



**Connect**

# København 2024

What's new in the Red Hat Enterprise Linux Platform

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## Red Hat Enterprise Linux

The source for **safe and reliable**  
Linux innovation that makes your  
workloads successful

**Everywhere** you want us to be

Serves the Red Hat **portfolio** and  
the larger Red Hat **ecosystem**

# Common operating system deployment challenges



## Complexity at scale

Numerous tools and complex configuration options vary based on chosen environments.



## Environment consistency

Consistent, high-quality images for each runtime environment are difficult to build and repeat.

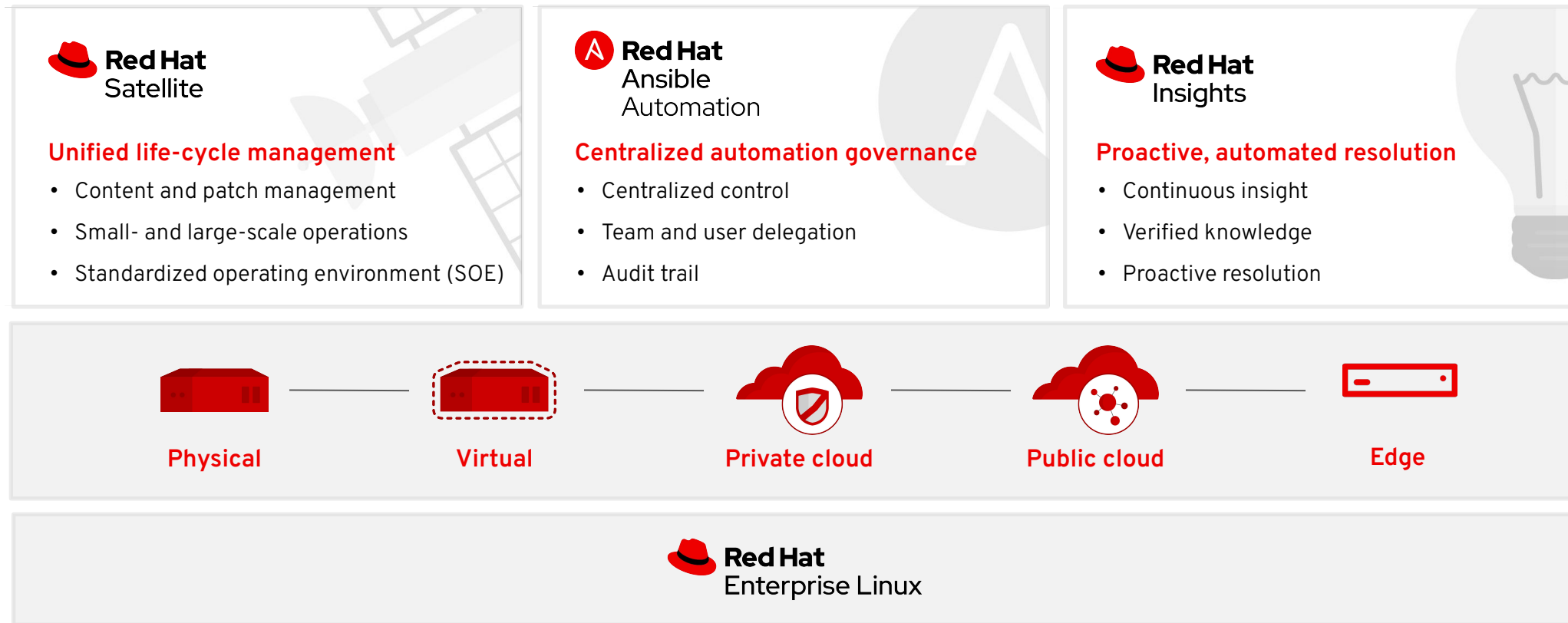


## Provisioning time

Significant time and resources are required to install and optimize operating system (OS) installations.

