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TECHNICAL INTRODUCTION TO THE RED HAT UNIVERSAL BASE IMAGE

Standardize on one container image for all your application needs

Scott McCarty
Principal Product Manager
08/12/2019

General Distribution

CHALLENGES IN SELECTING THE RIGHT CONTAINER BASE IMAGE

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THERE ARE A LOT OF DIFFERENT OPTIONS

Figuring out which container base image to use can be difficult

Traditional Options

- Red Hat Enterprise Linux
- Fedora
- CentOS
- Debian
- Ubuntu
- Windows

Minimal Options

- Distroless
- Scratch
- RHEL Minimal
- Alpine

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HOW TO SELECT THE RIGHT IMAGE

There is some standard criteria that can help

Architecture

- C Library
- Core Utilities
- Size
- Life Cycle
- Compatibility
- Troubleshooting
- Technical Support
- ISV Support
- Distributability

Security

- Updates
- Tracking
- Security Response Team

Performance

- Automated
- Performance Engineering

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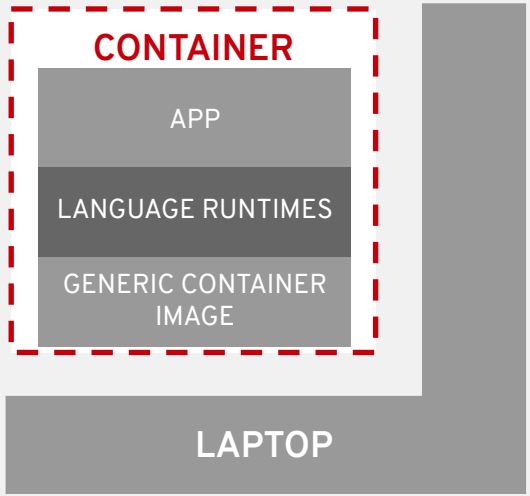
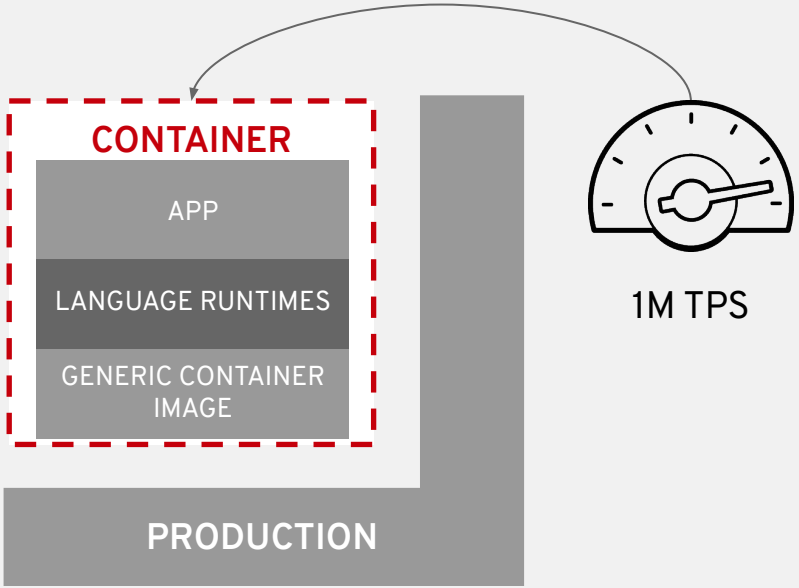
IT WORKS ON MY LAPTOP, BUT...

What about performance?



Works on my laptop



But, what about at 1M transactions per second

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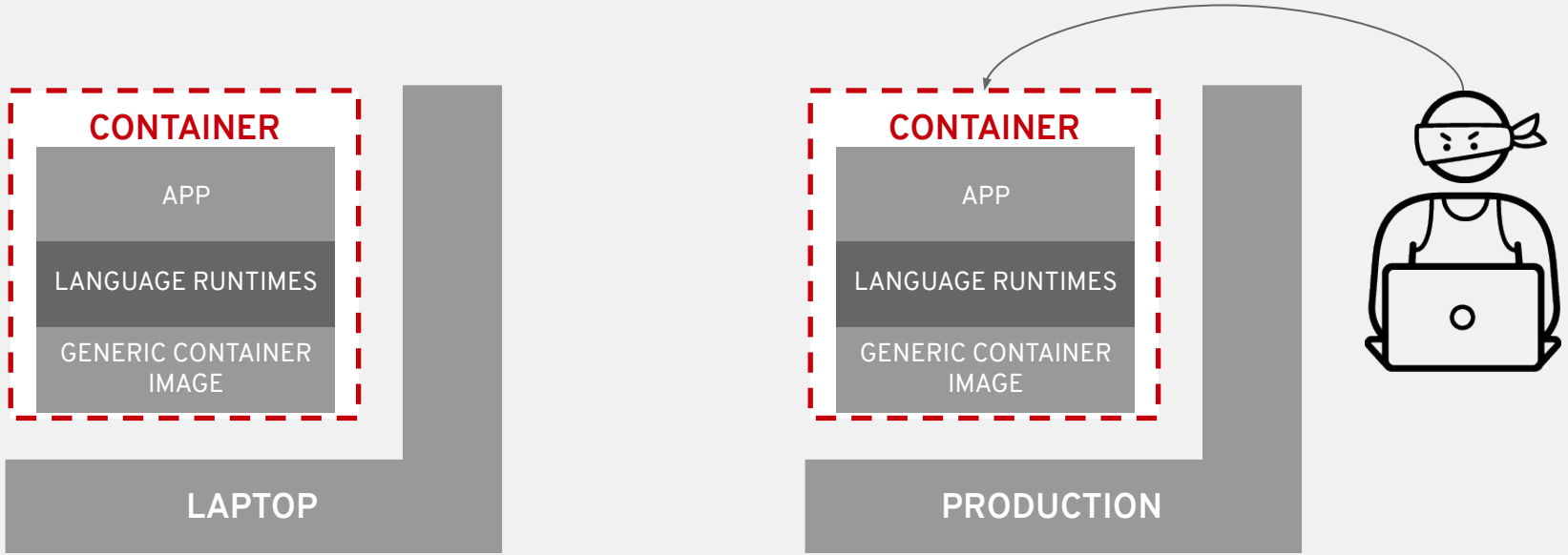
IT WORKS ON MY LAPTOP, BUT...

What about security?



Works on my laptop

What about hackers?

