



Connect

# Red Hat Enterprise Linux 10

Reimagine Linux





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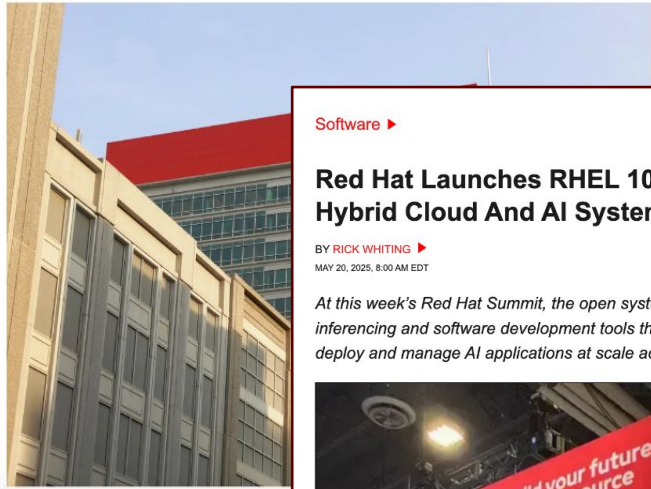


# How Red Hat just quietly, radically transformed enterprise server Linux

RHEL 10 becomes the first major enterprise Linux distro to discard traditional packaging and embrace immutable. See how we got here.



Written by **Steven Vaughan-Nichols**, Senior Contributing Editor  
June 2, 2025 at 11:02 a.m. PT



/ related

Software ▶

## Red Hat Launches RHEL 10 With New Capabilities For Hybrid Cloud And AI Systems

BY RICK WHITING ▶  
MAY 20, 2025, 8:00 AM EDT

At this week's Red Hat Summit, the open systems software giant also debuted new AI inferencing and software development tools that the company said will make it easier to build, deploy and manage AI applications at scale across hybrid ecosystems.



UPDATED 11:05 EDT / MAY 23 2025



INFRA

## From AI to quantum-ready security, RHEL 10 brings the future to enterprise IT

BY BRIAN NJUGUNA

Red Hat Enterprise Linux continues to distinguish itself as a [trusted business operating system](#), delivering enterprise-ready infrastructure tailored for mission-critical workloads. Now, RHEL 10 is emerging as the next-generation foundation for innovation and reliability in modern IT environments.

RHEL 10 introduces comprehensive enhancements in security, artificial intelligence integration, containerization and hybrid cloud support, positioning it as a robust and future-ready platform for

## InfoWorld

# Red Hat Enterprise Linux 10 adds AI-powered management

News  
May 21, 2025 • 2 mins

Cloud Management Configuration Management Generative AI

Lightspeed is an AI-powered service that allows users to build, deploy, and manage Red Hat's Linux using simplified commands.



Credit: Michael Vi/Shutterstock

3 MIN • INFRASTRUCTURE

## Red Hat launches RHEL 10 with intelligence and security for hybrid cloud



BERRY ZWETS  
20 May 2025, 14:45 CEST



Red Hat has released version 10 of Red Hat Enterprise Linux (RHEL). This new platform offers companies an intelligent and secure foundation for hybrid cloud environments and AI workloads. RHEL 10 introduces AI-driven management technology, post-quantum cryptography, and a container-native approach to operating systems and applications.

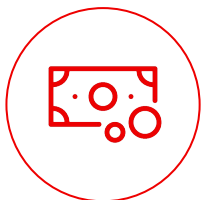
One of the most notable innovations in RHEL 10 is the integration of AI into the management of Linux environments. With the new Red Hat Enterprise Linux Lightspeed functionality, administrators can access generative AI built directly into the operating system. This system provides context-aware guidance and recommendations through a



# Red Hat: Tried. Tested. Trusted.

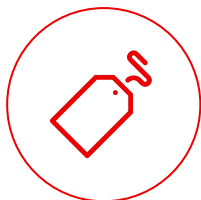
Red Hat Enterprise Linux has been at the heart of every infrastructure trend for a quarter century

## In the Fortune Global 500



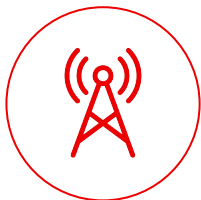
**100%**

of commercial banks



**100%**

of retail companies



**100%**

of telecom companies



**100%**

of media/tech companies



## Partner Ecosystem

- ▶ Over 4,500 [ISVs](#)
- ▶ Over 5,500 [IHV](#)s
- ▶ Over 1,400 [cloud providers](#)



# 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
-  **Deploy workloads in the cloud faster**  
with images pre-configured for performance on your cloud of choice

# Addressing the Linux skills gap

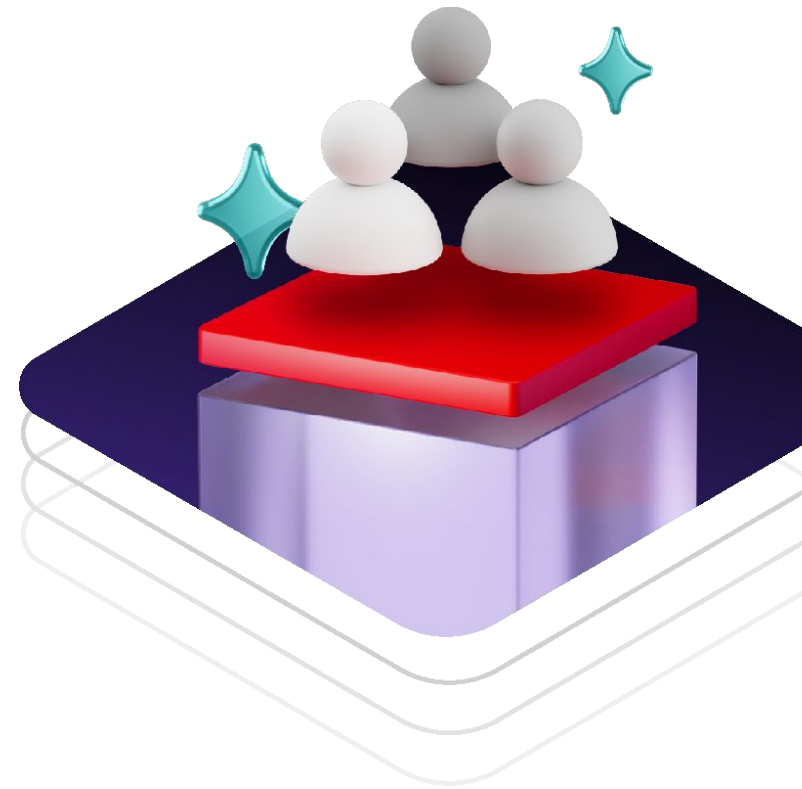
with decades of Red Hat's Linux knowledge and expertise

## 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.

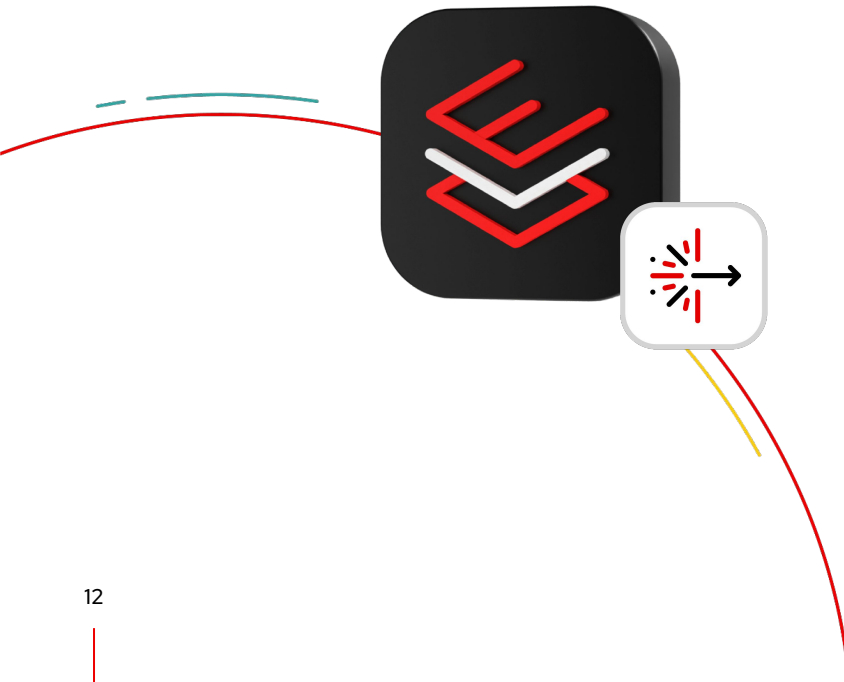
- ▶ Use plain language to simplify the way you interact with Red Hat Enterprise Linux
- ▶ Make better decisions with recommendations and actionable guidance

Simplify tasks. Amplify results.



