



CERN FTS site report

XRootD and FTS Workshop 2024 at STFC UK

Steven Murray on behalf of the CERN FTS team

September 2024

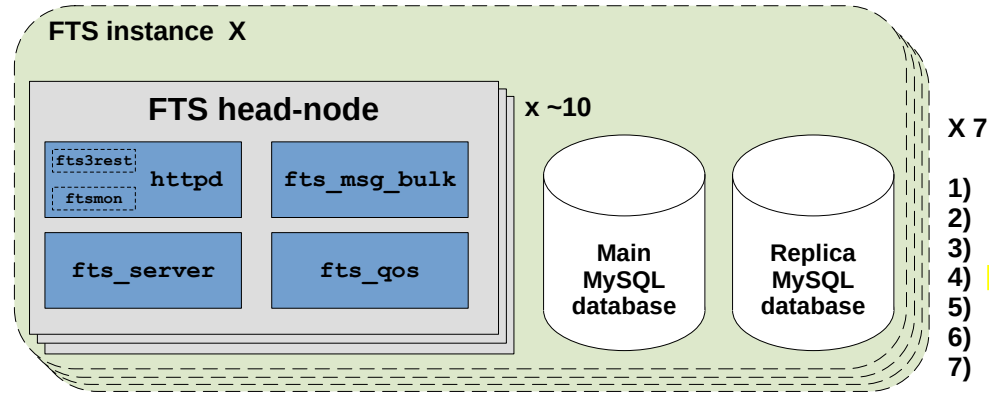
“Same” deployment architecture as 2023



- FTS watchdog**

 - Monitor/alarm all FTS instances
 - Close idle database connections
- FTS database backup**

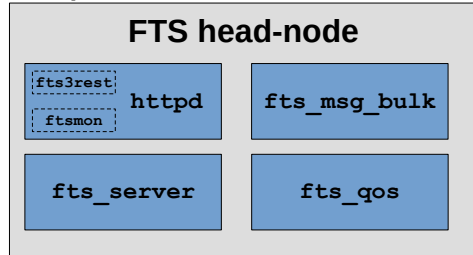
 - Back up important database tables
 - Defragment the main databases



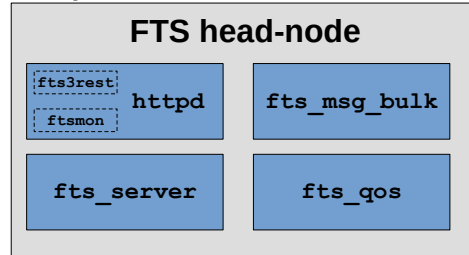
- x 7
- 1) FTS-ATLAS
 - 2) FTS-CMS
 - 3) FTS-DAQ
 - 4) **FTS-EGSI** ← ★
 - 5) FTS-LHCb
 - 6) FTS-Pilot
 - 7) FTS-Public