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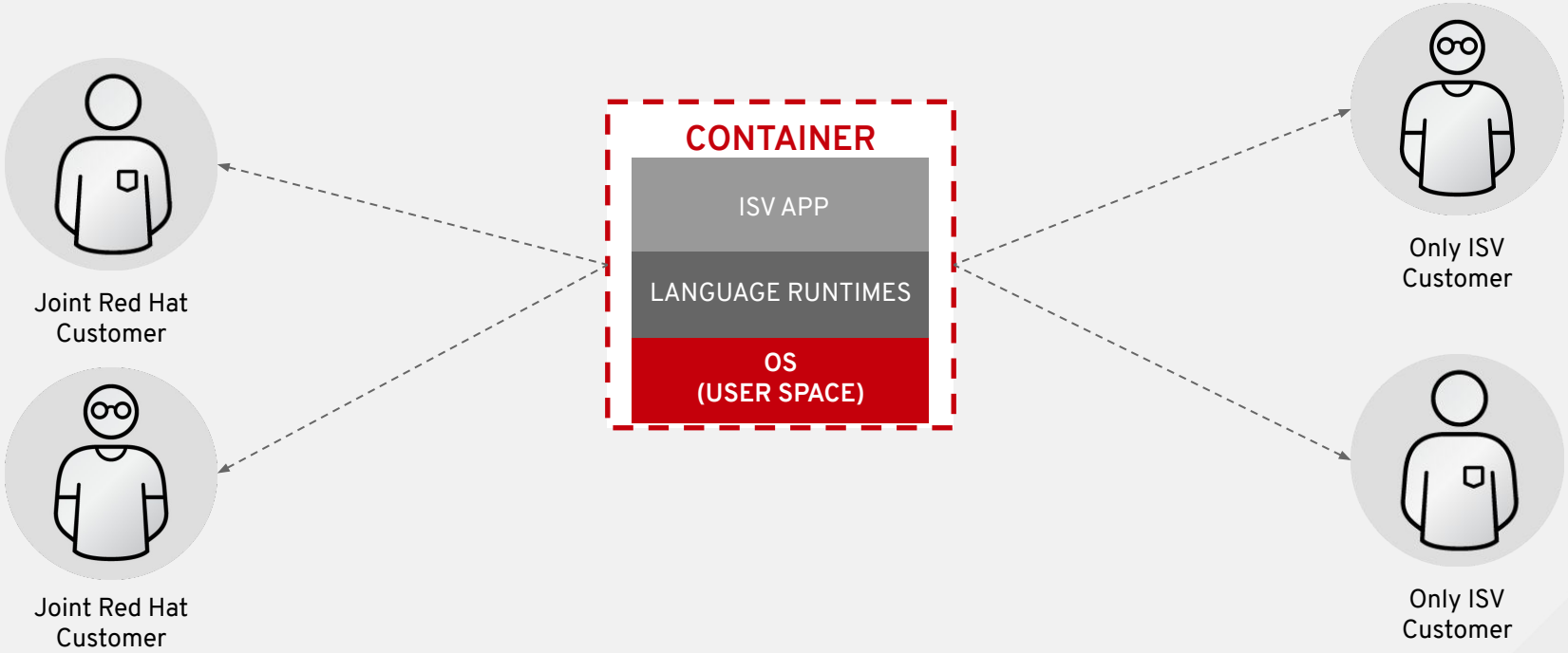
ISVs NEED TO DISTRIBUTE ANYWHERE

Meet your customers where they are, joint Red Hat customers, or not...



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INTRODUCING THE RED HAT UNIVERSAL BASE IMAGE

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THE RED HAT UNIVERSAL BASE IMAGE

The purpose is...

“To be the highest quality and most flexible base container image available”

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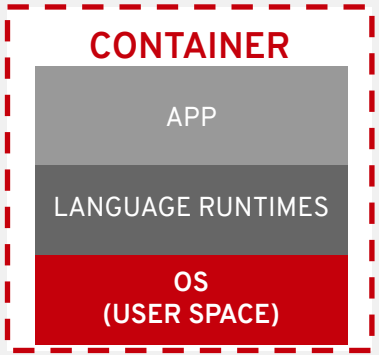
THE BASE IMAGE FOR ALL OF YOUR NEEDS

Enterprise architecture, security and performance



The Red Hat Universal Base Image is based on RHEL and made available at no charge by a new end user license agreement.

Development

- Minimal footprint (~90 to ~200MB)
- Programming languages (Modularity & AppStreams)
- Enables a single CI/CD chain

Production

- Supported as RHEL when running on RHEL
- Same Performance, Security & Life cycle as RHEL
- Can attach RHEL support subscriptions as RHEL

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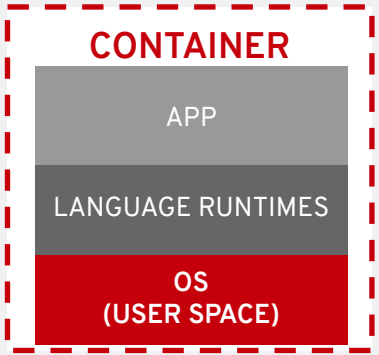
THE BASE IMAGE FOR ALL OF YOUR NEEDS

Engineered by Red Hat with an enterprise roadmap, security and performance



Trusted:

- Libraries
- Packaging format
- Core Utilities
- Security Response
- Patching
- Performance Response
- Technical Support
- More

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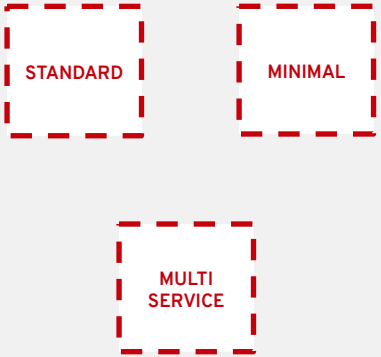
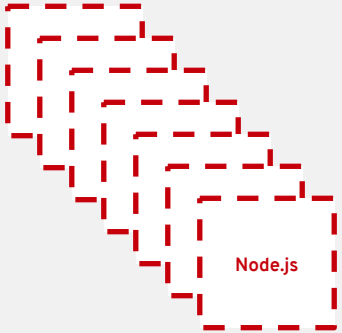
WHAT IS THE RED HAT UNIVERSAL BASE IMAGE?

Three base images, language runtime images, and software packages



Base Images



Pre-Built Language Images

Package Subset

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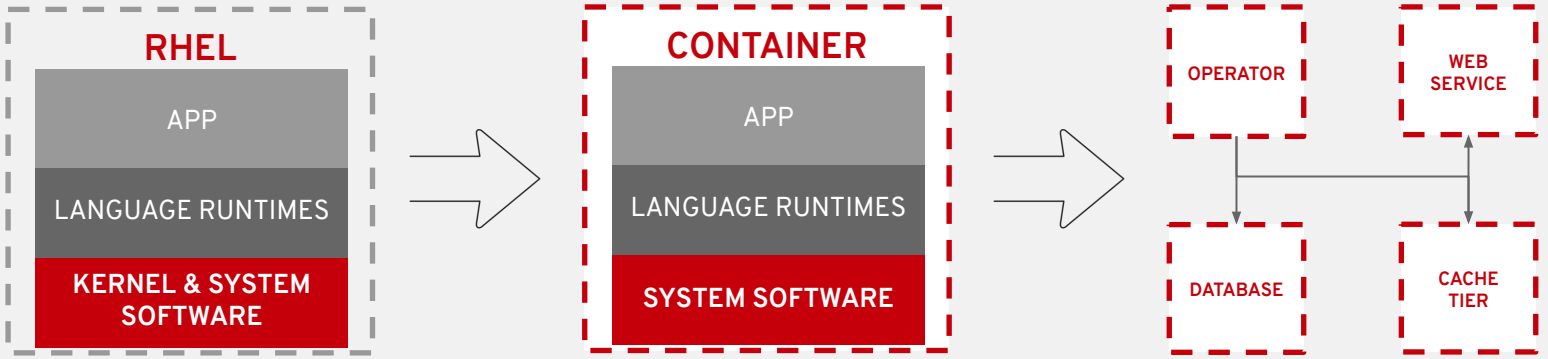
THE BASE IMAGE FOR ALL OF YOUR NEEDS

