



# Linux Future Committee #6

2022-10-28

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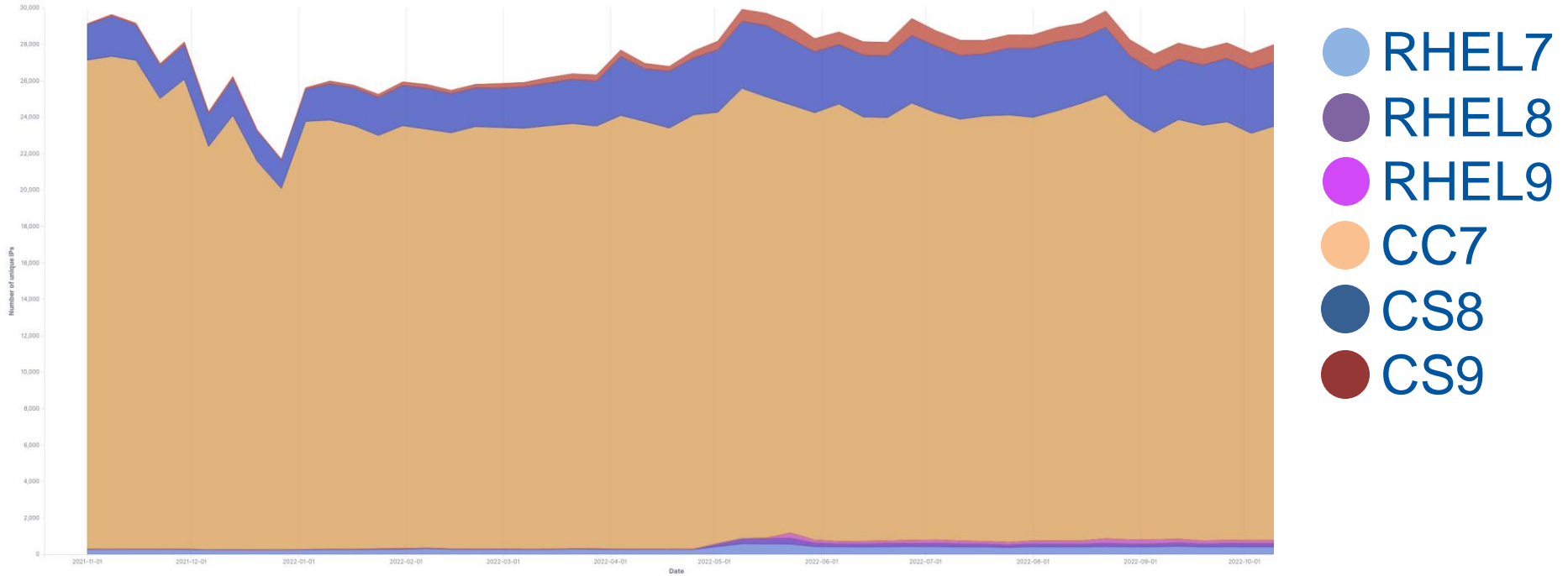
On behalf of CERN IT

