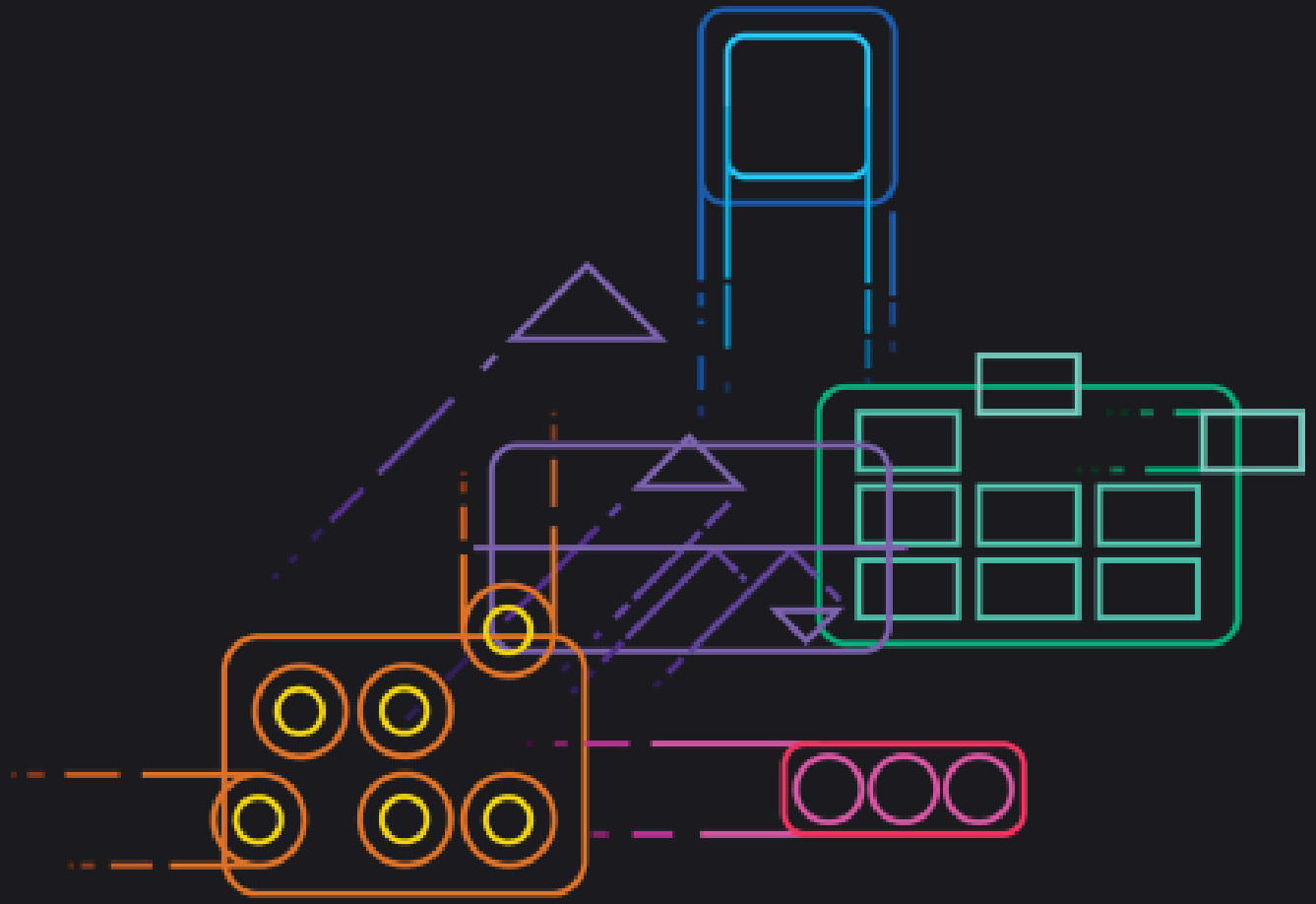
Microsoft

Introducing Azure Cloud & Azure DevOps Server

(Formerly Team Foundation Server / TFS)