Bringing the value of RHEL to cloud native applications



Traditional Applications

Containerized Applications

Cloud Native Applications

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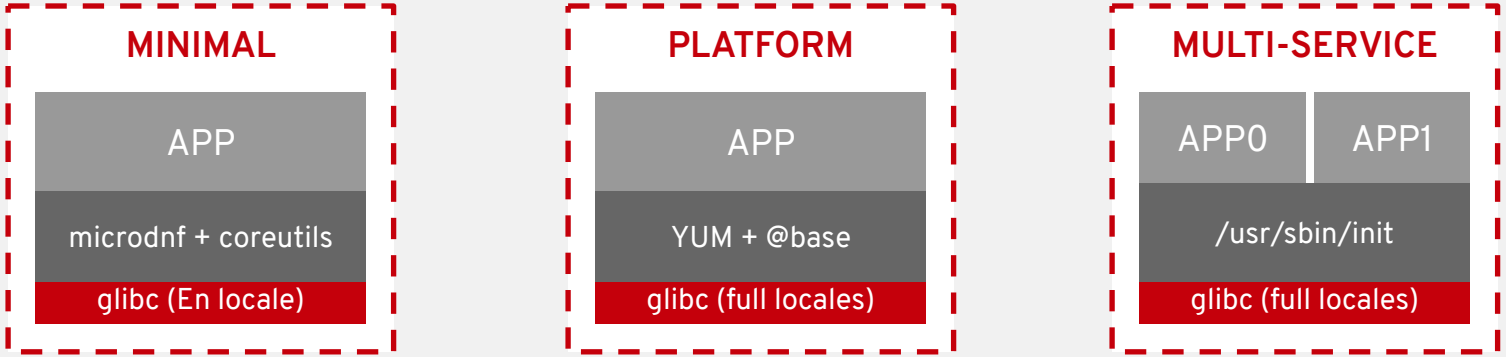
WHAT IS THE RED HAT UNIVERSAL BASE IMAGE?

Providing the right level of content for application stability via the RHEL API/ABI



ubi8/ubi-minimal

Designed for applications that contain all dependencies (Golang, dotnet, etc)

- Minimized content set
- No suid binaries
- Minimal package manager (install, update, remove)

ubi8/ubi

For any application that runs on RHEL

- Unified, openssl crypto stack
- Full YUM stack
- Includes useful basic OS tools (tar, gzip, vi, etc)

ubi8/ubi-init

Eases running multiple services in a single container

- Configured to run systemd on start
- Simply enable the services at build time

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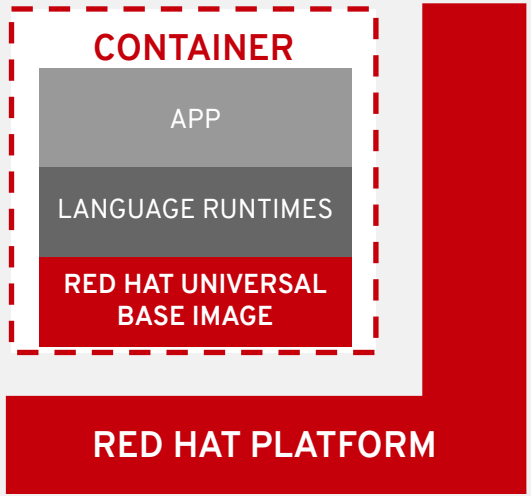
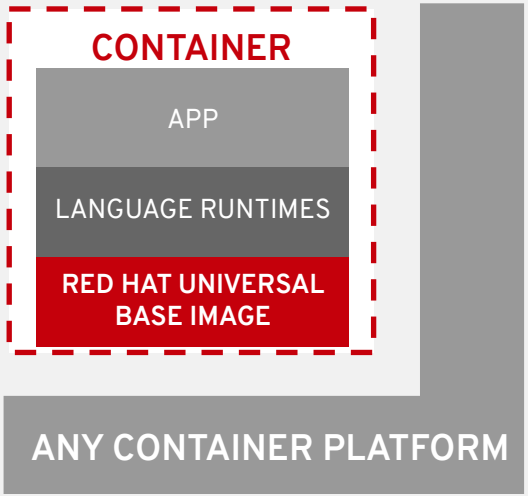
CAN BE BUILT & DEPLOYED ANYWHERE

On OpenShift and RHEL, or any container platform of your choice





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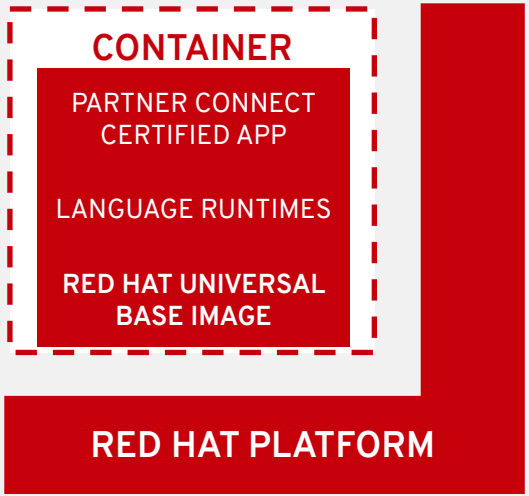
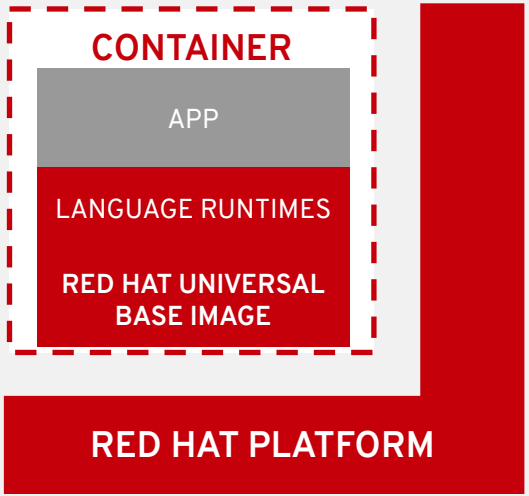
CAN BE BUILT & DEPLOYED ANYWHERE

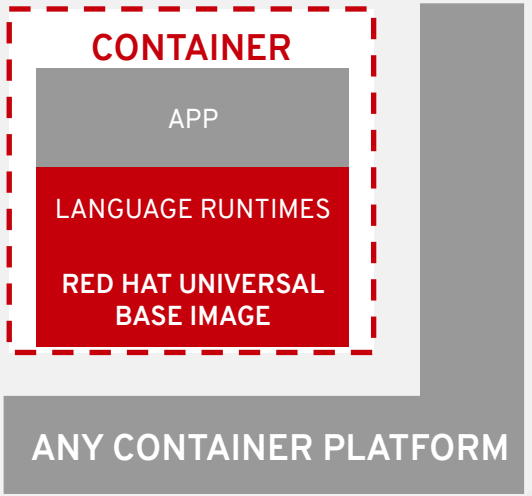
Building on UBI is the first step



Certification provides the highest level of support



Enterprise support when run on Red Hat platforms



Trusted base for any environment

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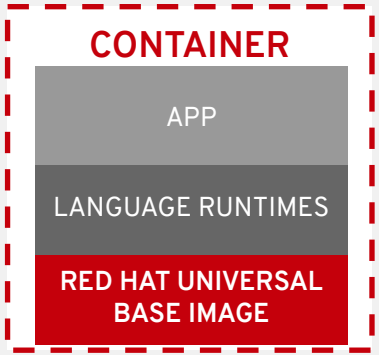
TWO WAYS TO GET UPDATES

