Containers Everywhere! Azure & Hyper-V Container Scenarios & Solutions

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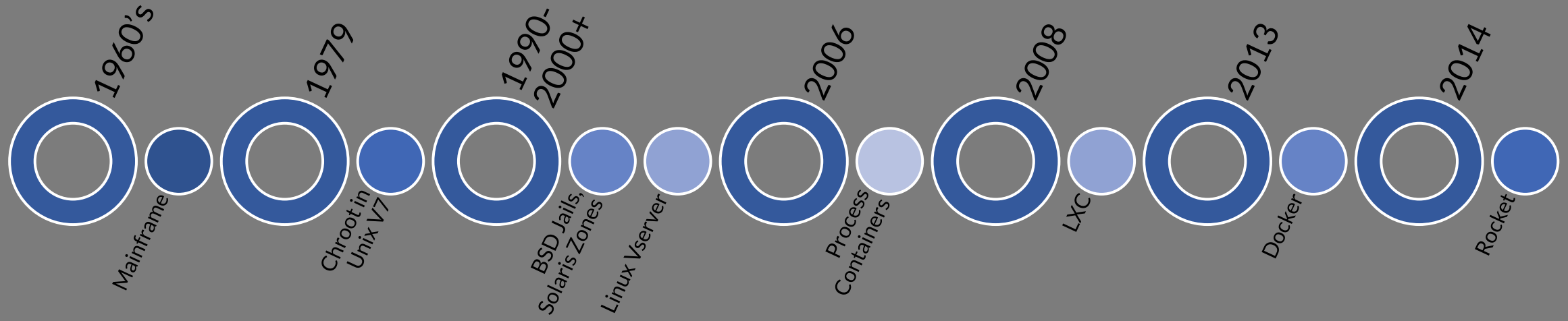
Azure Advisor

ATLANTIS

Discuss

- Containers & Docker
- Azure, Windows, and Hyper-V containers
- Managing
- Why Windows?
- Let’s do some demo

A (really) Brief History of Containers



What are Containers?

Containers are Operating System-level Virtualization.

Containers encapsulate applications into individual isolated environments on a shared operating system with their own processes, network, binaries, and libraries.

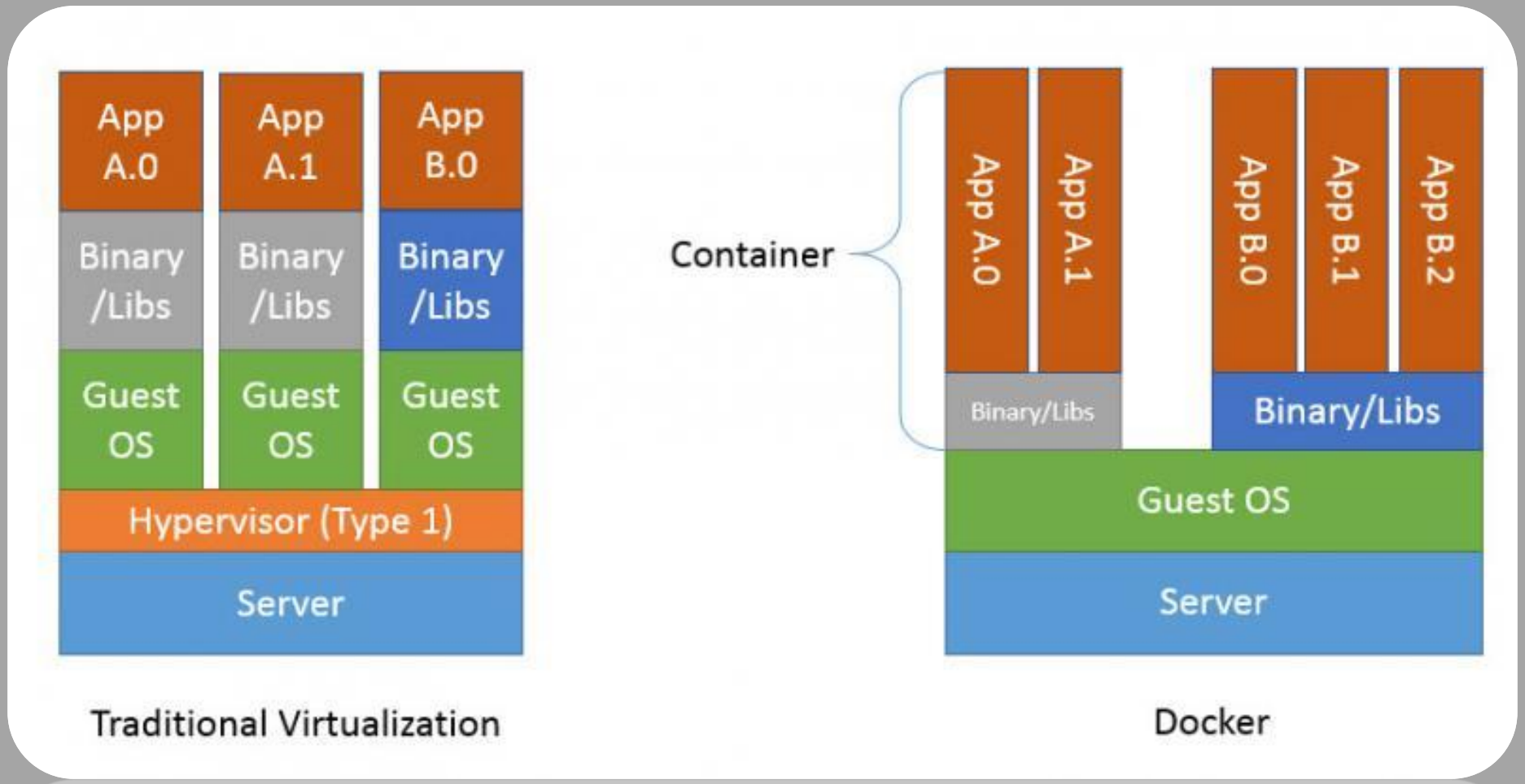
Docker is a container technology. It is also a management, API, and packaging platform for containers.

“

It’s about the applications

”