IT-CD-CLI

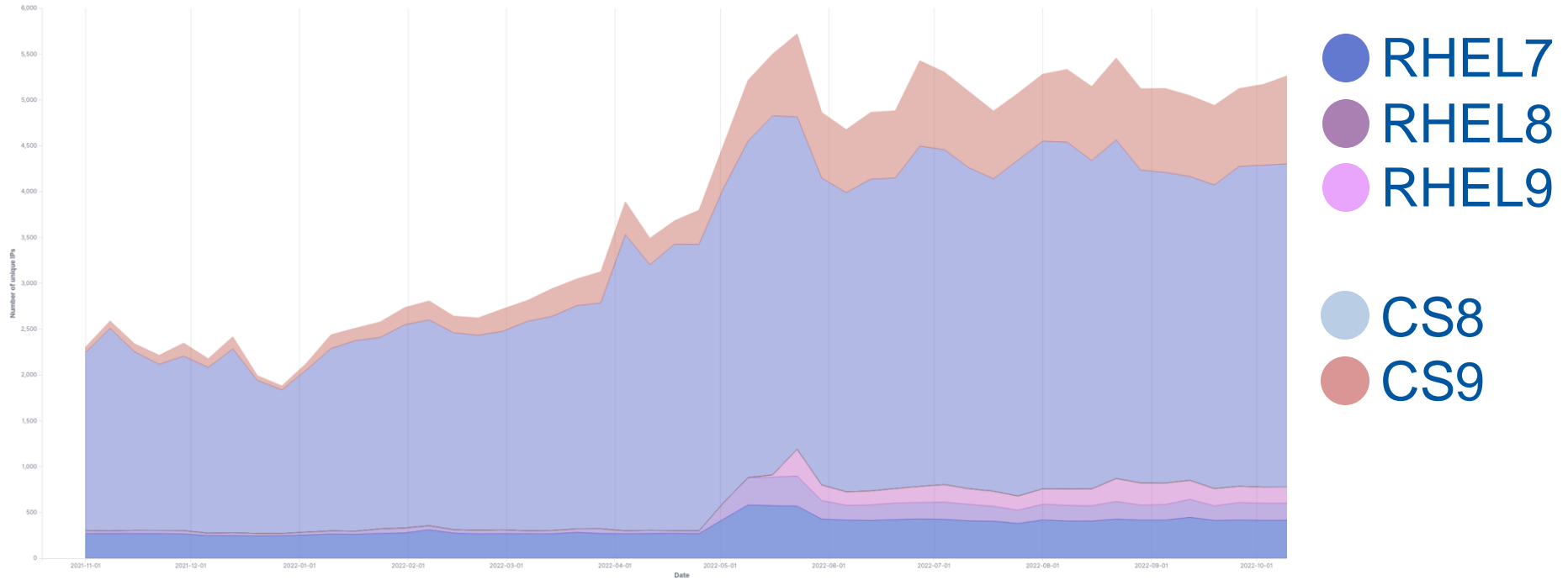
# Agenda

- Evolution of distribution usage
- Usage of Linux at CERN (survey results)
- What happens after CC7 end-of-life (06.2024) ?
- Experiences so far with CentOS Stream
- Future plans
- Questions ? / Discussion

