



Linux Distribution and Ecosystem Evolution in Control Systems Workshop

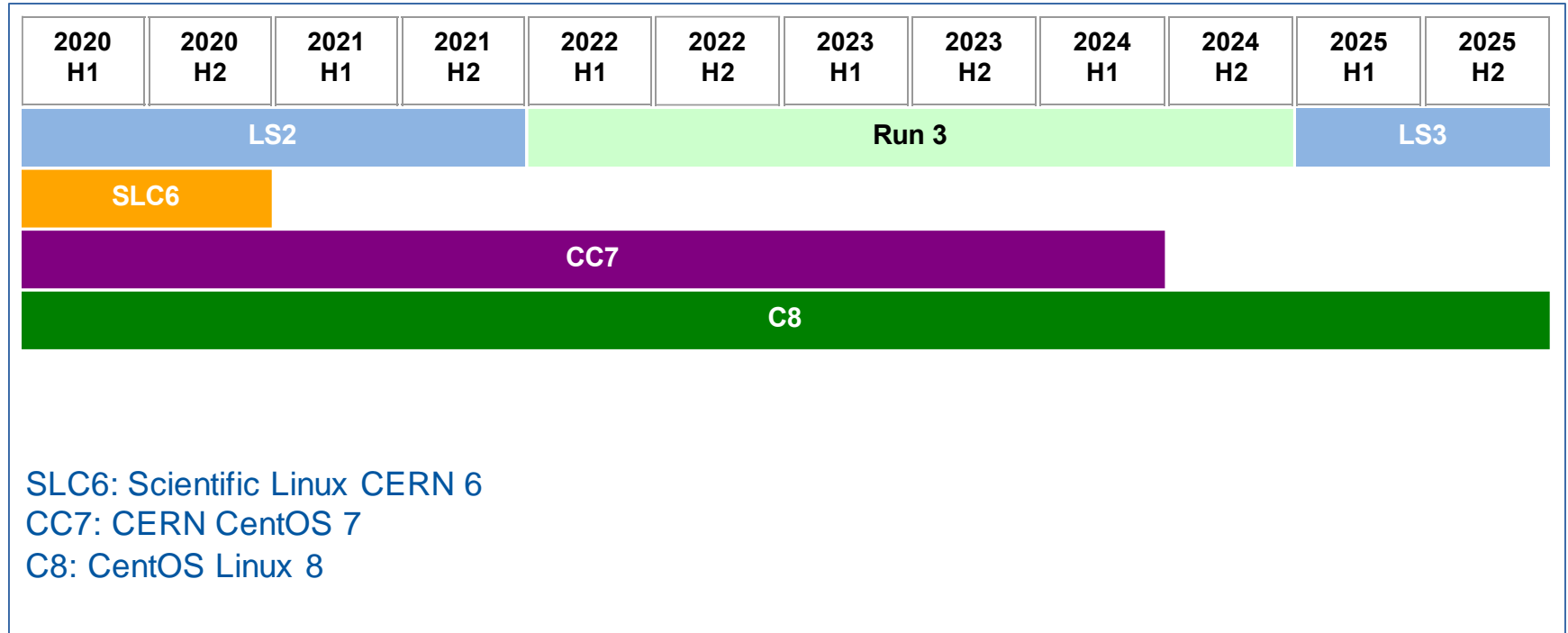
An update on CentOS EoL and CentOS Stream