VM's VS Containers

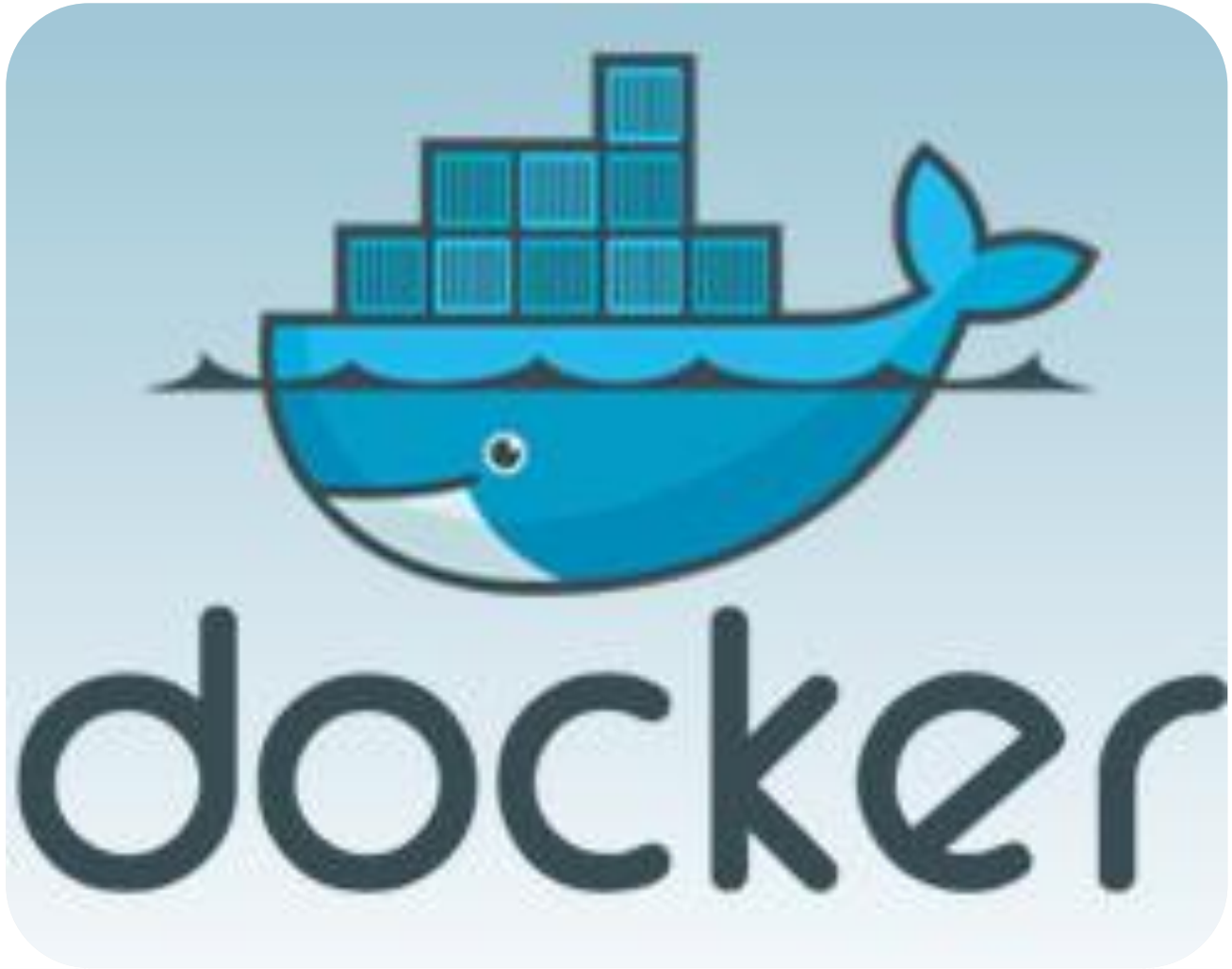


“

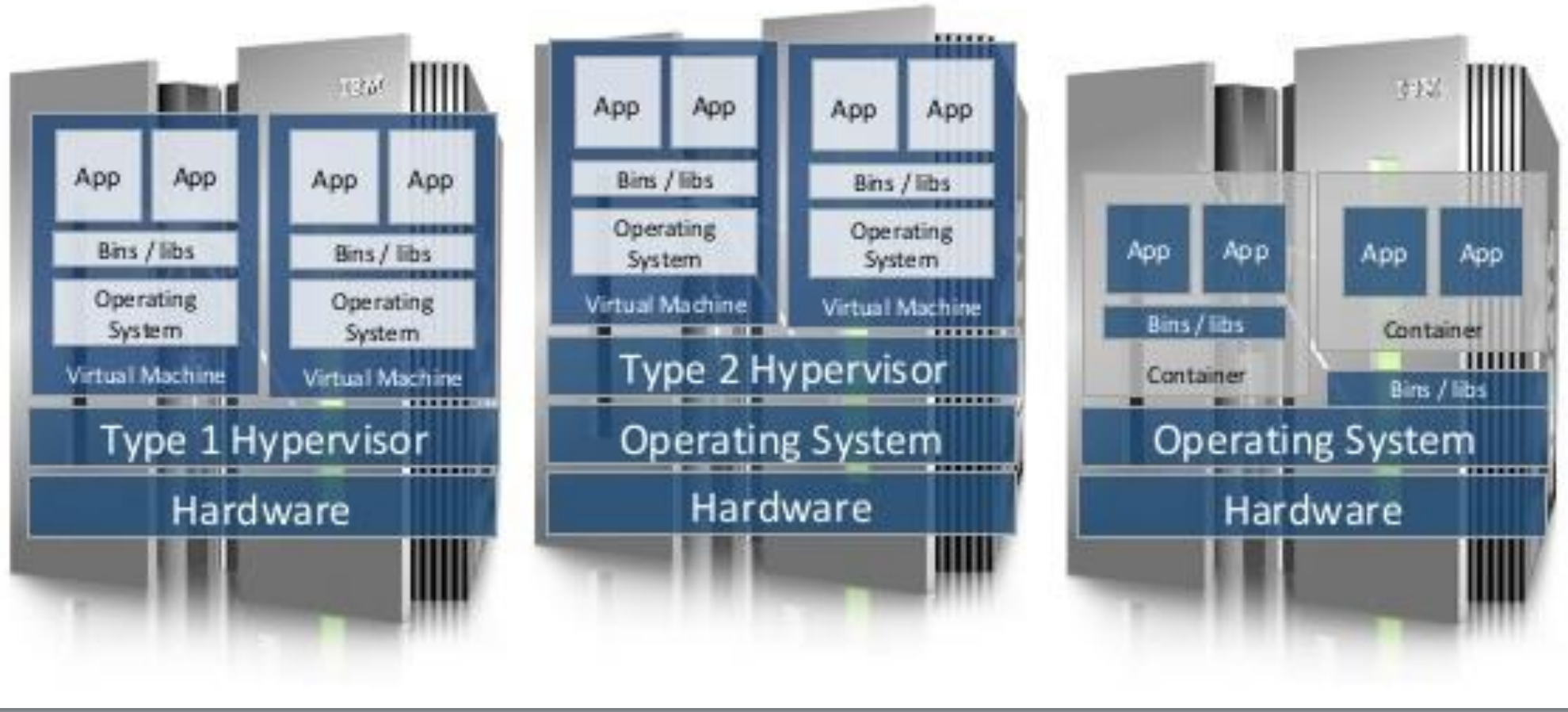
Docker is a runtime for Linux Containers. It enables "separation of concern" between devs and ops,

