



CERN
Tape Archive

CTA Day at the 7th EOS Workshop

Welcome and Introduction

Dr. Michael Davis for the CTA Team

CERN, IT Department
Storage and Data Management Group
Tape Archive and Backups Section

Welcome to the 2nd Annual CTA Day!

- Thanks to the organisers of the EOS Workshop for hosting us
- Thanks to all contributors for a varied programme
 - Site reports
 - Technical presentations
 - Hands-on session
 - CTA Roadmap
 - Discussion

Who's Who on the CTA Team

Fons

Vlado

Michael

David

Richard

Julien

Lasse

Jorge



Joao



Vova



Pablo



Jaro



LHC Run-3 archival needs are $10\times$ Run-1

CERN Computer Newsletter (April/May 2006 issue¹, p.5):

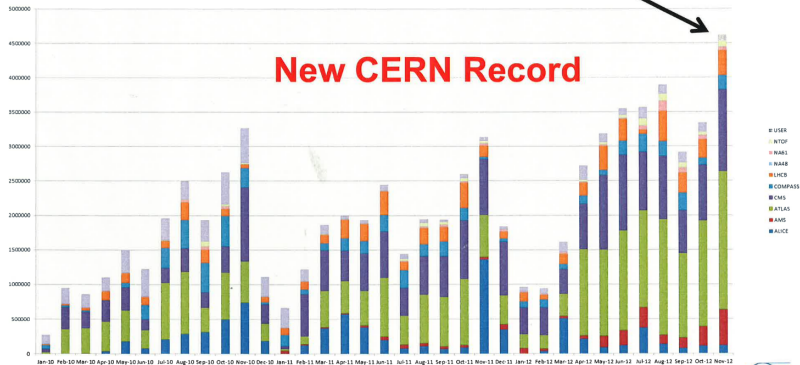
*The Large Hadron Collider (LHC) will begin operation in 2007 and is expected to produce **15 PB** of experimental data each year.*

¹<https://core.ac.uk/download/pdf/44175324.pdf>



4.61 Petabytes in November 2012

CASTOR data written, 01/01/2010 to 30/11/2012 (in GB)



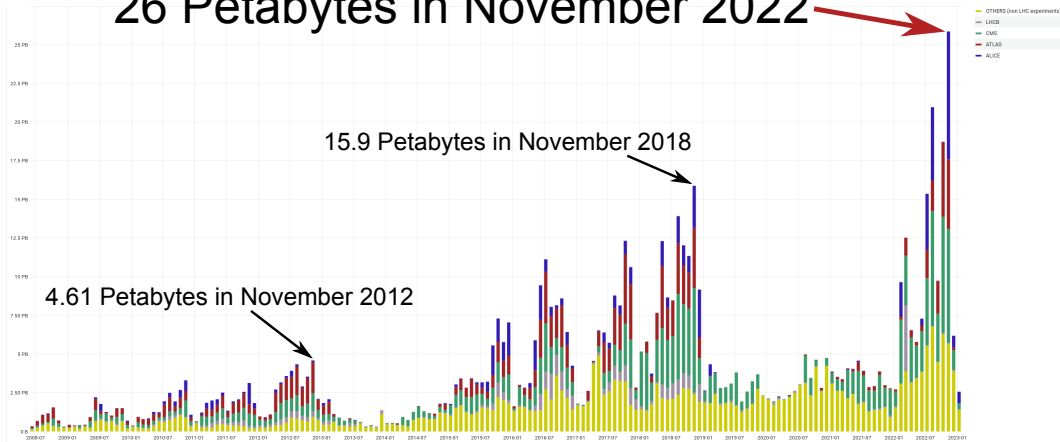
CERN IT Department
CH-1211 Genève 23
Switzerland



