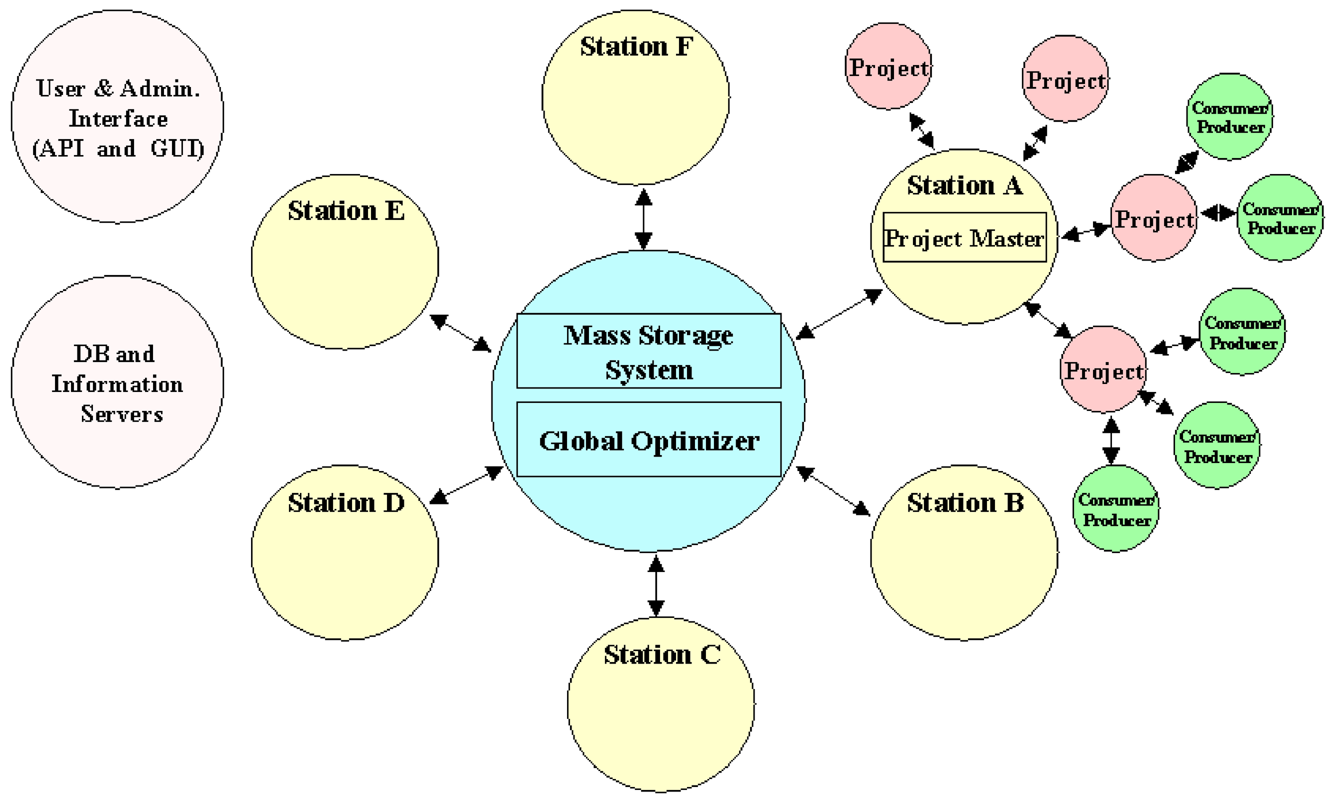
Experiences with operating SamGrid at the GermanGrid centre GridKa for CDF

Institut für Experimentelle Kernphysik, University of Karlsruhe
U. Kerzel (kerzel@fnal.gov), Th. Kuhr (tkuhr@fnal.gov)

