

# Containers for the Enterprise

## OpenShift Enterprise 3

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# Revolutions in IT

## Speed & Capacity



## Automation



## Accessibility

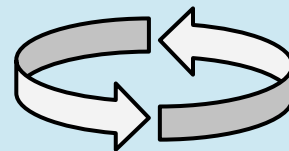
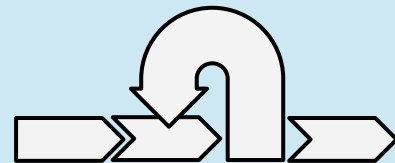
```
add esp, -$10
push ebx
mov eax, [$004093b0]
```

```
#include<stdio.h>
main()
{
    printf("Hello World");
}
```

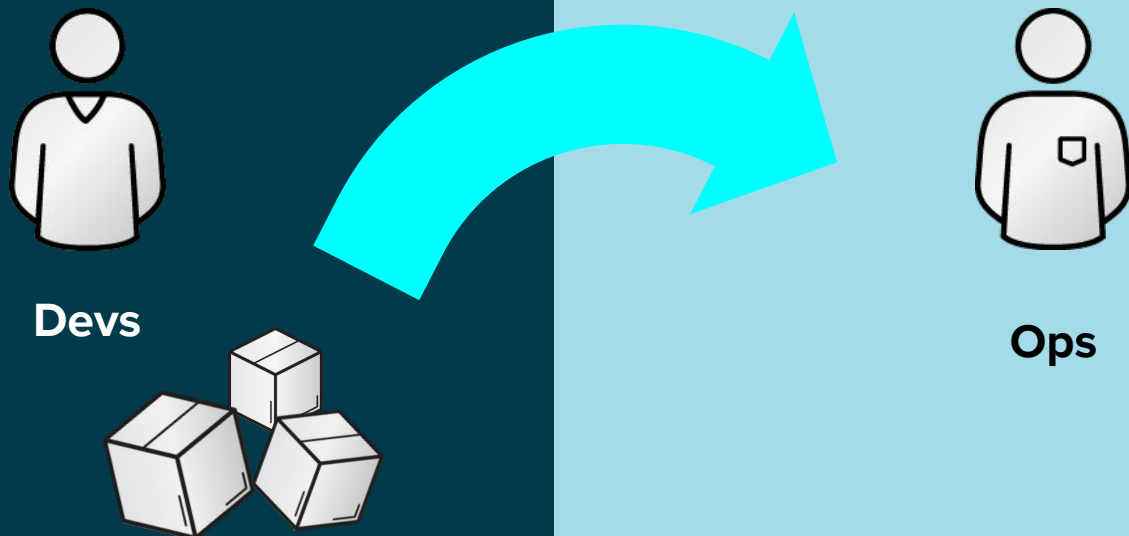
```
public class Main {
    public static void main(String[] args) {
        System.out.println("Hello, World!");
    }
}
```

```
puts "Hello World"
```

## Approach



...but we still deliver apps the same way



# What Devs see



Devs



Ops

# What Operations see



Devs



Ops

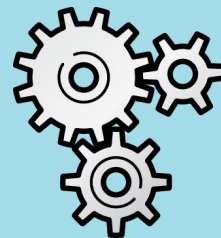
# Devs and Ops are fundamentally different



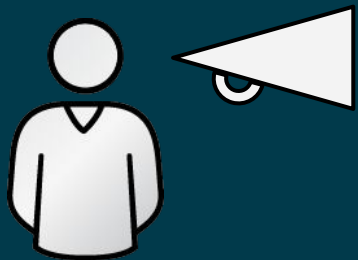
**Devs**



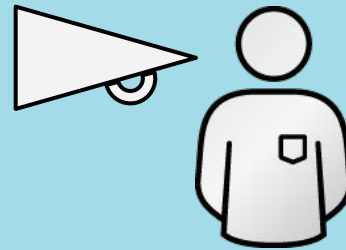
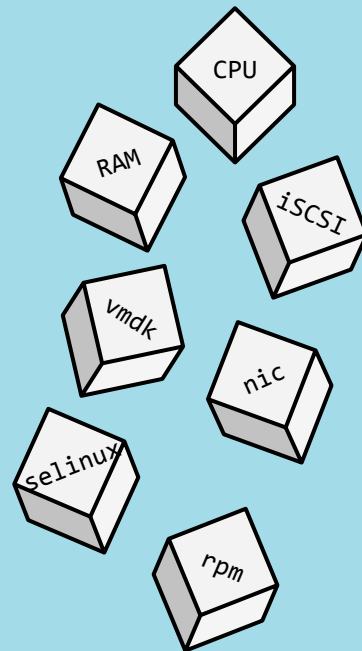
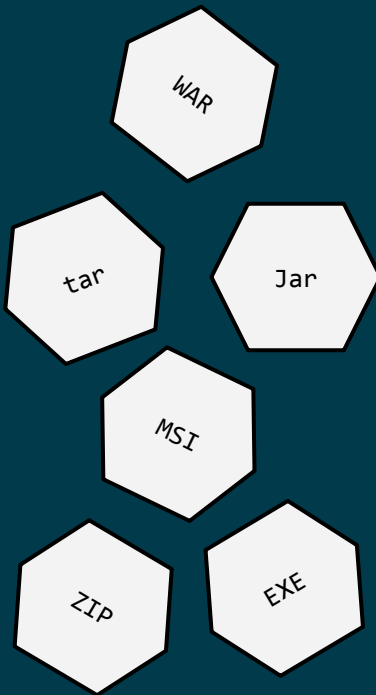
**Ops**