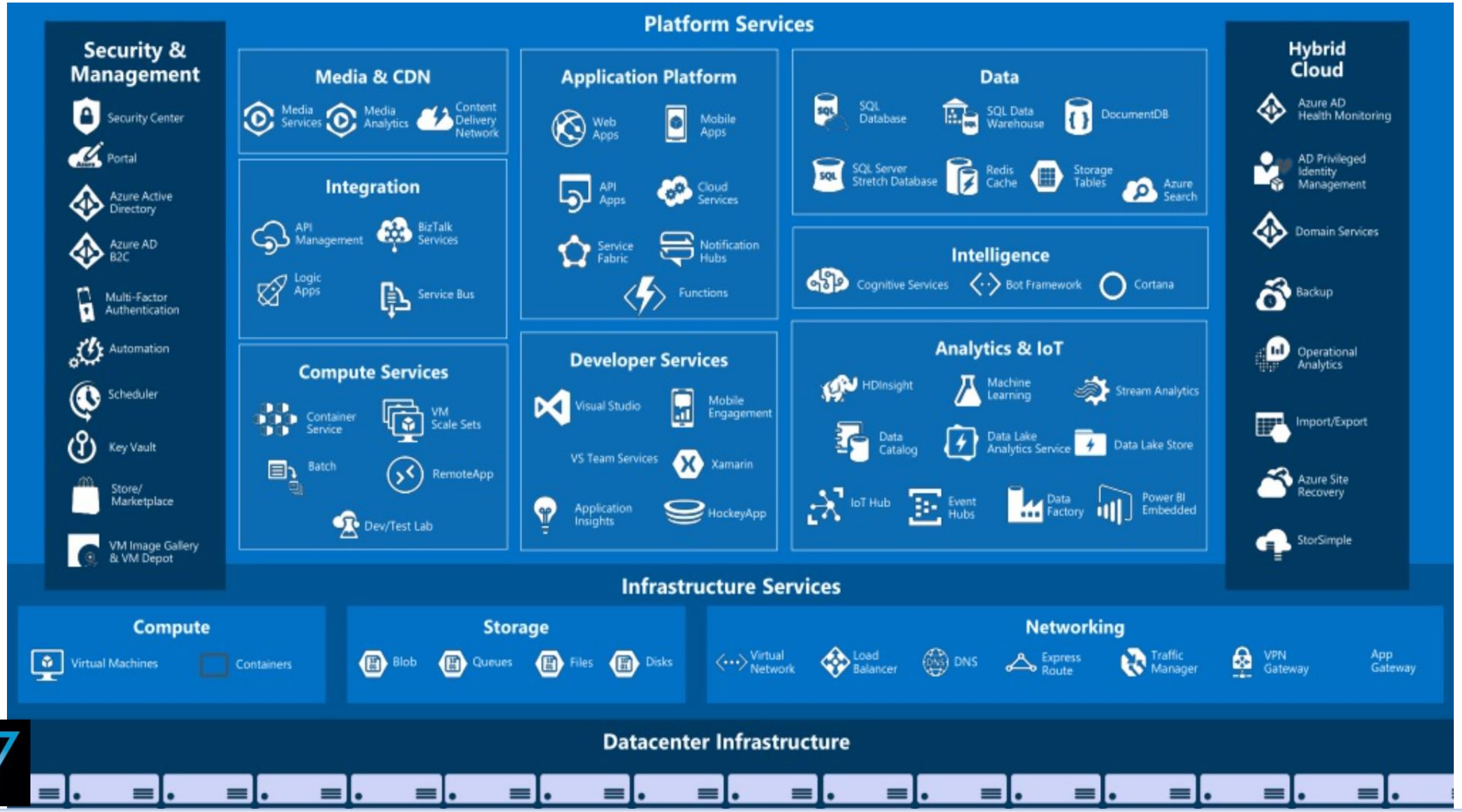
- VIKRANTH SUNKARPALLY



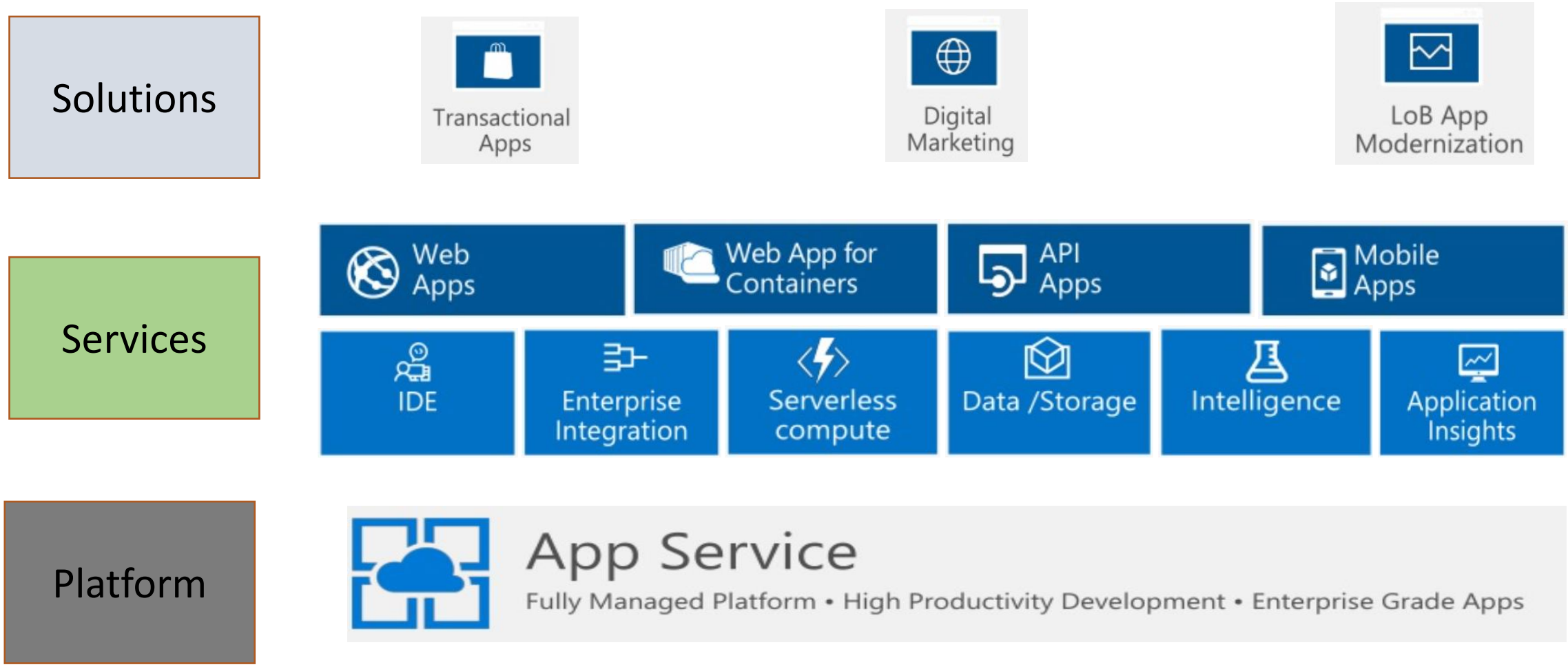
Module 04

Azure App and Container services

Azure App Services

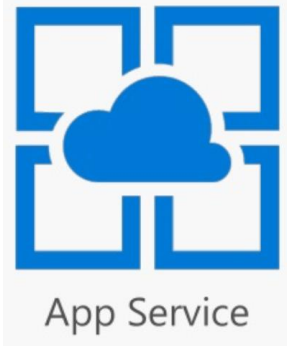


Industry – Leading Application PaaS Platform



App Service

Web Apps



Mobile Apps

Functions

API Apps

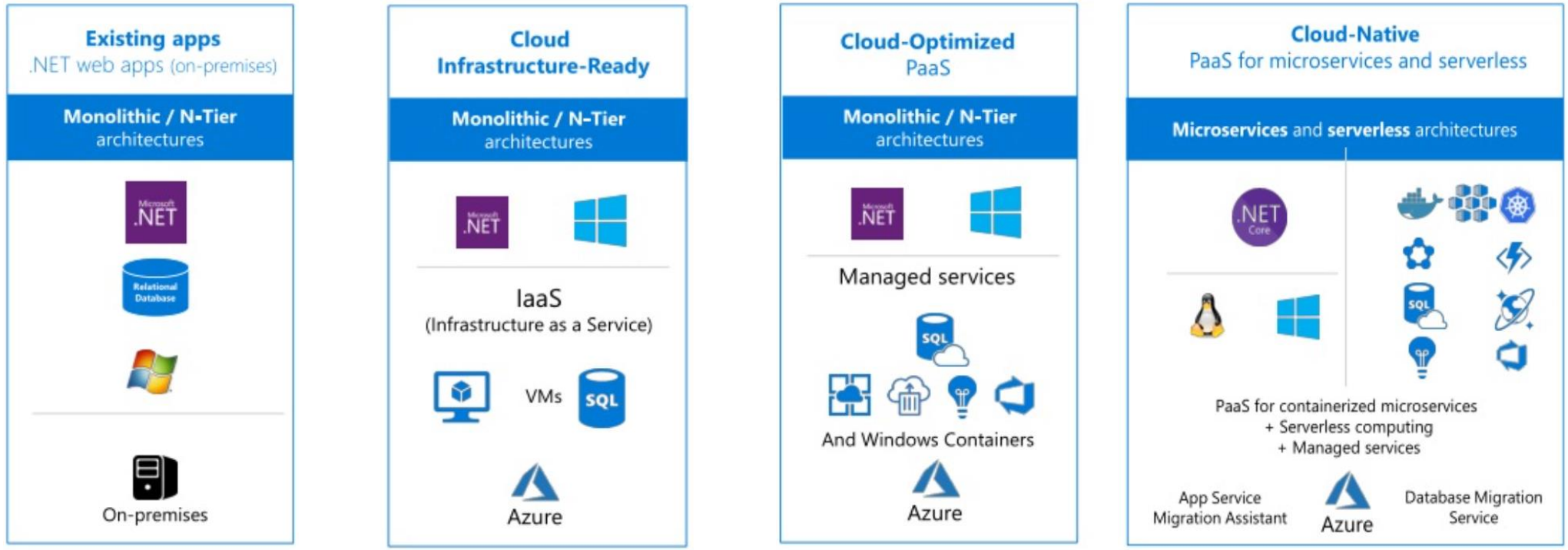
WEB APPS

Web Apps run as a PaaS no changes are required

Full capability set available including:

- ✓ .Net,Node.js,Java,PHP and Python
- ✓ Webjobs for long running taks
- ✓ Integrated VS publish,remote debug
- ✓ CI with GitHub
- ✓ Auto load balancer and Auto Scale Sets

Maturity model for .NET application modernization



Base Cloud Environment and cross-cutting concerns: Network, Hybrid-cloud, Identity/Auth, Cost control and Operations model

Migrate/Rehost → Modernize

Minimal code Changes → Architected for the cloud, new code

App Service Differentiation

Benefits of App Service for .Net Developers

High productivity

- **Live production debugging with Visual Studio Snapshot Debugger**
- **App telemetry, anomaly detection, and site diagnostics with App Insights**
- **Site staging slots**
- **Automatic OS and framework patching**
- Continuous integration/deployment with Git, Visual Studio, Docker Hub, and GitHub
- Site extensions support & gallery
- Auto-healing
- Logging and auditing
- Admin-site

