

AP3: Ganga/Proof status @ LMU

HEP-CG, Siegen, 13 Dec 2007

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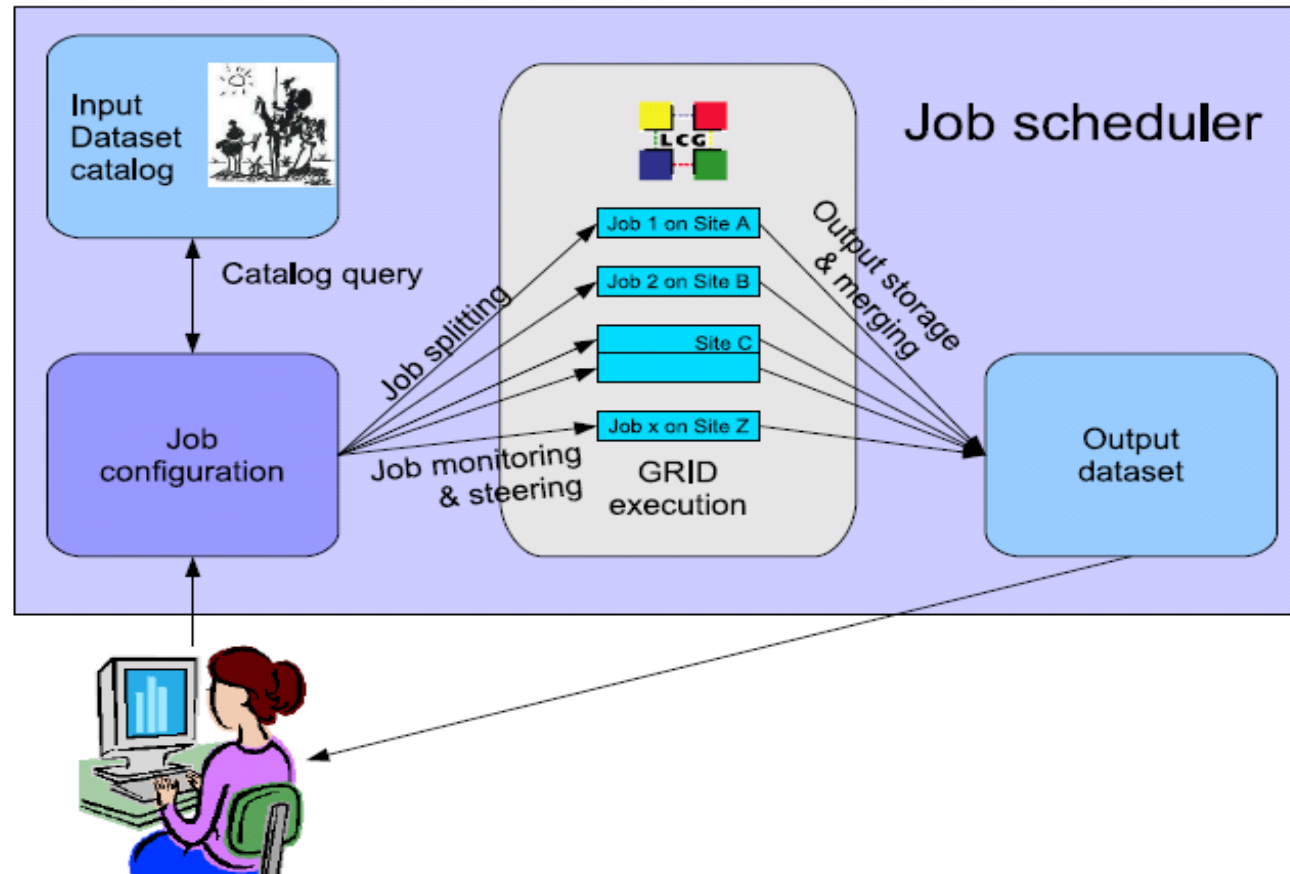
LMU München