# Standard Operating Environment

Reduce complexity with Red Hat Enterprise Linux and its management ecosystem



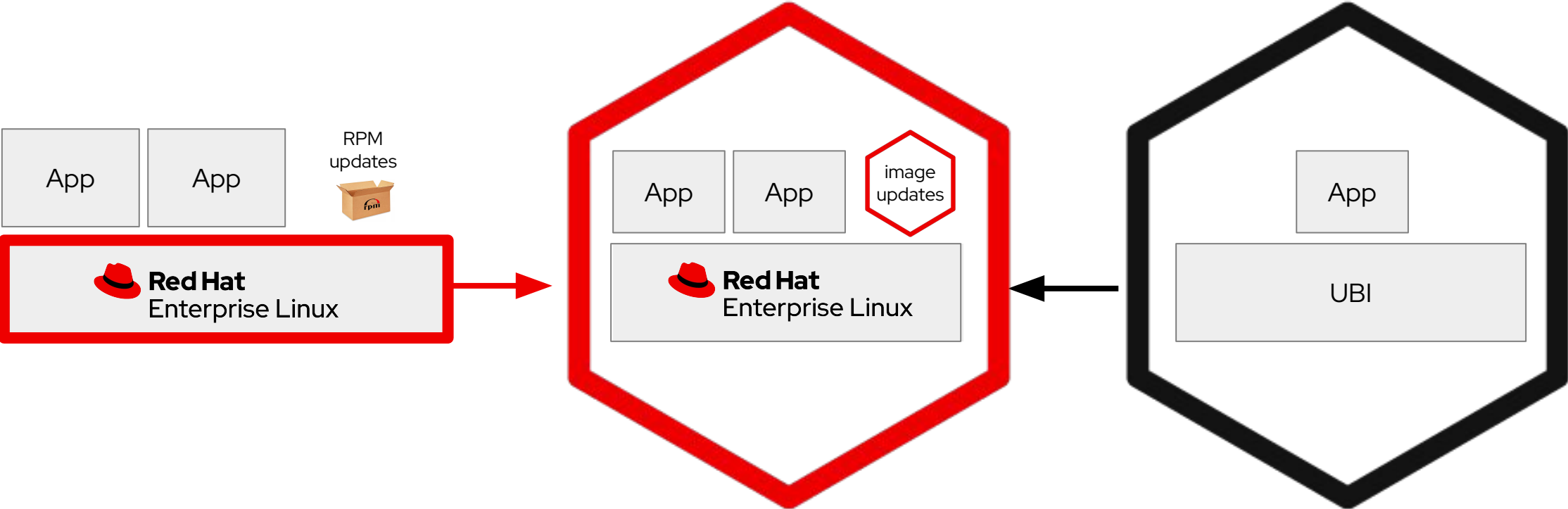


What's new in:

RHEL, Satellite and Insights?

# Introducing image mode for Red Hat Enterprise Linux

Combining the power of RHEL with the benefits of containers



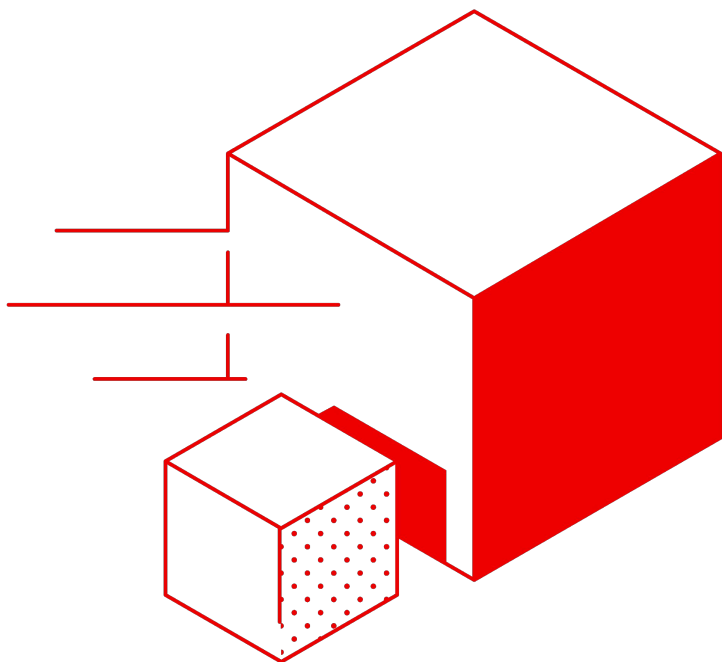
Package mode

Image mode

Application container

# Image mode for Red Hat Enterprise Linux

Combining the power of RHEL with the benefits of containers



## All RHEL users benefit from standardization

Simplify operating system (OS) portability across hybrid cloud environments



## DevOps teams can reduce platform and application friction

Integrate the operating system into continuous integration and continuous delivery (CI/CD) and GitOps workflows



## Security teams can make their jobs far less complex

Apply container security tools to the base elements of the operating system



## Solution providers can more easily deliver offerings

Build, test, and distribute Red Hat Enterprise Linux-based applications more easily

# Image mode for RHEL

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

```
FROM rhel9/rhel-bootc:latest

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

ADD [application]
ADD [configuration files]

RUN [config scripts]
```

## Build

A *bootc* base image & container file is all that's needed to describe a system, applications, and dependencies. Use your existing container tools or pipelines to quickly create and test images.

## Deploy

Easily convert to a VM/cloud image or deploy on bare metal using RHEL's installer. The container image includes full hardware drivers, but not cloud agents by default.

## Manage

Designed for modern GitOps & CI/CD driven environments. Systems will auto-update from the container registry by default. More advanced control and automation is available via custom rollouts (e.g. Ansible). Intelligence via Insights and on-prem content curation via Satellite are planned for the future.

Tech Preview



New!



# Red Hat Enterprise Linux AI

## Foundation Model Platform

Seamlessly develop, test and run best of breed, open source Granite generative AI models to power your enterprise applications.

**The model is the new platform.**



### Open Granite models

Highly performant, fully open source, collaboratively developed Granite language and code models from the community, fully supported & indemnified by Red Hat and IBM.



