

Evolution of T I Storage



Amsterdam Workshop

- ▶ Last June at the Amsterdam Workshop we discussed the cleaner separation of disk and tape
 - ▶ Motivation was the
 - ▶ Significant disk caches available to LHC Experiments
 - ▶ Concept that files from another site on disk might be closer than a file staged from tape
 - ▶ The idea that tape solution providers see their solutions as archival solutions and HEP sees them as hierarchical mass storage

Further motivation

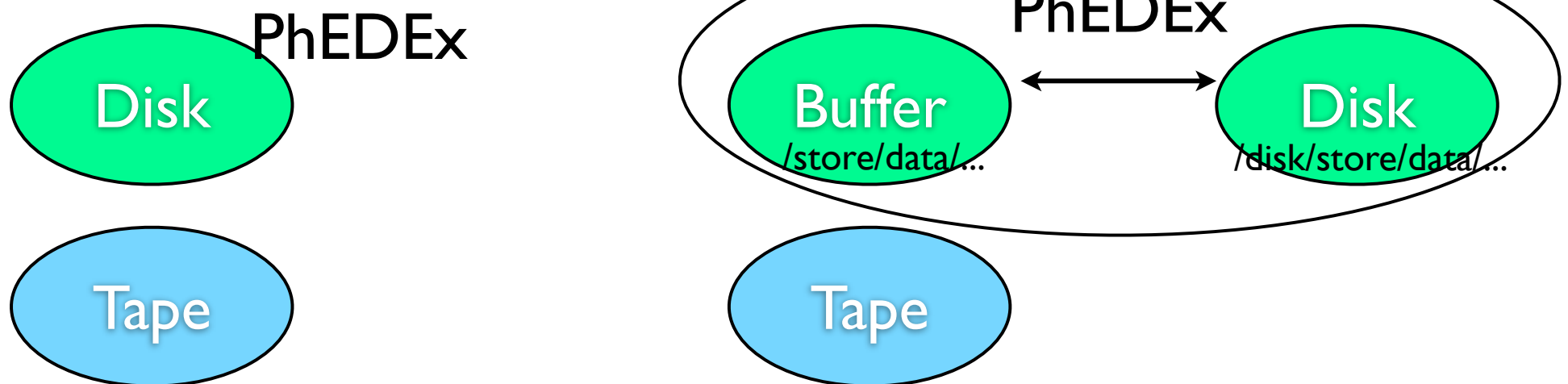
- ▶ In addition to the issues proposed in Amsterdam CMS has a few operational use cases gleaned from more than a year of running
 - ▶ Data Operations would like to delay writing of files to tape until workflows are validated, and to allow processing at a different site than files will eventually be written to tape
 - ▶ CMS would like to enable limited access to Tier-I centers for analysis access
 - ▶ Means we need to ensure files are actually on disk to avoid random users triggering massive staging and interfering with production
 - ▶ Both of these are disk management issues

Activities

- ▶ CERN transition to EOS is an example of this change
 - ▶ Files on EOS this are controlled by the experiment
 - ▶ From our standpoint EOS is a separate end point and the fact it's close to Castor is convenient, but not required
 - ▶ We believe we can achieve a logical separation of disk and tape without a separate disk only solution
 - ▶ Though the logical separation work would facilitate a physical separation if sites wanted

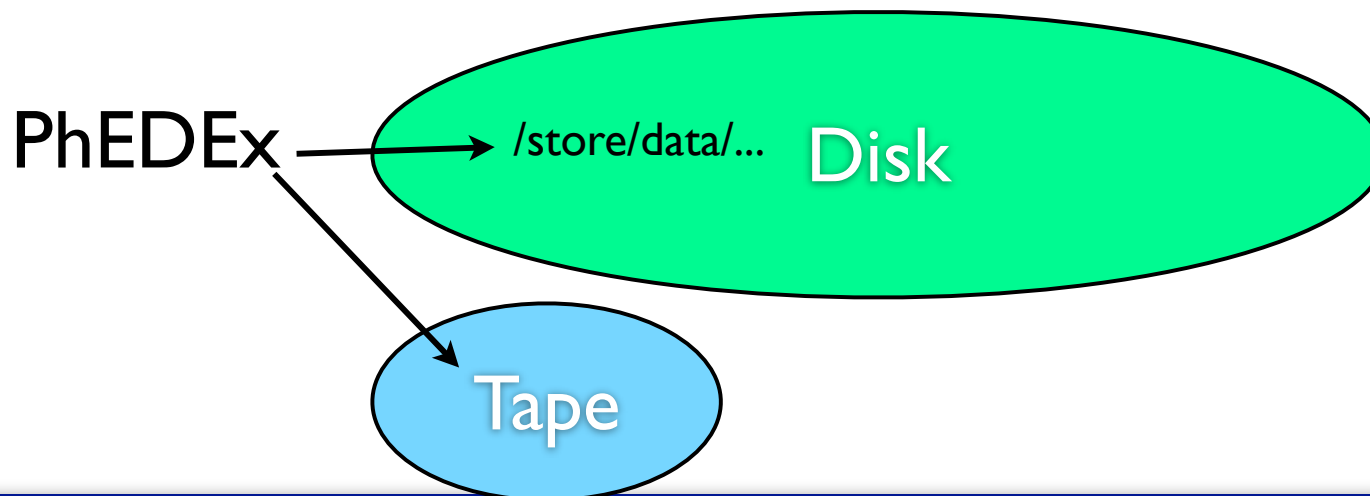
Prototype

- ▶ Between now and October we would like to demonstrate better disk management with the logical separation prototype
- ▶ We have Castor and dCache sites volunteering to demonstrate functionality at RAL, FNAL, and PIC
- ▶ In prototype pinning, writing to tape and staging from disk are PhEDEx operations
- ▶ WAN transfers could come from either depending on where the data is located



Prototype2

- ▶ FNAL will demonstrate similar functionality but by triggering the tape migration when data is subscribed rather than data is created



Goals

- ▶ Achievement of new functionality
- ▶ Operations load on sites and operations
- ▶ Functionality of PhEDEx to manage disk
- ▶ Improvements in user analysis

Longer Term

- ▶ Logical Separation of disk and tape is an intermediate investigation
 - ▶ Once the functionality is demonstrated some sites may want to physically separate archival and disk functionality
 - ▶ Disk and Tape can be close, but don't have to be

