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Deploying to Azure Container Services(ACS)

Marcel de Vries

Overview

Understanding Azure ACS

Creating and Configuring a Cluster

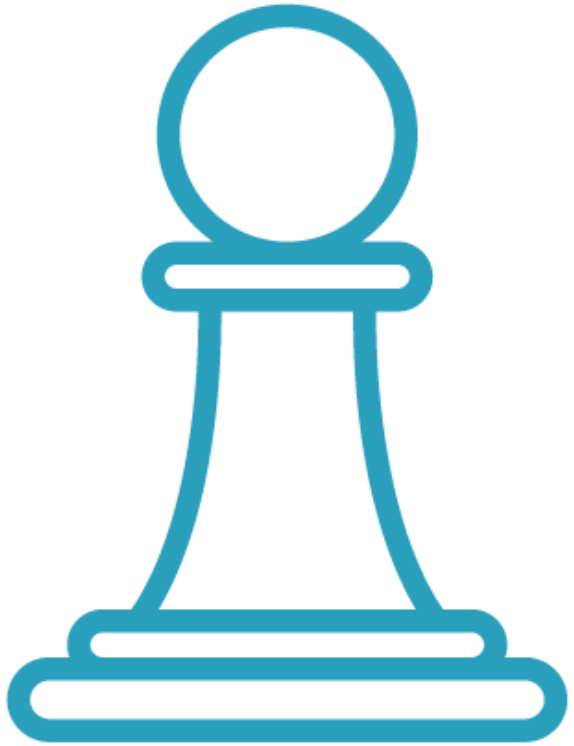
Deploying Your App to The Cluster by Hand

Deploying Your App to The Cluster Using VSTS

Setting up Continuous Delivery And Zero downtime Deployments

Alternative Cluster Solutions

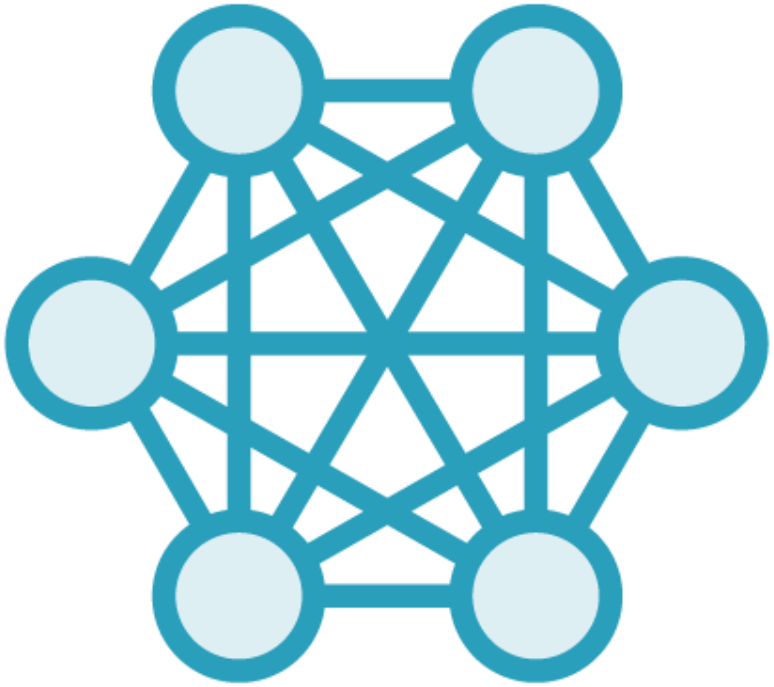
Why Do We Need Clusters?



- Scalability
- Fault Tolerance
- Automatic recovery
- Zero downtime deployments
- Resource management cross machines
- Container composition

Understanding Azure ACS

What is ACS



Azure Container Service

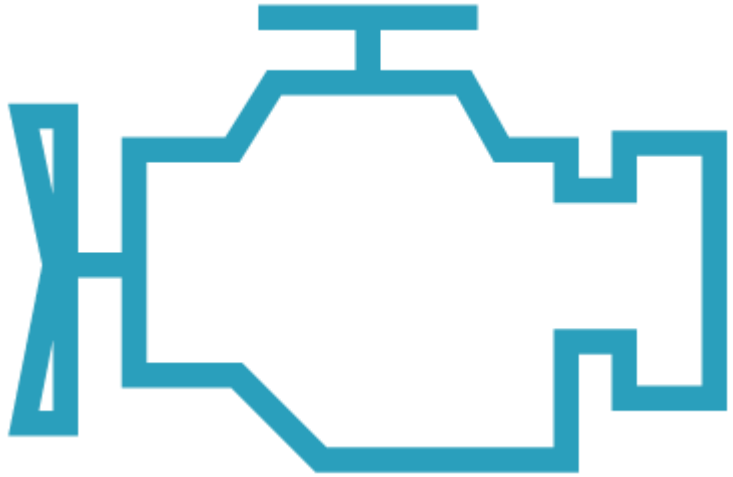
Infra Structure as a Service (IaaS)