Red Hat provides updated base images & RPM updates so you can rebuild any time you want

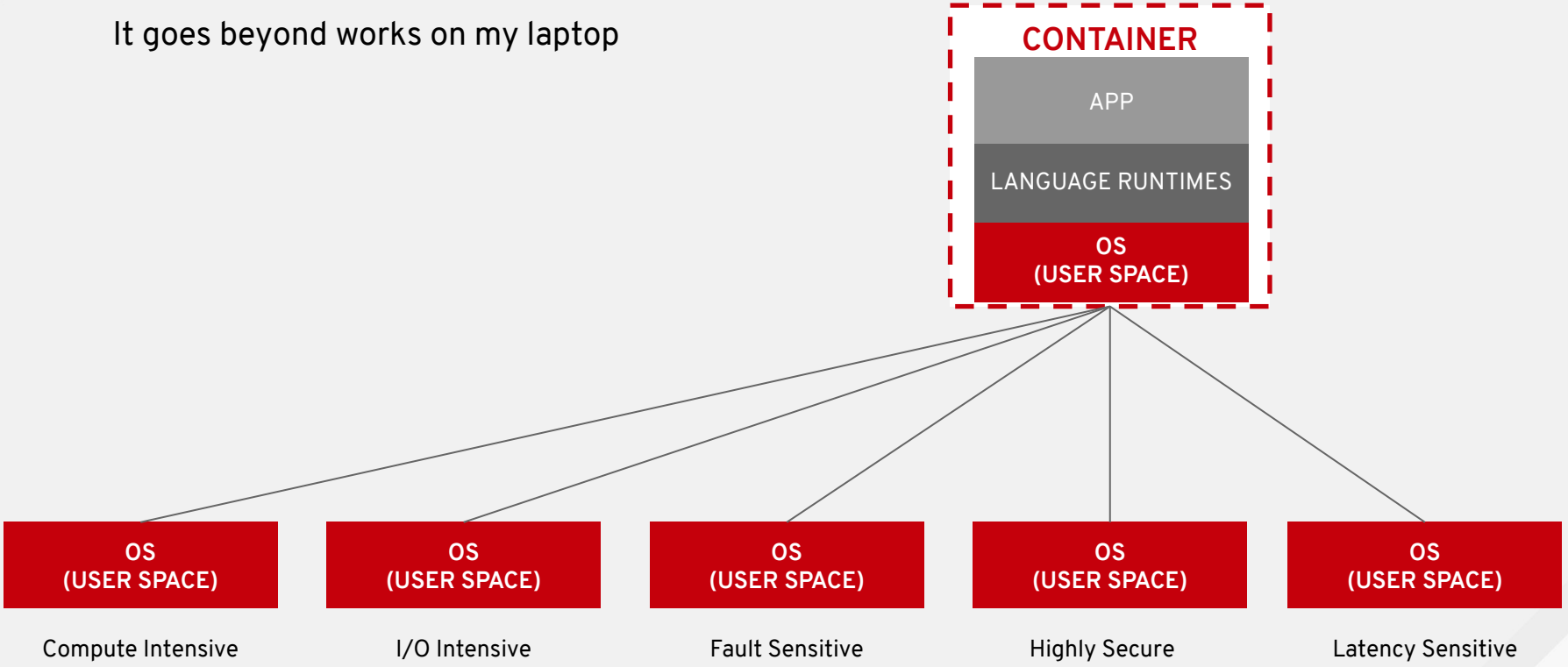


Base Image Updates

Associated RPM Updates

SAME BITS USED IN MISSION CRITICAL WORKLOADS

It goes beyond works on my laptop



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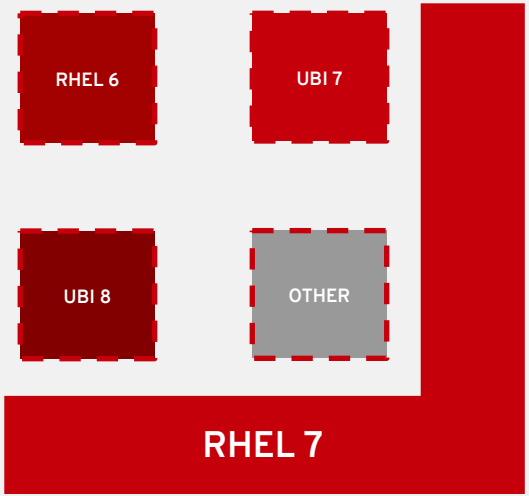
LEVELS OF SUPPORTABILITY

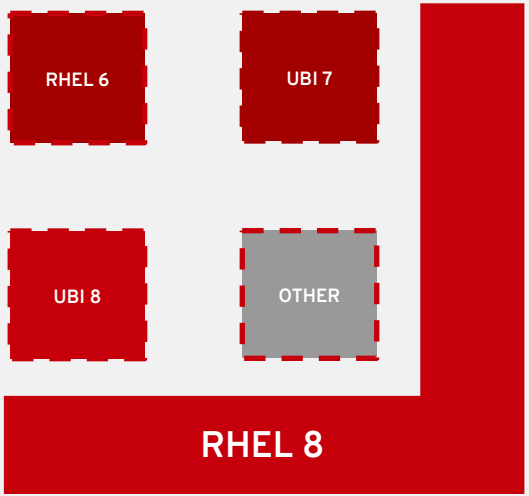
	ANYWHERE	+RED HAT PLATFORM	+CERTIFICATION	+OPERATOR CERTIFICATION
Trusted Roadmap	Yes	Yes	Yes	Yes
Proven Images	Yes	Yes	Yes	Yes
Minimal Images	Yes	Yes	Yes	Yes
Package/Image Updates	Only UBI Content	All RHEL Content	All RHEL Content	All RHEL Content
Cloud Native Language Runtimes	Yes	Yes	Yes	Yes
Distribution/Redistribution	Yes	Yes	Yes	Yes
Platform Testing	None	Yes	Yes	Yes
Customer Support	None	Red Hat Components	Joint (All Components)	Joint (All Componentes)
Joint Promotion	None	None	Yes	Yes
ISV Build Support	None	None	Yes	Yes
Automated Deployment Support	None	None	None	Yes
Automated Operations Support	None	None	None	Yes

