Information System Status and Evolution

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Overview

• Current status
  - Development
  - Quality of Service and Data
  - Requirements from experiments
  - Statistics on current use

• Evolution
  - Service Discovery

• Conclusions
Current status of the Information System
Development
BDII development status

• No major incidents
• No releases since August
• EMI 1, EMI 2 and EMI 3 releases are all aligned
  – Note that EMI 1 Standard updates are over
  – Direct upgrade path from EMI 1 to EMI 2 for the BDII
• Details on EMI releases:
  http://malandes.web.cern.ch/malandes/infosys/bdii_emi.html
BDII development status

• Next release in December:
  – EPEL compliance
  – EMIR integration
  – ARC integration
  – glue-validator improvements
  – Service information provider bug fixes

• Continuous improvement of the Documentation
  https://tomtools.cern.ch/confluence/download/attachments/983044/EMI_BDII_sysadmin.pdf
  – Latest changes:
    • glite-info-update-endpoints configuration
    • Site BDII configuration aligned with EGI guidelines
  – Upcoming changes:
    • Nagios probes documentation
    • EMIR publisher configuration
Quality of Service
Top level BDII and failover

- Initial proposal to configure failover
  https://tomtools.cern.ch/confluence/display/IS/WLCG_Support_Proposal

- EGI recommends sites to use the NGI top level BDII:
  https://wiki.egi.eu/wiki/Top-BDII_list_for_NGI

- EGI monitors Reliability & Availability of top level BDII:

NGI top level BDII availability
October 2012

- 99 to 100%: 70%
- NA: 19%
- Less than 99%: 11%

Follow up actions by EGI
- Underperforming top level BDII in small NGIs are asked to be decommissioned.
- Catch all top level BDII provided by EGI or good performing neighbour NGI top level BDII used instead.
- NGIs contacted monthly to explain reasons for underperformance.
Top level BDII and failover

- Configuration of LCG_GFAL_INFOSYS variable hasn’t changed since June 2012
  - Most sites still configure one BDII only
  - Good news is that the most configured BDIIIs have 100% availability

- Next steps:
  - Work together with EGI:
    - No clear policy on LCG_GFAL_INFOSYS configuration
    - Good quality of service of NGI top level BDIIIs
    - To be monitored together with EGI and together with them discuss further actions

(* ) The NA in the graph is due to a bug in SAM already fixed.
Data Quality
• More on Stephen Burke’s presentation
  – EGI Glue 2.0 profile
  – Deployment of Glue 2.0
• From the Information System point of view
  – Improve glue-validator to check compliance
  – Collaborate with EGI to check and monitor Glue 2.0 deployment

To be discussed with next presentation...
Requirements from experiments
Multicore support

• Is there anything else needed from IS?
  – Attempt to restart discussion in WM TEG ML in August
    • No more reactions
  – As reported in the last September GDB
    https://indico.cern.ch/getFile.py/access?contribId=7&sessionId=1&resId=1&materialId=slides&confId=155072
    • Information System is ready
    • We can address any requirements
### Requirements from experiments

<table>
<thead>
<tr>
<th>Who?</th>
<th>Requirements</th>
<th>Addressed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALICE</td>
<td>• Reliable information published by the resource BDII in the CREAM CE</td>
<td>• Follow up on information provider issues</td>
</tr>
<tr>
<td>ATLAS</td>
<td>• Reliable service discovery (GOCDB, OIM and BDII in sync)</td>
<td>• Cached top BDII</td>
</tr>
<tr>
<td>CMS</td>
<td>• Better SE space utilization information and in sync with Storage Accounting</td>
<td>• Cached top BDII</td>
</tr>
<tr>
<td></td>
<td>• Reliable client tools</td>
<td>• Understand Storage Accounting and what would be needed from the IS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ginfo</td>
</tr>
<tr>
<td>LHCb</td>
<td>• Reliable service discovery of CEs</td>
<td>• Cached top BDII</td>
</tr>
</tbody>
</table>

- Service Discovery is the most important use case for experiments
Statistics on current use
Top BDII query statistics

- Analyzed LDAP logs from production top BDIIIs
  - Using the ldap-stats.pl script
  - http://prefetch.net/code/ldap-stats.pl.html

- Thanks to:
  - CERN – Ulrich Schwickerath
  - TRIUMF - Di Qing
  - PIC - Arnau Bria, Carles Costa
Top BDII query statistics

<table>
<thead>
<tr>
<th>Site</th>
<th>Queries in one week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CERN</td>
<td>3223758</td>
</tr>
<tr>
<td>TRIUMF</td>
<td>397701</td>
</tr>
<tr>
<td>PIC</td>
<td>36007</td>
</tr>
</tbody>
</table>

**Most queried attributes**

- No attribute explicitly requested
- GLUEService (version, type, endpoint)
- GLUESE (port, status)
- GLUESA (root, accesscontrolbaserule)
- GLUECE (name, status, uniqueID)
Top BDII query statistics

• Difficult to extract conclusions
  – No common pattern
  – Analysis from only one week!
    • This would require a longer time window -> Log file increases fast (>15 GB in one week)

• It was an interesting exercise though
  – BDII heavily used
    • Stability, performance and robustness very important
  – Which attributes are most queried
Evolution of the Information System
Service Discovery

• Focus on Service Discovery
• Cached top level BDII has improved the perceived stability
• How can we make it even better?
  – Monitor quality of the published information
    • As part of the overall GLUE 2.0 effort
  – Provide a reliable client tool to query the IS
    • For both EGI and OSG resources
      – OSG is not publishing in GLUE 2.0 though!
  – Study other possible implementations: EMIR
ginfo

• Simple command line tool
  – Queries BDII GLUE 2.0 Service Endpoints
• Available in EPEL for SL5 and SL6
  – http://fedoraproject.org/wiki/EPEL
  – yum install ginfo
• Ready to be used!
  – Feedback is very much welcome!
    • project-grid-info-support@cern.ch
  – Already some feedback from CMS and ATLAS
    • Missing other GLUE objects currently available in lcg-info
    • Query OSG resources?

GLUE 2 attribute filters
EndpointCapability
ServiceAdminDomainForeignKey
EndpointID
ServiceID
EndpointImplementationName
EndpointImplementationVersion
EndpointInterfaceName
EndpointInterfaceVersion
EndpointQualityLevel
EndpointTechnology
ServiceType
EndpointURL
PolicyRule
EMIR

- EMI Service Registry
  - Provides References to Services
    - Endpoints
    - Associated Metadata
      - Service Type, Supported VO, Capability
  - Automated Information Management
    - Services are the authoritative source
- Components
  - Service Publisher
  - Domain Service Registry
  - Global Service Registry
- A domain could be a site, a country, a region...
  - It’s a collection of services
- EMIR pilot testing is ongoing
  - Some robustness issues detected but overall feedback is positive
  - Not ready for production deployment yet
Conclusions

• **Current status**
  – BDII performing well in production
  – On going development:
    • EPEL compliance
    • EMIR integration
    • ARC integration
    • glue-validator improvements
    • Service information provider bug fixes

• **Future work**
  – Focus on Service Discovery
  – Follow up Glue 2.0 deployment and evaluate published information
  – Follow up EMIR pilot and ginfo