

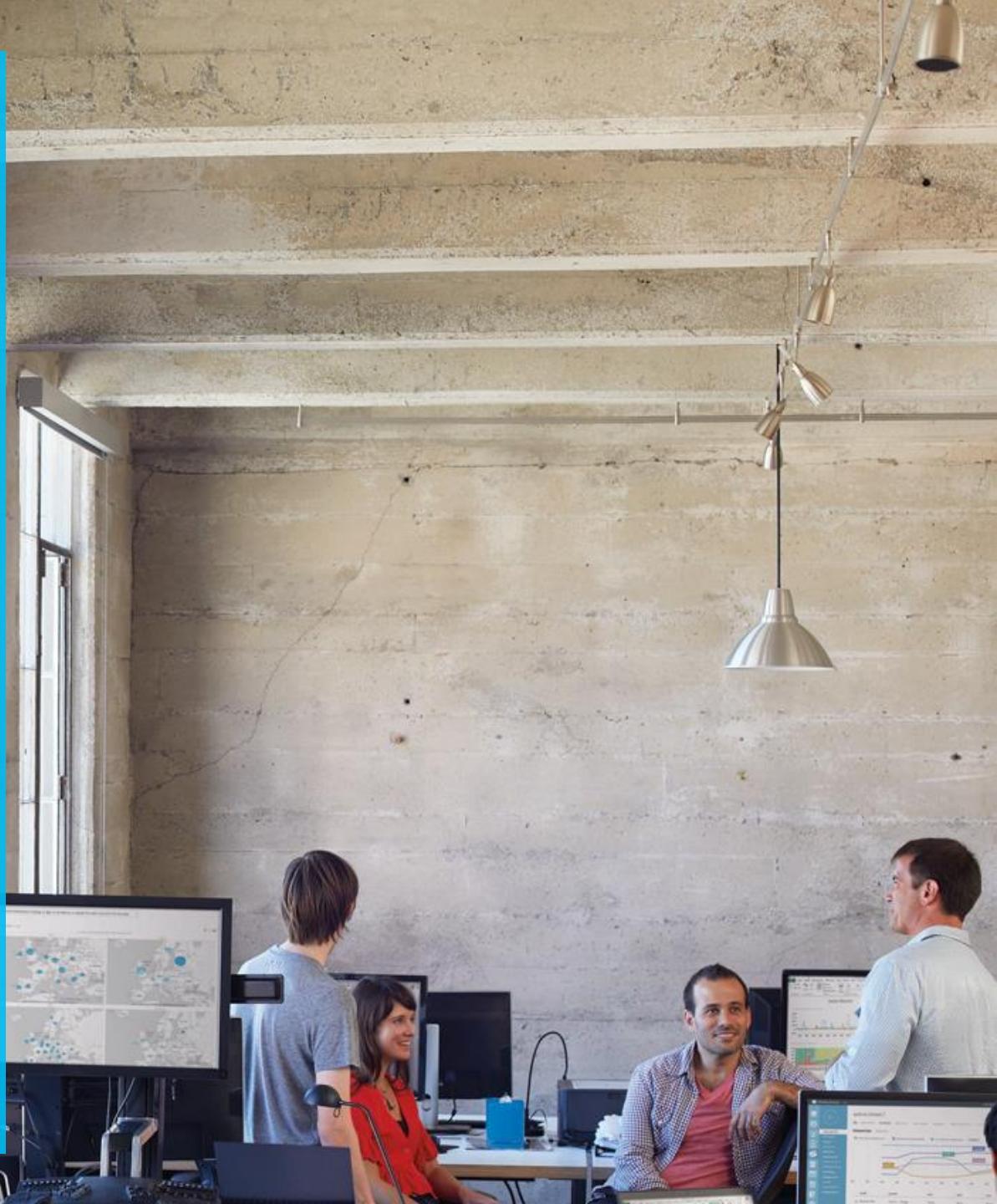
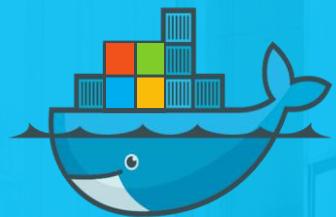


# Microsoft Azure

## Accelerate Amsterdam

### Docker and Microsoft Azure

Robert Bakker  
31-05-2016



a very brief  
History  
of  
Shipping



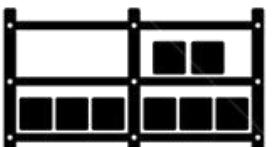
# Cargo transport pre-1960

Multiplicity of goods



Do I worry about how goods interact?

Multiplicity of methods for transporting & storing



Can I transport quickly and smoothly?

# Cargo transport pre-1960

	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
							

# The Shipping Container analogy brings a solution

Multiplicity of goods



Do I worry about how goods interact?

Multiplicity of methods for transporting & storing



Can I transport quickly and smoothly?





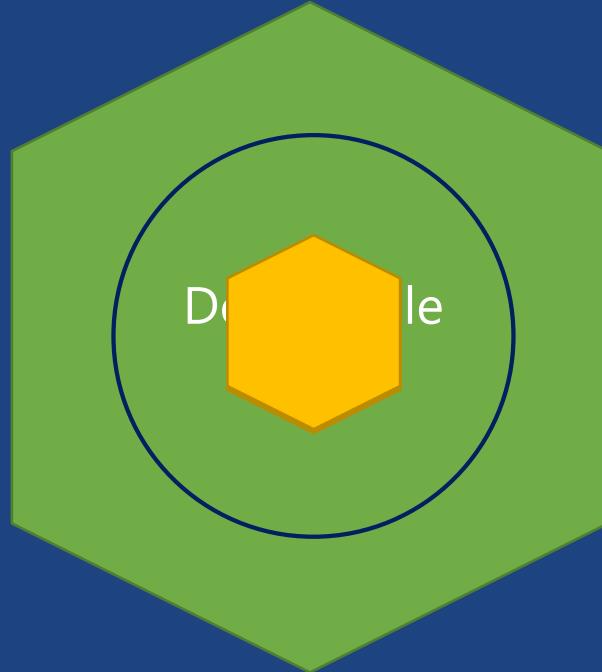
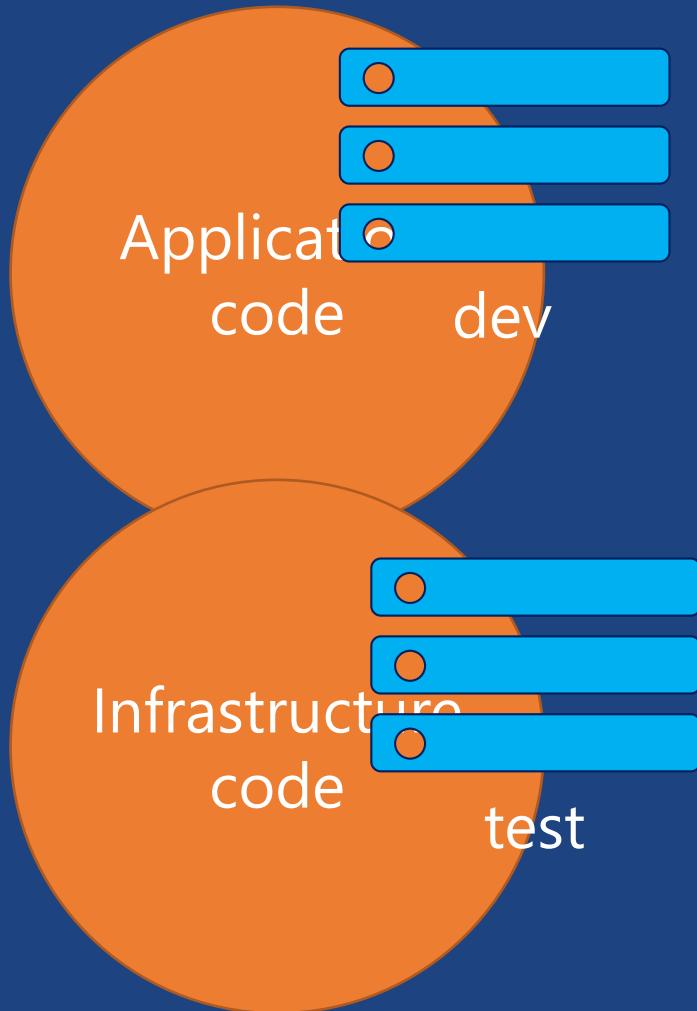
so

What's  
The Big Deal ?