But – 2 bare metal machines at CERN Prévessin, France

fts-pdc-001.cern.ch



fts-pdc-002.cern.ch

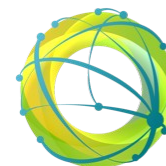


} Both machines belong to FTS-Pilot

Legend

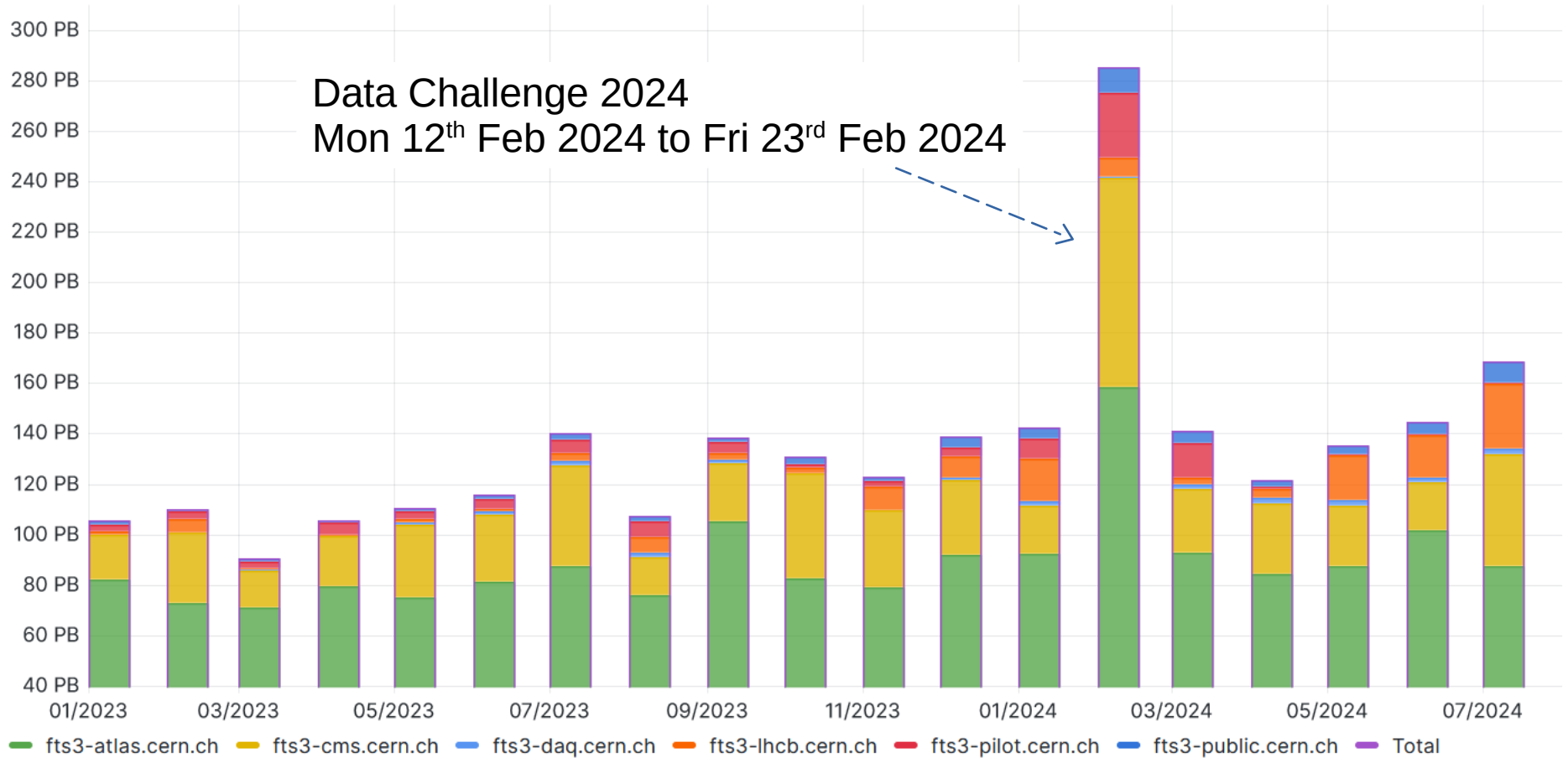


CERN production instances

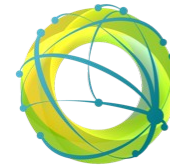


Instance	Virtual Machines (VMs) and Bare metal Machines (BMs)	InnoDB buffer pool	InnoDB online alter log	Changes since 2023
ATLAS	12 VMs x (16 CPUs 28 GiB RAM 160GB disk)	120 GiB	12.5 GiB	+2 VMs (20%) +40 GiB InnoDB buffer pool (50%)
CMS	10 VMs x (CPUs 28 GiB RAM 160GB disk)	40 GiB	12.5 GiB	
DAQ	5 x VMs (8 CPUs 14 GiB RAM 70G disk) 1 x VMs (16 CPUs 28 GiB RAM 160 GB disk)	4 GiB	12.5 GiB	+1 VM (20%)
EGI	5 x VMs (16 CPUs 28 GiB RAM 160 GB disk)	1 GiB	128 MiB	
LHCb	5 x VMs (16 CPUs 28 GiB RAM 160 GB disk)	12 GiB	12.5 GiB	+12.4 GiB InnoDB online alter log (9900%)
Pilot	3 x VMs (8 CPUs 14 GiB RAM 70GB disk) 7 x VMs (16 CPUs 28 GiB RAM 160 GB disk) 2 x BMs (48 CPUs 376 GiB RAM 3.4 TB disk)	40 GiB	1 GiB	+2 VMs + 2 BMs (naively assume 40%) +28 GiB InnoDB buffer pool (233%)
Public	3 x VMs (8 CPUs 14 GiB RAM 70 GB disk) 1 x VMs(8 CPUs 14 GiB 80 GB disk) 2 x VMs(16 CPUS 28 GiB RAM 160 GB disk)	4 GiB	1 GiB	+ 1 VM (20%)

