

# Using S3 storage with XRootD vs Dynafed

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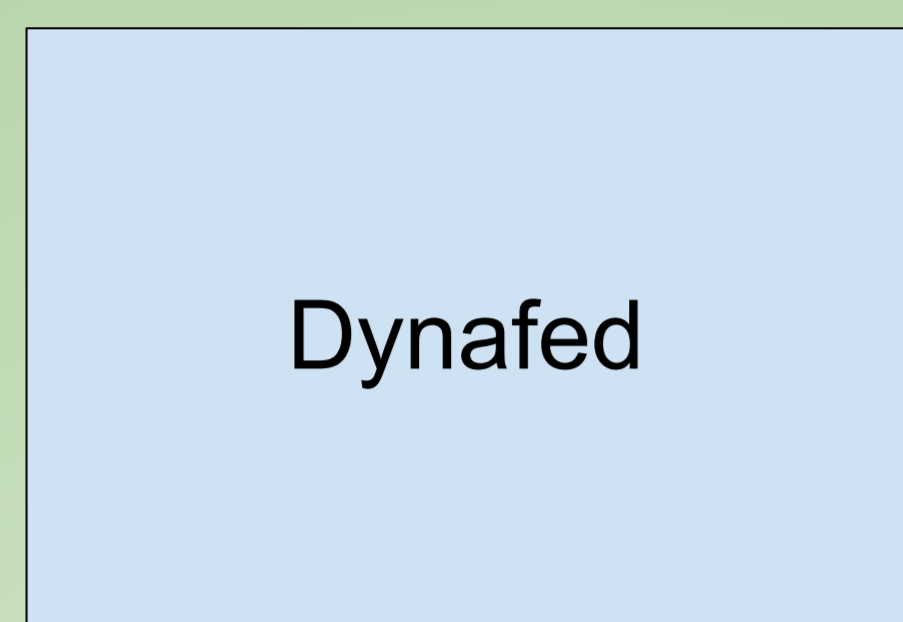
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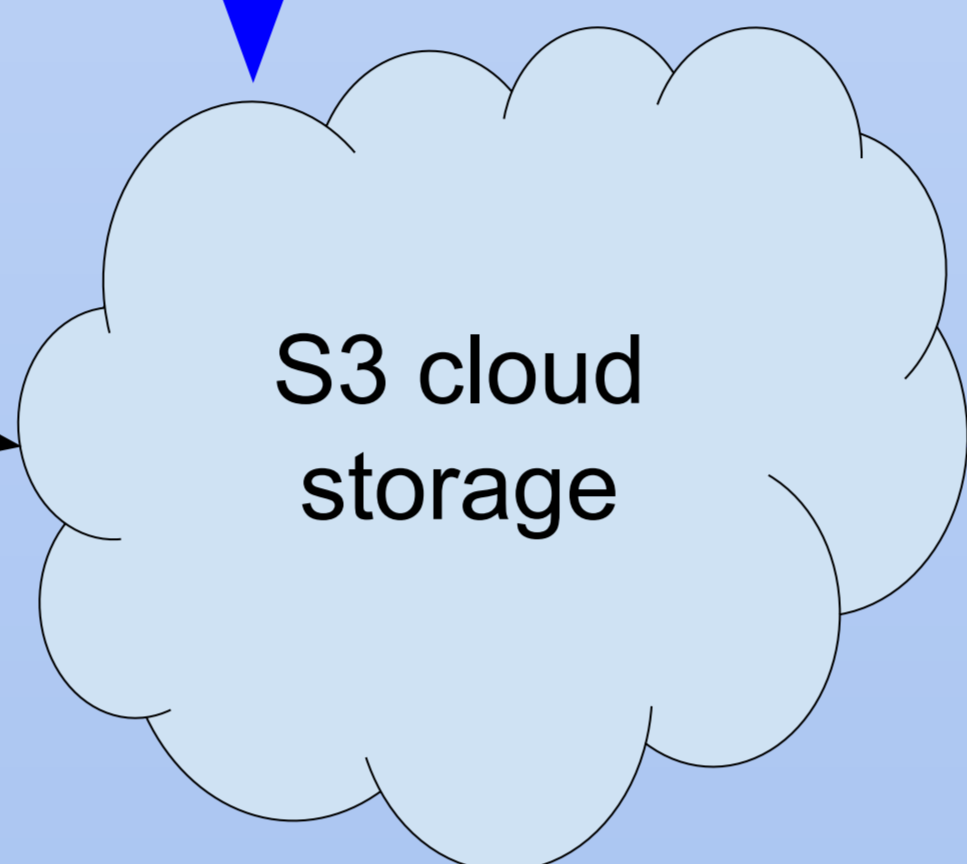
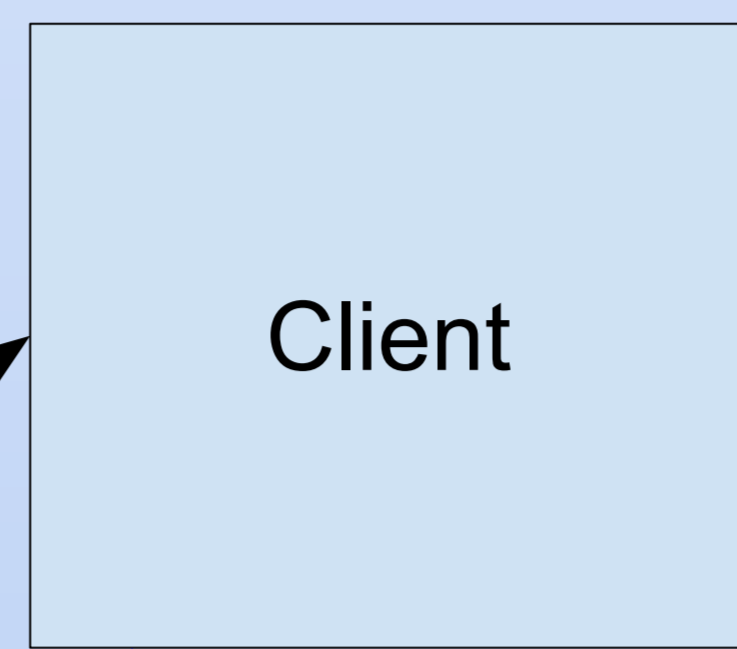
## Dynafed