New CERN Record

Data archived to tape storage each month since 2008

26 Petabytes in November 2022



CTA Service : Highlights 2022/23

- Nominal performance/efficiency as designed
 - Archival at 10 GB/s per LHC experiment consistently reached
 - Archival of 26 PB in November exceeds anticipated data ingest rate
- HTTP REST API for “stage-and-transfer” operations
 - Deployed in production 1Q 2023
 - [How to enable EOS for tape](#)
- Improved retry logic and failure handling
 - [Handling failed requests](#)
- Improved monitoring
 - [Monitoring your EOSCTA deployment—the general recipe](#)

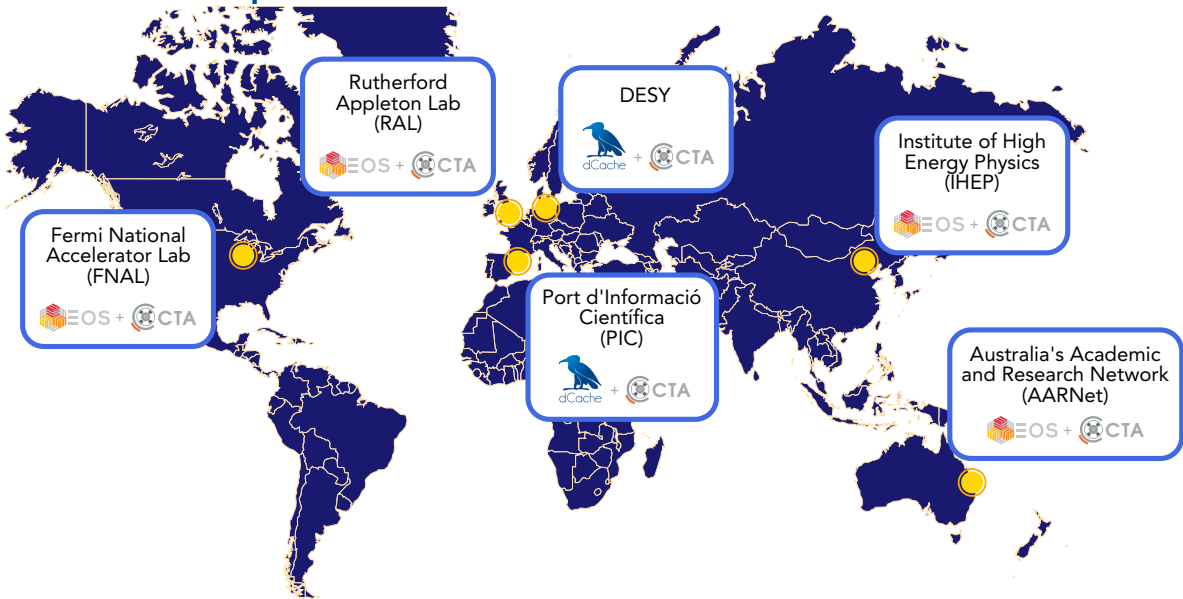
CTA Software : Highlights 2022/23

- Repack automation
 - [ATRESYS—Automated Tape REpacking System](#), a tool for managing CTA repacks and tape lifecycle
- Separating repack operations from normal operations
 - Work in Progress
 - New REPACKING states: [New CTA tape lifecycle](#)
- New tools for managing tape files in the EOS namespace
 - [Disk File Metadata for Tape Files—Migrating, Restoring, Replicating](#)

CTA Software : Build and Deployment

- Build system updated to GCC8 (C++17)
- Code and CI clean-up
 - Removed unnecessary dependencies (MySQL)
 - Updated system to XRootD 5, EOS 5
 - CI tests for different builds
- “Public” binary RPM release of CTA
 - CTA Public release v4.8.7-1/5.8.7-1 [Announcement](#) • [GitLab repo](#)
 - Public release of CTA operator tools [Announcement](#) • [GitLab repo](#)
 - [mhVTL : Mark Harvey's Virtual Tape Library](#)

Site Reports



CTA Community Features

- CTA Tape Formats
 - External tape readers:
Integration into CTA and OSM/Enstore cases
- CTA Frontend based on gRPC instead of XRootD SSI

Join us on the [CTA Community](#)



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