EGI grid middleware and distributed computing infrastructures integration

Emir Imamagic
University Computing Centre (SRCE)
Outline

- Introduction
- EGI operational tools
- Middleware integration
- Distributed computing infrastructures integration
- Conclusions
Introduction

• EGI infrastructure operations
  – relies on set of centralized & regionalized operational tools

• Integration of resources using different middleware stacks
  – operational interfaces must be provided
Introduction

• Operational interfaces
  – Configuration management
  – Monitoring
  – Dashboard
  – Support
  – Accounting
EGI Operational Tools – Configuration Management

- Grid Configuration Database (GOCDB)
- Authoritative source of EGI topology information
  - sites and services
  - site and security contacts
  - downtimes
- http://goc.egi.eu/
• Integration of new middleware
  – adding new service type
    (http://goo.gl/GP0ZK)
  – adding endpoints with new service type
    (standard site management actions)
EGI Operational Tools – Monitoring

• Service Availability Monitoring (SAM)
• Authoritative monitoring system of EGI services
  – runs tests against EGI services
  – stores test results and calculates availabilities
  – visualization portal – MyEGI
  – provides information to Operations Portal
• http://grid-monitoring.egi.eu/myegi/
• Integration of new middleware
  – adding new tests to SAM
    (https://wiki.egi.eu/wiki/PROC07)
  – including tests into availability calculation
    (https://wiki.egi.eu/wiki/PROC08)
• Operations Portal
  – single access point for information, tools and facilities for various EGI actors (manager, administrators, users)
  – alarms dashboard used by grid operator and oversight teams
• http://operations-portal.egi.eu/
EGI Operational Tools – Dashboard

- Integration of new middleware
  - setting a SAM test status to Operations (https://wiki.egi.eu/wiki/PROC06)
- Additional integration options
  - existing plugins pull information from information system (BDII) and helpdesk
  - custom modules for extracting additional information
EGI Operational Tools – Support

- **EGI Helpdesk**
  - central service Global Grid User Support (GGUS)
  - regional helpdesks

- **Central point for users of EGI infrastructure**
  - GGUS interfaced with external helpdesks
  - three levels of support units

- [http://helpdesk.egi.eu/](http://helpdesk.egi.eu/)
• Integration of new middleware
  – adding a new support unit (https://wiki.egi.eu/wiki/FAQ_GGUS-New-Support-Unit)
  – using a Technology Helpdesk (done for projects EMI and IGE)
  – interfacing middleware providers helpdesk systems
EGI Operational Tools – Accounting

• APEL
  – central repository
  – local repositories
  – components for data publishing (SSM, Secure Stomp Messenger)

• Accounting portal
  – visualization of APEL information

• http://accounting.egi.eu/
• Integration of new middleware
  – using APEL publisher directly on resource
  – using APEL publisher to publish summaries from external system
Middleware Integration

• Integrated middleware stacks
  – EMI components
  – Globus Toolkit components
  – Desktop Grids
  – MAPPER/QCG

• Other types
  – cloud middleware, portals, standard services …
Middleware Integration – EMI components

• EMI components:
  – gLite
  – ARC
  – UNICORE

• gLite and ARC fully integrated

• UNICORE is missing accounting integration
  – waiting for EMI 3 release
Middleware Integration – Globus Toolkit components

• Support provided by IGE (Initiative for Globus in Europe) project
• Globus Toolkit middleware is missing accounting integration
  – waiting for IGE 3 release (GridSAFE) and APEL SSM integration
Middleware Integration – Desktop Grids

• Support provided by IDGF (International Desktop Grid Federation) Support Project
• Integration done for configuration management and monitoring
• Other interfaces under development
• QCG/MAPPER uses both EGI and PRACE
  – integration coordinated with PRACE integration
• Integration done for configuration management and monitoring
• Other interfaces are in progress
• Additional procedures and workflows needed
  – operational tools extensions
  – initial focus on support and accounting interfaces

• Operations integration with two DCIs
  – PRACE (Partnership for Advanced Computing in Europe)
  – EUDAT (European Data Infrastructure)
Summary

• EGI operational tools enable integration of heterogeneous middleware stacks
  – two middleware stacks fully and four partially integrated
  – procedures defined for adding new middleware

• Integration with two DCIs in progress
References

• EGI Operational tools

• EGI Interoperations
  – https://wiki.egi.eu/wiki/Interoperations

• Integrating Resources into the EGI Production Infrastructure (EGI Milestone 421)
Thank You!