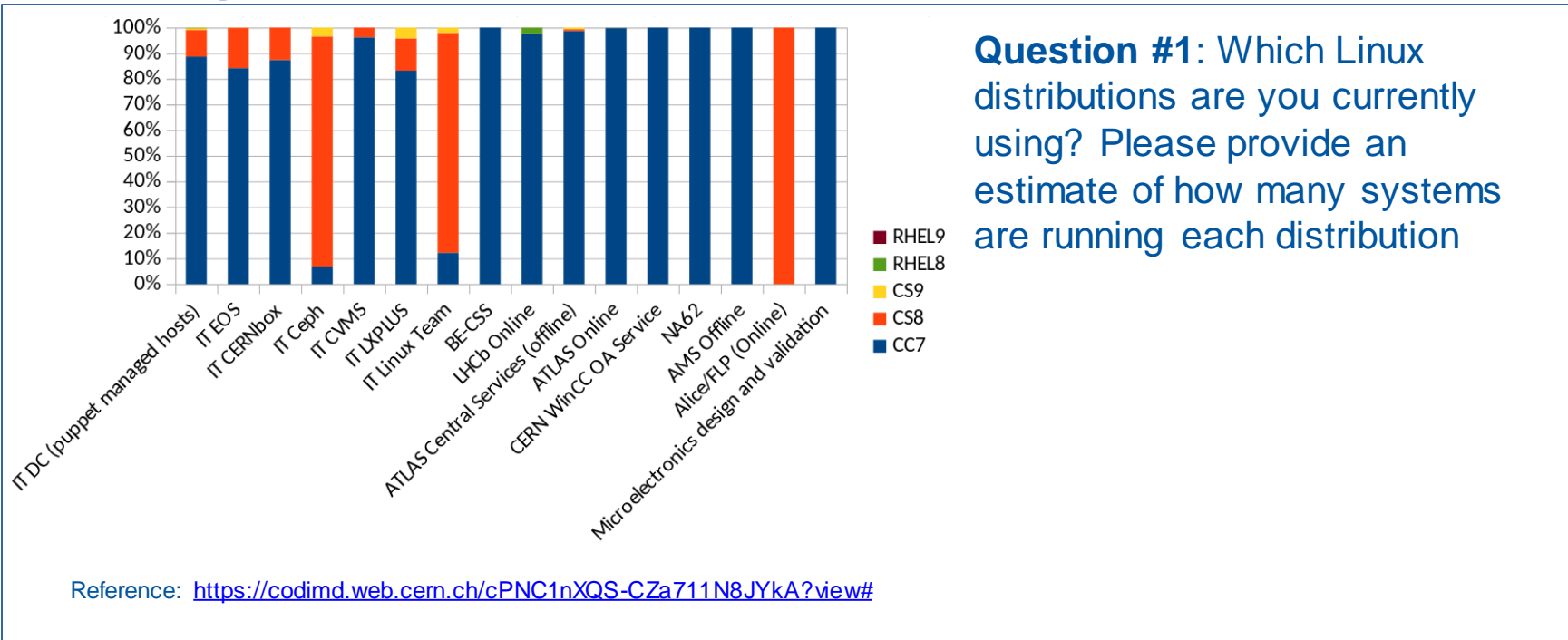
# Evolution of distribution usage



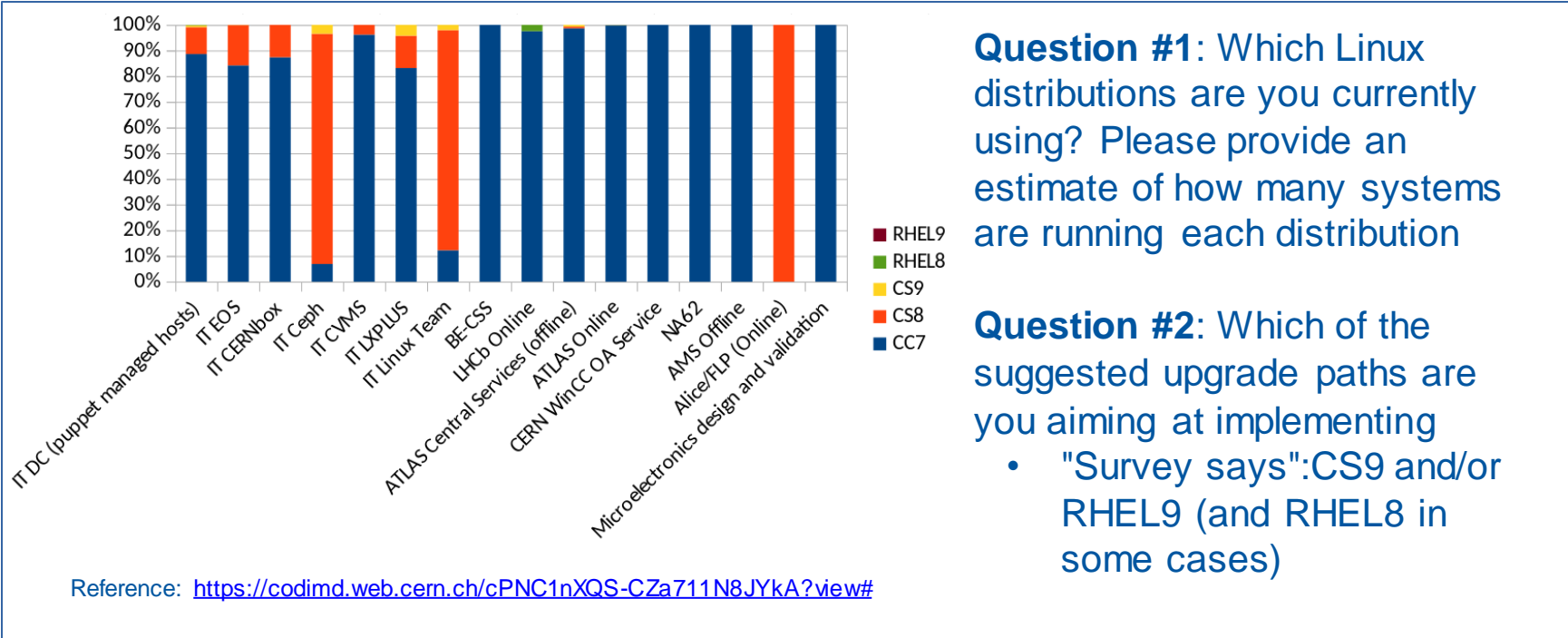
# Evolution of distribution usage (excluding CC7)



# Usage of Linux at CERN



# Usage of Linux at CERN



**Question #1:** Which Linux distributions are you currently using? Please provide an estimate of how many systems are running each distribution

**Question #2:** Which of the suggested upgrade paths are you aiming at implementing

- "Survey says": CS9 and/or RHEL9 (and RHEL8 in some cases)

Reference: <https://codimd.web.cern.ch/cPNC1nXQS-CZa711N8JYkA?view#>

# What happens after CC7 end-of-life (06.2024) ?

- IT will rebuild the RHEL7 ELS (Red Hat Enterprise Linux 7 Extended Lifecycle Support) product and provide this content through an **addon** repository on linuxsoft.cern.ch
- This work was initiated through the ATS-IT "CC7 support for Accelerator Front-end Platforms" working group and has been approved by management [0]
- This will effectively extend the end-of-life of CC7 for eligible hosts until 30.06.2026
  - Note: this solution is suited only for systems that cannot upgrade to later distributions
- IT will work to ensure that **basic functionality** (cern-get-keytab and the Kerberos infrastructure) will continue to operate during the ELS phase
- All other infrastructure tied to CC7 is **out-of-scope** and will cease to be supported on 30.06.2024

