



# CEPH DAYS Berlin

12./13. November 2025

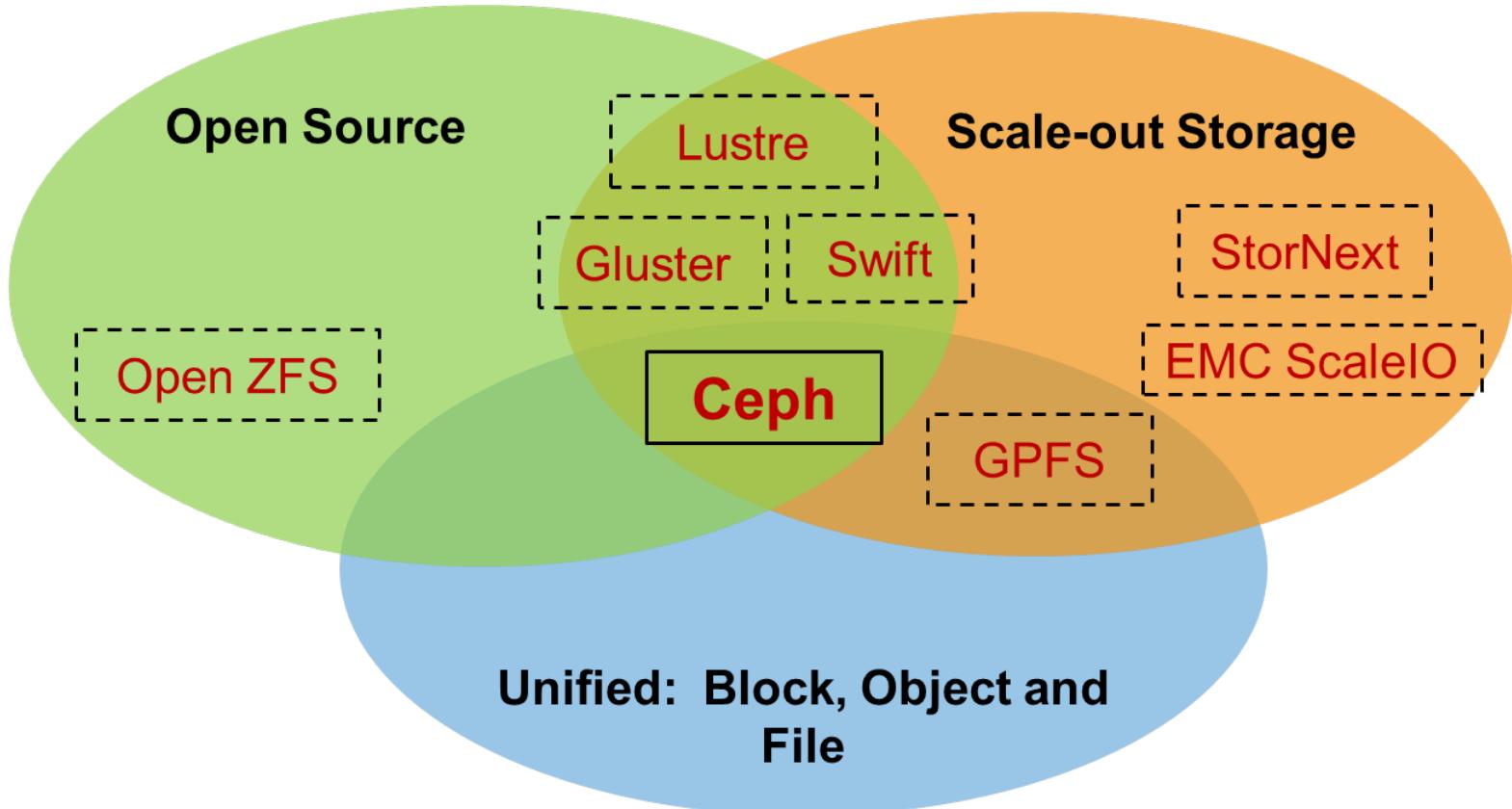


# Morning Keynote: Cephfs Home @ DESY

Ingo Ebel, DevOps science engineer, DESY



# Why Ceph?



# Ceph@DESY

- 4 Ceph Cluster in production
  - Some for dev and testing
- 2 Clusters in Hamburg (1,6 PB)
  - original for open stack
  - now for s3.desy.de (with HA Proxy)
  - and k8s (rbd)
- 2 Cluster in Zeuthen (0,5 PB)
  - one for rbd and s3
  - one for cephfs