Uses Virtual Machine Scale Sets

You can pick your cluster orchestrator
Swarm, DC/OS, Kubernetes

Creating and Configuring a Cluster

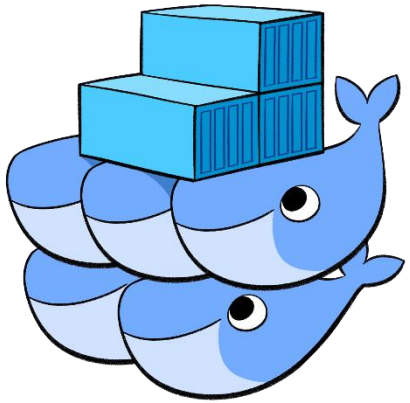
Creating an ACS Cluster



Using ACS Engine

Using Portal

Selecting your Cluster Orchestrator



Implementation by Docker

Use Docker as tool

Multiple tools to manage the cluster

Open Source

Also Runs on Amazon

Created by Google

Open Source

Also Runs on Google Cloud Platform

Demo

Create an ACS cluster running Kubernetes

Deploying Your App to The Cluster by Hand

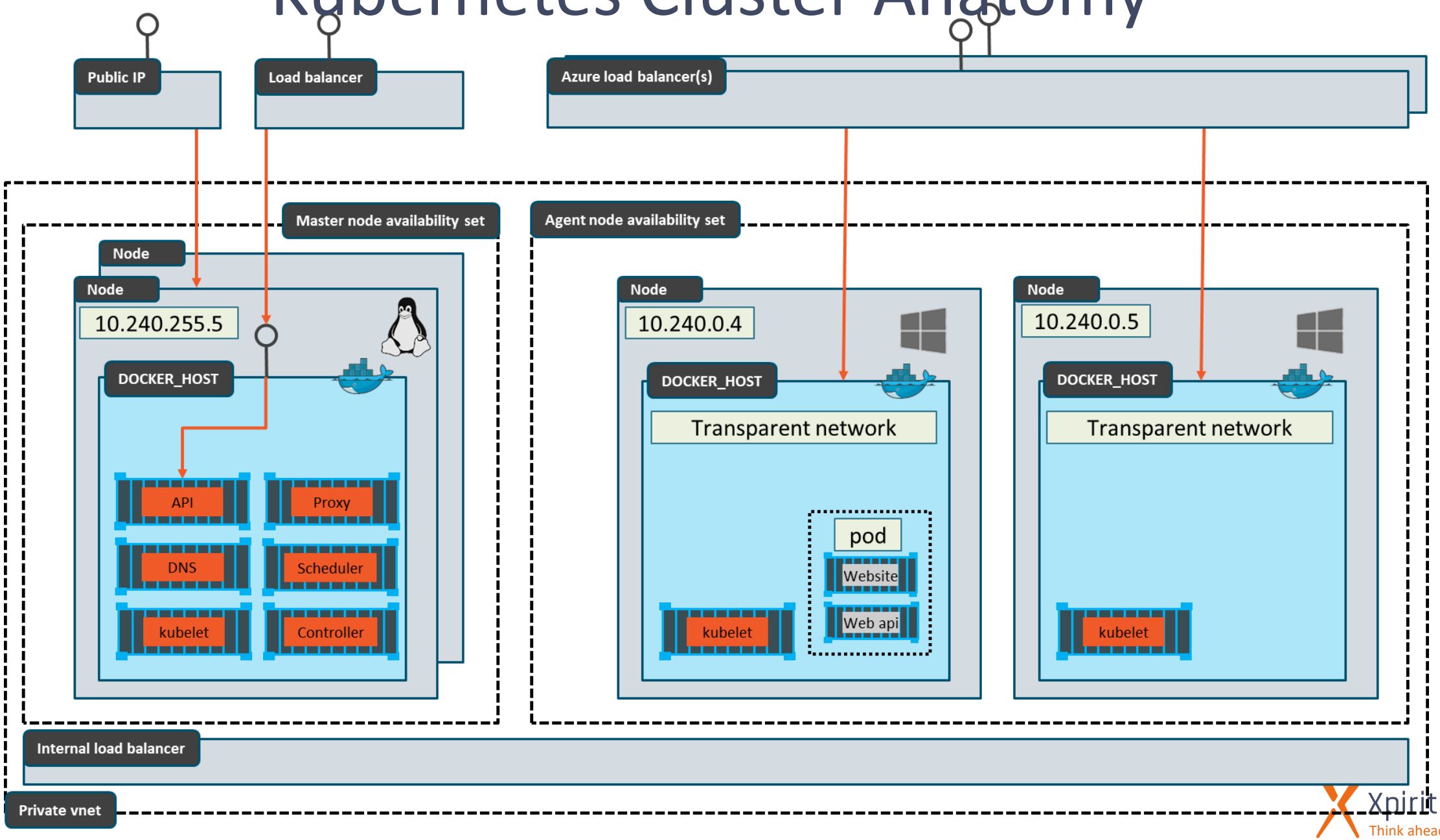
Deployment to a Cluster

Use the tooling that matches the cluster orchestrator

Containers are pushed to a registry
Ensure this is near your cluster
E.g. in Azure use ACR

Make it repeatable, reliable and automated
Principles of Continuous Delivery

Kubernetes Cluster Anatomy



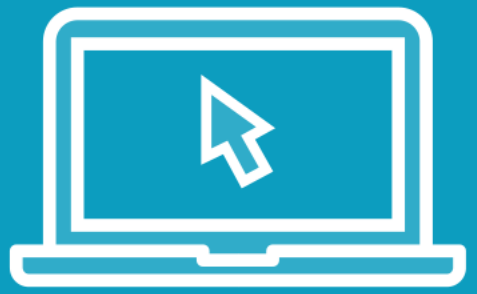
Deploy to Kubernetes

Use Azure CLI 2.0 to connect to the cluster

Use kubectl to issue Cluster operations

Use Docker to build Container