2021-10-14

Ben Morrice

On behalf of CERN IT

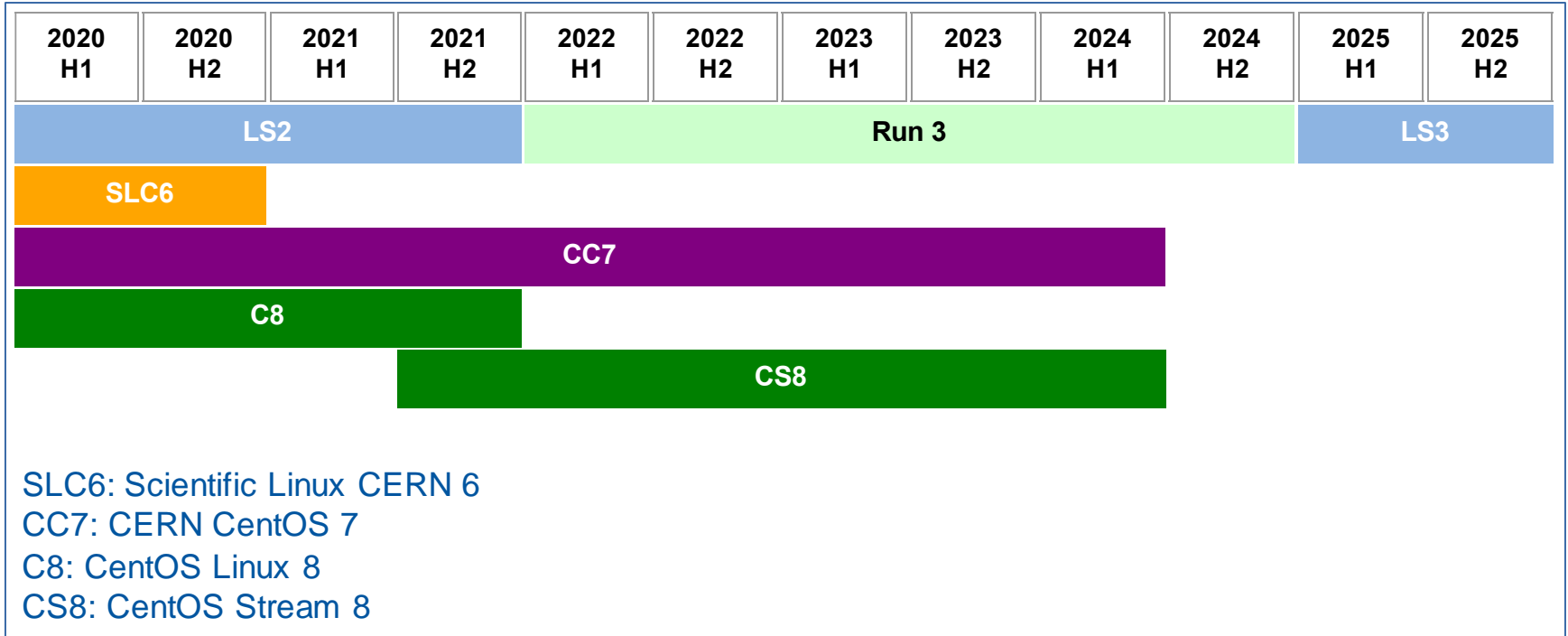
Distribution Landscape - November 2020



CentOS Linux 8: change of end-of-life

- On the 8th of December 2020, the CentOS Project announced it was shifting its focus from CentOS Linux to CentOS Stream
- During the same announcement, the end-of-life for CentOS Linux 8 was reduced from being a 10 year supported distribution to being 2 years
- Support for CentOS Linux 8 will end at 31.12.2021

Distribution Landscape - December 2020



CentOS Stream 8

- CentOS Stream 8 is a rolling updates Linux distribution that will be used by RedHat as the upstream for each RHEL minor release
 - One way of looking at this is that RHEL development is now done in the open via Stream. Previously this was performed behind closed doors
- There will not be any major 8.x point releases (minor releases)
- Supported for 5 years (End-of-life 31.05.2024)
- Contribution will be easier than contributing to CentOS Linux

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CentOS
Stream



Red Hat
Enterprise Linux



CentOS



CentOS Stream 8

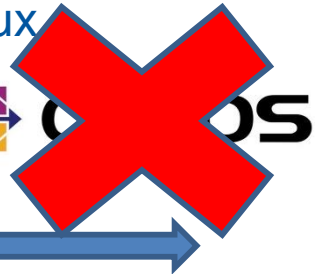
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CentOS
Stream

