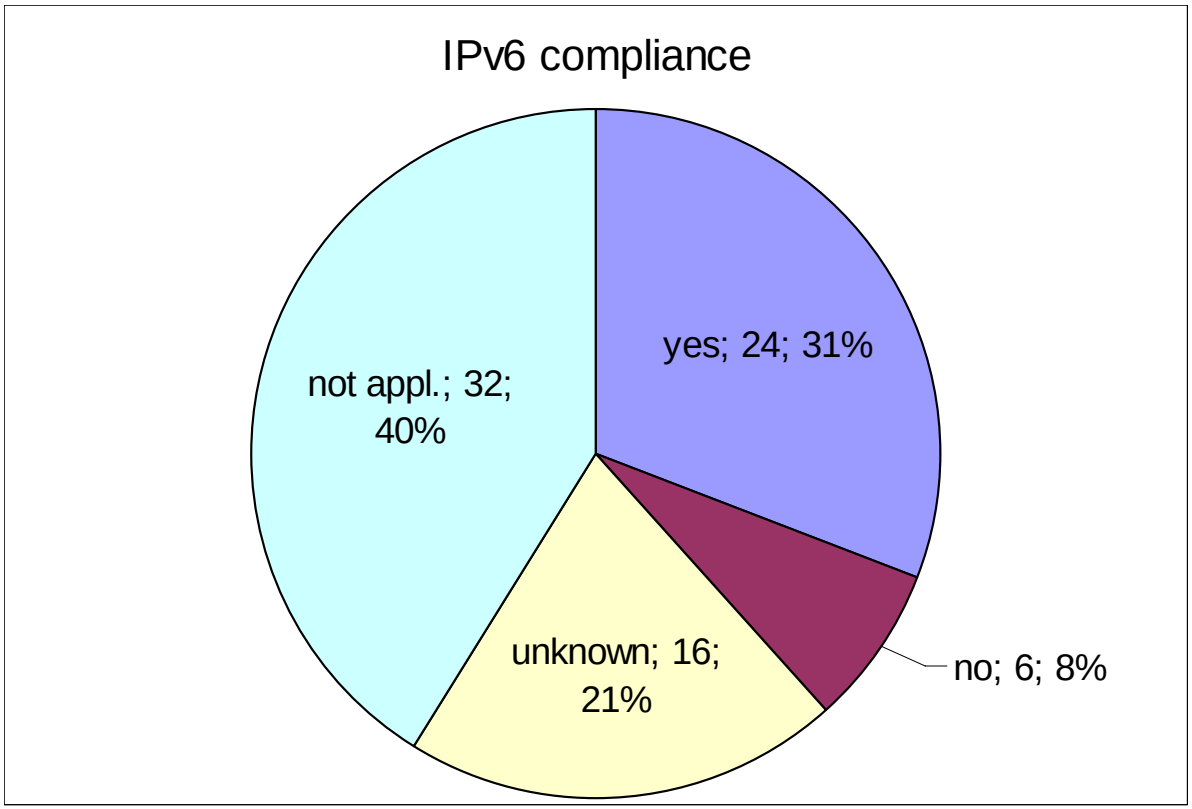
- GARR IPv6 testbed



Summary on achievements in EGEE II

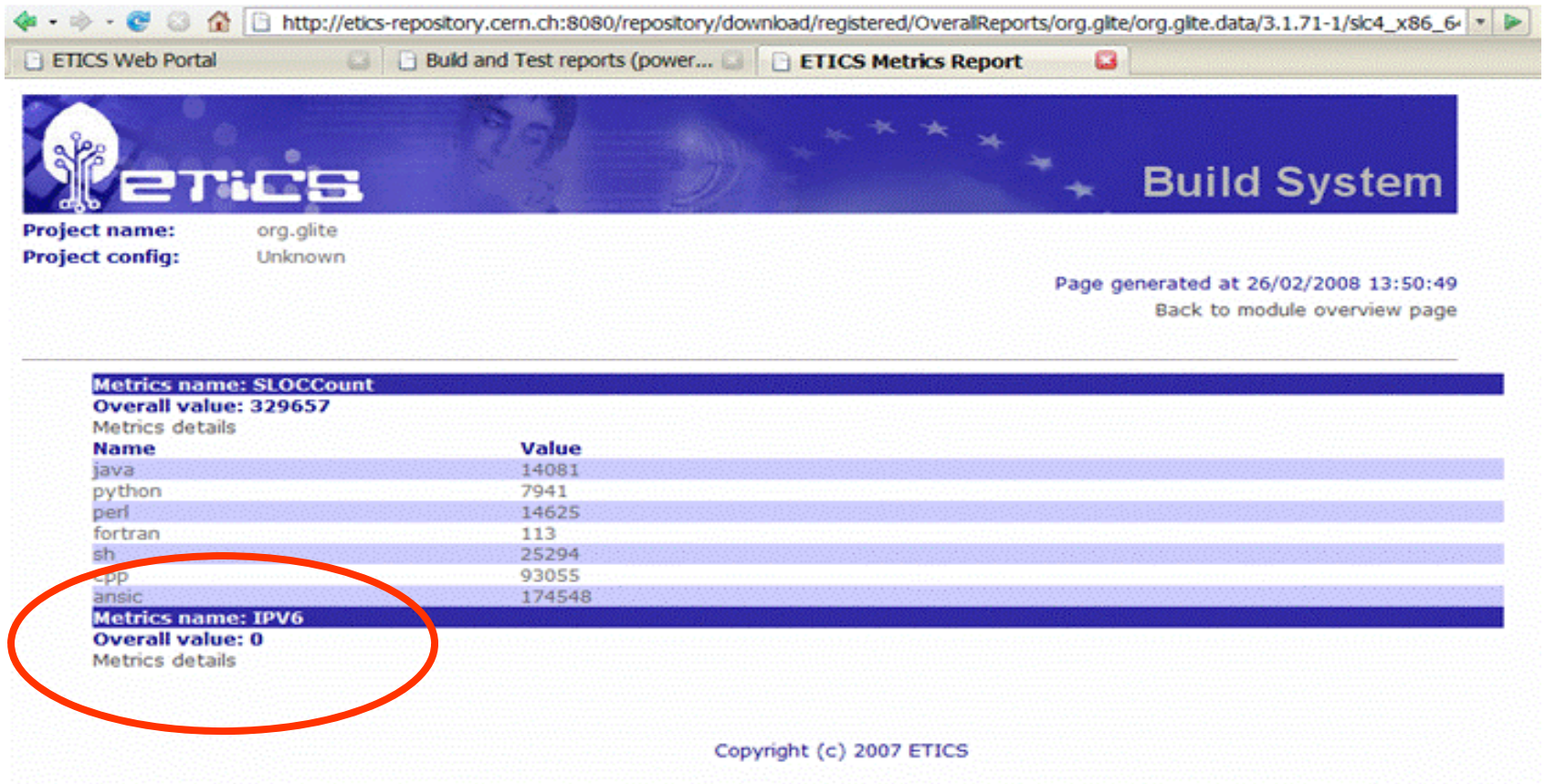
- **IPv6 code checker integrated in the ETICS metrics**
  - Builds can be checked against the IPv6 compliance of the gLite modules
    - Currently available on demand
    - Supported the demand for full deployment of gLite service s through ETICS
- **General assessment on the IPv6 compliance of 82 gLite external components carried out jointly with EuChinaGRID (UREC,GARR,GRNET, ROMA Tre)**

- **Assessment of the IPv6 compliance of the gLite external components**



- Yes
  IPv6 compliant
- No
  Non IPv6 compliant
- Unknown
  Unknown compliance
- Not applicable
  Non related to networking

Achievements: Outcome

- 

  - Not yet in production. Require further testing and certification
- **Methodology in place, available for the gLite community**
  - JRA-1 & INFN started along same path……..