SUPPORTABILITY MATRIX

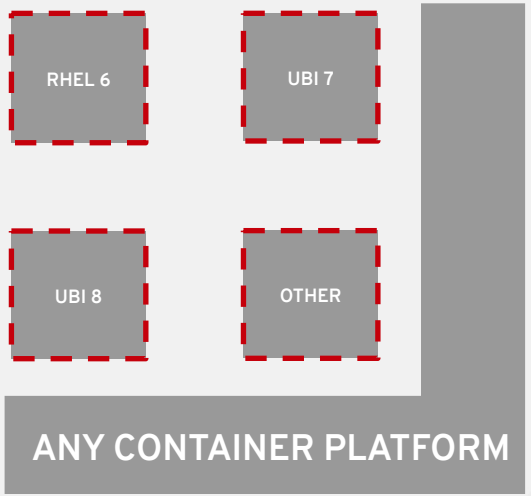
Tiered support model



Red Hat Enterprise Linux 7



Red Hat Enterprise Linux 8



Like any upstream project

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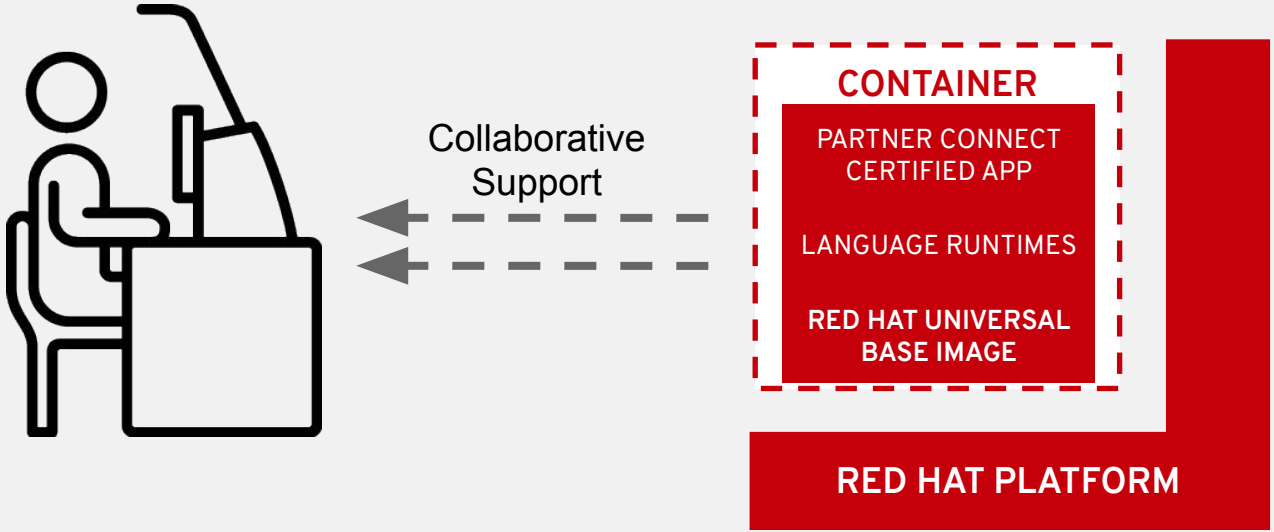
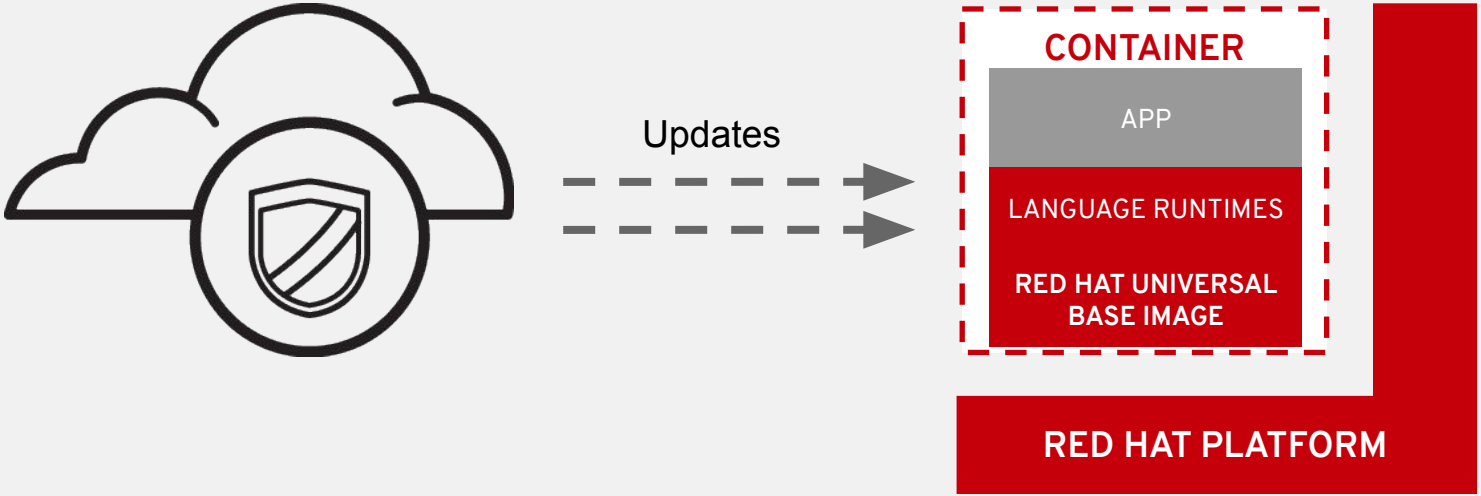
WITH A CERTIFIED APPLICATION CONTAINER

Collaborative support with Red Hat and ISV to resolve any issue, request patches, etc