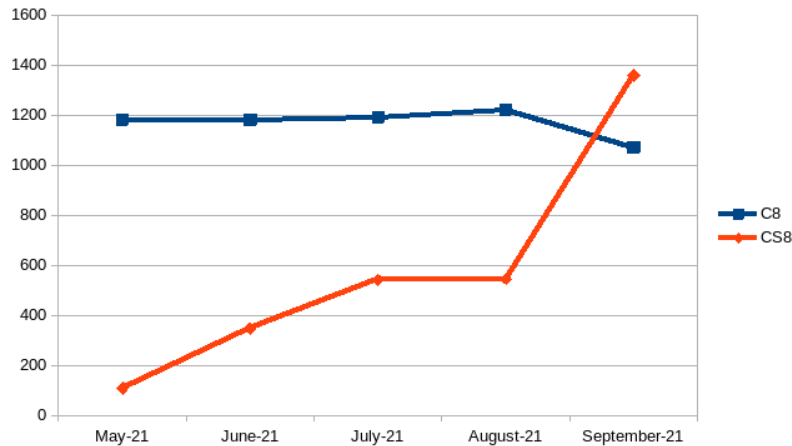


Red Hat
Enterprise Linux



Situation today

- CC7 (CERN CentOS 7) continues to be a supported operating system, until 30.06.2024
- C8 (CentOS Linux 8) is available as a supported operating system, until 31.12.2021



- CS8 (CentOS Stream 8) is available as a supported operating system, until 31.05.2024
- Since becoming available as a supported operating system (01.05.2021), CS8 is now being actively used for production workloads

CentOS Stream at CERN

- We use only upstream content
 - Zero rebuilds
 - With just 1 very small exception
- We rebuild our own *centos-stream-release* file
 - This allows us to hardcode repositories to use our <https://linuxsoft.cern.ch> mirror
 - We also deploy some RPM GPG keys via this approach as well, which are used by RPMs created/signed through our internal build system (koji)
- We provide a **CERN** repository that contains the above release file, and any other site specific RPMs

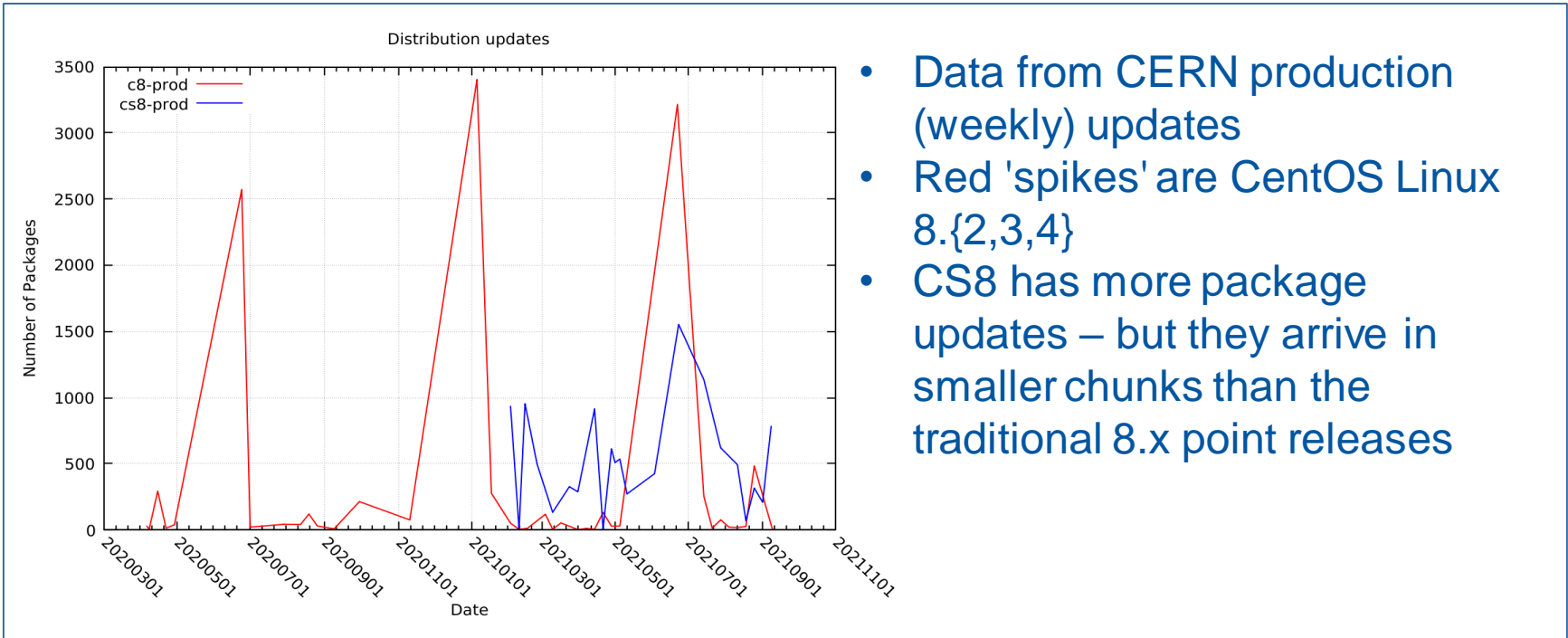
The only other aspect in addition to the above, is an additional control of when upstream packages are 'released'