- Ganga overview
- RMost integration
- Proof tests @ LMU
- Prospects



DISTRIBUTED ANALYSIS

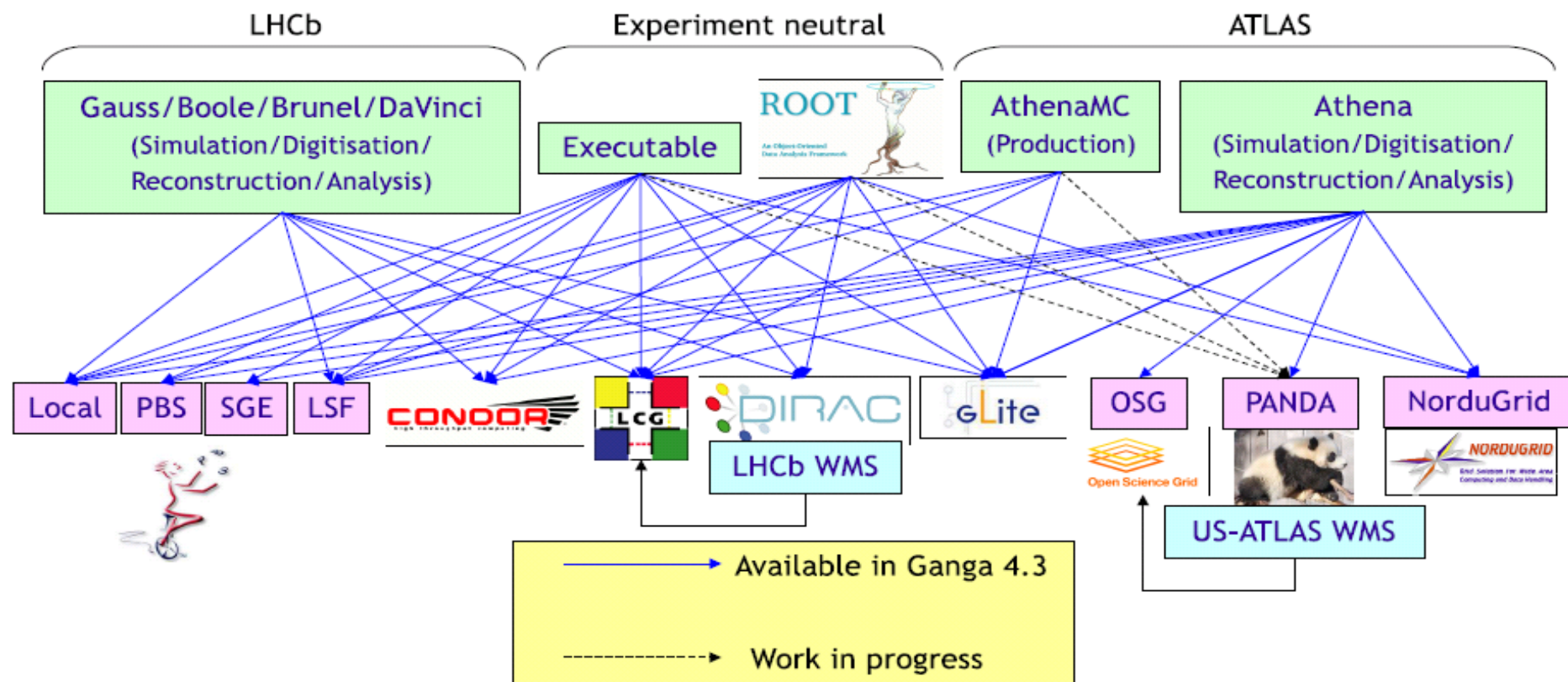
How to submit jobs: Job scheduler/manager: GANGA