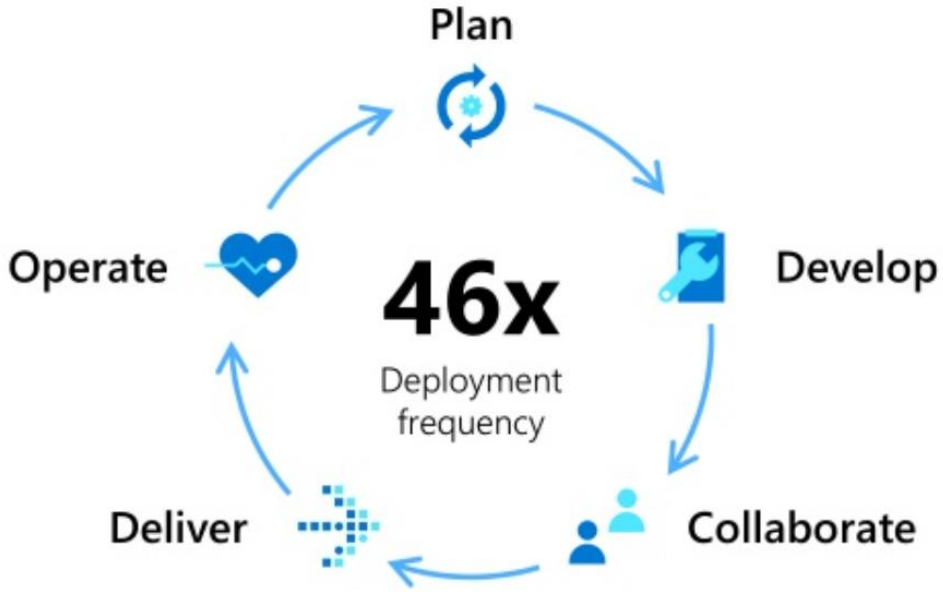
Fully managed

- Automated deployment
- AutoScale
- Built-in load balancing
- WW datacenter coverage
- End point monitoring and alerts
- App gallery
- DR site support
- WildCard support
- Dedicated IP address
- HTTP compression
- CDN support for websites
- App Services Environments

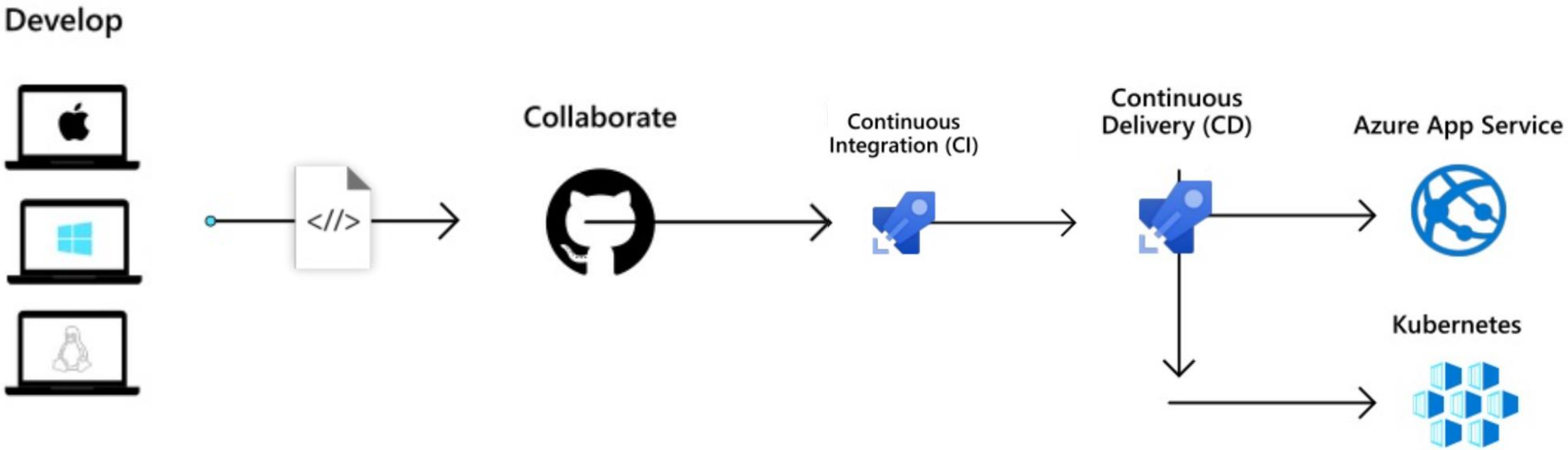
Enterprise grade

- Hybrid connections/VPN support
- Scheduled backup
- Azure Active Directory Integration
- Site resiliency, HA, and DR
- Web jobs
- Role base access control
- Audit/compliance
- Enterprise migration
- Client certs
- Cache
- IP restrictions/SSL
- Web sockets
- SQL, MySQL, CosmosDB
- Sticky sessions
- Authorization/authentication

DevOps is a catalyst for successful cloud transition



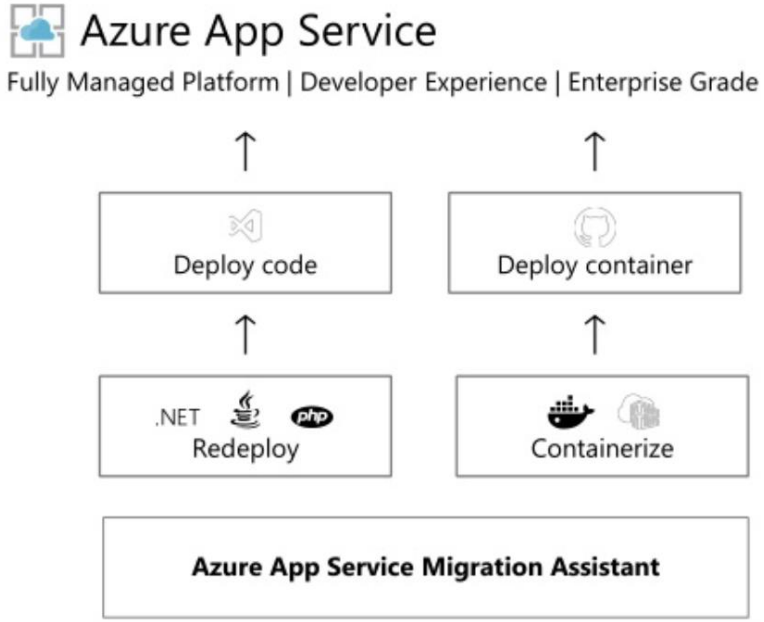
GitHub + Azure DevOps



Flexible Migration Options for Azure App Service

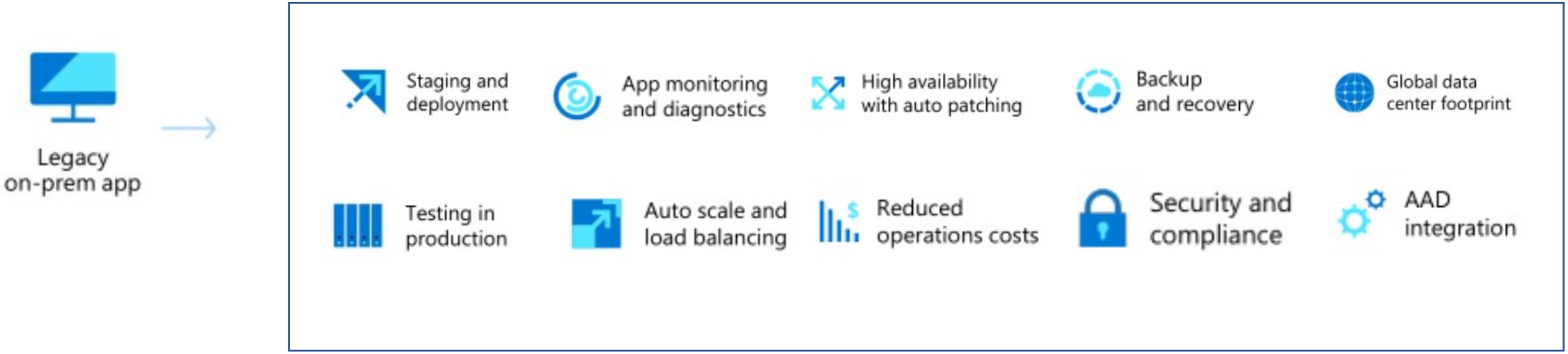
Multiple ways to move your app to Azure App Service :