# containers for code



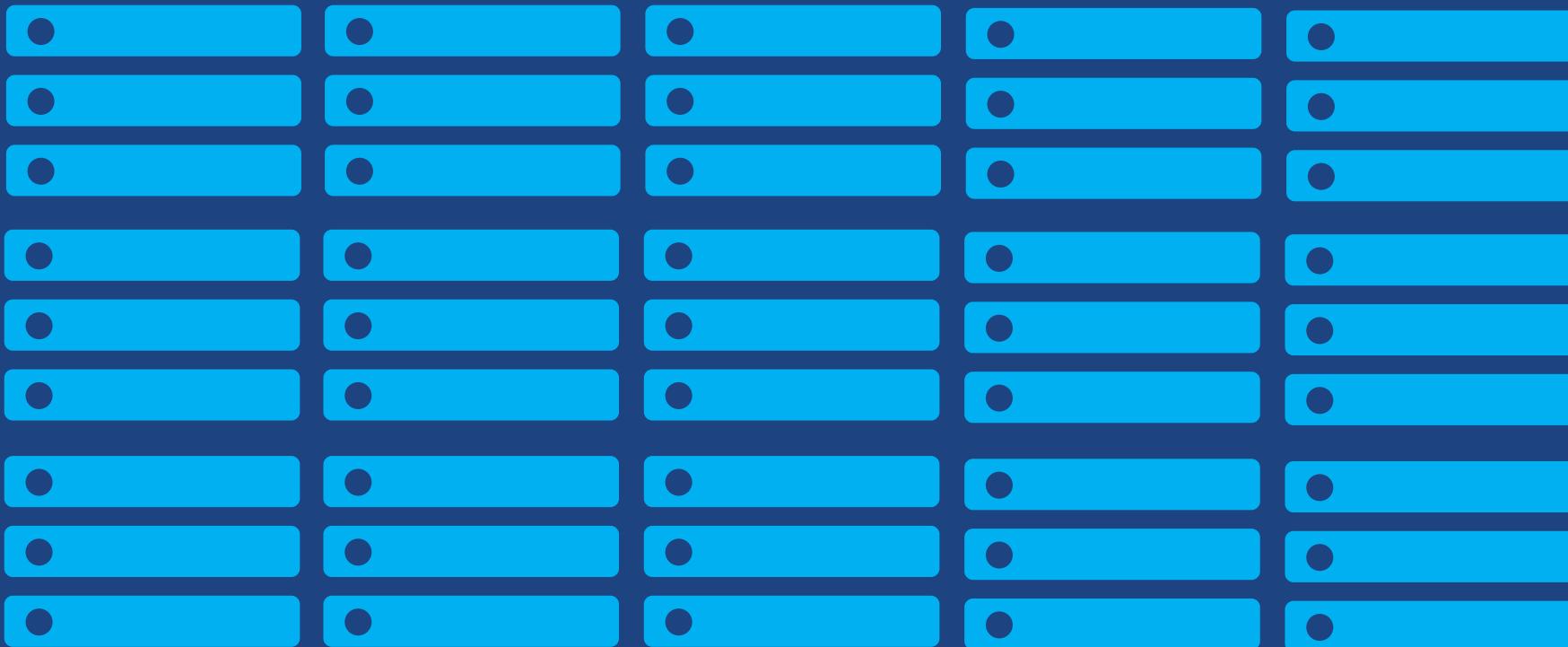
# Containers for code



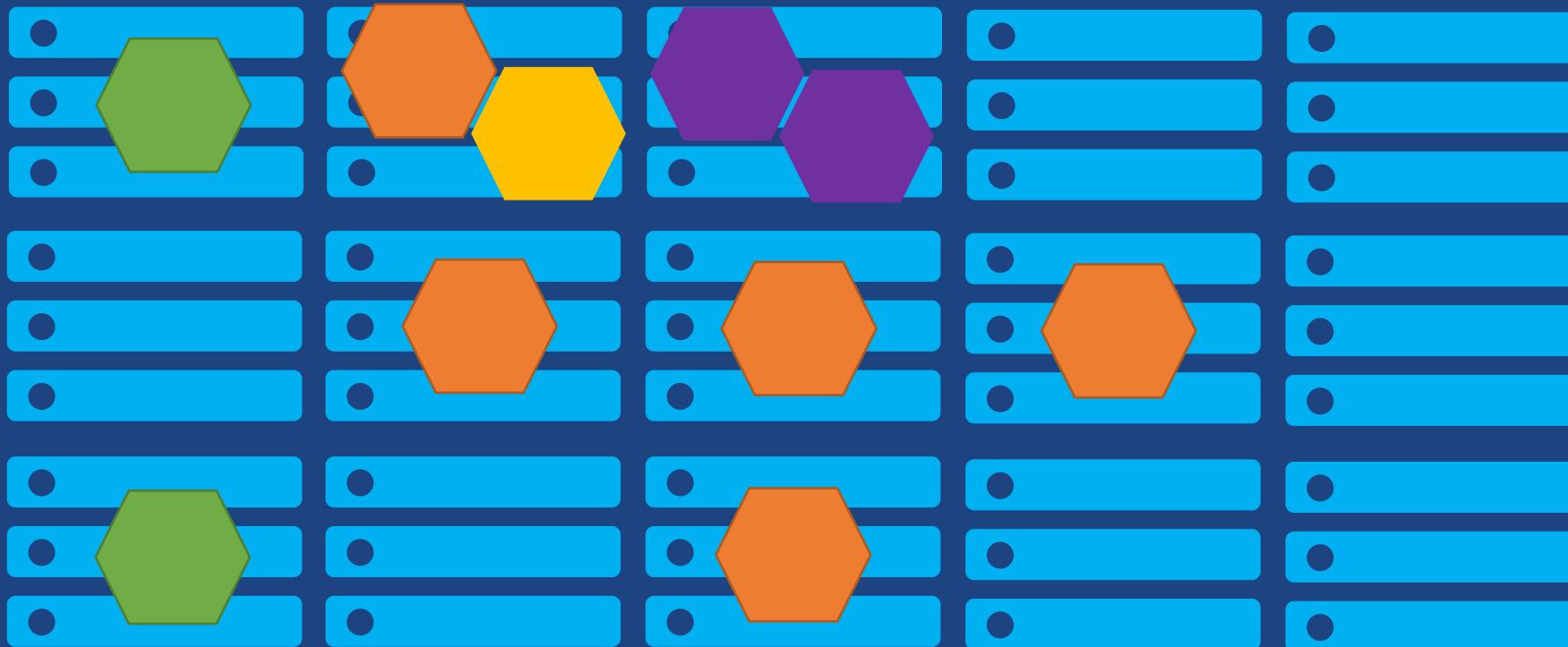


# density & efficiency

# Data center without containers



# Data center with containers



# build once run anywhere



A photograph of a modern building constructed from shipping containers. The building features a variety of colors including yellow, black, green, and blue, with large glass windows and doors. It is set against a bright blue sky with some white clouds. The perspective is from a low angle looking up at the building.

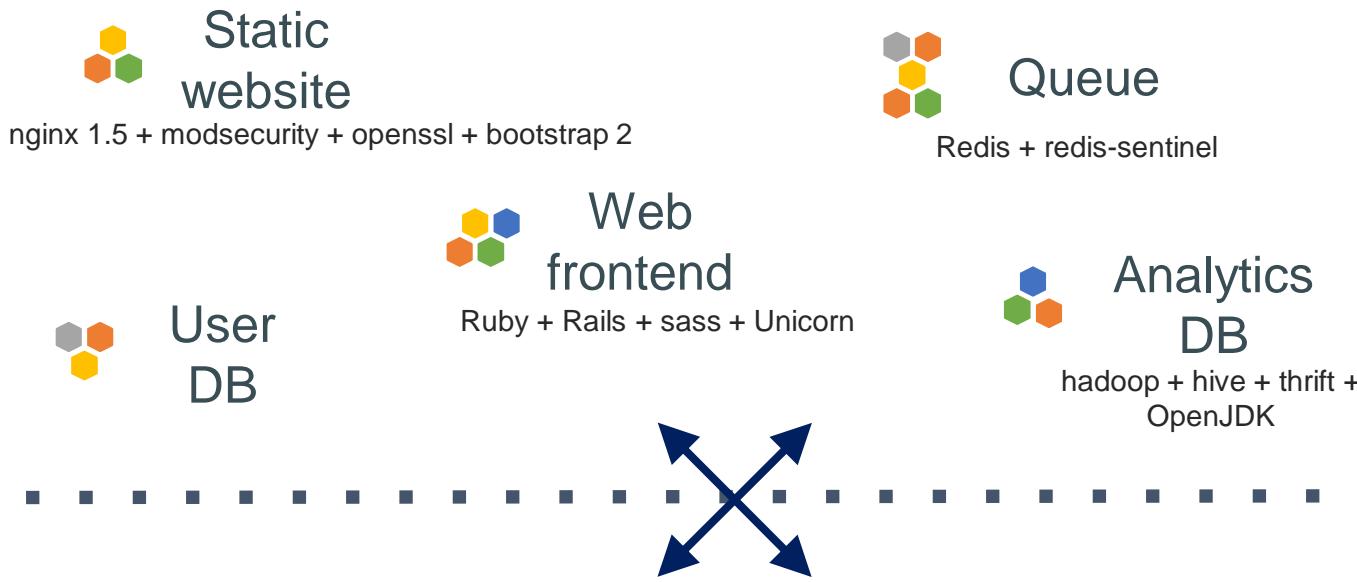
micro services

# What Docker resolves?

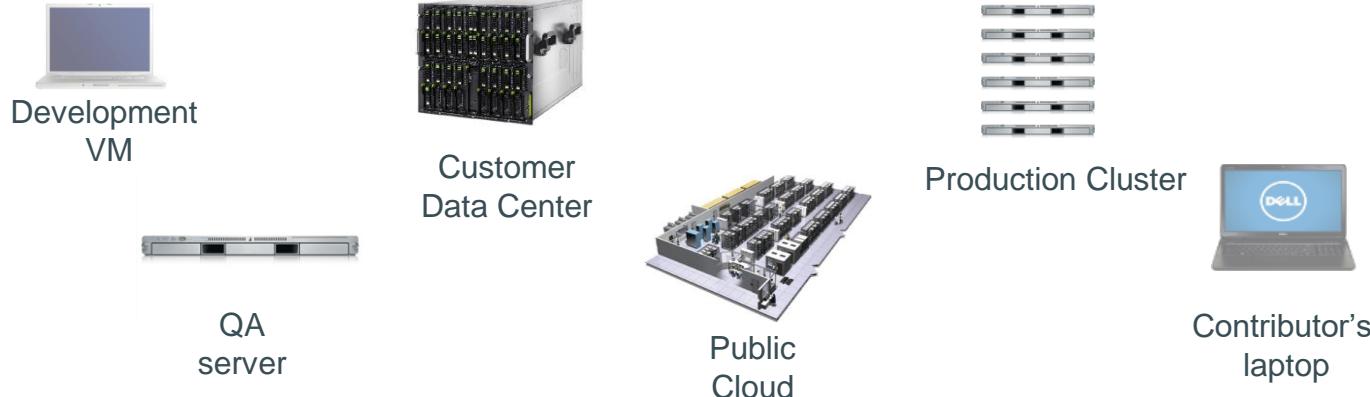
Microsoft Azure

# The Shipping Container analogy brings a solution

Multiplicity of Stacks



Multiplicity of hardware environments



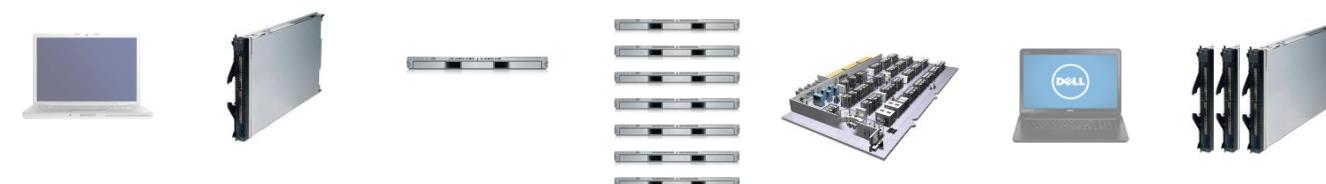
Do services and apps interact appropriately?

