



CERNBox

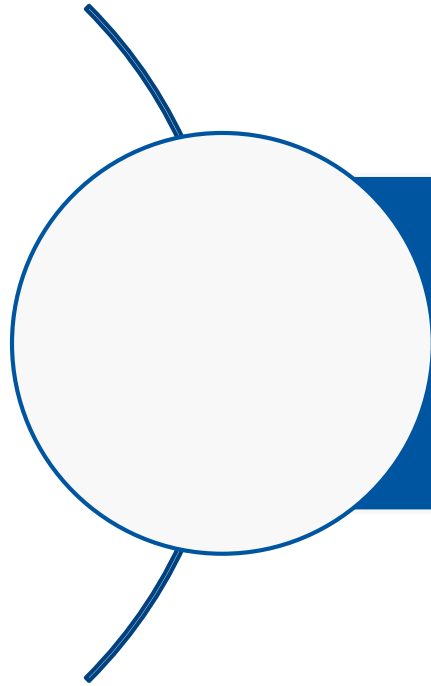
The CERN Cloud Storage HUB

Hugo González Labrador – Storage Group
On behalf of the CERNBox Team



Outline

- 
- Description and Architecture
 - User Community and Service Numbers
 - New Features and on-going work
 - Overview and summary

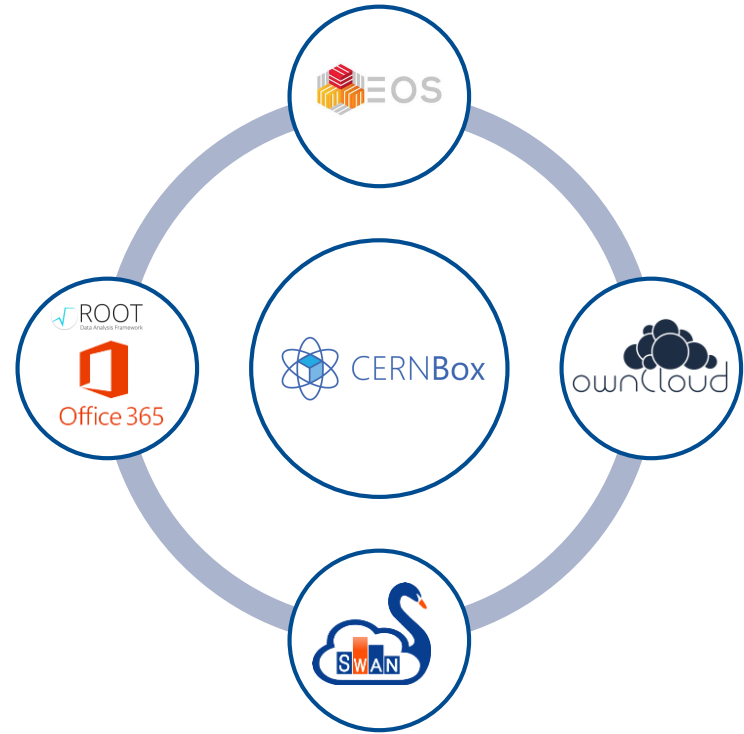


Description and Architecture

What is CERNBox ?

CERNBox provides a cloud synchronization and sharing service

- Available for all CERN Users (1TiB/user)
- Synchronize files (data at CERN) and offline data access
- Easy and convenient way to share data across users and groups
- All major platforms supported
- Based on **ownCloud** integrated with **CERN EOS**



What is CERNBox ?



