CERNBox Update
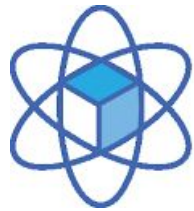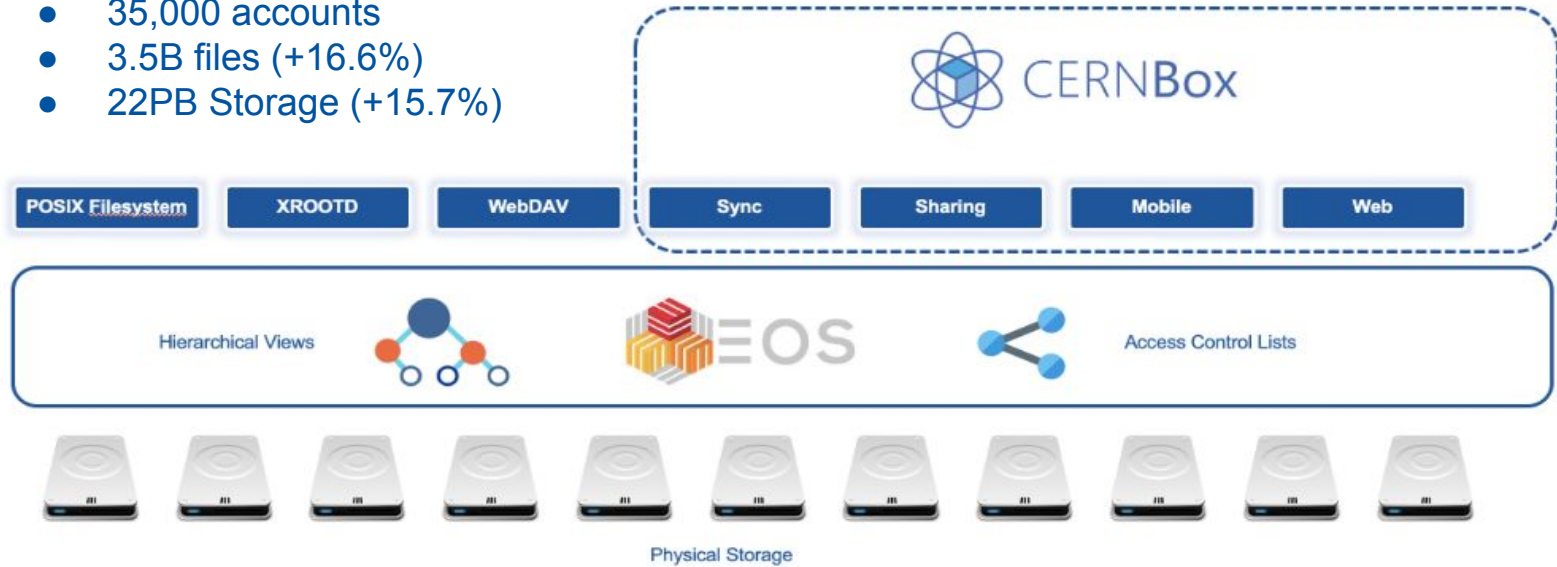

IT-SD-GSS, CERN

15 March 2024

CERNBox: EOS for Homes/Project/Media

- 35,000 accounts
- 3.5B files (+16.6%)
- 22PB Storage (+15.7%)

EOS (HPM) overview

EOS for	Instances	Diskservers	Capacity	Used for
Homes	5	56	11.5/18.8 PB	General purpose home directories
Projects	3	25	6.2/9.9 PB	Collaboration project spaces
Media	1	13	4.2/4.8 PB	Audio visual storage, websites, document repositories

Hardware per instance

MGM + QuarkDB (x3)
- CC7
- Intel Xeon, 32 cores
- 192-384GB RAM
- 2 x 2T SSD
- 10G network

FST (diskservers)
- CC7
- Intel Xeon/AMD Epyc, 20/32 cores
- 64/256GB RAM
- 48 x 6/20TB JBOD
- 10/100G network

CERNBox/EOSHPM Challenges & Objectives

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As (any) cloud storage solution:
- Data
  - Integrity
  - Durability
  - Security
- Performance
- Scalability

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Specific CERNBox/EOSHPM challenges:
consolidate different use cases &
different access methods