Can I migrate smoothly and quickly

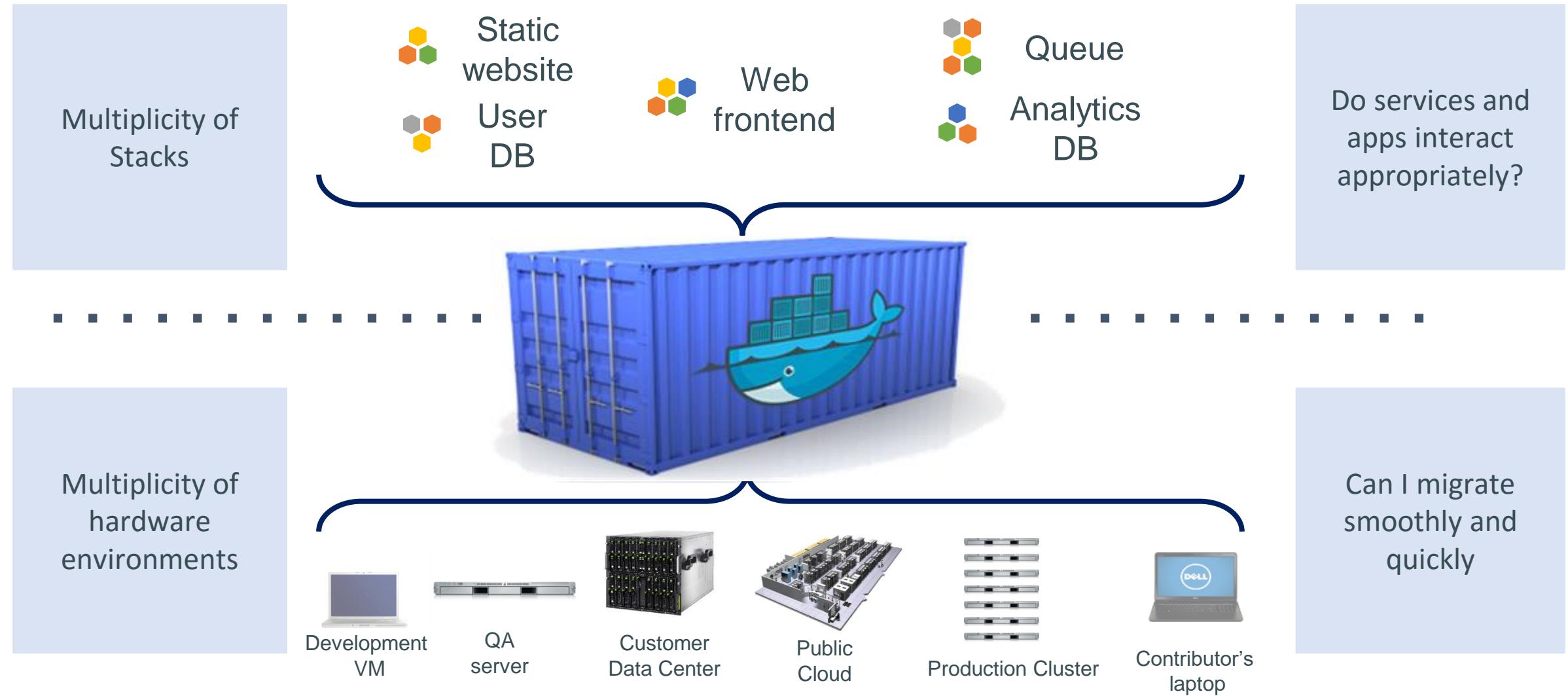
# Heterogeneity turns deployment into a nightmare

Static website	?	?	?	?	?	?	?
Web frontend	?	?	?	?	?	?	?
Background workers	?	?	?	?	?	?	?
User DB	?	?	?	?	?	?	?
Analytics DB	?	?	?	?	?	?	?
Queue	?	?	?	?	?	?	?
	Dev VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contributor's laptop	Customer Servers

Microsoft Azure



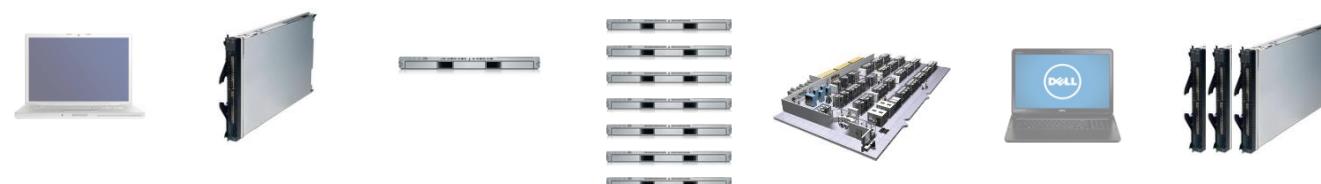
# The Shipping Container analogy brings a solution



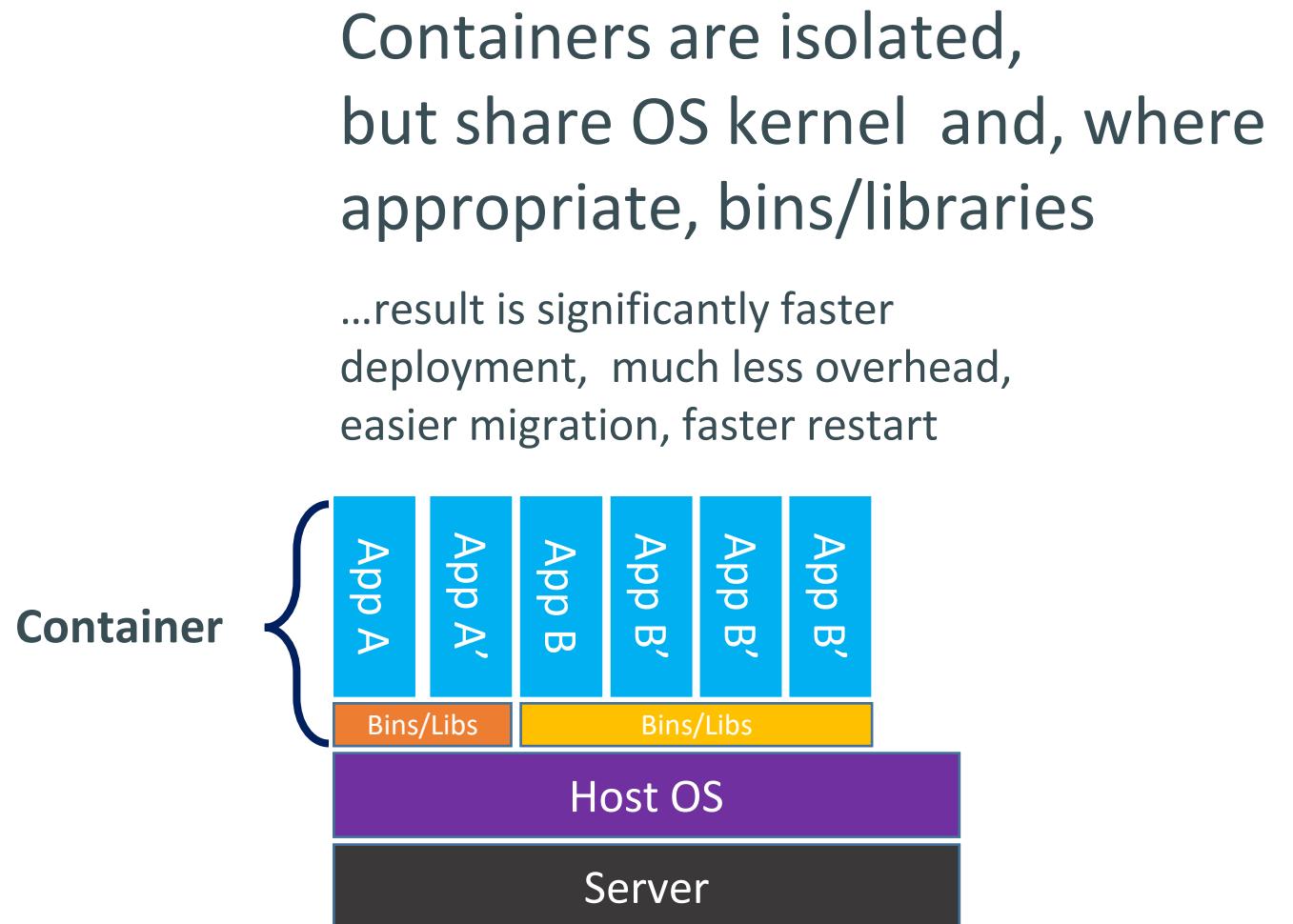
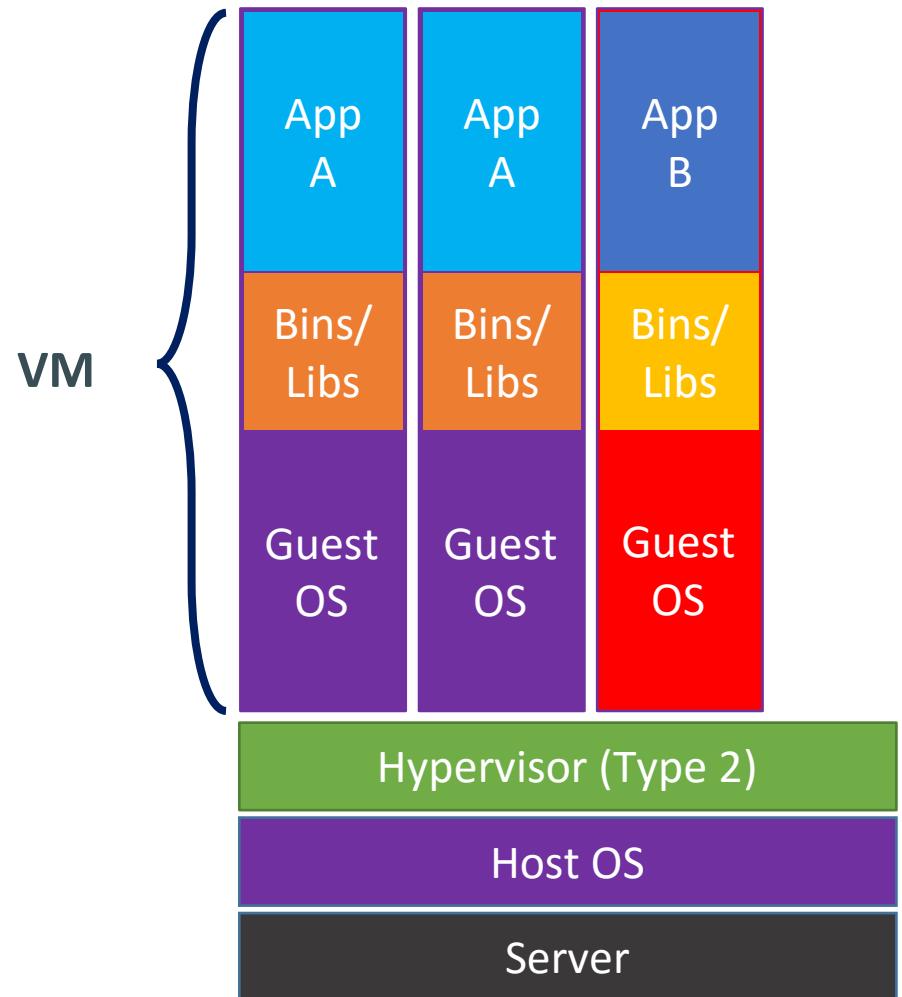
# Heterogeneity turns deployment into a nightmare