“

Jerome Petazzoni – “Tinkerer Extraodinaire” at Docker



VMs vs Bare Containers vs Docker



Slide credit - Unicom

Opening Windows to Containers

Linux-

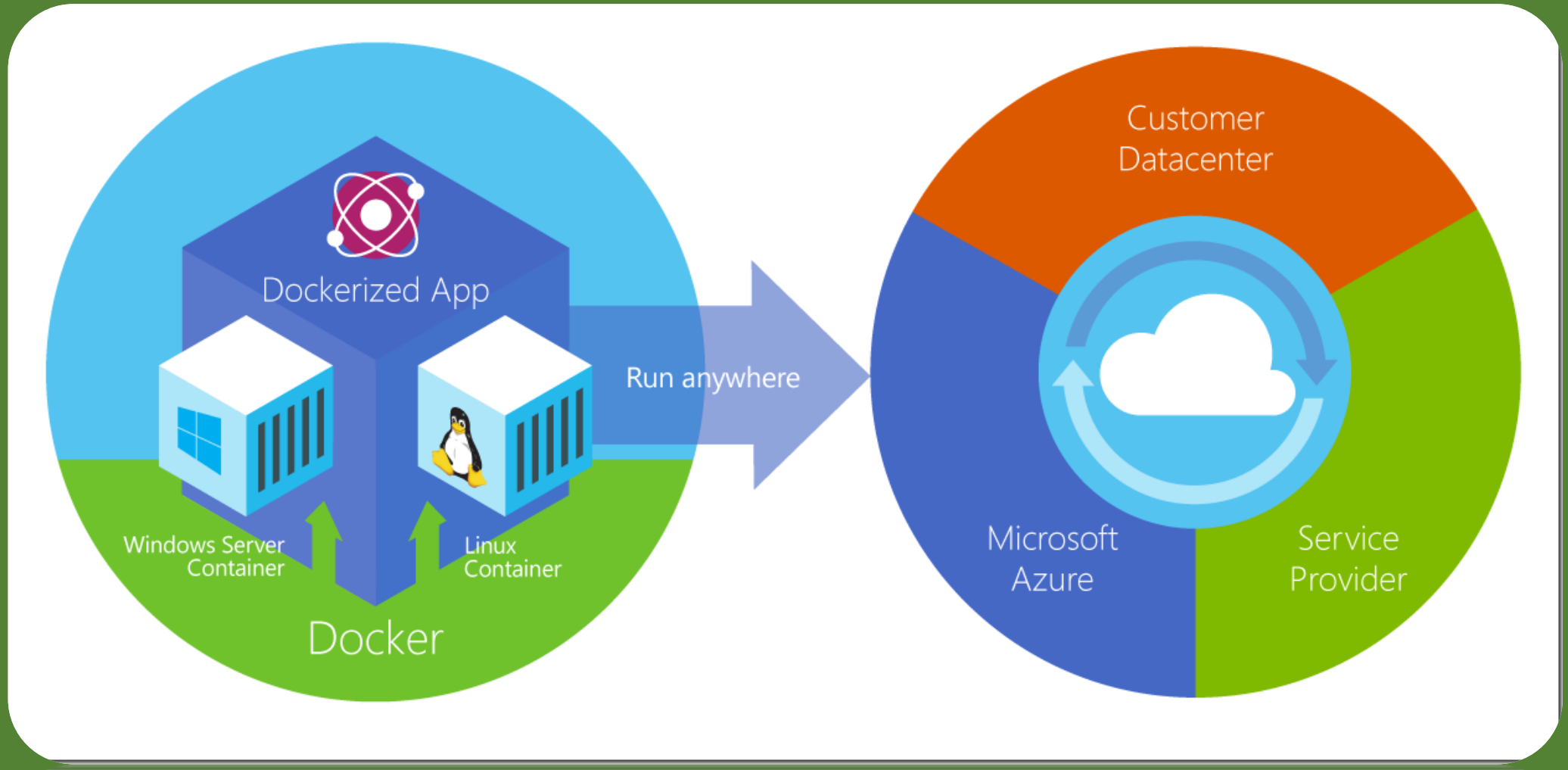
- Azure support for Linux Containers
- Windows Docker Toolbox (OS X, WIN)

Windows-

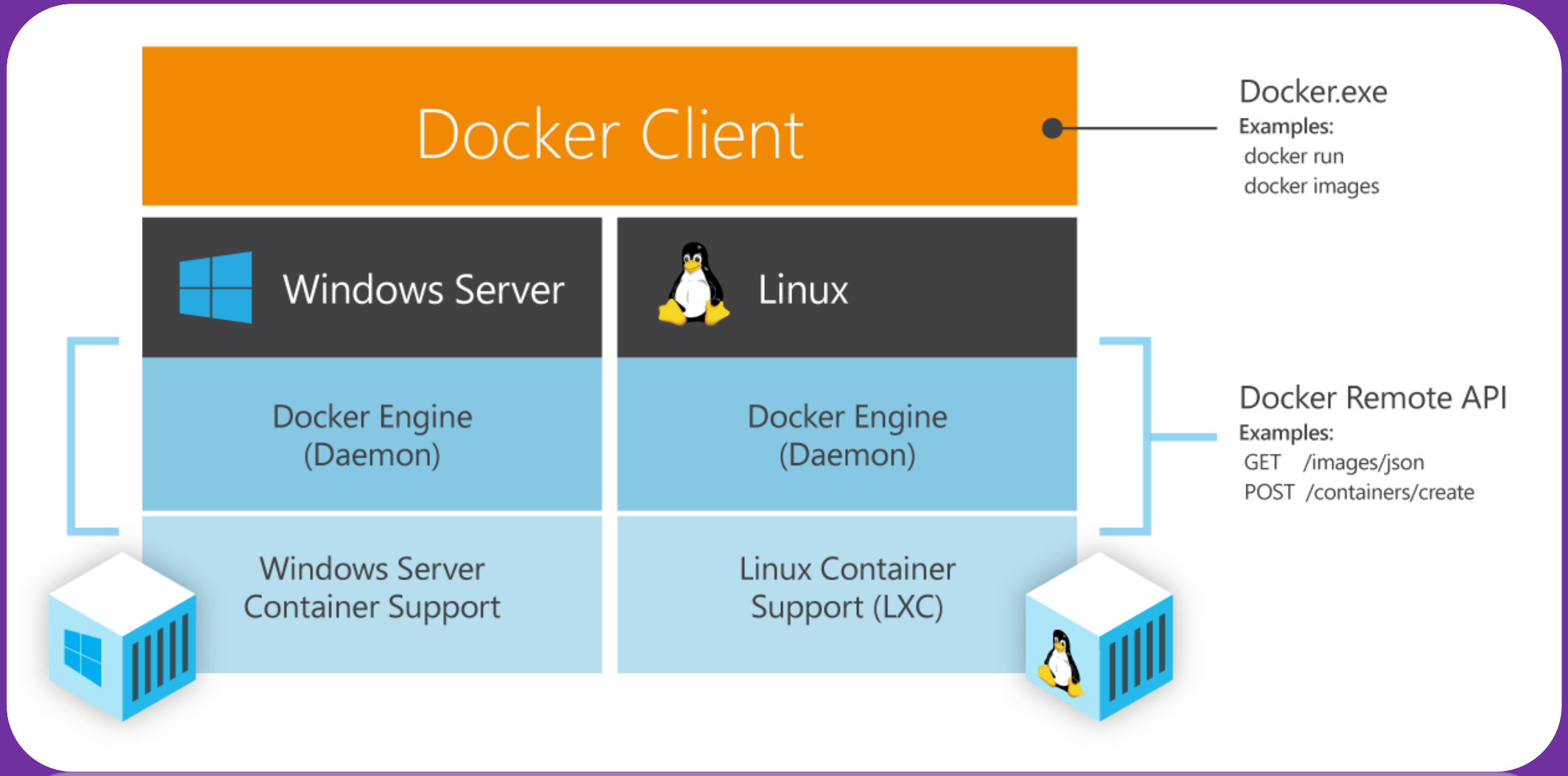
- Windows Docker Machine (VirtualBox)
- Windows Containers
- Hyper-V Containers
- PowerShell for Containers