CentOS Stream: CERN release process

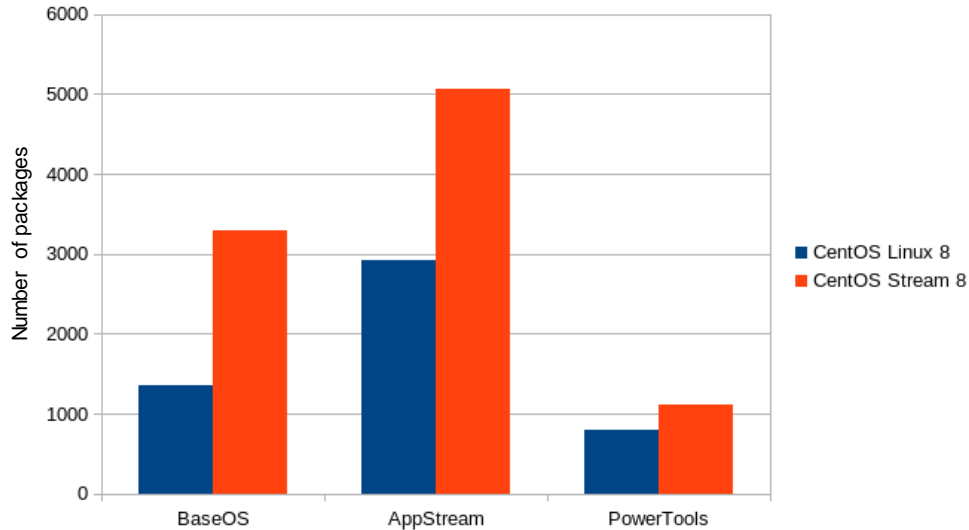
- We 'gate' or control the release of new CentOS Stream content through snapshots
- Daily scripted process creates a snapshot of upstream CentOS Stream content -> *s8-snapshots/YYYYMMDD*
 - Internal validation tests are performed
 - Can key package families be installed?
 - Do we need to rebuild kernel kmods or *-release* RPMs?
 - Providing the above passes, we promote the \$TODAY snapshot to our *'testing'* URL
 - A subset of CERN hosts are configured to use this URL, which allows us to have real world testing on a diverse environment
 - Once a week (Wednesday), the snapshot from the previous week is promoted to our *'production'* URL
 - All other CERN hosts consume this content

Note: a presentation on implementation details is scheduled for the Autumn HEPiX in October