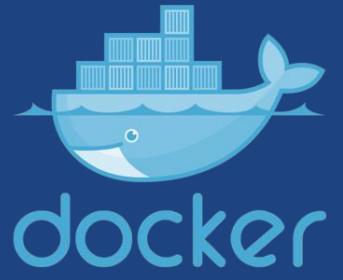
	Static website							
	Web frontend							
	Background workers							
	User DB							
	Analytics DB							
	Queue							
	Dev VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contributor's laptop	Customer Servers	

Microsoft Azure

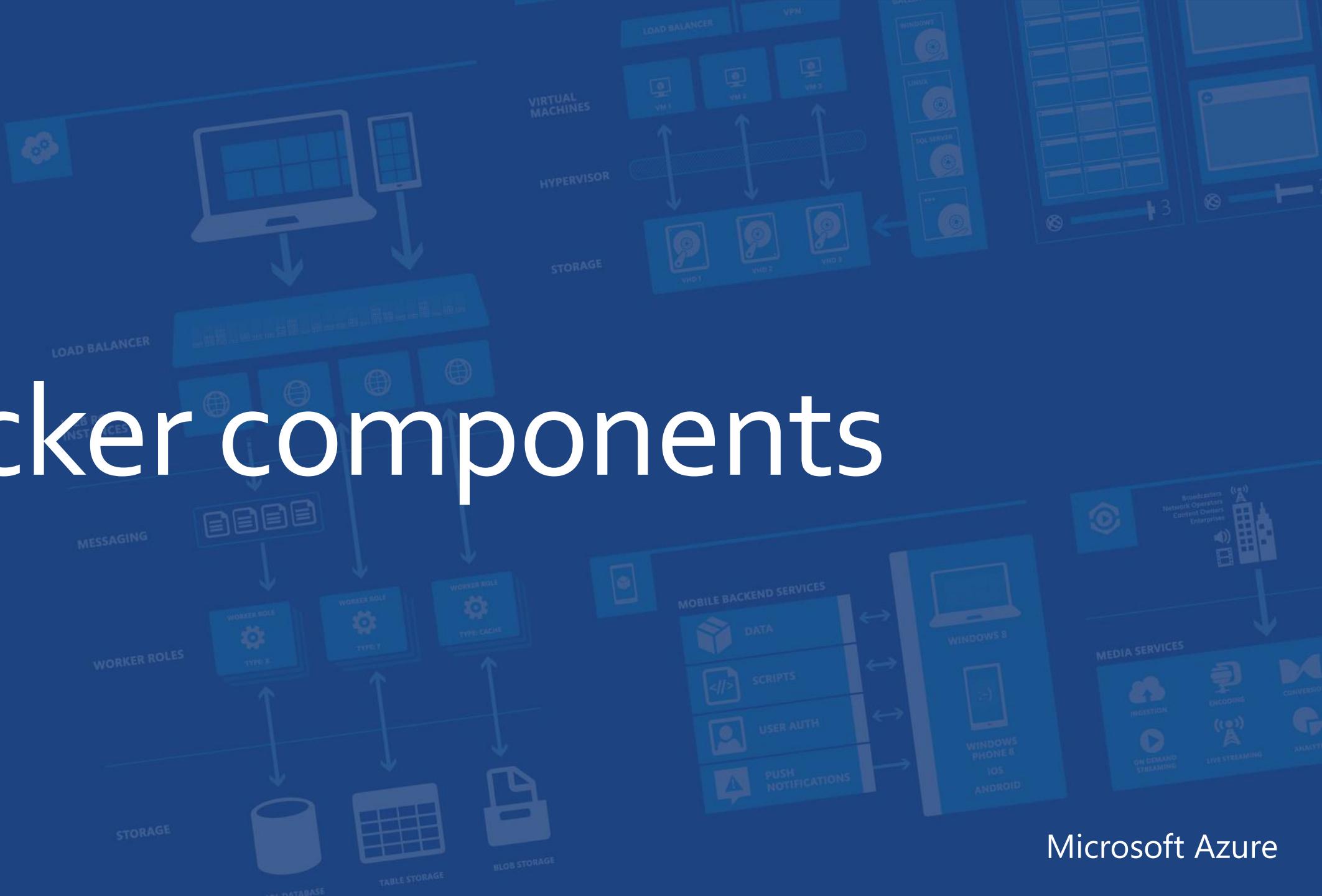


# Comparison: Containers vs. VMs



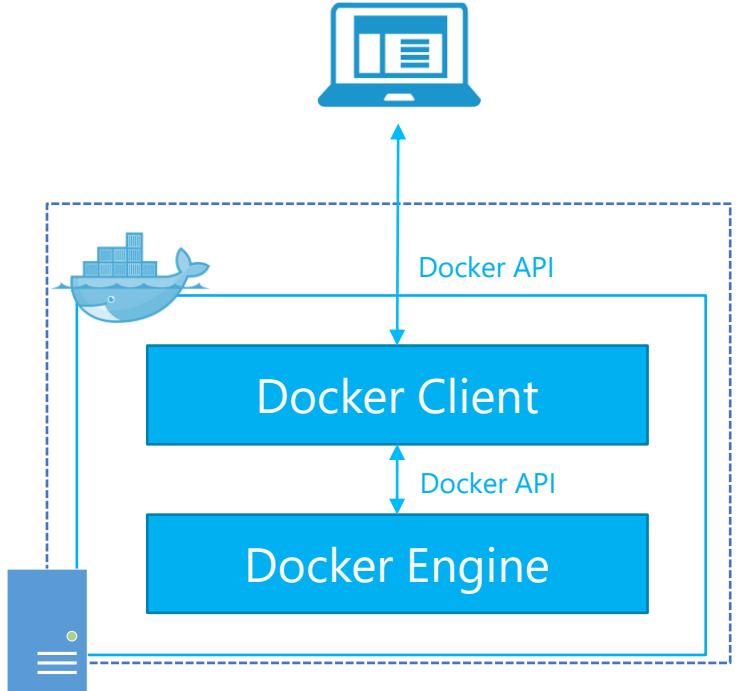


# Docker components



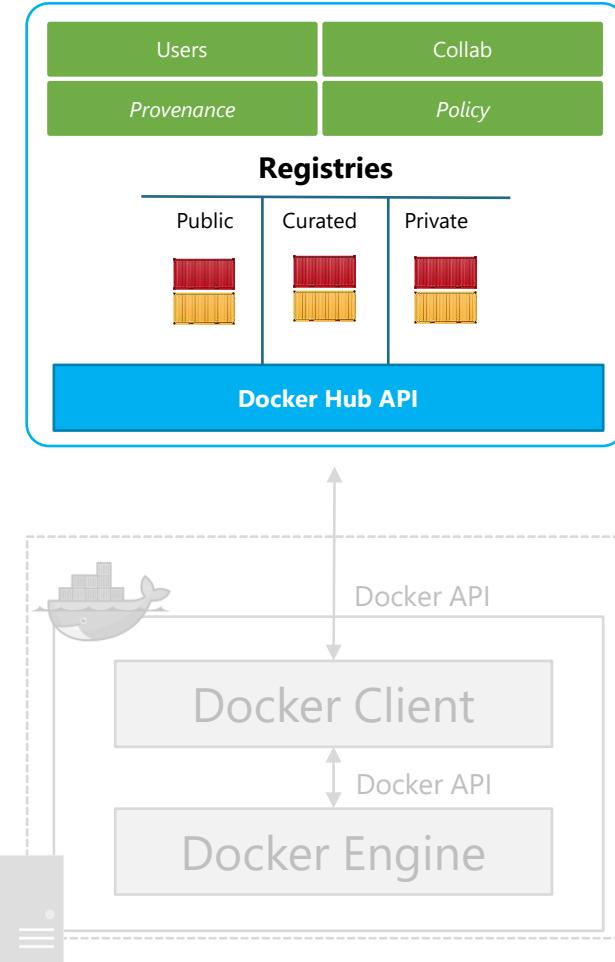
Microsoft Azure

# Docker Engine - Client



- Open Source Project written in Go
- Released March, 2013
- Provides the Docker Container
  - Repeatable Runtimes, Sandboxing, Network, and Storage
- Linux and Windows CLI tools for Developers
- Local and Remote REST API for further integration
- Low level API for Runtime, Storage, and Network extension