FermiGrid: SAM
Sequential Access via Metadata

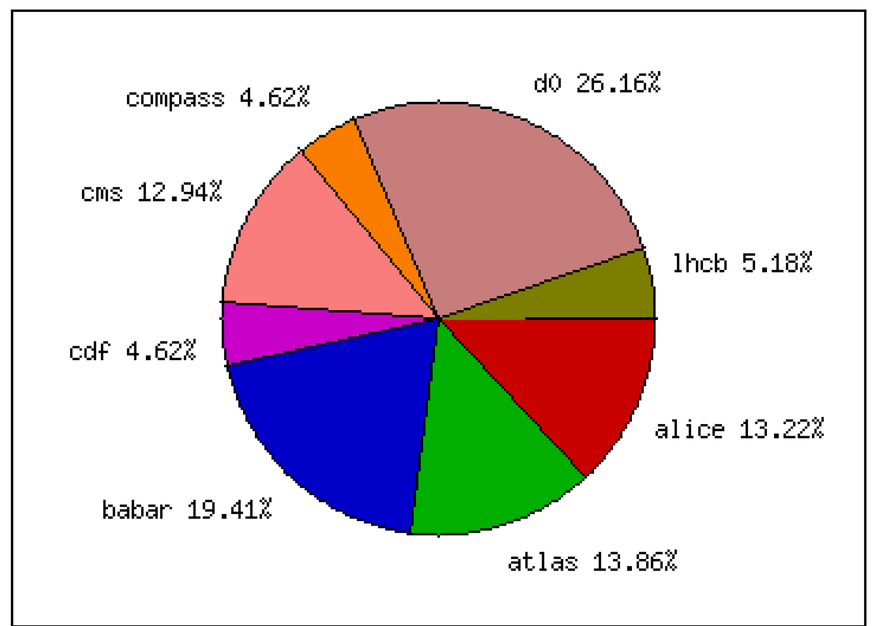
- one SAM station per Grid centre,
- information (file location, project status, etc.) exchanged via central database
- stations handle:
  - user interaction
  - mass storage (disk cache, tape storage)
  - file import / export / delivery to analysis program
- file exchange via GridFTP
- only one dedicated machine needed per cluster
- user starts one project per tasks
- dataset defined via metadata ⇒ automatic bookkeeping
- reliable and failsafe performance
- assists user when re-running failed jobs



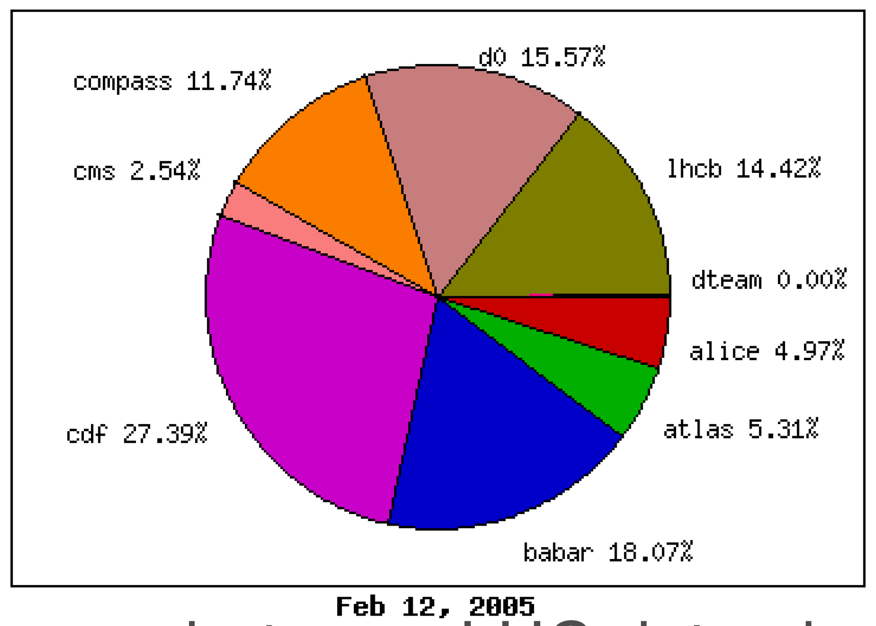
GermanGrid Tier1 centre GridKa (Karlsruhe)

- serves 8 HEP experiments (CDF, D0, LHC, BaBar, Compass)
- one dedicated head-node per experiment,
- workernodes and storage cluster shared between experiments

⇒ optimally use of available computing power,
e.g. Tevatron can use idle nodes between LHC data-challenges