→ supports davs:// protocol

→ EOL, same as CentOS7/DPM



- Dynafed only federator
  - gives client authorized web url to get files directly from/to S3
- transfer speeds depend on S3 setup
  - load balancing for S3 access,...
- checksums are calculated by Dynafed
  - needs to transfer file from S3 to Dynafed
    - we put checksum in S3 metadata via checksum calculation script
- may need a proxy to be used within WLCG (IGTF host cert usually not on S3 endpoints)
  - transfer speed depends on proxy setup
    - multiple proxy server maybe possible to increase transfer speed under high load



## XRootD

→ supports root:// and davs:// protocols

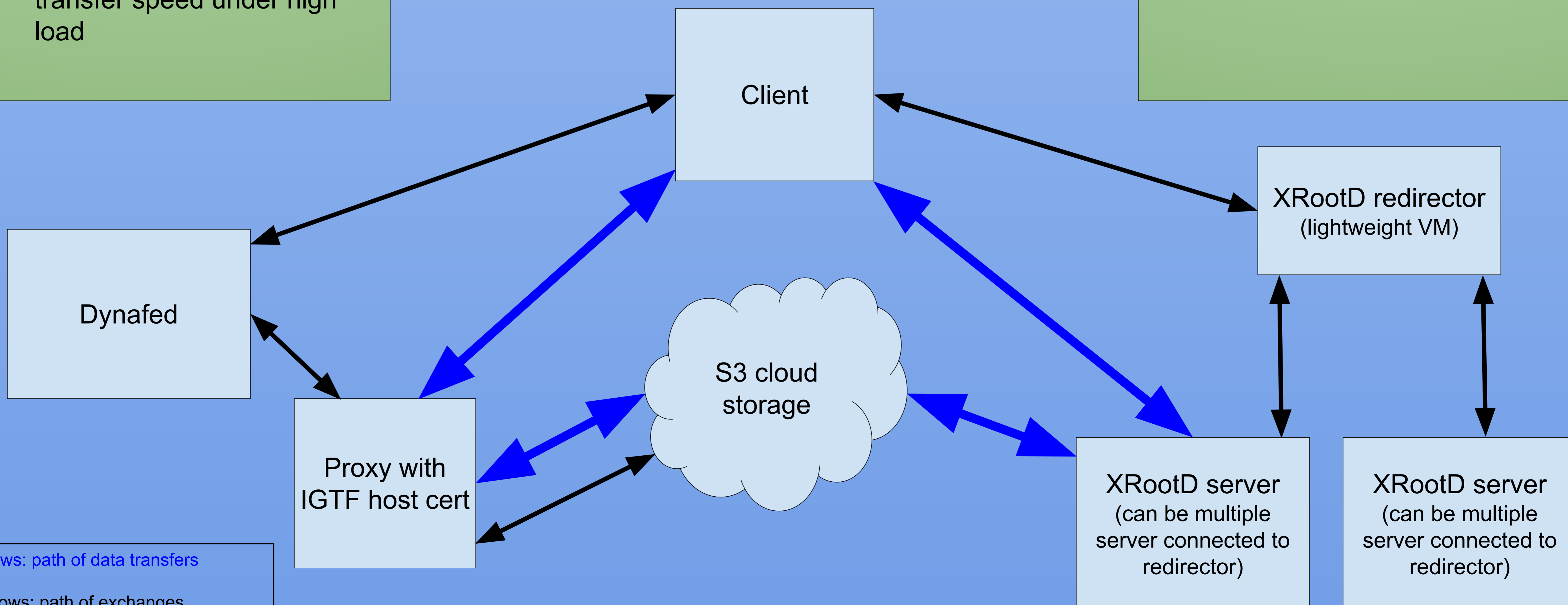
→ under active development (<https://github.com/xrootd>)



- XRootD server handles S3 similar as it would handle local storage
  - file transfers go through the XRootD server
- transfer speeds depend on XRootD's machine network setup
- checksums are calculated by XRootD
  - needs to transfer file from S3 to XRootD server
    - we put checksum in S3 metadata via checksum calculation script
- XRootD server usually has an IGTF conform host cert (only point of contact to client)
- transfer speed can be increased under high load by using multiple server

## Conclusion

- XRootD can handle S3 storage as well as Dynafed
- same mechanism to store checksum in S3 metadata can be used in both cases (<https://github.com/hep-gc/uvic-heprc-ansible-playbooks/tree/master/roles/xrootd>)
- Dynafed file transfers go directly between S3 and client, XRootD transfers go through the server
- Dynafed performance depends on S3 setup or number of proxy servers; XRootD performance depends on the server setup and the number of servers



Blue arrows: path of data transfers  
Black arrows: path of exchanges before/after data transfers

See Jonathan W.'s CHEP talk for using XRootD and S3 as Grid SE: <https://indico.cern.ch/event/1338689/contributions/6011580/>