Current status of gLite w.r.t. IPv6

- **First components have been ported to IPv6**
  - **BD-II, LFC, DPM** ***Xavier Jeannin, David Smith***
    - BD-II tested in EGEE-II
    - Very basic tests on LFC done at CERN and GARR
    - DPM tested at CERN on private, small IPv6 network
      - *LFC and DPM under test at GARR*
- **General issue on external dependencies**
  - But a roadmap to address the issue defined in EGEE II
    - Positive signals on this topic from EGEE III
    - Procedures and exact work sharing with EGEE SA3
      - *How to address the gLIte IPv6 certification ?*

Current status of resources and testbed

- **Manpower:**
  - 1 new resource at UREC in june
  - Situation to be updated at GARR

  - Testbed
    - Few nodes in Paris and in Rome (quarks, NAT-PT)
    - 1 node currently in the CERN ETICS Metronome pool

    - Testbed at GARR as of TODAY:
      - *SLC 4 nodes - gLite 3.1*
      - *Installed ,Configured and Working: UI, LFC,*
      - *Installed and configured: VOMS (JAVA issue to be clarified)*
      - *Assigned: CE, WN, WMS*
      -
  - ..

Recent achievements and issues

- **VOMS installed and configured**
  - JAVA issue : the node is slow – requires further investigation
    - Not made public to SA2 yet
    - 2 GGUS tickets opened
- **Basic LFC tests ok**

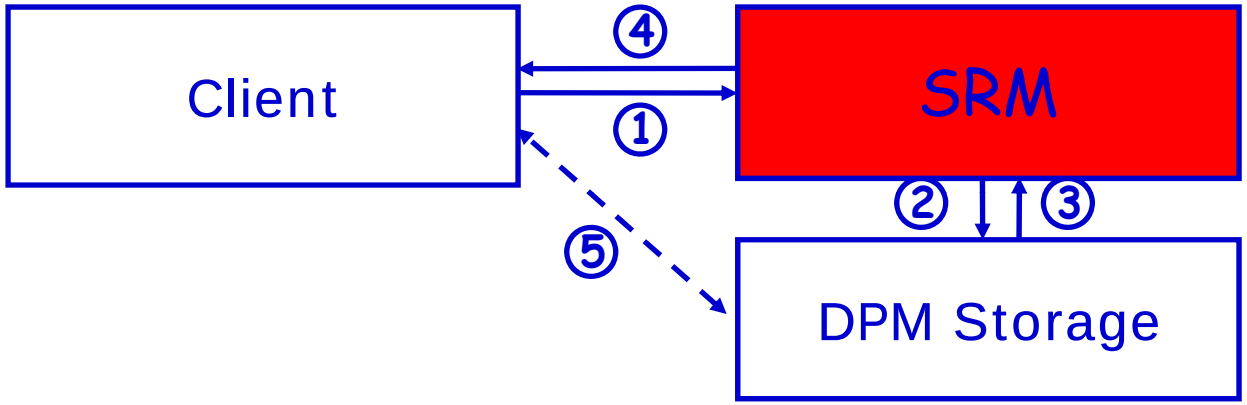
Work Plan for the future / Milestones for EGEE SA2 IPv6 in EGEE III

- **Further testing of already ported components**
  - DPM
  - LFC
- **Complete and extend the SLC4 gL 3.1 testbed in Paris and Rome (others welcome!)**
- **Continue the collaboration with ETICS**
  - Full deployment tests
  - Co-scheduling – full fledged automatic installations
    - Get IPv6 connectivity also at CERN ?
  - Update with ETICS
  - Continue the work on external dependencies
    - ASIOLIB C++ JRA1 test case
    - GridFTP (in standby for a long time)