POSIX Filesystem

XROOTD

WebDAV

Sync

Sharing

Mobile

Web

Hierarchical Views



Access Control Lists



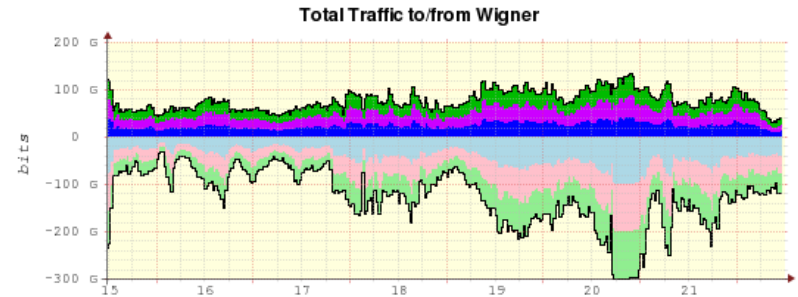
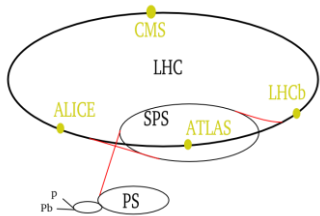
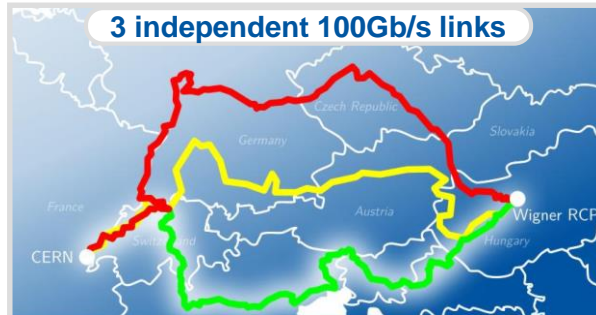
Physical Storage

What is CERN EOS?

