



Red Hat
Enterprise Linux



Red Hat Enterprise Linux

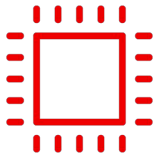
What's new in RHEL 10.1 and 9.7



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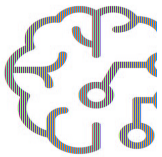


New Marquee Features



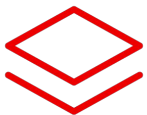
1. AI Accelerators

Easier access to partner validated drivers for AI accelerators from NVIDIA, AMD, and Intel.



2. Offline RHEL Command-Line Assistant (Preview)

Run the RHEL CLA on-premises.



3. Soft-Reboots

Reboot Red Hat Enterprise Linux in seconds without rebooting.



4. Post Quantum Encryption Progress

Continued progress on the status of Post Quantum readiness in both RHEL 9 and 10.



Red Hat Enterprise Linux 10 will help you...



Address the Linux skills gap

with decades of Red Hat's Linux knowledge and expertise



Contain drift and accelerate delivery

with container tools and technologies



Make better decisions at build time

when it's typically easier and cheaper to make changes



Resist security attacks from hackers

when quantum computers become prevalent



Leverage Red Hat Enterprise Linux as a trusted AI foundation

with an extensive ecosystem of trusted partners and tools



Addressing the Linux skills gap

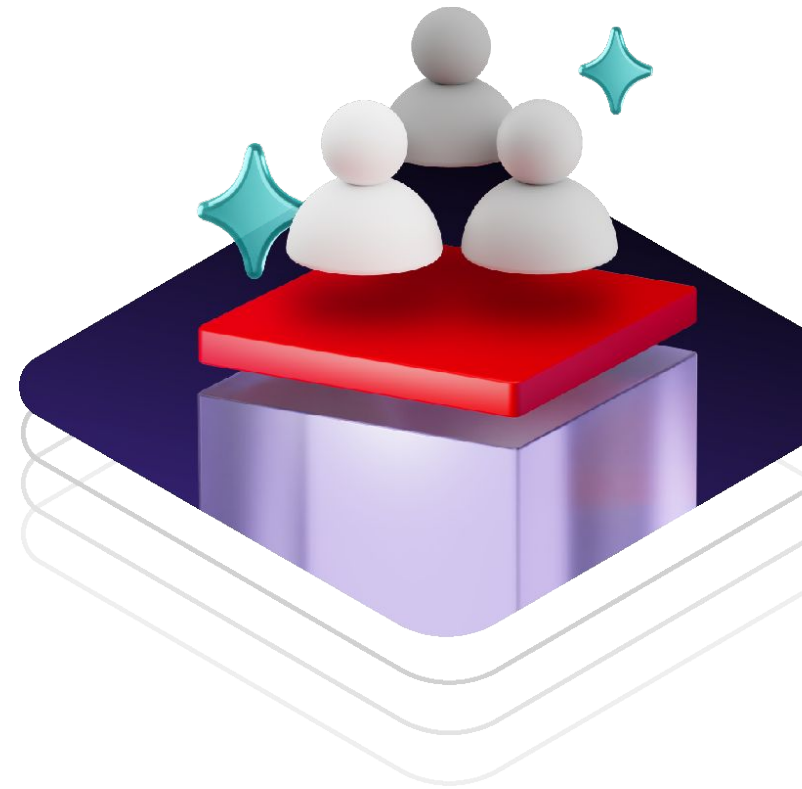
with decades of Red Hat's Linux knowledge and expertise

Red Hat Enterprise Linux Lightspeed

combines decades of Red Hat Enterprise Linux expertise with AI technologies to proactively inform and simplify how both newer and experienced IT professionals build, deploy, and manage Red Hat Enterprise Linux.

- ▶ Use plain language to simplify the way you interact with Red Hat Enterprise Linux
- ▶ Make better decisions with recommendations and actionable guidance

Simplify tasks. Amplify results.



Red Hat Lightspeed Portfolio

Generative AI-powered services to help your teams be more productive



Red Hat Ansible Lightspeed

Accelerate automation content creation with Ansible-specific model recommendations that promote accuracy, trust, and adherence to Ansible best practices.



Red Hat OpenShift Lightspeed

An integrated natural language assistant that makes OpenShift easier to use for all user's skill levels with suggestions and step-by-step guidance to increase productivity and assist with troubleshooting.



Red Hat Enterprise Linux Lightspeed

Uses decades of enterprise Linux expertise to proactively inform and simplify how both novice and experienced IT professionals build, deploy, and manage Red Hat Enterprise Linux.