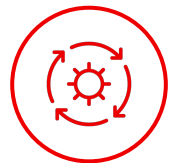
### InstructLab model alignment

Scalable, cost-effective solution for enhancing LLM capabilities efficiently for a wide range of applications, making knowledge & skills contributions accessible to a wide range of users



### Optimized bootable model runtime instances

Granite models & InstructLab tooling packaged as a bootable RHEL image, including Pytorch/runtime libraries, hardware optimized inference for Nvidia, Intel and AMD that can run anywhere and provides onramp to OpenShift AI for scale and lifecycle & watsonx for agent integration and governance.



### Enterprise support, lifecycle & indemnification

Trusted enterprise platform, 24x7 production support, extended model lifecycle and model IP indemnification

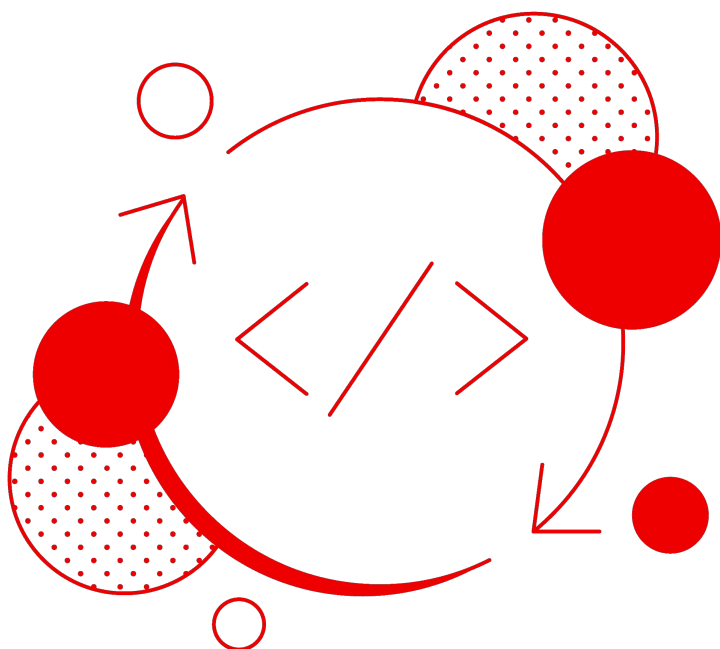
/Keep your options open



**Red Hat**

# Podman Desktop AI Lab simplifies AI adoption for developers

Brings key open source tools and AI models to local development environments



**Build, test, and run** generative AI-powered applications in containers



**Use a recipe catalog** to jump start applications like chatbots, text summarizers, and code generators



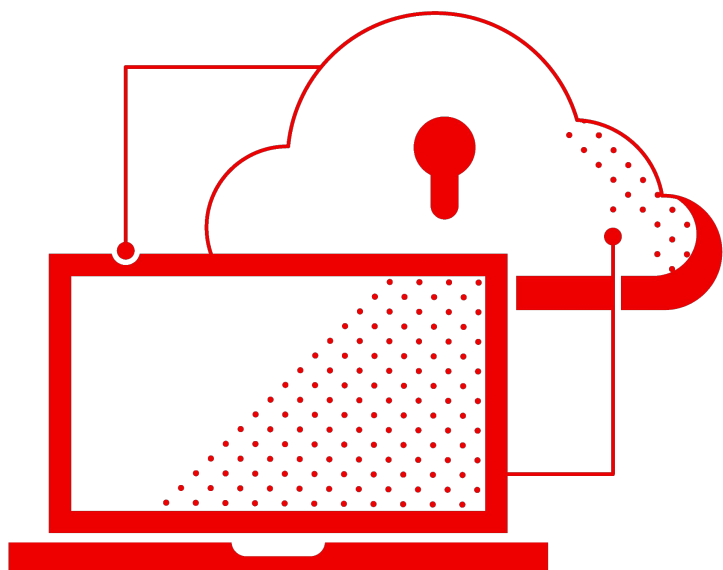
**Experiment in a playground environment** that gives users space to run large language models locally



**Create prototypes** using a curated list of lightweight and quantized open source models

# RHEL Lightspeed brings Linux to the next generation of IT talent

Intelligent, natural language processing capabilities designed to bridge the skills gap



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RHEL Lightspeed is currently in the **planning stages**.

