LIGO/LSC Grid Computing Activities

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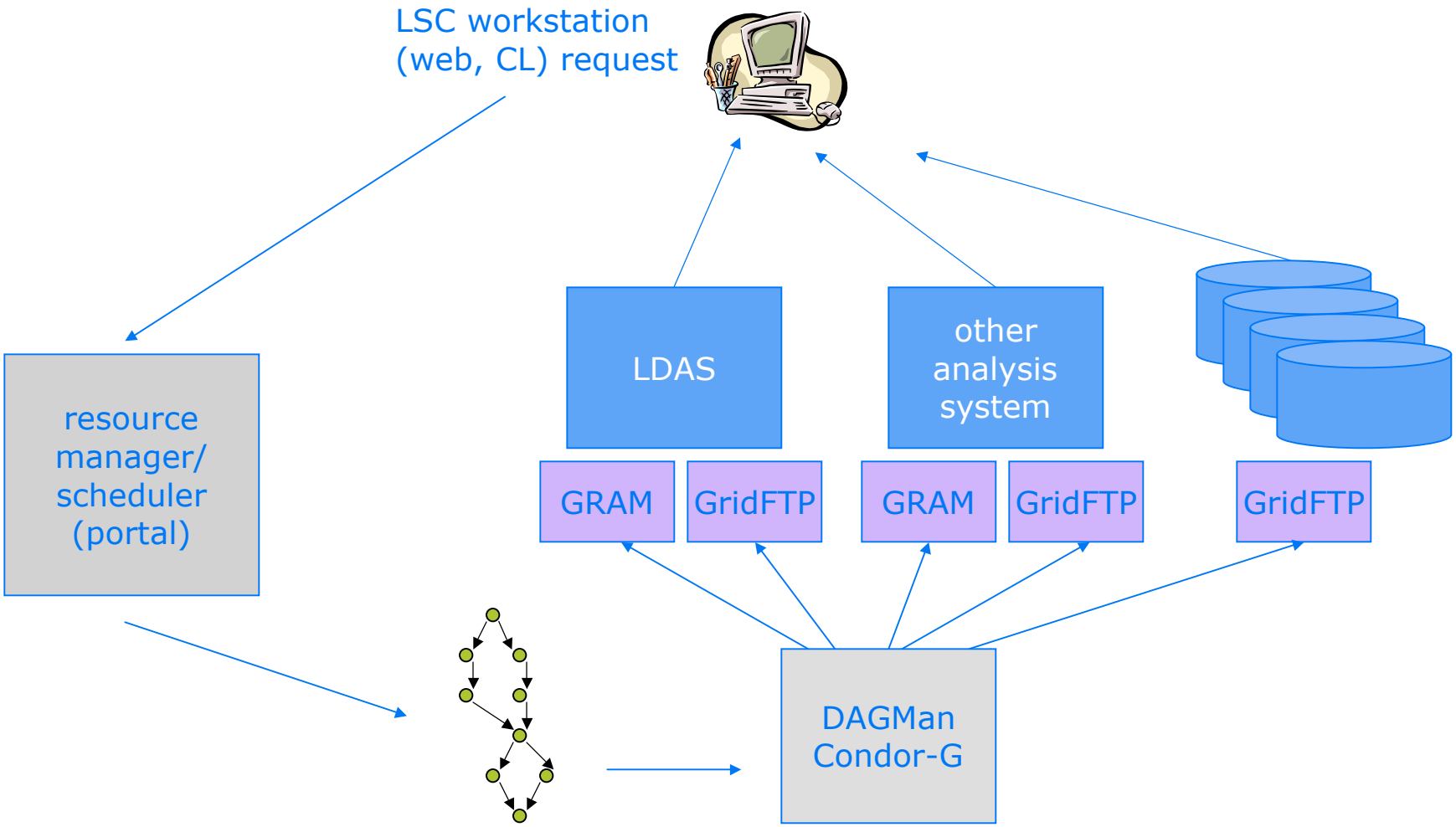
SC2001