# Docker Hub

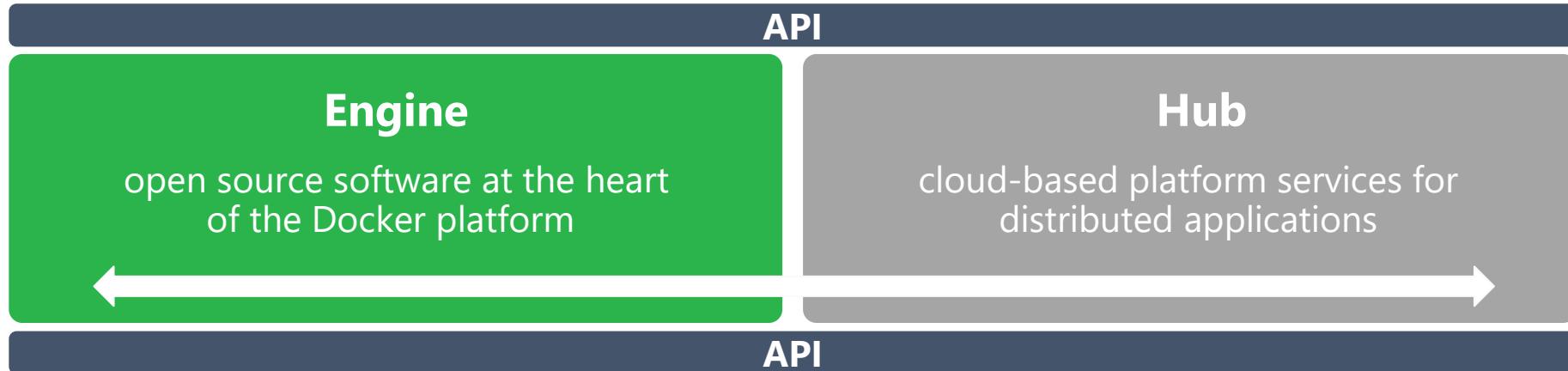


- Launched June, 2014
- Enables any Docker Host to run any application in seconds
- Provides Official, Public, and Private Docker Application Repositories
- Workflow management: Automated Builds, Webhooks
- Distribution Channel: Get vendor supported and provided Software

# Snapshot: The Docker Ecosystem

## Any App

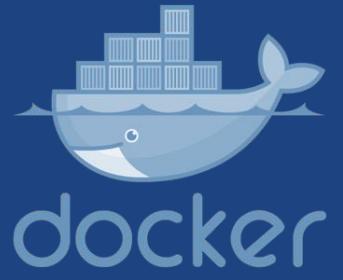
+ 45K apps  
+ 16K projects



## Any infrastructure

- Physical
- Virtual cloud





# Microsoft and Docker

Microsoft Azure

# Docker & Microsoft Agreement

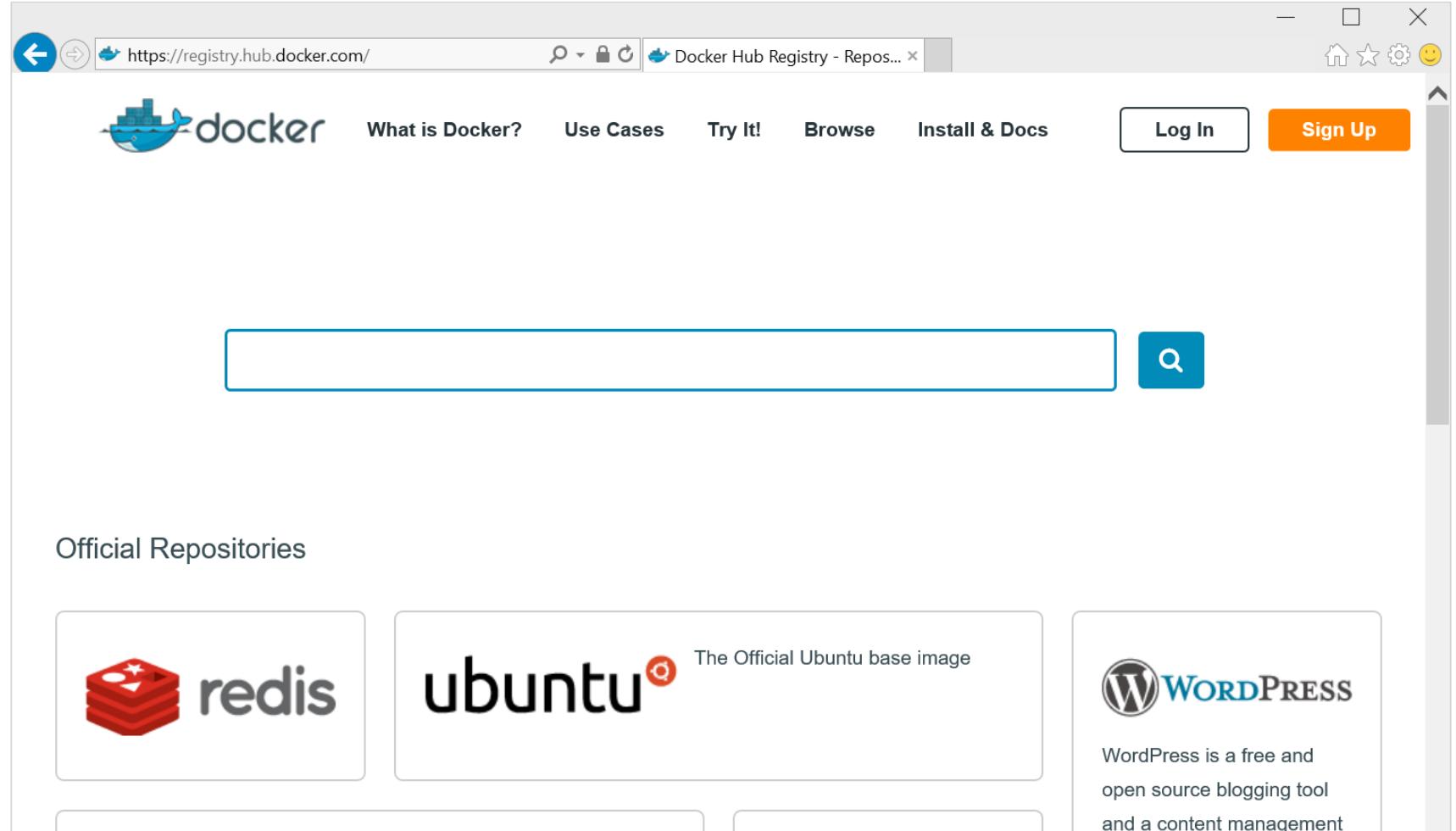
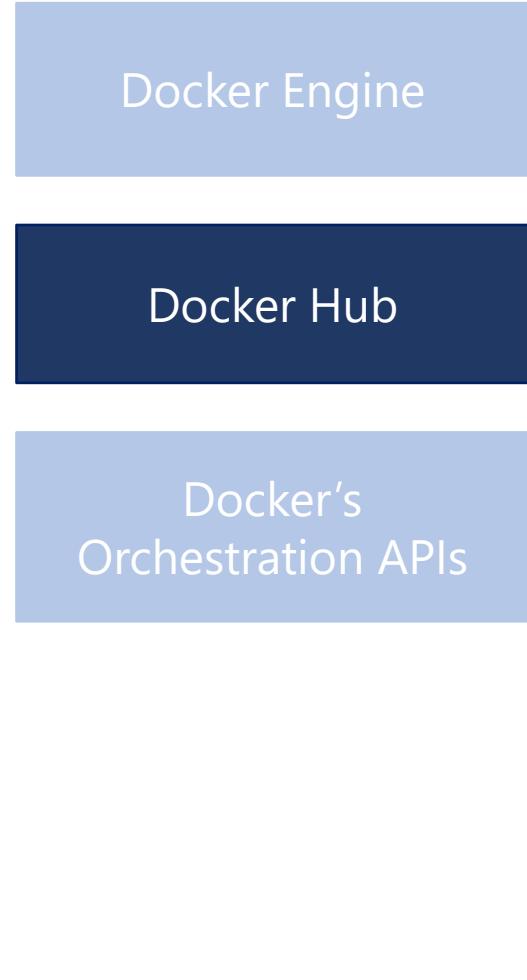
Docker Engine