# Talking at cross purposes



Devs



Ops

# The vision becomes compromised





# Enter: Linux Containers



- **Encapsulation**
- **Immutability**

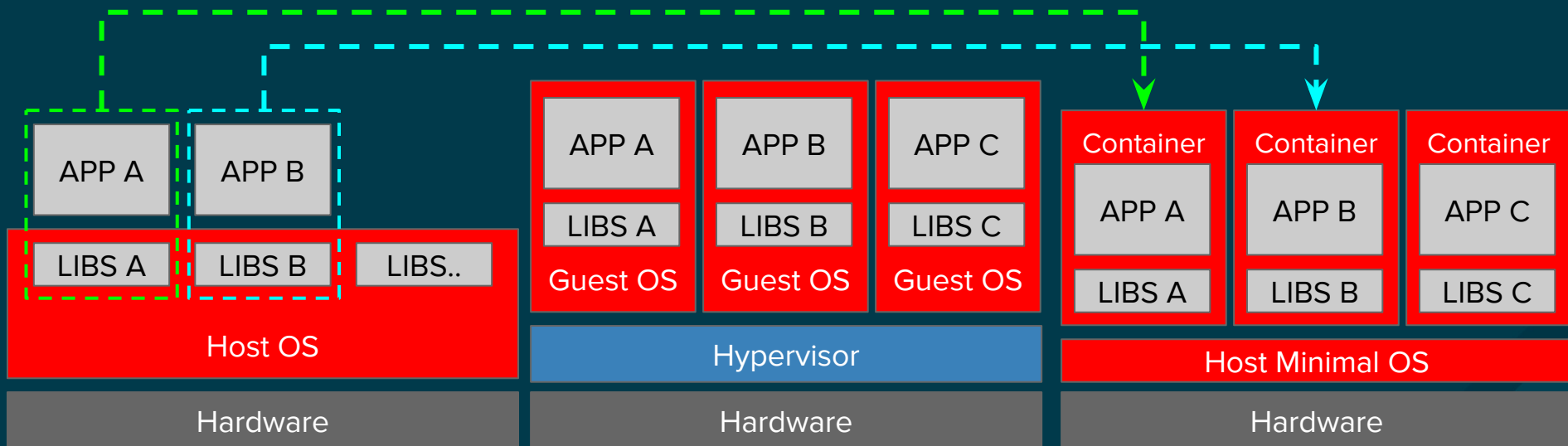
**Portability**

# What are containers?

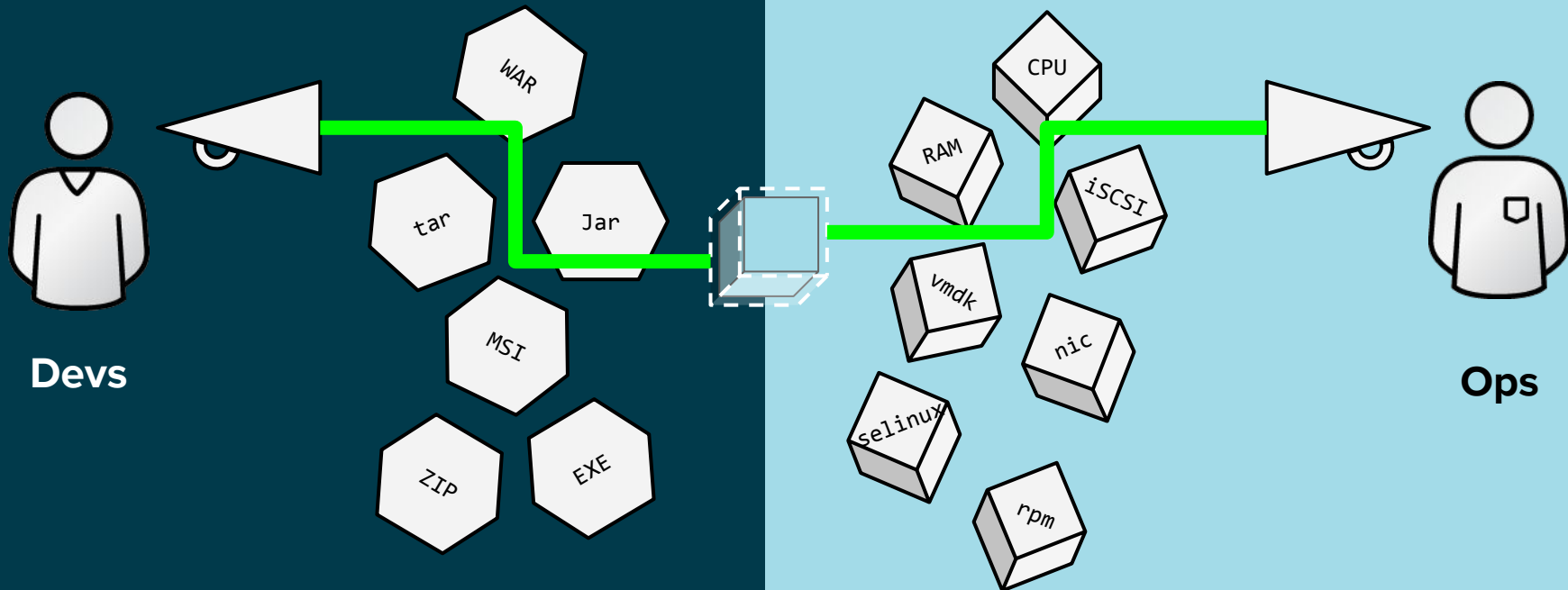
## Traditional

## Virtual

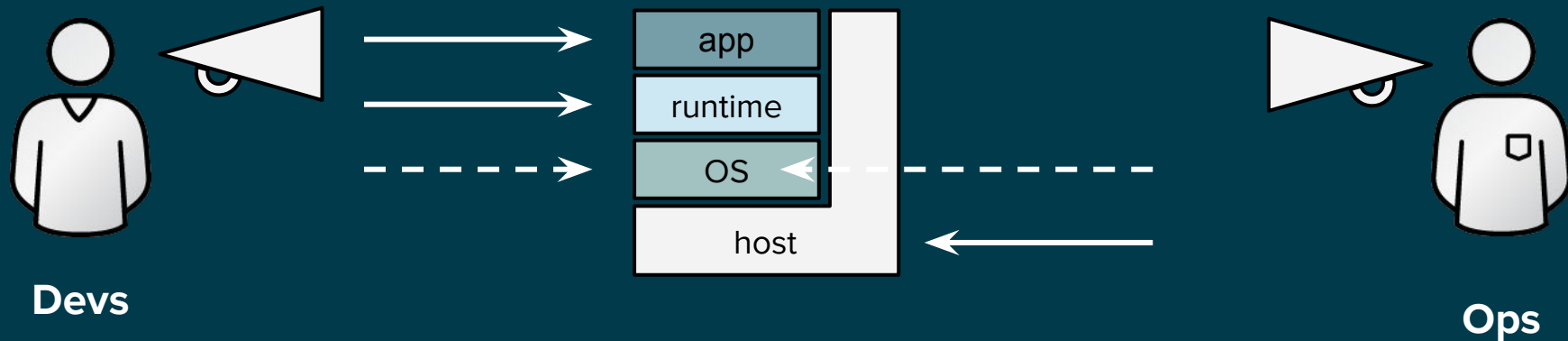