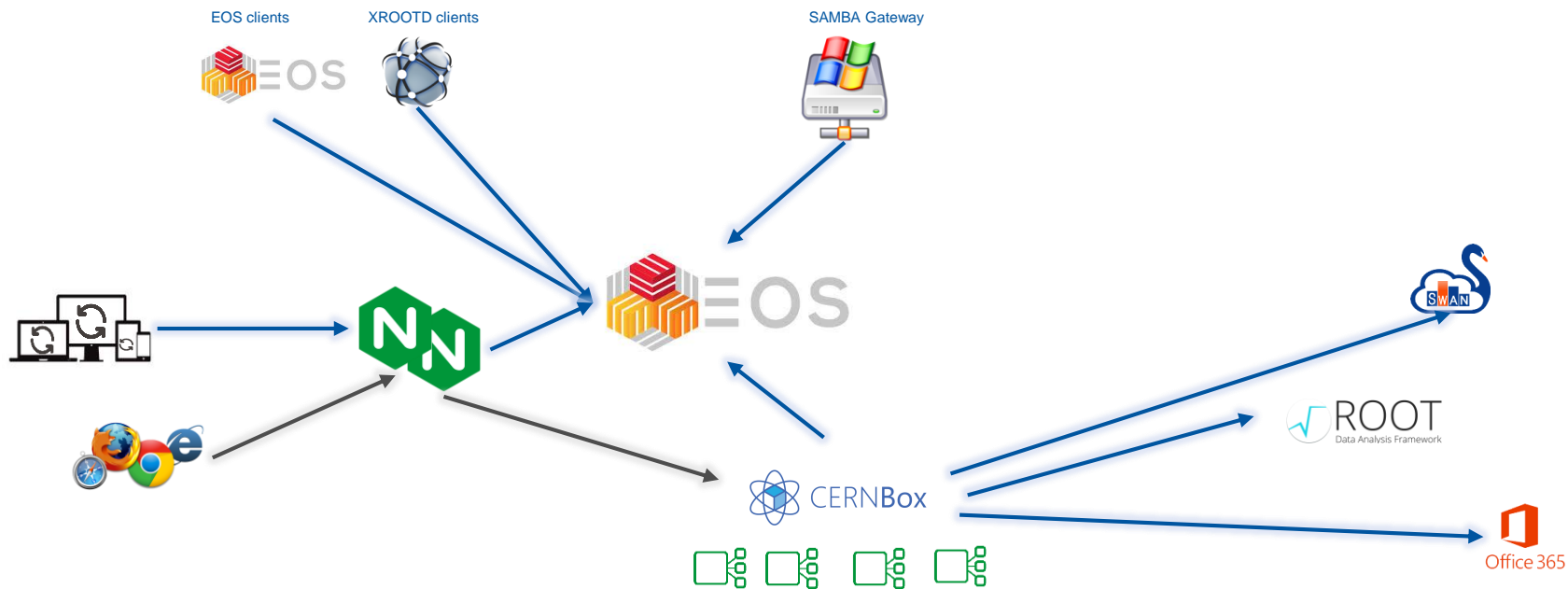


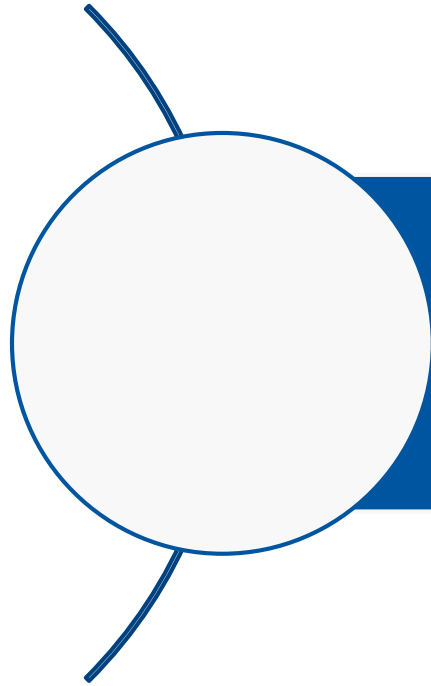
- Open Source Storage Technology developed at CERN
- Disk Storage for all LHC and physics data
- CERNBox Storage backend
- Deployment across two computer centres

Number of Files	Number of Dire...	Total Space	Free Space
1.903 Bil	109.9 Mil	245 PB	67.2 PB