# Red Hat Enterprise Linux

## Lightspeed vision and goals



### Artificial Intelligence

Harnesses the power of AI to help increase productivity



### Unlock Red Hat's expertise

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



### Level up skills

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



### Proactive guidance

Proactively provide relevant information and guidance

# RHEL Lightspeed features

Image builder package  
recommendations



Command line assistant



# RHEL Lightspeed features

Image builder package  
recommendations

Command line assistant



## Recommendations

Image Builder analyzes selected packages and recommends related, relevant packages to also be included

1-1 of 1 < >

Package name	Description	Package repository	Support
<input checked="" type="checkbox"/> adcli	Active Directory enrollment	Red Hat repository	Supported

1-1 of 1 << < 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	
python3-sssconfig	SSSD and IPA configuration file manipulation classes and functions	Red Hat repository	<a href="#">Add all packages</a>
realmd	Kerberos realm enrollment service	Red Hat repository	<a href="#">Add package</a>



# RHEL Lightspeed features

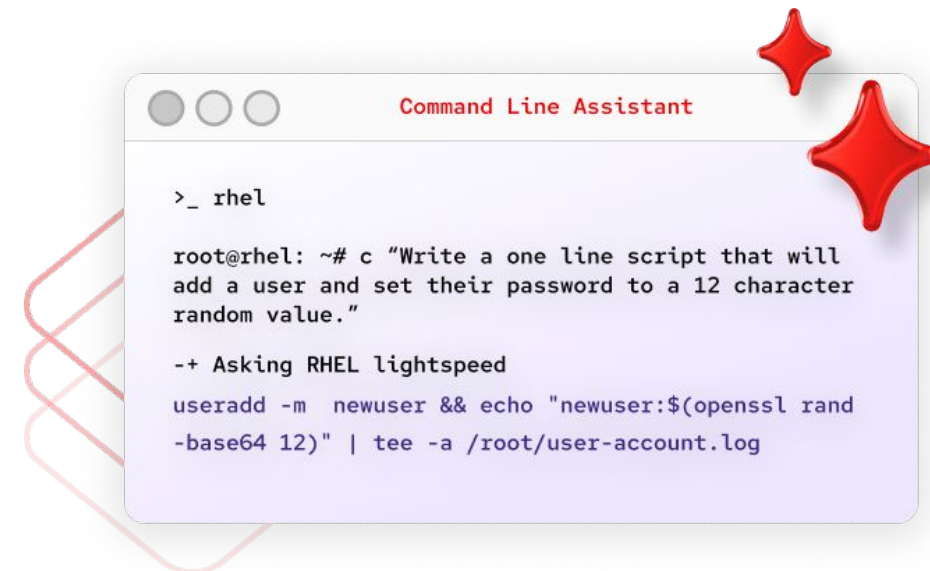
Image builder package  
recommendations

Command line assistant

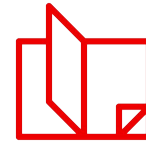
The command line assistant is an optional generative AI assistant available directly in the RHEL command line interface. It can help you more easily manage, troubleshoot, and work with your systems.

## With the command line assistant, you can:

- Ask and receive answers to RHEL-related questions in plain language.
- Gain access to information from the RHEL documentation and Red Hat knowledgebase
- Get assistance with troubleshooting configuration issues, deciphering log entries, and more.



Resources available to  
RHEL Lightspeed that help  
it with answering questions



### RHEL documentation

RHEL 9 documentation and release  
notes



### Red Hat knowledgebase

RHEL 9 verified knowledge base  
solutions



### CVE info

RHEL 9 related CVE's



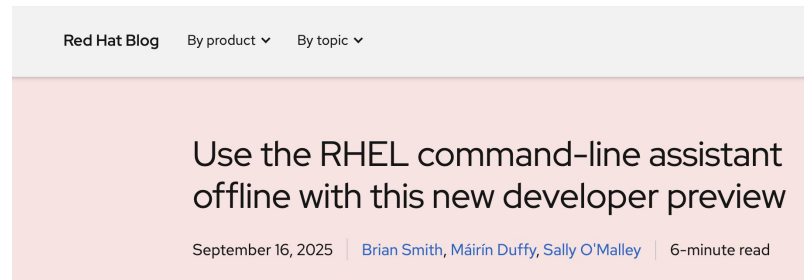
### Errata info

RHEL 9 related errata



# Can command line assistant work without connection?

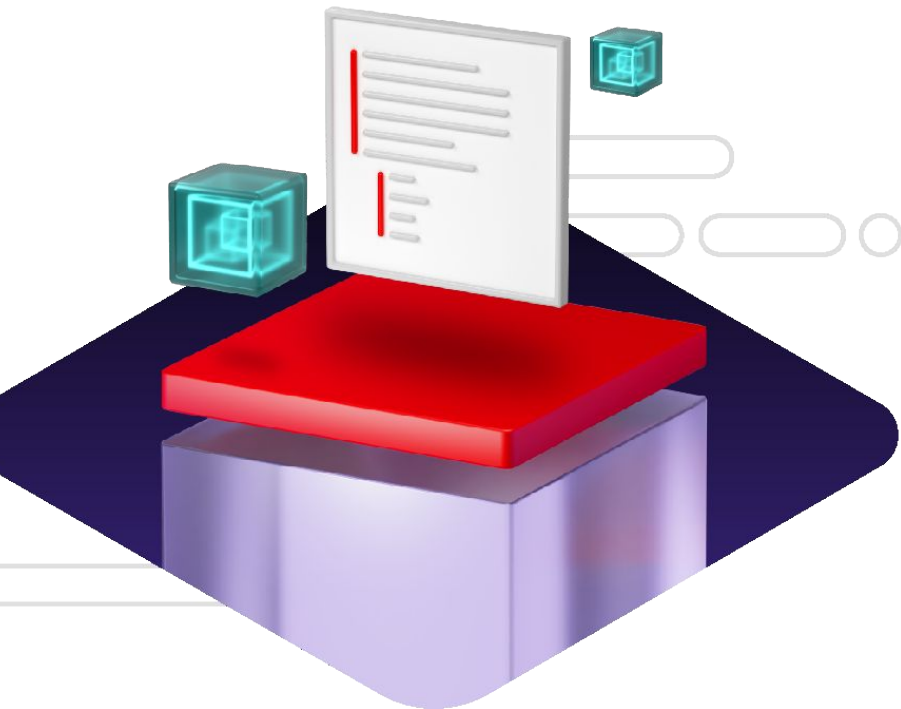
**YES!**



[Link to Red Hat Blog post](#)

