# EOS Status at IHEP

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On behalf of IHEP Storage team

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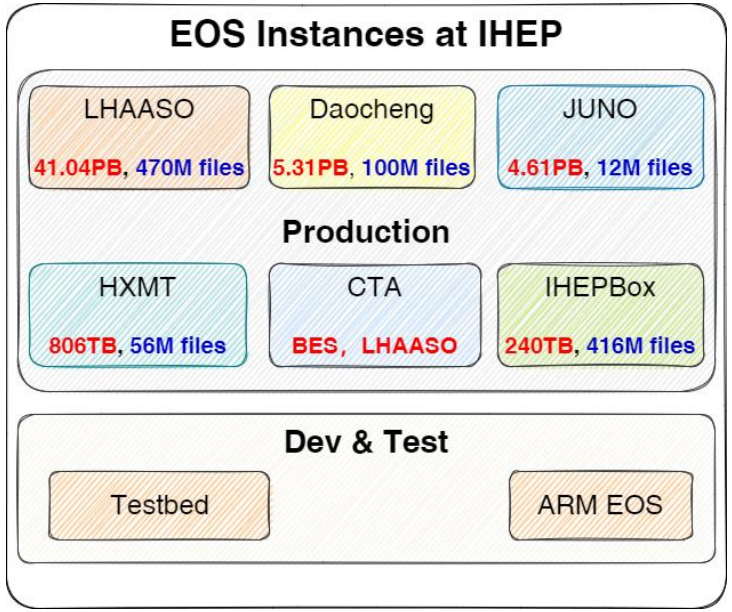
# EOS deployment at IHEP

- EOS in production since 2016
- 8 EOS instances
  - 4 instances for physics
  - 1 instance for CTA
  - 1 instance for IHEPBox
  - 2 testbed instances
- 50 PB gross capacity
  - Currently 72% of space used
  - Totally 640 M files, 15 M directories
  - The current storage scale of eos is comparable to lustre at IHEP
- Replica
- Access via **xrootd** at batch nodes, **fuse** at login node




| Raw Capacity | ~ 50PB |
|---|---|
| Disk server | ~ 148 |
| Number of fs | 3906 |
| Number of files | ~ 640 Mil |
| Number of directories | ~ 15 Mil |
| Peak throughput | >100 GB/s |

# EOS deployment at IHEP(cont.)

- Hardware
  - JBOD's of 84x12 TB, 84x16 TB and 84x20 TB
  - Each JBOD connected to 2 FST
  - 2x25 Gbps Ethernet network
- Software
  - MGM/FST with Centos7.9
  - Citrine release, v4.8.40/62
  - QaurkDB:0.4.2

# Changes and issues in 2022

- Space increases by 6 PB
- Upgrade EOS version to 4.8.62
- Data cleaning is often required due to the rapid growth of data
- Krb5 token authentication deployment for LHAASO instance
- Delegate ACL permissions to users for specific directories, and users can set ACLs for the directories as needed
- The xfs file system of one old disk array is damaged, which takes a long time to repair the data, so the subsequent disk will formatted as ext4

# Changes and issues in 2022(cont.)

- Setup EOS SE for JUNO experiment (see xuantong's talk)
- Complete the switch from Castor to CTA (see yujiang's talk)
- Developed computational storage framework based on EOS storage system(see yaodong's talk)

# EOS planned activities in 2023

- Upgrade EOS to 5.x
- WLCG IHEP T2 (Atlas, CMS, BelleII) will converted from DPM to EOS in May
- Lhcb T1 construction in June
  - EOS SE
  - CTA
- Preparing for the upcoming High Energy cosmic-Radiation Detection (HERD) experiments, providing solutions using EOS
- User training for IHEP users

# Summary

- EOS is becoming more and more important at IHEP
- The storage scale is growing steadily, and there may be more experiments using EOS in the future
- CTA has replaced Castor as the tape storage system at IHEP
- EOS expanded from local storage to grid storage at IHEP

Thanks for support from the CERN EOS team!

Thanks for your attentions!

谢谢！