- Use the Azure App Service Migration Assistant
- Redeploy code via your CI/CD Pipeline
- Containerize your Web App



Evolve By Migrating

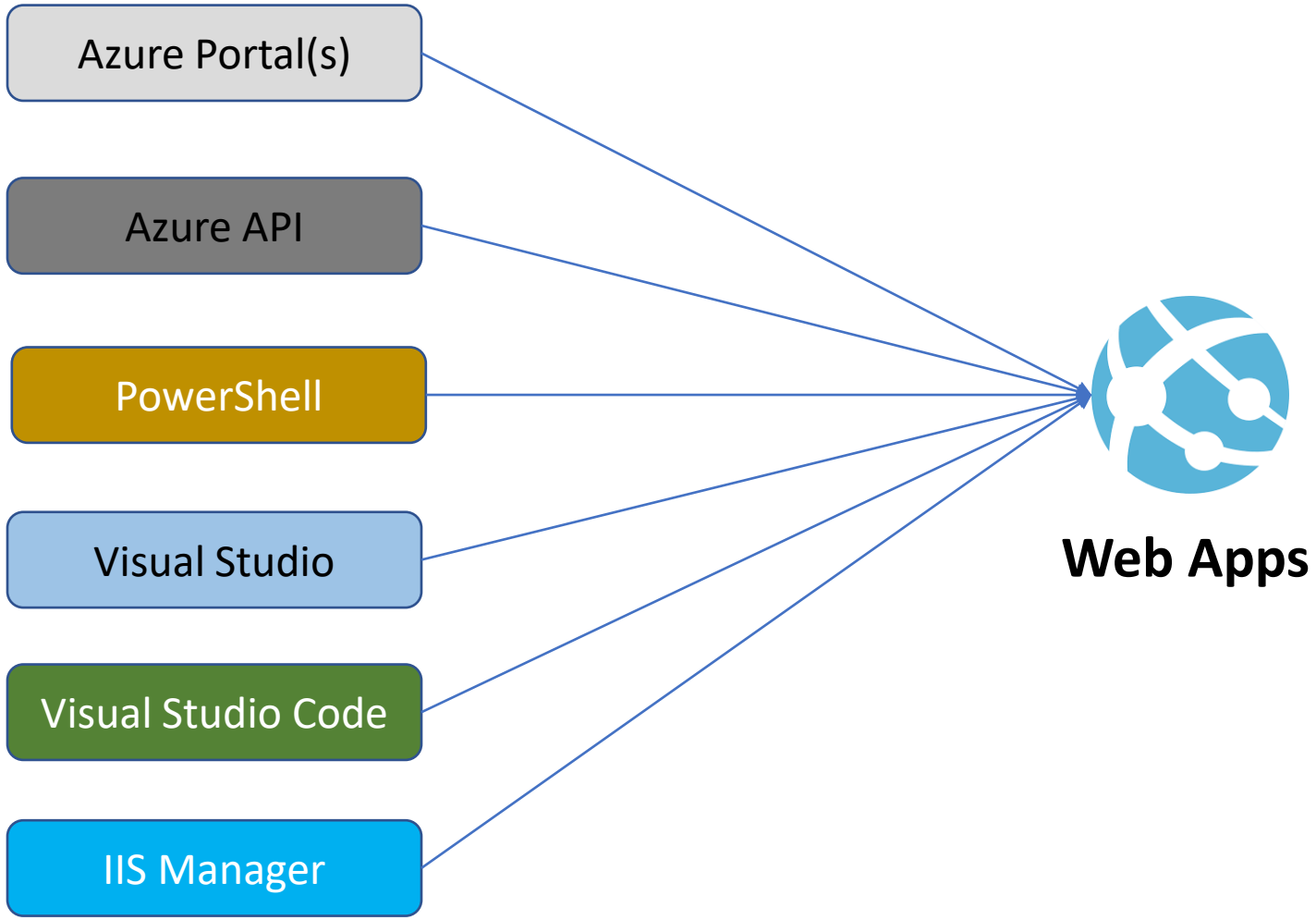
Migrated apps enjoy all the management and integration benefits of the Azure App Service Platform



Data Hosting Options

On prem	In the cloud	
SQL Server OnPrem	**SQL Server on Azure VM's (IaaS)**	**Azure SQL Managed Instance (PaaS)***
▯ No Migration or changes ▯ Hybrid Scenarios	▯ Fast migration with minimal changes ▯ Eliminates hardware costs	▯ Built-in HA, Scaling, Upgrades ▯ VNET support for private IP address ▯ Eliminates hardware & administrative costs
× Setup VPN or Express Route for mission control workloads × Network Latency	x Not all apps are eligible x May require some code refactoring **Azure Database Migration Service**	**Azure Database Migration Service**

