
Red Hat
Enterprise Linux

Red Hat Enterprise Linux

Day 2 operations with RHEL Image Mode

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Red Hat

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

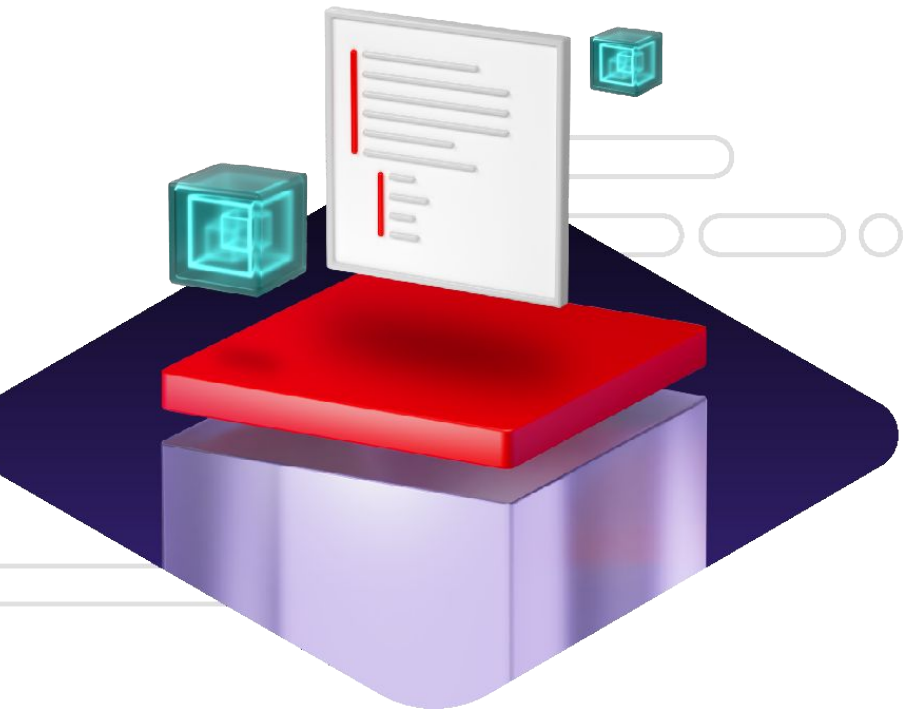
Make better decisions at build time
when it's typically easier and cheaper to make changes

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

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

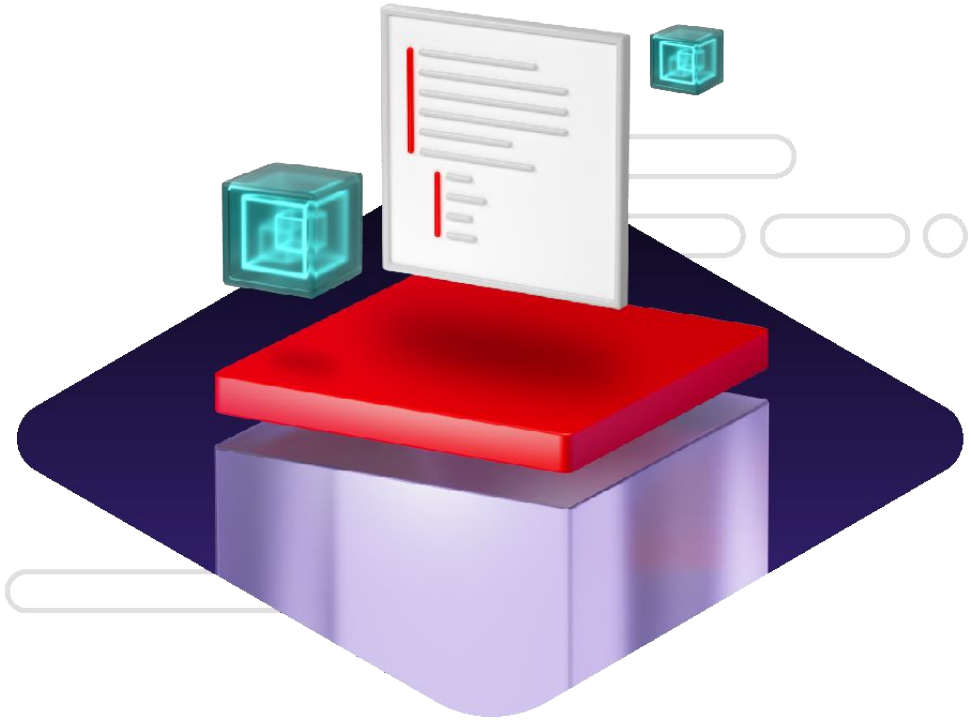
Because systems should be as easy to update as smartphones