# 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

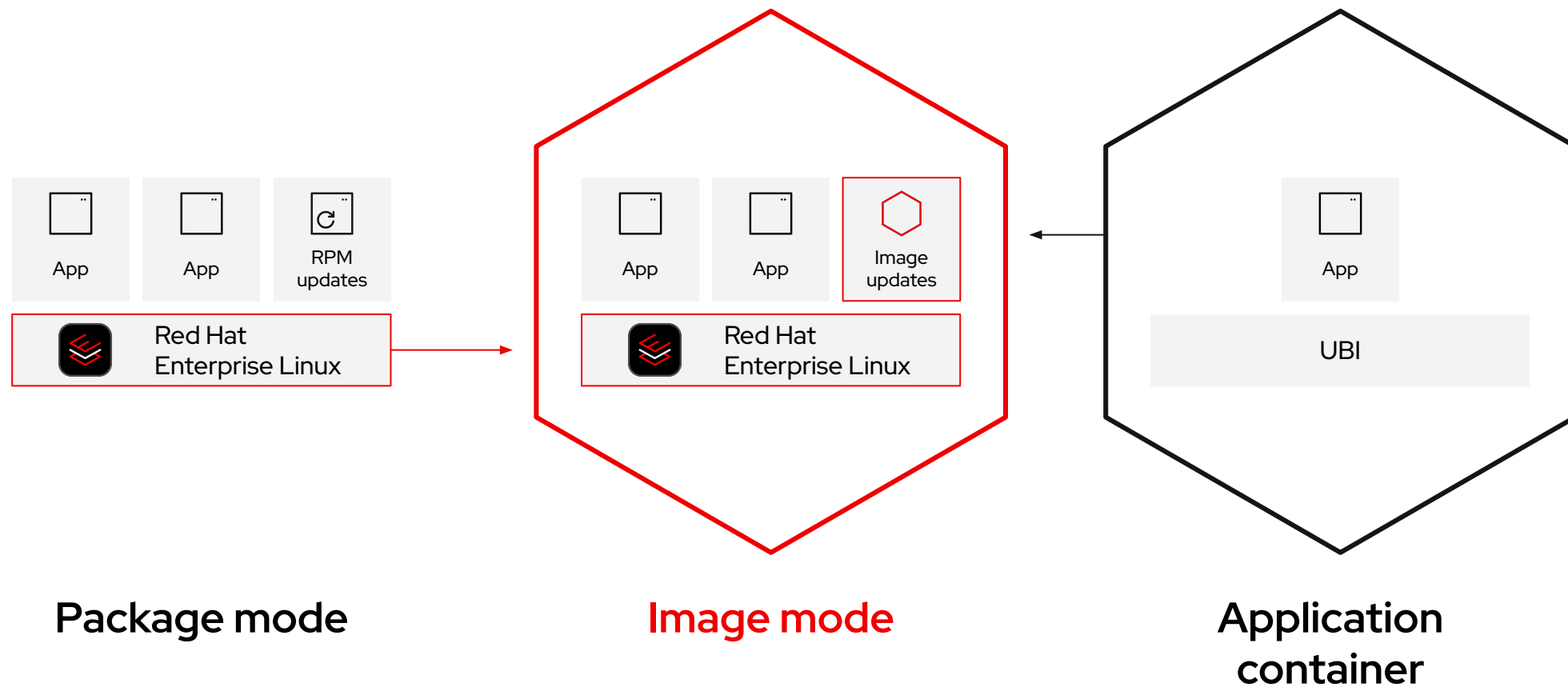
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FSI early adopter

Image mode for Red Hat Enterprise Linux



# Standardizing and innovating with containers



# Standardizing and innovating with containers

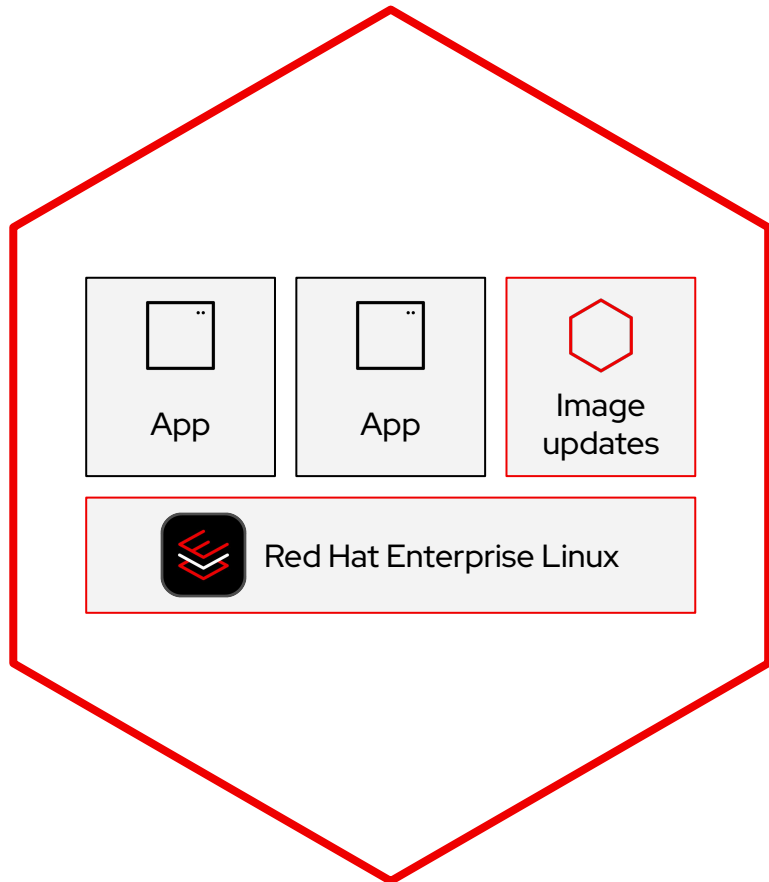


Image mode for Red Hat Enterprise Linux is a simple, consistent approach to build, deploy and manage the operating system using container technologies.

Now you can manage the operating system with the same tools and workflows as applications, promoting a common experience and language across teams.

# 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.

# CI/CD and Automation tools

It works with your favourite tool!



- ▶ Example templates available!

- <https://gitlab.com/redhat/cop/rhel/rhel-image-mode-cicd>



# Management with Red Hat Insights

Visibility and reporting made simple

## Inventory is easy

Image mode systems appear in inventory like package based systems

## Registration is simple

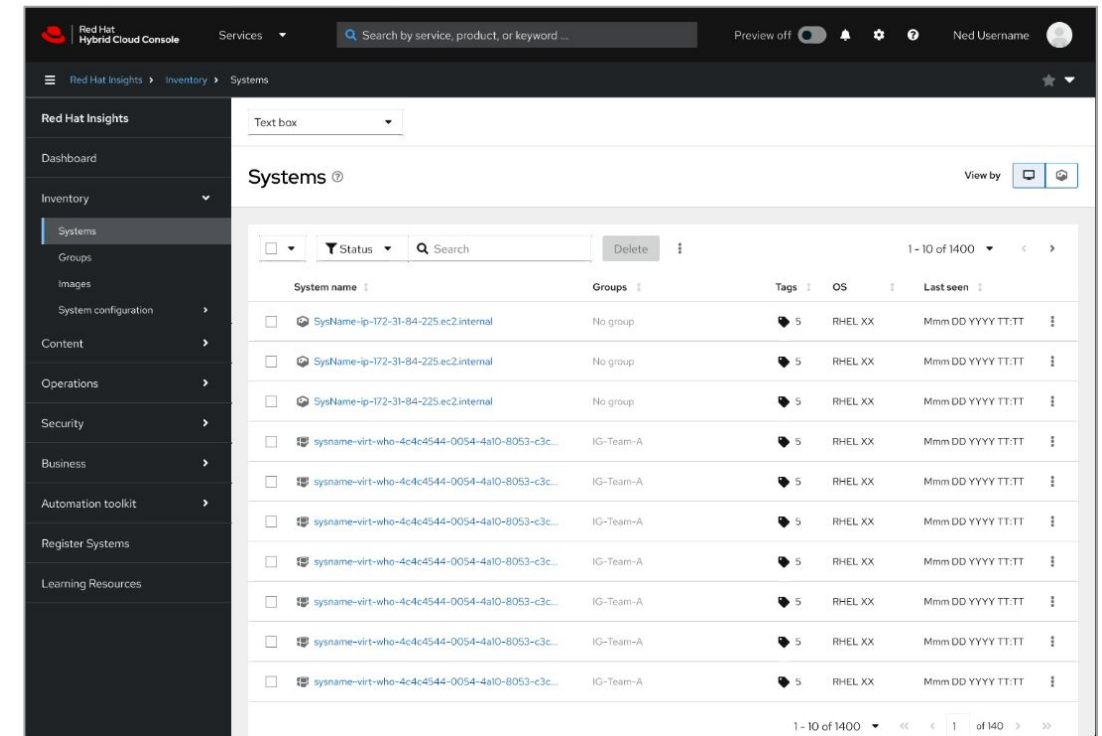
Activation keys can be baked into images via Containerfile, allowing auto registration to Insights at boot time

## Insights has insights

Image mode systems can be scanned for security and operational recommendations

## Updates are flexible

Image mode systems can be updated to new versions of images or remediated based on image-specific recommendations



# Use Cases

Where does image mode fit today?



