

ESS

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EUROPEAN  
SPALLATION  
SOURCE



# Plans for Centos 7 EOL

## Migrating to Ubuntu Server

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# Centos7 for ESS control system

Default OS for INFRA, EPICS IOCs, Control Room

- EPICS IOCs
  - Runs on  $\mu$ TCA crates and IPCs (Lenovo basic servers)
  - EPICS environment compiled for Centos7 available as NFS share and conda pkgs
- Infrastructure servers
  - Mostly Vms
  - Already use other distributions (Proxmox VE, CEPH on Ubuntu)
- Control Room workstations
  - Mixture of VMs and desktop computers
  - Difficult to use a desktop OS with recent HW
- Automated deployment
  - Ansible playbooks to install OS, create Vms, deploy applications
  - EPICS IOC deployment via web tool calling Ansible playbooks (AWX)

# Moving to Ubuntu Server

## New OS for INFRA, EPICS IOCs, Control Room



- EPICS IOCs
  - mTCA based IOC will run on Yocto (project started independently from Centos7 EOL)
    - Most real time systems will run on  $\mu$ TCA
  - Regular IPCs will run Ubuntu (We already had some requirement on the neutron instrument IOC for Ubuntu → SDK availability for special camera)
  - Will extend the EPICS env. Support with conda packages (already done for neutron instruments IOCs)
- Infrastructure servers
  - Most playbook already support cenots + Debian/Ubuntu
  - Benefit from experience we have from CEPH cluster
- Control Room workstations
  - Improve drastically recent HW support
  - ControlRoom software deployment already adapted to Ubuntu (Ansible) for “special” workstations (laptops)

# Moving to Ubuntu Server

## In actions



- EPICS IOCs

- Adapt a few kernel modules to recent kernel, Ethercat and Ubuntu packaging (dkms)
  - <https://gitlab.esss.lu.se/icshwi-ubuntu>

- Automatic deployment

- Custom process (no tool) based on PXE boot + ansible callback
  - easy to adapt to new OS (was already done for Yocto deployment)
- Was already used for Kickstart autoinstall

- VM creation

- Was already made via Ansible playbook → not change in the workflow (just adapt the playbook)
- Moving to Cloud Init instead of kickstart

	2023	2024	2026+
<b>OS support</b>	Phased replacement of CentOS systems to Ubuntu 20.04 LTS/22.04 LTS* to begin during Q3 2023.	CentOS→ obsolete (actively phased out) Ubuntu 20.04 LTS/22.04 LTS* phased in.	Instrument MTCA & Yocto: investigate suitability and replacement
<b>ESS Conventions and Procedures</b>		Release new OS Management standard based on Ubuntu.	Life-cycle management
<b>ESS support</b>	Support from Controls Infrastructure and ICShwi.	Review of Support effort	Review of Support effort

\* Ubuntu 20.04 LTS is used for testing up until implementation, Ubuntu 22.04 LTS is planned to be the default OS, from Q3 2023.

KM3NeT

Mieke Bouwhuis (Nikhef)

The KM3NeT Tier-0 and Tier-1 software is containerised, the containers are currently all built with CentOS7.

The building of the containers is completely integrated in the CI/CD of the KM3NeT gitlab server.

We are now preparing and testing the rebuilding of all containers with Rocky OS in parallel, in view of the CentOS7 EOL.

In the CI/CD we can include other OS as well for specific use and test cases.

Requirement: in our software build and deployment scheme we rely on aptainer to be maintained

Question: is there a consensus on the OS that will be deployed on the different CCs?

At the moment KM3NeT mainly uses CC-IN2P3, which will move to Rocky.

Will this be the general strategy?



ALBA synchrotron

Sergio Vicente Molina

In the ALBA Synchrotron we use Debian 10 as the main distribution for the control system, but for general computation and HPC we were used to CentOS 7 (and 8), and now we are migrating to Alma Linux in general because we thought the project was a little more mature, but we are also using Rocky Linux in some cases where the official support for HW drivers are certified by the vendor, and not for Alma. For example, for the RDMA driver of Mellanox, or the GPU driver of NVIDIA.

