



Containers - You Better Get on Board!

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Thinking about ditching my decks and going 100% demos for my [#PSHSummit](#) container session. I have SOOOO much content I want to show you all!

4:17 PM - 28 Apr 2019

31 Likes



5



31



- Introducing Containers
- The Container Universe
- Running SQL Server and PowerShell in Containers
- Hands on with Containers
- Container Orchestration

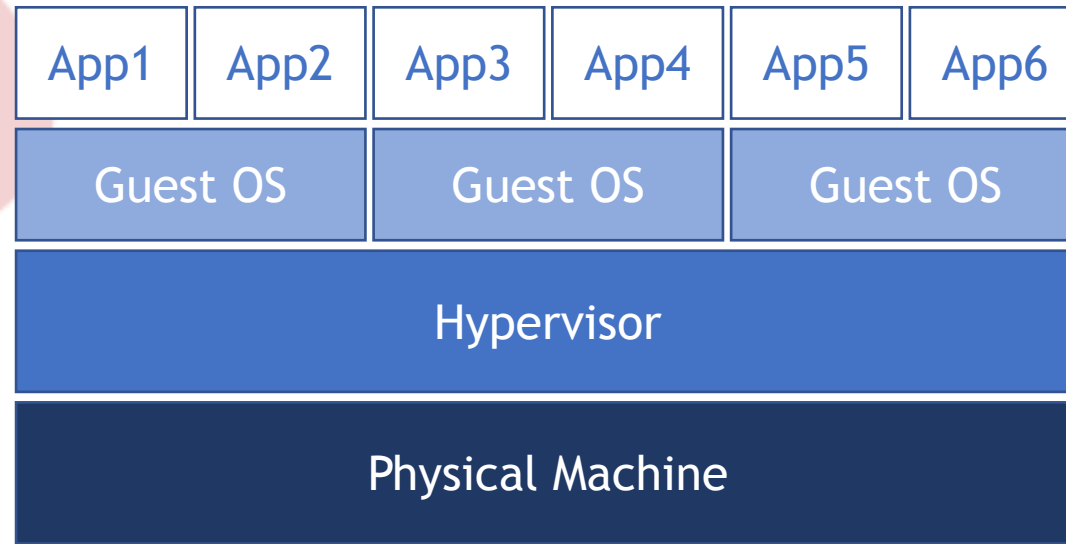


Introducing Containers

- Operating system virtualization
 - Shared kernel and system resources
- Container...contain...
 - Binaries, libraries and file system
- One app inside the container
 - This is the unit of work
- Containers are ephemeral
- Let's start off with a comparison...



Virtual Machines



High Maintenance



What's so Hard About Virtual Machines?

OS Resource Overhead

Patching

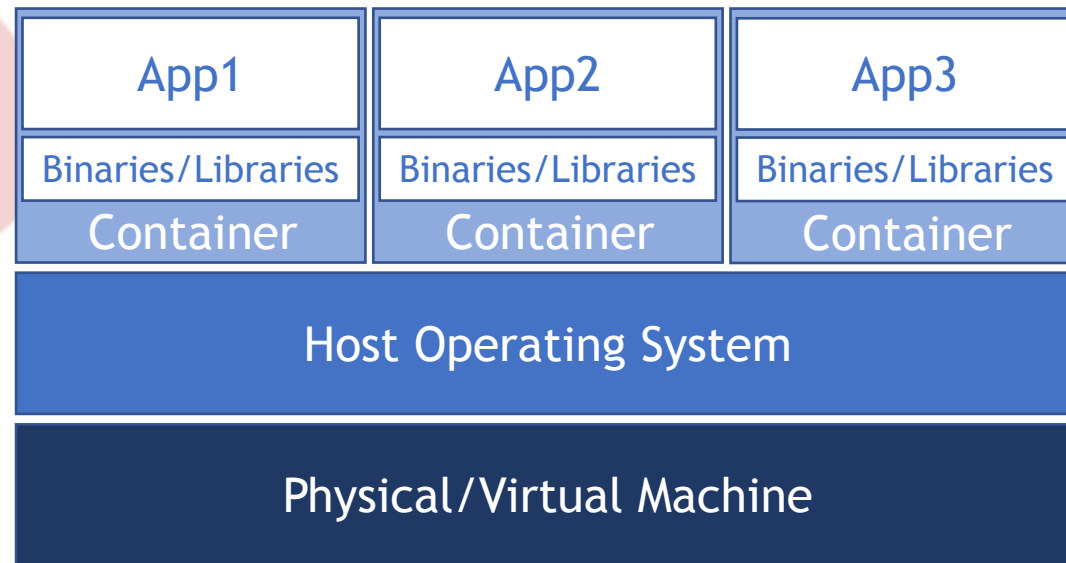
Troubleshooting

Upgrades

Deployments

Does any of this move your business forward?