CERNBox Architecture

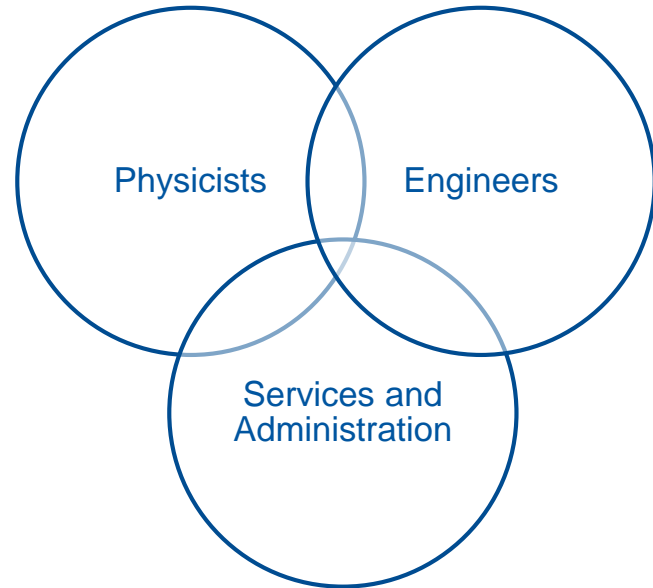




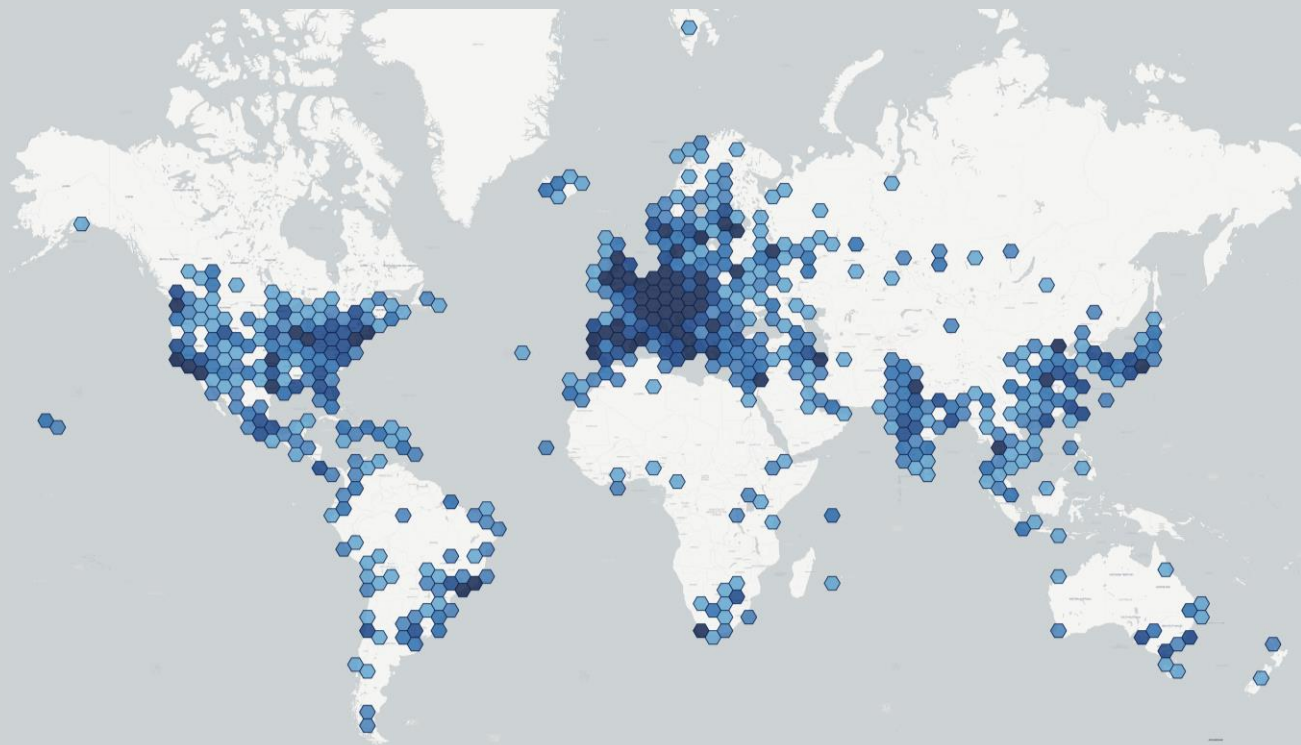
User Community and Service Numbers

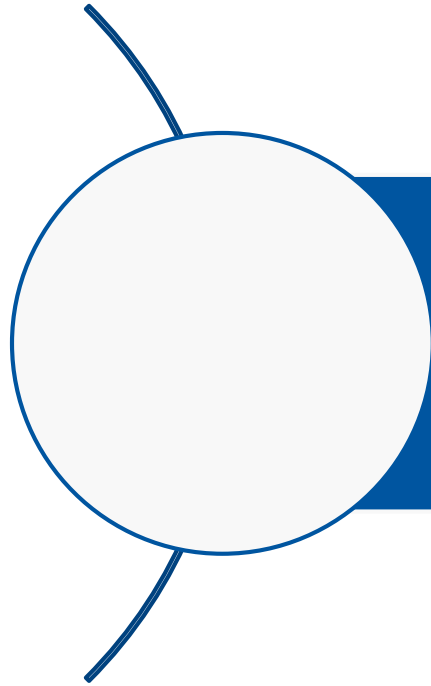
Service Numbers

	Jan 2016	Jan 2017	Jan 2018	<i>Jul 2018</i>
Users	4074	8411	12686	14805
# files	55 Million	176 Million	470 Million	604 Million
# dirs	7.2 Million	19 Million	34 Million	41 Million
Used Raw Space	208 TB	806 Terabytes	2.5 Petabytes	3.47 Petabytes
Deployed Raw Space	1.3 PB	3.2 Petabytes	5.7 Petabytes	5,9 Petabytes



Distributed Users





New Features and On-going Work

New UI for CERNBox



Google
Summer of Code

Petabyte-Scale Cloud Storage File Manager

The screenshot shows the ownCloud web interface. At the top, there is a navigation bar with a hamburger menu, the word "FILES", the ownCloud logo, and the user name "ELLEN RIPLEY". Below the navigation bar, the breadcrumb "Home" is visible. To the right of the breadcrumb, it says "5 Results" and a "FILTER" button. The main content area displays a table of files with the following columns: NAME, SHARED WITH, OWNER, SIZE, and DATE.

<input type="checkbox"/>	NAME	SHARED WITH	OWNER	SIZE	DATE
<input type="checkbox"/>	Books	bill.murray@fillmurray.com & Steven Segal	James Woods	318.47 MB	a year ago
<input type="checkbox"/>	Games		Nicolas Cage	225.84 MB	2 years ago
<input type="checkbox"/>	Music		Steven Segal	128.11 MB	4 years ago



Collaborative platform

Name	Size	Modified
CERNBox	0 kB	3 minutes ago
CERN visit.doc	98 kB	a year ago
CERN-2016-EN.pdf	204 kB	a year ago
Machine Retirement.xls	16 kB	6 months ago
Storage-Discussion.ppt	3 MB	2 months ago

COLLABORA

The CERNBox apps ecosystem

- From High Energy Physics ...
- Started as on premise cloud storage
- More and more integrating new ways to interact with your data
- ...reaching out to Scientific and Cloud Computing
- Microsoft Office integration
- Galleries (pictures as well as ROOT histograms)
- Notebooks (SWAN)
- more to come