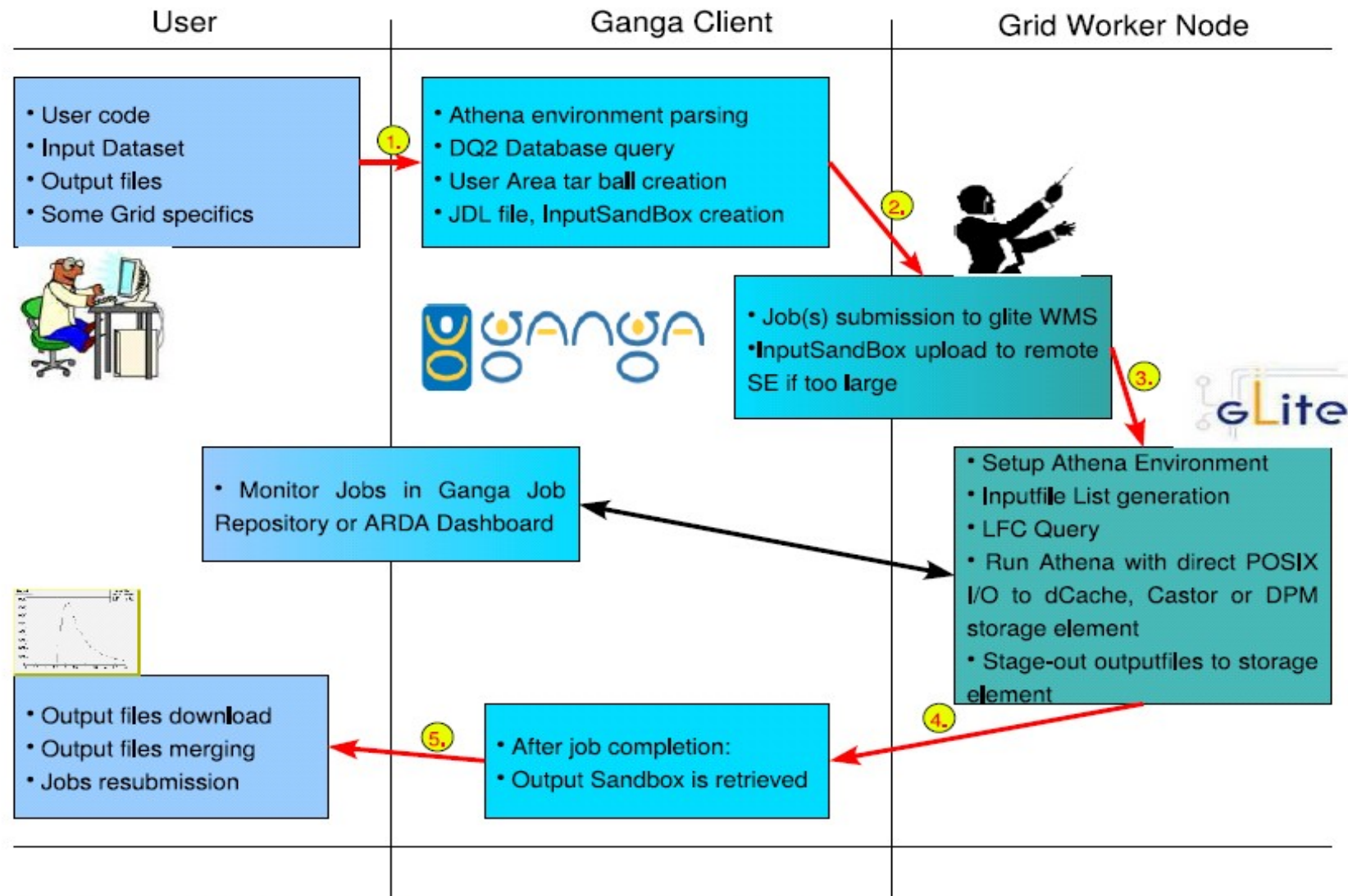
<http://cern.ch/ganga>

GANGA BACKENDS AND APPLICATIONS

- GANGA simplifies running of ATLAS (and LHCb) applications on a variety of Grid and non-Grid back-ends



GANGA JOB WORKFLOW



GANGAROBOT

- Scanning EGEE site reliability with typical user analysis job
- Ganga Analysis runs regularly fine at ≈ 45 EGEE sites
- Panda profits from a large reliable single site

GangaRobot - Mozilla Firefox <2>

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://homepages.physik.uni-muenchen.de/~Johannes.Elmsheuser/GangaRot

GangaRobot

Monthly Summary: 11/2007

This report was generated: 29 November 2007 - 15:24

Site

[01](#) [01](#) [02](#) [04](#) [04](#) [05](#) [06](#) [07](#) [08](#) [09](#) [09](#) [10](#) [11](#) [12](#) [13](#) [14](#) [14](#) [15](#) [16](#) [18](#) [19](#) [19](#) [20](#) [21](#) [22](#) [23](#) [24](#) [26](#) [27](#) [28](#) [29](#)