Red Hat Enterprise Linux Lightspeed vision



Unlock Red Hat's expertise

Provide Red Hat's decades of Linux experience to help your workloads succeed



Proactive guidance

Proactively provide relevant information and guidance to make customers' lives easier



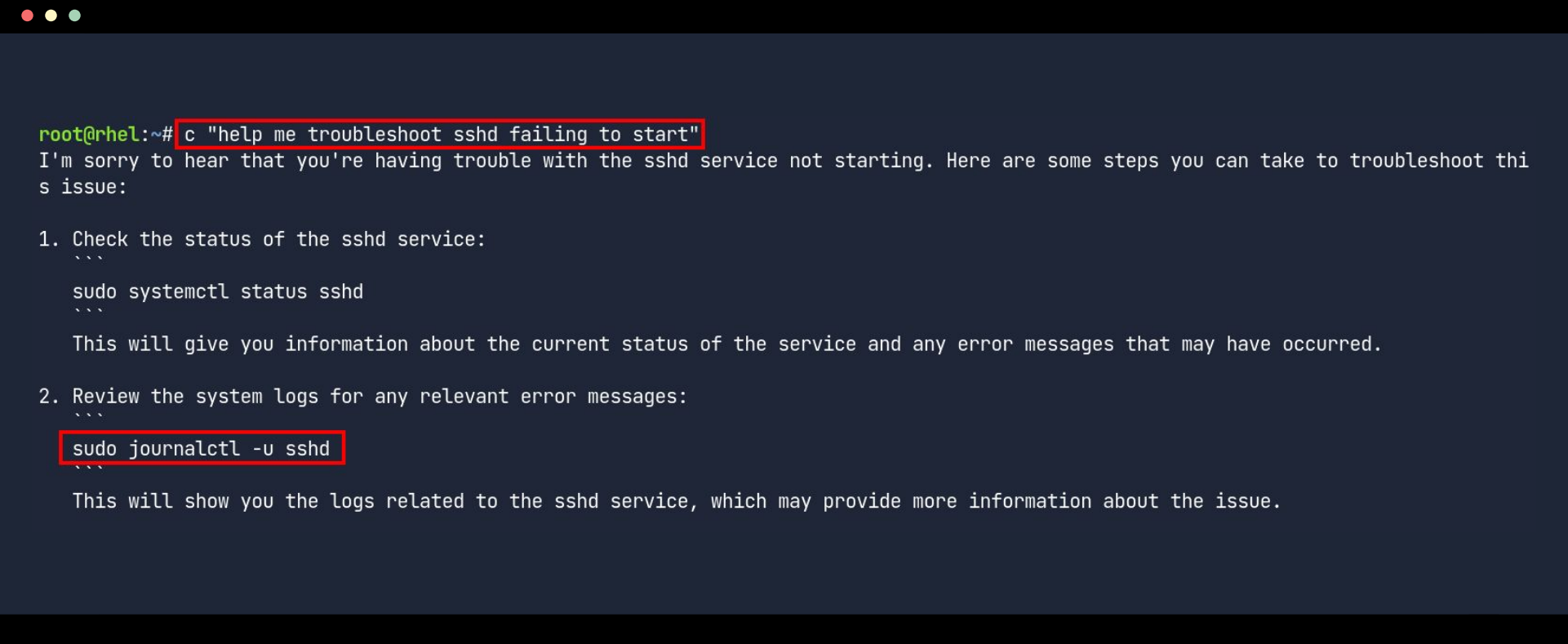
Level up skills

Makes Red Hat Enterprise Linux easier to use, secure, tune, and troubleshoot for both new and experienced users



A new command line assistant

Powered by Red Hat Enterprise Linux Lightspeed



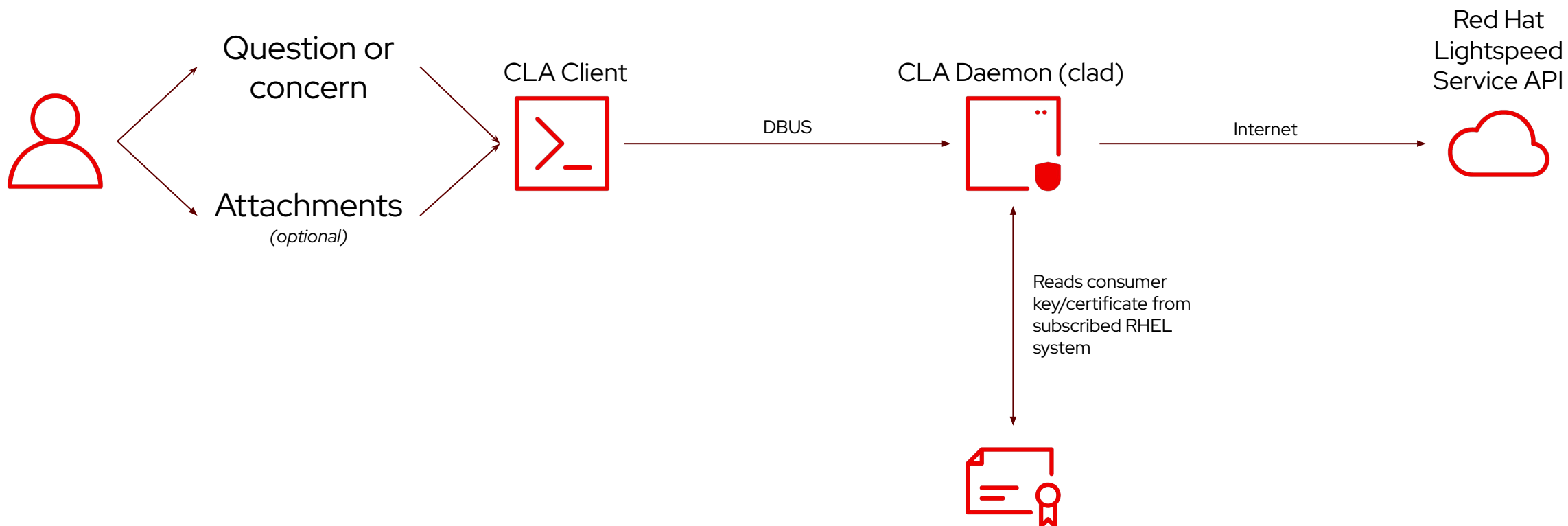
```
root@rhel:~# c "help me troubleshoot sshd failing to start"
I'm sorry to hear that you're having trouble with the sshd service not starting. Here are some steps you can take to troubleshoot this issue:

1. Check the status of the sshd service:
...
sudo systemctl status sshd
...
This will give you information about the current status of the service and any error messages that may have occurred.

2. Review the system logs for any relevant error messages:
...
sudo journalctl -u sshd
...
This will show you the logs related to the sshd service, which may provide more information about the issue.
```



CLA: What happens on the customer's system?



