A Brief Intro to Containerization

Who Am I?

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ex-Microsoft Learn Student
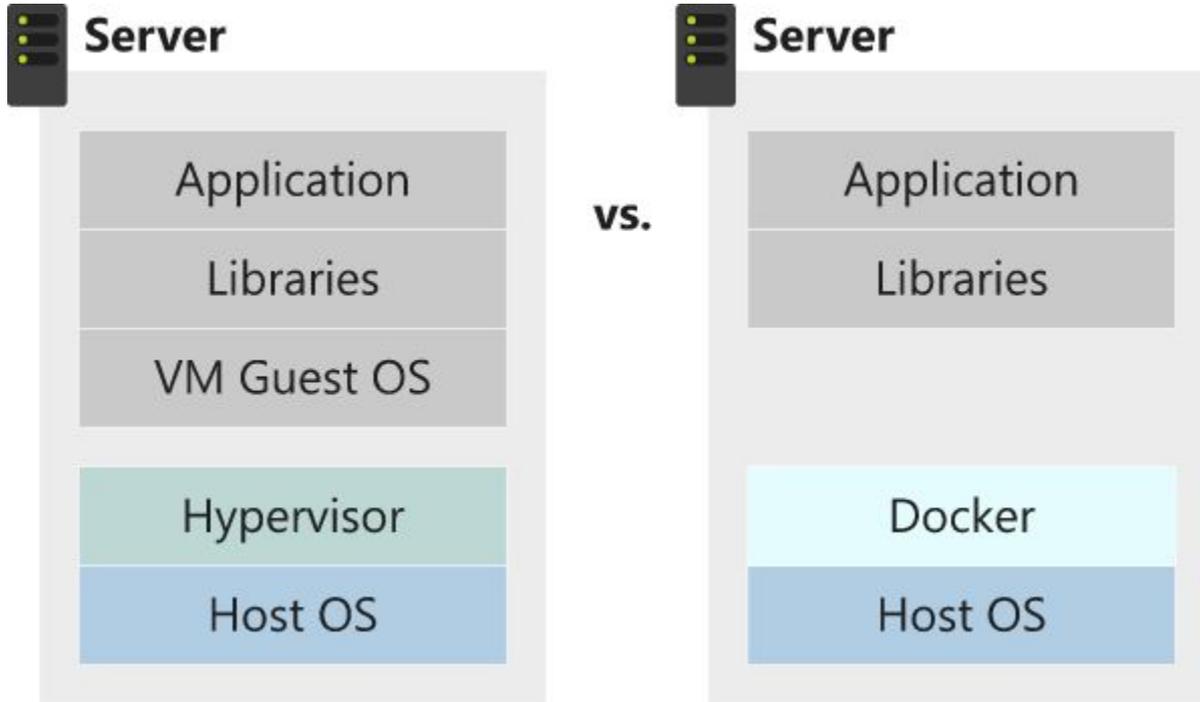Ambassador (2021-22)

What is a Container?

Container

"A container is a standard unit of software that packages up code and all its dependencies so the application runs quickly and reliably from one computing environment to another."
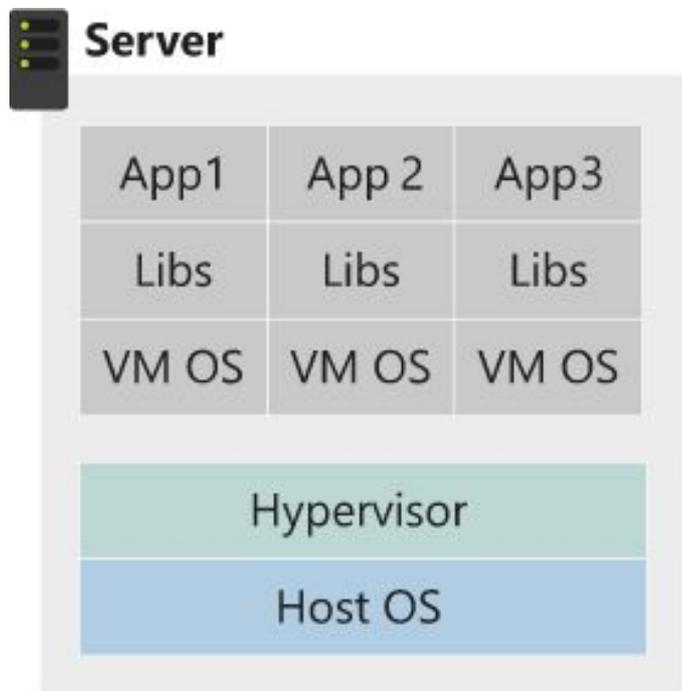
- Docker.com

Why Businesses use Containerization?

