HEP Computing for

PHYSICS AT THE TERASCALE
Strategic Helmholtz Alliance

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FSP-CMS Treffen
DESY, Berlin-Zeuthen
26.-28. September 2007

HGF GRID Project Board

- G.Quast (Univ. KA, CMS, Chair, Management Board)
- Th.Kreß (RWTH AC, CMS)
- Ch.Zeitnitz (Univ. WU, ATLAS)
- G.Duckeck (LMU MU, ATLAS
- V.Gülzow (DESY)
- A.Heiss (FZK)
- P.Schleper (Univ. HH, Contact Person Analysis Project Board-NAF)
- Monthly telephone conferences, protocols

Three Work Packages

- WP1: Establishing a virtual computing centre
- WP2: Development of GRID tools and optimization of GRID components
- WP3: Training, workshops and schools

WP1 - Virtual Computing

- Computing resources for Tier-2 centres
- National analysis facility
- High performance networks
- Operation + user - IT friendliness
- Develop. + deployment of mass storage

… … Tier-2 Resources

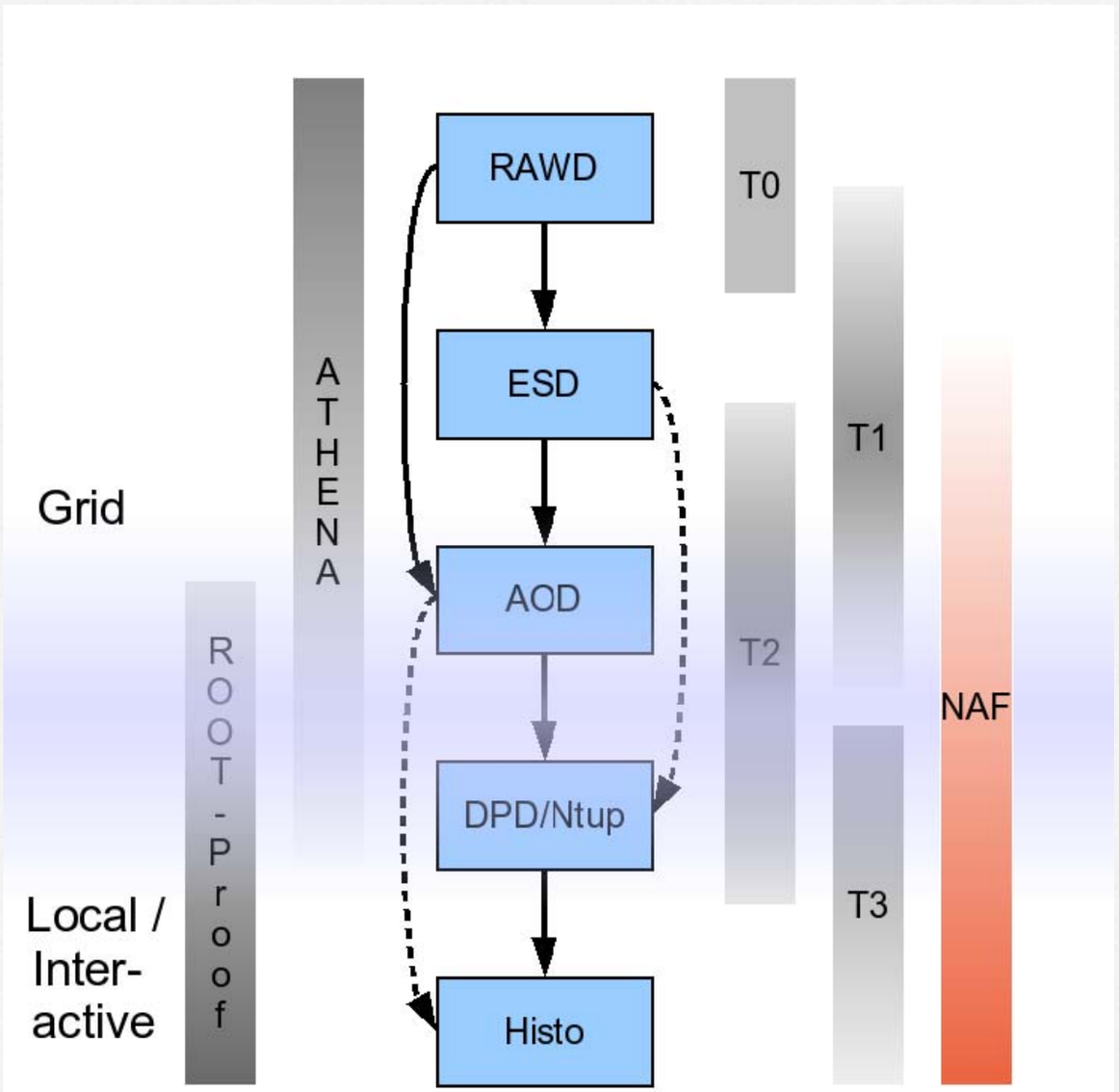
- 5-years funding of hardware for ATLAS and CMS university Tier2 sites ~150 k€/(year*site)
- Infrastructure and operations provided by Tier2 sites/local funding
- Important complementary funding of personal for ATLAS / CMS German inter-site and central experiments tasks by BMBF

