



CERN Site Report

Arne Wiebalck

HEPiX Autumn Meeting
Lincoln, Nebraska, U.S.
Oct 14, 2014



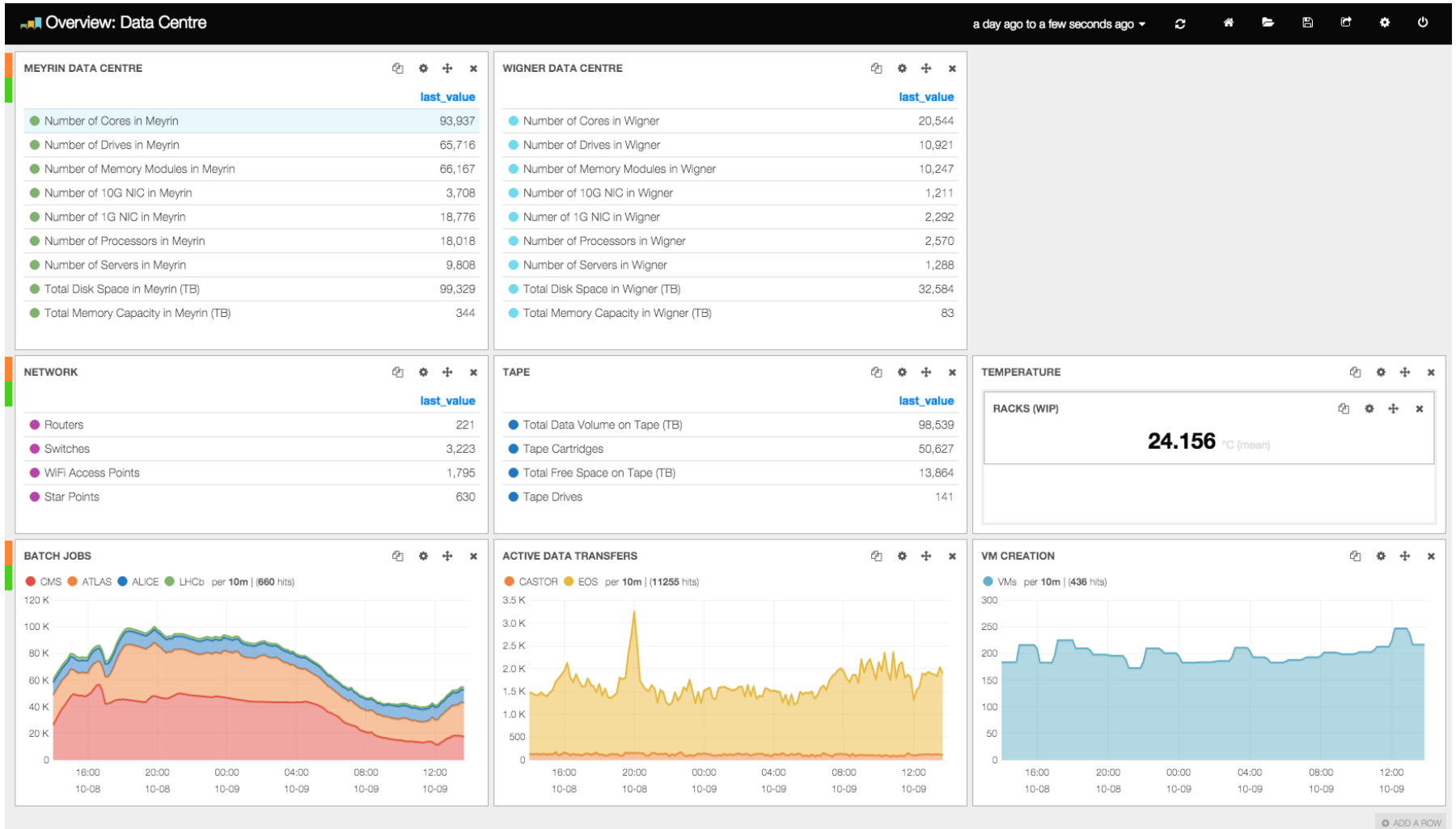
CERN and CERN IT

- European Organization for Nuclear Research (Conseil Européen pour la Recherche Nucléaire)
 - Founded in 1954, today 21 member states
 - World's largest particle physics laboratory
 - Located at Franco-Swiss border near Geneva
 - ~2'300 staff members, >12'000 users

