MODIS Image Based Computation of Vegetation Indices in MedioGRID Architecture

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Objectives

- Satellite image processing system over GRID environment for extracting relevant environmental and meteorological parameters
- Greenland application concerning with the computation of vegetation indices
- User interactivity through a web portal
Data processing architecture in MedioGRID

- MedioGRIDService
- MedioGRIDPortal
- MedioGRIDMyProxy
- MetadataCatalog and Replica Location Service
MedioGRID components
MedioGRIDService

- Creates and schedules jobs
- Job execution through Condor job manager and GlobusGatekeeper service
- Creates a unique resource for each client
- Stateful service
MedioGRIDPortal

- Client interface
- Control and interaction to MedioGRIDService
- Selection and visualization of the satellite images
- Notifications on the job state
MedioGRID Portal
MedioGRIDMyProxy

- Each client and worker process needs a certificate in order to authorize to the service and to the GridFTP, RLS servers

- Provides a certificate for the authorization process
Greenland application
Testing performance

- Job execution time depends on:
  - the number of workstations
  - the number of jobs that are running

- Depends indirectly on the data transfer rate
- For a number of jobs greater than the number of workstations the average job execution time tends to remain constant
Conclusions

- Architectural specifications of the MedioGRID software system
- Interaction among MedioGRID components
- Experiments on the basic functionality, performance evaluation, and GUI usability
Future work

- GIS tools supporting the evaluation of flood and fire evolution
Thanks

Questions?