… … N.A.F. - End-User Analysis

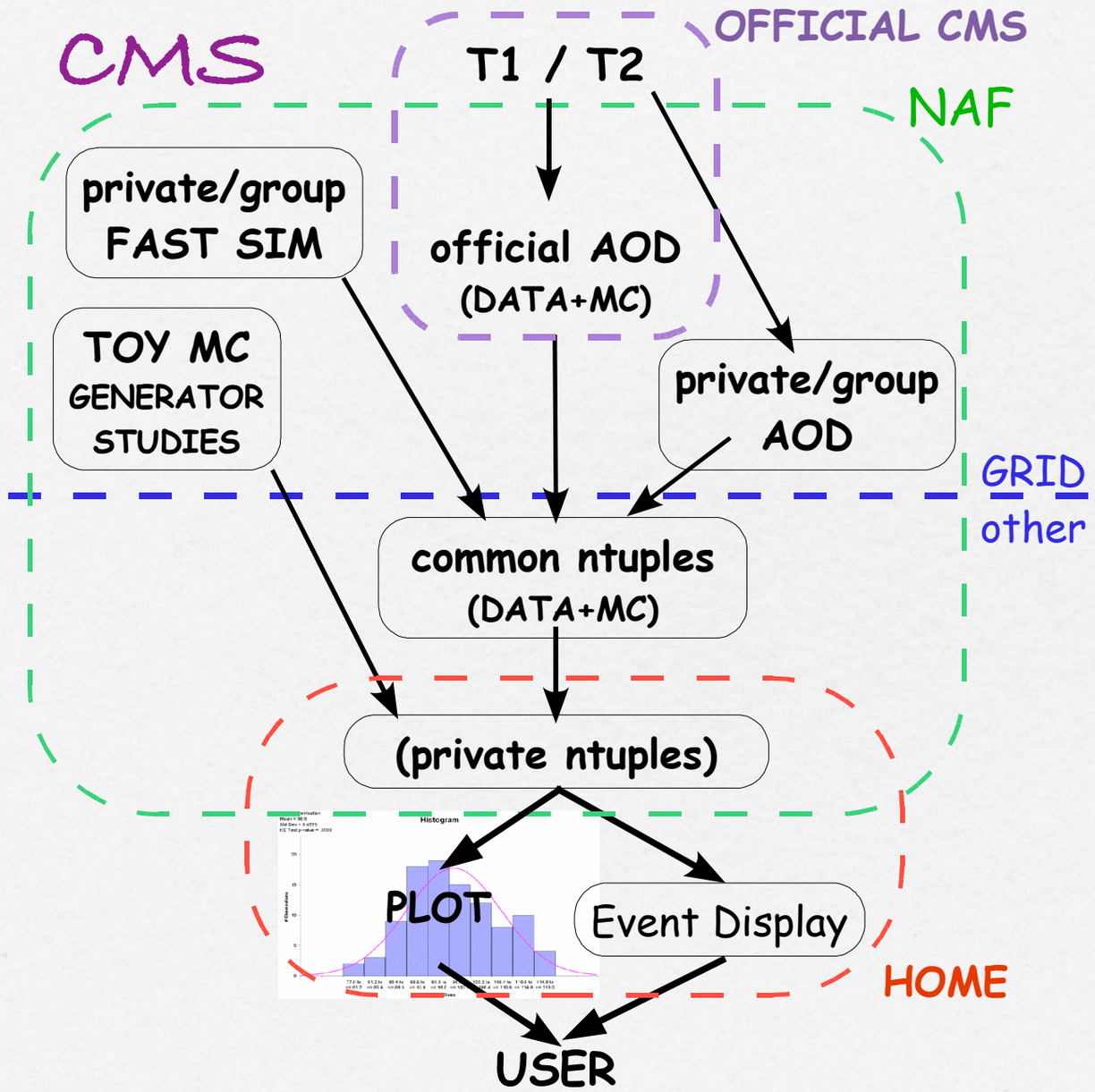
- Compementary to Tiers; overlapping + inter-operational
- Located at DESY, homogeneous integration of German T2/(T3, ..) sites later, if useful/desired
- ATLAS, CMS, (… ILC + LHCb + other exp. later !? …)
- Functionalities: direct login, (AFS) home dir., scratch + group storage, easy access to (fraction of) exp., group + private data, semi-/private MC, batch capacities
- Major focus: fast response parallel interactive user analysis (ntuples/rootTrees / e.g. Proof cluster)

ATLAS + CMS sent requirement documents; now under DESY review; N.A.F. prototype under construction

ATLAS



CMS



… … Network + IT friedliness

- High performant VPNs for the German Tiers, 10Gb/s (T1,T2), (1G/s (T3))
- Homogeneous German HEP (virtual) IT: redundancy of GRID services, remote tape access, (GRID-based) common user administration, accounting/billing, monitoring, technical + user support, coordinated procurements, common tools

... ... GRID-based Mass Storage System

-  (DESY+Fermilab) strongly supported as GRID HSM system
- Further dCache software development
- Evaluation of inter-site dCache operation (remote tape access for T2 + T3 sites)
- Central support for dCache installation and operation at smaller sites

WP2 - Grid Tools/Optimization

- Virtualization of resources: for smaller sites several server tasks on same node; independence of underlying OS (utilization of non-HEP sites), Xen etc.
- Application driven monitoring: for homogeneous real-time information on system, software, ... status, error identification, trends
- Improved data access management: local vs. regional data distribution, disk vs. tape, data transport + replication, correctness of data

WP3 - Training, Workshops, Schools

- On user level, make all LHC scientists become familar with GRID technologies
- On administrator level, provide help for full GRID integration of university computer clusters (T3)
- Dedicated sessions during e.g. GridKa school, regional on-site training courses

Status of the Project

- First substantial Tier2 hardware (common) procurements in progress, operational in Jan 2008
- Shaping of the job descriptions in progress, FTE positions annouced and some already filled
- Evaluation of N.A.F. concept + exp. requirements and setup of a prototyp well under way (B. Lewendel's talk)
- Coherent + for German HEP (+ ..?) community very benefical project, complementary and inter-operational with other HEP IT projects/funding (BMBF, D-Grid, ...)