Many Ways to manage an Azure **Web Apps**



Develop/Deploy
Pull & Push

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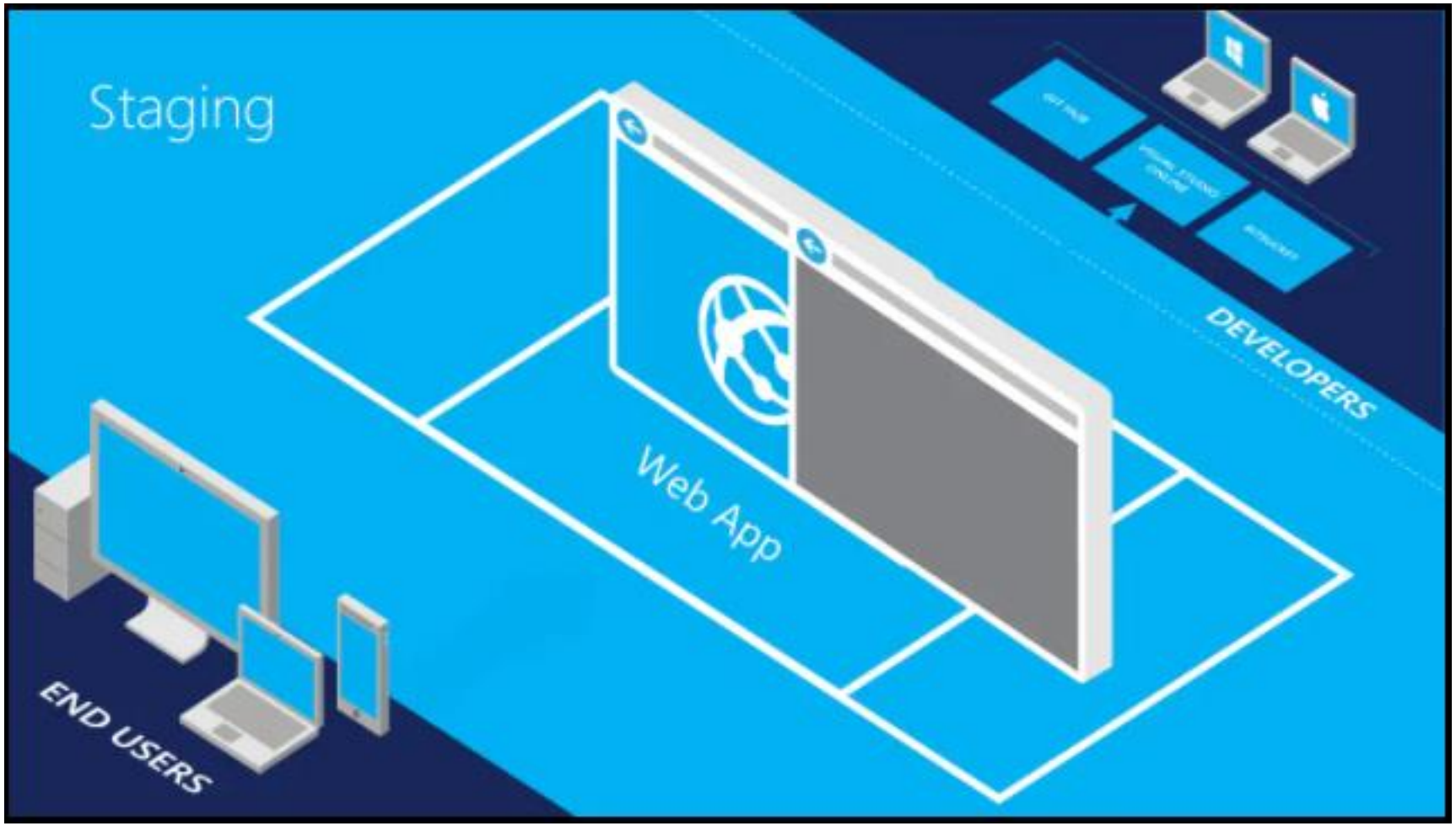
Deployment Slots

Deployment Slots



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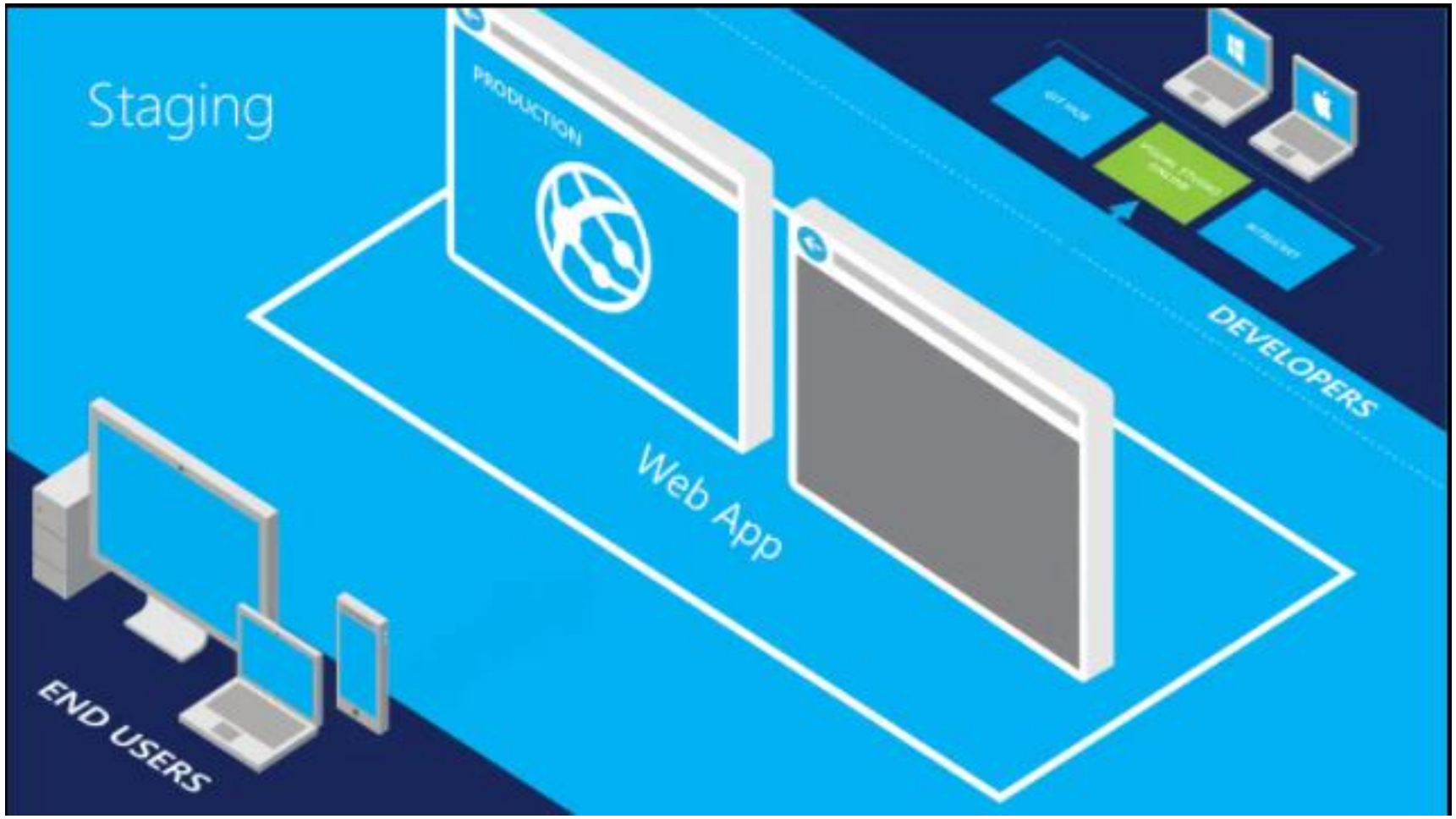


Deployment Slots

Agenda

- Introduction to Containers
- Containers vs VMs
- Container Advantages
- Scaling and Orchestration

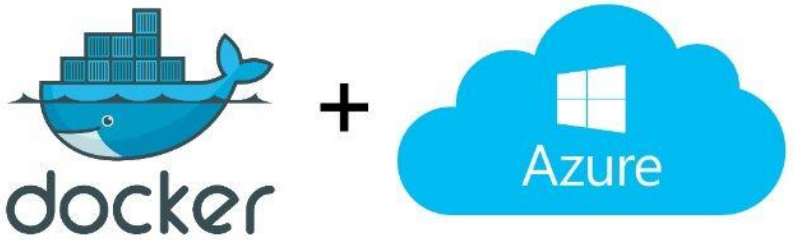
➢ Introduction to Containers

Containers are a solution to the problem of how to get software to run reliably when moved from one computing environment to another.