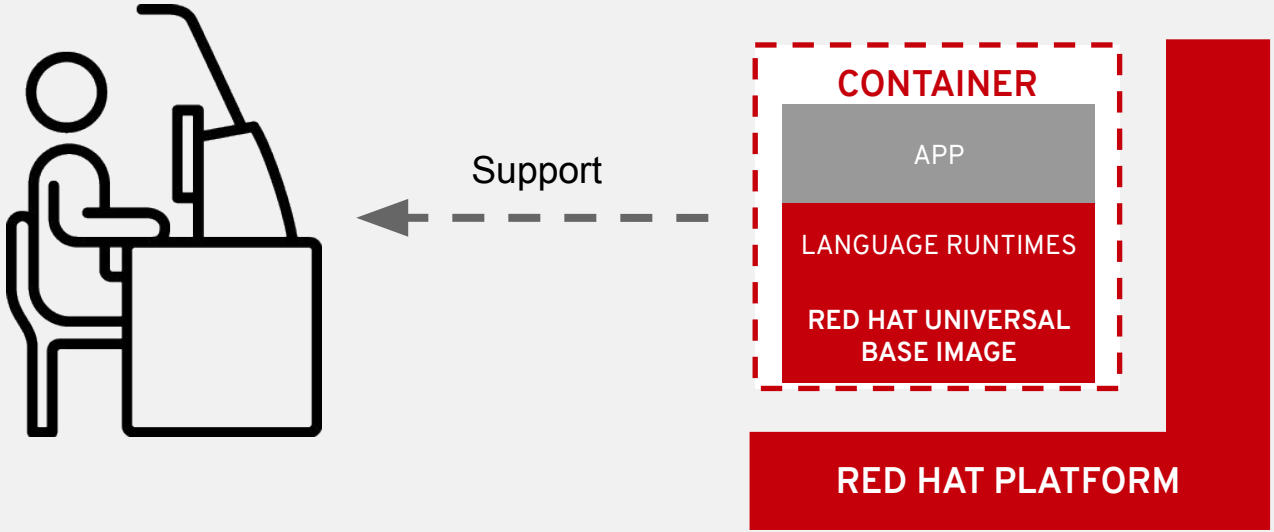
WHEN DEPLOYED ON RED HAT PLATFORM

Red Hat Universal Base & RHEL packages when registered



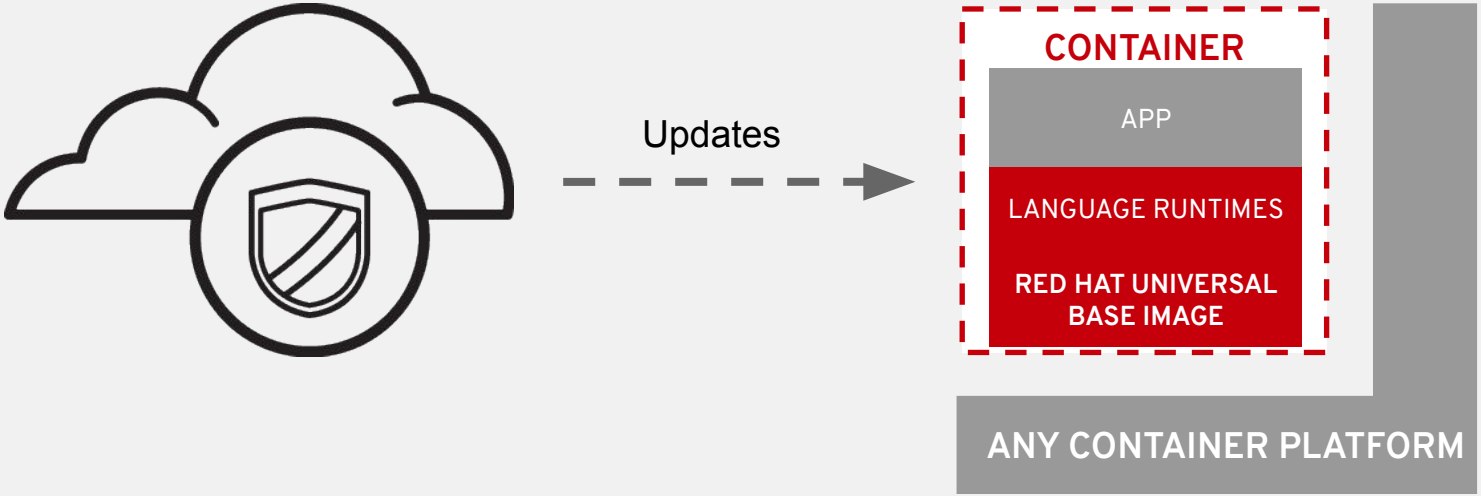
WHEN DEPLOYED ON RED HAT PLATFORM

Call Red Hat Support to resolve any issue, request patches, etc



WHEN DEPLOYED ON ANY CONTAINER PLATFORM

Red Hat Universal Base Image package updates from anywhere



CERTIFICATION & OPERATORS

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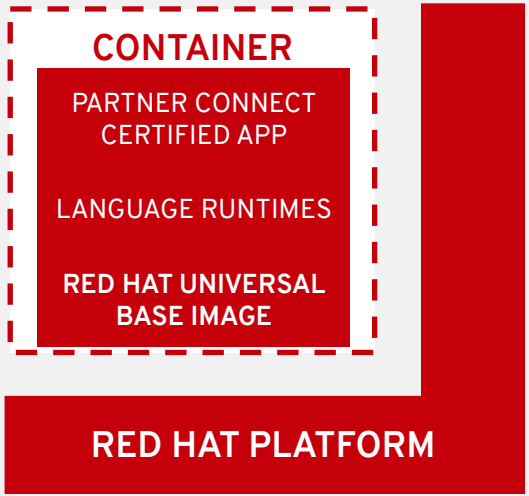
BEHIND THE SCENES

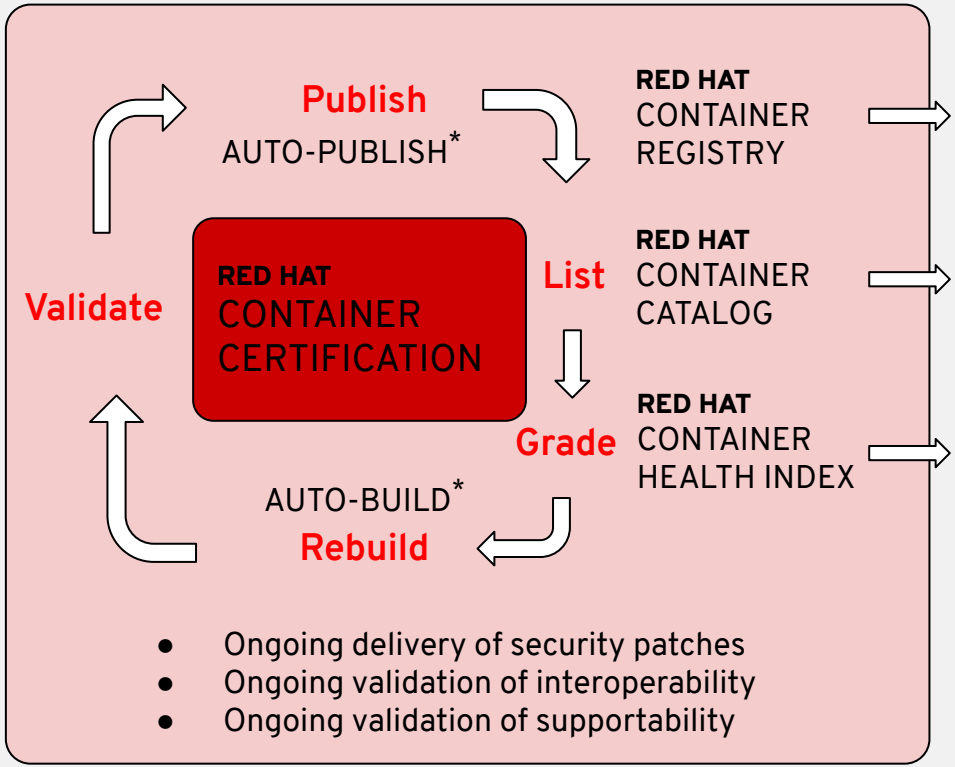
There is a lot more than might be suspected



Process:

- Build
- Validate
- Publish
- List
- Grade
- Rebuild

BEHIND THE SCENES



Build With

Red Hat Universal Base Image

New Product

RED HAT CONNECT for technology partners

* Red Hat's automated build and publishing services are optional, but recommended