IHEP

Jingyan Shi

# Linux Upgrade at IHEP

- The ideal time for the operating system upgrade at IHEP is in August
  - One week summer holiday
  - Allowing the computing platform to be halt
- IHEP plan to upgrade to Alma Linux 9.3 in the coming August
  - Consult the CERN's selection
  - Extensive evaluation work has been undertaken
  - Worrying about the technical support after the upgrade
  - Some experimental software may be challenging to compile
    - The old CERN lib is still necessary
- We are eager to learn from the experiences of other sites

QMUL

Alex Owen

# GridPP T2: CentOS7 EOL

Core Services: DNS/DHCP/LDAP/NFS/etc    Running on EL8/9



Grid Services: SE + CE    Testing on EL9    (Blocker StoRM SE)



Batch System: SLURM and CN Testing on EL9 complete  
Roll out (replacing CentOS7) by 1<sup>st</sup> July



EL of choice is: Rocky9

KIT

Max Fischer

# Plans for EL7 EOL at **FZK-LCG2 / GridKa**

- Move to **RHEL8** for the foreseeable future
  - No clear EL9 candidate when planning
  - Deployment/Config management shared with groups for other science domains
- Migrated online/nearline **storage end of 2023**
  - Partially forced by vendors
- Preparing to migrate **batch middle of 2024**
  - HTCondor-CE 23 @ RHEL8 in pre-prod
  - Currently checking dependencies for WNs





ASGC

Alexandria University

APC CNRS

BNL

Thomas Smith

# BNL Alma 9 readiness



- Transition from **SL7 to Alma Linux 9** coming soon™
  - Upgrade to HTCondor 23.0 will coincide with Alma 9 upgrade
    - Targeting running jobs on singularity (apptainer) containers
  - Porting and testing puppet v3 code to support Alma 9 and puppet v7+
  - IPv6 will be added at the time of Alma 9 rebuild
- Upgrade will be in rolling fashion: SL7 nodes rebuilt into Alma 9 in batches
  - This should minimize downtime and ensure access to existing resources during the transition period
  - Use of new provisioning infrastructure (foreman/puppet)
- Targeting upgrade of ATLAS T1 pool by summer '24, BNL shared pool to follow pending end of RHIC run 2024.
  - sPHENIX and STAR have begun validation of condor workloads running on Alma 9/HTC23
  - Some experiments on the shared pool use AFS, and will need time to migrate to an alternative before Alma 9 can be fully adopted
- Upgrade of general IT and storage services from SL7 to RHEL 8 or Alma 9 (as applicable) is in progress and ongoing

CC-IN2P3

CEA IRFU

LPNHE



CESNET / Czech Academy of Sciences

CSCS

GSI

LAPP

CNAF, Padova

KEK

Nikhef

St Petersburg



RWTH

RAL

Martin Bly

# RAL Plans for Linux

- General move to Rocky 8 on site
- Tier-1 plan is to migrate SL7 systems to Rocky 8 for most systems.
  - There is a hard deadline of End June 2024 to turn off remaining SL7 hardware
  - Soft deadline of end May 2024 for completing the migrations for buffer time
  - The batch system has been running on Rocky 8 (but Docker containers...)
  - As mentioned in site report, the Storage systems are currently being migrated
  - Some systems may go direct to Rocky 9 if time permits
- For Oracle DB systems that need a supported OS:
  - These are running on Oracle Linux 7 ( OL7 ) which supported by Oracle until December 2024. Starting now to migrate the DB systems to Oracle Linux 8
- Other groups and services in the DC are migrating from SL7 to Rocky 8 or in some cases direct to Rocky 9. The cloud team have deprecated the use of SL7 containers and are working with users to migrate.
  - Cloud team absolute cutoff for end of EL7 VMs is end August 2024
- Special cases may be allowed but will need a cases and documented responsibility and future migration plan

SLAC

Edinburgh

Louvain

Bern

Glasgow



Manchester

Massachusetts

Michigan

Oklahoma

Oxford

Umea

IJCLab