Use Cases Blog



## AI/ML Stacks

Perfectly version app dependencies from kernel, GPU & accelerator drivers, frameworks, runtimes, etc



## 1:1 App/Host

Manage the OS AND app as a single unit



## Edge appliances

Easily manage a fleet of systems with registries and auto-updates



## Standalone container hosts

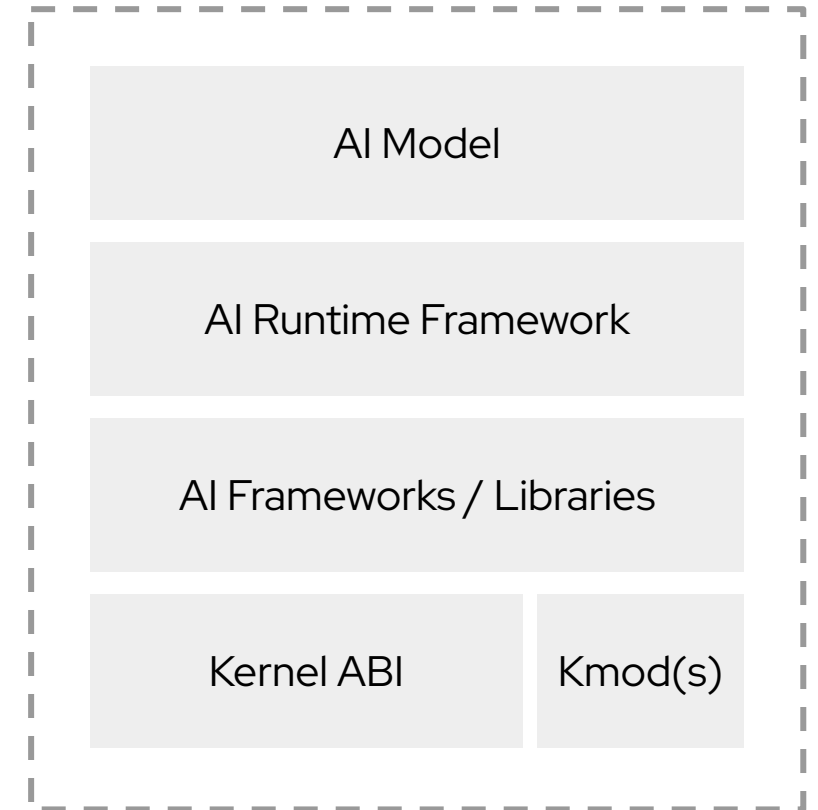
Use common toolchains and pipelines to build containerized applications and the hosting OS



# AI/ML Stacks

Deploy AI stacks confidently with image mode

- **Simple:** Much of the AI world already leverages containers, image mode helps deploy AI stacks quickly and efficiently.
- **Portable:** AI workloads often need to run in close proximity to data sources and image mode helps target multiple environments (better way to say that?)
- **Easy experimentation:** Image layering makes it effortless to test different models & frameworks and helps bring order to image sprawl.
- **Limit downtime:** version & test components and dependencies at build time before they go to production.

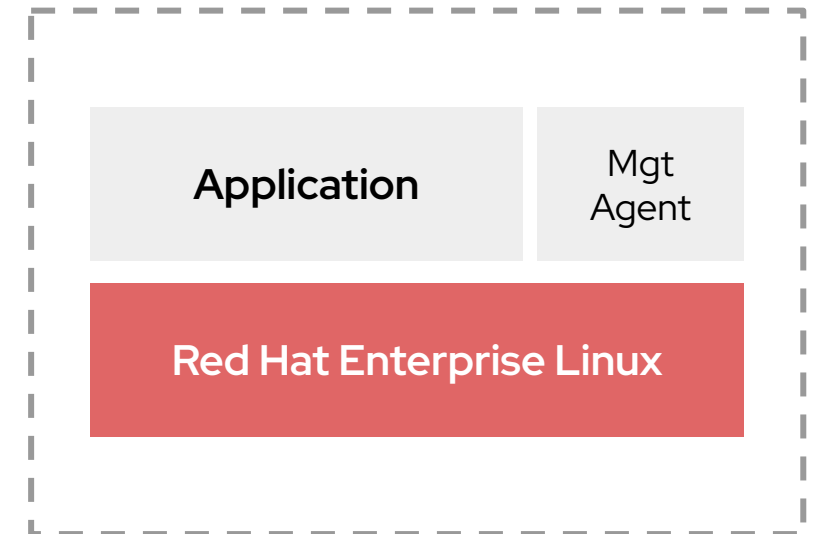




# 1:1 App/Host

Version & manage OS + app as a single unit

- **Efficient:** reduces the management footprint
- **Repeatable:** enforces consistency and reproducibility making it easy to “scale up”
- **Zero drift:** moves configuration to build time, leading to a more consistent fleet.
- **Rollbacks:** A/B boot model means fast recoveries in the case of unforeseen issues.
- Leverage containers for the *uncontainerizable* apps

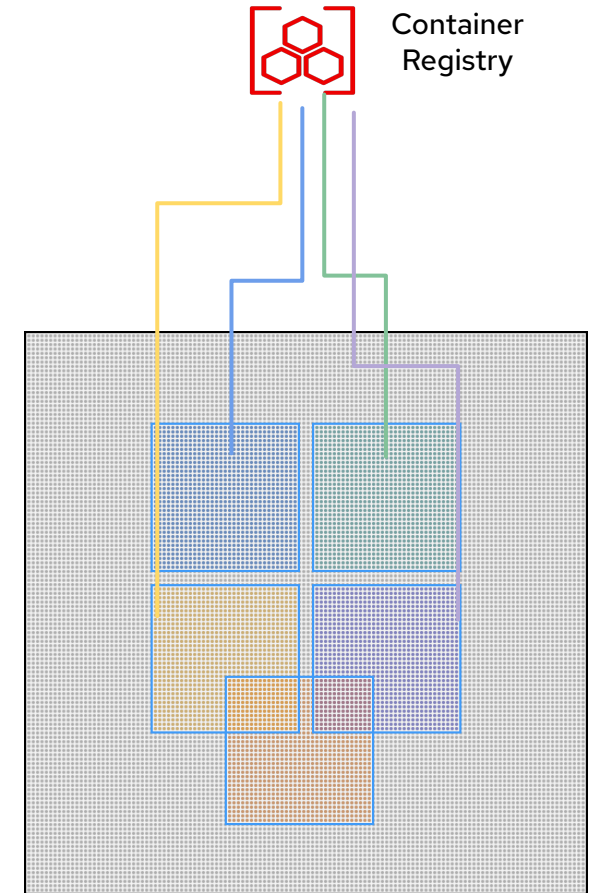




# Edge Appliances

Registries and auto-updates make managing a fleet of identical systems a snap

- **Image-based updates:** provide increased reliability over the life of the system.
- **Rollbacks:** A/B boot model means fast recoveries in the case of unforeseen issues.
- **Updates at scale:** Control OS & App container versioning through industry standard registries and tags.
- Support for air-gapped and DIL environments