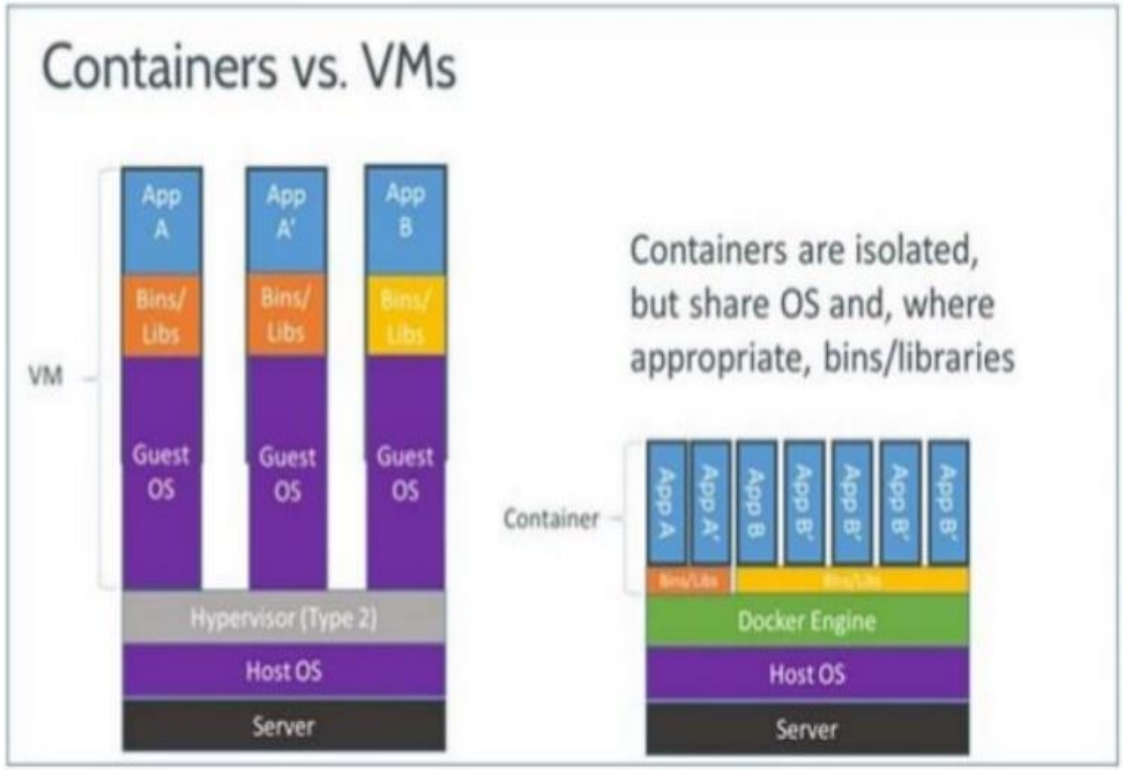
Put simply, a container consists of an entire runtime environment: an application, plus all its dependencies, libraries and other binaries, and configuration files needed to run it, bundled into one package.

What is Docker

- Open-Source Project written in Go
- Released in March 2013
- Provides the Docker Container – Repeatable, Runtime, Sandboxing and Storage
- Linux and Windows CLI tools for developers
- Local and Remote REST API for further integrations



Containers VS Virtual Machines



Pack many more containers on a host machine than you can virtual machines

Each VM is a self-contained system in its own right, with its own operating system and virtualized hardware and its own unique resources.

...result is significantly faster deployment, much less overhead, easier migration, faster restart

Containers Advantages

Lightweight

Containers running on a single machine all share the same operating system kernel so they start instantly and make more efficient use of RAM.

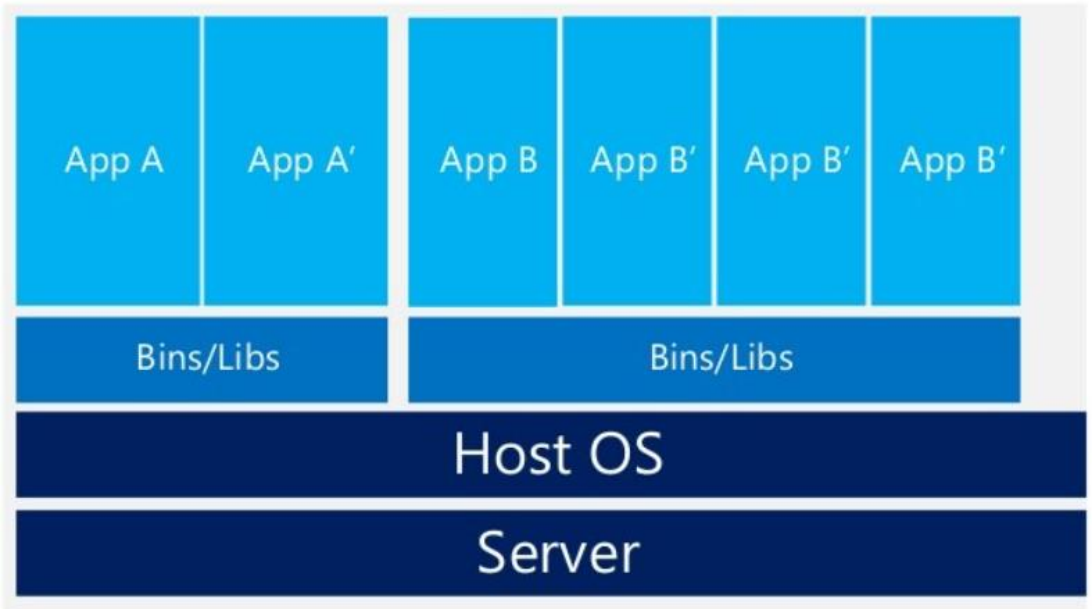
Open

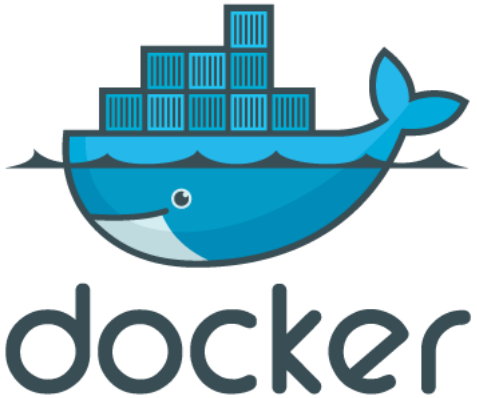
Docker containers are based on open standards allowing containers to run on all major Linux distributions and Microsoft OS with support for every infrastructure.

Secure

Containers isolate applications from each other and the underlying infrastructure while providing an added layer of protection for the application.

Scaling Containers





Orchestration

Docker Swarm

Manages and organizes Docker containers across multiple hosts via the same API used by a single Docker host