Ubuntu



# Ceph@DESY

- HDD/NVME Cluster (Zeuthen)
- HDD Cluster (Hamburg)
  - Soon New all-NVMe cluster for s3.desy.de and Kubernetes (K8S)
- 10-100 Gbit/s Network
- Mostly with cluster network
- 3 times replication

# AFS status and problems (Zeuthen)

- 14 Server
- ca. 300 TiB
- Manpower
- Out Of Tree
- Serverchange slow
- Many Interdependencies
  - Code & Git Repositories
  - Server Installation Scripts (PXE Boot)
  - Installed Software Packages
  - Containers & Images
  - User Websites and Applications



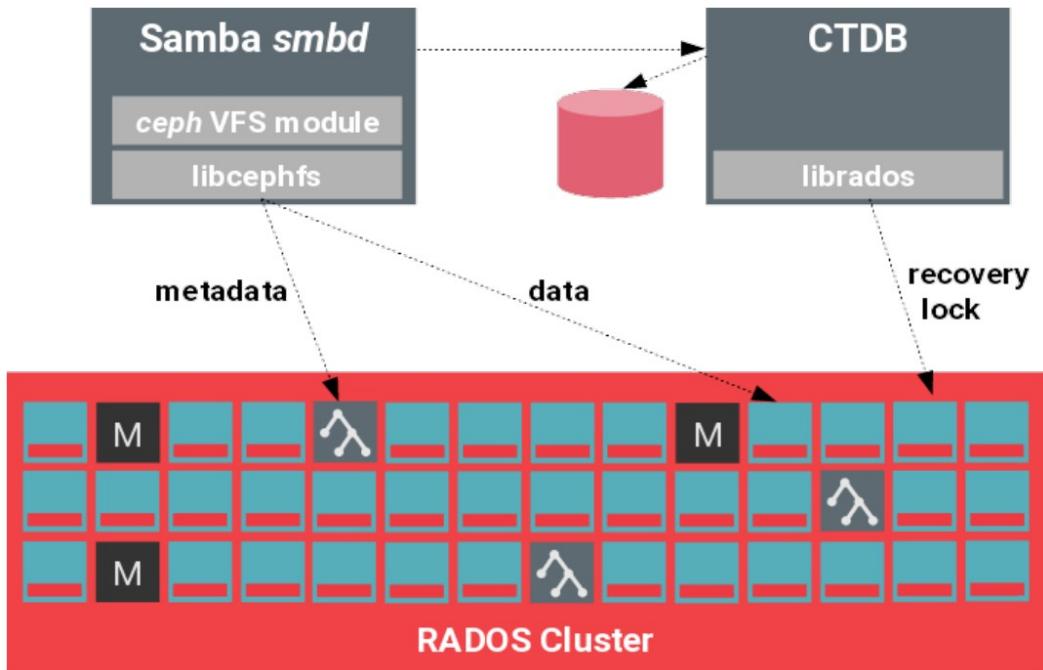
# What we provide

- New cephfs based home dir
- Copy parts of the users data
  - main afs volume
  - afs volume called work
  - developed a synchronization script
- Changing the home directory on all centrally managed systems
- Old AFS home will be readonly
- No user websites anymore
- New public directory introduced for shared content