Docker Hub

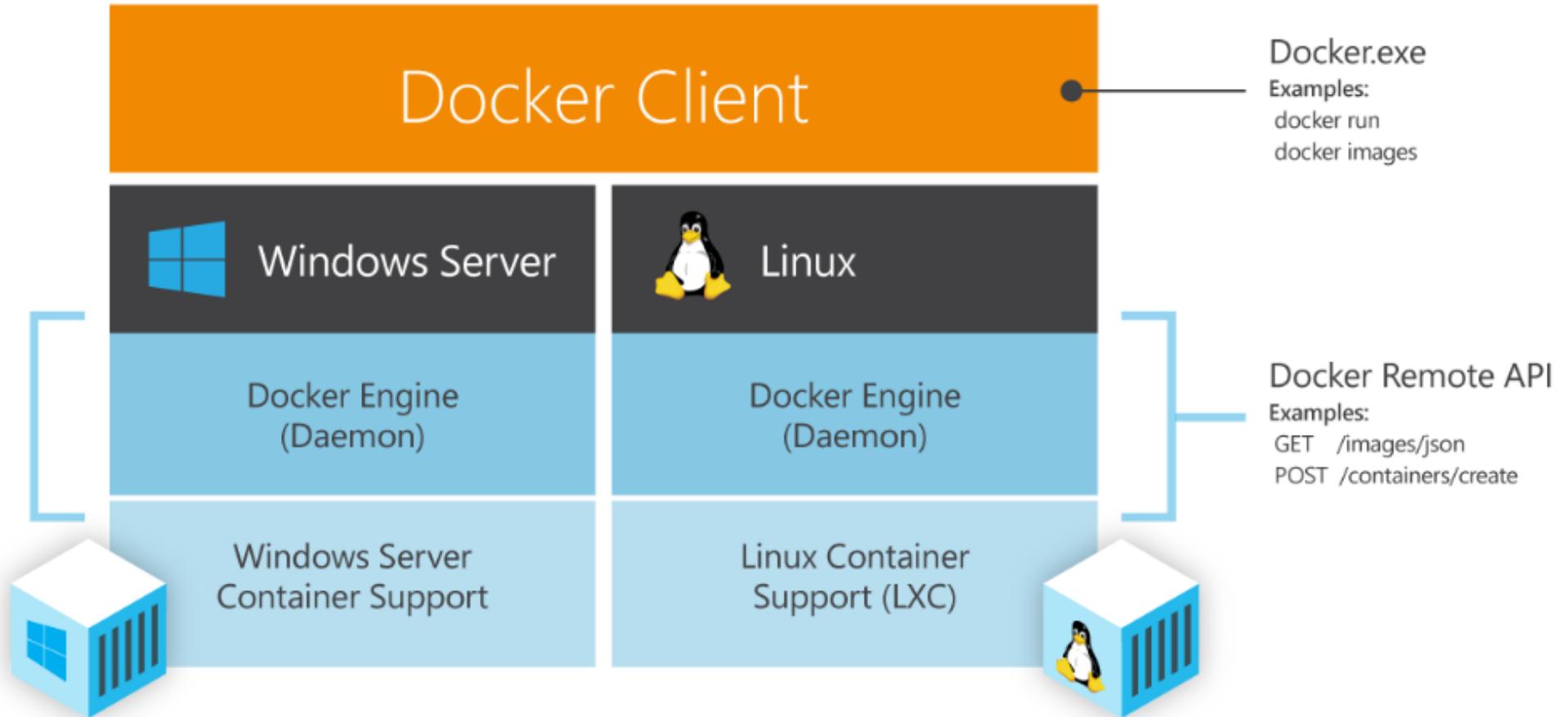
Docker's  
Orchestration APIs

**"To build the 'button' that  
enables any application to be  
built and deployed on any  
server, anywhere."**

# Docker & Microsoft Agreement



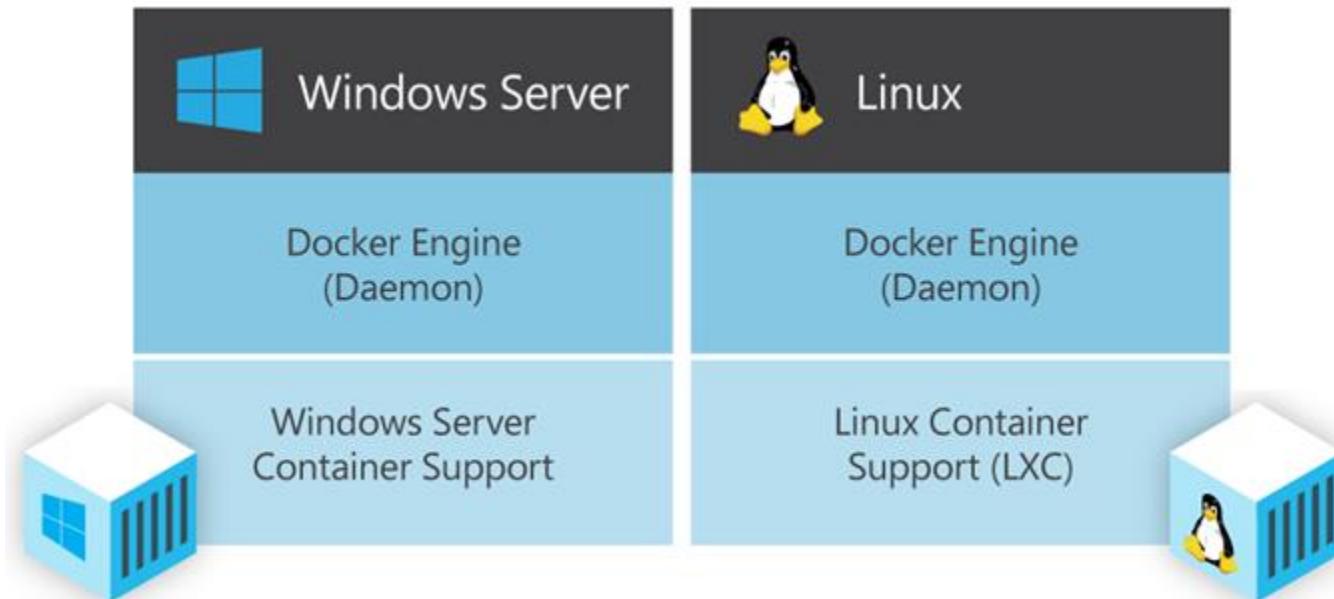
# Docker Engine for Windows



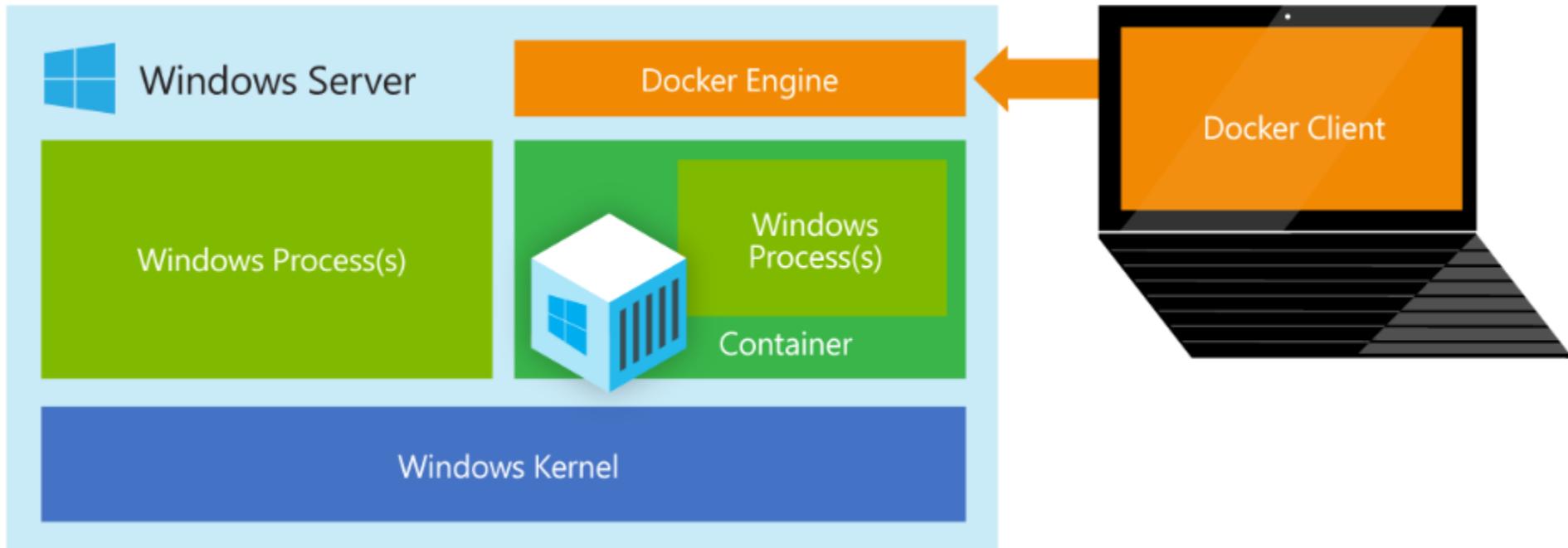
# Combining Windows and Linux on Azure



Microsoft Azure



# Windows Server Containers



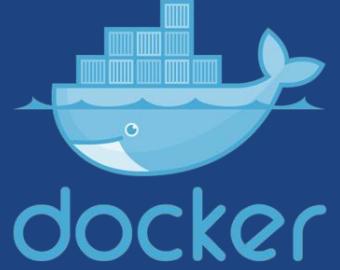
# Docker & Microsoft Azure



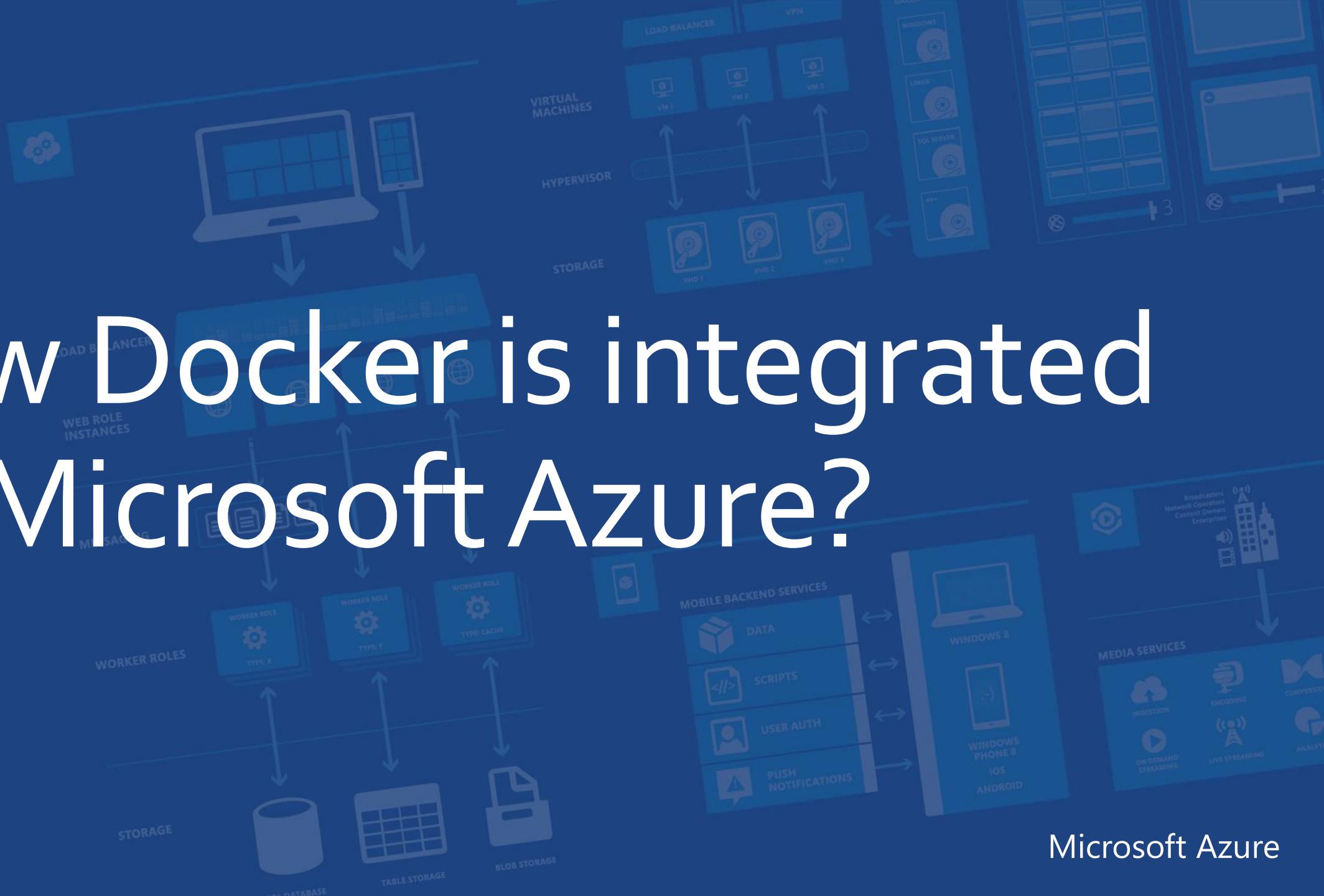
**Docker on Ubuntu Server**  
By Canonical + MS Open Tech

