

EMI UNICORE Execution Services

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- Increasing of computing and data infrastructures in the last decade
- A number of major projects have been established within Europe to share the growing amount of resources
- The project EGI-InSPIRE has been created to coordinate and maintain a sustainable European infrastructure to support European research communities and their collaborators

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Scenario (2)

- EGI continues from the previous EGEE (Enabling Grid for E-sciencE) started on May 2010 for four years
- EGI will guarantee the long-term availability of a generic e-infrastructure also collaborating with software providers in Europe to provide innovative solutions to deliver capability required by user communities



- The European Middleware Initiative (EMI) is a collaboration of the four major software tools: ARC, gLite, UNICORE and dCache
- The EMI project will take in charge to integrate these tools into a common software layer
- EGI and EMI will work together providing European scientists and international organizations with well-designed services

EMI Execution Services



- What is needed is a common access point to Computing Elements and Compute Nodes
- EMI Execution Services have been conceived as a set of standard web services for job submission and execution
- They're designed to reach interoperability and to offer multiple capabilities for different users in the scientific community



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EMI ES Specification (1)

- The EMI Execution Services Specification provides the interface description, data and state models, activity and resource specification for each single execution service
- The targets are the so-called Computing Elements (CEs), services providing access to computing resources usually localized at a site



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This specification covers many different aspects:

- Common Interfaces to create and manage activities
- EMI Activity Description Language
- Data staging capabilities
- Activity related information
- Resource related information
- Delegation









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UNICORE EMI ES



The UNICORE EMI ES are composed by four main web services, associated to the corresponding interface elements:

- The **DelegationService**
- The CreateActivity
- The ActivityManagement
- The ResourceInfo

CreateActivity



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- The **CreateActivity** interface method gets an Activity Description in XML format (**ADL**), then creates an activity java object to submit a single job
- The Activity Description is validated, the activity is created and the UNICORE Client gets back the url path to import input files into the StageIn directory
- When input files have been copied inside the directory (globus_url_copy) the Client notifies the Server with the notify method



DelegationService

- The DelegationService forwards a CSR (Certificate Signing Request), the Client creates and signs a Proxy certificate with its Private Key and sends it to the Server
- The Server stores the Proxy with its proper delegation id into an hashmap, more then a Proxy can be associated to different delegation ids for a single user (example with different VOs)



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ActivityManagement

- ActivityManagement interface offers methods to perform getStatus, remove, pause, resume, getInfo
- When the getStatus method is invoked the ActivityManagement service retrieves the job status numeric value and maps it to the corresponding ActivityStatus object



UNICORE Services

- UNICORE XNJS libraries have been included as dependencies and a new code layer has been added above
- xnjs-module-core has been included into the project configuration file, in order to import base XNJS functionalities
- The XNJS class provides methods to start services and support job submission



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Next Steps



- Common Authentication Libraries
- Extended Trust Delegation and SAML
- Storage Data Management



Thank you!

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