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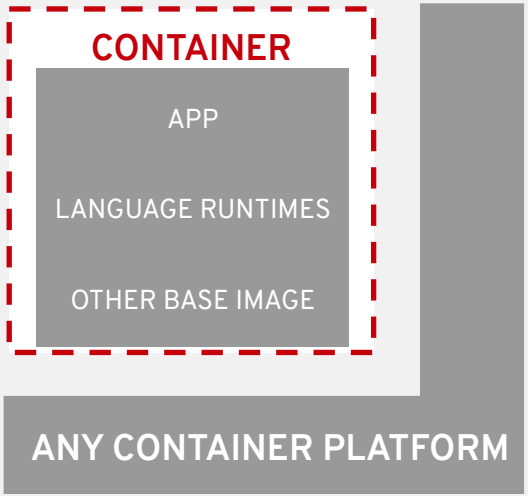
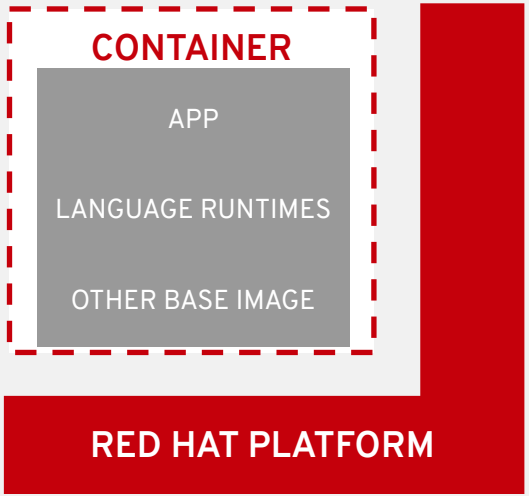
COMMON CHOICES & PROBLEMS

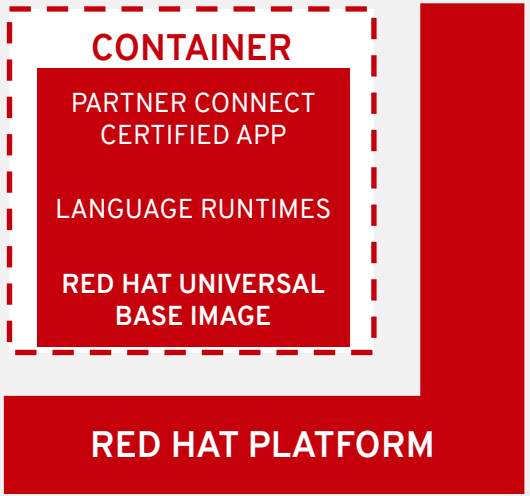
Supportability is a major concern



Third Party OS & Platform



Third Party OS



Ideal Supportable Solution

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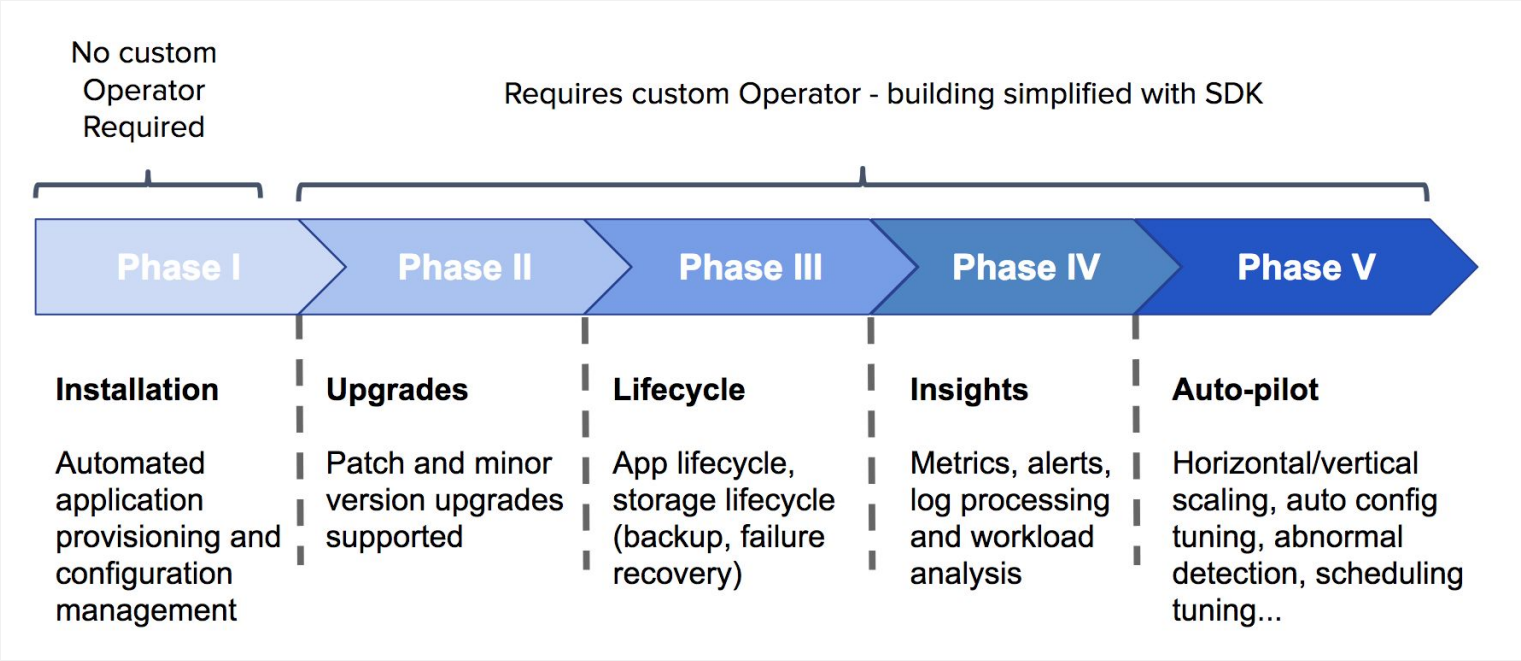
OPERATOR MATURITY MODEL



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THANK YOU

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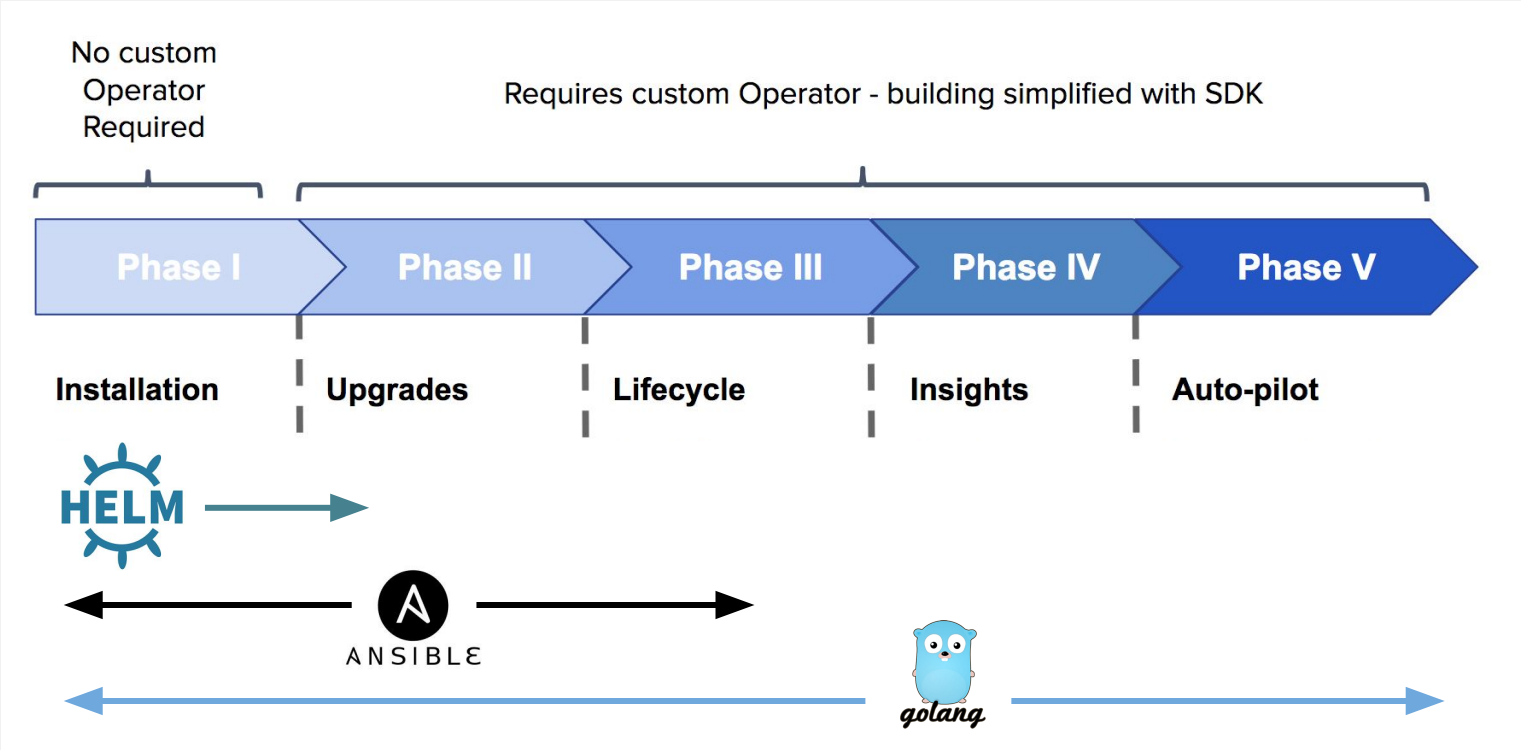
OPERATOR MATURITY MODEL