- CERN IT to enable the laboratory to fulfill its mission
 - Main data center on Meyrin site
 - Wigner data center, Budapest, 23ms distance
 - Connected via two dedicated 100Gbs links
 - See also Wayne's talk tomorrow

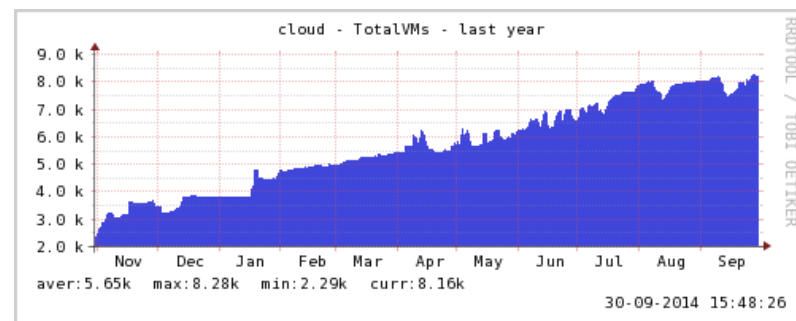


The CERN DCs in Numbers



Agile Infrastructure (AI): IaaS

- CERN private cloud growing
 - 3'000 hypervisors, 20% at Wigner
 - +2'250 in the coming 6 months
 - hosting 8'000 VMs (+6'000 in one year!)
 - 64k cores, 128TB RAM
 - 1'000 users, 200 shared projects
- Rolling upgrade to Icehouse
 - Kerberos, x.509, SSO, IPv6, cross-cell tenants
 - Almost finished
- More details in my talk on Friday
- Phase-out of CVI has started
 - 20% of machines migrated to OpenStack
 - Volumes for Hyper-V under test



AI: Configuration Management

- 12'500 hosts now managed with Puppet
 - Minor scaling issues were solved
- New mechanism for handling secrets
 - Codename “teigi” (replacing hiera-gpg)
- Quattor EOL: end of October
 - Migration progressing well
- All details in Ben’s talk on Thursday

