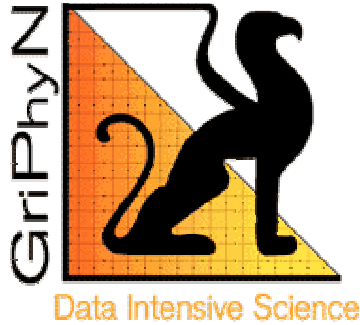


LIGO Data Analysis on the Grid

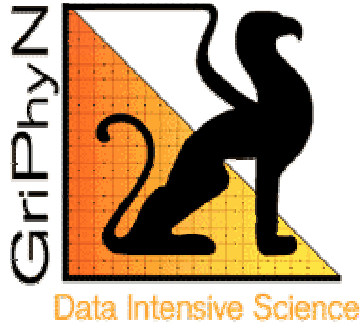
Scott Koranda

University of Wisconsin-Milwaukee &
National Center for Supercomputing
Applications



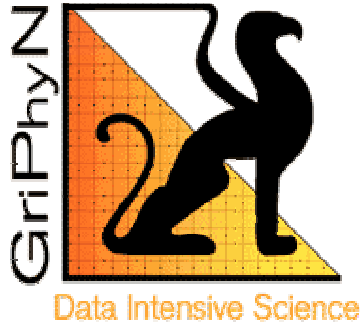
LIGO-GriPhyN Collaborators

- Bruce Allen (UWM)
- Kent Blackburn (LIGO)
- Patrick Brady (UWM)
- Manuella Campanelli (UTB)
- Ewa Deelman (ISI)
- Carl Kesselman (ISI)
- Scott Koranda (UWM, NCSA)
- Albert Lazzarini (LIGO)
- Joe Romano (UTB)
- Roy Williams (CACR)
- Alan Wiseman (UWM)



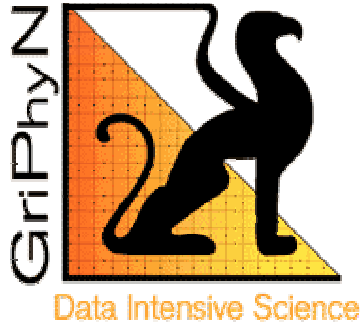
A “Vision” for LIGO data analysis on the Grid

- From your desktop using grid-enabled client you request an analysis
 - “Inspiral search on patch of sky $(\theta+\delta\theta, \phi+\delta\phi)$ during time August 20-24, 2003, using coarse-grained template bank #SG1004, and data from LHO and GEO”
- Client contacts request manager (RM) and makes request
- RM determines if analysis (or parts) has already been done.
 - if so, schedules derived data to be delivered
 - else prepares analysis pipeline



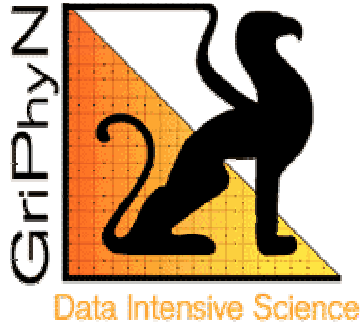
A “Vision” for LIGO data analysis on the Grid

- RM looks up needed data, metadata, code, etc. in catalog to locate it
- Schedules data, code, ... to be moved to available compute resource(s) if necessary
- RM schedules job
- Job runs, with resources being added as necessary and available (as policy permits)
- When job completes results automatically delivered and added to catalog



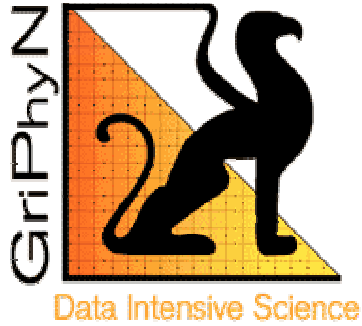
Virtual Data Toolkit (VDT)

- CondorG and Condor DAGman
 - fault tolerant scheduling and job management
- Globus GRAM jobmanager
 - access to remote compute resources and analysis systems
- Globus GridFTP
 - read and write access to data and data products
- Globus Replica Catalog and Replica Management
 - virtual data cataloging and replication services



“Grid Enabling” the LIGO Data Analysis System (LDAS)

- “Wrap” LDAS to make grid-enabled
 - Add standard grid hooks including GRAM jobmanager and GridFTP server to LDAS
- Begin with LDAS at Caltech and UWM
 - Also at UWM experiment with Condor-based system
 - Grid hooks for free
- Data (raw and derived) at Caltech and UWM catalogued
- Access via both web and command line clients



Version 0.1 due November