Look for portability *between* platforms

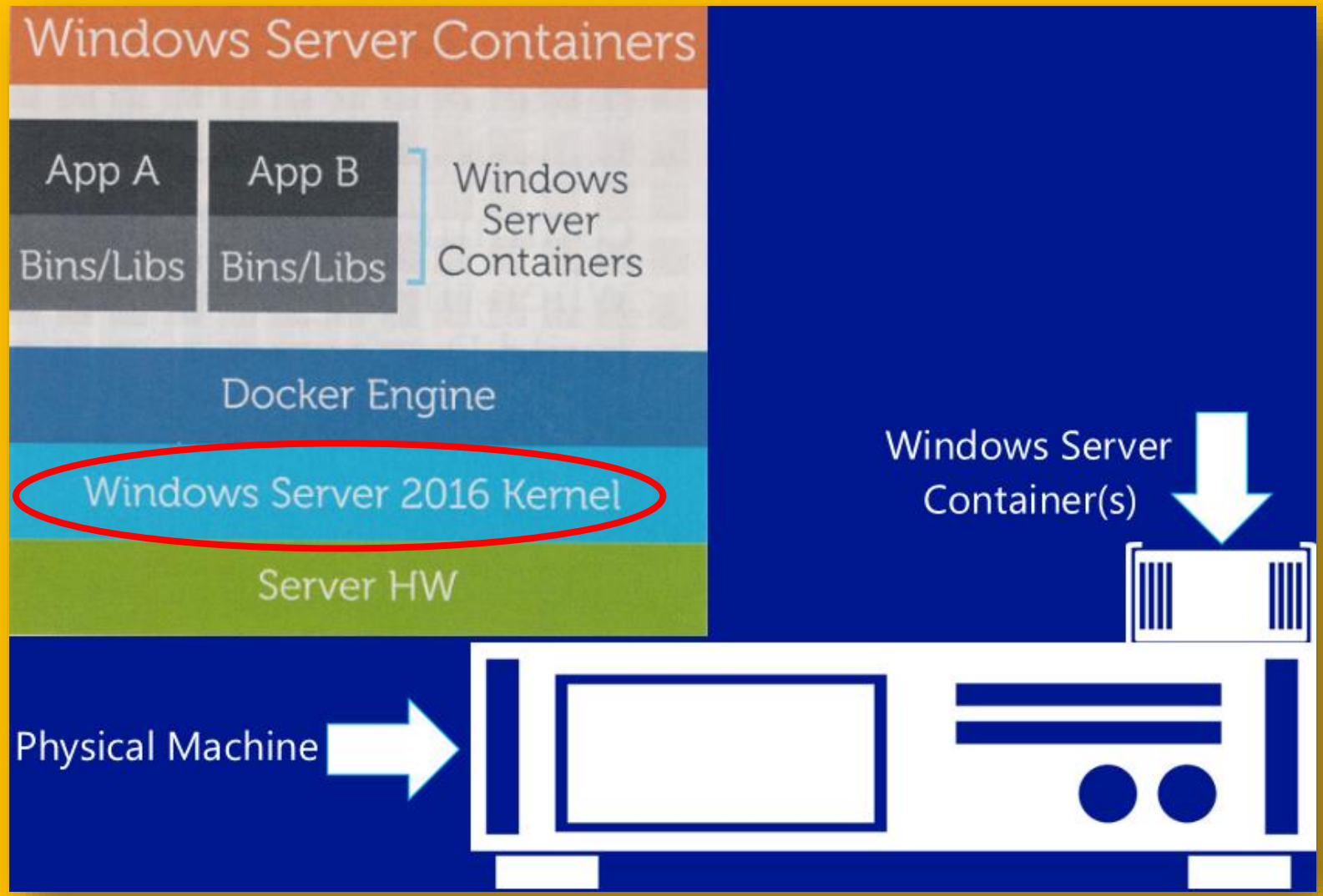
How Azure Sees It



Not Much Difference Between Windows & Linux… Except the Obvious



Architecture of a Windows Container



Windows Server Core

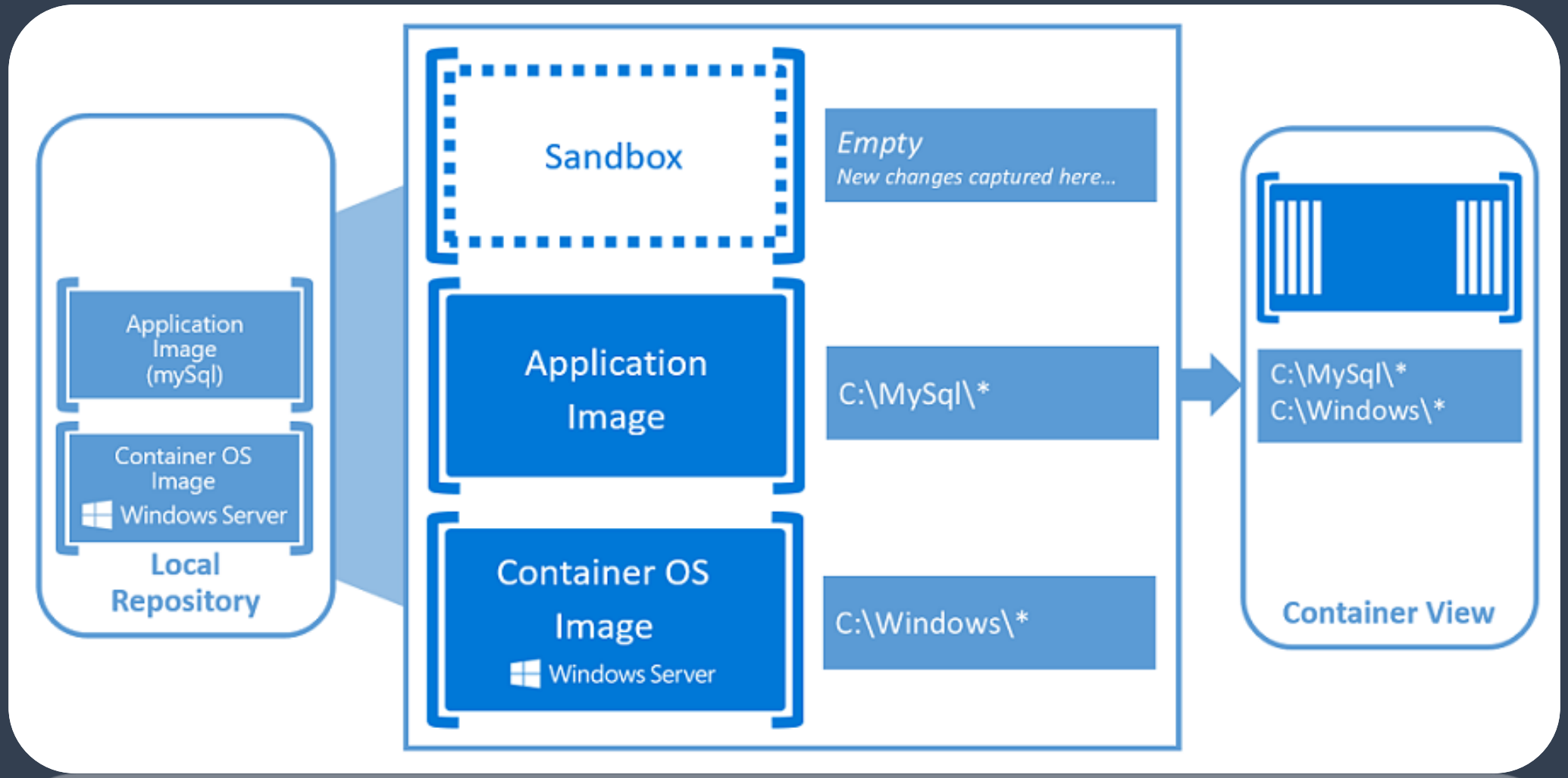