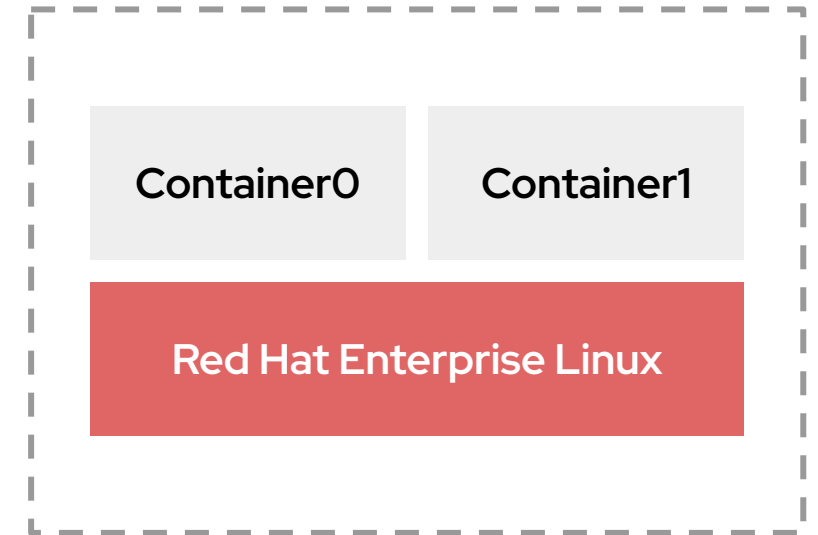




# Standalone Container Hosts

Simplify and manage the OS in the same way as your applications

- **Flexible:** image mode provides a higher degree of host-level customization than previous immutable OSs.
- **Common tools:** use existing container tools and pipelines to build applications and the OS for better compatibility
- Align teams & operations around tools and process.



# Make better decisions at build time

when it's typically easier and cheaper to make changes

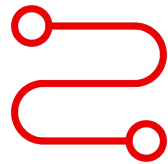


- ▶ “Shift left” with new capabilities in Red Hat Insights
  - Package recommendations powered by Red Hat Enterprise Linux Lightspeed
  - Red Hat Insights planning (Lifecycle and roadmap details)
- ▶ Use pre-hardened images with image mode to drastically reduce time required for configuring, domain-join 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.

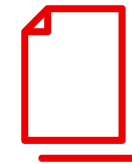
# Make better decisions at build time

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

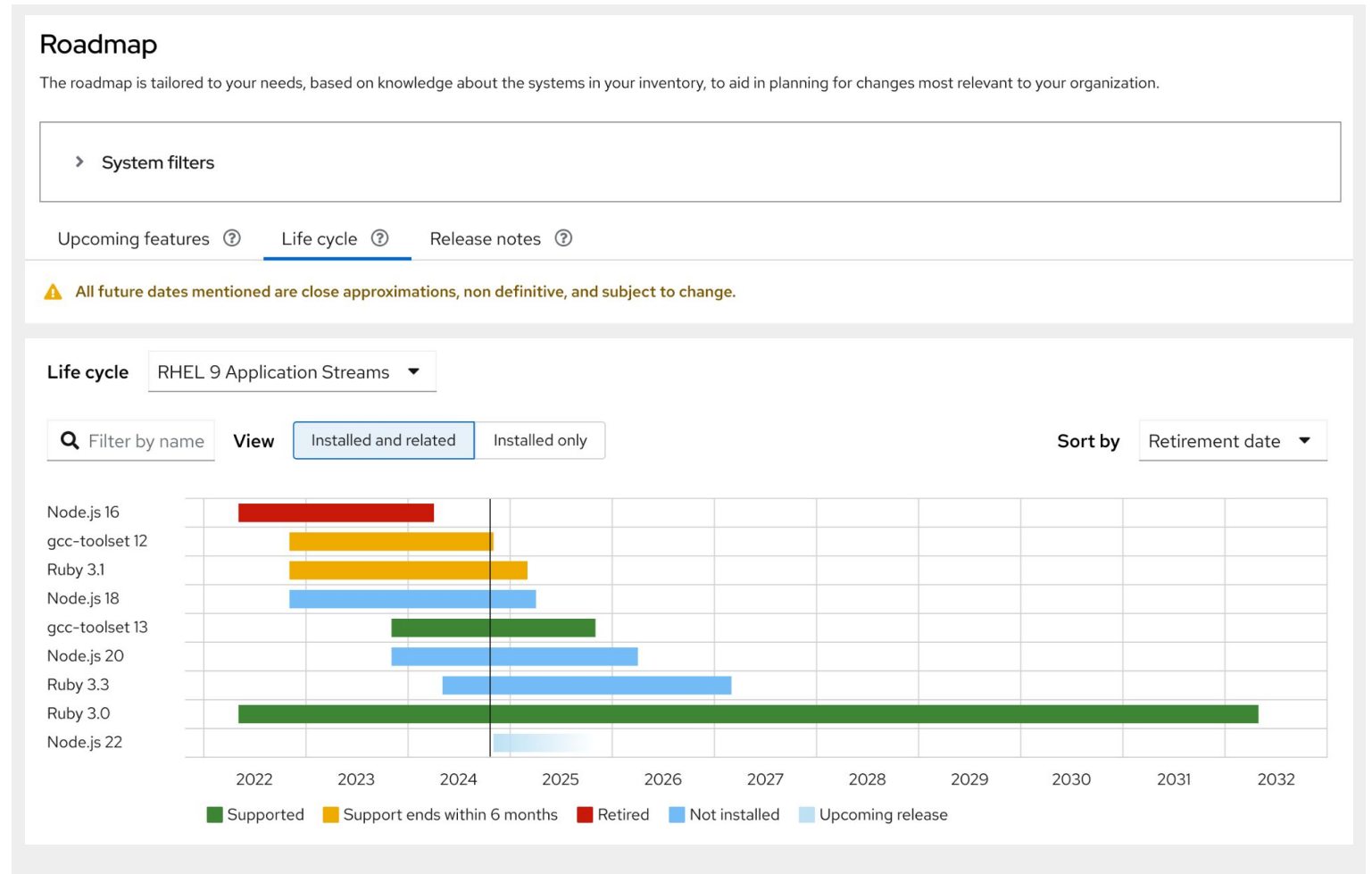


## Red Hat Enterprise Linux and AppStream lifecycle information

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

ℹ 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	ℹ Addition	9.5	Nov 2024
> Feature name	ℹ 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

34





# 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	<a href="#">Add all packages</a>
			<a href="#">Add package</a>

# 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

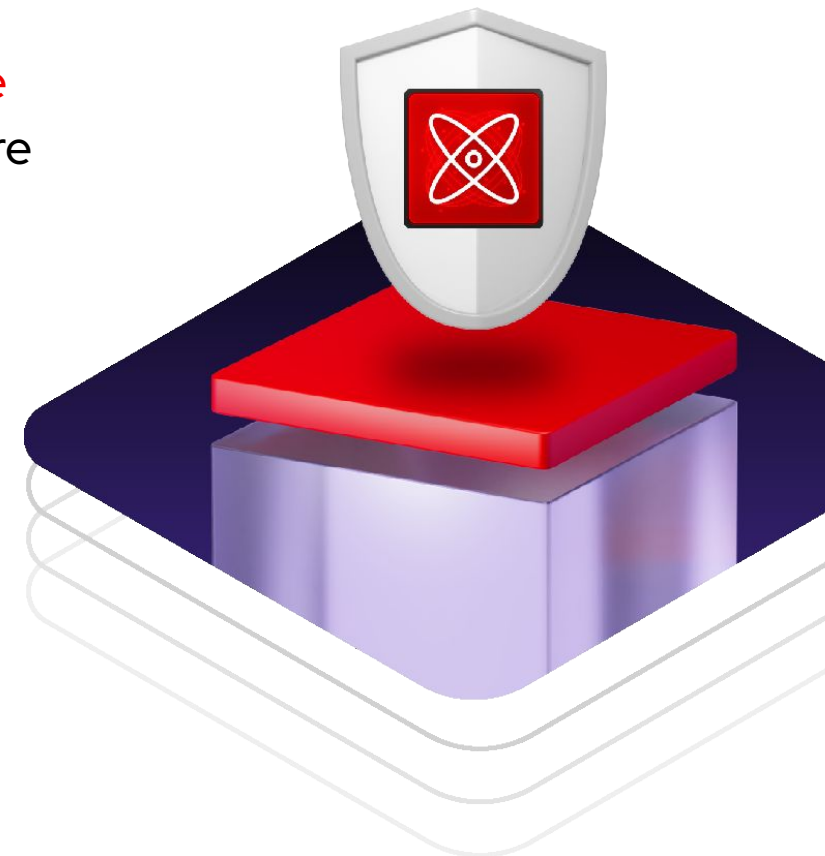
- OpenSSL
- ML-KEM (FIPS 203)
- ML-DSA (FIPS 204)

- ▶ 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!)