DE

CSCS	N	N	C	A	C	C	C	C	C	A	C	F	C	F	A	A	C	C	C	C	A	C	C	C	A	C	C	C	C	0		
CYF	A	C	C	C	F	F	F	C	F	C	C	F	C	C	C	C	C	C	C	C	A	C	C	C	C	C	C	A	F	C	0	
DESY-HH	C	C	F	C	C	C	C	C	C	C	C	F	C	C	C	C	A	C	C	C	C	C	C	C	C	C	A	C	C	F	C	C
DESY-ZN	C	C	C	C	F	C	C	C	C	C	C	F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
FZKDISK	C	C	C	C	C	C	N	C	C	C	C	F	C	F	C	C	C	C	C	C	C	C	C	F	F	C	C	C	C	C	C	0
FZKTEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FZU	C	C	C	C	C	C	C	C	A	C	C	C	C	C	C	C	A	N	C	C	C	C	A	A	A	A	N	N	S	S		
LRZ	C	C	A	C	C	C	C	C	N	F	F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
UNI-FREIBURG	A	C	A	A	A	F	F	C	C	A	C	N	N	F	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	F	S
WUP	C	A	C	N	N	F	F	F	F	F	F	F	F	C	C	C	C	A	A	C	C	C	A	N	N	C	A	C	C	0	S	

FR

BEIJING	F	F	F	A	F	F	F	F	F	A	F	F	F	F	F	N	N	N	N	N	N	A	N	A	A	A	A	S	S	S	S
CPPM	C	C	C	A	A	C	A	C	C	A	A	A	A	A	C	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C
LAL	C	C	A	A	A	C	C	C	F	C	C	F	F	C	C	C	C	C	C	C	C	C	C	C	C	A	C	C	C	C	0

RECENT ISSUES OF DISTRIBUTED ANALYSIS USING GANGA II

- LFC look-up of input files needs sometime several retries
- Ganga uses direct Posix I/O to access input files on close SE:
 - Needs working ROOT plugin
 - Default: *dcap* on dCache, *rfio* on Castor and DPM
 - TURL retrieval (*lcg-gt*) not always stable
 - Xrootd and gsidcap works on a few sites and recent ROOT version
 - gfal could help in principle, in practice not stable
- Site-Index-Database/Tracker-Service for input files
 - By design datasets should be complete, so no knowledge on file level necessary
 - Fraction of datasets are incomplete at many sites
 - Due to many grid related failures: FTS, SRM, etc.
 - Now introduced a site-index to know exact file locations
- GangaTask: package for automatized task completion

RMOST & Ganga

- Daniel and Johannes had meeting in Munich to discuss how to integrate RMOST into Ganga:
 - The idea is:
 - user sets flag in Ganga job configuration that job should be instrumented with RMOST
 - job pulls on worker node tar file from e.g. Siegen web server or SE which contains the latest stable code to instrument Athena, jobOptions need to be parsed to start RMOST
 - user invokes during Ganga session external RMOST monitoring program executable to steer instrumented job.
 - Implementation into Ganga seems easy, since only python or option parsing is needed
 - Monitoring program executable needs to be built for various platforms
 - some issues with external dependencies
 - Release unfortunately delayed but will be available after christmas

Proof tests at LRZ/LMU

Worker Nodes

- 10 AMD Dual CPU / dual Core Processors
- 2.7 GHz
- 8 GB RAM

Small Proof Tutorials / Wiki Pages

- Running at local cluster
- Setup & Running at lxplus
- Available at:
<http://wiki.etp.physik.uni-muenchen.de/tiki-index.php>

- Test-Analysis: Z Boson production and decay into two muons
 - For this study: Truncate AOD-Events to User-Specific-Event in TTree-format: ~4kB per Event
 - Simulated data, triggered by a 20GeV single muon requirement corresponding to $\int 100\text{pb}^{-1}$
 - 1.5 million events, 35 Files, 6 GB data
- **To Do:** Trying AODRootAccess with in Proof, i.e. direct access of AOD-events in Proof
 - Simulated/Reconstructed ATLAS Data stored in “AOD”-format: ~ 150kB per Event