“I want it to work like my smartphone”

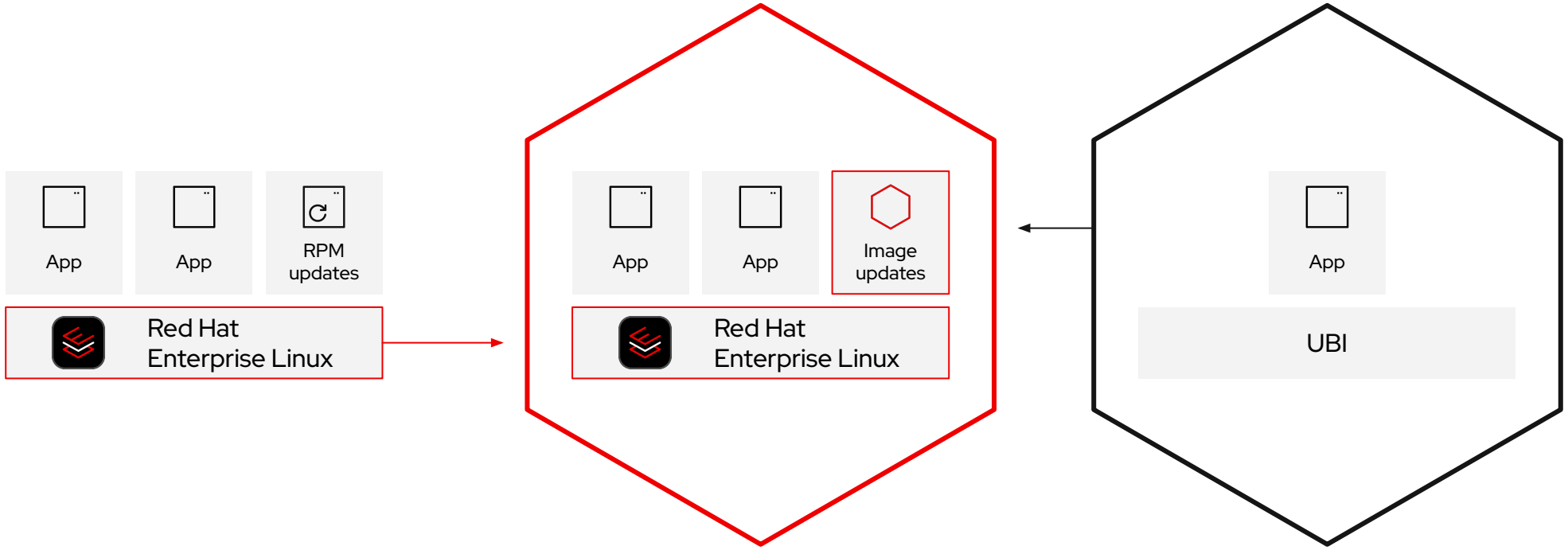
Factors that drove the search for a new solution

- 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



Package mode

Image mode

Application container

Image mode for Red Hat Enterprise Linux

Simple. Consistent. Anywhere.

