

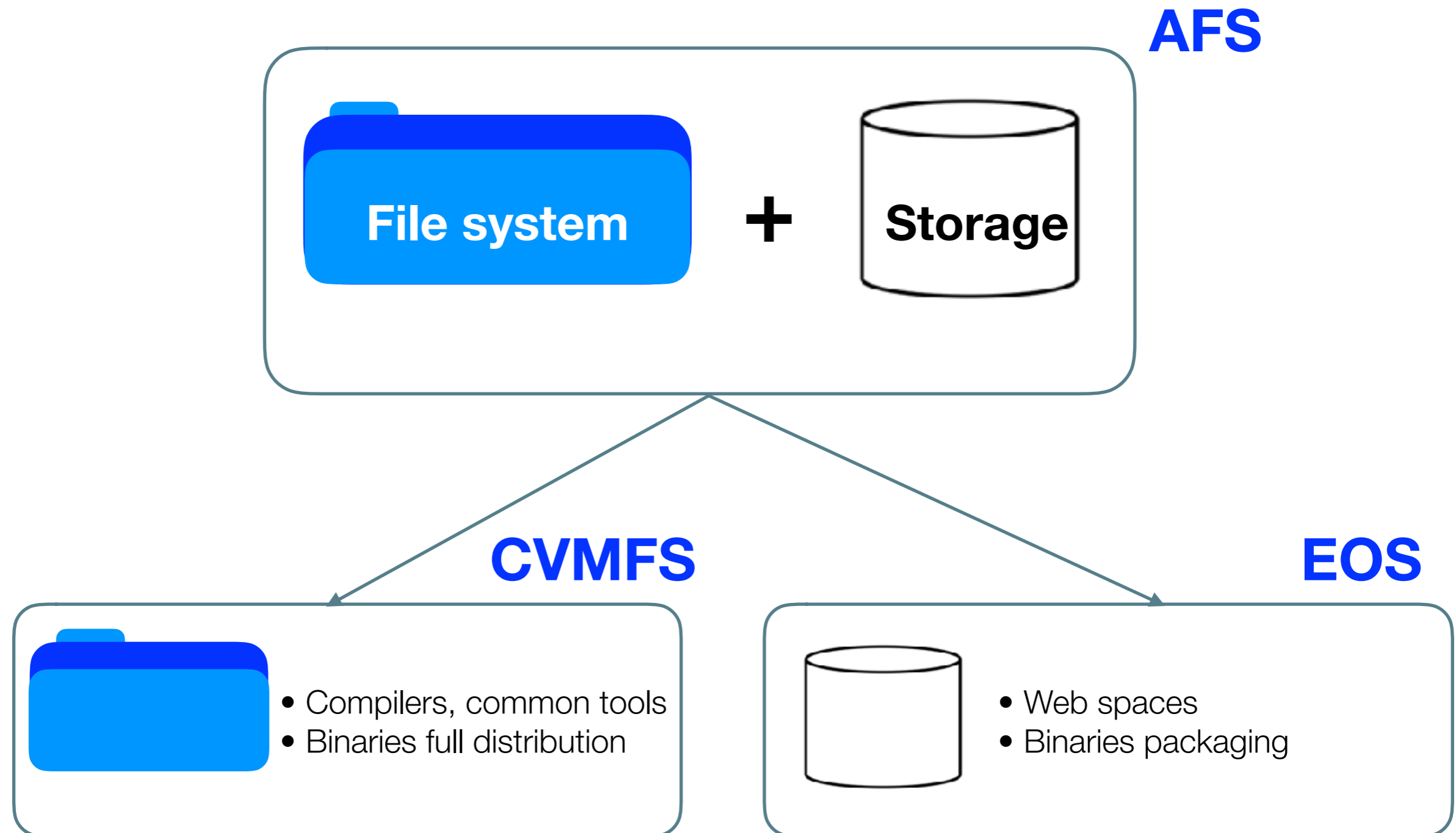
AFS PHASEOUT STATUS OF EP-SFT

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Outlook

- **Use of AFS and phaseout status for:**
 - LCG Releases area
 - SWAN
 - FCC
 - ROOT
 - GeantV/VecGeom
 - Geant4
 - CernVM

Our AFS Phaseout in a quick glance



LCG Releases area

- **Our main tasks**
 - Provision of consistent releases of externals and LCG application packages for experiments
 - Daily tests and previous builds of incoming releases
 - Distribution of common compilers and tools
 - Creation of common procedures for builds and software distributions

Base area for SFT AFS Phaseout: Rest of SFT projects + experiments tasks affected by these activities

LCG Releases areas migrated to **CVMFS** (I)

- **LCG Releases: Binaries distribution**
 - Till end-2016, using both AFS and CVMFS as storage systems
 - *From the next LCG Release (LCG_88), binaries distributed to CVMFS only*
 - **AFS Volume management issues faced in basically all releases**
 - *Releases area in CVMFS: /cvmfs/sft.cern.ch/lcg/releases*
- **Nightly builds: Binaries distribution**
 - Same approach as for LCG Releases: /cvmfs/sft.cern.ch/lcg/nightlies
 - AFS distribution stopped since two weeks in agreement with experiments