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**Improve the productivity and efficiency** of operations and developer teams by integrating AI into the operating system

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**Simplify enterprise planning** and system administration, improve performance, and enhance security

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**Extend expertise** to architects and operators, from the novice system administrator to the most senior architect

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**More easily navigate** the complexities of enterprise IT in the hybrid cloud

# Get full support for RHEL virtualization on the ARM 64K platform

A continuing commitment to hardware ecosystem flexibility



**Get more flexible allocation of resources with virtualization**

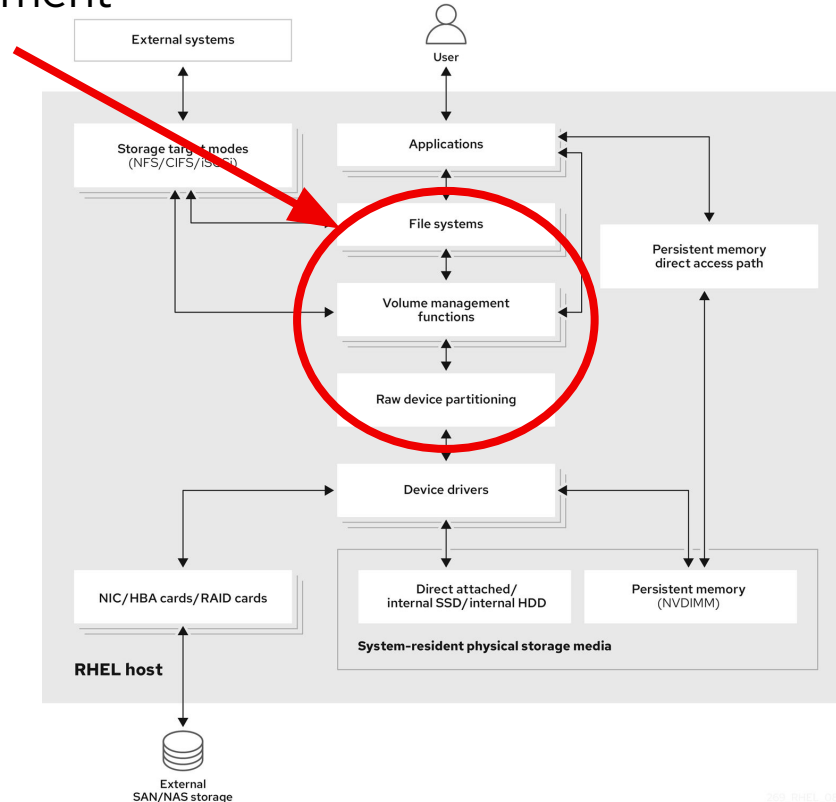
**Manage software-controlled configurations**

**Gain space and cost efficiency with virtual machines**

# Stratis is now GA!

## Simplifying Storage Management

### Unified Local Storage Management



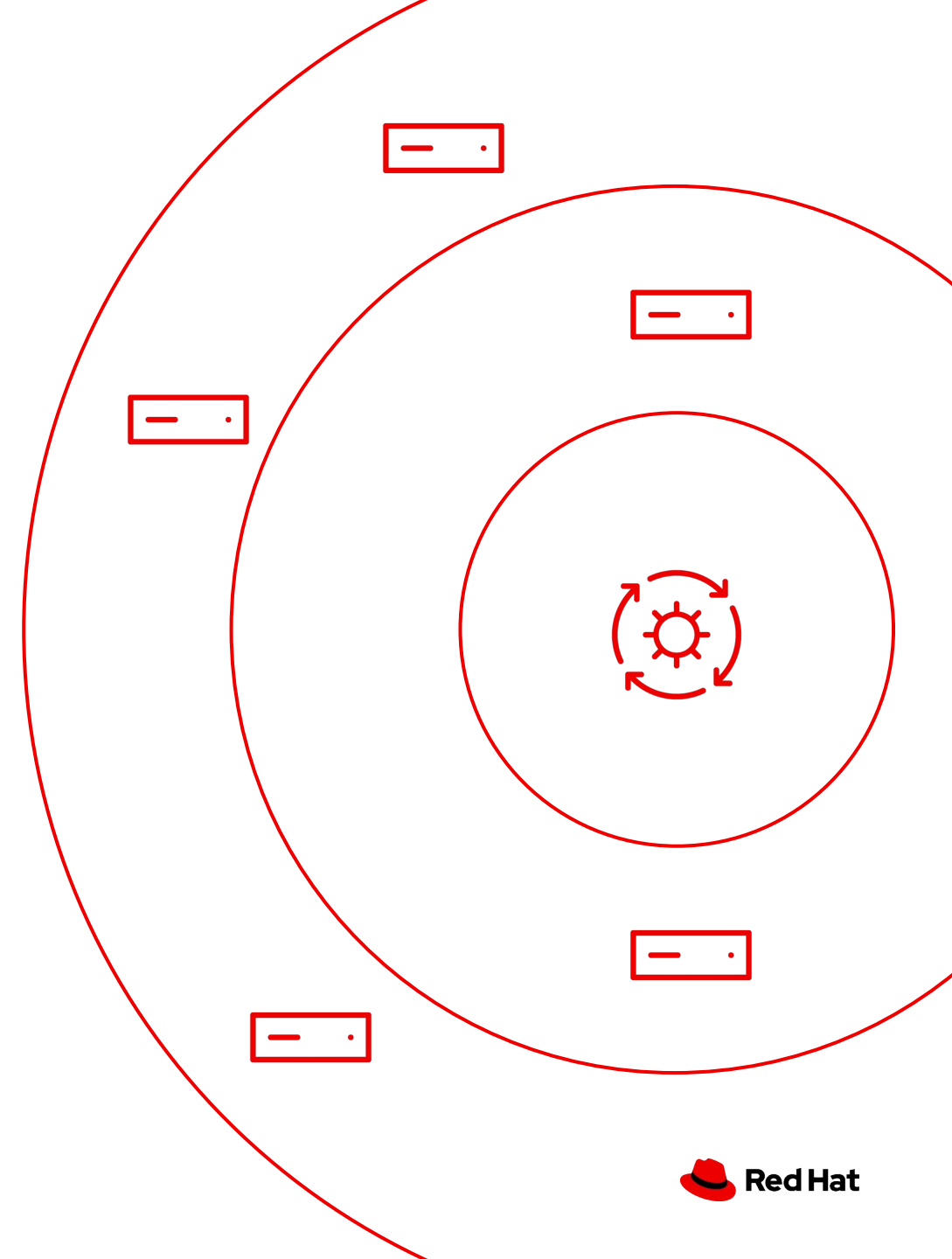
- ▶ Consolidated volume & file system management
  - Integrated encryption
  - Trusted Platform Module support
  - Snapshots
  - Thin provisioning
  - Dynamic storage expansion
- ▶ Consistent interfaces
  - Web console
  - CLI
  - API
- ▶ User-friendly command syntax