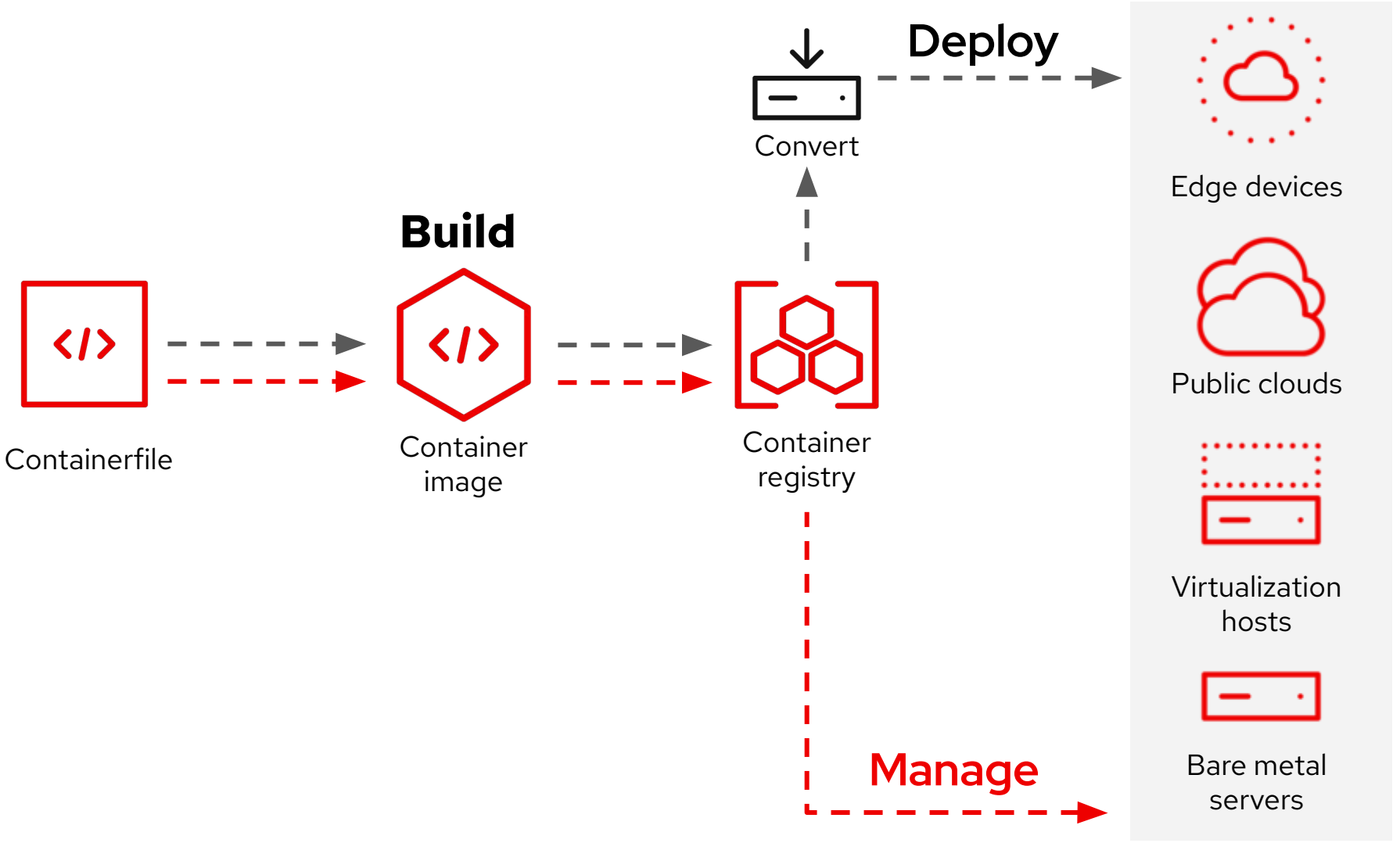


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Image mode for Red Hat Enterprise Linux

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

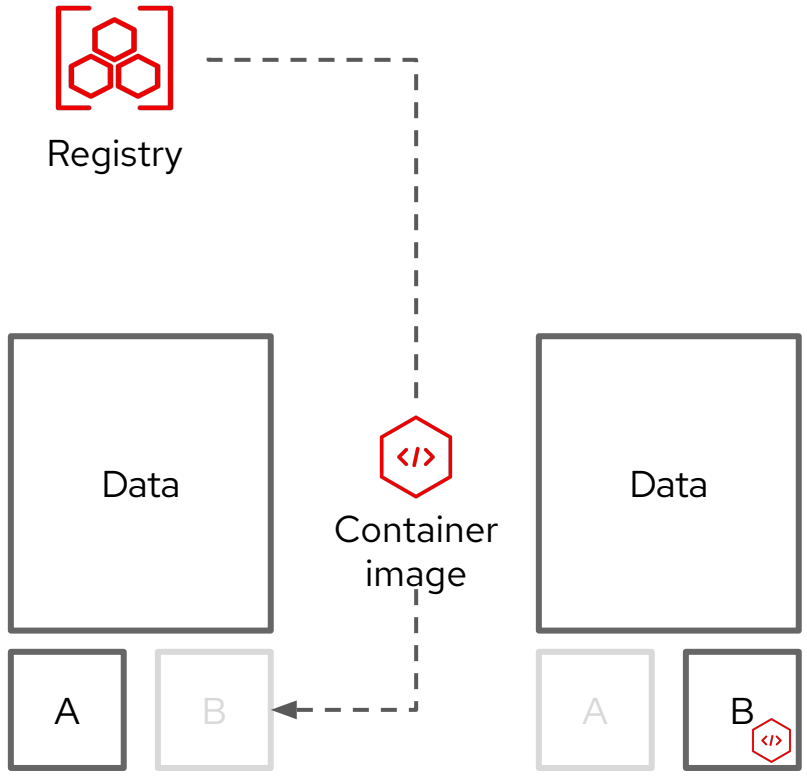
Easily convert to VM/cloud images, deploy on bare metal via the Red Hat Enterprise Linux installer, or even reinstall on existing cloud images using bootc.

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)

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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
```

NEW

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

Try it yourself!

Basic Lab
http://red.ht/im-basics

Advanced Lab
http://red.ht/im-day2

Thank you

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