Make better decisions at build time

when it's typically easier and cheaper to make changes



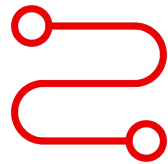
- ▶ “Shift left” with new capabilities in Red Hat Insights
(Red Hat Lightspeed will be the new name soon)
 - Package recommendations powered by Red Hat Enterprise Linux Lightspeed
 - Red Hat Insights planning (Lifecycle and roadmap details)
- ▶ Use pre-hardened images with image mode to drastically reduce time required for configuring, domain-join etc.
 - Applying guardrails at build time helps users remain secure and compliant
- ▶ Securely build and automatically generate SBOM artifacts to easily prove a secure supply chain process

Smart from the start. Fast to the finish.



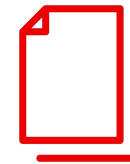
Make better decisions at build time

available in Red Hat Insights (Shift Left)



Future roadmap information

Discover what's on the future Red Hat Enterprise Linux roadmap, including planned new AppStream releases and info on significant changes coming to Red Hat Enterprise Linux



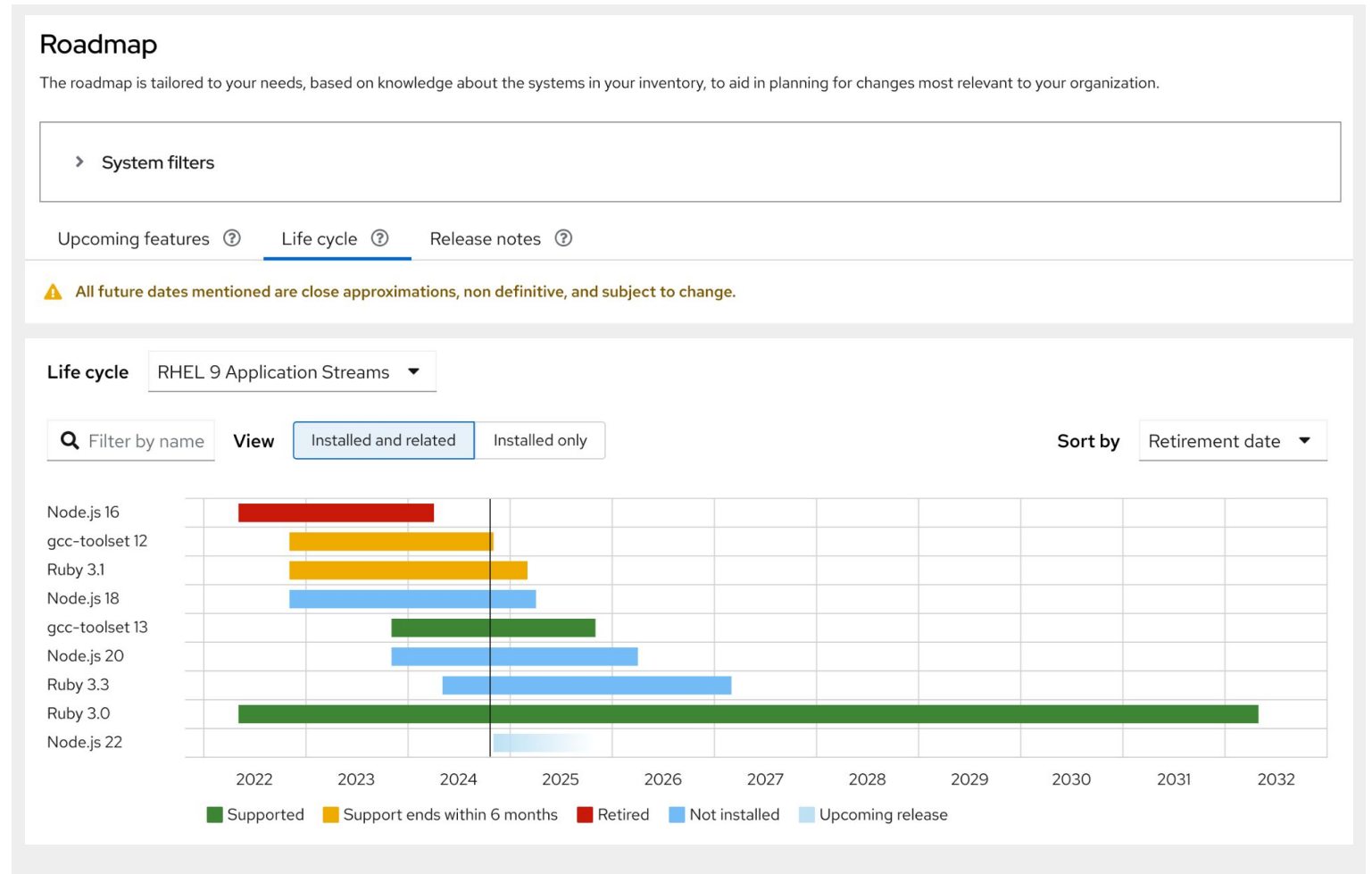
Red Hat Enterprise Linux and AppStream lifecycle information