## Container



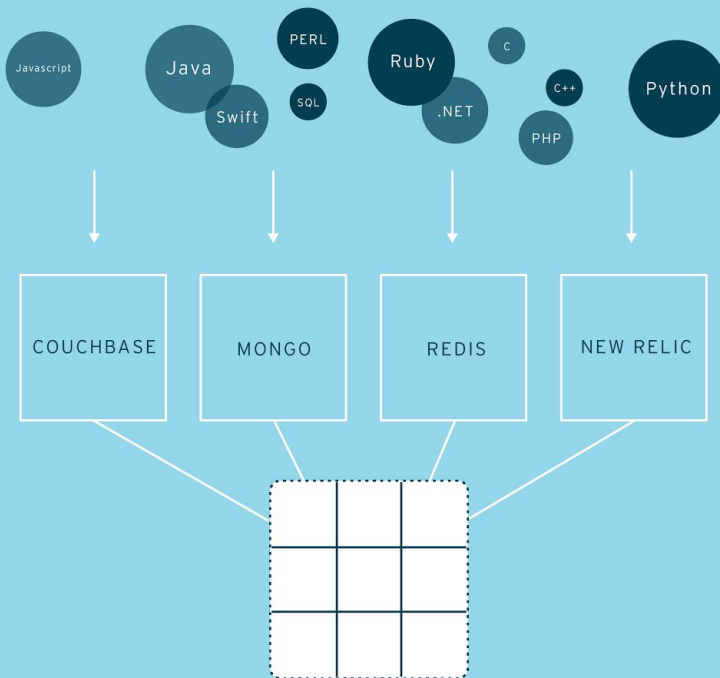
# Containers connect dev to ops



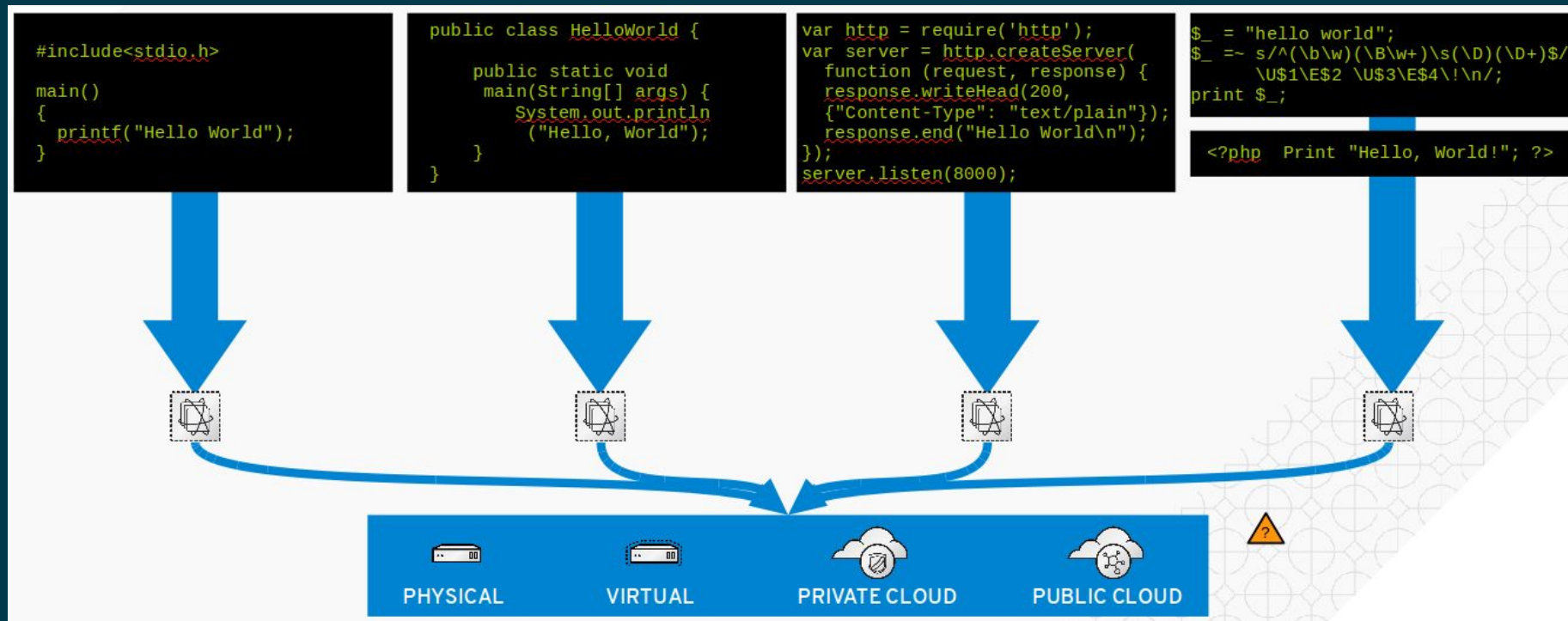
# Dev and Ops can better collaborate and standardise



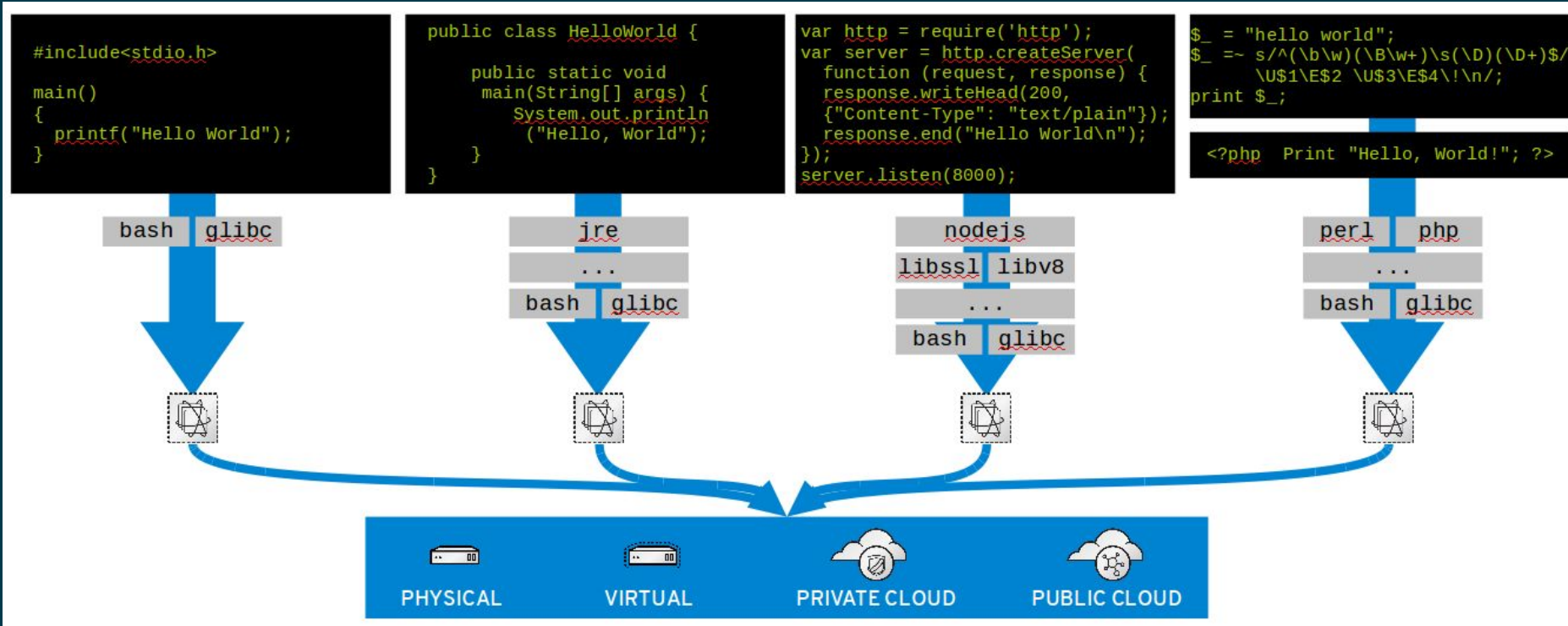
# And Developers retain technology choice