Docker is an open platform for developers and sysadmins to build, ship, and run distributed applications, whether on laptops, data center VMs, or the cloud.

[Create](#)



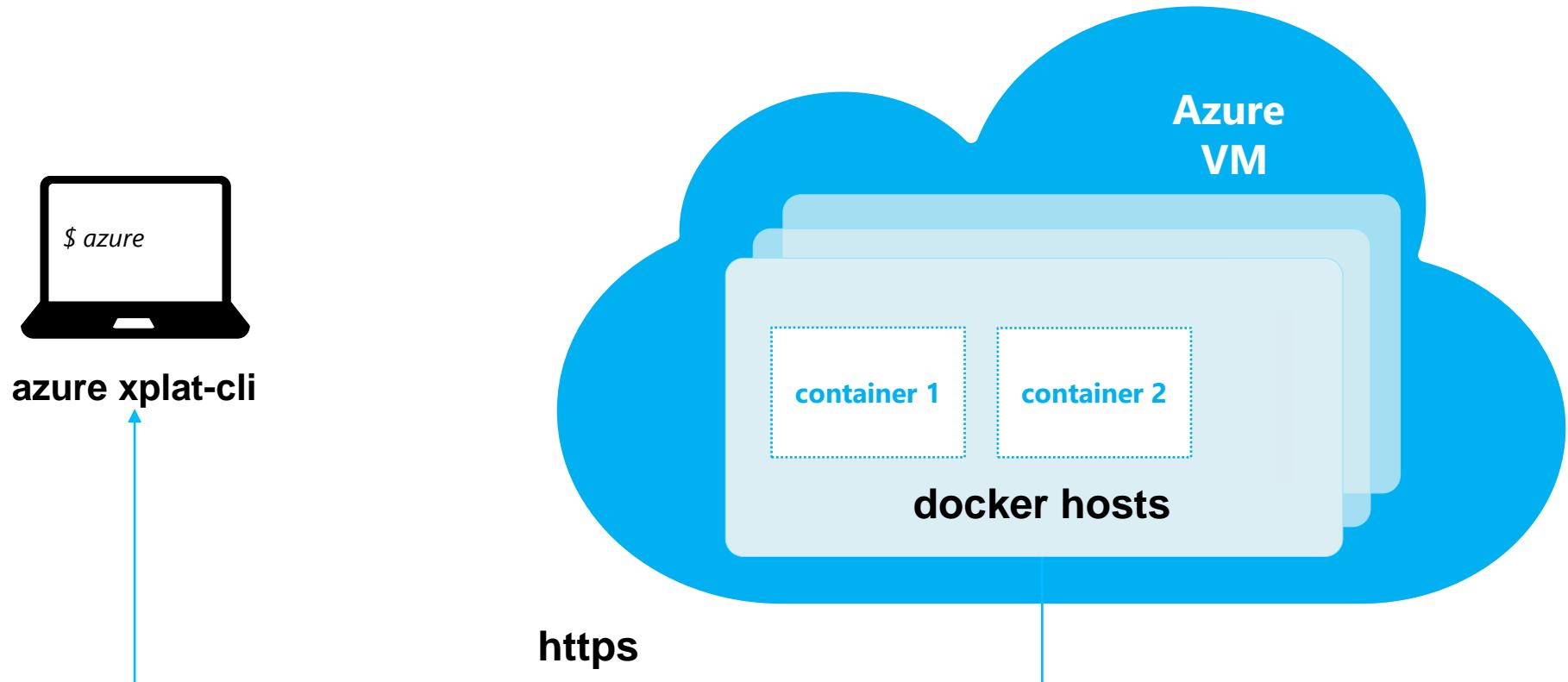
# How Docker is integrated on Microsoft Azure?



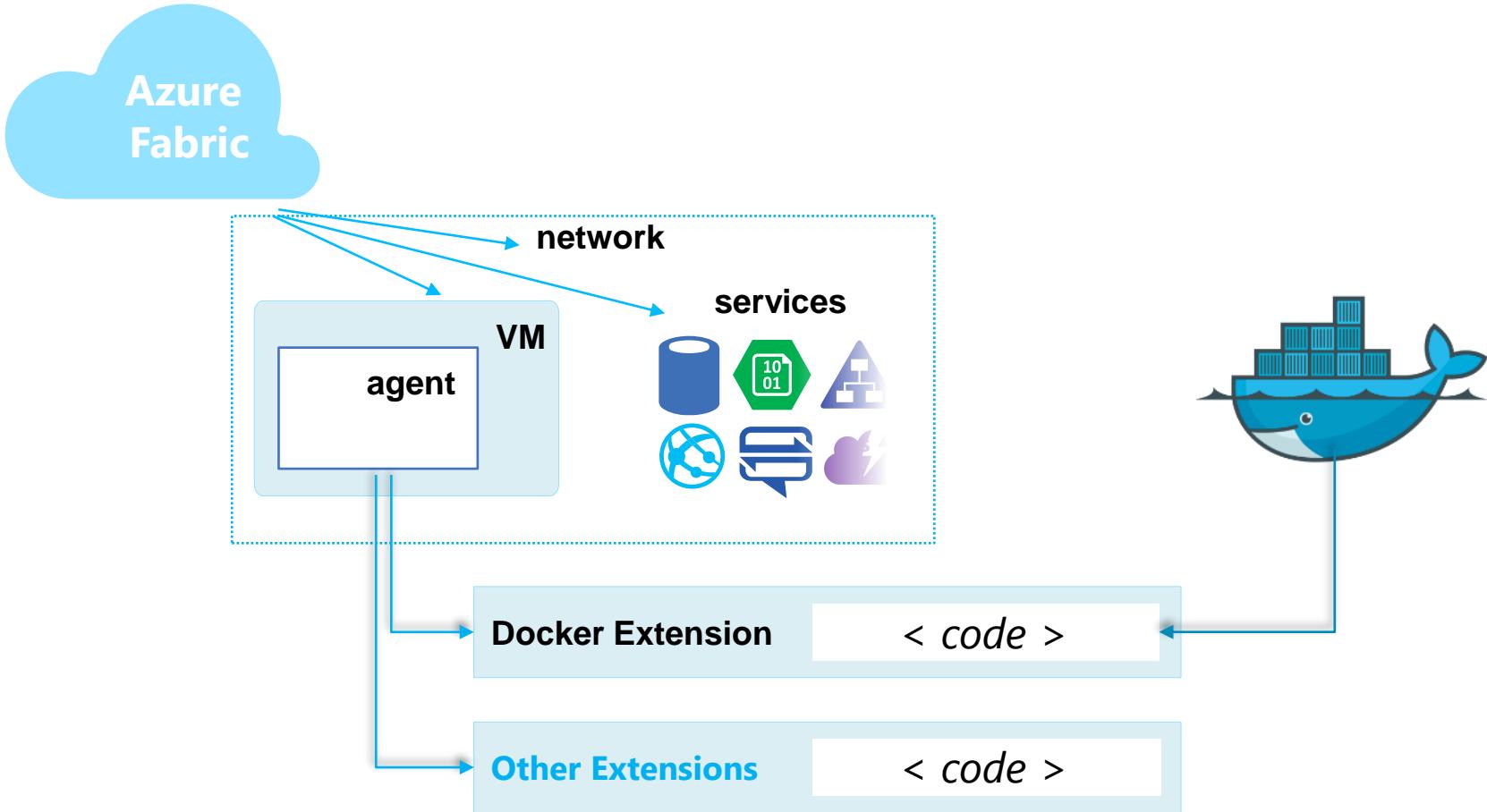
Microsoft Azure

# Azure CLI

The Azure Cross-Platform Command-Line Interface (xplat-cli) provides a set of open source, cross-platform commands for working with the Azure Platform



# Docker Extensions



# Docker enabled VMs



**Docker on Ubuntu Server**  
By Canonical + MS Open Tech

Docker is an open platform for developers and sysadmins to build, ship, and run distributed applications, whether on laptops, data center VMs, or the cloud.

[Create](#)

# Going forward: Orchestration

# Docker Machine



- It's a tool that make really easy to create Docker hosts on your computer, on cloud providers and inside your own data center.
- It creates servers, installs Docker on them, then configures the Docker client to talk to them.