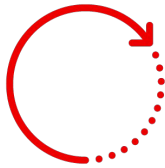


The best defense is a strong partner.



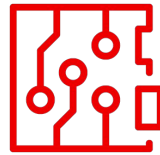
# Post Quantum Cryptography (PQC) simplified

POST



After...

QUANTUM



Refers to quantum computers which will be able to crack<sup>1</sup> today's security algorithms

CRYPTOGRAPHY



Refers to the process of protecting content and communications, keeping material authentic for intended users

*Therefore, PQC simply refers to the ability to protect information after quantum computers become available.*



# What cryptography is at risk ?

## Asymmetric (Signatures, Encryption, Key Exchange)



Schemes that depend on classical hard mathematical problems where public / private key pairs are used.

**At Risk**

## Symmetric Encryption



Ciphers that use a secret key to both encrypt and decrypt data.

**Safe** (with large enough keys)

## Hashes, HMACs<sup>1</sup>



Digest algorithms that are used for fingerprinting and compressing data into a short ID.

**Safe** (with large enough keys)

# Red Hat's transition phases

We anticipate having to support a long, hybrid transition period



## Classical

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



## PQ-Capable

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



## PQ-Ready

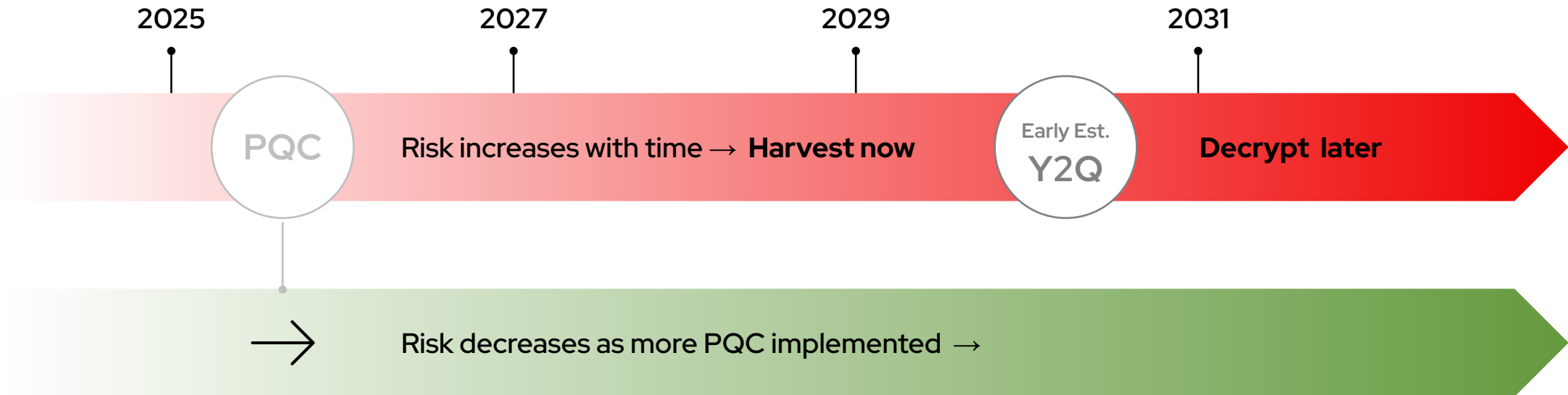
QRAs and PQC functions  
by default where available,  
configurable classical  
where needed.



## Deprecation & Removal

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

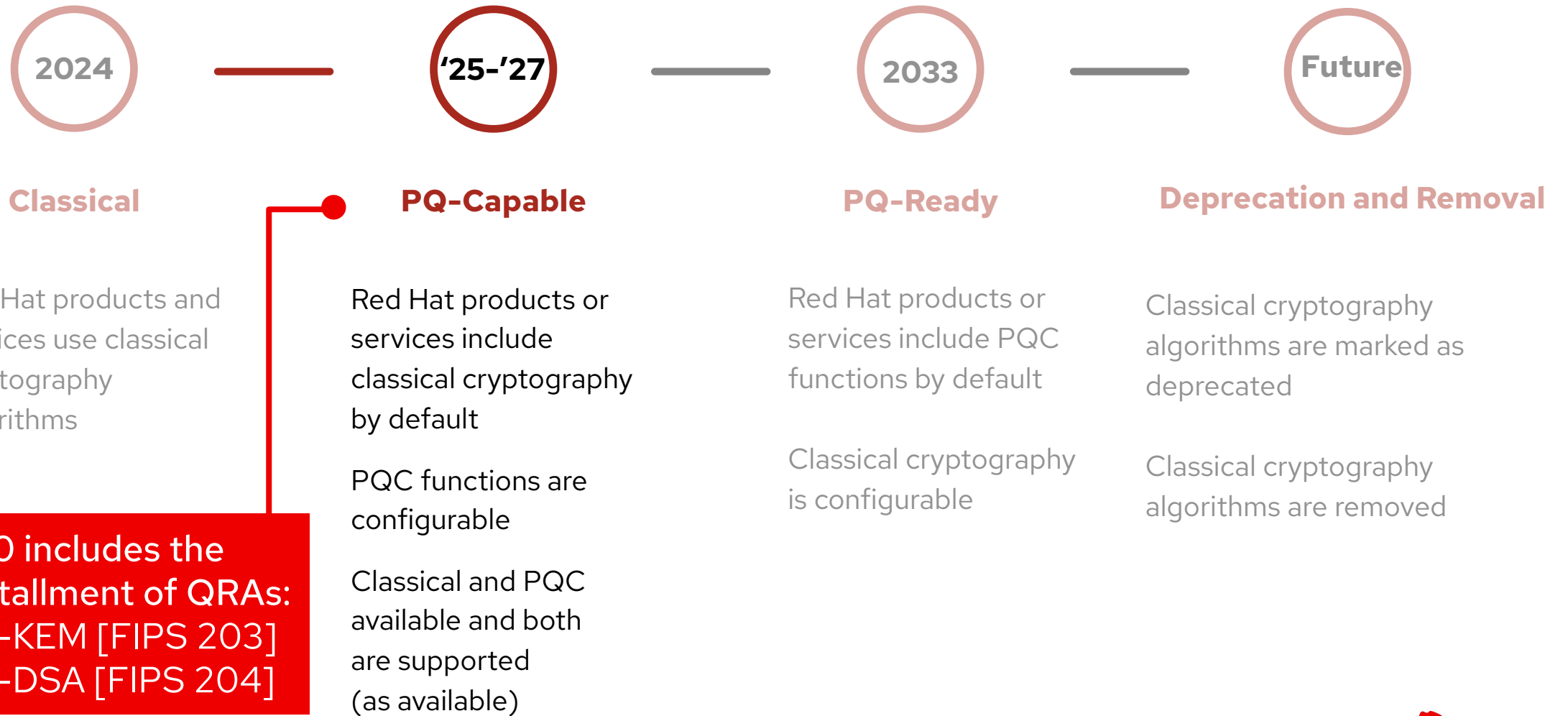
# PQC is a future challenge, but the threat is already here



