Globus Toolkit 4 (GT4)

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Notes

- Project questions?
- Next lecture will be led by Lidan, and Pete Keleher will be there
  - on Tapestry and OceanStore
- Anyone for next Tuesday, on Condor?

Globus Toolkit 4

- An implementation of OGSA
- 3 parts
  - service implementations for Grid infrastructure
  - containers for Java, Python, C services
  - client libraries for Java, Python, C to access (invoke) GT4 and user developed Grid services

Uniformity encourages reuse

- WS-I compliant SOAP messaging between Web services and with clients
  - web services standard for interoperable message exchange for Web services
- common security and message infrastructure
- extensible authorization framework, with multiple authorization mechanisms
- containers and most services implement Web services interfaces for state representation, access and subscription, for easier service discovery and monitoring
- common abstractions/interfaces for lifetime management of stateful services – for both explicit and soft state service destruction

GT4 component categories

- Security
  - delegation, community authorization, authentication, managing credentials
  - default configuration uses public key credentials
- Data management
  - access and integration (OGSA-DAI for relational and XML data), replica location (RLS), GridFTP, reliable file transfer (RFT on top of GridFTP), replication (using RLS and GridFTP)
- Execution management
  - telecontrol protocol (for managing instruments), community scheduling framework, workspace management (e.g., create VMs), resource allocation and management (GRAM)

GT4 component categories (cont.)

- Information services
  - XML-based resource properties, accessed via pull (query) or push (subscription), implemented via WSRF and WS-Notification compliant services
    - in all GT4 services and containers
  - Aggregator services for collecting state info from registered sources (services)
    - Trigger - event driven data filter
    - Index - registry
    - WebMDS – to query and access collected info flexibly
- Common runtime systems for Python, C, Java

Building services

- Web services container software to develop components that implement Web Services interfaces
- Java, C, Python containers also have components to deploy and manage services that follow basic WS specs
  - Java has most programming support, C has highest performance, Python higher level scripting for ease of use