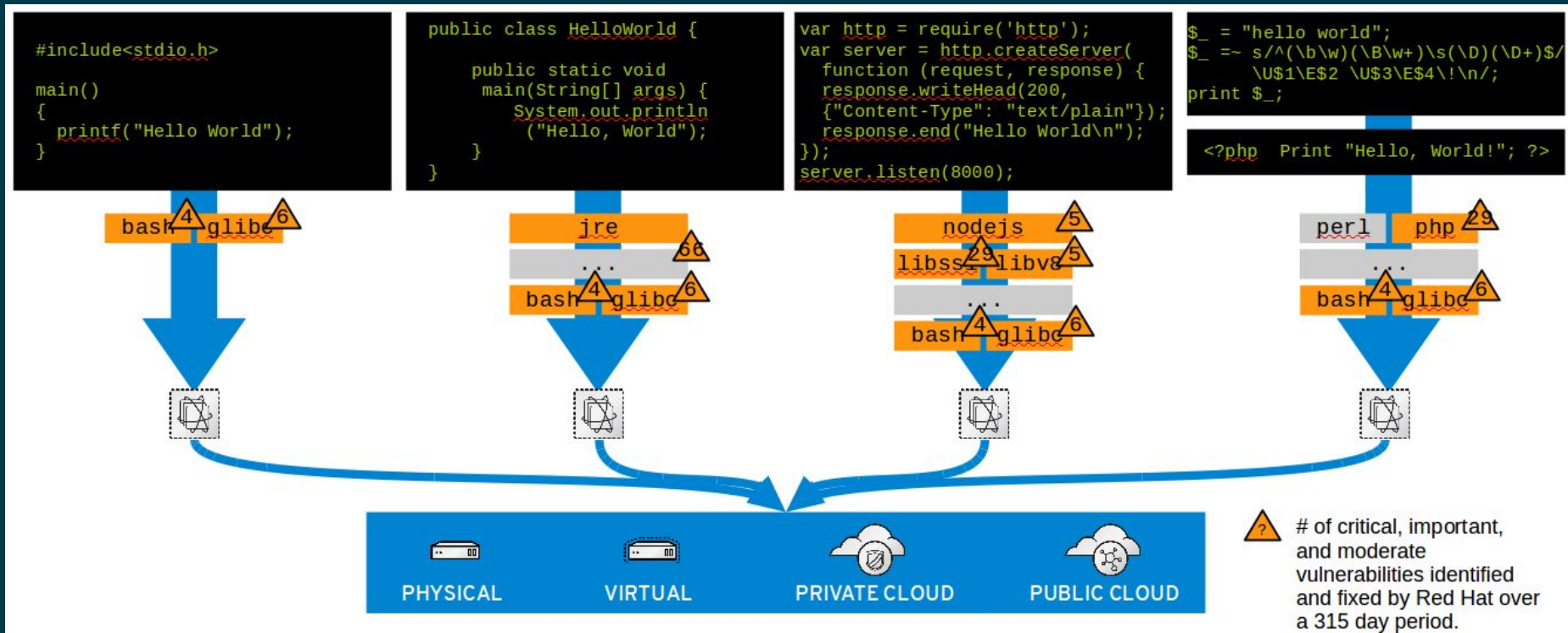
# The promise of consistent delivery for any language



# ...but you still need to manage your runtimes



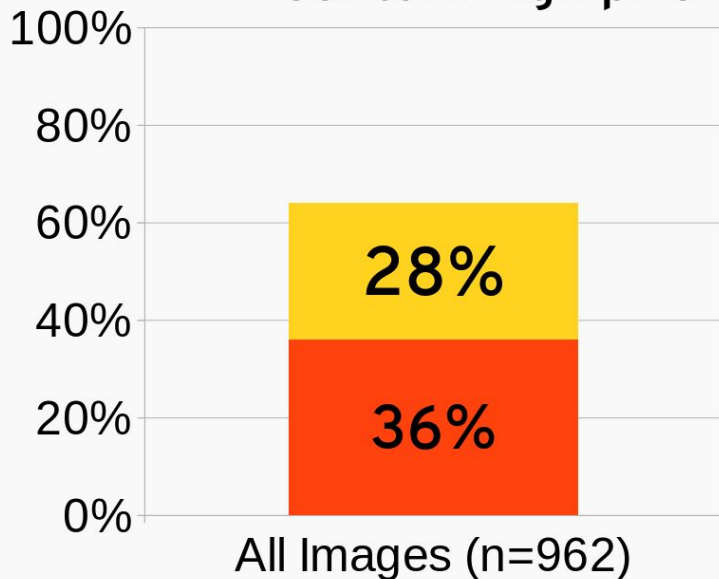
# ...or you'll be distributing potential security issues





# What's in containers matters

**36%** of official images available for download contain high priority security vulnerabilities



- High vulnerabilities: ShellShock (bash), Heartbleed (OpenSSL), etc.
- Medium vulnerabilities: Poodle (OpenSSL), etc.
- Low vulnerabilities: gcc: array memory allocations could cause integer overflow

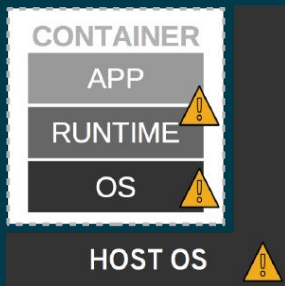
■ Medium priority

Source: *Over 30% of Official Images in Docker Hub Contain High Priority Security Vulnerabilities*, Jayanth Gummaraju, Tarun Desikan, and Yoshio Turner, BanyanOps, May 2015 (<http://www.banyanops.com/pdf/BanyanOps-AnalyzingDockerHub-WhitePaper.pdf>)

# Enterprise supportability

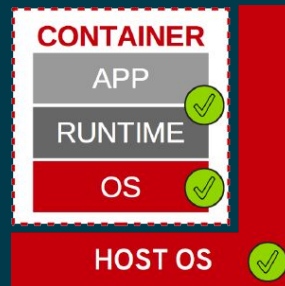
## UNTRUSTED

- Will what's inside the containers compromise your infrastructure?
- How and when will apps and libraries be updated?
- Will it work from host to host?