Allows customers to easily evaluate their environment to understand if the AppStreams and Red Hat Enterprise Linux minor releases they are using are supported, and provides customers the ability to plan ahead for upgrades



Red Hat Enterprise Linux and AppStream life cycle information

(Shift Left)



Red Hat Enterprise Linux roadmap

(Shift Left)

Roadmap

The roadmap is tailored to your needs, based on knowledge about the systems in your inventory, to aid in planning for changes most relevant to your organization.

> System filters

Upcoming features ⓘ Life cycle ⓘ Release notes ⓘ

All future dates mentioned are close approximations, non definitive, and subject to change.

ⓘ Upcoming deprecations

15 upcoming deprecations that could affect your systems

⚠ Upcoming changes

19 upcoming changes that could affect your systems

ⓘ Upcoming additions

30 upcoming additions that could affect your systems

🔍 Name ▾ 🔍 Filter by name →

1 - 20 of 150 ▾ < >


> Name ⌵	Type ⌵	Release ⌵	Release Date ⌵
> Node.js 22 included in RHEL 9 Application Streams	ⓘ Addition	9.5	Nov 2024
> Feature name	ⓘ Addition	9.5	Nov 2024
> Feature name	⚠ Change	9.5	Nov 2024
> Feature name	⚠ Change	9.5	Nov 2024
> Feature name	⚠ Change	9.5	Nov 2024
> Feature name	ⓘ Deprecation	9.5	Nov 2024

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The Red Hat logo, which is a red fedora hat with a black band and a gold buckle.


Insights image builder package recommendations

(Shift Left)


Package name	Description	Package repository	Support
<input checked="" type="checkbox"/> realm	Kerberos realm enrollment service	 Red Hat repository	Supported

RHEL Lightspeed provides intelligent tools to improve the productivity and efficiency of teams using RHEL.

1 of 1

✓  Recommended Red Hat packages Powered by RHEL Lightspeed ?

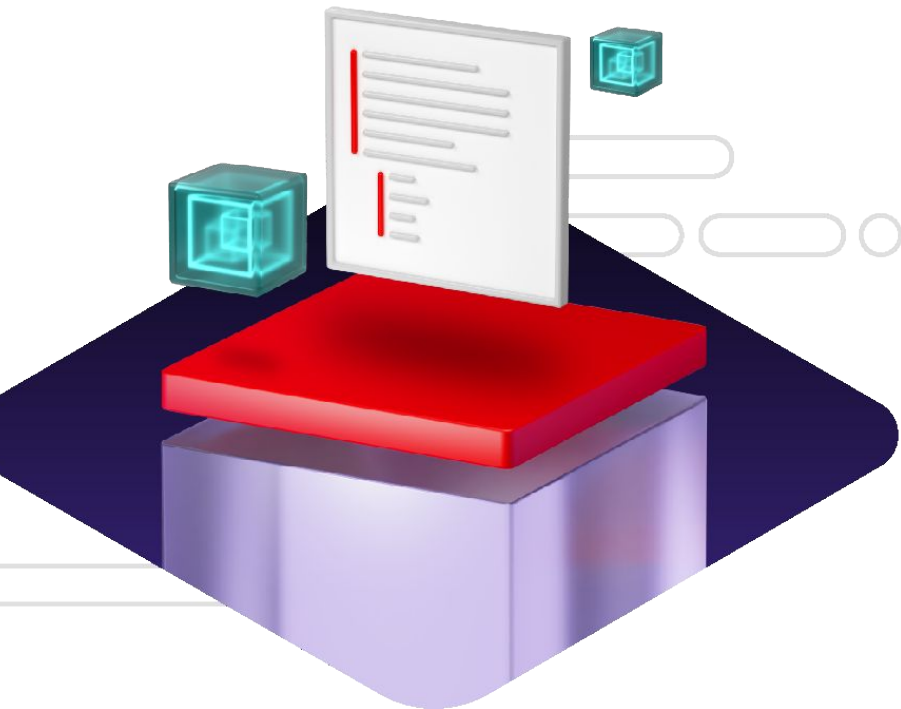
Other users commonly add these packages with the ones you selected.

Package name	Description	Package repository	
adcli	Active Directory enrollment	 Red Hat repository	Add all packages
			Add package



Contain drift and accelerate delivery

using container tools and technologies



With image mode for Red Hat Enterprise Linux, you can:

- ▶ **Speed time to market**
using DevOps and CI/CD practices, which now include the OS
- ▶ **Streamline operations**
by automating updates and rollbacks—just like your smartphone
- ▶ **Enhance security**
by reducing your attack surface with immutable system images
- ▶ **Simplify appliance creation**
by combining the OS with apps and drivers for faster development and delivery

Because systems should be as easy to update as smartphones



“I want it to work like my smartphone”

Factors that drove the search for a new solution

- ▶ Pain over regulatory process of CVEs
- ▶ Smaller footprint | decreased surface area of attack
- ▶ Enhanced security | hardened platform
- ▶ Quick turn around | lower downtime
- ▶ Easy rollbacks