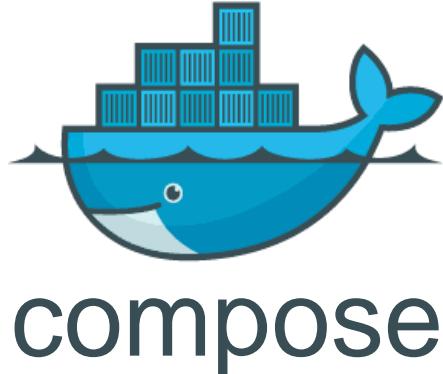
Microsoft Azure



SOFTLAYER<sup>®</sup>



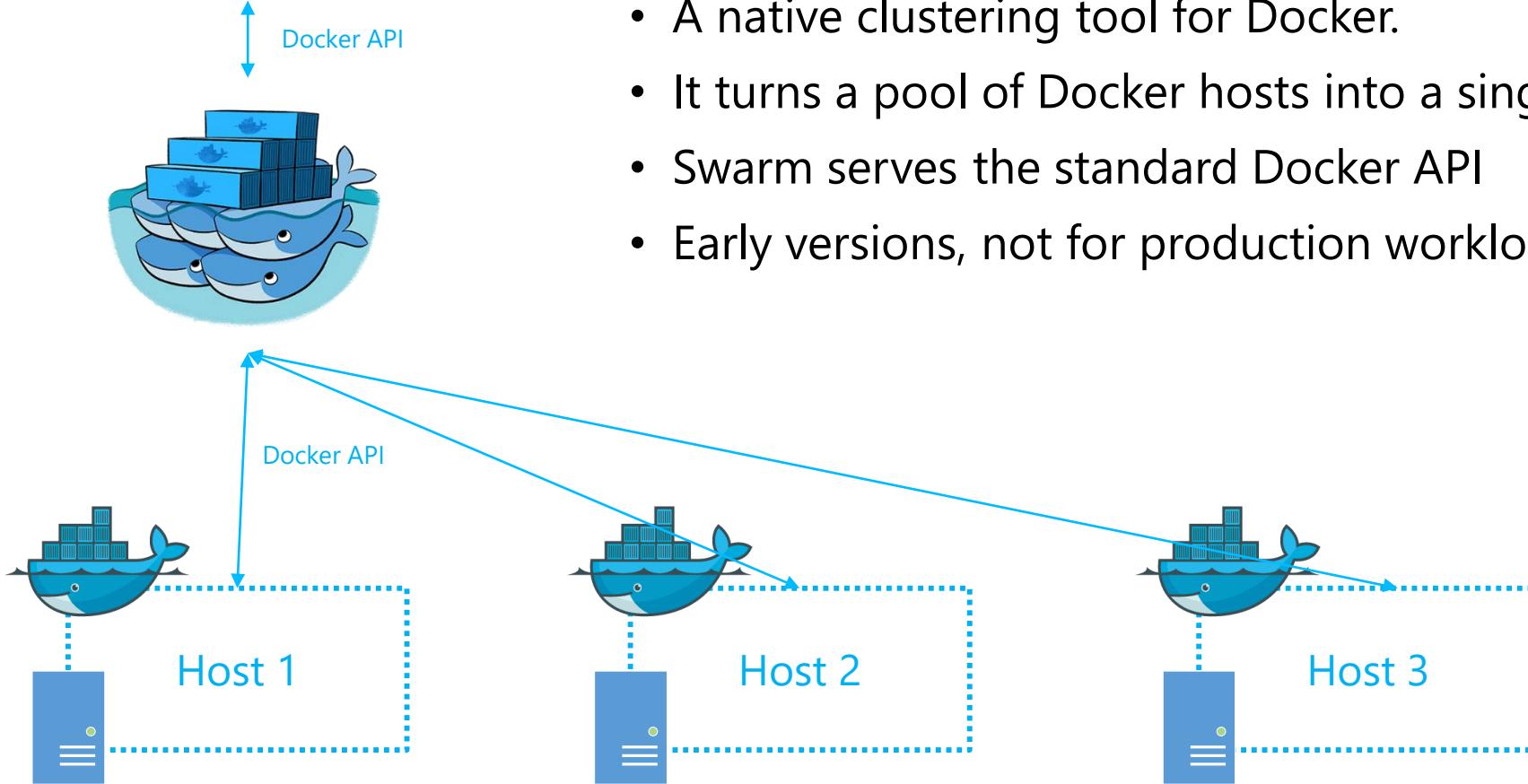
# Docker Compose



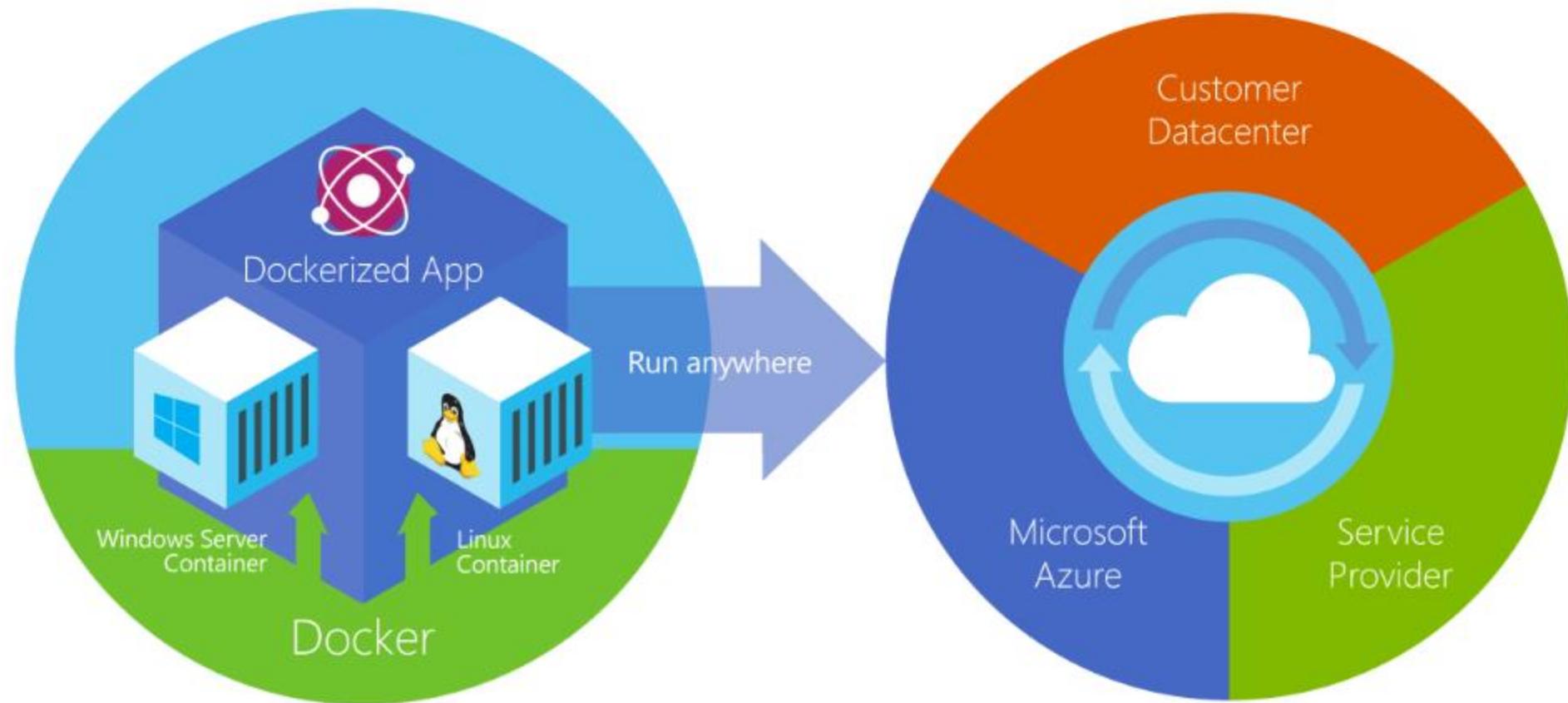
```
web:  
build: .  
links:  
- db  
ports:  
- "8000:8000"  
db:  
image: postgres
```

- A tool for defining and running complex applications with Docker.
- Using Compose is a three-step process.
  - 1 You define your app's environment in a Dockerfile.
  - 2 You define the services that make up your app in docker-compose.yml
  - 3 You run docker-compose up and it will start and run your entire app.
- Compose is great for development environments, staging servers, and CI. It's not recommended that you use it in production yet.

# Docker Swarm



# Any App , Any OS , Any Cloud



# Learn More : Docker

- All Videos and Talks from DockerCon: <http://bit.ly/1AnvHFz>
- Demo of DockerHub: see Ben Golub keynote from DockerCon, <http://bit.ly/1xHqUL8> demo starts at 29:00
- Sign up for a DockerHub account: <https://hub.docker.com/>
- Security & Isolation: see above, also [blog.docker.io](http://blog.docker.io)
- Use Cases: <https://docker.com/resources/usecases/>
- Docker project: [www.docker.com/](http://www.docker.com/)
- Follow Docker on Twitter: [twitter.com/docker](http://twitter.com/docker)
- Take the Docker interactive tutorial: <https://docker.com/tryit/>
- Join Docker on IRC: [botbot.me/freenode/docker/](http://botbot.me/freenode/docker/)
- Go to the Docker repository on GitHub: [github.com/docker/docker/](http://github.com/docker/docker/)
- Go to a meetup: <https://www.docker.com/community/meetups/>

# Learn More : Microsoft and Docker

<http://news.microsoft.com/2014/10/15/DockerPR/>

<https://blog.docker.com/2014/10/docker-microsoft-partner-distributed-applications/>

<http://azure.microsoft.com/blog/2014/10/15/new-windows-server-containers-and-azure-support-for-docker/>

<http://msopentech.com/blog/2014/10/15/docker-containers-coming-microsoft-linux-server-near/>

<http://weblogs.asp.net/scottgu/docker-and-microsoft-integrating-docker-with-windows-server-and-microsoft-azure>

<http://azure.microsoft.com/blog/2014/11/18/docker-cli-for-windows-clients/#http://azure.microsoft.com/blog/2014/11/18/docker-cli-for-windows-clients/>

: Extentions CLI pour Docker

<http://azure.microsoft.com/blog/2014/11/11/deploying-your-own-private-docker-registry-on-azure/>



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