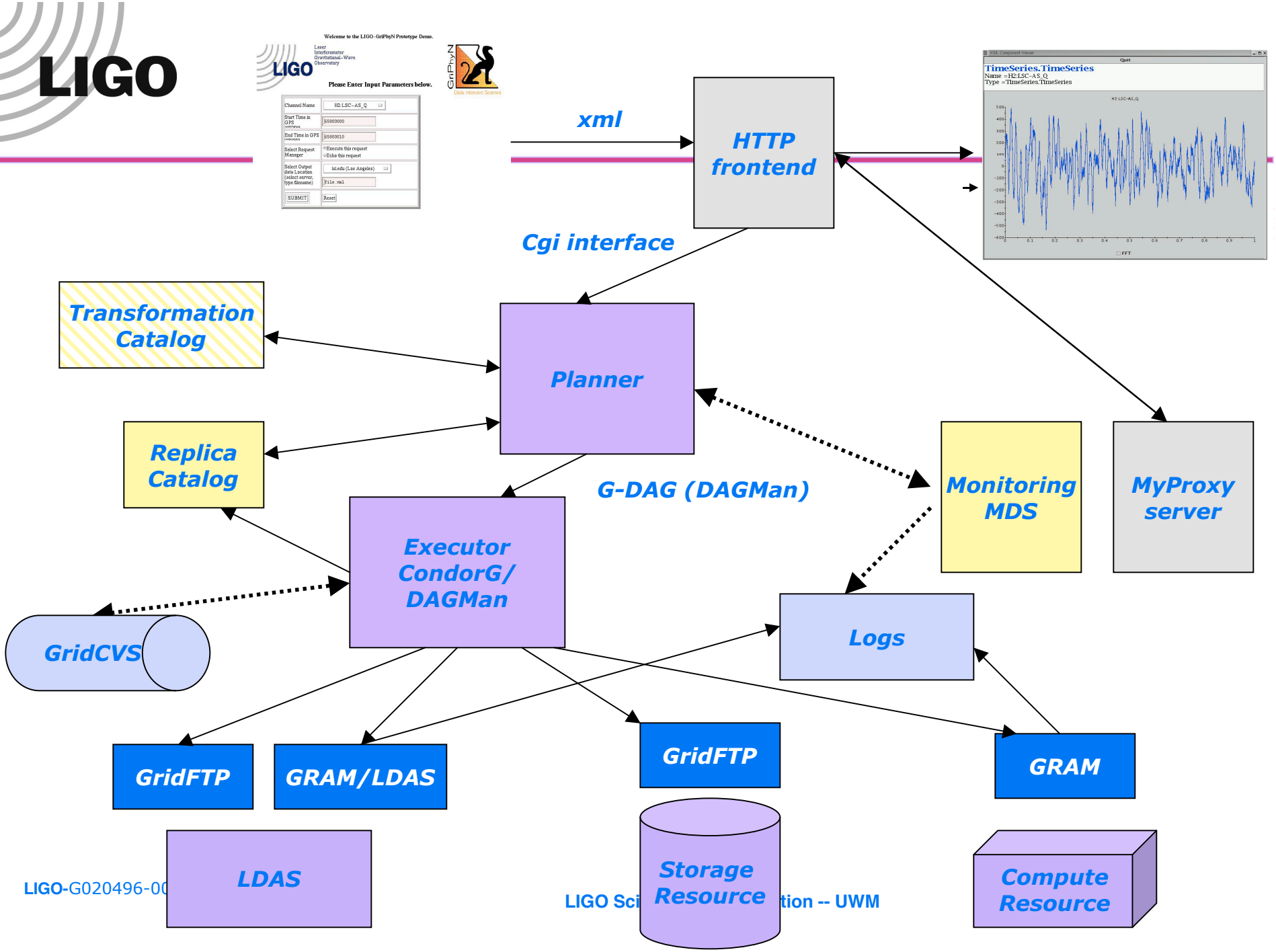
- Goal: Thinly wrap LDAS with standard Grid services & begin to explore virtual-data aspects
  - » Globus Resource Allocation Manager (GRAM)
  - » GridFTP
  - » Globus Grid Security Infrastructure (GSI)
- Resources leveraged:
  - » LDAS at Caltech
  - » LDAS at UWM
- People:

SC2001 Demo


LSC workstation
(web, CL) request
resource
manager/
scheduler
(portal)
LDAS
other
analysis
system
GRAM
GridFTP
GRAM
GridFTP
GridFTP
DAGMan
Condor-G

SC2002

- Goal:
- Resources plan to leverage:
  - » LDAS at Caltech
  - » Linux cluster at Caltech
  - » LDAS at UWM
  - » Linux cluster at UWM
  - » Linux cluster at UTB
  - » Linux cluster at ISI
  - » Linux cluster at NCSA
- People


Welcome to the LIGO–GriPhyN Prototype Demo.
Please Enter Input Parameters below.
xml
HTTP frontend
Cgi interface
Transformation Catalog
Planner
Replica Catalog
G-DAG (DAGMan)
Monitoring MDS
MyProxy server
Executor CondorG/ DAGMan
GridCVS
Logs
GridFTP
GRAM/LDAS
GridFTP
GRAM
LDAS
Storage Resource
Compute Resource

Security: Authentication

- Nature of LIGO Laboratory/LSC makes strong case for Public Key Infrastructure (PKI)
  - » Composed of geographically distributed members from existing sites and instiutions
  - » Individual, site-specific policies already in place need to be respected
  - » Virtual Organization (VO)
  - » Provides LIGO/LSC scientists with single indentity/credential used anywhere within LIGO/LSC Grid
- 3 primary pieces of PKI
  1. Digital certificates for users, hosts, services
  2. Certificate Authority (CA)/Registration Authority (RA)
  3. Authentication & Authorization Infrastructure – Globus GSI