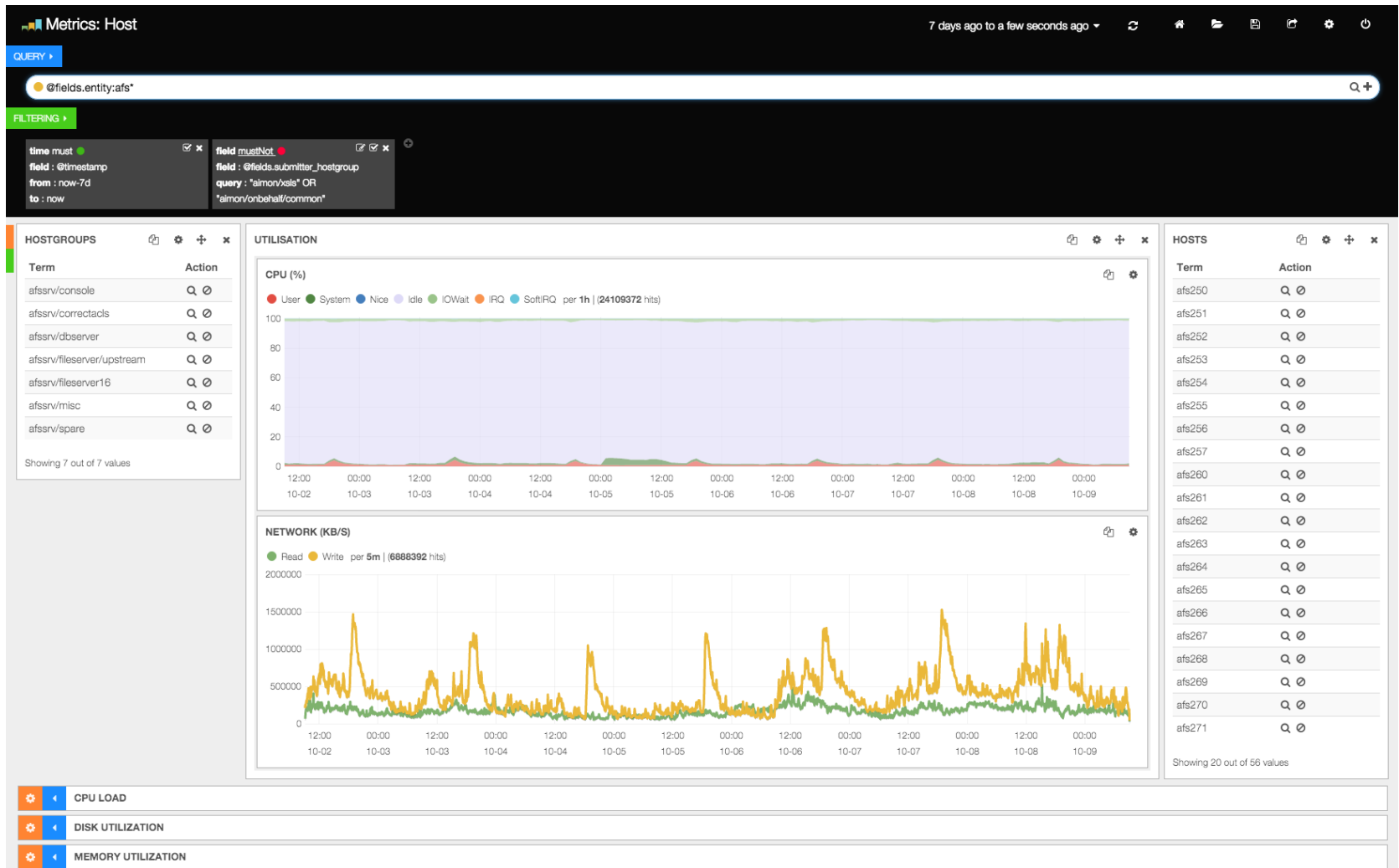


AI: Monitoring (1)

- New monitoring dashboards
 - Single endpoint: <https://dashboards.cern.ch>
 - Hosts, host groups, notifications, DC overview
 - Replacing Lemonweb and SLS
- Lemon(web) and LAS to be phased out with Quattor end of October
- Current service availabilities (before: SLS) integrated into Service-NOW



AI: Monitoring (2)



AI: Monitoring (3)

Home Tool View

CERN Service Portal

easy access to services at CERN

Search:

Home News Service Information Navigate Catalogue Contacts My Profile Site Guide

Service Availability Overview 09 Oct, 2014 14:02

Service is operating normally Performance issues Service disruption Informational message No Information [Click here to hide/show the top banner](#)
[Click here to view the FAQ](#)

| | | | |
|---|---|---|--|
| <h4>Batch Services</h4> <ul style="list-style-type: none"> Batch BOINC <h4>Collaboration Services</h4> <ul style="list-style-type: none"> Conference Rooms E-Mail Eduroam Lync Sharepoint <h4>Computer Security Services</h4> <ul style="list-style-type: none"> Certificate Authority Single Sign On and Account Management <h4>Desktop Services</h4> <ul style="list-style-type: none"> Windows Desktop <h4>Development Services</h4> <ul style="list-style-type: none"> GIT JIRA SVN | <h4>Document Management Services</h4> <ul style="list-style-type: none"> CDS <h4>Engineering Software Services</h4> <ul style="list-style-type: none"> Electronics Design Software Mechanical Design Software <h4>GRID Services</h4> <ul style="list-style-type: none"> File Transfer GRID Compute Element GRID Development GRID Information GRID Infrastructure Monitoring LFC MyProxy VOMS WLCG Support <h4>Infrastructure Application Services</h4> <ul style="list-style-type: none"> Indico Event Application Support <h4>Interactive Services</h4> <ul style="list-style-type: none"> LXPLUS Windows Terminal | <h4>IT Infrastructure Services</h4> <ul style="list-style-type: none"> ACRON Configuration Management Load Balancing Messaging Monitoring Server Provisioning <h4>Network Services</h4> <ul style="list-style-type: none"> Campus Network CIXP Datacenter Network Network Database and Registration Network for Projects and Experiments Technical Network WIFI WLCG Network <h4>Printing Services</h4> <ul style="list-style-type: none"> Printing and Copying | <h4>Storage Services</h4> <ul style="list-style-type: none"> AFS Backup and Restore CASTOR Ceph CVMFS DFS <h4>Telephone Services</h4> <ul style="list-style-type: none"> Fax Fixed Line Phone <h4>Text and Media Services</h4> <ul style="list-style-type: none"> Bulletin Public Information Display <h4>Web Services</h4> <ul style="list-style-type: none"> AFS Web Hosting CERN Search Databases Applications Drupal IIS Web Hosting Java Web Hosting Twiki |
|---|---|---|--|

