

dCache and Tape @ DESY Zeuthen

Overview of our dCache installation



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Overview

About us

dCache Instances

Tape Libraries

dCache HSM configurations

DESY Zeuthen ...

- > is located near Berlin
- > is the smaller part of the two DESY research centers
 - small means: DESY-HH: 3000, DESY-ZN: 300, IT-ZN:30, ZN-IT knowing dCache: 3
- > is a international research center with focus on high-energy cosmic radiation, neutrino astronomy and advanced data analysis
- > is specializing in astroparticle physics and theoretical particle physics
- > is a Center for Quantum Technology and Applications (CQTA)
- > is something the most people do not know :(



Some key projects on our campus

- > Science Data Management Centre (SDMC), since 2024
 - serves as the central hub for processing and coordinating data for the CTAO
 - lead institute for the Medium-Sized Telescope (MST)
- > IceCube Neutrino Observatory - development and production of mDOM sensors (Multi-PMT Digital Optical Module)
- > ULTRASAT - developing and building the UV camera for the astronomical satellite
- > PITZ - Photo Injector Test Facility at DESY Zeuthen
 - a dedicated linear accelerator used to develop and optimize high-brightness electron sources
 - FLASHlab@PITZ - a multidisciplinary platform for research into advanced cancer radiation therapy and radiobiology
- > ...



dCache Instances

- > DiskOnly dCache - NAF DE-DESY-ATLAS-T2 (National Analysis Facility)
 - AlmaLinux 9, dCache Version 10.2.24, 5 PiB currently
- > PITZ dCache
 - AlmaLinux 9, Version 10.2.23, 150TiB, PITZ only
 - Tape/HSM: OSM and CTA
- > ACS dCache
 - AlmaLinux 9, Version 10.2.24, 4 PiB disk storage
 - Data: Alpha, CTAO, DESY, IceCube Tier1, IceRaw, QCDSF, Ultrasat, Veritas
 - Tape/HSM: OSM only, when PITZ migration is complete, we go on here
- > dCache Test Instances
 - AlmaLinux 9 VMs, Version 10.x and 11.x, Testing various things
 - Tape/HSM: OSM and CTA



Oracle/Sun StorageTek SL8500 - the old one

- > Slots: 4900 (4800 are used, mostly LTO6)
- > Drives: 1x LTO3, 2x LTO4, 6x LTO6 - each connected via dedicated OSM Mover
- > Database: 1x ACSLS, 1x OSMDB
- > Todo: 6 PiB data needs to be re-written to CTA