0.000.000.001
One Billionth

Nano Server

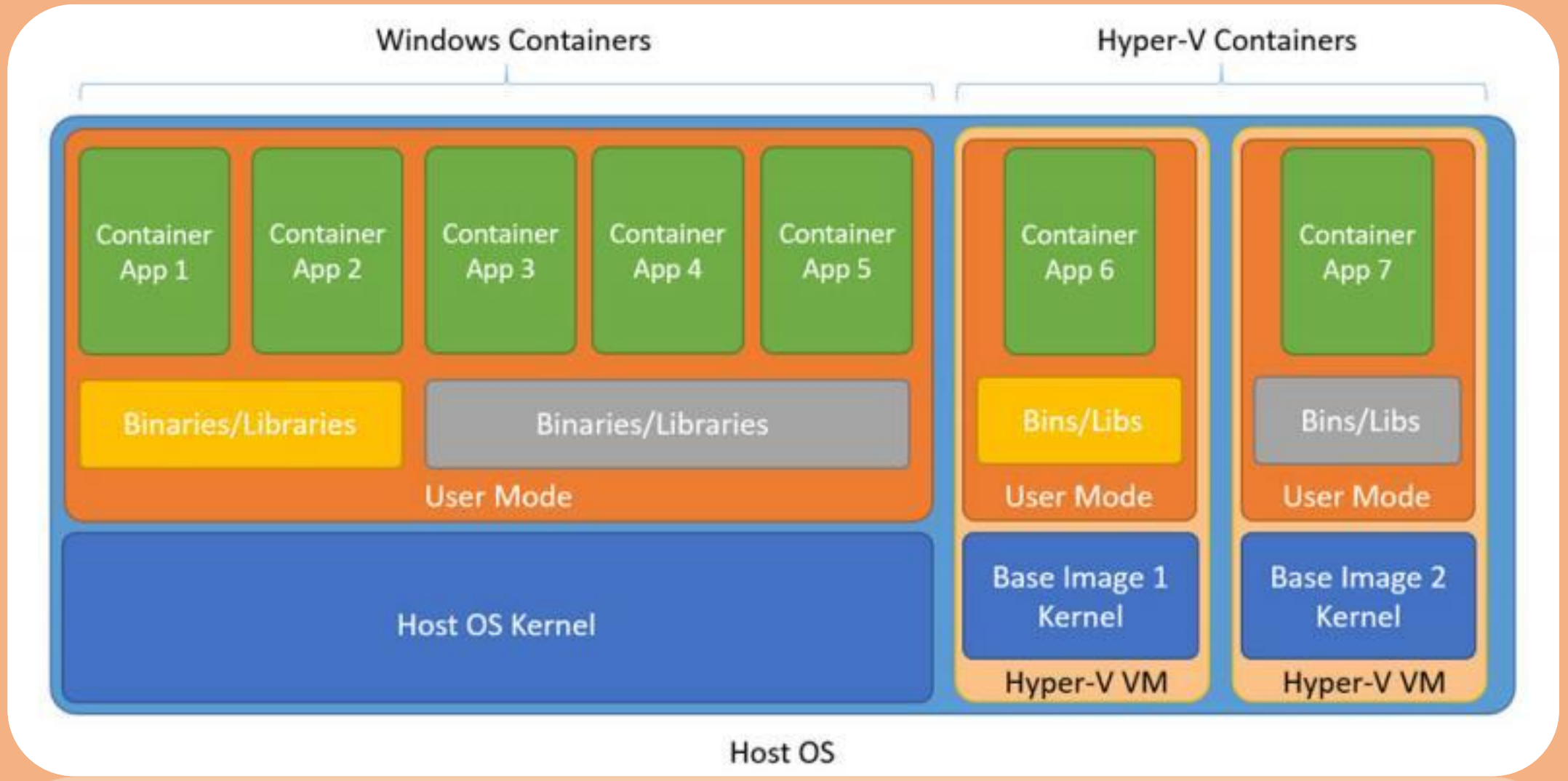
No login
No GUI
No RDP
No 32bit support
No MSI installer

WMI / PowerShell / DSC / …more
Patches - < twice a year (Hmm)
Fast boot
Core? Oh yeah, it'll stick around