FSI early adopter
Image mode for Red Hat Enterprise Linux



Standardizing and innovating with containers

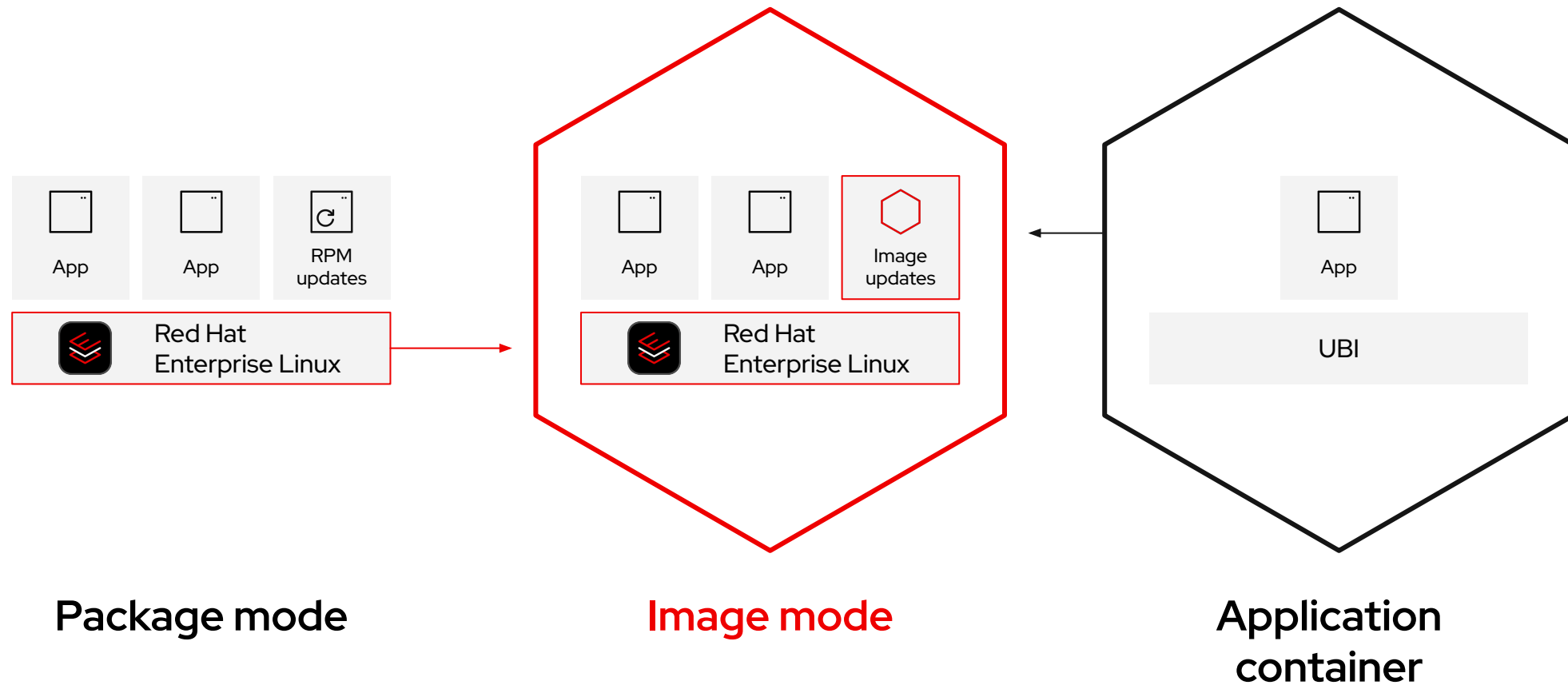


Image mode for Red Hat Enterprise Linux

Simple. Consistent. Anywhere.