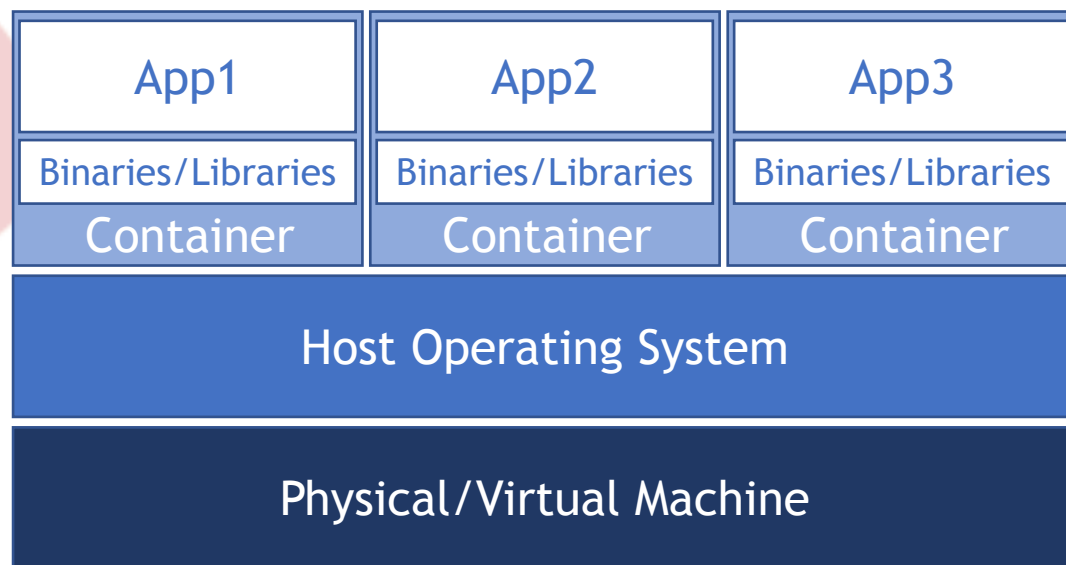
Containers



Lower Maintenance

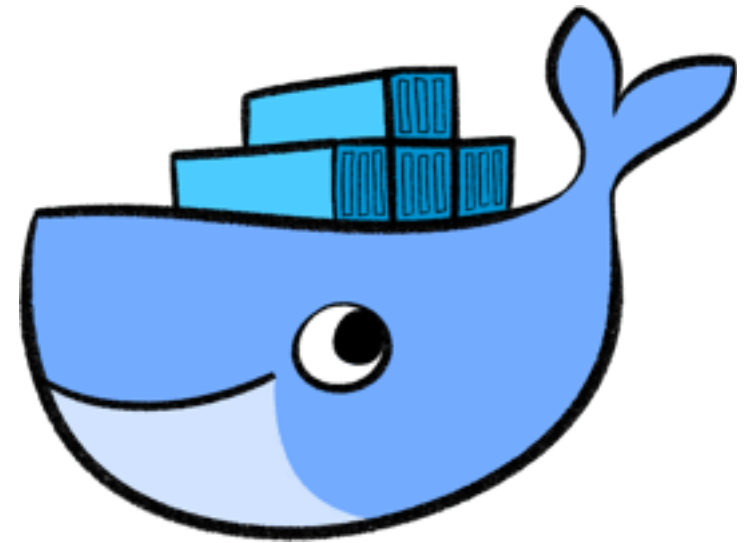
Containers

Patching/Deployments/Whatever



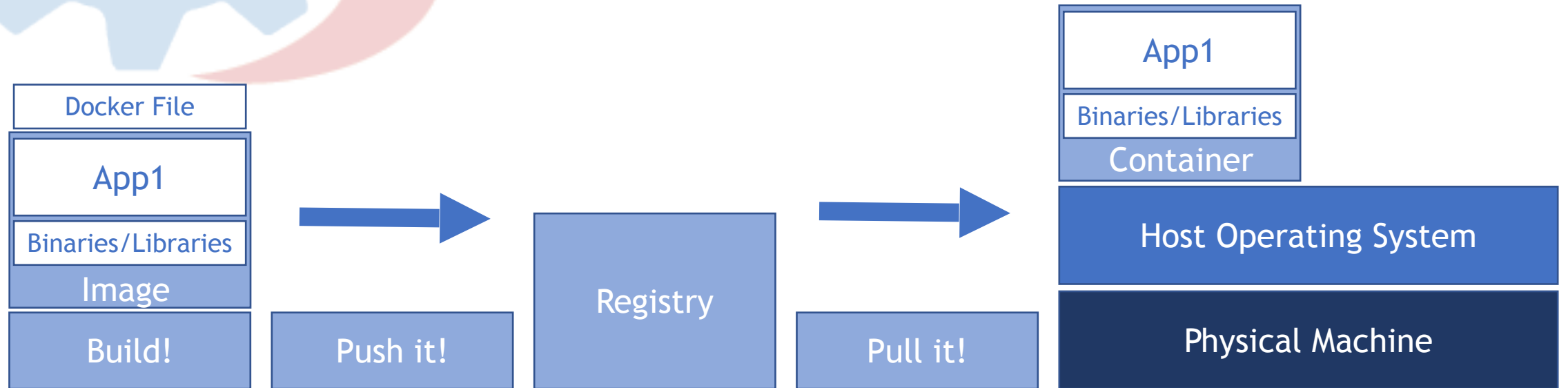
The Container Universe

- Docker
 - Linux
 - Windows
 - Mac
- Docker Inc.
- Other Container Engines
 - rkt
 - CoreOS
 - Windows
 - chroot...chwhat?