CERN CentOS 7 (CC7)



- Test version released on Aug 4
 - CentOS 7 upstream RPMs, no CERN customization
 - Linux team provides additional software via CERN and CERNONLY repositories
 - CC7 updates are staged
 - CC7 includes yum-autoupdate
- CERN Linux team contributed to CentOS build infrastructure setup based on koji
 - Very constructive community collaboration
- Lxplus7 service in preparation
 - Some administrative nodes already moved
- All details in Thomas' talk yesterday

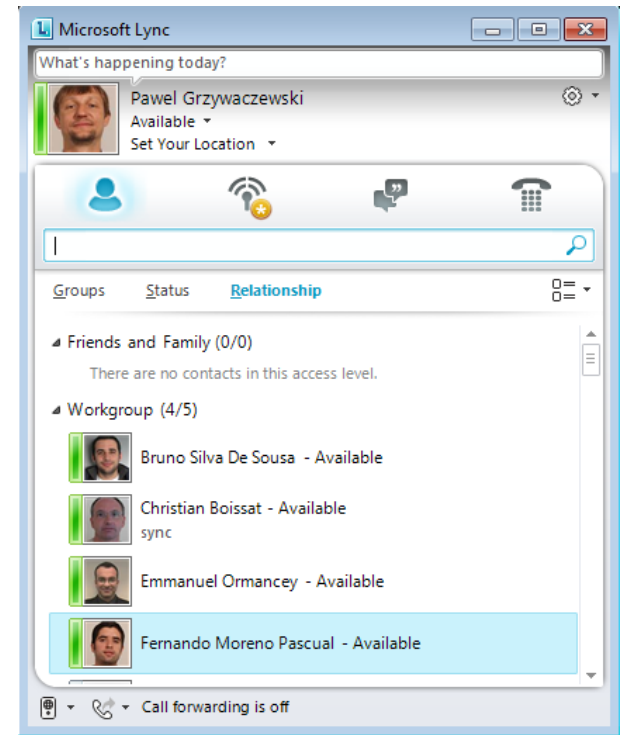
Windows



- Internet Explorer 11 deployed in September
 - Will be rolled out to all centrally managed Win7 PCs this month
- Office 2013 now the default version of MS office
 - Being installed on all new Windows PCs
- MS Antivirus System Center Endpoint Protection
 - Now included in installation images for all centrally and locally managed Win7 and Win8.1 computers
- Windows XP: still ~400 installations around
 - No internet connectivity
- Windows VM usage on the Cloud
 - Significantly increased over summer
 - Partially due to CVI phase-out

Lync: Phone and Collaboration

- Skype-like product from Microsoft product
 - Successfully introduced at CERN in Oct '13
 - Mature and reliable, rich feature set
 - Access via app or Lync/VoIP phone
- Phone mode
 - CERN number migrated to Lync
 - User is contacted via Lync client on a (sub)set of devices
 - Users can place and receive calls on their CERN number even at their home institute
 - Lync federation possible



Social @ CERN

- Enterprise networking platform for CERN moved to production
 - Similar to Twitter and Facebook, but for professional use
 - A new communication channel to discover expertise
- Community feature
 - For web content integration
- Accessible across platforms
 - Apps for iOS and Windows Phone

CERN Accelerating science

Social

Share with everyone ▾

Start a conversation

Following Everyone Mentions ...

