

# Grid Interoperability

## ETSI review of standards, public grids, and commercial clouds

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on ICT Grid Interoperability

## Grid gap analysis - major categories

- Security
- Service and Resource Registry
- Data Management and Movement
- SLA and QoS
- Accounting and Charging

# Standards Development Organization

- ❑ **Heard earlier today (paraphrased):**
  - Standards? “Deployed and running code”
- ❑ **IETF**
  - Network level protocols
  - Common internet standards
  - Some overlap with OGF
  - Key standards for grids: X.509
- ❑ **OGF**
  - Focus on grid standards, (roughly) orbiting around WSRF/OGSA
  - BES, JSDL, DRMAA, GridFTP, SRM, and others
- ❑ **DMTF**
  - CIM, OpenVirtualization
- ❑ **OASIS**
  - WS-\* standards
- ❑ **W3C**
  - XML standards

## Grid Interoperability

- ❑ **Local clusters**
- ❑ **Organization-internal resource sharing**
  - Campus grids, Condor pools
- ❑ **Regional grids**
  - SURA, Boiler Grid, UC-Grid
- ❑ **General purpose national grids**
  - OSG, TeraGrid, UK NGS, Grid5000, D-Grid, NorduGrid, etc.
- ❑ **Trans-national general purpose grids**
  - EGEE, DEISA, others?
- ❑ **Domain specific grids**
  - CAGrid (aka caBIG), ESG, NEES Grid, WLCG

## Successful Grid Standards

- ❑ **X.509 and related PKI**
  - widely used, little debate
  - ACs, VOMS, MyProxy still being established
- ❑ **Data Movement and Management**
  - GridFTP, SRM
  - widely used, although still challenges (technical and political)
  - other options exist
- ❑ **Job Submission**
  - DRMAA, JSDL
  - Several independent implementations
  - Gaining momentum
  - Many challengers (standards-based and ad hoc APIs/proprietary)
- ❑ **Resource Modeling**
  - CIM, GLUE
  - Many challengers, not always wide adoption

## Potential Grid Standards ...

- ... but not quite there yet
- Logging**
  - Resource Usage Service
- WSRF WS-\* suite**
  - Why not?
- Security**
  - XACML, SAML – complexity

# Ad hoc and Proprietary Grid Services

## ❑ aka “areas with no recognized standards”

- “standard” is a software package and version number

## ❑ Information Services

- BDII, MDS, etc.
- Key information service for many grid infrastructures
- No standardized APIs, only implementations

## ❑ Security

- MyProxy, VOMSD, GUMS
- Essential for issuing certificates

## ❑ Accounting and Charging

- Log files and ever changing data base schemas
- Charging?

# Grid Standards and OSG

## Survey

➤ Question: “How important do you think standards are to the success of grid computing”

- Essential
- Very important
- Important
- Un-important
- Irrelevant

What standards are important to you now?

What areas do you wish were standardized?

Should OSG be trying to standardize some of the components/services it provides?



## More information

❑ The ETSI Grid Interoperability Study has produced 3 reports:

- Survey of Grid Stakeholders and Standards
- Report on Grid Interoperability, Gaps, and Overlaps
- Grid Standards Testing Framework

❑ For more information

- <http://www.etsi.org/WebSite/Technologies/GRID.aspx>
- Contact me: [ijstokes@spmetric.com](mailto:ijstokes@spmetric.com)

## □ European Telecommunications Standards Institute

- **SDO in area of information and communication technology**
- ***Globally* recognised standards for Information & Communications Technologies including fixed, mobile, radio, broadcast, internet**
- **Unites almost 700 member organizations, including manufacturers, network operators, administrations, service providers, research bodies and users from 56 countries including the Far East and the US**
- **Track record of being responsible for globally applicable standards such as GSM, DECT, ...**

## Grid gap analysis - main focus

### □ Main focus of gap analysis

- interoperability gaps and overlaps in Grid standards
- interoperability gaps and overlaps between Grid and NGN standards in an integrated environment
  - hard because relationship between Grid and NGN is still under discussion

### □ appears to be different emphasis from the EGR gap analysis

- ETSI TC Grid gap analysis
  - focussed on interoperability
  - clearly some functional scope has to be determined

## Grid gap analysis - examples

### □ Examples of gaps and overlaps

- integration of Grid standards is a problem - how does a Grid application service provider make sense of multiple Grid specs?
- Availability of commercial offerings of OGF standards
- In a telecomms NGN environment, SLA will not only be required but will be expected to work in complex, multi-provider, long term situations and will need to relate to network QoS (until now service vocabulary in SLA is largely about computation)
- security: X509 in wide use but there are gaps around authorization and security infrastructure operation
- charging: relationship of Grid usage to telecomms charging.

### □ Organizational issues

- ETSI will need to work with bodies such as OGF
- But the ETSI Grid STF which prepares the report is a transitory group of experts
- ETSI TC Grid is a (more) permanent body

# Grid gap analysis document - the 1st edition

## Obtaining the document

### Name is:

- Study of ICT Grid interoperability gaps; Part 2: List of identified Gaps

### Publications download area -

<http://pda.etsi.org/pda/queryform.asp>

- Search term is Grid

- Observe list of documents (not a long list)

- Name of document is:

- Study of ICT Grid interoperability gaps;Part 2: List of identified Gaps

- Click on download

- You will be asked to register for free

## Plugtest brief announcement

- ❑ **To be hosted in Sophia-Antipolis (near Nice), France  
Nov 30 to Dec 2**
  - NDA to protect event participants
  - Overall results from Plugtest to be presented at co-located Workshop (Dec 2 and 3)
- ❑ **Different format than previous ETSI Grid Plugtests**
  - Not programming contest – applications used for testing are fixed prior to event
  - Goal is evaluation of application deployment based on ETSI GCM standards onto different grid and cloud computing infrastructures
- ❑ **Intent is to bring key players of telecom community together with grid and cloud infrastructure providers**
  - Event open to participation for commercial as well as open source infrastructure providers, ETSI as well as non-ETSI members
  - Telecom operators and equipment vendors will observe the event