Data volume transferred per month



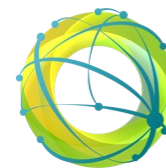
Public health and safety announcement



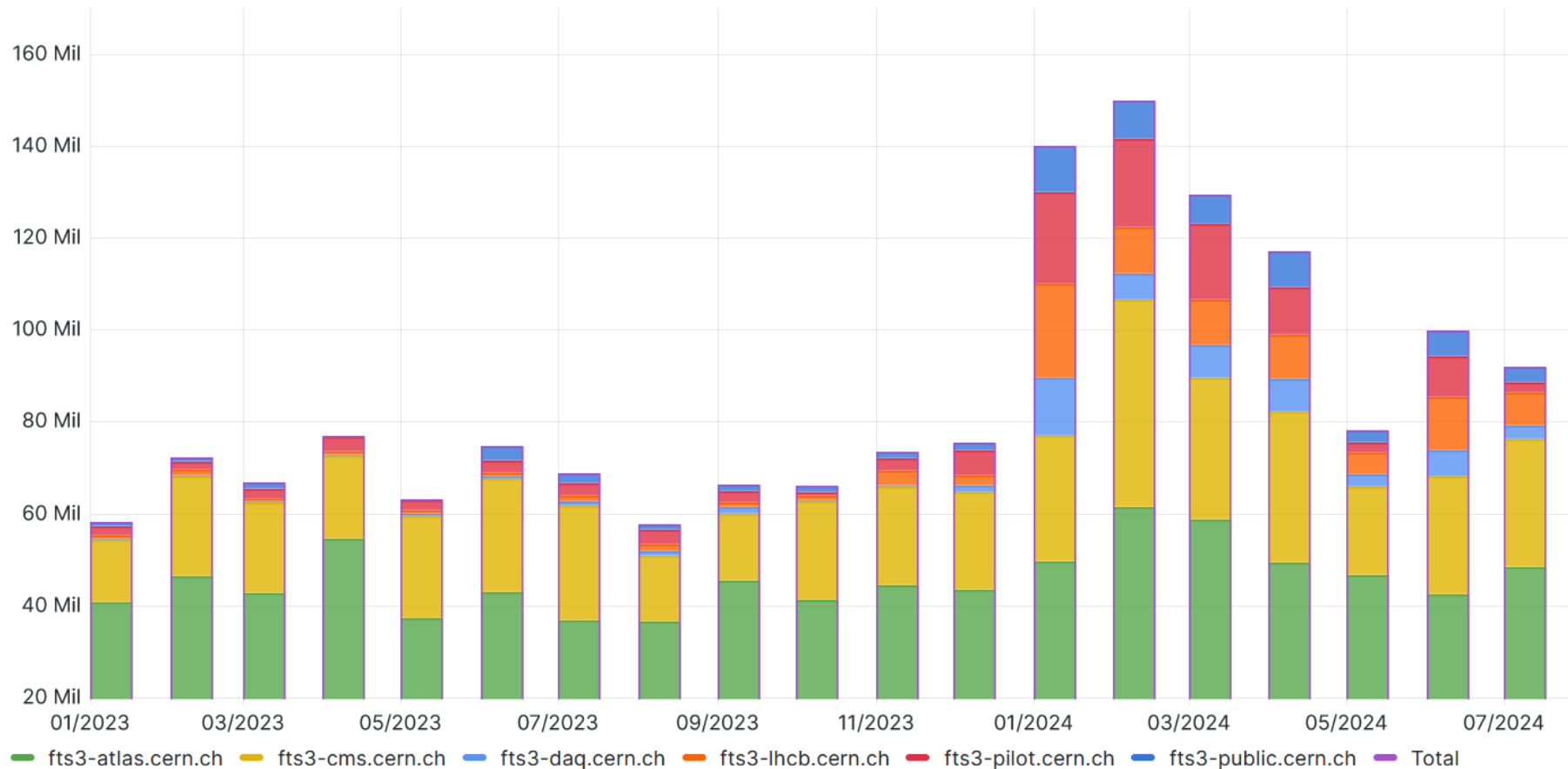
FTS
File Transfer Service

- **This presentation does not report on Data Challenge 2024**
- **If you are interested:**
 - **WLCG/DOMA DC24 Rétrospective Partie Deux - FTS DC24 Retrospective**
 - https://indico.cern.ch/event/1392406/contributions/5852755/attachments/2819291/4922745/fts_dc24_retrospective.pdf
 - **WLCG/DOMA Data Challenge 2024 - Final Report**
 - <https://zenodo.org/records/11401878>