## RED HAT CERTIFIED

- Trusted source for the host and the containers
- Trusted content inside the container with security fixes available as part of an enterprise lifecycle
- Portability across hosts



...but software is only one consideration



Devs

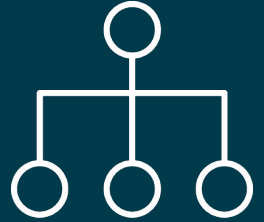
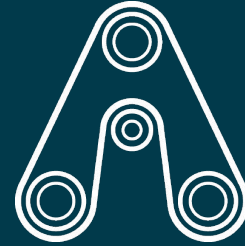
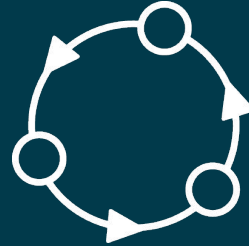


Ops

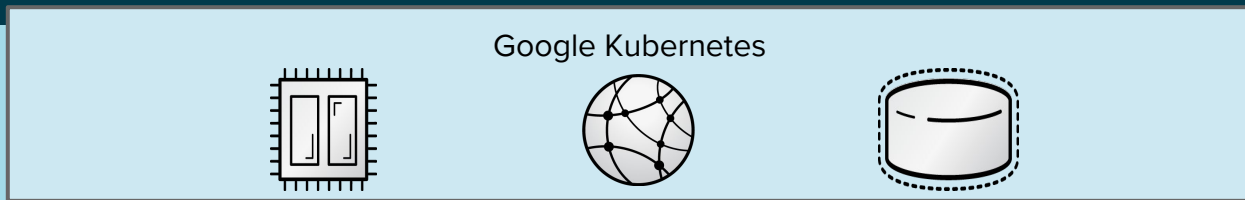
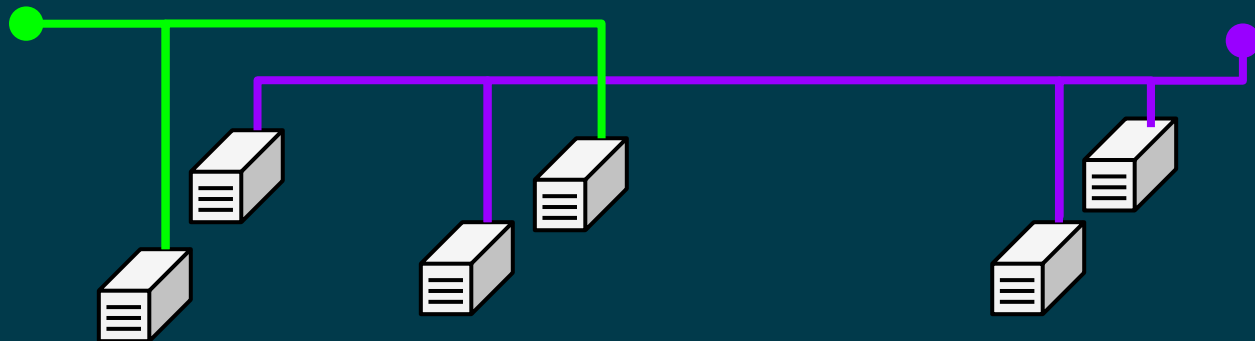
# Platform requirements



# Additional platform considerations



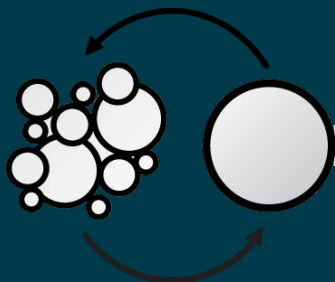
# Container orchestration



# Dividing the Ops role



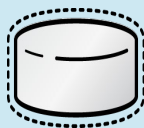
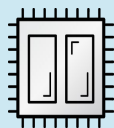
**Devs**



