Comments On LHCb

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SARA/Nikhef T1 simple math

- FZK : LHCb -> 10%
- SARA/Nikhef : LHCb -> 23%
  - (Harry Renshall table)

- Simple math: SARA/Nikhef = 2.3 * FZ

- LHCb_BUFFER   37TB (LHCb_RAW?)
- LHCb_M-DST   32TB
- LHCb_DST   200TB
- LHCb_MC_M-DST   58TB
- LHCb_MC_DST   58TB
- LHCb_USER   35TB

- Correspond Space token descriptions to a directory structure

- 2 seperate institutes but 1 T1 site
- 2 network domains (2 GE links between SARA and Nikhef, to be upgraded to a 10GE link)
- OPN links @SARA
- 1 SE with tape backend (dCache/DMF) at SARA (srm.grid.sara.nl, WAN)
- 2 SE for disk-only data
  - SARA: srm.grid.sara.nl (dCache, WAN)
  - Nikhef: tbn18.nikhef.nl (DPM, WAN/LAN), close to compute cluster
- T1 Compute cluster at Nikhef and SARA

Pool and tape set implementation

- Separate pools voor 'VO's and for disk-only and tape data
  - Pool groups with multiple pools across multiple storage servers
  - Storage servers are not dedicated but shared between different pools
- Separate pools or tape sets for different Space token descriptions?
  - LHCb_RAW and LHCb_RDST buffer pool for cached data, may share tape sets
    - How is data staged?
  - (M-)DST and MC_(M-)DST may share disk pools, share tape sets?

LHCb Space Tokens, Storage Classes and location

- LHCb_RAW   T1D0   @SARA
- LHCb_RDST   T1D0   @SARA
- LHCb_M-DST   T1D1   @SARA
- LHCb_DST   T0D1   @?
- LHCb_MC_M-DST   T1D1   @SARA
- LHCb_MC_DST   T0D1   @?
- LHCb_USER   T1D1!?!   @SARA

- M-DST and DST at different SE's?

LHCb Data Access Patterns

- **LHCb_RAW: Re-reconstruction:**
  - Files are staged
  - In what order? minimal tape mounts!
  - Experiments do not know which file on what tape
  - Files of 1 job should be on 1 tape!
  - Can T1 sites help?
- **LHCb_RDST**
  - Estimated pin time?
- **Most data with chaotic access patterns are T?D1**

- For along time no LHCb test jobs running at Nikhef using srm.grid.sara.nl@SARA
  - Problem was network setup of the compute cluster @Nikhef, no inbound traffic allowed
  - Solved by passive dcap (dCache 1.7.x)
- Two disk-only SE's at 2 locations
  - Can LHCb software handle this
  - Location of data versus Space token descriptions
- Extending OPN via SARA to Nikhef
- Storage accounting
  - VO, Space token description, User level?