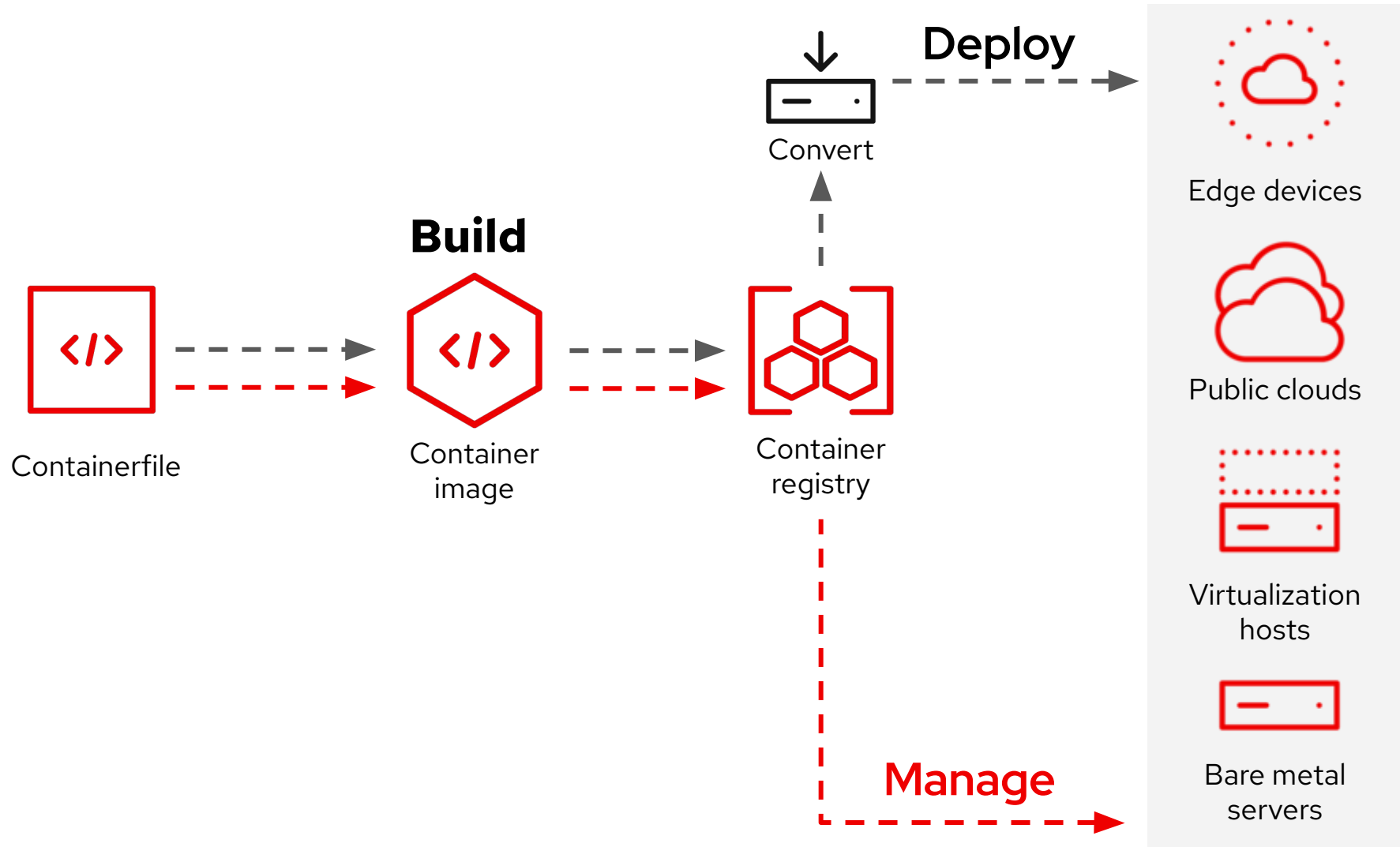


Image mode for Red Hat Enterprise Linux

A container-native workflow for the life cycle of a system

```
FROM rhel10/rhel-bootc:latest

RUN dnf install -y [software]
[dependencies] && dnf clean
all

ADD [application]
ADD [configuration files]

RUN [config scripts]
```

Build

Define your entire system—OS, applications, and dependencies—with just a bootc base image and container file. Leverage your existing container tools and pipelines for rapid image creation and testing.

Deploy

Easily convert to VM/cloud images, deploy on bare metal via the Red Hat Enterprise Linux installer, or even reinstall on existing cloud images using bootc.

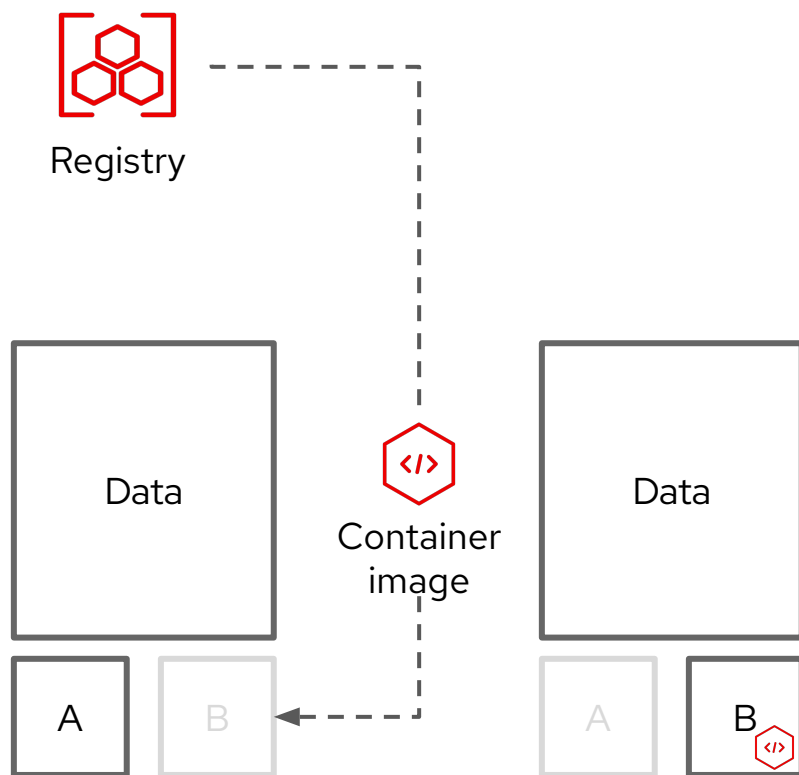
Manage

Engineered for modern GitOps and CI/CD workflows. Fully drive and automate systems via pipelines or scale control through Red Hat Insights, Satellite, and Ansible.



Bootc: Image-based updates perfected

Immutable by default – secure by design



Transactional updates (A → B model)

Bootc uses composefs and ostree to convert the container image into the root filesystem on the host..