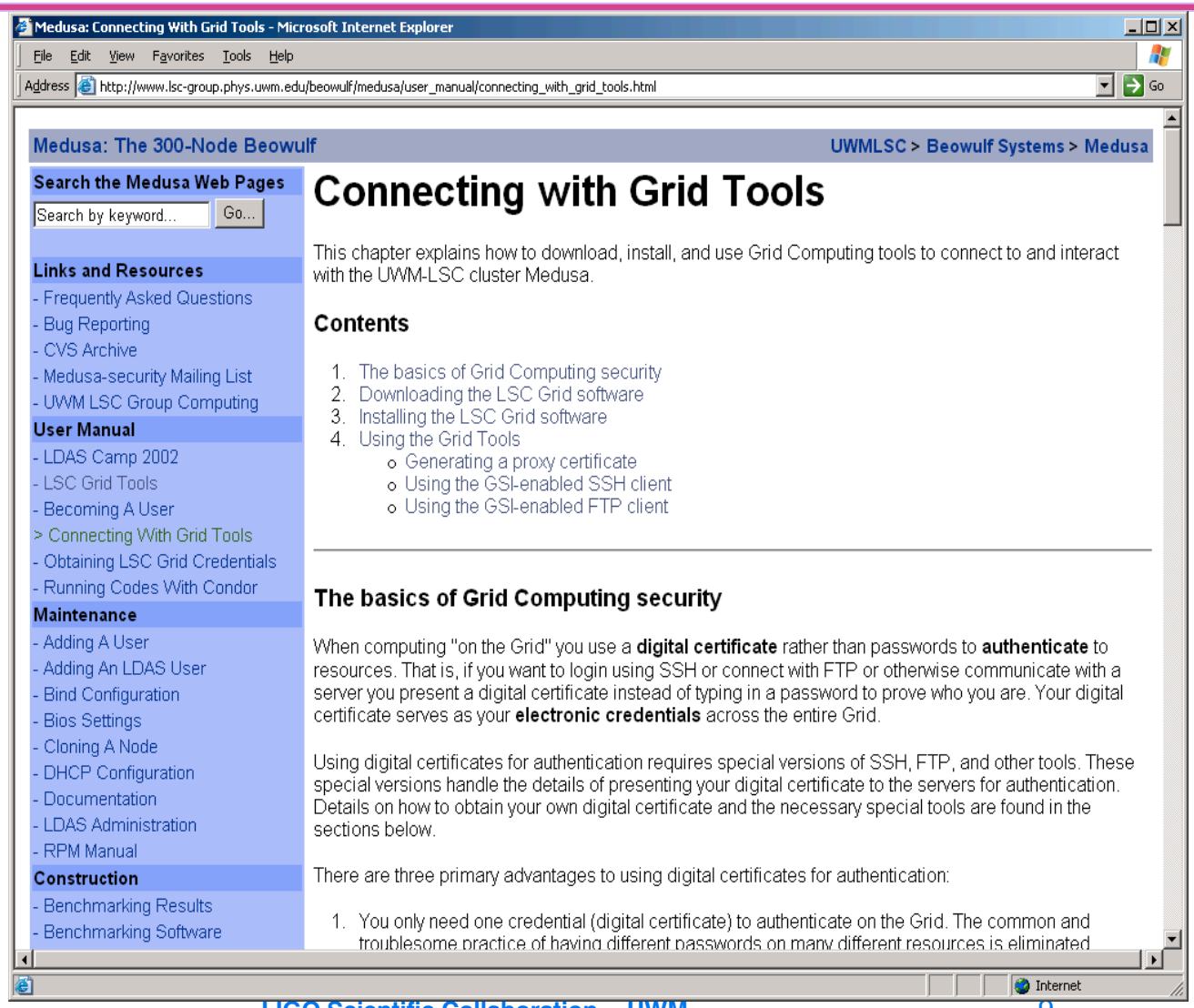
Security: Authentication

- Leverage iVDGL work
- Use DOEGrids CA as LIGO/LSC certificate authority

Security: Authentication

- Leverage iVDGL Registration Authority (RA)
  - » LIGO/LSC contribute back to iVDGL
  - » Koranda serves as iVDGL RA Point of Contact and on DOE PMA
  - » Use chain of verification for granting certificates
  - » Keeps LIGO Laboratory in loop

Adopted at UWM Tier2 Center



Security: Authorization

- Investigating Globus CAS

Integration of PKI into LDAS

- Long term goal
- Both authentication and authorization
- Shortest path is leverage work of LBL team created python version of Globus
  - » SWIG wrapping
  - » Target Tcl rather than python
  - » Provide Tcl hooks into security (GSI) module first, then others
    - – Dr. Igor Yashukin begun looking in detail at this path

Data Replication to Tier 2 Sites

- LDR details…
- Mention nice WAN performance between UWM/CIT
- Mention need for better WAN to MIT, perhaps PSU (still determining), and UTB