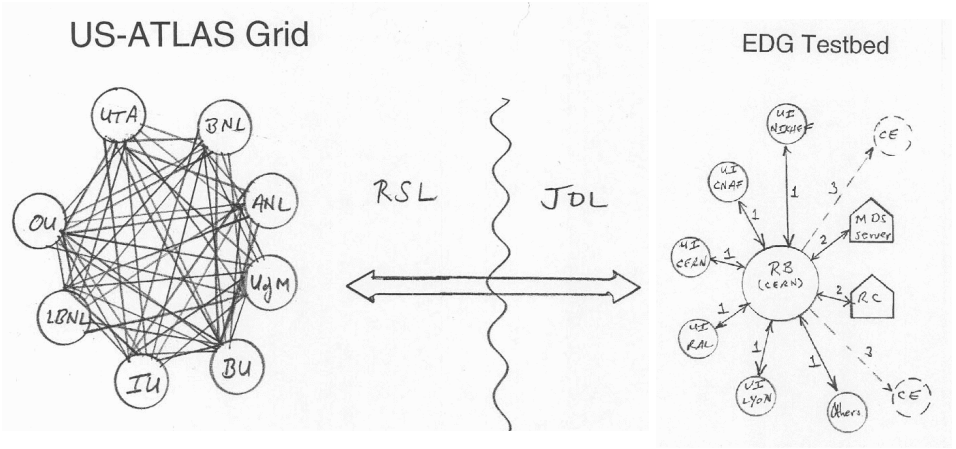
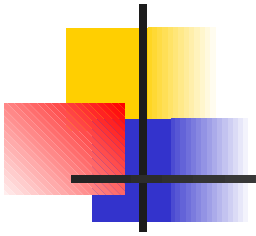
Launching ATLAS Jobs to either the US-ATLAS or EDG Grids using GRAPPA

Goal: Use GRAPPA to launch a job to one or more grid servers which may be part of the US-ATLAS grid or the EDG Testbed grid.

How are these grids different?



Comparing the US-ATLAS grid and the EDG Testbed



US-ATLAS: Jobs destined for execution on a site in the US-ATLAS grid would be launched by GRAPPA as a "globus" job (ex. globus-job-run) to a gatekeeper server at that site. The job would execute on the gatekeeper or be farmed out to other globus client servers at the site.

EDG Testbed: Jobs destined for execution on a site in the EDG Testbed would be launched by GRAPPA as a "globus" job (ex. globus-job-run) to a UI (User Interface) server at that site. Once the job reaches the server, a JDL script would be created for the job and it would subsequently be submitted to an EDG Resource Broker for execution on some node in the Testbed.

Minimum Server Functionality Needed ?

Minimum functionality needed on both the US-ATLAS server and the EDG Testbed UI server:

- **Operating System:** Linux – RedHat 6.2/7.2 (prefer 7.2)
- **Grid Middleware:** Globus 2.0- gatekeeper, PACMAN, GRAPPA, EDG-only(Rel 1.2.x)
- **Java Software:** Java: jdk1.3.x [j2sdk1.4.0 will NOT work!]
- **Application Software:**
  - Boxed (for now) versions of "released" ATLAS software (3.0.1 or higher)
- **User Certificate:**
  - EDG Testbed: DOESciencegrid certificate and registration in ATLAS VO
  - US-ATLAS: DOESciencegrid certificate and grid-mapfile entry
- **Signing Policies:** Union of US-ATLAS and EDG signing policies

Changes Needed to GRAPPA Functionality?

The basic functionality provided today by the Athena notebook within GRAPPA will be relatively unchanged for the boxed version of "atlfast". Local and AFS version of "atlfast" and all versions of "atlsim" will be addressed at a later date.

The following changes are expected to be "relatively" easy to incorporate.

- Make the executable work for either RedHat 6.2 or RedHat 7.2
- If the host that GRAPPA sends the job to is an EDG node, create an appropriate JDL script which will submit the job and wait until a state of "OutputReady" is obtained before exiting.

Any other changes needed?

- Initial testing has shown that what should have been “relatively easy” is never true in reality!
- GRAPPAs application notebook code has been written in several languages: bash, csh, python, perl . You must be careful that the change you are making is appropriate for that language.
- The code MUST be more aware of and tolerant to error conditions. You can not assume that every server has defined environment variables in the same way – if they have even defined them at all.
- Problems with the EDG job submission service in Release 1.2.0 allow you to submit and complete a job but NOT retrieve any of the output. (Bugzilla bug #551 – reported Aug. 22 by Jerry Gieraltowski)

Where am I today?

[Special thanks to Shava Smallen and Dan Engh for their patience and consultation!]

- The ANL server – atlas10.hep.anl.gov – has been loaded with the EDG UI Release 1.2.0 rpms. It has also been configured as a Globus gatekeeper.
- I have created a local copy on atlas14.hep.anl.gov of the input files need to run the boxed version and have modified them to be somewhat flexible to RedHat releases and environment variable settings.
- I have almost completed the jdl-creation script if the host server is recognized as an EDG node.
- I have submitted several trial scripts to the CERN UI-sever (testbed010.cern.ch) using a DOESciencegrid certificate. The jobs complete but I still can not get back any output.