**App Ops**

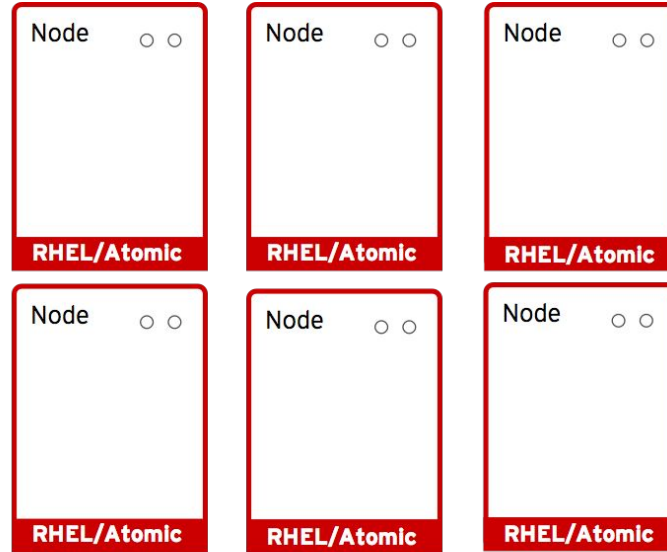


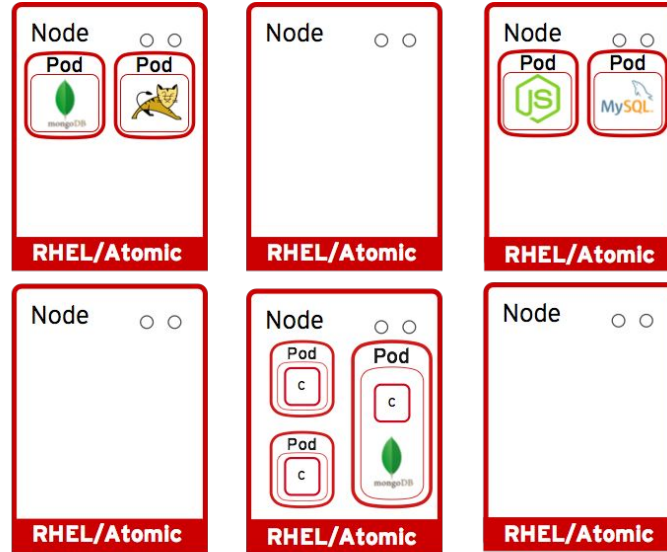
**Platform  
Ops**

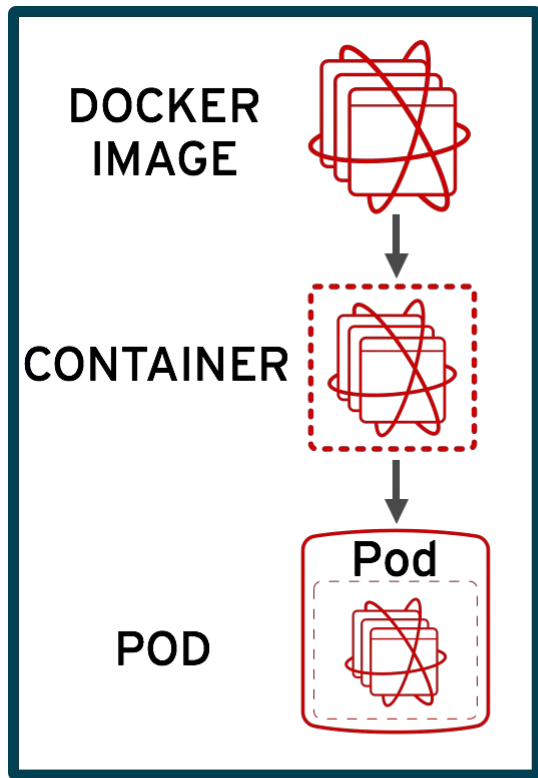


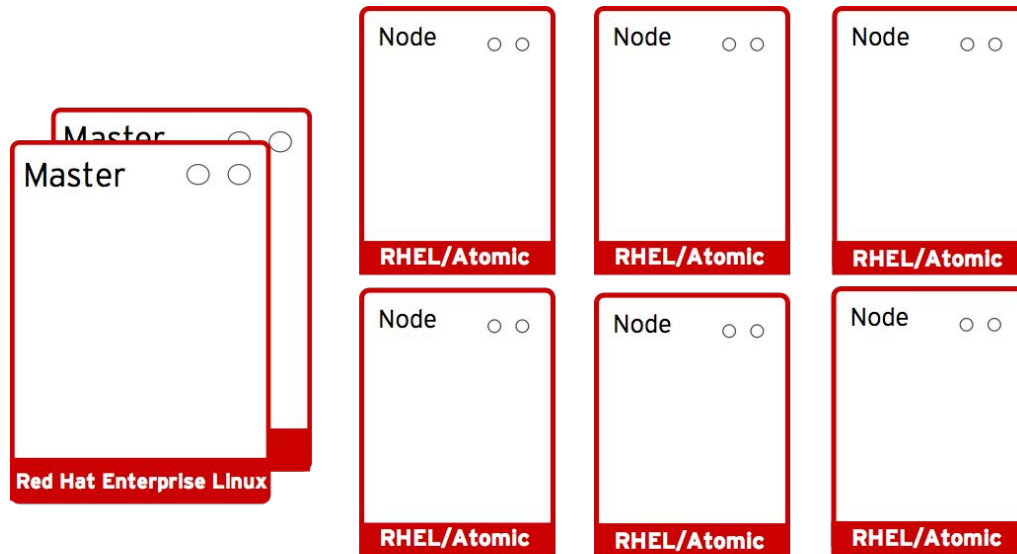


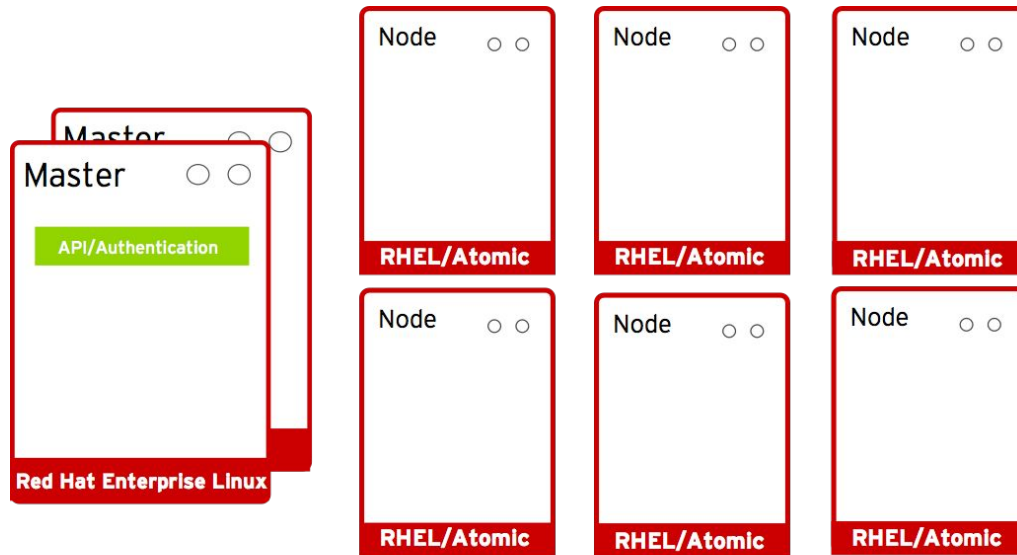


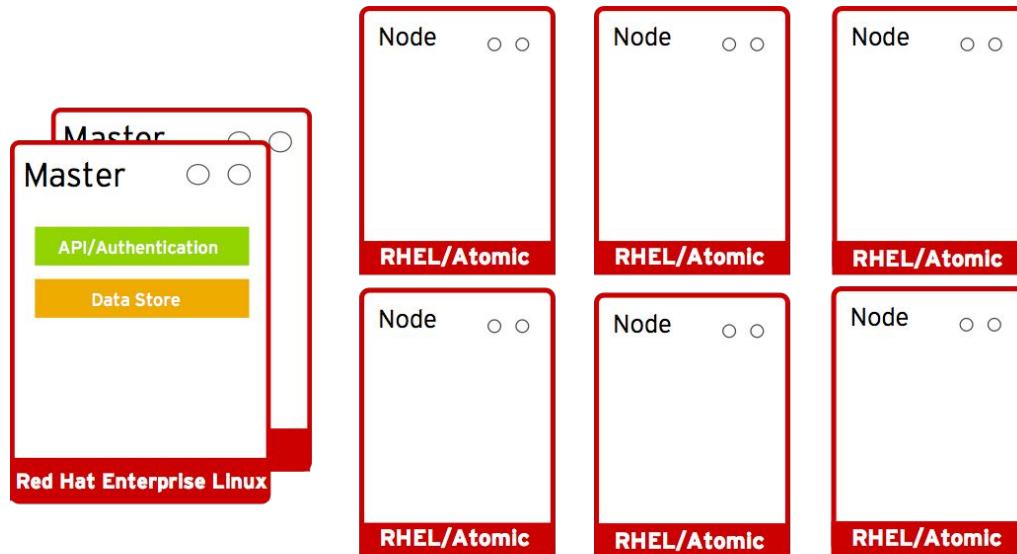


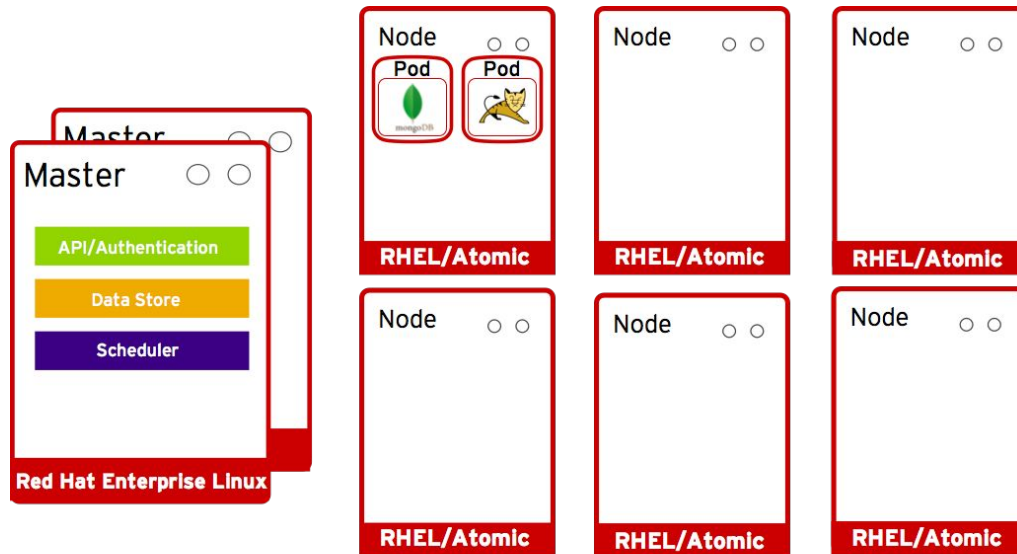


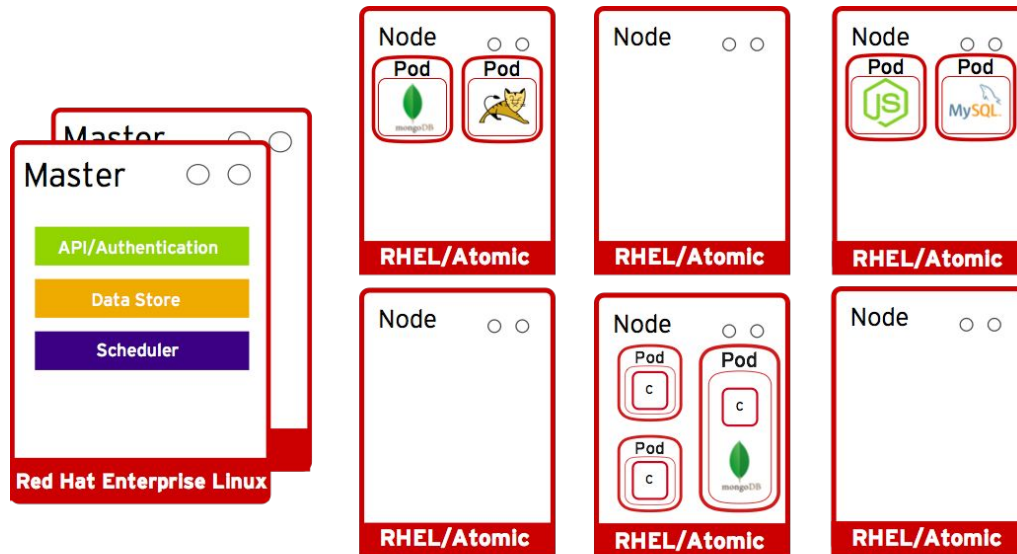




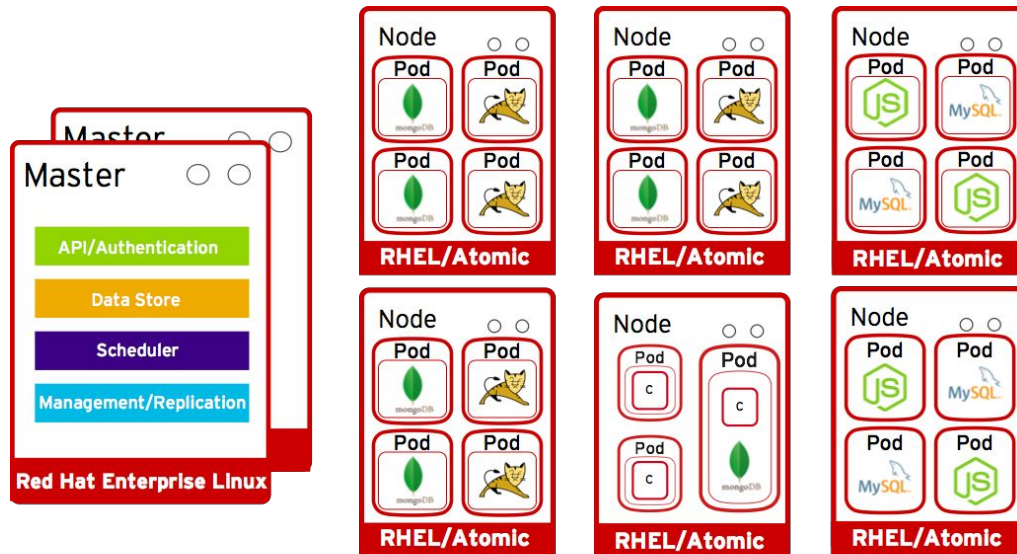


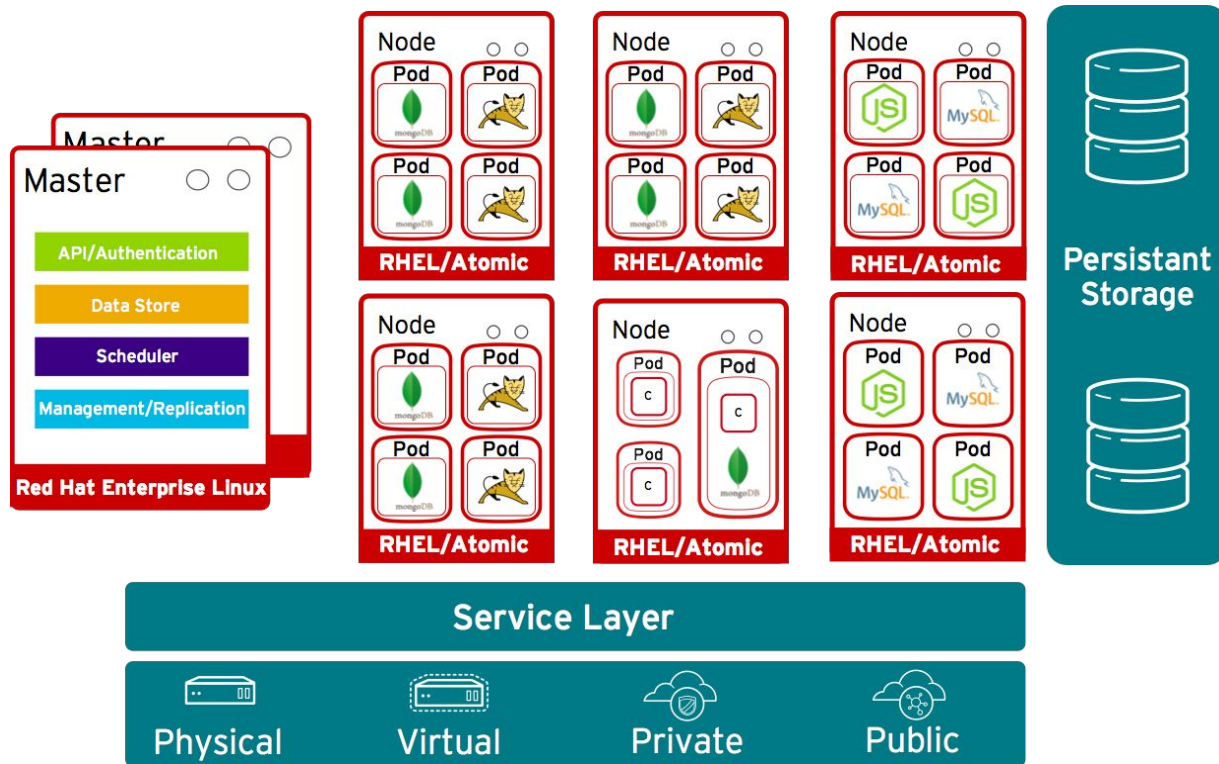