Getting Containers

- Images - code, runtimes, libraries, environment variables
- Registries - where images live. Docker Hub, Azure Container Registry, internal
- Docker File - defines the container image



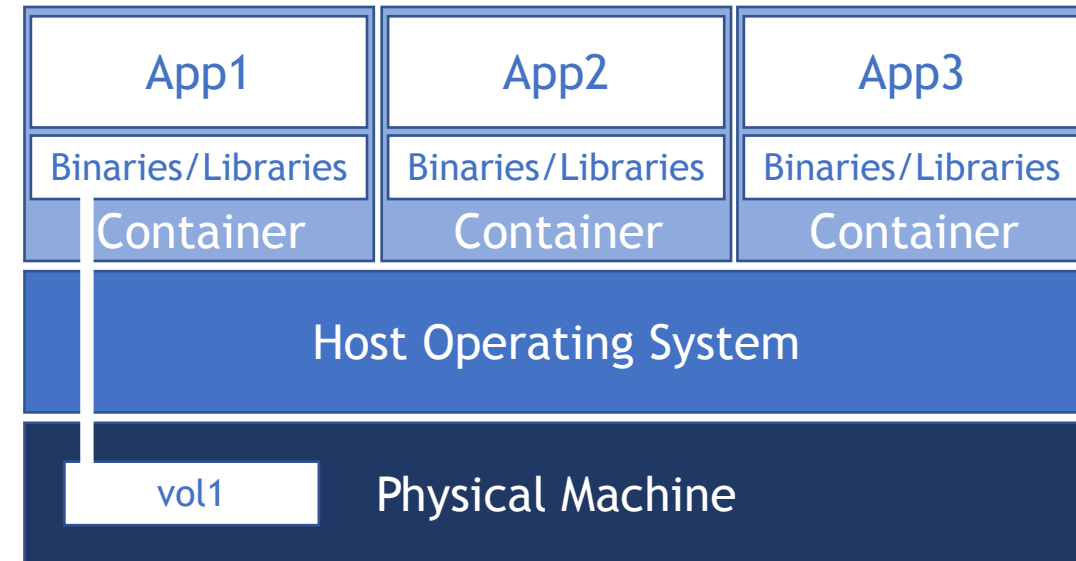


Data Persistency in Containers

- But containers are ephemeral, what about my data?

Data Persistency in Containers

- Container Images are read only
- If your container is alive so is your data, don't delete the container
- Docker Data Volumes
 - Docker managed resource
 - Independent of the container
- <https://docs.docker.com/storage/>





Running PowerShell in Containers

- What's the vision for PowerShell Core?
 - PowerShell everywhere, right?
- What if we run whatever version of PowerShell we wanted...
- Wherever we wanted...
- As a container!
- What if we wanted to run a script in a container and it goes away when finished?
- Sounds like...serverless, right?
- But what about job distribution?
- Testing scenarios...of course
- Development scenarios

<https://github.com/Azure/CloudShell>

<https://github.com/Azure/CloudShell/blob/master/linux/base.Dockerfile#L251>



Running SQL Server on Containers

- Why run SQL Server on a Container?
- Same reasons...
 - Deployments, upgrades, patching, speed...agility
- Windows and Linux is available
 - <https://github.com/Microsoft/mssql-docker>
- Non-production on Windows...SUSPENDED!!!



- Pull an Image
- Run a Container
- Access our application
- Connect to the Container
- Persisting data with a Container
- Pass commands and scripts into Containers
- Build our own “Serverless” FaaS platform

A decorative background on the left side of the slide. It features two interlocking gears, one light blue and one light red, with a circular arrow in red and blue winding around them.

Container Orchestration

- Workload placement
- Managing state, starting things up and keeping things up
- Load balancing services
- Networking
- Persistent storage
- Declarative model
- Job distribution (PowerShell, or any workload really)
- Secrets and certificate management



Container Orchestrators

- Kubernetes
- Red Hat OpenShift
- VMware Tanzu
- Azure Kubernetes Services (AKS)
- Google Kubernetes Engine (GKE)
- Amazon Elastic Container Service for Kubernetes (EKS)



Review

- Introducing Containers
- Running SQL Server and PowerShell in Containers
- The Container Universe
- Hands on with Containers
- Container Orchestration



Need more data?

- **Contact me!**

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THANK YOU!

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