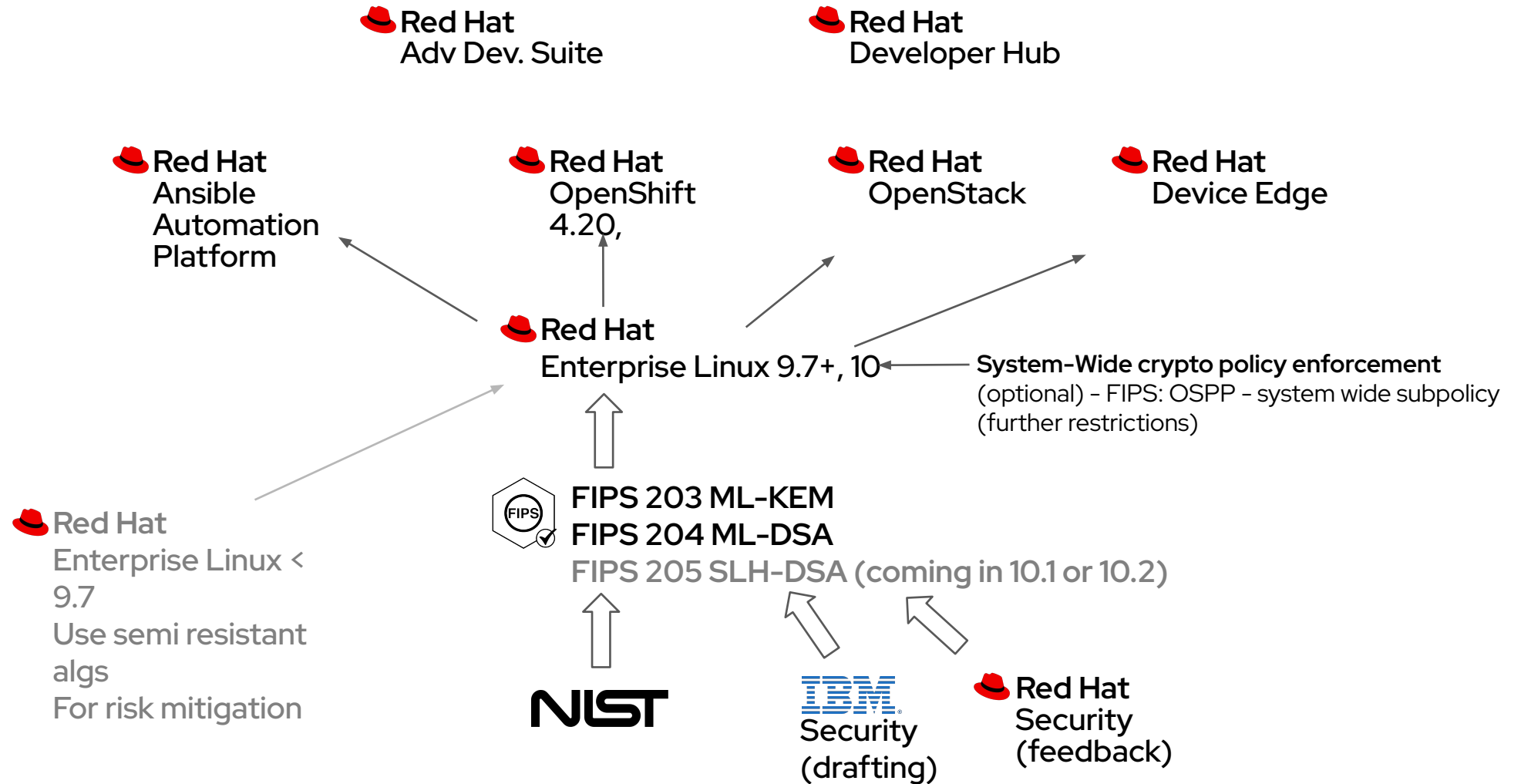
Organizations adopting PQC today are protecting their data now **and in the future**

Y2Q Year when quantum starts defeating current encryption | PQC Start of PQC adoption

# Overall Implementation Strategy



# PQC Influence on Red Hat Portfolio



# Top 10 RHEL 10 security features everyone should be using

- Image Mode
  - SBOMs
  - Shift Left Security
  - SELinux
  - Fapolicyd
- 
- Keylime: Remote Attestation
  - Identity Management
  - Encrypted DNS
  - Crypto-Agility
  - Post-Quantum Cryptography



# Cloud-optimized Red Hat Enterprise Linux

Built specifically for AWS, Microsoft Azure, and Google Cloud



## Pre-tuned, ready to run image

Deploy a Red Hat Enterprise Linux image that is deeply integrated into the cloud provider's fabric, pre-configured for performance with cloud provider-specific profiles.



## Enhanced observability and reporting

See your Red Hat Enterprise Linux estate along with the rest of your services in your cloud provider dashboard for a more unified view of your usage.



## Increased security from boot to runtime

Secure boot and image attestation ensure customer workloads run on the latest top-down security technologies from image boot through runtime.

# Cloud-optimized Red Hat Enterprise Linux

Built specifically for AWS, Microsoft Azure, and Google Cloud



## Integrated cloud management tooling

Pre-configured with each cloud provider's specific tools, enabling "ready to run" management on your cloud of choice.



## Deployment options to contain drift

Image mode simplifies the building, deployment and management of Red Hat Enterprise Linux with container tools and technologies and allows for automated updates and rollbacks - just like your smartphone.



# Red Hat Satellite 6.17



## Support for Red Hat Enterprise Linux 10

**Inventory and manage** systems running Red Hat Enterprise Linux 10



## Image mode support

**New support** for provisioning, client management, and registry distribution for systems created with image mode for Red Hat Enterprise Linux



## Support for Flatpak content

**Simplify** importing, managing, and deploying updates via containers with support for Flatpak content, including both custom packages and Red Hat-provided applications



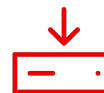
## Secure boot support

**Enhance** security during provisioning workflows on bare-metal, VMware vSphere, and Libvirt platforms



## IPv6 support

**Deploy** Satellite in an IPv6 environment to help address the limitations of IPv4, including improved network efficiency and security

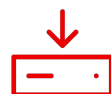
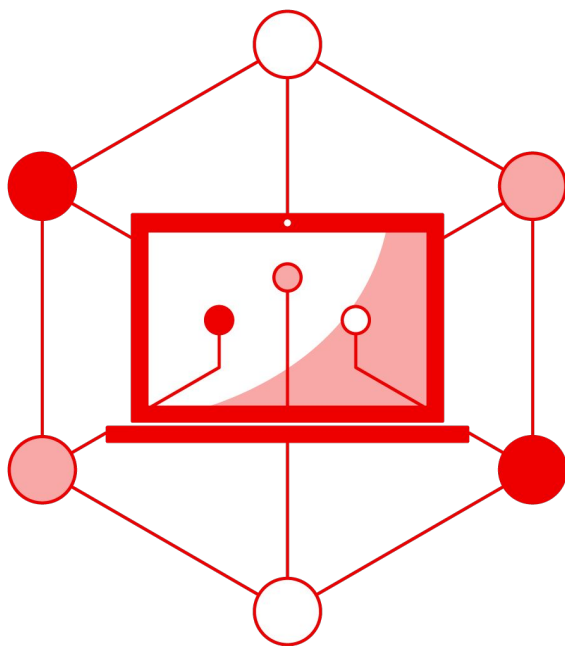


## Red Hat Insights advisor

**Get** proactive risk detection and configuration recommendations without connecting directly to the internet via an on-premise extension (now available in tech preview)

# Red Hat Insights advisor in Satellite

Analyze and remediate availability, performance, and security risks in disconnected environments