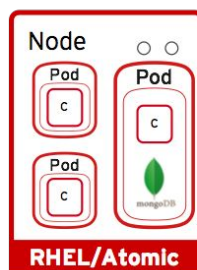
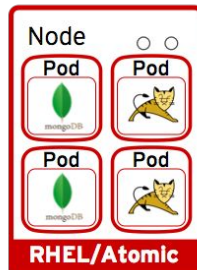
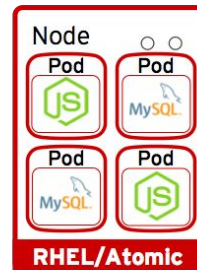
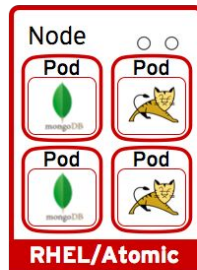
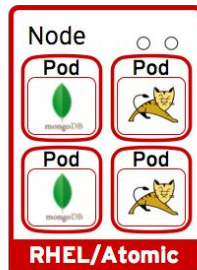
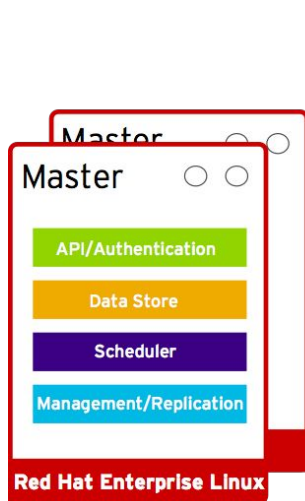








## Routing Layer



## Service Layer



Physical



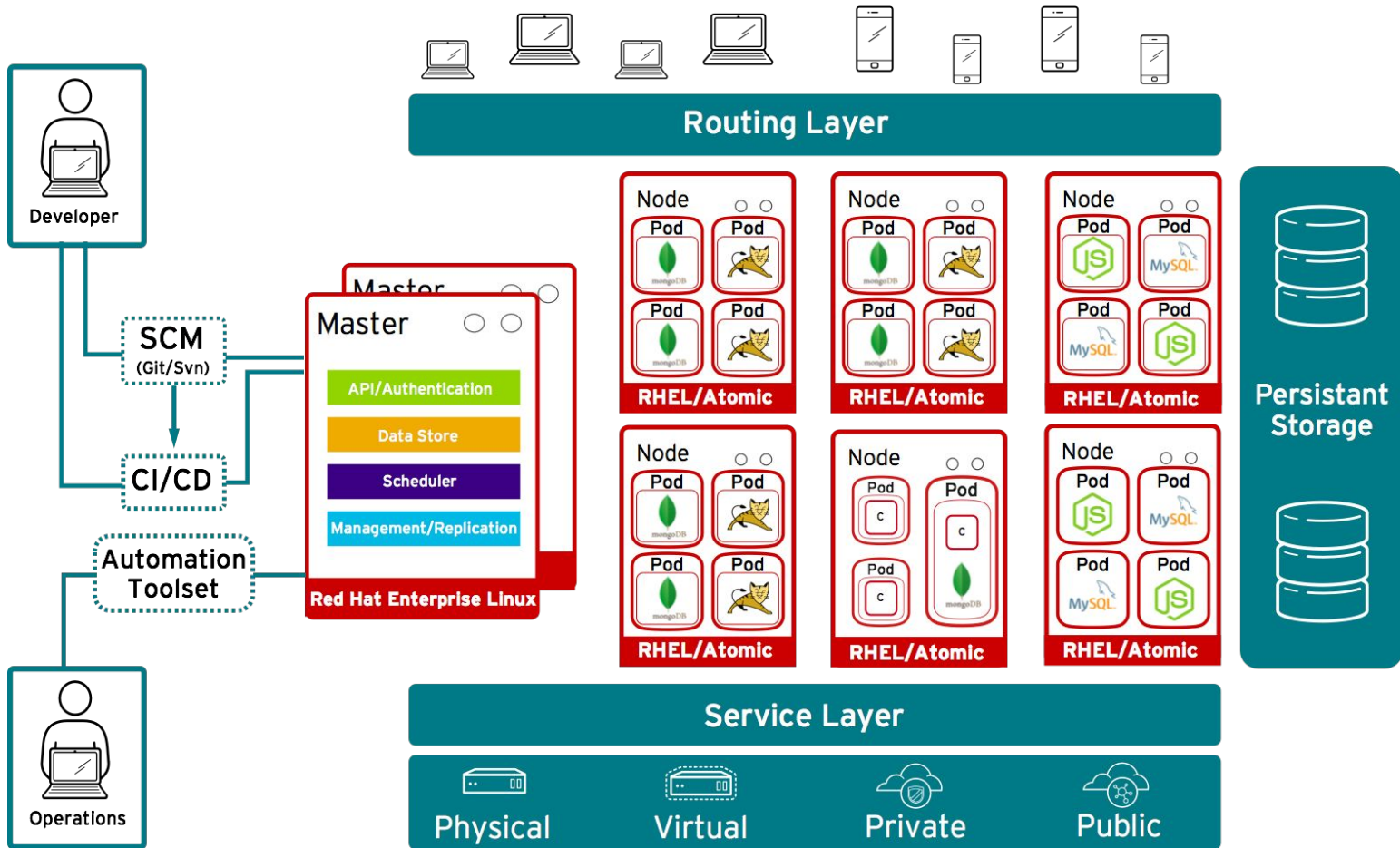
Virtual



Private



Public



# Developer Experience



## Developer Tooling

Developers need increasingly fast, broad, and flexible access to their applications and services.

New & Improved!



Automated builds (CI)



Fast build and automated deployment



Secure image management



Red Hat supplied Jenkins image for OpenShift



Secure authentication options (e.g. Private Key)



Eclipse / JBoss Developer Tools



Hot deploy functionality



Offline development options

# Get Involved Upstream





# THANK YOU



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