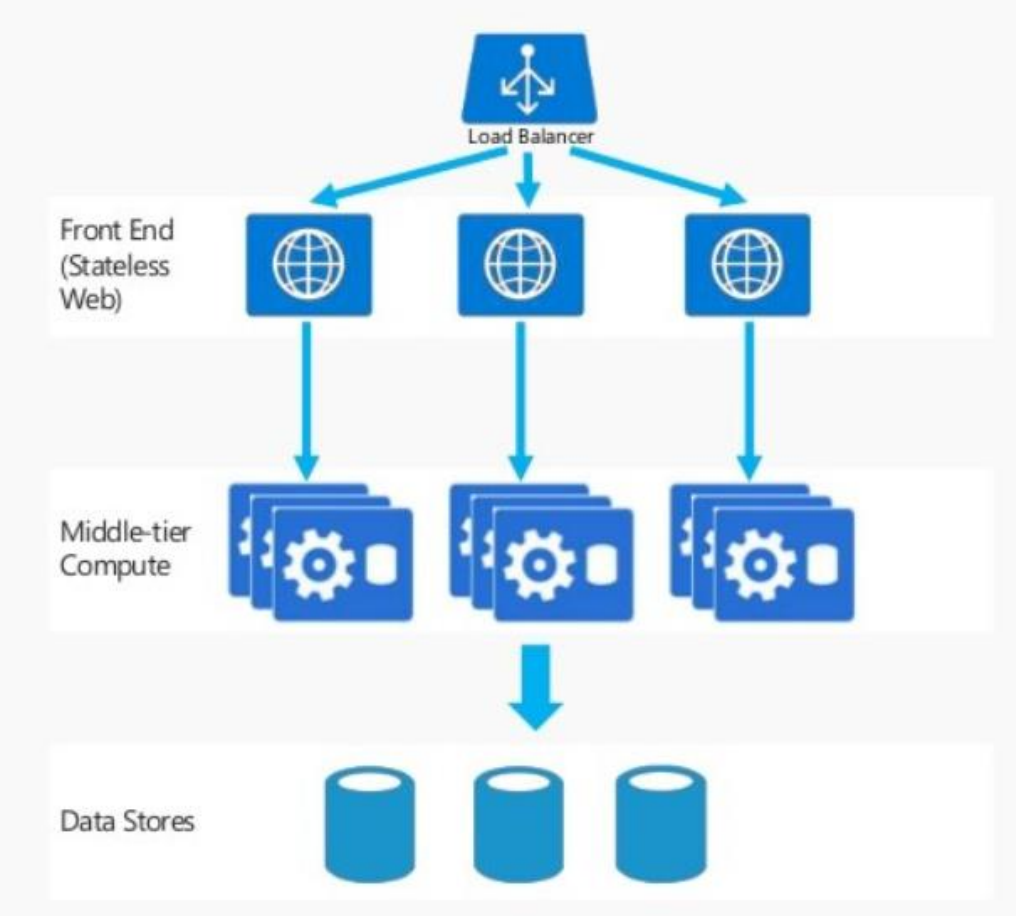
Docker Compose

Enables the definition of simple multi-container applications

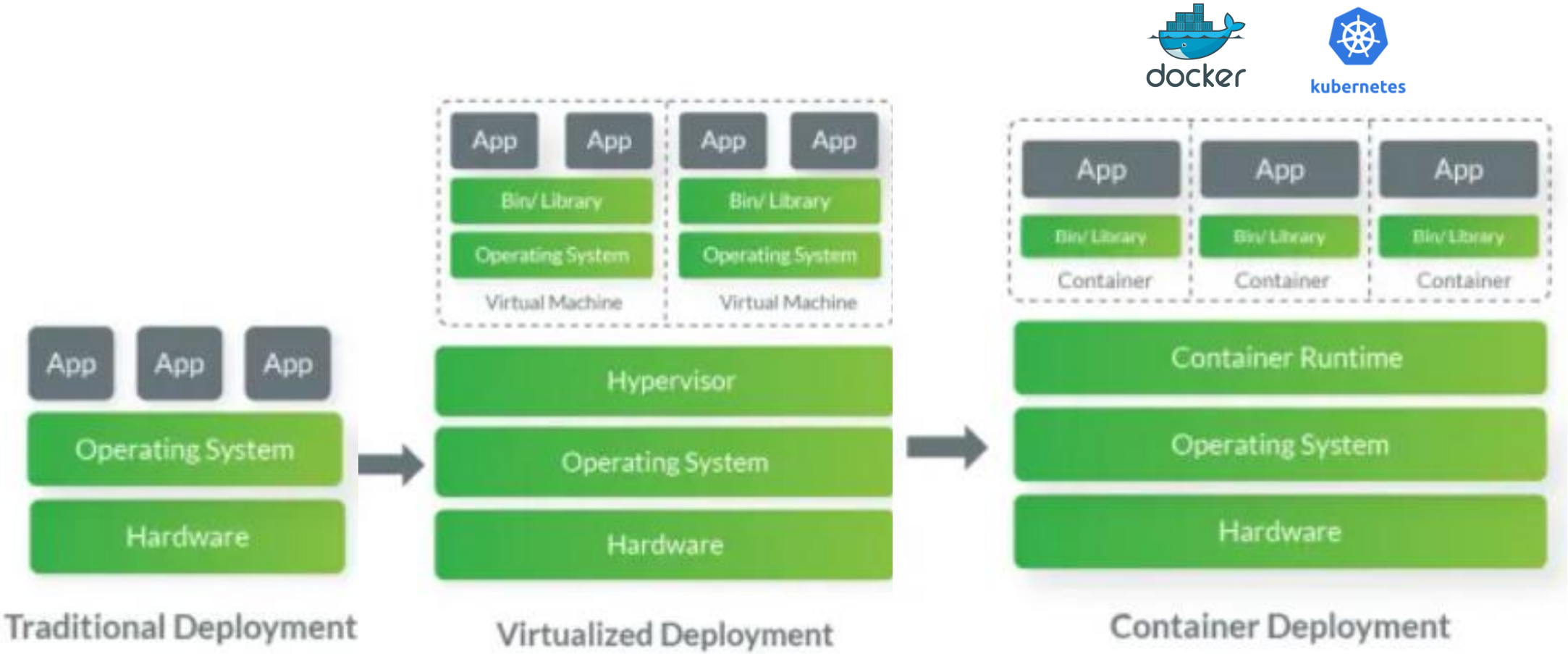
Kubernetes

Open-source solution built by Google offering container grouping into "Pods" for management across multiple hosts, also supported on Azure

Applications are bunch of services

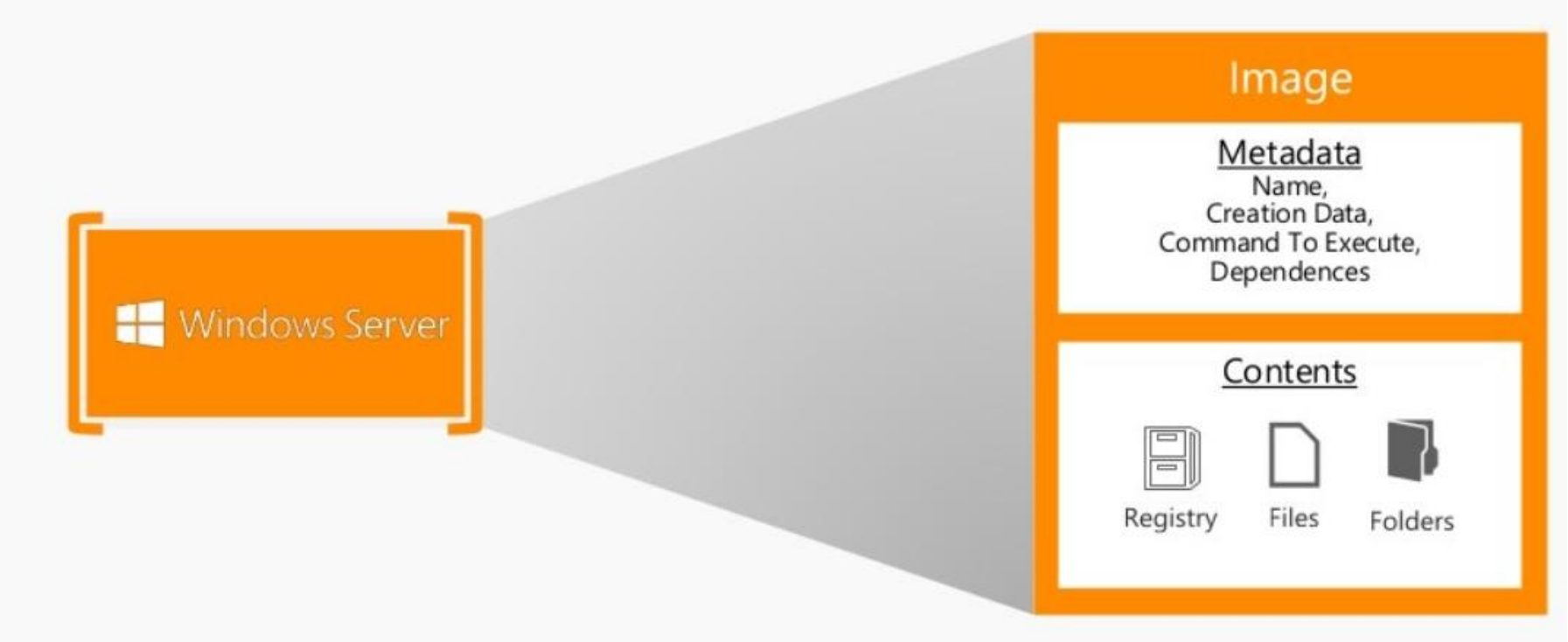


Different Types of Orchestration



Container Image

Analogous to a VHD and config file to a virtual machine Created by running a container and capturing changes includes files and registry