# RHEL system roles

A collection of supported Ansible roles included in a RHEL subscription to help automate consistent and repeatable OS tasks and configurations.

Role enhancements include:

- ▶ New system roles:
  - fapolicyd
  - bootloader
  - LVM snapshot
- ▶ System role support for RHEL for Edge (rpm-ostree) systems
- ▶ AD integration role support for dynamic DNS updates



# Red Hat Enterprise Linux system roles available today

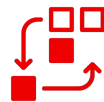
Streamline system deployment and management



## Security

Automate security workflows and maintain them over time, at scale, and with minimal resources. Consistency helps streamline governance and compliance requirements.

- ▶ SELinux
- ▶ Certificate
- ▶ NBDE client and server
- ▶ Tlog
- ▶ SSH client
- ▶ SSH server
- ▶ Crypto policies
- ▶ VPN
- ▶ Keylime server (8.9/9.3)



## Configuration

Save time and streamline deployments by automating manual tasks that ensure a consistent administrative experience and scales across systems.

- ▶ Kdump
- ▶ Network
- ▶ Storage
- ▶ Timesync
- ▶ Kernel settings
- ▶ Podman
- ▶ Journald
- ▶ systemd (8.9/9.3)
- ▶ Logging
- ▶ Metrics
- ▶ Postfix
- ▶ HA cluster
- ▶ Cockpit
- ▶ RHC (8.8/9.2)
- ▶ AD integration



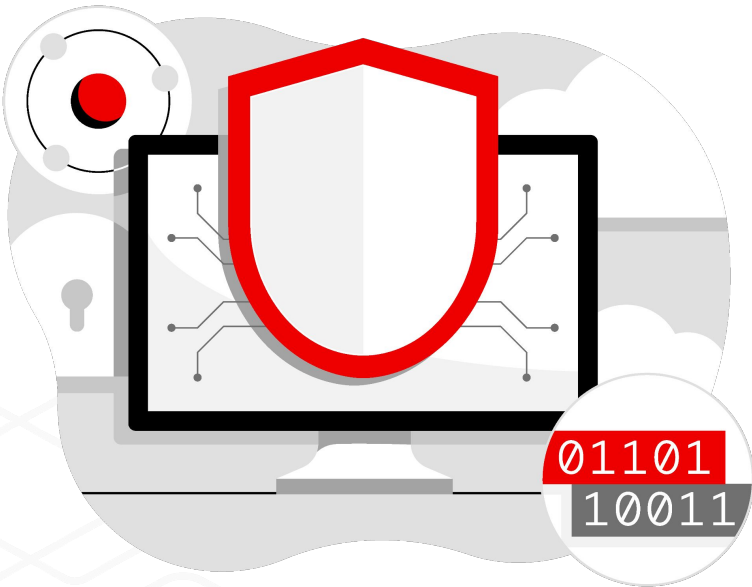
## Workloads

Easily optimize the most popular workloads at the time of deployment and simplify ongoing administration by automating workload-specific tasks.

- ▶ SAP
- ▶ Microsoft SQL Server
- ▶ PostgreSQL (8.9/9.3)

# Yubico has fully tested and verified passkey authentication

Simplify security and compliance with passwordless authentication



**Multi-factor authentication**  
using FIDO2-compliant passkey

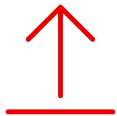
**Complies with Zero Trust**  
Architecture security model