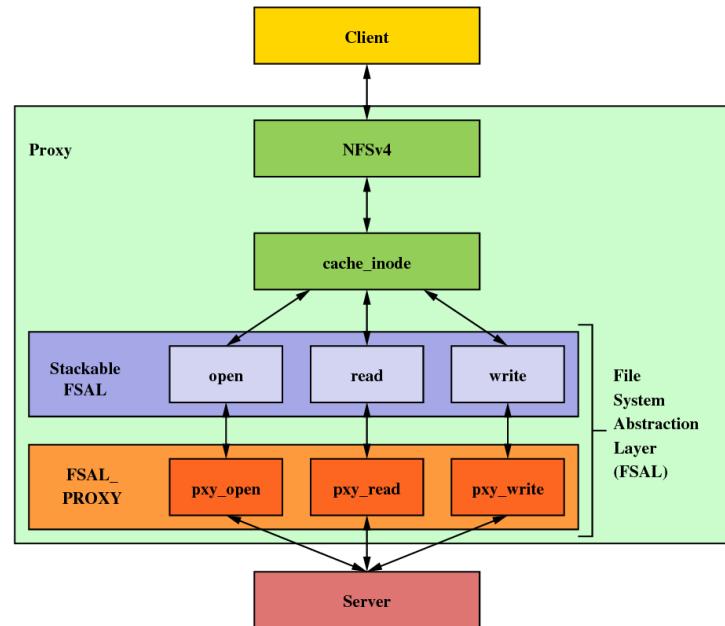
# Samba with CephFS

- Sernet Samba+
- Cluster with CTDB (high availability)
  - 3 Nodes
- 3 Samba Gateways for Ceph Cluster
- Home via Samba



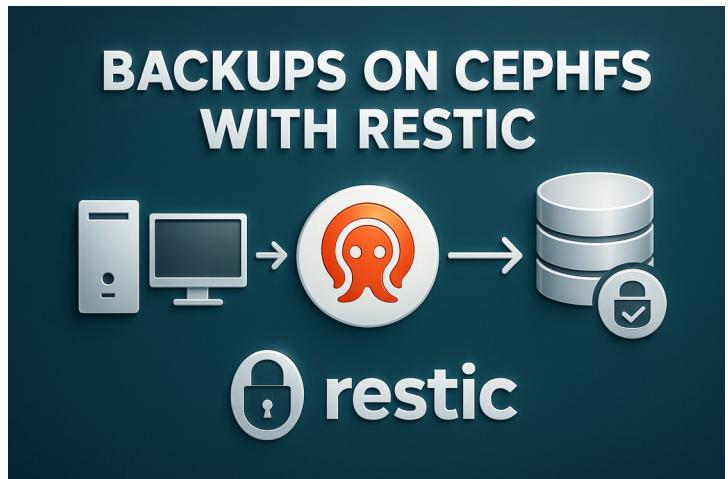
# NFS for CephFS

- NFS Ganesha with cephadm deployed
- NFS Exports via ceph orch tools
  - NFSv4.2
  - `ceph nfs export create cephfs --cluster-id cephfsnfs --pseudo-path /adminpfad --fsname adminname --sectype=krb5 --sectype=krb5p --sectype=krb5i --squash=root_squash --path=/`
- Special setting for Kerberos
  - Mounted in the container:
    - `/etc/krb5.keytab, /etc/krb5.conf`
    - `/etc/idmapd.conf, /etc/passwd`



# Backup

- Daily (at night) – retention: 60 days
- Via Restic to minio s3
- Data recovery via UCO (IT Ticket)
- Also maybe soon
  - .snap (hidden dir)
  - (like .oldfiles)
  - Users can restore a file themselves



# Next Steps

- Enable snapshots again
  - shadow copies for win / samba
- Fewer dependencies to afs
  - software to CVMFS
- Finalize the home directory migration
- Plan and move the group spaces
- Nice to have: Users should be able to restore their own files.



# Yeah!

# Questions?

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# AGENDA - Day 1 (1/2)



9am	Welcome, Check-in, Coffee
10am	Welcome Session (Joachim Kraftmayer & Desy Management)
10.15am	Morning Keynote: Cephfs Home @ DESY (Ingo Ebel)
10.50am	Buzzword Bingo: Digital Sovereignty (Markus Wendland & Heiko Krämer)
11.25am	SURFin' the Ceph wave (Jean-Marie de Boer)
<i>11.35am</i>	<i>Coffee Break &amp; Networking</i>
12.15pm	It's all about the latency, not the bandwidth! (Wido den Hollander)
12.50pm	Running a small Openstack Cluster with a full NVMe Ceph Cluster (Kevin Honka)
<i>1.20pm</i>	<i>Lunch Break &amp; Networking</i>