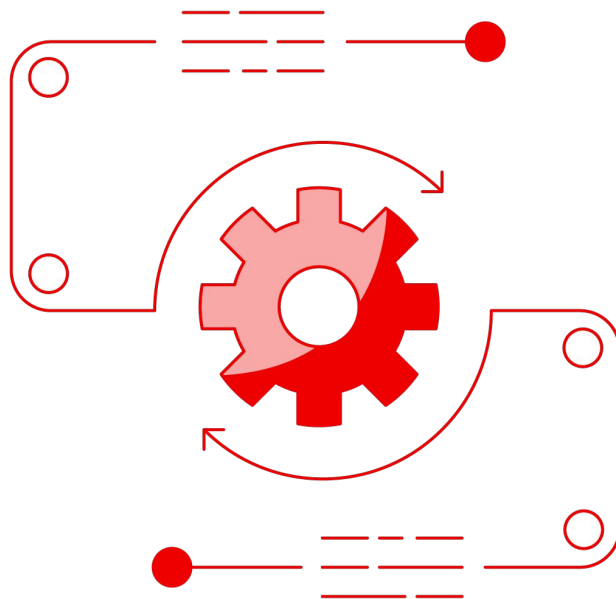


Use Insights advisor's business rules and logic—codified from decades of Red Hat Enterprise Linux expertise—to **monitor system configurations, detect risks, and prescribe remediations without sending data off-premise**

- ▶ Flexible options for installing and upgrading
- ▶ Separation, minimal access, and ultimate control for highly regulated industries and geographies
- ▶ Proactive recommendations catch problems early, minimizing downtime

# Red Hat Enterprise Linux Security Select Add-on

Accelerate the rate at which organizations receive requested Red Hat Enterprise Linux CVE fixes



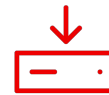
## Increases the rate at which organizations receive requested CVE fixes

- ▶ Organizations can now purchase Red Hat Enterprise Linux Security Select 10-pack Add-On of CVE fixes associated with their ELS or EEUS/EUS subscriptions, allowing for fixes upon request.
- ▶ Individual Red Hat Enterprise Linux Security Select Single Add-Ons for CVE fixes beginning with CVE 11 and onward can be ordered at a valued price.
- ▶ An ELS/EEUS subscription is necessary to qualify for the Red Hat Enterprise Linux Security Select Add-On.
- ▶ Organizations may acquire this offering like ELS, and it can be back-dated to align with the start date of their EUS/ELS subscription.
- ▶ The Red Hat Enterprise Linux Security Select Add-On provides a Service Level Agreement (SLA) of 90 days.
- ▶ Only available with a Premium Red Hat Enterprise Linux subscription

# Red Hat Enterprise Linux extensions repository

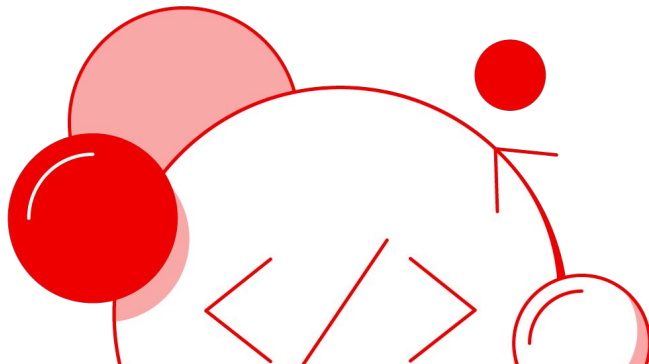
High-quality software in a convenient location with minimal maintenance requirements

The Red Hat Enterprise Linux extensions repository includes developer tools, open source libraries, and niche utilities that make Red Hat Enterprise Linux valuable to developers and system administrators



## These packages will be:

- ▶ Efficient process to access high value packages
- ▶ Validated by Red Hat
- ▶ Community-supported, having gone through Red Hat's Secure Supply Chain
- ▶ Consumable and manageable within the Red Hat ecosystem



# Red Hat Enterprise Linux for Microsoft Windows Subsystem for Linux (WSL)

WSL is now a validated software platform for Red Hat Enterprise Linux\*



## Eliminate the need for a VM

Run a Red Hat Enterprise Linux development environment on Windows without having to spin up a traditional virtual machine (VM)

## Ease operations

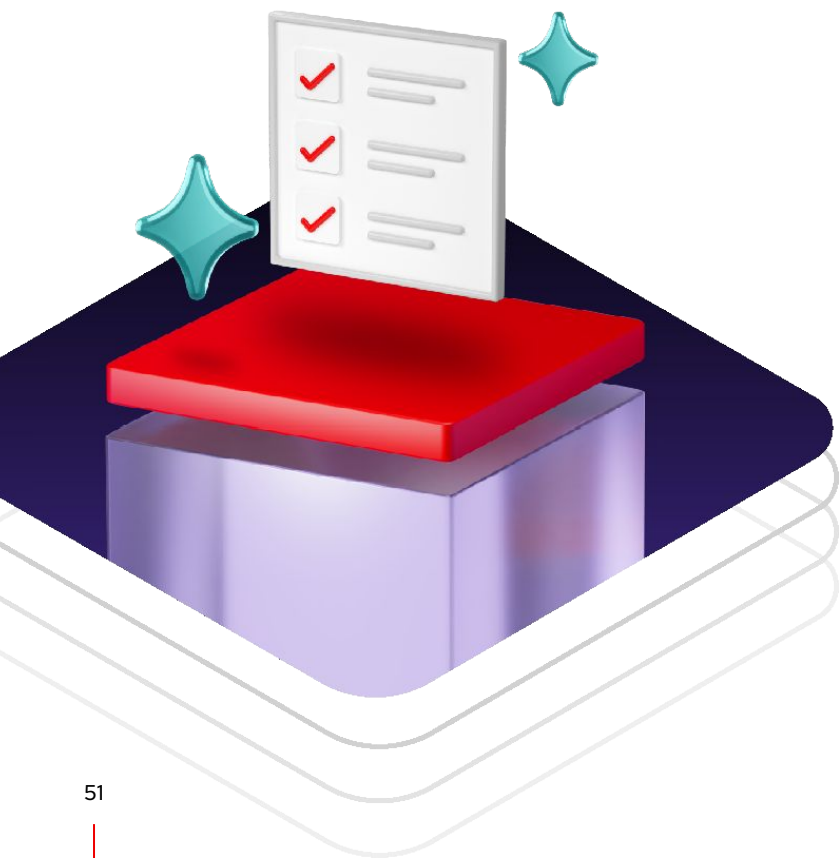
Download Red Hat Enterprise Linux as a WSL image during install, or build a customized image using Insights image builder and install it in WSL to easily run both Windows and RHEL at the same time on a Windows machine

## Save time

Use Red Hat Enterprise Linux via WSL to build Linux apps on a Windows machine, and then deploy on a RHEL environment for production to save significant time and resources

# Leverage Red Hat Enterprise Linux as a trusted AI foundation

with an extensive ecosystem of trusted partners and tools



- ▶ Get new AI advances faster, with safety and trust
  - New Partner Validation Program for the latest AI hardware/software
  - New Extensions Repository for community content that is trusted by Red Hat
- ▶ Experiment with and develop AI capabilities easily and efficiently
  - Simplify management of containerized applications with Podman Desktop
  - Use foundational building blocks like the Postgres Vector Database Extension to improve the accuracy of Generative AI and planned support for Model Context Protocol (MCP) to add agentic capabilities
  - Streamline deployment of pre-configured base images with image mode
- ▶ Optimize data storage and security
  - Protect data in use with confidential computing support

Wait less to put AI to work.

# Upgrade paths to Red Hat Enterprise Linux 10

## RHEL 7.9 to RHEL 8.10 upgrades

Upgrade path available for two years

Red Hat will offer a LEAPP version that enables RHEL 7.9 to RHEL 8.10 upgrades.

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## RHEL 8.10 to RHEL 9.6 upgrades

Upgrade path available for two years

Red Hat will offer a LEAPP version that enables RHEL 8.10 to RHEL 9.6 upgrades.

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## RHEL 9.6 to RHEL 10 upgrade

Upgrade path available for two years

Red Hat will offer a LEAPP version that enables RHEL 9.6 to RHEL 10.0 upgrades.

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Red Hat  
**Summit**

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# Thank you



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