
CERN IT Linux Strategy

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Agenda

- Current situation
- Recent Enterprise Linux drama
- Impact for CERN
- Recommendation
- Outlook

Current Situation

- Deprecation of CentOS Stream at CERN:
 - CentOS Stream 9 EoL on June 30th 2023 ([OTG0077723](#))
 - CentOS Stream 8 EoL on September 30th 2023 ([OTG0079474](#))
 - Migration to AlmaLinux or RHEL required: <https://linux.cern.ch/migration>
- **CentOS 7 EoL coming soon: June 30th 2024**
 - Extended Lifecycle Support for special cases until June 30th 2026
 - Migration to AlmaLinux/RHEL 9 strongly encouraged
- AlmaLinux/RHEL 8 EoL on May 31st 2029
- AlmaLinux/RHEL 9 EoL on May 31st 2032
- End of Red Hat Site License on May 31st 2029

Recent Announcements

- June 21 2023: Red Hat no longer publishing source RPMs in the open
 - “Furthering the evolution of CentOS Stream”
 - Debranded sources used to be published to git.centos.org
 - No longer makes sense for RHEL 8 and 9, the source is CentOS Stream
 - No change for RHEL 7 sources, no impact on CC7
- Only source for all* RHEL 8 and 9 SRPMs is now the Customer Portal
 - Access to the Customer Portal is covered by a EULA that forbids redistribution of packages
 - Rebuilders no longer have legal access to Red Hat SRPMs

* Some sources still available through UBI repositories

Rebuilders' Reactions

- Oracle: provocative.
 - “Keep Linux Open and Free—We Can’t Afford Not To”
 - Oracle as a Champion of Open Source
 - “RH, can’t afford to pay developers? Pull from us.”
- SUSE: unclear.
 - “SUSE Preserves Choice in Enterprise Linux by Forking RHEL with a \$10+ Million Investment”
 - How would this affect their current distribution?
 - Later announced OpenELA “trade association” to “distribute RHEL source code”
 - Oracle, SUSE and CIQ (and Rocky Linux, sort of)
- Rocky Linux: confrontational.
 - “Keeping Open Source Open”
 - Ignoring the changes, using public cloud instances running RHEL
- AlmaLinux: conciliatory.
 - “The Future of AlmaLinux is Bright”
 - Dropping aim of 1:1 in favor of ABI compatibility

ABI Compatibility

- “1:1 bug compatible”
 - Red Hat source RPMs are rebuilt as is
 - Same versions of everything, no deviations
 - Applications built on RHEL work because they’re the same
- “ABI compatible”
 - Red Hat packages are “recreated” from “legal” sources
 - Versions *may* differ, deviations are allowed but minimized
 - Applications built on RHEL *should* work without any issues
 - If they don’t, it’s a bug which will be fixed

Current status for AlmaLinux

- Multiple sources of packages/patches
 - UBI, CentOS Stream, Oracle Linux, upstream projects
- ~99% of packages are 1:1 rebuilds
 - ~75% straight from UBI or CentOS Stream
 - ~24% require some manual patching
 - Sourcing patches from Stream's git or upstream projects
- <1% differ from RHEL
 - Kernels only include security patches
 - Updated microcode for recent CPU vulnerabilities
- Watching closely the evolution with the next point release

Impact on security updates in AlmaLinux

- CVE-2023-32233: use-after-free in nf_tables [Important]
 - RHEL 9 update published on 21st of June, just as access to sources was cut off
 - AlmaLinux had a patch ready, but wasn't sure if they could legally release it
 - AlmaLinux 9 patch released 3 weeks later
- CVE-2022-40982 and CVE-2023-20569: Downfall and Inception [Moderate]
 - CVE announced 8th of August
 - AlmaLinux 8/9 patches released 1 week later
 - Red Hat 8/9 patches for Downfall released 4 weeks later
 - No Red Hat patches available yet for Inception

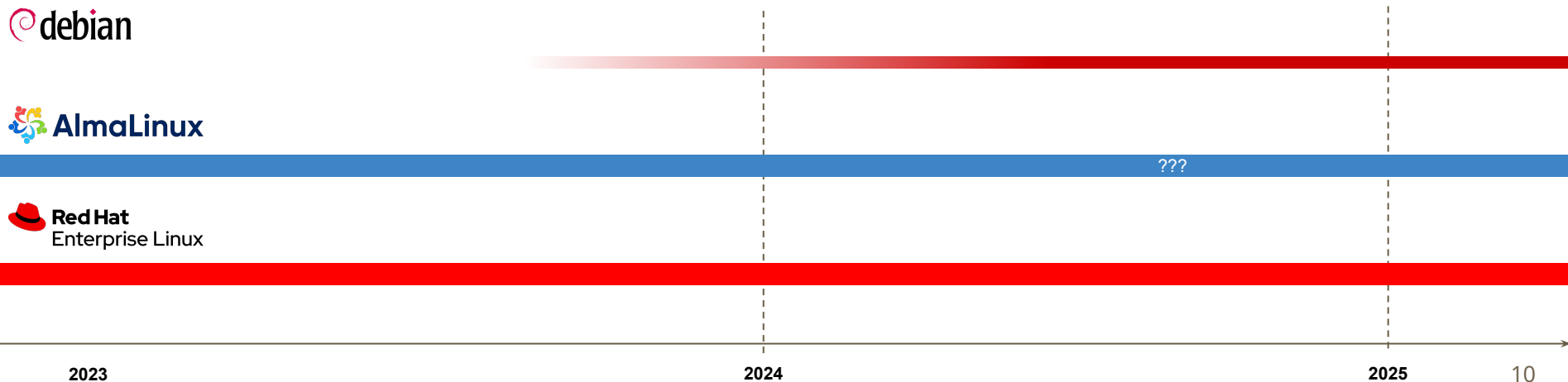
Recommendation for CERN

- Continue relying on **RHEL and AlmaLinux**
- We will continue to monitor the situation and adapt as necessary
- Maintain frequent contact with our upstream providers and partners



