

CTA QUESTIONS AND ANSWERS

1. What happens to the disk-only EOS instances in front of the EOS/CTA instance if CTA goes down.
 - Transfers between the experiments and the disk-only EOS instances in front of the EOS/CTA instance will not be effected and will continue as usual.
 - Transfers between the disk-only EOS instance and the EOS/CTA instance will fail.
2. How do we explain one CTA catalogue for all of the EOS instances?
 - Simple design.
 - Relies on a multi-node Oracle RAC so there is redundancy.
 - We are investigating splitting the CTA catalogue by experiment in order to facilitate operations procedures such as Catalogue upgrades.
3. Will we support rolling users back from CTA to CASTOR?
 - Once the metadata of a tape is in both systems, moving the tape from one system to the other is simply a case of changing the ownership of the tape from one system to the other. Please note that we will not allow the same tape to be written to by both systems.
4. Why is CTA using Oracle and not Postgresql?
 - CASTOR has empirically proven that Oracle will meet the performance, transaction and data security/integrity requirements of CTA.
 - When given the database requirements of the CTA catalogue, the IT database team recommended us to use Oracle.
 - Support for MySQL has just been developed and IHEP China plan to use it.
 - Support for Postgresql is planned to be developed in the coming month by David Smith.
5. Why is there a dependency on Ceph?
 - Ceph is the ideal vehicle for transient queue management.
 - Ceph removes the need to develop custom network protocols.
 - Ceph scales horizontally and provides service availability through data and hardware redundancy.
6. How will the lack of support for SRM affect the experiments?
 - This is experiment specific.
 - ATLAS and CMS will use FTS to hide the dropping of SRM.
 - LHCb will also use FTS and GFAL2 to hide the dropping of SRM, however we are waiting for LHCb to put EOS in front of CASTOR/CTA and we are waiting for LHCb to confirm that Dirac can be configured to use multi-hop FTS requests (XRootD prepare followed by GridFTP transfer).
 - Alice does not use FTS and will talk XRootD directly.

7. How does CTA handle the CASTOR concepts of file classes, tape pools and collocation?
 - In the same way as CASTOR.
 - File classes are now called storage classes.
8. How will the migration from CASTOR to CTA look like from the user perspective?
 - For all experiments the transition from CASTOR to CTA is implemented by copying only the metadata from CASTOR to EOS/CTA.
 - CTA uses the same tape format as CASTOR.
 - A given tape will only be written to by either CASTOR or CTA. It will never contain files from both systems.
 - The migration apparatus will be tailored to each experiment:
 - Alice and LHCb will use a redirector, reading existing tape files from CASTOR and writing new tape files to CTA.
 - LHCb needs to put EOS in front of CASTOR/CTA.
 - LHCb needs to confirm whether or not Dirac supports multi-hop transfers (XRootD prepare followed by GridFTP transfer).
 - If LHCb Dirac cannot support multi-hop transfers then FTS and/or GFAL2 will wrap and hide a solution.
 - ATLAS and CMS can easily tolerate CASTOR being shutdown for a moment. They therefore want to simply shutdown CASTOR, copy the metadata to CTA and then start using CTA.
 - Support to redirect XRootD prepare needs to be added to EOS (very minor modification).
 - GridFTP can be redirected if FTS multi hop transfers are used (XRootD prepare followed by GridFTP transfer).
9. Why is the Alice O2 model a problem for us?
 - Yes.
 - The reference architecture separates the concerns of random access from staging file to and from tape.
 - Unlike the reference architecture, the O2 model does not separate concerns and risks stopping Alice DAQ if CTA is not available.
10. Can / must we use SSD's?
 - We can use spinners as long as there are enough in a box to saturate the network links whilst fulfilling the full duplex workloads of tape storage.
 - Tape needs disk boxes with bandwidth and not with storage capacity.
11. Status of XROOTD standardisation for the tape residency "bit" - should we include dCache?
 - We plan to contact the WLCG Archival Storage Group,
<https://twiki.cern.ch/twiki/bin/view/HEPTape/WebHome>
12. Is EOS a suitable vehicle considering recent instabilities?
 - The IT-ST group is dedicated to making EOS a success.

13. How many people have been working on this project and for how long?
- 2 core developers over 3 years. New core developer standard last. Core developers also help keep the tape part of CASTOR up and running.
14. The CERN LTO tape file access order improvement to CTA, when will it be made available?
- IBM have confirmed that CERN's technical solution is correct.
 - Functionality will be in production end of 2019.
15. What are the benefits of the IHEP China collaboration?
- External developer working with (implicitly reviewing) the CTA code.
 - Support for MySQL.
16. Will the EOS/CTA disk servers be visible on the WAN and if so what is the impact?
- Yes, they will be visible on the WAN.
 - WAN connectivity will be used to allow tier-1s to retrieve data from and write data to CERN tape
 - No impact as the expected traffic is relatively small and well controlled.
17. When will CASTOR be switched to read-only?
- This is experiment specific.
 - IT-ST group optimistically would like to make CASTOR read-only by the end of 2019.
 - CASTOR must be made read-only by the end of LS2.
18. Could you run with CASTOR during Run 3 if CTA does not work?
- Yes with reduced efficiency.
19. Will the repack of the Oracle tape media during LS2 be carried out with CASTOR or CTA?
- CASTOR will be used to repack the Oracle tape media as soon as the heavy ion run is over.