Roll forward or backwards

Updates are staged in the background and applied when the system reboots. The transactional model enables rollbacks for additional assurance

Upgrades have never been easier

While there are some limits, bootc enables moving between minor releases of RHEL (9.4 → 9.5), as well as major releases (9.4 → 10.0)

bootc

A/B booting of container images



bootc upgrade

Download and stage an updated container image.

- Automatic updates on by default. Configurable using `bootc-fetch-apply-updates.timer`

bootc rollback

Rollback to the previous state. Staged updates are discarded

bootc switch

Change to a different reference image

bootc install

Install container image **to-disk** or **to-filesystem**

- [Man page](#)
- <https://github.com/containers/bootc>
- <https://github.com/containers/podman-desktop-extension-bootc>

Install via Kickstart

Deploy container images to bare metal using installation media

```
lang en_US.UTF-8
keyboard us
timezone Etc/UTC --isUtc
text
zerombr
clearpart --all --initlabel
autopart
reboot
user --name=admin-user --groups=wheel
sshkey --username=admin-user "ssh-rsa
AAAAB3Nza....."

ostreecontainer --url quay.io/myimage:latest
```

Use existing provisioning workflows

- Red Hat Enterprise Linux boot media (isos)
- PXE & HTTP Boot for network based deployments

Kickstart and Anaconda are used for disk layout and select configurations

- `%packages` is ignored
- `ostreecontainer` will fetch the container image from a registry and write it to disk.

`%pre` and `%post` used for configuration

Resist security attacks from hackers

when quantum computers become prevalent

- ▶ Red Hat Enterprise Linux 10 is the first enterprise Linux distribution to be **post-quantum capable** with new quantum-resistant algorithms (and more to come) so you can prepare now for future compliance mandates

- OpenSSL
- ML-KEM (FIPS 203)
- ML-DSA (FIPS 204)

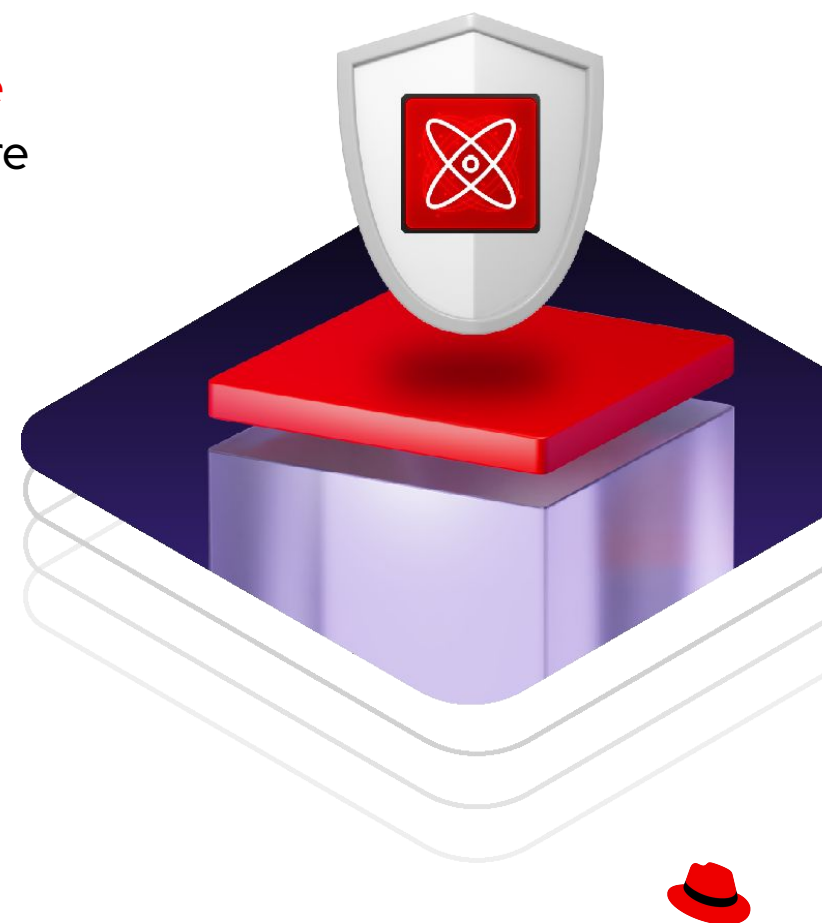
- ▶ A new FIPS module

simplifies development of FIPS-compliant app deployments on containers, VMs or bare metal