2021 H1	2021 H2	2022 H1	2022 H2	2023 H1	2023 H2	2024 H1	2024 H2	2025 H1	2025 H2	2026 H1	2026 H2	2027 H1
LS2		Run 3								LS3		
CC7							CC7 "Extended support"					

[0] <https://edms.cern.ch/document/2749524/1.1>



# CC7 release process tweak

- Since the inception of CC7
  - Packages from upstream (CentOS) were released into CERN 'testing' repositories on a daily basis
  - 'testing' packages were promoted into 'production' once a week
  - There was no logic to check how long a package had been in 'testing'
- This often resulted in situations where upstream packages were promoted to 'production' after spending less than 1 week in 'testing'
- This logic will be tweaked on **01.12.2022** to ensure that all packages remain in 'testing' for at least 1 week before being promoted to 'production'
  - <https://cern.service-now.com/service-portal?id=outage&n=OTG0073685>

# Experiences so far with CentOS Stream

- Both CentOS Stream 8/9 (CS8, CS9) are feature complete with the CERN environment
- General uptake (replacing CC7) has been slow, though steady
- Several bugs have been encountered in Stream, which were not present in RHEL
  - The CERN IT gated release process helped us to detect these problem packages in 'testing' and control their impact before they were promoted into 'production'
- Some user communities had previously expressed concerns on the feasibility of using Stream in a production setting
  - This feeling has also recently been expressed internally by some IT groups

# Future plans

- CERN is evaluating our original recommendation [0] of utilising CentOS Stream as the default Linux Operating System
- Discussions are currently taking place internally within IT
- We are continuing to work with Fermilab and encourage feedback from the HEP community
  - There will be a presentation from CERN and a Linux BoF at HEPiX [1] next week

References:

[0] <https://linux.web.cern.ch/#update-on-centos-linux-strategy>

[1] <https://indico.cern.ch/event/1200682/contributions/5094007>

# Future plans (potential options)

- Instead of recommending CentOS Stream, the options **could** be:
  1. Recommending RHEL instead
    - CERN has a site license
    - Not all HEP sites are this lucky
  2. Recommending a RHEL rebuild (AlmaLinux / Rocky Linux)
    - CERN site license would not be optimised
    - All HEP sites can profit
  3. Recommending **both** RHEL and a RHEL rebuild
    - CERN site license could be optimised for hosts at CERN
    - Some services could use a RHEL rebuild
      - Such as those that have interactions with other HEP sites/users
    - More distributions would need to be supported by the Linux team
- If any of these options were to happen, a timeline to decommission support for CentOS Stream would also need to be planned
- Of course, continuing to use CentOS Stream could still be an option 🤔

# Future plans (timelines)

- We would like to converge on a decision as soon as possible
  - Internal analysis is ongoing
  - Feedback from HEPiX and the wider CERN community will greatly assist
- Information on any changes to the recommendation will be announced at a future LFC
- For **NEW** deployments:
  - we currently recommend to pause the deployment of CentOS Stream systems

# Recap

- **CC7** is available to be used (until 30.06.2024)
  - The ELS product can also be used (until 30.06.2026) as **last resort** for use-cases that cannot upgrade to later versions
- **RHEL8** is available to be used
  - The current CERN contract will terminate at the EOL of RHEL8 (31.05.2029)
- **RHEL9** is available to be used
  - Though the current contract will end 31.05.2029
    - (End of life of RHEL9 is 31.05.2031)
- The default recommendation of using CentOS Stream is currently being reevaluated.

# Questions ? / Discussion





[www.cern.ch](http://www.cern.ch)





# Backup slides ...



# Examples of Issues in Stream

- NetworkManager not renewing DHCPv6 lease on CS8 [0]
- New mdadm can't assemble md devices created with previous mdadm [1]
- podman-catatonit upgrade conflict with catatonit [2]
- gflags/glog packages built in wrong order [3]
- Unprivileged users can't use ping in CS8 [4]
- Ceph kernel client issues: [5], [6] (affected RHEL too)
- glibc crashes during updates [7] (RHEL also affected, but less common)
- Rsync client broken [8]