**Strong authentication**  
for centrally managed users



# Image builder

Streamline Red Hat Enterprise Linux system deployments across the hybrid cloud



**Facilitate** rapid deployment of images and updates



**Streamline** the path from development to production



**Deploy** to the cloud more easily and accelerate cloud workload migrations



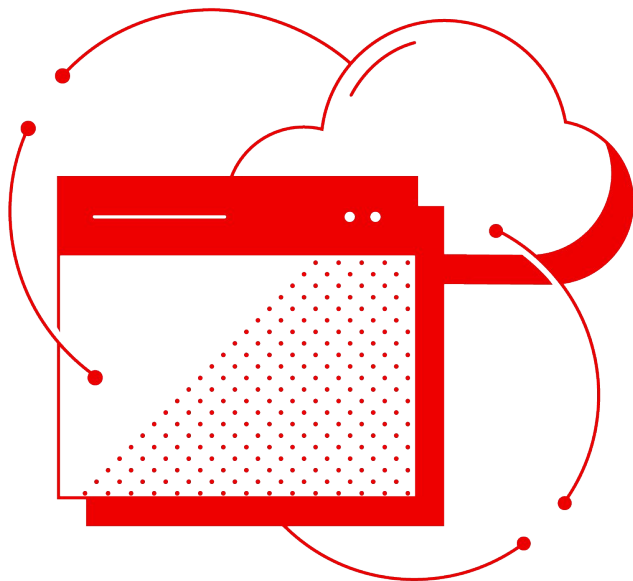
**Configure** systems consistently across the hybrid cloud



**Mitigate** risk with the power of automation and workflows



**Implement** your chosen standard operating environment strategy



## Multiple ways to use image builder



### Composer-cli | On premise

- ▶ Command line tool
- ▶ On-premises build node
- ▶ Included with Red Hat Enterprise Linux (RHEL) subscription



### RHEL web console | On premise

- ▶ Via interface in RHEL web console
- ▶ On-premises build node
- ▶ Included with RHEL subscription



### Red Hat Insights image builder | Hosted

- ▶ Cloud-hosted experience
- ▶ No infrastructure required
- ▶ Included with RHEL subscription
- ▶ API for CI/CD automation
- ▶ [console.redhat.com](https://console.redhat.com)



# Steps for using image builder



## 1. Choose platform

Physical, private cloud, public cloud, or edge



## 2. Select image builder tool

**Red Hat Insights image builder**  
[console.redhat.com](https://console.redhat.com)

**RHEL image builder**  
On-premises private build



## 3. Create blueprint

Define and customize the image



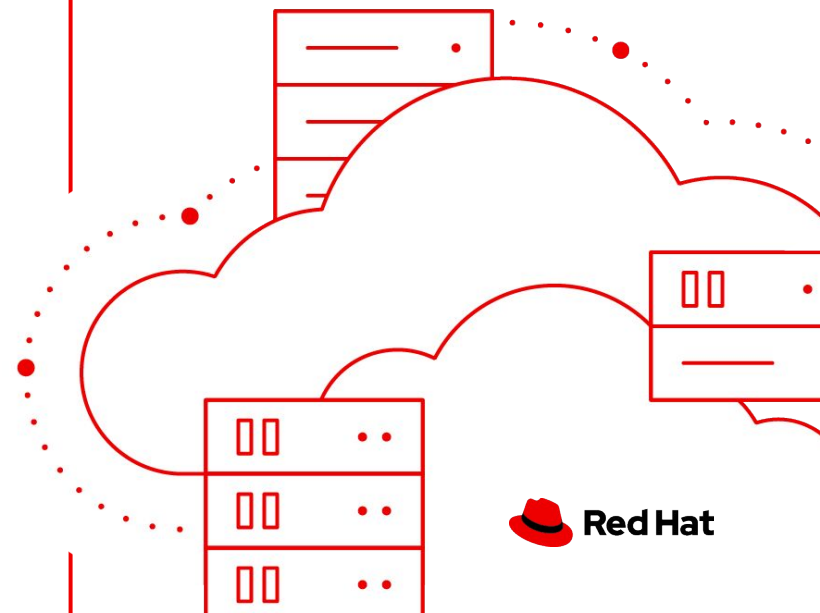
## 4. Build the image

Create a variety of images including Red Hat OpenStack, Amazon Web Services, VMware, and Microsoft Azure, and more



## 5. Deploy instance

Push image to the cloud provider of your choice or download to your datacenter



# Image builder proactive guidance

Proactively provides recommendations and information to assist with building RHEL images

## **RHEL lifecycle information**

Find out before, not after, you build an image that the selected version of RHEL is nearing the end of its full support lifecycle phase

## **Package recommendations**

Image builder analyzes your selected packages, and suggests additional packages that are likely to be relevant

## **Repository recommendations**

Can't find the package you are looking for in the repositories you have selected? Image builder will recommend other repositories to search