Area fully migrated from AFS ✓

LCG Releases areas migrated to **EOS**

- **Packaging distribution containing binaries**
 - Migration of RPMs packaging to tar files completed in 2016
 - *RPM resulted to be a quite slow procedure based on a RPM DB placed in AFS*
 - **Too often DB corruptions**
 - *Limitation for Ubuntu/Mac platforms*
 - EOS is currently used as tar file containers
 - *Web interface (IT service supported) available: lcgpackages.web.cern.ch*
 - *EOS includes packages sources and binaries results from both LCG releases and nightlies*

Area fully migrated from AFS ✓

LCG Releases areas migrated to **CVMFS** (II)

- **Compilers distributions and CMake: /cvmfs/sft.cern.ch/lcg/contrib**
 - gcc: 4.8.4, 4.9.3, 5.1.0, 5.2.0, 6.1.0, 6.2.0, 6.3.0 (SLC6 and CentOS7)
 - clang: 3.9.0 (CentOS7 and slc6 for gcc4.8.4, 4.9.3, 5.2.0, 6.2.0)
 - Intel compilers: icc17 recently provided by Openlab in CVMFS: **/cvmfs/projects.cern.ch/intelsw**
 - CMake: 3.2.3, 3.3.2, 3.4.3, 3.5.2, 3.6.0, 3.7.0
 - [sft.cern.ch CVMFS area mounted in all SFT build machines and accesible to all projects](#)

Area fully migrated from AFS ✓

LCG Releases areas **still in AFS**

- lcgsoft.cern.ch
 - Web interfaced page including information about released packages
 - Based on a Django DB currently placed in AFS
 - PLANS: Update to an IT supported Django DB foreseen in Summer 2017
- **RPMs DB**
 - Based on experiments demand, RPMs distributions are still provided
 - PLANS: Migration to CVMFS to be agreed with experiments

Areas NOT migrated from AFS ✗

SWAN and FCC projects status

Both projects rely on the LCG Releases distributions placed in CVMFS

- **SWAN (Service for Web based ANalysis) is a platform to perform interactive data analysis in the cloud (swan.web.cern.ch)**
 - Already born as an already AFS-independent project
 - EOS solution adopted as backend for the users home directories

Area migrated from AFS ✓

- **FCC (Future Circular Collider) explores different designs of circular colliders for the post-LHC era**
 - SFT is coordinating the software effort (fccsw.web.cern.ch)
 - Webspaces: unique pending element in AFS
 - *Switch over to EOS ongoing*

Work in progress ✓

ROOT project status

- **Scientific software framework including all the functionalities needed to deal with big data processing (root.cern.ch)**
- It partially relies on LCG Releases components:
 - *Compilers provided in CVMFS*
 - *LCG Releases build procedures for the provision of external dependencies —> EOS packaging storage and CVMFS distribution*
- Distribution of ROOT tags already migrated to CVMFS in 2016
- I/O plug-ins testing under EOS (i.e., xrootd)

Area fully migrated from AFS ✓

GeantV/VecGeom project status

- **Vectorization simulation toolkit (geant.cern.ch)**
 - Similar approach to ROOT for the setup of externals dependencies and compilers.
 - *Access to compilers still rely in AFS distributions*
 - *Externals dependencies approach still rely in AFS installation*
 - Migration strategy (a la ROOT) is a priority task:
 - *Migration of compilers setup in CVMFS —> EASY*
 - *Externals dependencies installation in CVMFS —> ~2 weeks*

Migration scheduled in the incoming weeks

Geant4 project status

- **Simulation of the passage of particles through matter**
(geant4.cern.ch)
 - Areas of the project under AFS in the past:
 - Releases distribution —> Available already through CVMFS
 - Geant4 Web site —> Static pages under migration to Drupal. Remaining pages will be migrated to EOS afterwards.
 - Developers areas —> Moved to local areas of different machines
 - Compilers and external dependencies also moved to CVMFS

Work under progress

CernVM project status

- **read-only file system designed for accessing large centrally installed software repositories (cernvm.cern.ch)**
- Unique remaining element in AFS: `/afs/cern.ch/sw/lcg/cernvm`
 - *Used to serve the yum and apt repos for the cvmfs client and server*
 - <http://cvmrepo.web.cern.ch/cvmrepo>
 - *Migration to EOS ongoing:*
 - <https://sft.its.cern.ch/jira/browse/CVM-1178>

Full migration foreseen in incoming weeks

Summary and requests

- **The SFT infrastructure does not foresee any show stop for a full AFS deprecation before summer 2017**
 - Some glitches might be expected when AFS is fully switched off
- **We need a procedure to eliminate AFS from build nodes via puppet**
 - Following it through RQF0712863
- **EOS and CVMFS become CRITICAL services**