File transfers per FTS instance per month



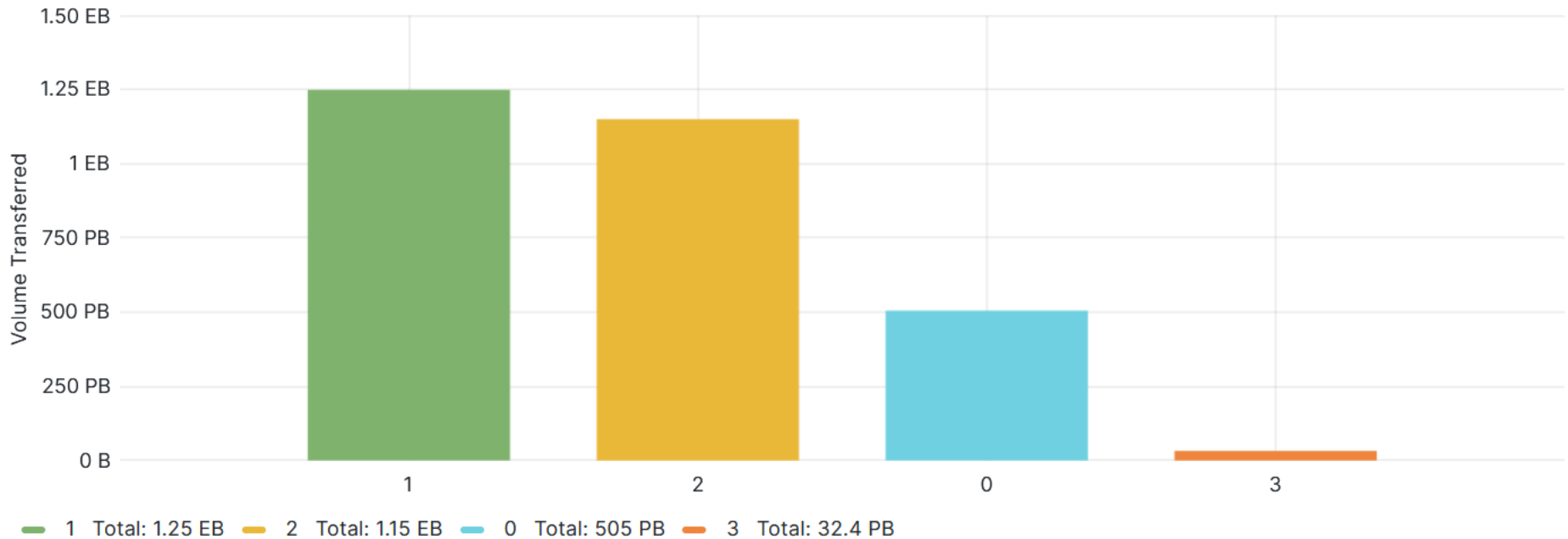
FTS
File Transfer Service



Transfer volume by Tier

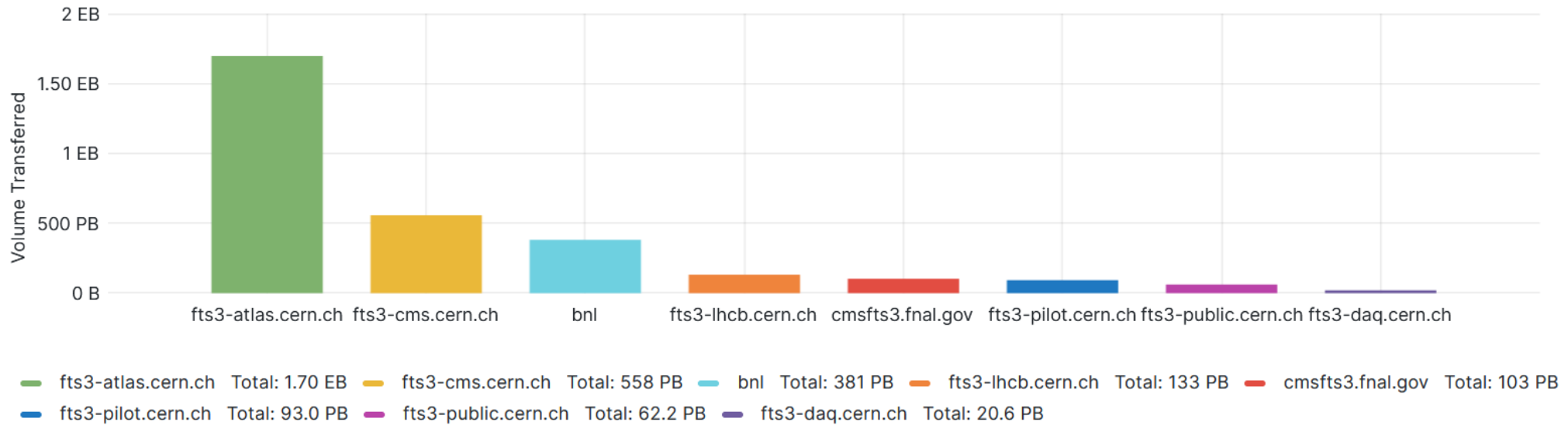
CERN plus non-CERN FTS instances

Total volume transferred per destination Tier from 1st Jan 23 to 31st Jul 24

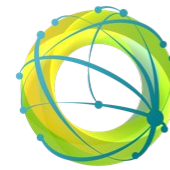


Comparison of WLCG instances

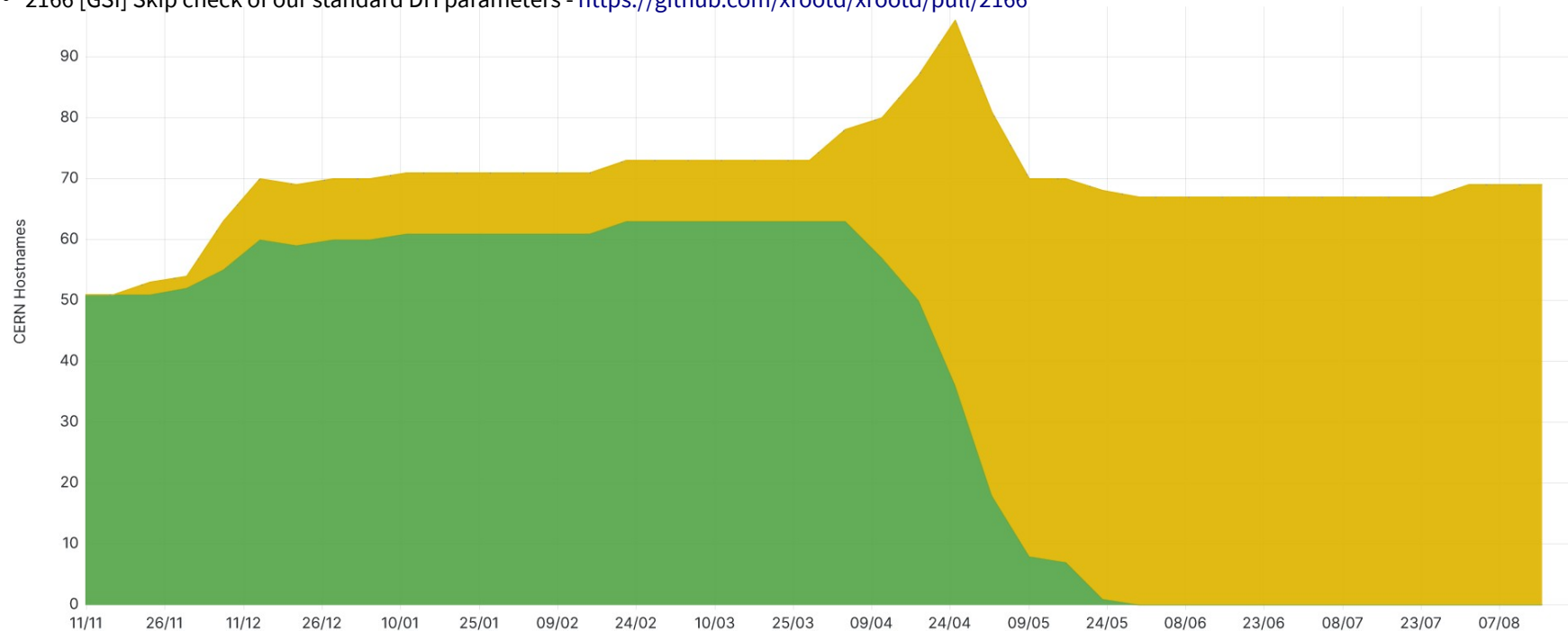
Top 8 of total volume transferred per WLCG instance from 1st Jan 23 to 31st Jul 24



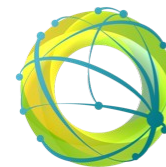
CC7 to Alma9 migration



- **CERN FTS instances were migrated to Alma9 between April and May 2023**
- **OpenSSL used more CPU – Solved by XrootD team**
 - 2162 Xrdcp high CPU consumption on AlmaLinux9 - <https://github.com/xrootd/xrootd/issues/2162>
 - 2166 [GSI] Skip check of our standard DH parameters - <https://github.com/xrootd/xrootd/pull/2166>

