

# Binary distribution of LSST software stack via CernVM FS

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- To provide a self-contained, ready-to-use, **binary** distribution of LSST software stack
  - no need to build your own stack from source*
  - particularly beneficial for end-users*
- Initial target: **official releases**
  - but we can also include “extensions” of broad interest, such as CFHT- or SDSS-specific components if desired*

# Benefits

- Lower the barriers to entry for end users to try LSST software for doing science  
*you don't need install the software, just mount and use it*
- Use the **same software distribution** for all kind of machines: from your personal computer to worker nodes  
*usable also for virtual machines and containers*
- Includes Git, Anaconda: Python interpreter and relevant required packages (numpy, scipy, matplotlib, ...)

# Current status

- LSST v9.2 available since October 2014
- Shown to work on several flavours of Linux: Scientific Linux, Ubuntu

*CentOS and Fedora should work but we have not tested it ourselves*

*MacOS X not validated yet*

*Virtual machines (Parallels, OpenStack) and Docker containers demonstrated to work also*

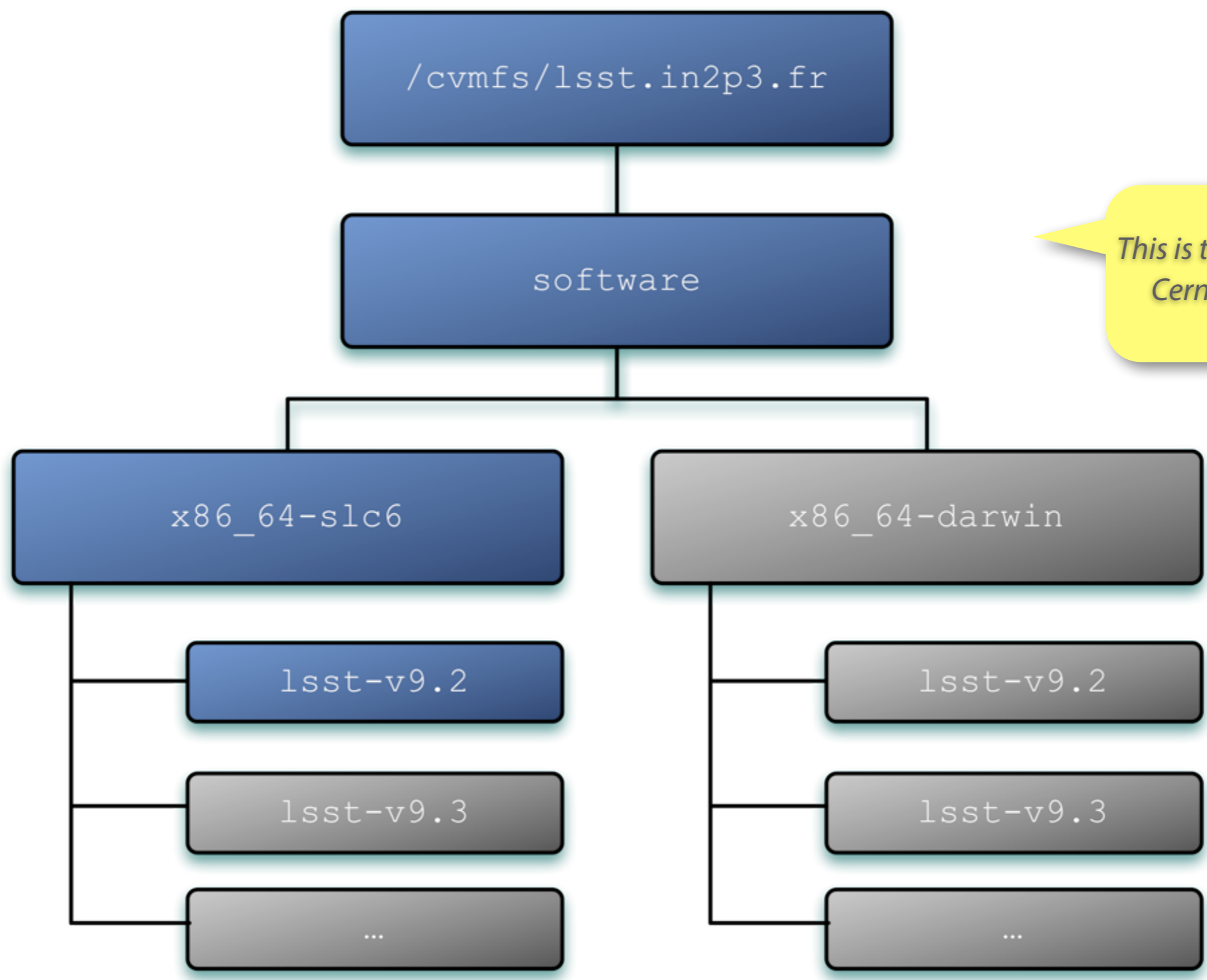
- Allows also for developing extensions to the official stack or replacement of modules via EUPS

*see the documentation for details*

# How CernVM FS works

- CernVM FS is used for software distribution of the LHC experiments  
*routinely used by more than 140 sites of the worldwide LHC computing grid*  
*client server architecture*
- Client-server architecture
- **Server** hosts the full set files composing the LSST stack release  
*LSST v9.2 is composed of 125k files with average size 0.03 MB and std 1.18 MB*  
*biggest file is `libafw.so` (282 MB)*
- **Client** downloads file contents on-demand (e.g. on `open`) to the local disk  
*client-server protocol is HTTP, so standard HTTP proxies can be used for reducing latency*  
*downloads a **preprocessed set of file metadata** at **mount time**: client can locally resolve all metadata queries (e.g. `stat`, `ls`, ...), without contacting the server*  
***caches file contents** in the local disk*  
*exposes files and directories in **read-only mode***  
*mount usually done via `autofs` (on Linux) but it is possible to configure for mounting at boot time*