Arne Wiebalck
That moment when you open your laptop at a conference and it automatically connects to the network within seconds. Thanks #eduroam! #Hepix
@ Bruno Silva De Sousa and 2 others like this.
About an hour ago Like Reply Follow #eduroam ...

UPDATES
A new era of safety at CERN: CERN is modernising its safety policy and organisational structure in matters of Safety #safety
5 days ago Like Reply Follow #safety ...

Tim Bell
@Gavin McCance @Ben Jones Interesting experience from eBay on scaling Puppet to 100K nodes with Linux, Windows and Mac
<http://www.slideshare.net/Puppet-abs/puppet-availability-and-performance-at-100k-nodes-puppetconf-2014>
06 October Like Reply ...

▼ Show all 3 replies

Tim Bell They'll only have 1/2 the nodes once ebay and paypal are broken up. pvc looked like an interesting tool.
06 October Like ...

Ben Jones pvc does look interesting, particularly for avoiding the "spiral of death" type outage that we saw with pdb issues
06 October Like ...

Add a reply

Tim Bell
@Miguel Coelho dos Santos @Pedro Andrade Some great #kibana features coming too (stacked bars, aggregation) <http://www.elasticsearch.org/blog/kibana-4-beta-1-released/>
06 October Like Reply Follow Pedro Andrade ...

Version Control Services

- **GitLab service in pilot setup**

- Code review and repository management
- Alongside with regular git service
- New service built on top of AI building blocks (Puppet-managed OpenStack VMs + Ceph + DBoD)



- **Continuous Integration service in preparation**

- Based on Jenkins
- Details were in Borja's talk yesterday



Jenkins

Batch Computing

- HTCondor pilot progressing well

- Worker nodes with Grid software were set up
- Successful test submission via a Cream CE
- More details in Jérôme's talk later today



- Job performance/efficiency

- Working group to look into efficiency issues observed by experiments
- VMs vs. phys. Hardware, Meyrin vs. Wigner, AMD vs. Intel, ...
- Non-trivial: time-dependency, job-dependency, reproducibility