CentOS Stream 8: update frequency



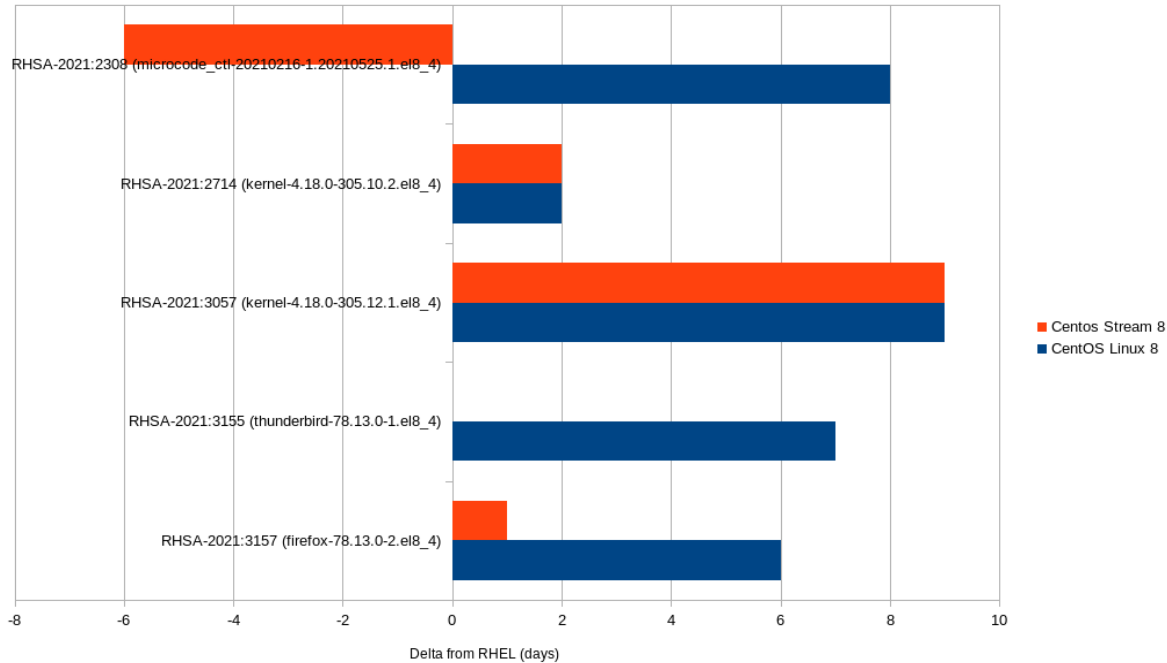
CentOS Stream 8: iteration of change



- CentOS Stream 8 has more version history (# rpms)
- Faster iterations of change

```
dnf repoquery \
--repofrompath=tmprepo,http://linuxsoft.cern.ch/cern/centos/$dist/$repo/x86_64/os \
--repo=tmprepo --arch x86_64
```

C8 versus CS8: CVE response time



CERN is not working alone

- CERN has been working closely with FNAL and other HEPiX sites
 - Analysis of scientific use cases/scenarios for CERN/FNAL/HEP
 - A joint statement on our findings/proposal will be published shortly on <https://linux.cern.ch>
 - More detailed information will also be shared at the upcoming HEPiX autumn event (<https://indico.cern.ch/event/1078853/>)
- Linux Distribution landscape is complicated
 - We've outgrown the "*1 size fits all*" approach
 - Different use cases call for different distributions
 - It's inevitable that multiple distributions will need to be supported

Situation tomorrow

- CentOS Stream 8 EoL 31.05.2024, 1 month earlier than CC7 (30.06.2024)
 - A solution still needs to be found after CS8 EoL
- In parallel other options are also either becoming available, or being evaluated
 - CentOS Stream 9 is in the process of being released now (which will be used as the upstream for RHEL9)
 - Enterprise Linux Clones (RockyLinux, AlmaLinux, etc)
 - Red Hat Enterprise Linux
 - CERN are discussing with Red Hat the option of having an academic site license

Summary

- CERN CentOS 7 is still a supported operating system
- CentOS Stream 8 is now a recommended operating system for new installations
- CentOS Linux 8 end of life is 31.12.2021, migration from C8->CS8 is strongly recommended
- CentOS Stream 9 will also be supported by CERN, once released
- The option of a RHEL academic site-license is being discussed, which will be of interest for some CERN use cases but is unlikely to be adopted as the default Linux distribution



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