

AMBER-CTA meeting

13 Dec 2022

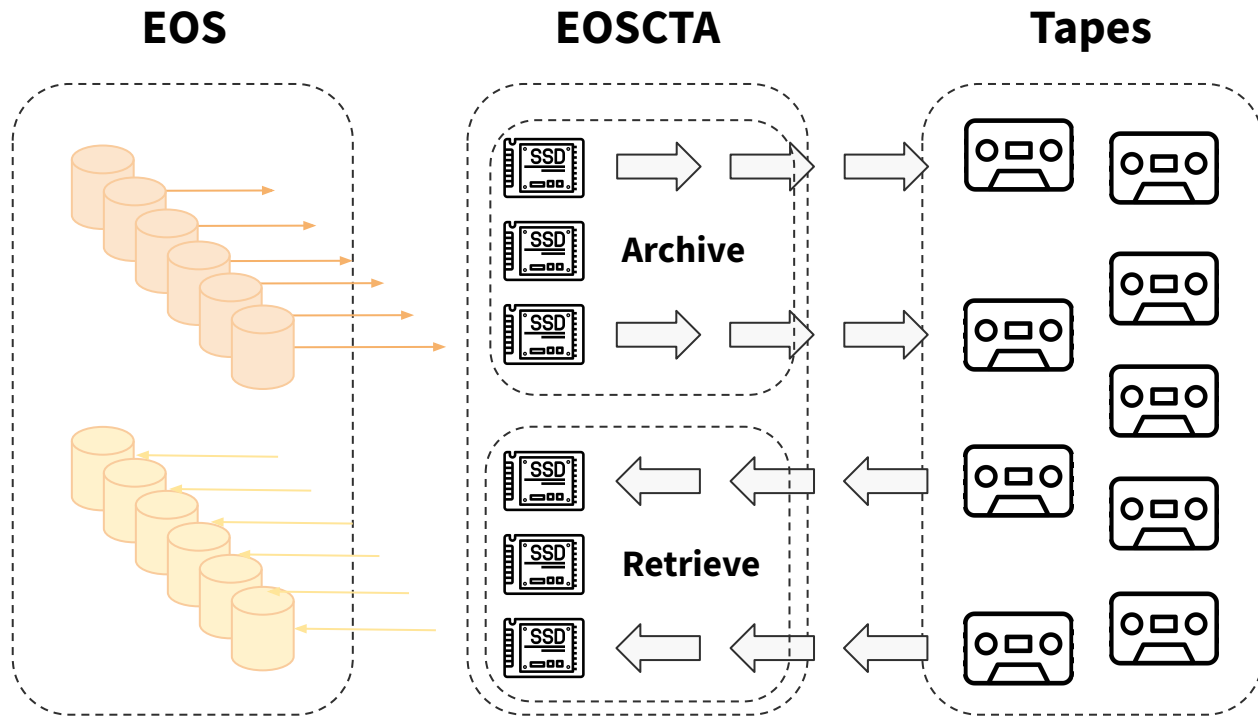
The Archival Storage Solution from CERN IT Storage Group



Two configurations on EOSCTA instances:

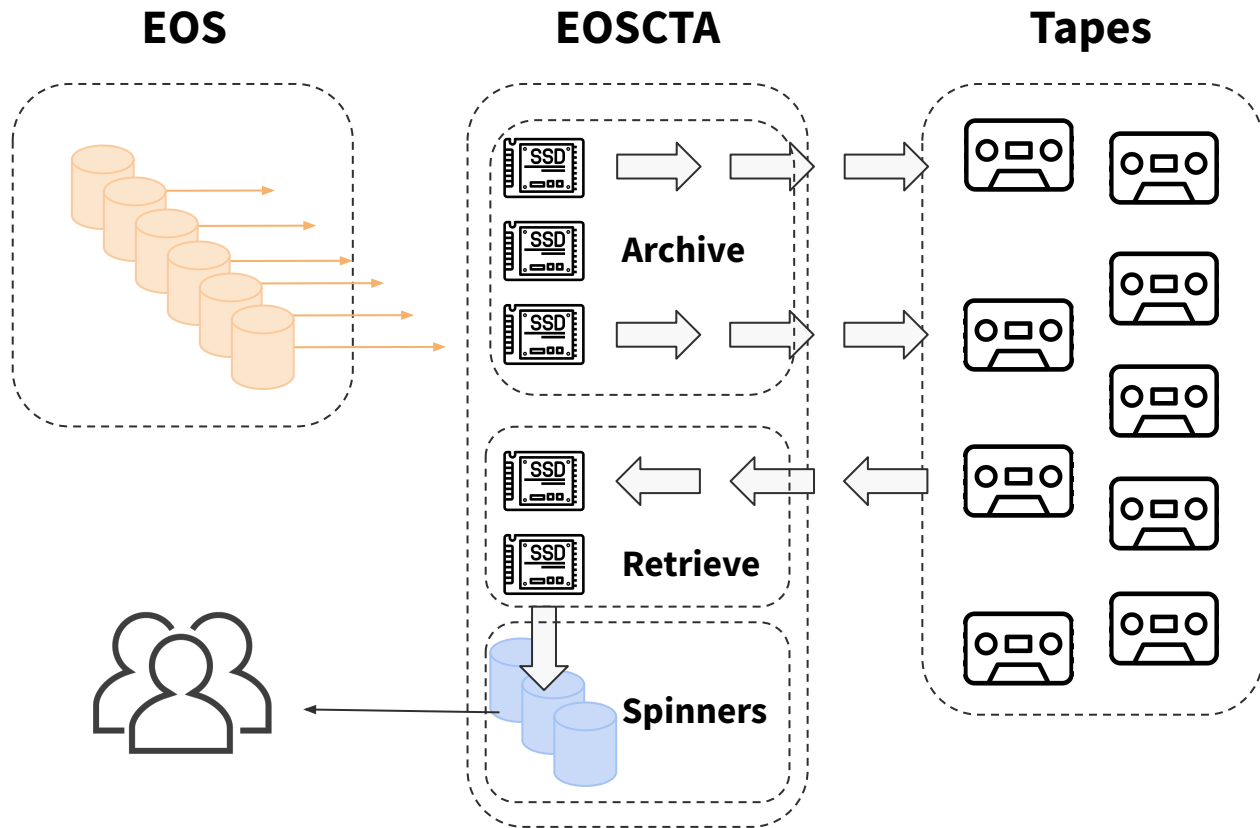
EOSCTAPUBLIC

- Tape buffer not available for physics jobs
- Files are deleted as soon as they are safely archived on tape
 - or copied on “Big EOS” for retrieves
- Efficiency first
 - cannot afford redundancy
- Early failure notification for retries

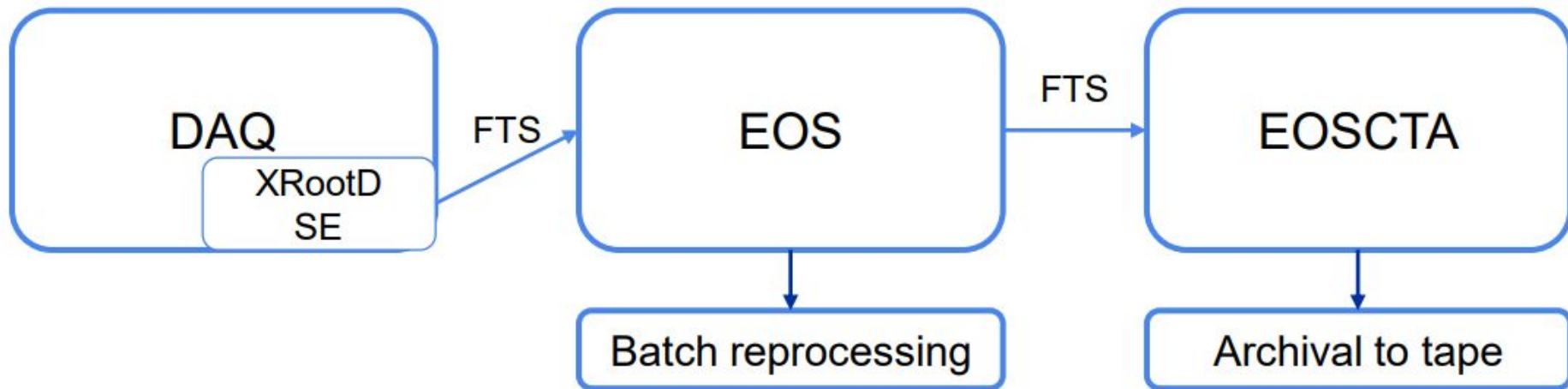


EOSCTAPUBLICDISK

- Physics jobs can be run on the spinners space
 - it is more efficient to copy to “Big EOS” and run analysis there
- Files are deleted by the garbage collector
 - LRU style



Best practices: NA62 example



FTS “**multi-hop**” transfer feature allows client to define several targets – the file is copied to the big disk storage (EOS), then from EOS to the tape instance (CTA) in one shot.

In case of copy errors FTS doesn’t resubmit the full chain – the last successful replica is taken for retry.

Requirements for the transfer managing software

- Check “file is on tape”: XRootD flag
 - xrootd copy status OK is not enough, disk buffer is prone to hardware failures
 - async poll for "on_tape": true
 - may take up to 24 hours
- Verify checksums
 - Adler32
- Retry in case of failure

- Wait for file to be staged
 - async poll for "online": true
 - open a ticket if it takes more than 7 days
- Eviction (for EOSCTAPUBLIC)

Some limitations

- Access to CTA is restricted to the LHCONE network
- Access to CTA is limited to experimental collaborations, there is no user area = no personal files
- The CTA service imposes a maximum file size of 120GB

Tape mount rules

500 GB or 2000
files or
4 hours

Number of
allocated drives

Spinners
bandwidth

Access to EOSCTA

EOSCTAPUBLIC

- Dedicated service accounts

EOSCTAPUBLICDISK

- Dedicated service accounts
- E-groups
- Linux groups
- VOMS-based DNs mapped to a service account

References

- **CERN Tape Archive Service Level Description**
https://cern.service-now.com/service-portal?id=kb_article&n=KB0007342
- **Archiving data in the CERN Tape Archive (CTA)**
https://cern.service-now.com/service-portal?id=kb_article&n=KB0007266
- **Retrieving data stored in the CERN Tape Archive (CTA)**
https://cern.service-now.com/service-portal?id=kb_article&n=KB0007167
- **Presentations** <https://cta.web.cern.ch/cta/pages/Presentations.html>