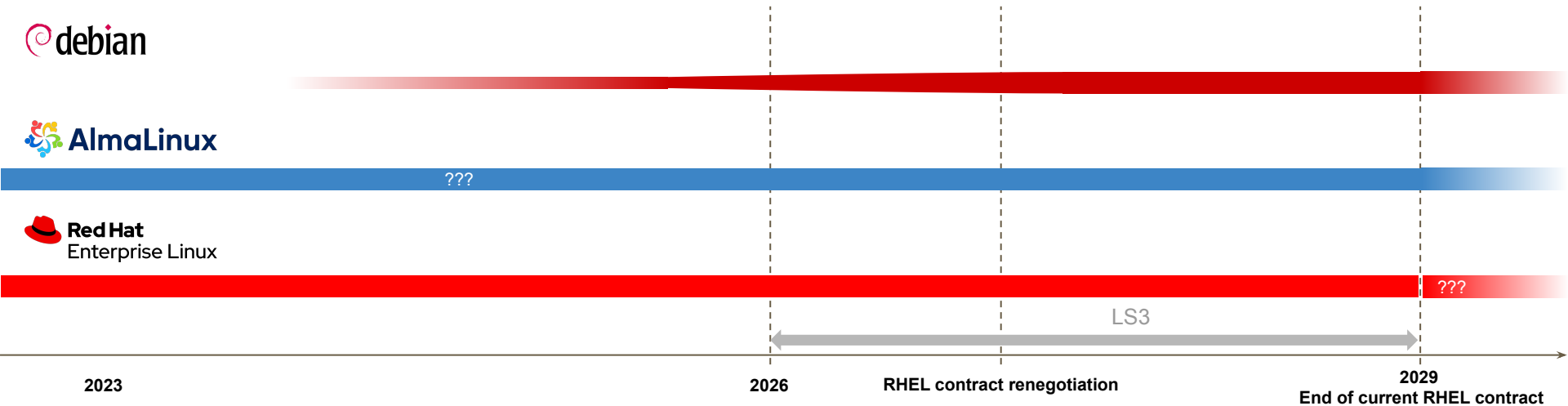
Limited Debian Support (for ATS FECs)

- Front-end computers: embedded machines currently using CC7
 - ~65% won't be able to run RHEL 10, can't be replaced
- Limited scope, well defined use-case
 - Pending final approval



Potential Future Scenario: Dual Ecosystem Strategy

- Ramp up Debian support to match Red Hat / AlmaLinux
 - Credible exit strategy for multiple risk scenarios
- Long-term project, major effort from multiple parties
 - Requires management approval and commitment



Questions & Discussion

Can Red Hat do this despite the GPL?

- The GPL requires that sources are available to whomever you distribute binaries to
 - Red Hat customers have access to sources through the Customer Portal
 - No obligation to non-customers, as they didn't receive the binaries
- The GPL forbids any further restrictions on the recipients' rights
 - RH's EULA does not apply to the software, but to the commercial relationship
- The GPL doesn't give you any rights to future versions of the software
- In short: you *can* distribute the sources, but only once.
 - Red Hat can then terminate your contract and cut you off from future updates

Further discussion in the Software Freedom Conservancy's post: ["A Comprehensive Analysis of the GPL Issues With the Red Hat Enterprise Linux \(RHEL\) Business Model"](#)

Announcements

- June 21: **Red Hat** announces changes to RHEL 8/9 source availability
 - <https://www.redhat.com/en/blog/furthering-evolution-centos-stream>
- June 22: **AlmaLinux** studying impact
 - <https://almalinux.org/blog/impact-of-rhel-changes/>
- June 22: **Rocky Linux** “mitigation” in place
 - <https://rockylinux.org/news/2023-06-22-press-release/>
- June 24: **Rocky Linux** updates are up-to-date
 - <https://rockylinux.org/news/brave-new-world-path-forward/>
- June 26: **Red Hat** responds to criticism
 - <https://www.redhat.com/en/blog/red-hats-commitment-open-source-response-gitcentosorg-changes>
- June 29: **Rocky Linux** pushes back on Red Hat
 - <https://rockylinux.org/news/keeping-open-source-open/>
- June 30: **AlmaLinux** highlights their contributions
 - <https://almalinux.org/blog/our-value-is-our-values/>
- July 10: **Oracle** criticises Red Hat
 - <https://www.oracle.com/jo/news/announcement/blog/keep-linux-open-and-free-2023-07-10/>
- July 11: **SUSE** forks RHEL
 - <https://www.suse.com/news/SUSE-Preserves-Choice-in-Enterprise-Linux/>
- July 13: **AlmaLinux** drops 1:1 in favor of ABI compatibility
 - <https://almalinux.org/blog/future-of-almalinux/>
- August 10: **SUSE, Oracle and CIQ** announce OpenELA “trade association”
 - <https://www.suse.com/news/OpenELA-for-a-Collaborative-and-Open-Future/>
- August 31: **Rocky Linux** supports OpenELA, but not their primary source of packages
 - <https://rockylinux.org/news/statement-openela-2023-08-31/>