● Efficient use of hardware
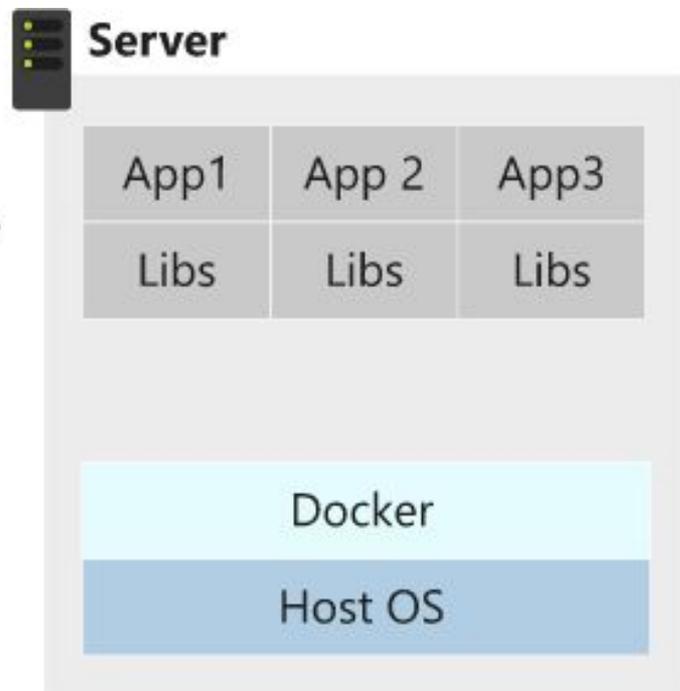
- Container isolation

Server		
App1	App 2	App3
Libs	Libs	Libs
VM OS	VM OS	VM OS
Hypervisor		
Host OS		

vs.

Server		
App1	App 2	App3
Libs	Libs	Libs
Docker		
Host OS		

Content from docs.microsoft.com

● Application delivery

Content by u/thomas_dahl

Some Important Terminologies

- Container Image (Docker Image)
- Manifest (Dockerfile, Manifest YAML)
- Container
- Host
- Runtime Engine (Docker Engine)
- Registry
- Client (Docker CLI Client)
- Volume (for persistent storage)

Stackable Unification File System (Unionfs)

Filesystem that allows stacking of several directories, called branches

Content from docs.microsoft.com
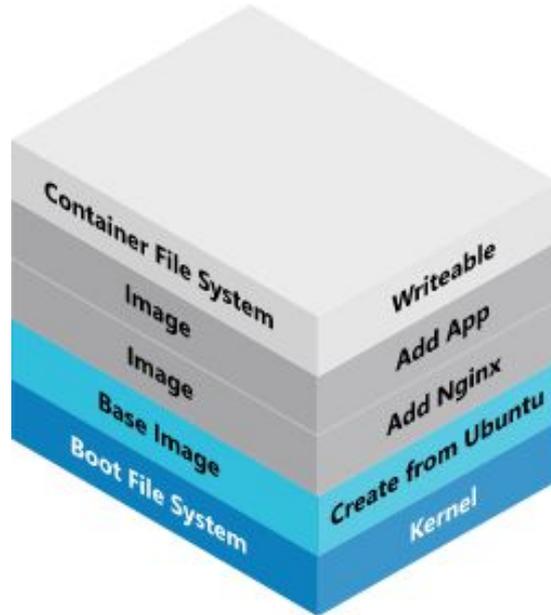
Docker container network configuration

- Bridge
- Host
- None

:(

That's all about containers that we can take in for now. Let's meet after a short break of 5 minutes. Meanwhile, we can have a mini QnA right now.

We'll have a quick discussion about Azure and its services, and the MLSA program on the other side of the break.

See you then (hopefully, if you don't run away)

What is Cloud Computing?

Delivery of computing services over the internet, which is otherwise known as the cloud.

It includes:

- Servers
- Storage
- Databases
- Networking
- Software
- Analytics
- Intelligence

There is no cloud
it's just someone else's computer

Advantages of the Cloud

Reliable

Scalable

Elastic

Agile

Geo-distribution

Disaster recovery

What is Azure?

Azure is a cloud computing service created by Microsoft

- Get more than 100 services on Azure
- Run your existing applications on virtual machines
- Explore new software paradigms, such as intelligent bots and mixed reality
- Use AI and machine-learning services that can naturally communicate with your users through vision, hearing, and speech

Platform Services

Security & Management
- Security Center
- Azure portal
- Azure Active Directory
- Azure AD B2C
- Multi-Factor Authentication
- Automation
- Key Vault
- Azure Marketplace
- VM Image Gallery
- REST API and CLI

Media & CDN
- Media Services
- Media Analytics
- Content Delivery Network

Integration
- API Management
- Service Bus
- Azure Logic Apps

Compute Services
- Container Service
- VM Scale Sets
- Azure Batch
- Dev/Test Lab

Application Platform
- Web Apps
- Mobile Apps
- API Apps
- Cloud Services
- Service Fabric
- Notification Hubs
- Functions

Developer Services
- Visual Studio
- Mobile Engagement
- Azure DevOps
- Xamarin
- Application Insights
- Visual Studio App Center

Data
- SQL Database
- Azure Synapse Analytics
- Cosmos DB
- SQL Server Stretch Database
- Azure Cache for Redis
- Table Storage
- Azure Search

Intelligence
- Cognitive Services
- Bot Services
- Azure ML Studio

Analytics & IoT
- HDInsight
- Machine Learning
- Stream Analytics
- Data Catalog
- Data Lake Analytics Service
- Data Lake Storage
- IoT Hub
- Event Hubs
- Data Factory
- Power BI Embedded

Hybrid Cloud
- Azure AD Connect Health
- AD Privileged Identity Management
- Domain Services
- Backup
- Azure Monitor
- Import/Export
- Azure Site Recovery
- StorSimple

Infrastructure Services

Compute
- Virtual Machines
- Containers and Azure Kubernetes

Storage
- Blob
- Queues
- Files
- Disks

Networking
- Virtual Network
- Load Balancer
- DNS
- Express Route
- Traffic Manager
- VPN Gateway
- App Gateway

Datacenter Infrastructure

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Questions

Thank You!

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