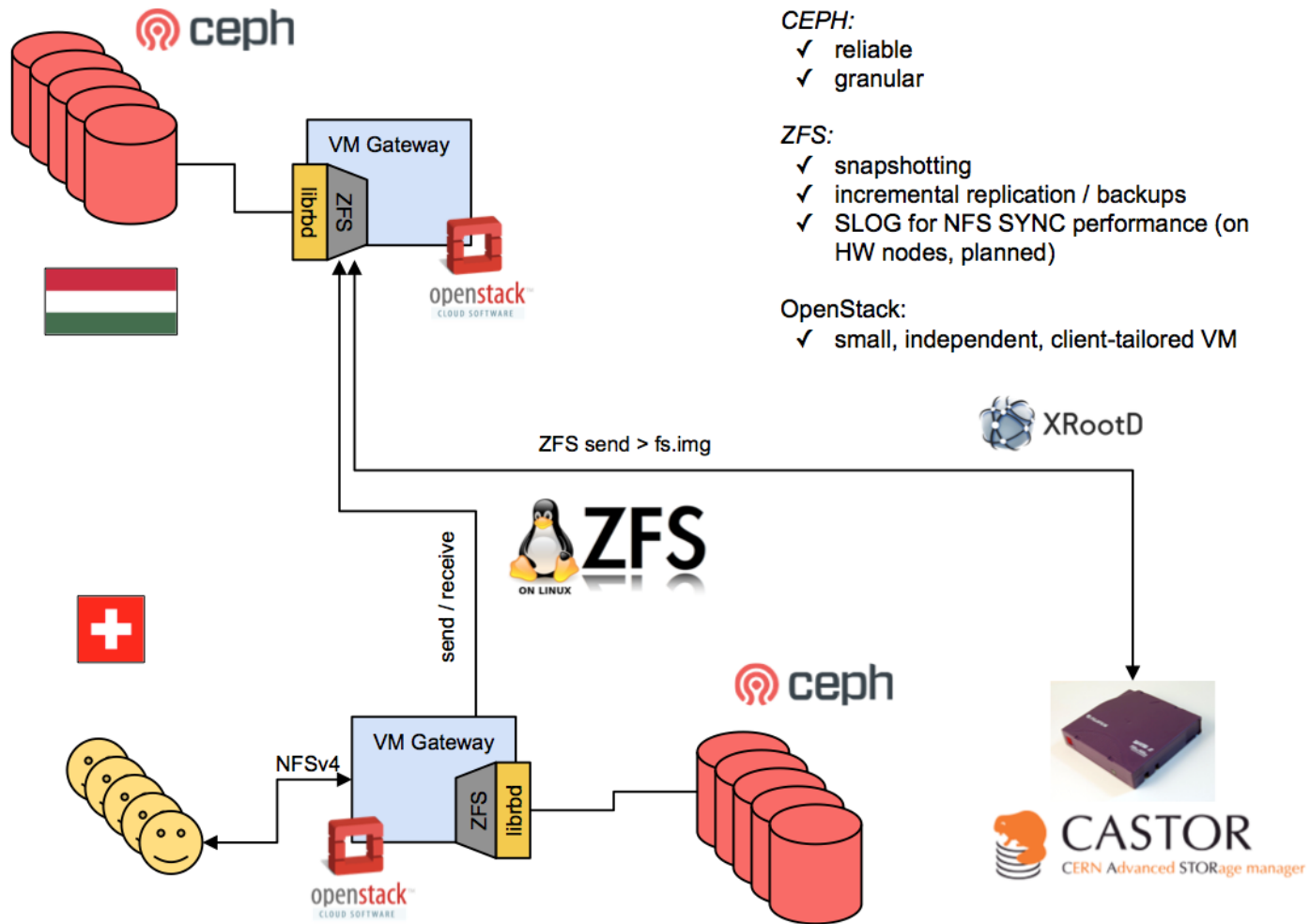
Storage: CERNbox

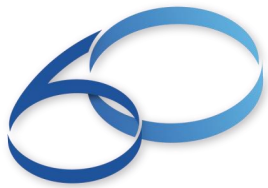


- **Dropbox-like service based on ownCloud**
 - Currently in beta, ~700 users
 - EOS backend under validation
 - Provide virtually unlimited user space
- **Workshop on Cloud Services for File Synchronization and Sharing**
 - To be held Nov 17-18 at CERN
 - <https://indico.cern.ch/event/336753/>
- **All details in Luca's talk on Wednesday**



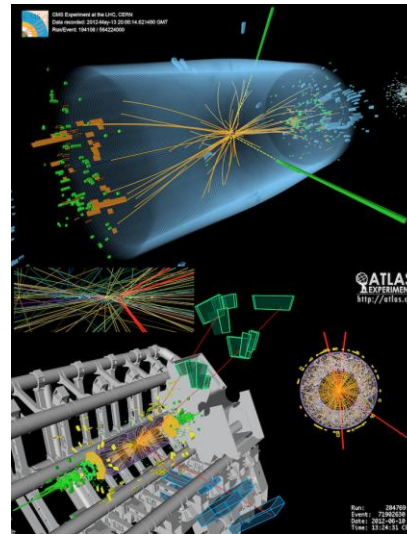
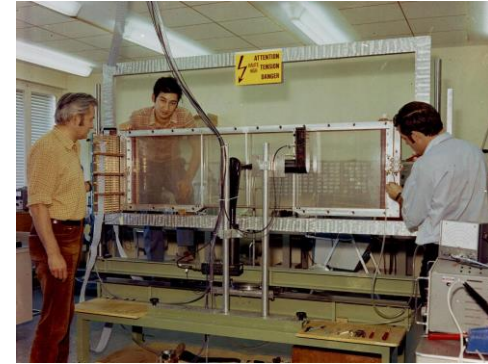
Storage: NFS-on-demand with ZFS





YEARS/ANS CERN

Celebrating 60 Years of CERN



cern.ch/cern60