Work Plan for the future / Milestones for EGEE SA2 IPv6 in EGEE III

- **DPM Disk Pool Manager workplan**
  - Installation and configuration of IPv6 ported version
  - Smoke tests
  - Interaction to DPM SE via SRV v 2.2
  - GFAL API, CLI LCG utils LFC

DPM via SRM Interactions



1. The client asks the SRM for the file providing an SURL (Site URL)
2. The SRM asks the storage system to provide the file
3. The storage system notifies the availability of the file and its location

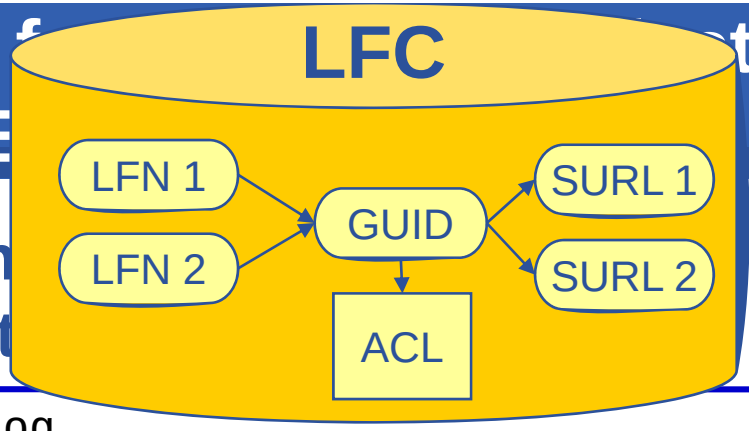
- The SRM returns a TURL (Transfer URL), i.e. the location from where the file can be accessed
- The client interacts with the storage using the protocol specified in the TURL

Work Plan for the future / Milestones for EGEE SA2 IPv6 in EGEE III

- **LFC File Catalog workplan**
  - Installation and configuration of IPv6 ported version
  - Smoke tests
  - Main commands to be tested: Replica Management

lcg-cp	Copies a grid file to a local destination
lcg-cr	Copies a file to a SE and registers the file in the catalog
lcg-rf	Register in the catalog a file residing on a SE
lcg-rep	Replication between SEs and registration of the replica
lcg-gt	Gets the TURL for a given SURL and transfer protocol
lcg-sd	Sets file status to “Done” for a given SURL in a SRM request

Work Plan f… …tones for E… …EE III



- **LFC File catalog workplan … tested - Interaction with t…**

lcg-aa	Adds an alias in the catalog
lcg-ra	Removes an alias in the catalog
lcg-rf	Registers in the Catalog a file residing on a SE
lcg-uf	Unregisters from a Catalog a file residing on a SE
lcg-la	Lists the aliases created for a given LFN, GUID or SURL
lcg-lg	Gets the GUID for a given LFN or SURL
lcg-lr	Lists replicas for a given LFN, GUID or SURL

Work Plan for the future / Milestones for EGEE SA2 IPv6 in EGEE III

- **LFC File catalog workplan: main commands to be tested - Directories and ACLs**

lfc-chmod	Change access mode of the LFC file/directory
lfc-chown	Change owner and group of the LFC file-directory
lfc-delcomment	Delete the comment associated with the file/directory
lfc-getacl	Get file/directory access control lists
lfc-ln	Make a symbolic link to a file/directory
lfc-ls	List file/directory entries in a directory
lfc-mkdir	Create a directory
lfc-rename	Rename a file/directory
lfc-rm	Remove a file/directory
lfc-setacl	Set file/directory access control lists
lfc-setcomment	Add/replace a comment

Conclusions

- After having had to cope with some general resistance against IPv6, now it seems we made our point within EGEE
- EGEE-II was fruitful in this respect
- General signals coming within the EGEE community seem positive (in the scope of EGEE III)
- We need an update with ETICS (EUChinaGrid 2?) on the collaboration on IPv6
- Testbed, certification cycle, procedures need to be agreed within EGEE III
- Tutoring activities on IPv6 will probably still be of use in the scope of EGEE III