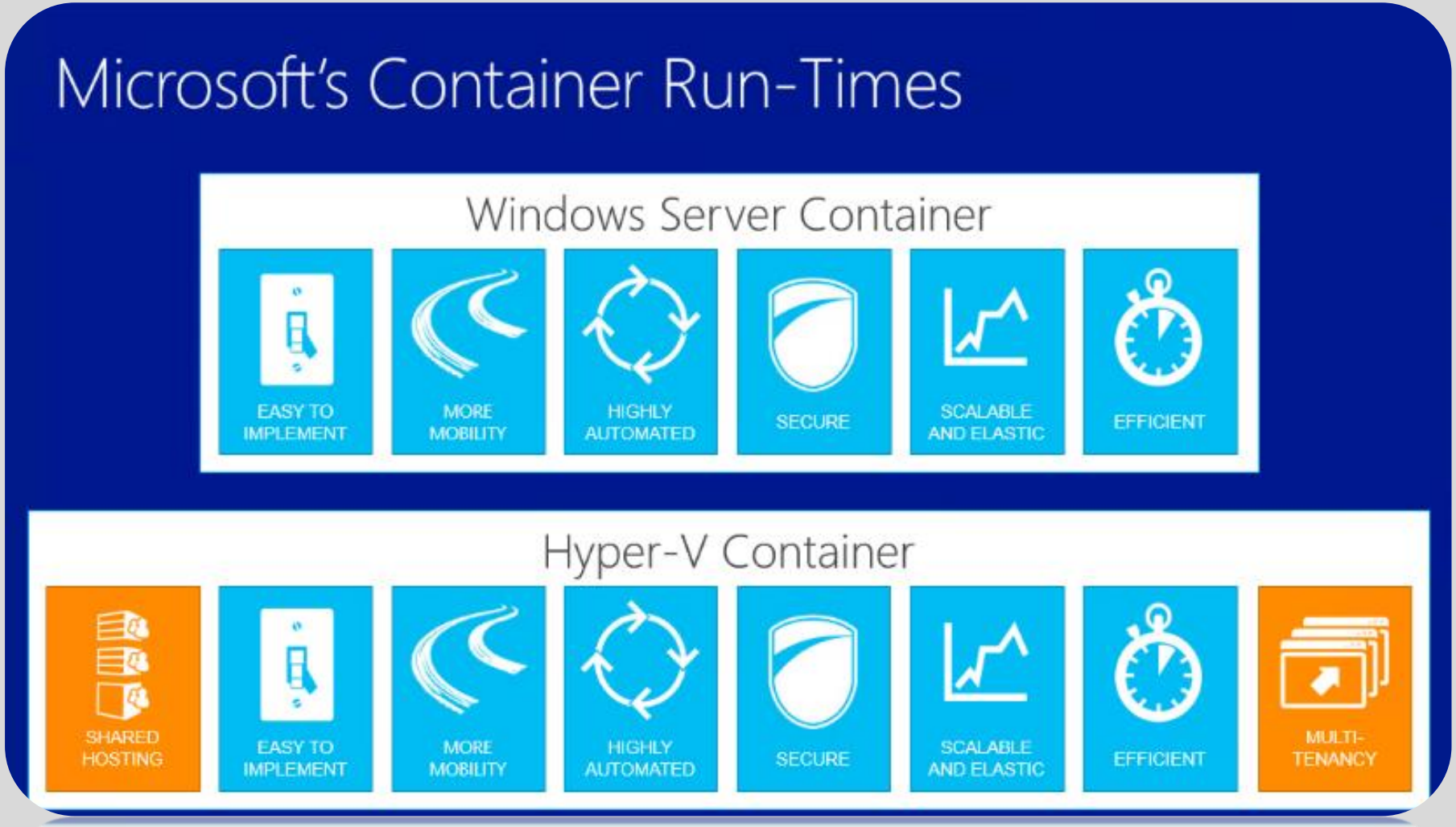
App Example in a Windows Container



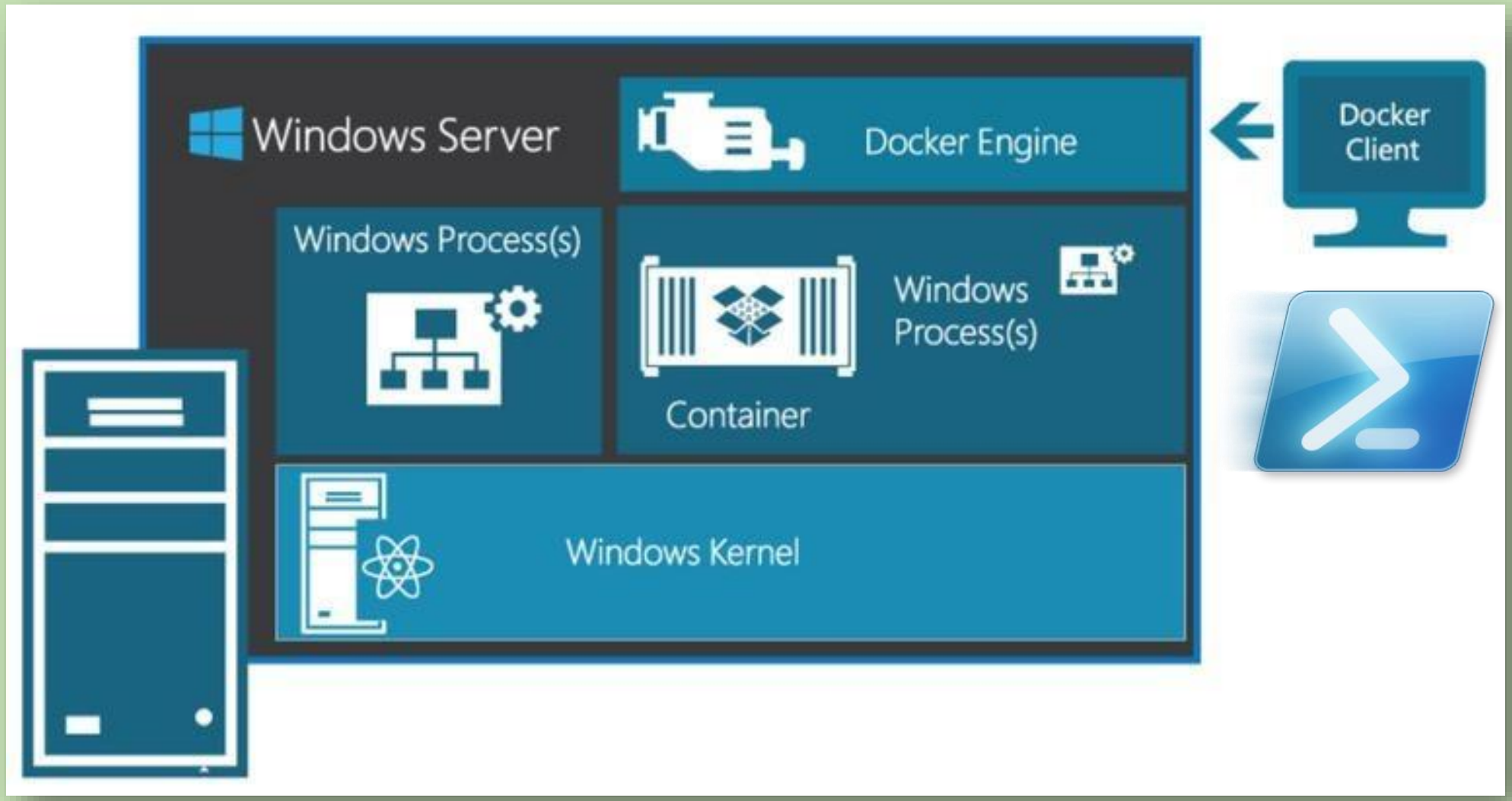
Differences Between Windows & Hyper-V Containers