- ▶ FIPS cryptographic standards can be validated separately

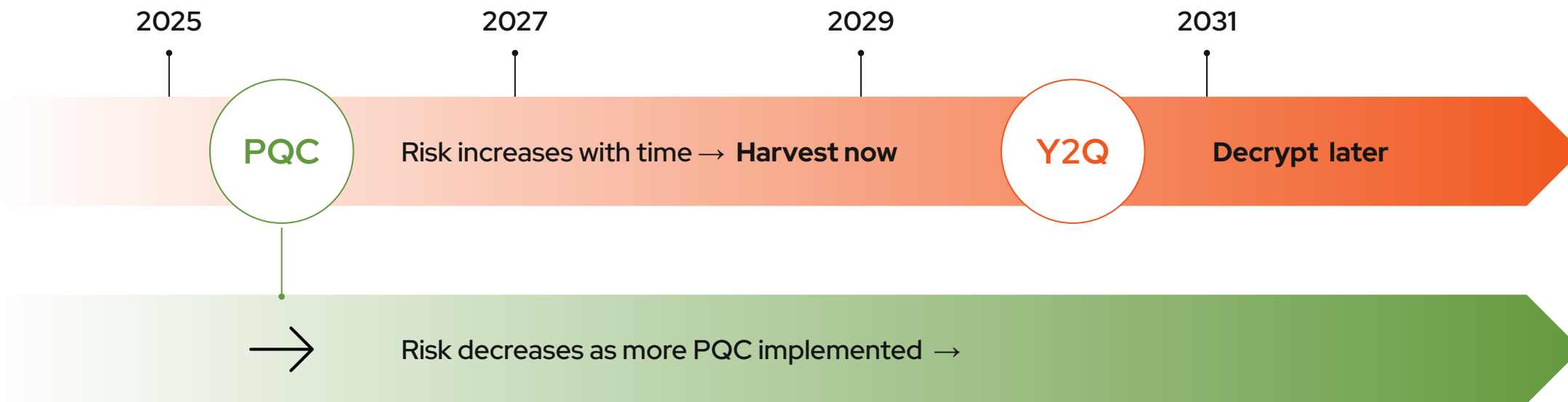
meaning CVE fixes related to Open SSL or crypto libraries can be done *without* requiring a new FIPS validation certificate (average time to obtain is >300 days!)

The best defense is a strong partner.



PQC is a future challenge but the threat is already there

when quantum computers become prevalent



Organizations adopting PQC today are protecting their data now and in the future



Red Hat's transition phases

We anticipate having to support a long, hybrid transition period



Classical - 2024

Traditional Cryptography;
no quantum resistant
algorithms (QRAs) available.



PQ-Capable '25-'27

Includes available QRAs
and PQC functions.
Not available for all
applications. Still classical
by default with configurable
use of available QRAs.



PQ-Ready - 2033

QRAs and PQC functions
by default where available,
configurable classical
where needed.



Deprecation & Removal - Future

Classical Algorithms and
functions will be marked as
deprecated with eventual
removal. Capabilities and
solutions to be resistant to
downgrade attacks.



Automatic Certificate Management Environment

IdM as a provider of short-term certificates via ACME

Enabling auto-enrollment for TLS certificates

Automatic Certificate Management Environment (ACME) enables you to let IdM manage your certificate enrollment for applications. Automatically. With automatic enrollments and renewals.



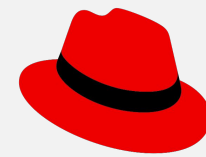
LEAPP upgrades from RHEL 9.7 to 10.1

LEAPP upgrades are now supported from the latest RHEL 9.7 to RHEL 10.1



**Red Hat
Enterprise
Linux 9**

Red Hat Enterprise Linux 9.7



**Red Hat
Enterprise
Linux 10**

Red Hat Enterprise Linux 10.1



Soft-Reboots for Red Hat Enterprise Linux

Reboot image mode, and package mode, in seconds

For Image Mode a soft-reboot can reload your system after an image update in almost the same time it takes to just reload services, as long as the kernel hasn't changed.

```
# bootc update --soft-reboot=required
```

For Package Mode quickly reload your system after updates, without the need to re-initialize firmware and other boot-time actions.

```
# systemctl soft-reboot
```



New developer features and enhancements

With RHEL 10.1 and 9.7, the following are now available

Go 1.24 - performance improvements

Adds new standard library packages for weak pointers and crypto algorithms, support for generic type aliases, and performance improvements.

LLVM 20 - expanded support

New hardware feature support, core library improvements, and updates to tools like Clang and flang. It also features a modernized JITLink infrastructure and improved Clang diagnostics

Rust 1.88 - tighter CPU integration, and performance improvements

Enhancements that simplify development and boost performance, including the stable Rust 2024 Edition direct access to specific CPU features in safe Rust for HPC.

GCC 15 - incremental updates and improvements

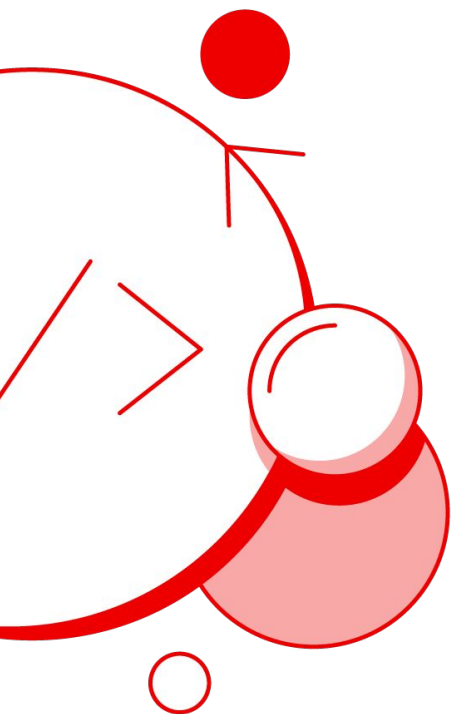
Various bug fixes and new enhancements including HTTP/2 support on a per-server basis, virtual servers with stream module, and more.

.NET 10 - authentication and database back-end improvements

New enhancements to password management, new authentication improvements and Version-Compatible backups compatible with older MySQL versions.

WSL - run RHEL in the windows subsystem for linux

Run a RHEL development environment on Windows without having to spin up a traditional virtual machine.



Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



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