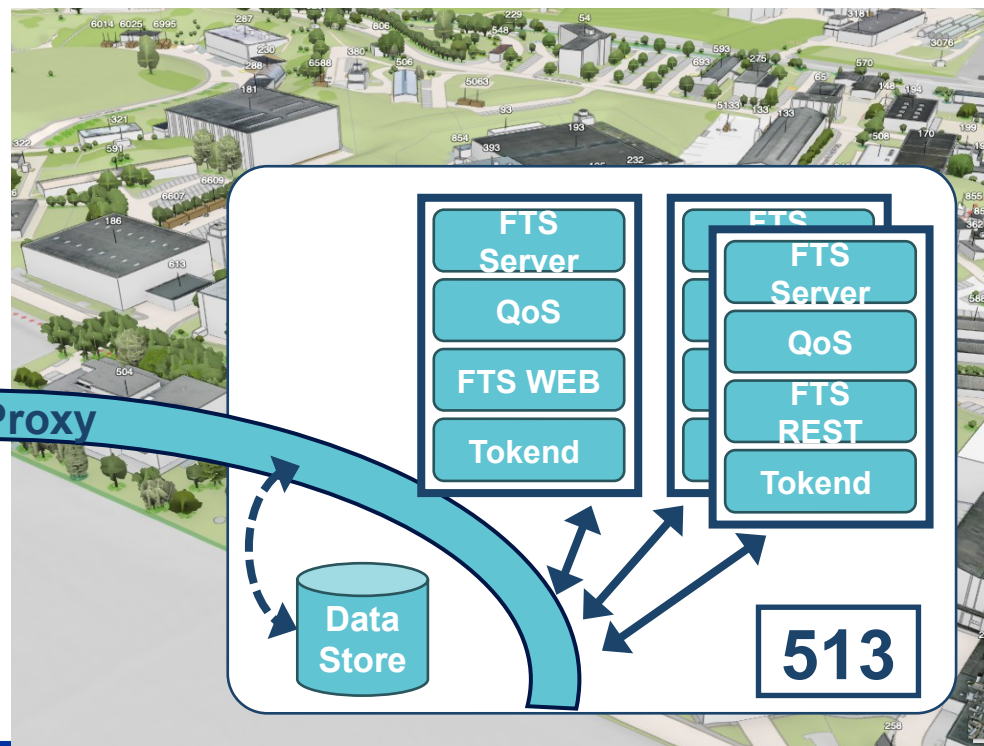
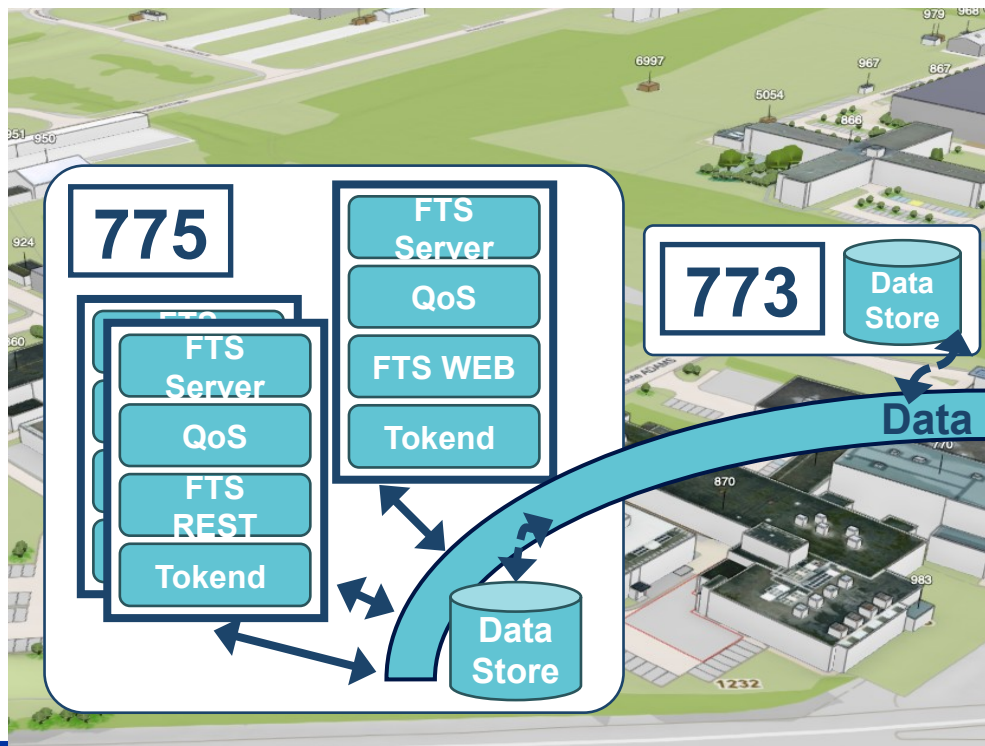


Business Continuity and Data Recover (BCDR)



FTS
File Transfer Service

- FTS is starting to use application servers on the Prévessin site (PDC building 755)
- Main DB already deployed in Meyrin (CCC building 513) and replica already in Prévessin (building 773)
- Future system might also use a “data store” on the Prévessin site (PDC building 755)



Other noteworthy events/issues



- **Deployment of FTS Public was frozen from 9th July to 4th Sept**
 - To protect ProtoDUNE data taking
 - Temporary FTS version avoids XrootD tape API when using `eosctapublic.cern.ch`
 - XRootD team will provide permanent solution in XRootD version 5.7.1
- **Changed MySQL password plugin type from `mysql_native_password` to `caching_sha2_password` in order to prepare for a future version of MySQL**
- **Deployed our first every FTS services on 2 bare metal machines**



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