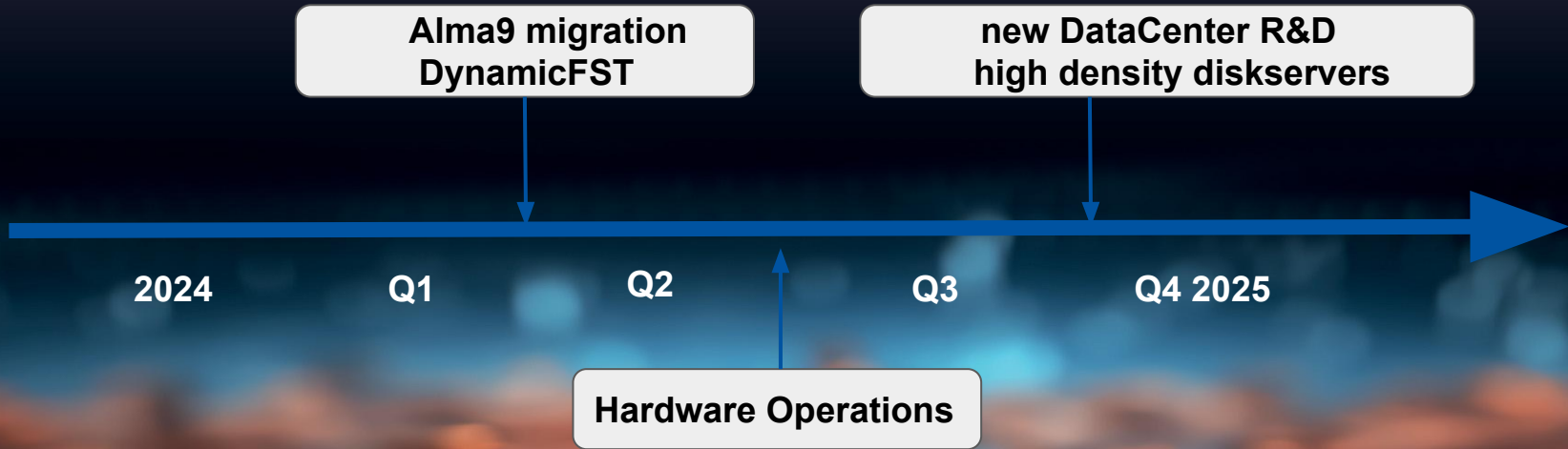| Administration | Physics | IT | Engineering |
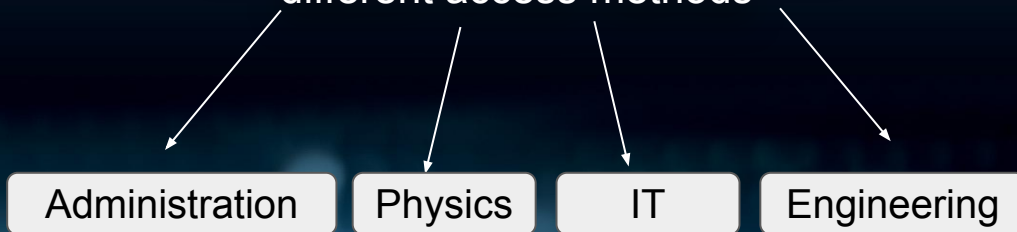
CERNBox/EOSHPM : Actions & Highlights (1/2)

- Upgrade to EOS5
  - (4.8 -> 5.1 -> 5.2)
  - levelDB -> x.attr migration
- XRDhttp replacing libmicrohttp
- FSCK fully enabled on all production instances
- DFS migration (Windows uses cases)
  - User directories -> EOSHOME
  - Projects -> EOSPROJECT + Ceph

CERNBox/EOSHPM : Actions & Highlights (2/2)

- Consolidation of cback (backup service)
    - Daily snapshots for CERNBox
    - Stored in Ceph buckets, outside of Meyrin datacenter
    - Based on Restic
- Security projects conclusion
    - File permission consistency
    - eos-sec-logs for malware/anomaly detection
- Consolidation of monitoring
    - EOS prometheus exporter + Thanos

CERNBox/EOSHPM : Roadmap

Alma9 migration
DynamicFST

new DataCenter R&D
high density diskservers

2024   Q1   Q2   Q3   Q4 2025

Hardware Operations

Thank you !
Any questions ?