

CASTOR to CTA Migration

Michael Davis

What will be migrated?

- Migration is **metadata only**
 - Number of files matters
 - Size of files is irrelevant
- CASTOR Catalogue → CTA Catalogue
- CASTOR Namespace → EOS Namespace

What will not be migrated?

- Files with no tape copy
 - zero-length files
 - deleted files
- (some) Permissions and Access Control
 - CASTOR Access Control Lists
 - POSIX `S_UID`, `S_GID`, `S_VTX` (sticky) bits
- Symbolic links

Partitioning the namespace

- CASTOR has a single instance
- CTA will partition the namespace into five instances
 - One for each LHC experiment and one for PUBLIC

Directories

- /castor/cern.ch/grid/lhcb 11m files
- /castor/cern.ch/lhcb 1.5m files
- /castor/cern.ch/user 8.5m files

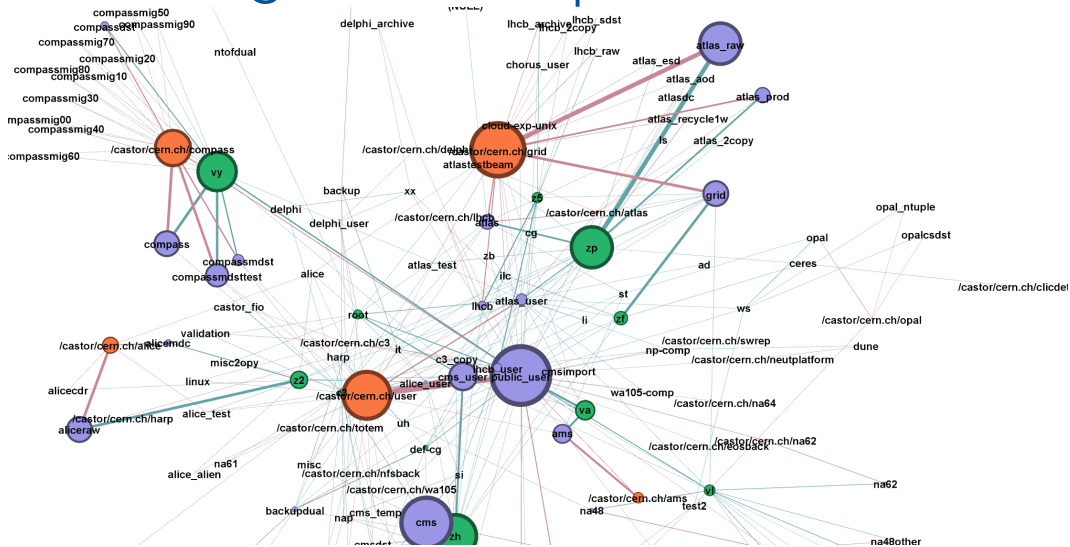
Groups

- Group z5 20m files (Other groups 0.6m files)

File classes (Tape families)

- lhcb 22m files
- lhcb_raw 2m files
- lhcb_user 8.5m files
- lhcb_arch, lhcb_arch_1, lhcb_arch_2, lhcb_dst <3m files

Partitioning the namespace



Partitioning the namespace

- The atomic unit for migration is the file class
- Analysis needed to determine how experiment and user files should be partitioned

Migration Process

- Select tape pool(s) to be migrated
- Disable the tapes in CASTOR
 - Subsequent metadata operations (delete, rename) are prohibited by mutual agreement
- Copy metadata to intermediate table
- Populate CTA catalogue
- Populate EOS namespace (\approx 6 million files per hour)
- Enable tapes in CTA

Disaster Recovery

- CTA is prohibited from writing to tapes imported from CASTOR
- To return a tape to CASTOR, disable the tape in the CTA catalogue and re-enable the tape in CASTOR

Migration Milestones

Preparation

- Agree data management workflows for Run-3
- Analysis of namespace for any problems/corner cases
- Agree how files will be partitioned between EOSCTA LHCb/PUBLIC_USER
- Migrate metadata to test instance (do not disable tapes in CASTOR)

Testing

- Test recall of migrated CASTOR files in CTA
- Test archival/recall of new files in CTA
- Data challenges

Live Migration

- Prepare hardware
- Agree date



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