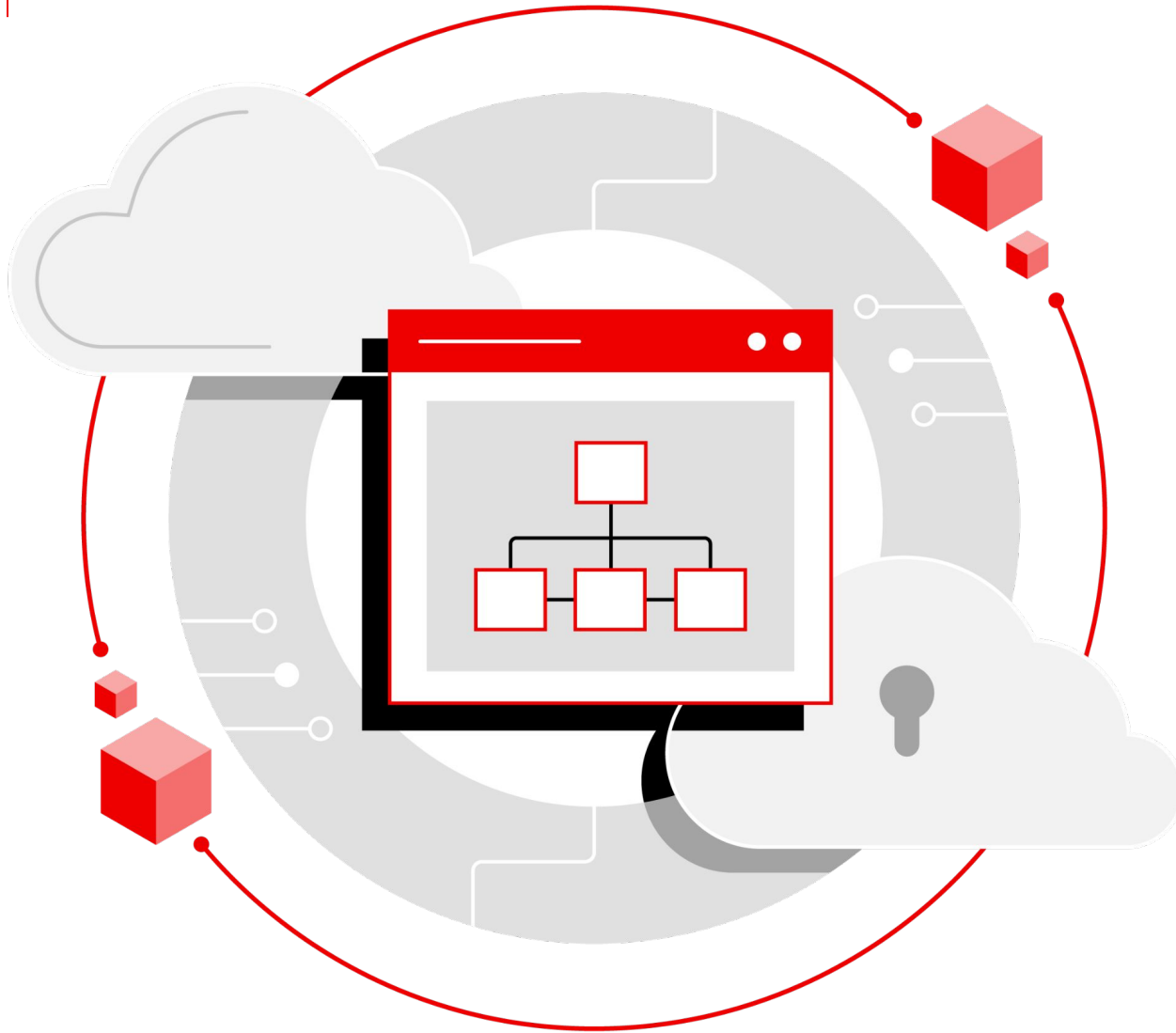


## The Route to RHEL 10

We continue to depend on our open source development model from Fedora to CentOS Stream to RHEL.

Upcoming:

- ▶ CentOS Stream 10
- ▶ RHEL 10 Beta
- ▶ RHEL 10 GA (Expected Mid-2025)



## Red Hat Satellite

- ▶ **Standard operating environment**  
hosts are the same across your environment
- ▶ **Reliable and resilient** using Red Hat Insights
- ▶ **Secure** your systems are patched, up to date, and compliant with security policies
- ▶ **Confidence** in your subscription utilization

## Red Hat Satellite 6.16



- ▶ RHEL 9
- ▶ Ruby 3 and Postgres 13
- ▶ Simple Content Access ONLY
- ▶ Container push
- ▶ Online backup replaces Snapshot backups
- ▶ UI, Webhooks improvements
- ▶ Improved LEAPP and Convert2RHEL
- ▶ Scalability and performance improvements

# Red Hat Insights

Unique managed services—with analytics and automation—for Red Hat-based hybrid environments



**Included** with your Red Hat Enterprise Linux subscription



Delivered **as a service** and accessed online



Works with **on-site and cloud-based systems**



Provides insights based on **years of experience**



Only available with the **Red Hat portfolio**



Dashboard | Red Hat Insig x

110%

Buscar

Red Hat Hybrid Cloud Console

Services

Search for services

Preview off

Jose Angel de Bu...