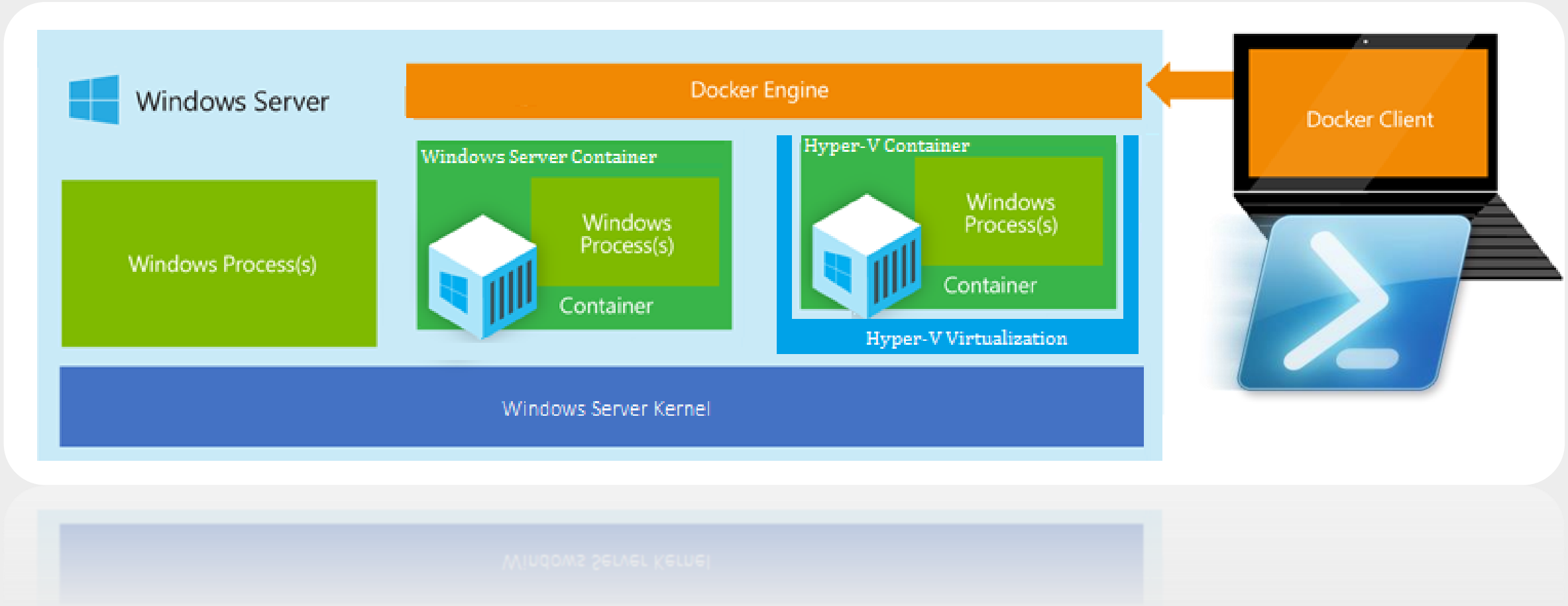
What's the Difference?



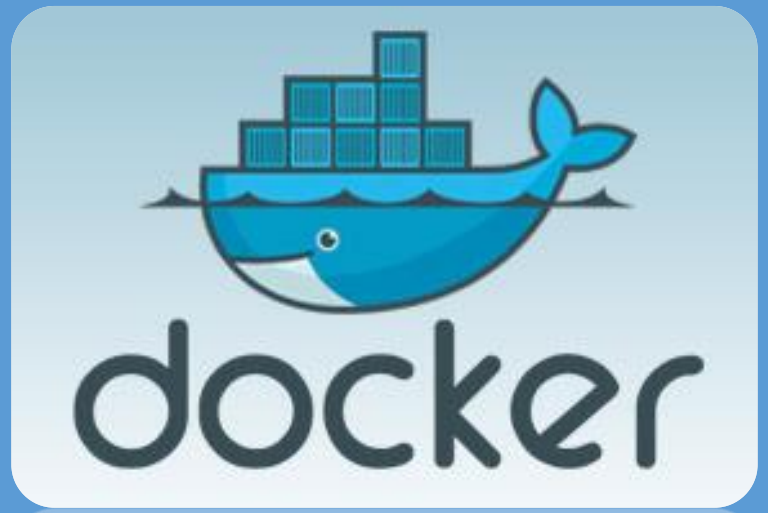
How It All Stacks Up in Windows



….As Well as Hyper-V



Choose Your Weapon of Choice



Hint: PoSH is just getting it's Container training wheels

https://msdn.microsoft.com/en-us/virtualization/windowscontainers/reference/ps_docker_comparison

The Many Ways to Docker Containers & Client

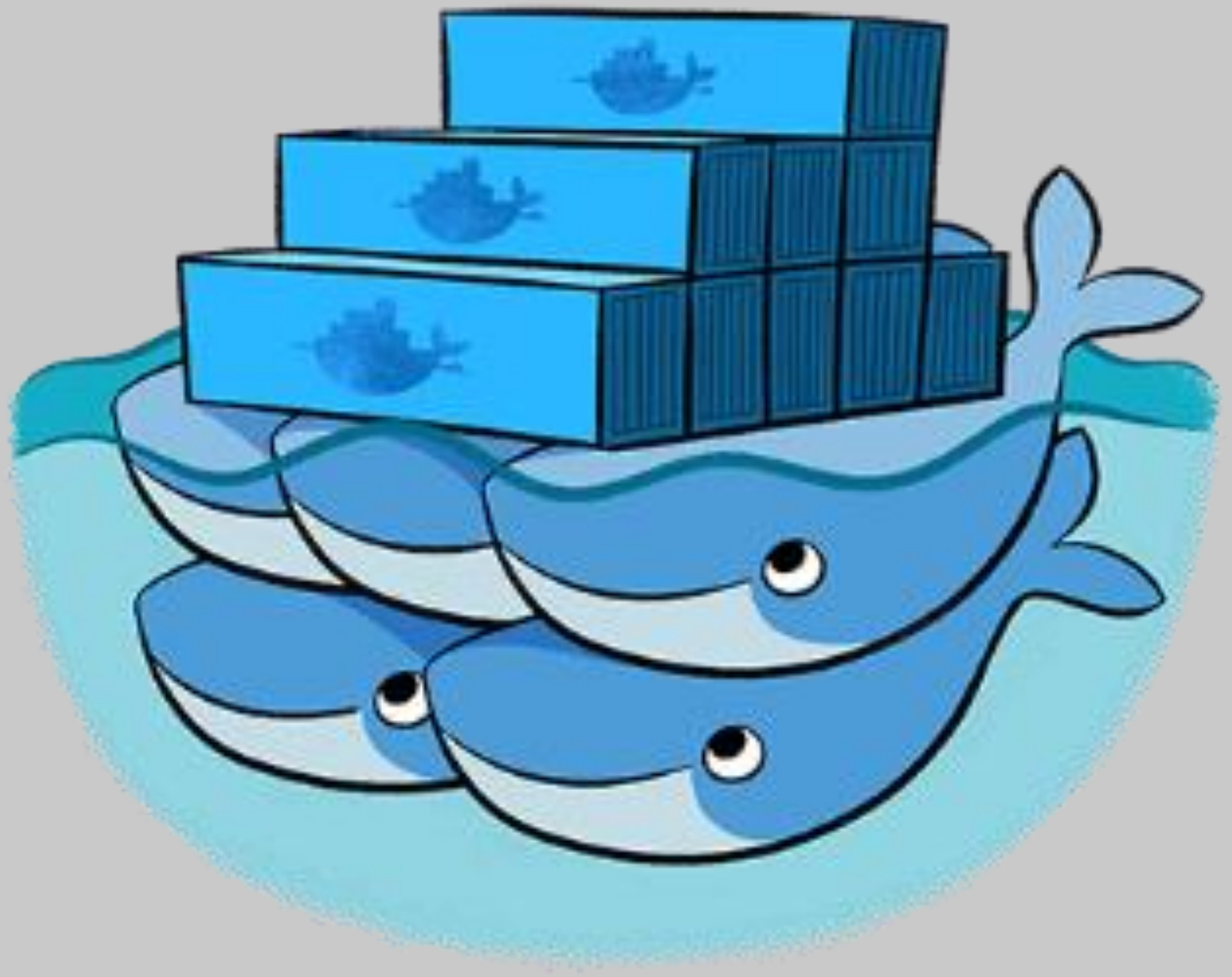
Linux & Windows

- Azure Linux Extension
- Create a VM from Azure Gallery
- Azure Marketplace
- Install Docker Tookbox & Git (Win) or Docker Machine (Linux)
- Azure CLI
- Azure Templates
- PowerShell
- Server Role
- Chocolately
- Visual Studio Extension
- Kitematic
- Vagrant
- … and more