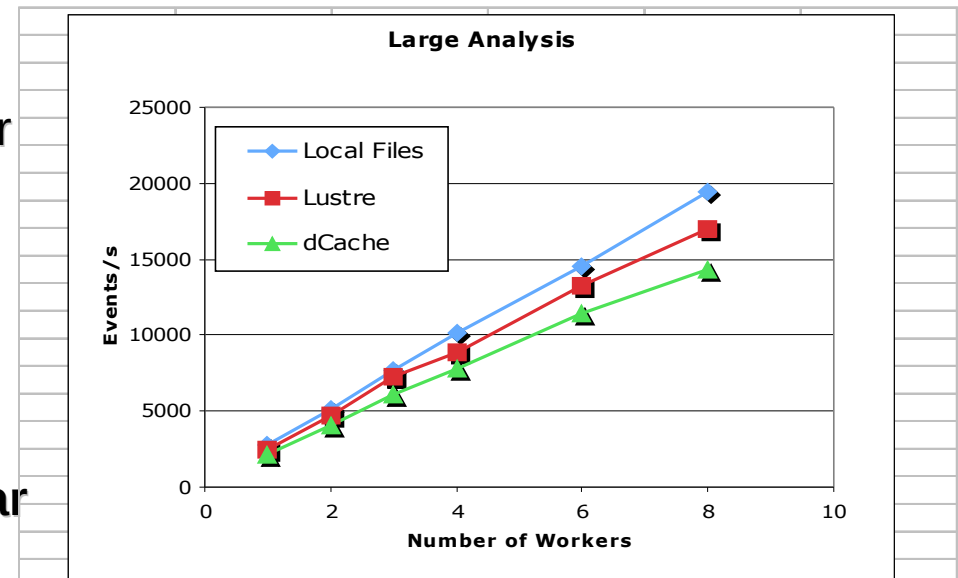
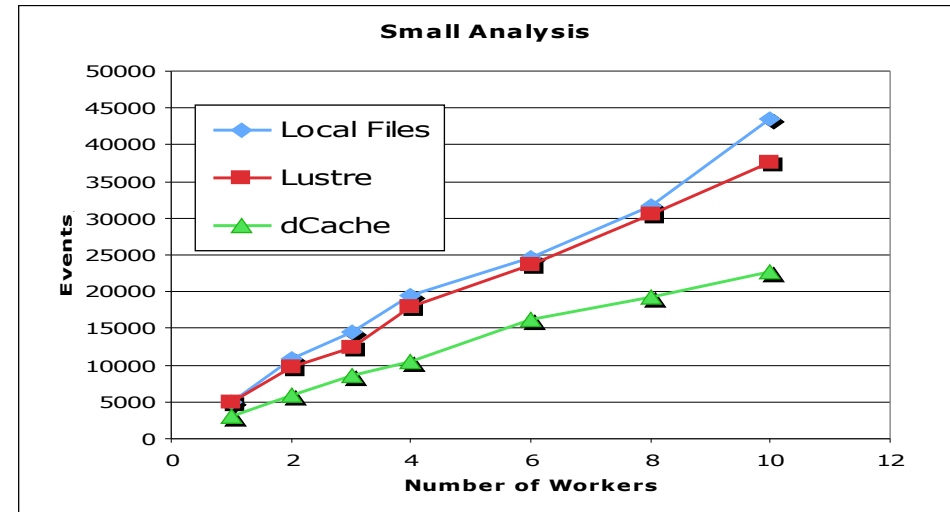
Proof-I/O Tests

Simple cut based analysis:

- Simple Z boson selection
- Only few calculations necessary
- **Local file access of all workers:**
 - Scaling behavior
- **Lustre file system:**
 - Comparable to local files
- **dCache file system**
 - limited in our local installation (under investigation)

Advanced analysis:

- Efficiency determination etc., which requires some calculations
- Local file access and Lustre show **similar behavior** up to 8 workers



Outlook & Plans

- Short term:
 - Ganga: integrate RMOST, GangaTask, continuous maintenance
 - Proof: investigate & elaborate ATLAS use cases, gLiteProof tests, combined GSI/LRZ testbed??
- Possibly longer term:

HEP Distributed Analysis can be taken as generic example to run complex applications on a large scale on the Grid

 - Ganga is on-going effort since HEP software is all the time evolving
 - Could be used as generic tool in other communities
 - Extend into tool that integrates most aspects of user analysis:
 - software and data management, monitoring, steering
 - Proof/gLiteProof ???