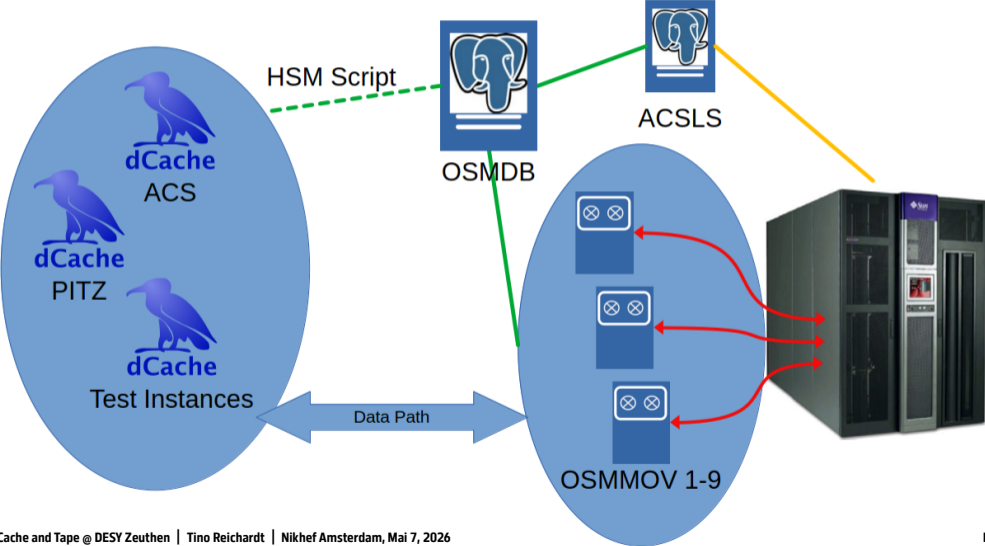


IBM TS-4500 - the new one

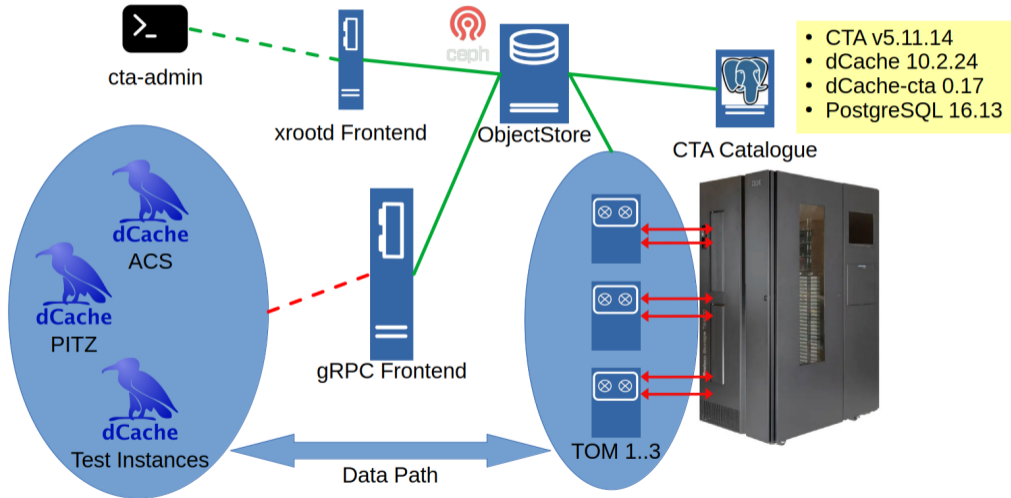
- > Frames: 1xL55 1xD55 2xS55
- > Slots: 3500 (around 63PiB via LTO9)
- > 6x LTO9 Drives for CTA/dCache, 1200 LTO9 Tapes
- > 2x LTO9 Drives for TSM - DESY Hamburg
- > Mover: 3x CTA Mover with two Drives per Server
- > Database Servers: 1x CTA Catalogue + 1x Backup
- > Ongoing Migration of PITZ data will start in may 2026
- > ACS data will follow then
- > Problem: dCache restarts will re-trigger Flushes, CTA flushes them to Tape but let them fail while writing to CTA catalogue (pnfsid is already there)



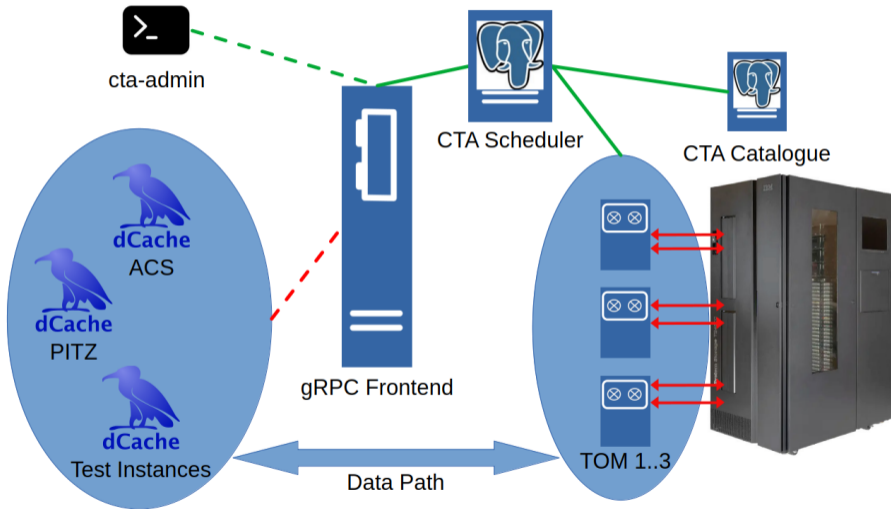
The Big Picture - OSM



The Big Picture - CTA 2026



The Big Picture - CTA 2027



Thank you!

Contact

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DV Zeuthen

