ARC Client
Status and Plans
NorduGrid – Uppsala 2012

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Outline

- ARC Client Tools
- What's new in 12.05
- Improved Resource Discovery
- Improved Brokering
- Improved Submission
- Improved Job Management
- Future Plans and Tasks
Credential management
arcproxy arcs LCS
arcrenew
ARC Client Tools

Credential management
arcproxy arcsvcs arcrenew

Job submission
arcsub arcresub arctest arcmigrate
ARC Client Tools

Credential management
arcproxy arcsrlcs arcrenew

Job submission
arcsub arcresub arctest arcmigrate

Job management
arcstat arcget arccat arcresume arcclean arckill
ARC Client Tools

**Credential management**
- arcproxy
- arcslcs
- arcrenew

**Data management**
- arcls
- arcrm
- arccp
- archmdir
- arcacl

**Job submission**
- arcsub
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 Resource discovery
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- arckill

Devel tools
- arcecho
- arcsrmping
- arcwsrf

Resource discovery
- arcinfo
- arcsync
What's new in 12.05 — Security

- Support for PKCS#12 certificates
- Support credential source from Firefox’s NSS internal PKCS#11 module
  - Invoke with: arcproxy --nssdb
  - Default NSS DB location: ~/.mozilla/firefox/profiles.in
What's new in 12.05 — Data

- `arcmkdir` - New command
  - Allows for directory creation on grid storage elements and catalogs
  - Supported protocols:
    - `file`
    - `gsiftp`
    - `srm`
    - `lfc`
    - `gfal`
What's new in 12.05 — Compute

- Added support for:
  - LDAP GLUE2
  - EMI ES interface + EMI ADL (job description)
  - EMI Registry - resource discovery
  - Bulk job submission and management

- libarcclient library restructured to accommodate EMI ES and GLUE2 support
  - Resource discovery more seamless and flexible
  - Also removed dependency on job list file
  - Encapsulated plugin loading functionality
  - More Python friendly bindings

- Most of libarcclient API modified
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Improved Resource Discovery

- Old approach
  - Couldn't handle:
    - *Multiple endpoints per resource*
    - *Discovery through multiple interfaces (resource duplication)*
  - Covered three functionalities in one class – Not very flexible
  - Target information kept internal
  - Threading split between convenience and specialised classes
  - Blocking once querying was initiated
Improved Resource Discovery

- Local information system layout - Current situation
Improved Resource Discovery

- New approach
  - Handles multiple endpoints per resource
  - Possible to merge duplicate resources
  - Builds on general template class
    3 different instances available:
    - Index/registry querying (ServiceEndpointRetriever)
    - Local infosys querying (TargetInformationRetriever)
    - Job list querying (JobListRetriever)
  - Can easily be linked to provide extended functionality
    - Index/registry + local infosys querying (ComputingServiceRetriever)
  - Fetched information added to provided container
Improved Resource Discovery

- New approach cont.
  - Threading code kept within template class
  - Specialised classes should just be thread safe
  - Initiating querying doesn't block – Information added to container when fetched
  - Querying preferred interfaces takes precedence

class EntityRetriever
Improved Resource Discovery

- Registry and local info system querying
Improved Brokering

- **Old approach**
  - Matching and sorting kept internal
  - Custom methods for looping over sorted targets
  - Not possible to add new targets to existing sorting
  - Plugin loading not encapsulated – Explicit loader instance needed

- **New approach**
  - Matching and sorting methods public available
  - External container used for holding matching and sorted targets
  - Plugin loading encapsulated – No need for loader instance
  - Sorting compares one against one
Improved Submission

- Encapsulated plugin loading – No loader instance needed
- Bulk job submission support through library
  - Currently not implemented at plugin level
  - Brokering doesn't yet take advantages of this
- Test jobs can easily be added (arctest)
  - Test job descriptions are read from file
Improved Job Management

- Dependency on job list file in library removed (~/.arc/jobs.xml)
- Plugin handling fully encapsulated
- More flexible usage of member methods
- Support for bulk job management operations
  - Currently not implemented at plugin level
Future Plans and Tasks

- Complete GLUE2 support
  - Currently only ~80% done
  - Synchronizing jobs
  - Merge duplicates
  - Update existing objects
  - Support for additional entities (e.g. AdminDomain)
Future Plans and Tasks

- Complete EMI ES support
  - Create archold command (PauseActivity operation)
    - Pending feature request exist
  - Handle state attributes properly
  - Settle on how to publish endpoints (service related)
    - Discussion ongoing
  - arcresume support (ResumeActivity and RestartActivity operations)
- Make submission less error prone
  - Handle error responses from service better
Future Plans and Tasks

- Enhance documentation
  - API documentation – Classes needs to be documented
  - Technical description of how to code against ARC libraries
    - C++ examples - CLI code
    - Python examples - Some exist already - Not up to date
    - Java examples - Non existing
    - Examples on usage of client, credential and data libraries
  - Tutorial – Programming against ARC libraries
  - ...

## Future Plans and Tasks

- **Bugfixing** – Current status as of 31-05-12

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Future Plans and Tasks

- Performance analyse
- Bulk job submission and management
  - Implement operations in plugins
  - Take advantage of bulk submission in broker
- Direct submission to CE
  - Don't do resource discovery and brokering
- Support RESTful access interface provided by VOMS servers
  - Already started
Thank you!

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