# Namespace



*This is the namespace your CernVM FS client sees*

Not yet available

# How to use

```
$ cd /cvmfs/lsst.in2p3.fr/software/x86_64-slc6/lsst-v9.2  
$ source loadLSST.sh
```

After this, the relevant environmental variables are set

*LSST\_HOME, EUPS\_PATH, EUPS\_DIR, PATH, ...*

We **built from source for distributing via CernVM FS**. By default, Anaconda and Git are included in the distribution and setup when the bootstrap script is executed

If you prefer to use your own version of Anaconda or Git, you need to copy `loadLSST.*sh` and modify it accordingly

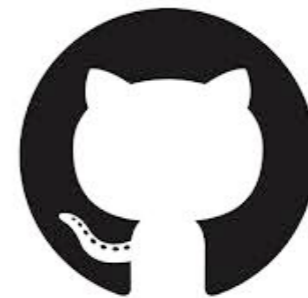
# How to install client

- One-time process

*all binary releases will be automatically available under the same namespace*

- Installation documentation on line

<https://github.com/airnandez/lsst-cvmfs>

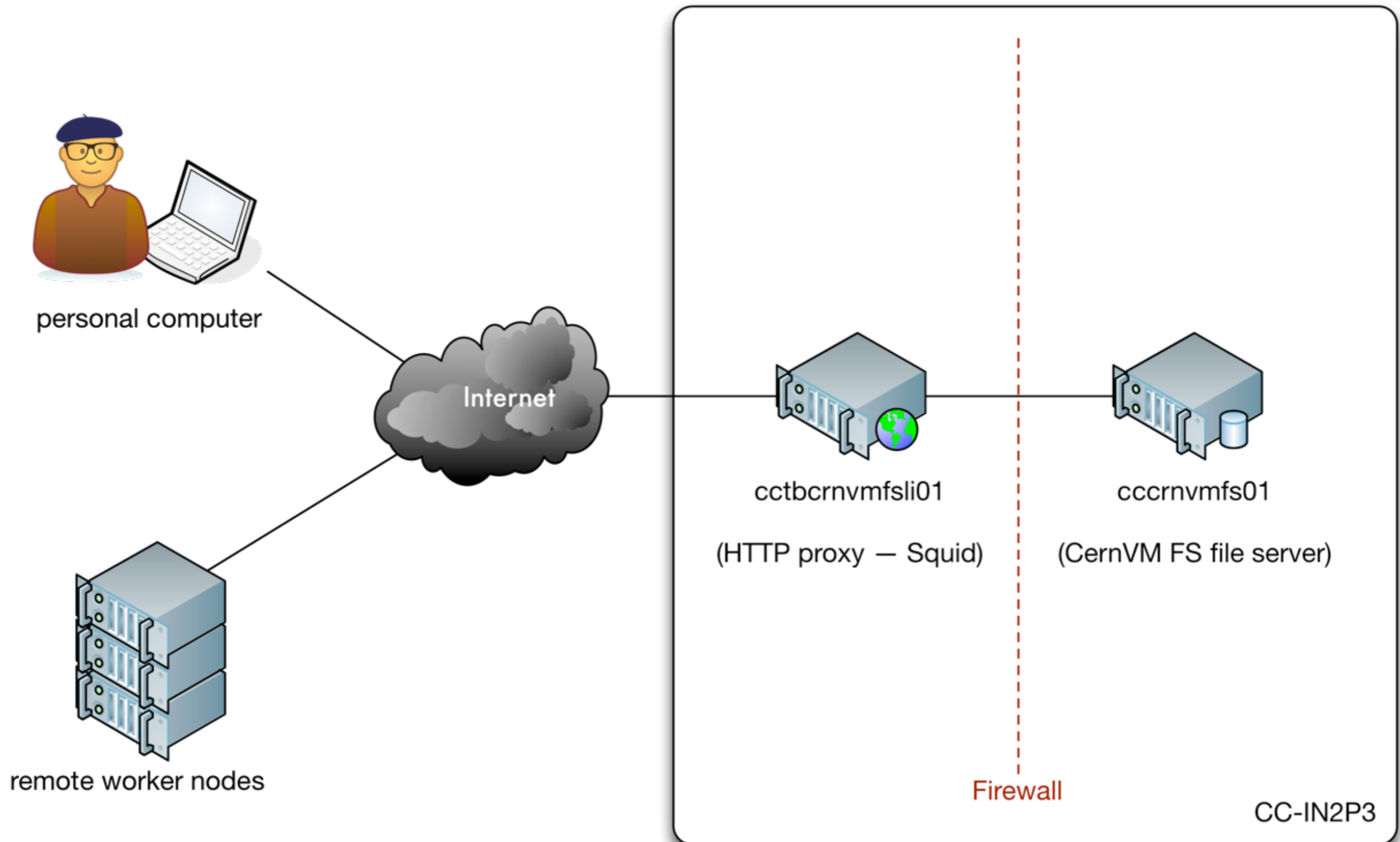




# Questions & Comments

# Backup Slides

# Current configuration



# Target configuration