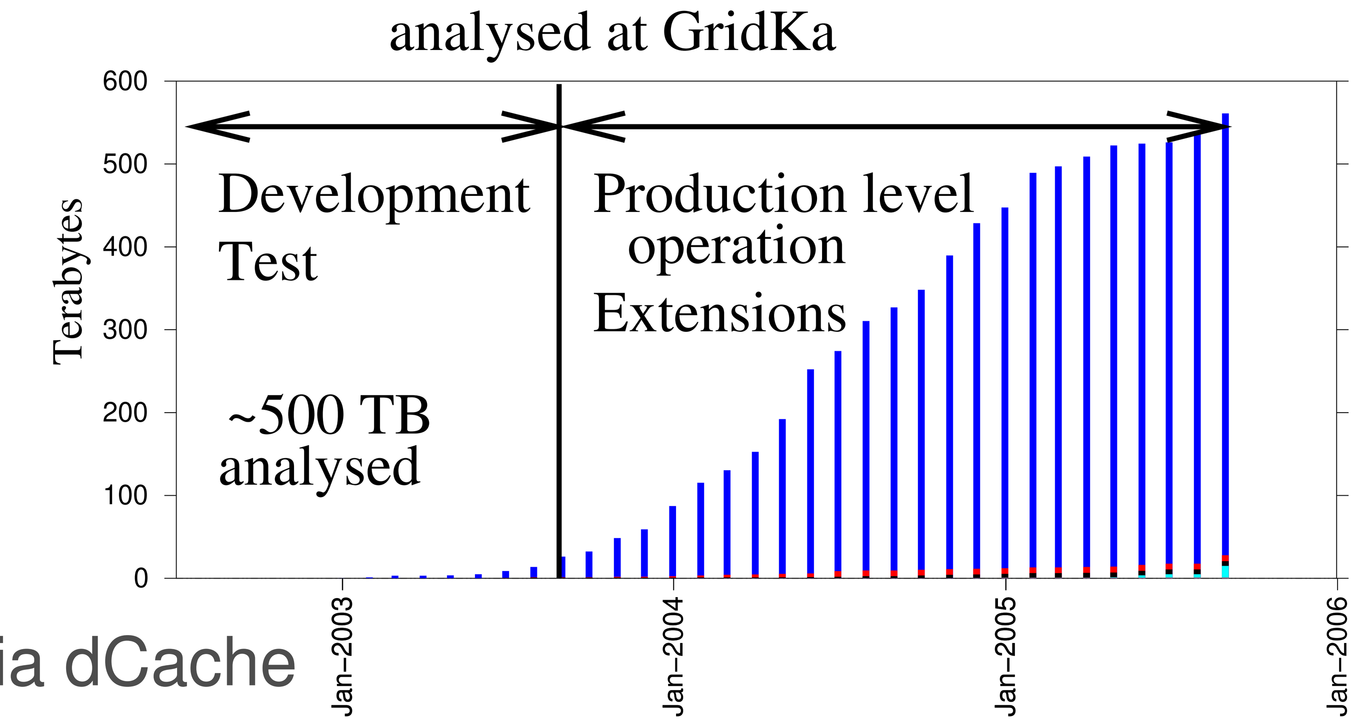
nominal share



actual usage between LHC data-challenges

GridKa for CDF

- 40 TB disk, 60 TB tape storage
  ⇒ build replica of all datasets relevant for B and top physics
- first off-site CDF cluster outside Fermilab to allow extensive data analysis



- tape storage integrated in SAM via dCache
  - all imported files available from tape, frequently used files on disk-cache
    ⇒ automatically managed by SAM
  - users can store ntuples, skimmed data, simulation via SAM
    * immediately available to whole collaboration
    * book-keeping done by SAM

User interaction

⇒ users in general not interested in Grid development/deployment
⇒ Grid technologies have to be flexible to be integrated in user's code not vice versa.

Multiple interfaces:

- CDF analysis framework AC++
- Python, shell script
- C++
- ROOT

Complete author list
M. Feindt, Th. Müller, U. Kerzel, Th. Kuhr, G. Quast (University of Karlsruhe),
A. Baranovski, L. Carpenter, S. Veseli (Fermi National Laboratory),
R. StDenis (University of Glasgow),
St. Stonjek (University of Oxford),

Acknowledgements
This work was supported by the German Federal Ministry for Science and Education (BMBF)