Supported installation

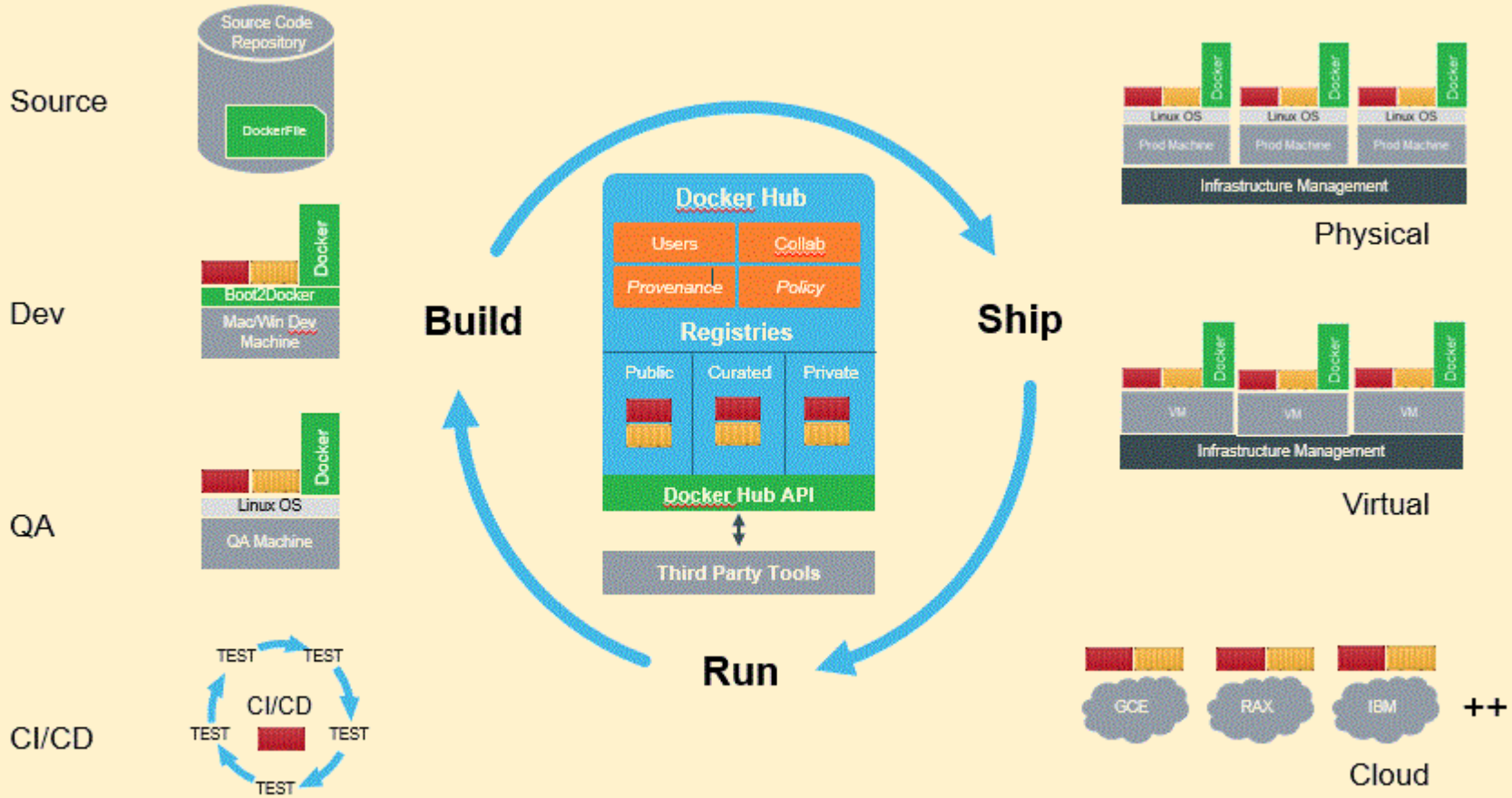
Docker supports installation on the following:

- Amazon EC2 Installation
- Arch Linux
- Microsoft Azure platform
- Installation from binaries
- CentOS
- CRUX Linux
- Debian
- Fedora
- FrugalWare
- Gentoo
- Google Cloud Platform
- Install on Joyent Public Cloud
- Mac OS X
- Oracle Linux
- Rackspace Cloud
- Red Hat Enterprise Linux
- IBM SoftLayer
- openSUSE and SUSE Linux Enterprise
- Ubuntu
- Windows



Repositories (Registries – "Hub")

- Push, Pull, Share, and Store
- Official ones:
  - Hub
  - MySQL
  - mongoDB
  - PostgreSQL
  - Rails
  - Ruby
  - Java
  - WordPress
  - Redis
  - nGinx
  - Node
  - Ubuntu
  - Debian
  - CentOS
  - ….. More



Positives

Azure

- Cloud
- Linux or Windows
- Pre-built Images
- Many Options
- Cross-boundaries
- Wide distribution

Windows

- Kernel
- API's
- Libraries
- Cloud / Hybrid / On-Prem
- Skillset
- Speed

Hyper-V

- Multi-Tenant
- Shared Hosting
- Security (nano)
- Flexibility

Some not-so-positives

Azure

- Cloud
- Windows
- Too Many Options
- Security
- Slow management

Windows

- Kernel
- API's
- Libraries
- Versions
- Patches

Hyper-V

- Management
- Not quite there yet
- Frustrated admins with nano
- Sprawl

Things to look at, some down the road…

- Better and more consistent PowerShell cmdlet set
- Mesos integration <<< Already here!
- Other 3rd party Docker integrations – Kubernetes, DIND, etc.
- Puppet and Chef automation
- SystemCenter ????
- Azure Resource Templates
- Native kernel functionality
- What about User Profiles and metadata?

Reading Material & Links

- Windows Containers https://msdn.microsoft.com/en-us/virtualization/windowscontainers/containers_welcome
- Windows Container Docs on Github https://github.com/Microsoft/Windows-Container-Documentation
- Azure with Docker https://azure.microsoft.com/en-us/documentation/articles/virtual-machines-docker-machine/
- The TP3 Container Image http://bit.ly/1TUXjJa
- Quick Start https://msdn.microsoft.com/en-us/virtualization/windowscontainers/quick_start/manage_docker
- Work In Progress https://msdn.microsoft.com/virtualization/windowscontainers/about/work_in_progress

DEMO

謝謝

Tusind tak

Cheers!

Dank u zeer

THANK YOU!

Obrigado

Merci

Grazie

شكرا

Gracias