ONLYOFFICE

cosystem CERNBox

age ways to interact with your data Cloud Computing

OT histograms)

Office

TRANSITIONS ANIMATIONS VIEW

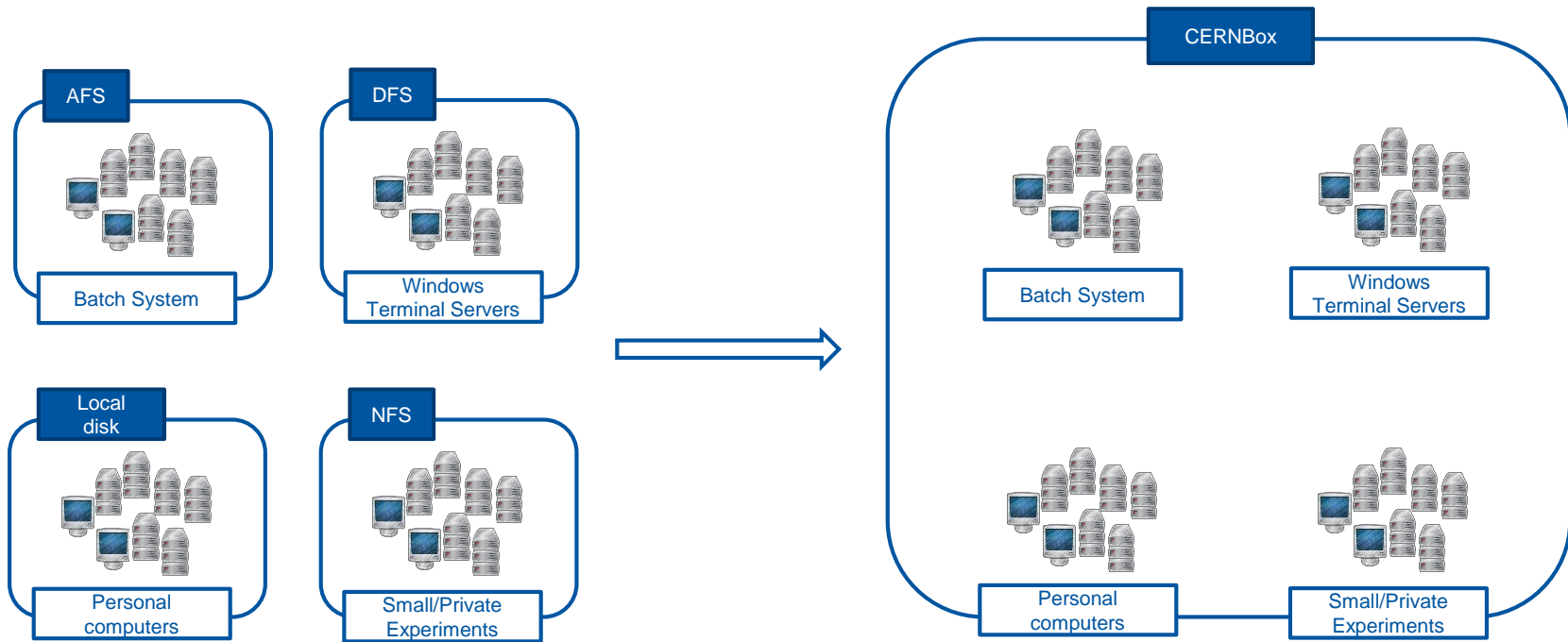
Welcome to OWA

Try to test test test

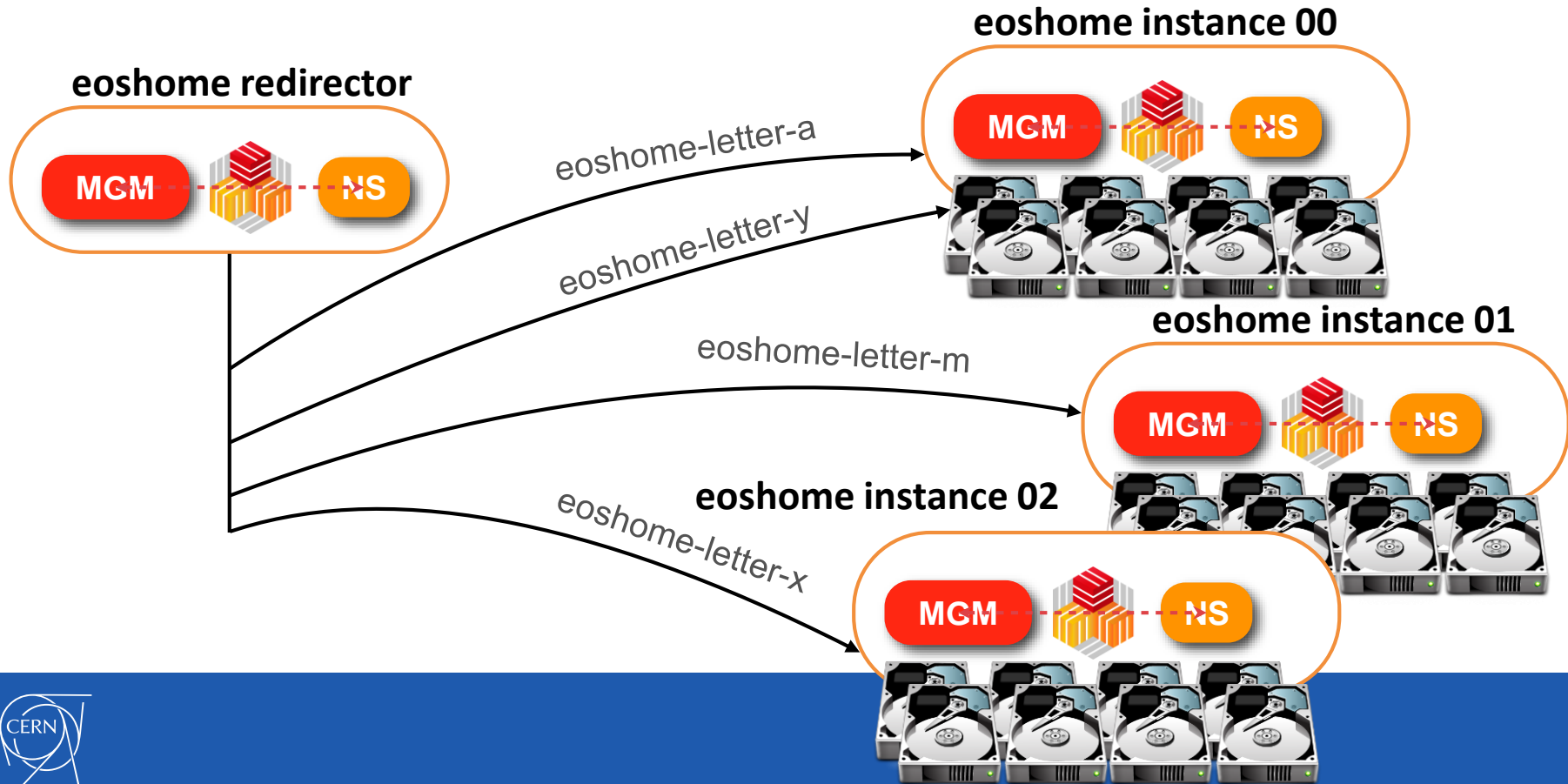
SLIDE 1 OF 3

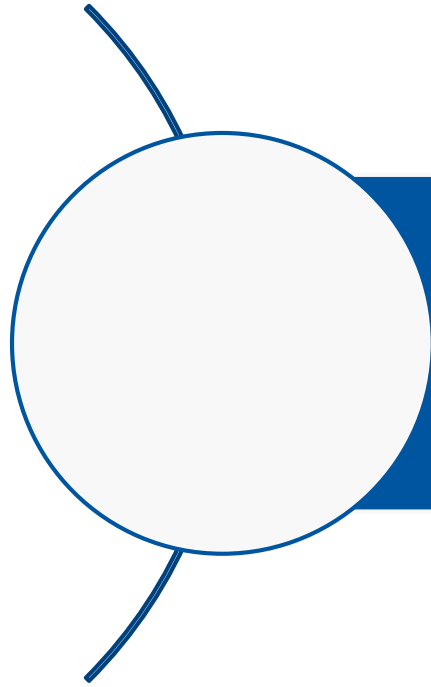


New Home Directory



New Home Directory: behind the scenes





Overview and Summary

Conclusions

- CERNBox plays a key role into the future home directory of CERN.
- From year to year the use of the system is increasing very fast (400% yearly growth)
- Users demand more and more features and integrations
- We have a nice collaboration with industry to shape the future of sync and share for HEP uses cases