

# ATLAS Computing @ RZG

## Status and Upgrade Plans

# Installation

- Hardware
  - 4 (5) IBM BladeCenter Chassis, 14 blades each
    - 2 Xeon 3.02 GHz 64bit, 2 GB RAM, Gb LAN / blade
  - ca. 7.5 TB disk on file servers
  - access to tape storage
- Software:
  - RH9 (RZG), afs
  - Sun Grid Engine (SGE) batch queue system
  - ATLAS SW 9.0.2 (→9.0.4), 9.2.0

# Operation

- data and tape access via afs
- SGE batch queue system for our cluster
  - possibility to share with other RZG clusters
- installation and test of athena successful
  - KitVal, RecExCommon
- direct access to ATLAS cvs repo possible
  - needs ssh configuration
- RZG personnel responsive and helpful

# Upgrade plans

- Intent to build ATLAS Tier-2
  - collaboration between LMU, LRZ, RZG, MPI
- Base resource requirements on ATLAS cm
- Plan to support ~30 users
  - 1.5 x average Tier-2
  - MPI, LMU, possibly other universities
- Ongoing discussion about ATLAS Tier-2
  - Wuppertal, Mainz, FZK, DESY?
  - not all of these will make it

# ATLAS Computing Model

- New report ATL-SOFT-2004-007
- Hierarchical Tier structure
  - Tier-0: recording, distribution, prompt reco
  - Tier-1: data storage, reprocessing, ESD/AOD production, scheduled analysis
  - Tier-2: simulation, “chaotic” analysis, calibrations
  - Tier-3: local, “ntuple”-level analysis
- Revised requirements following DCs, HLT-TDR and athena progress

# MPI/LMU/LRZ/RZG Tier-2

- Requirements / 1 a ATLAS running
  - CPU: 540 kSi2k
  - Disk: 230 TB (no tape storage requirement)
  - WAN: O(100 Mb/s) sustained
- Assumptions:
  - 30 users (1.5 x average)
  - equal share between LMU/LRZ and MPI/RZG
  - full capacity for 2007 at end of 2006
  - Extrapolate from existing RZG system

# Tier-2

# Development

IBM Chassis €	5760
HS20 Blade €	2380
Rack €	6400
Installation €	1500

Fileserver 12 Disks €	5000
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year	2005	2006	2007	2008
IBM Chassis pce	3	4	5	3
HS20 Blade pce	42	56	70	42
Rack pce	1	1	1	0
kSi2k/CPU	1.5	2	3	4
CPU kSi2k	126	224	420	336
CPU total kSi2k	196	420	840	1176
CPU cost €	128140	168720	209300	121740
Fileserver pce		35	25	18
Disk capacity GB		400	600	800
Fileserver capacity TB		168	180	172.8
Fileserver total TB	7.5	175.5	355.5	528.3
Fileserver cost €	0	175000	125000	90000
Network €	2000	2000	2000	2000
Total cost €	130140	345720	336300	213740

# Summary

- MPI/ATLAS computing at RZG works
- Installation of Tier-2 feasible
- Made (make) use of MPG-Grossgeräte-Programme
- Collaboration with LMU/LRZ