UNIVERSAL BASE IMAGE - TIMELINE

Planning and Launch readiness
- WCR plan for UBI launch

Select Partner disclosure and enablement
- Disclosure under NDA
- **Developer Preview release**
- Updated Container Certification Appendix

(Terms-based registry already GA)

Q3/Q4 FY2019

Q1 FY2020

UBI 7
- **Partner Launch / GA**
- **Launch Operator Certification**
- **Container Certification 2.0**

Update ISV Commercial Models
- ISV Embedded to reference Container Certification 2.0
- FY19 Sales Incentives adjust

Red Hat Community Initiatives
- UBI can now be the default

RHEL8 GA (May 2019)
- **Public Launch of UBI**
- **RHEL8 GA with UBI only**
- **OpenShift 4.0**
- Transition RH portfolio onto new Image
- Transition certified ISV onto new Image

Q2 FY2020

H2 FY2020

UBI Future
- UBI 8 images
- UBI 7 Images
- RHEL 7 Images for layered products & customers

RHEL 7 base image

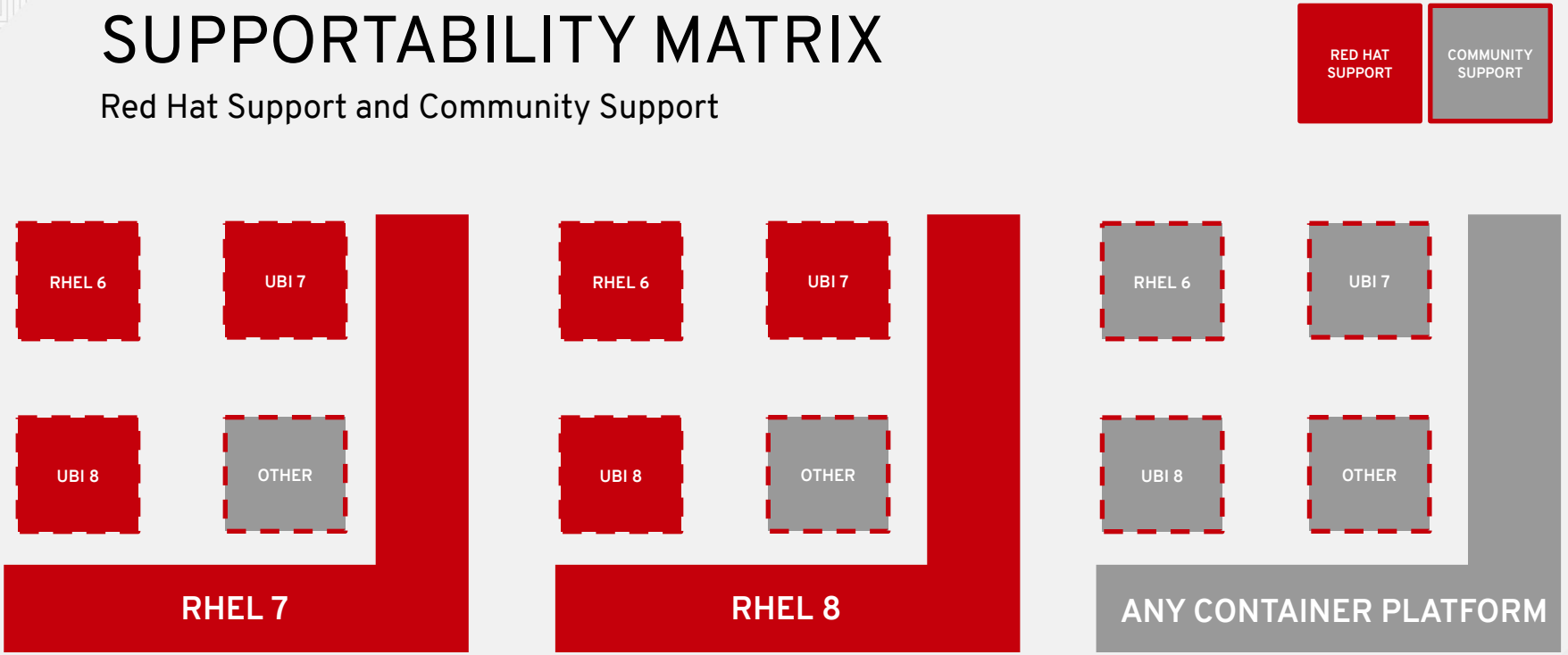
Dev Preview | Universal Base Image 7

Dev Preview | Universal Base Image 8

Red Hat Confidential

SUPPORTABILITY MATRIX

Red Hat Support and Community Support



Red Hat Enterprise Linux 7

Red Hat Enterprise Linux 8

Like any upstream project

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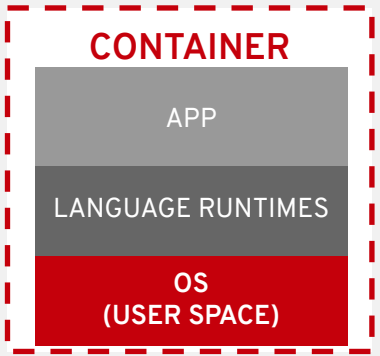
WHAT IS THE RED HAT UNIVERSAL BASE IMAGE?

The UBI is a subset of content from RHEL...



1. A set of three base images (ubi, ubi-minimal, ubi-init)
2. A set of language runtime images (nodejs, ruby, python, php, perl, etc)
3. A set of associated YUM repositories with common application dependency components

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