Red Hat Insights > Dashboard

Red Hat Insights

Dashboard

Inventory

Content

Operations

Security

Business

Automation Toolkit

Register Systems

Learning Resources

Filter by tags

176

33 stale systems

28 systems to be removed

Configure Integrations

Register systems

Vulnerability

Red Hat recommends addressing these CVEs with high priority due to heightened risk associated with these security issues. This dataset summary only shows CVEs with Errata.

51

CVEs with security rules impacting 1 or more systems

View CVEs

43

CVEs with known exploits impacting 1 or more systems

View known exploits

CVEs by CVSS score

CVSS score

8.0 - 10

4.0 - 7.9

0.0 - 3.9

CVE totals

525

2514

208

Known exploits

30

12

1

Advisor recommendations

4 incidents detected

Problematic conditions that cause an issue have been actively detected on your systems.

View incidents

Recommendations by total risk

1

16

16

9

Critical

Important

Moderate

Low

Recommendations by category

17 Availability

10 Performance

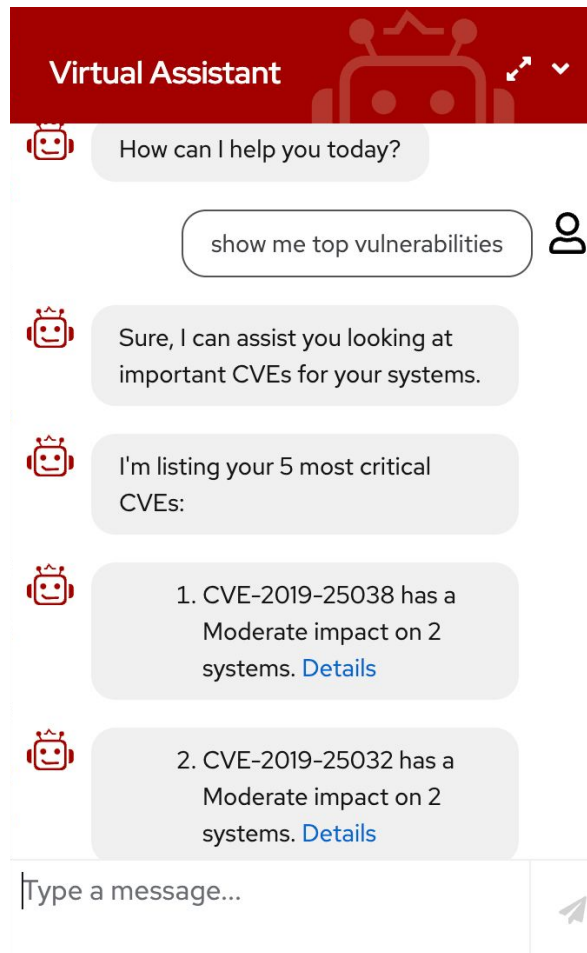
3 Stability

12 Security

Feedback

13

# Red Hat Insights



## Image Builder

- ▶ Improved to deploy the same image to hybrid environments

## Virtual Assistant

- ▶ AI Assistant to help with common issues

## Custom Staleness & Deletion

- ▶ Determine how long systems are on the Hybrid Cloud Console and adjust to meet your organizational needs.

## Advisor

- ▶ New recommendations added. Now over 1700 recommendations in Insights Advisor service.

instruqt

>\_ Terminal ↺

```
root@rhel:~# podman --version
podman version 4.6.1
root@rhel:~# podman pod create --name my-pod
7f628e295dbc8fcb504aa09304316554a59d6fd81183092cfd6717a5cb457c67
root@rhel:~#
```

Progress 49m

### Validating podman, and an introduction to pods

#### Validate the environment

For this scenario, the `container-tools` package group, which contains podman and its dependencies, has already been installed on the system.

The feature we will be working with is specific to Podman version 4 and newer, so first let's check that podman 4.0.x or newer is installed on the system.

```
podman --version
```

You should see output similar to this:

```
# podman --version
podman version 4.4.1
```

#### Introduction to Podman Pods

A pod within podman is a way of grouping

Exit

Skip

Next

# Get your hands on the terminal

## [lab.redhat.com](https://lab.redhat.com)

Red Hat  
**Summit**

**Connect**

# Thank you



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One platform.  
Unlimited possibilities.



**Red Hat**  
Enterprise Linux



# Try it yourself!

RHEL image mode demo and other use cases are available in the following Github repository:

<https://red.ht/demo-rhel-image-mode>

Everybody is welcome to use it, fork and suggest improvements.



## Four things to know about data collection with Red Hat Insights

1

**Red Hat Insights is designed to work with minimal data.**

Red Hat Insights collects only the minimum system metadata that is needed to analyze and identify issues.

2

**You control what data is sent to Red Hat.**

Before data is sent, you have the option to inspect and redact information.

3

**Data is encrypted throughout the process.**

Red Hat signs its data collection rules and will abort if the signature cannot be verified.

4

**Only one uploaded data set is stored at a time.**

For each host or instance, one uploaded data set is stored on the services infrastructure.

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Learn more about Red Hat Insights data and application security at [cloud.redhat.com/security/insights](https://cloud.redhat.com/security/insights).