Container Images

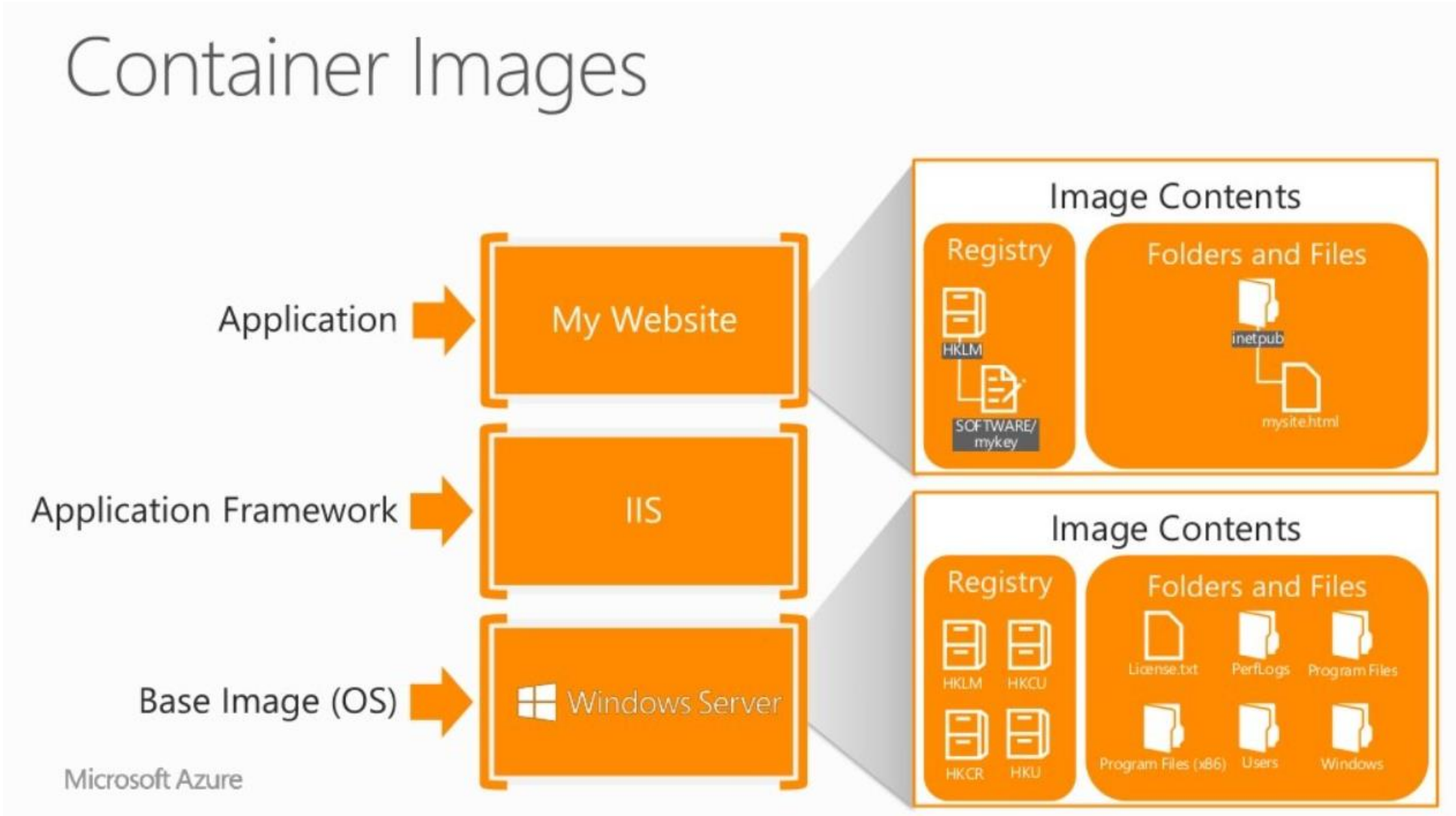
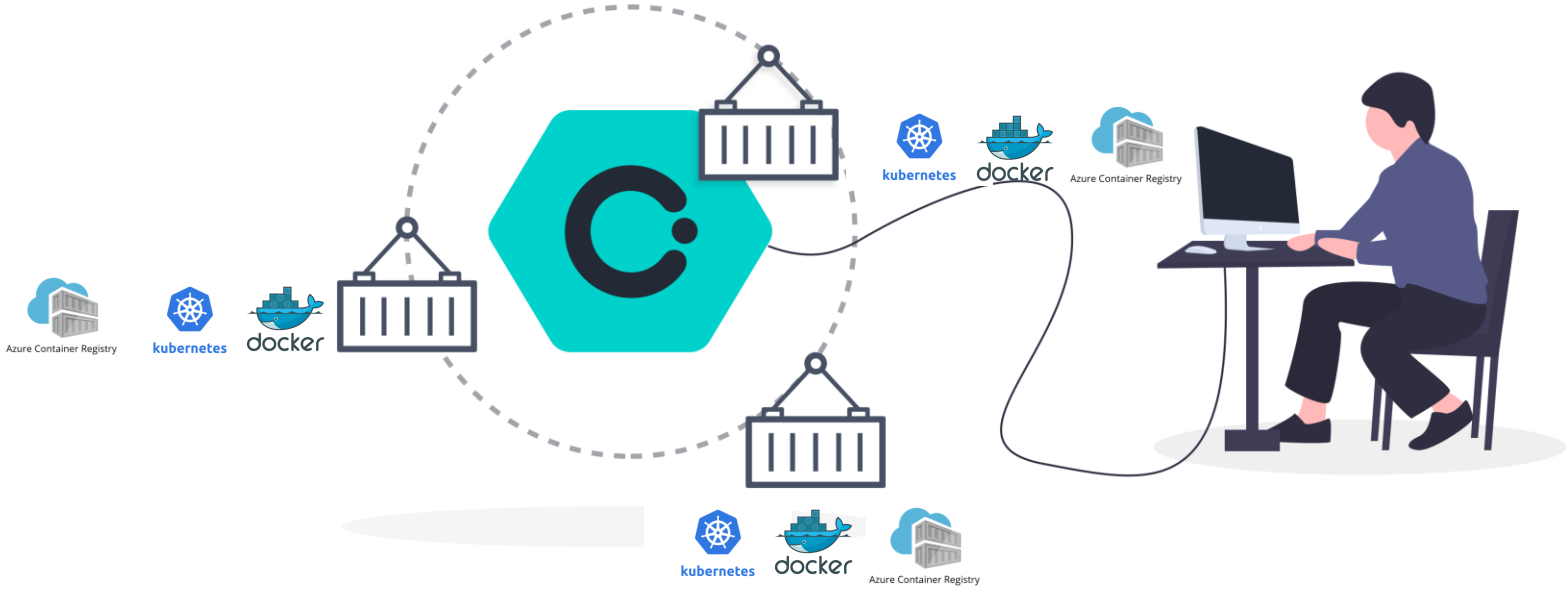


Image Registries

- Images are Pushed into a registry
- Images are Pulled from a registry
- Images are Searched for within a registry




THANK YOU