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Enabling Grids for E-sciencE

gLite Progress and Plans

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Information Society

- **gLite will be an evolution of LCG-2 software incorporating features of the AliEn software and with services similar to those proposed by the ARDA RTAG**

- **Goals of the first gLite Release**
  - Provide minimum functionality to satisfy the immediate needs of the pilot groups (LHC and Bio-Medical)
  - Address principal shortcomings of LCG-2 production middleware

- **gLite will offer a single consistent software stack**
  - Addressing user requirements
  - Containing well-defined components deployable and supportable separately

- **gLite developments will follow established software quality assurance process**

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- **Milestones and schedule will follow the EGEE description of work**

- **Will provide ARDA and Bio-Medical gLite version on the preproduction service by end of February**

- **Ensure that Release 1 can be deployed at major sites by the end of May**

  - In time to be included in the LCG service challenge that must demonstrate full capability in July prior to operate as a stable service in 2H2005

- **The Workload Management System operates via**
  - The Workload Manager dispatching jobs to Computing Elements
  - The Computing Element dispatching jobs to Local resource Management systems
    - Push mode: WMS submits directly to CE
    - Pull mode: CE asks WMS for jobs
  - The Logging & Bookkeeping services tracking jobs during their lifetime
  - Interfaces to Data Management allowing to locate sites suitable for job execution (interfacing to RLS, DLI and FiReMan).

- **The WMS currently does not trigger file replication prior to dispatching**

- **Read-only cache from the Information System**
  - Reduce the need for reliance with the information(s) system(s)
  - Can be updated by polling of resources (CE in push mode)
  - Can be updated by notifications from CE (CE in pull mode)

- **Task Queue**
  - Holding submission requests in a queue
  - Does not return immediately if matchmaking cannot be done

- **Condor-C**
  - Reliable job submission between Resource broker and CE

- **Supports batch, mpi, DAG, interactive, checkpointable jobs. Bulk job submission is possible via DAG without dependencies. Better bulk job submission after Release 1**

- **FiReMan catalog**
  - Simple global catalog with GUIDs
  - File system like view of LFN name space
  - Support of ACLs
    - Based on individual DNs, VOMS roles
  - Web Services interface
    - Full WSDL available
  - StorageIndex interface for use by WMS
  - Simple metadata
    - More generalized metadata interface agreed with ARDA
- **gLite I/O**
  - Posix like interface for Grid files
  - ACLs enforced
- **File Placement service**
  - Executes data movement requests
  - Implements a persistent transfer queue
  - Interacts with FiReMan catalog
  - On top of the File Transfer Service
  - Joint collaboration with LCG

- **Hierarchical LFN name space**

- **Bulk operations**

- **Access Control Lists**
  - Initially based on DNs, VOMS roles later

- **Fixes the performance problems of EDG RLS**

- **Web Services**

- **gLiteI/O supports ACLs**

- **File Transfer/Placement Service is a new service**
  - Designed in common with LCG

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- **Information System**
  - R-GMA
  - Producer/Consumer Service
  - SQL like data manipulation
  - New Service Discovery API

- **VOMS**
  - VO membership management
  - Support for group membership, roles and capabilities (ACLs)

- **WMS**
  - The Accounting services collecting securely resources usage
  - The Job Provenance services tracking jobs states, including execution conditions, for long periods
  - Web Services interface
- **Data management**
  - Distributed catalogs
  - Data Scheduler scheduling data transfer in a similar way jobs are scheduled, taking into account e.g. network characteristics
- **Grid Access Service**
  - Already prototyped
  - Indirection layer to Grid Services APIs
- **Package Manager**
  - Already prototyped
  - On demand installation, configuration, upgrade and removal of application software

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- **Castor and dCache implementations of SRM are the responsibility of LCG**

- **Package manager will be postponed after Release 1. Applications should use LCG solution for now**

- **A shell interface to data management other than lcg_utils will not be available before Release 1**

- **Anonymous access to restricted services and interactive access without outbound connectivity**
  - Depends on security policies

- **Automatic de/encryption of data**

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Modules	Availability for ARDA	Availability for SA1[1]
Complete WMS with Task Queue, Pull mode and Interface to Data Management	**February 2, 2005 for second iteration. First feedback was received in December 2004.**	**February 18, 2005**
Single File Catalog (FiReMan)	**February 2, 2005. First testing iteration done. Joint tests being developed to be incorporated in test suite.**	**February 7, 2005**
gLite I/O	**Available; second testing iteration started. ARDA tests incorporated in test suite.**	**Available.**
File Transfer/Placement Service	**February 2, 2005. Joint tests with ARDA being developed to be incorporated in test suite.**	**February 7, 2005**
User Interfaces	**February 2, 2005 for WMS and RGMA. Lcg_utils needs to be ported.**	**February 25, 2005**
R-GMA	**Available. Testing being planned.**	**Available without formal test suite.**
VOMS	**Available. Daily use in development testbed and at INFN.**	**February 7, 2005**

[1]: Availability to SA1 `includes functional testing. SA1 may take the components already after integration

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- **Focus Release 1 on key modules satisfying *immediate* needs of LCG**
  - Followed by regular update cycles
- **Responding to functional requirements of the experiments**
- **Not incorporating AliEn but many of its ideas**
- **Evolutionary to LCG-2**
  - In particular CE has been done in close collaboration with VDT
  - Will reduce migration efforts
- **Improved security**
- **Planning dates compatible with a certification phase by end of March**
- **Weekly monitoring involving Grid Deployment and ARDA managers**
- **Long term support ensured by the funding partners**