Demo



Deploy Containers to Kubernetes Cluster by hand

Deploying Your App to the Cluster Using VSTS

Leverage VSTS Release Management

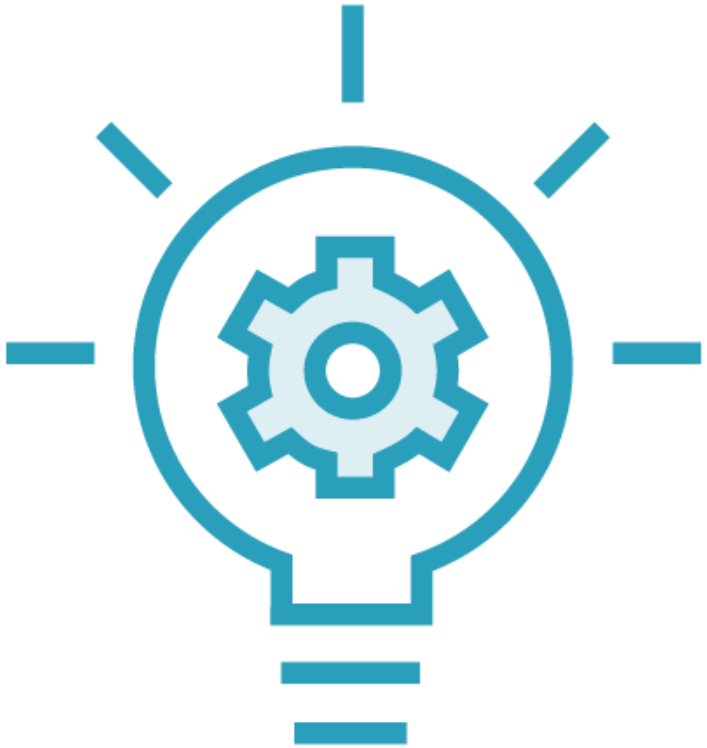
- Use simple container hosts during test & verification
- Use container cluster for Production Environment
- Use build in Tasks to abstract away cluster details
- Use command-line to do it your self

Demo

Deploy Containers to Kubernetes Cluster With VSTS

Setting up Continuous Delivery and Zero Downtime Deployments

Zero Downtime Deployment



Requires the following steps:

Spin up new containers of new version

Drain traffic to existing containers

Route traffic to new containers

Ensure we can keep handling load

Most clusters support this with a single command

Demo

Zero Downtime Deployment Using VSTS & ACS With Kubernetes

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Scaling Your Apps and the Cluster

Scaling Your App & the Cluster

Scaling your app means more container instances

Distributed on available nodes

Balanced by the cluster to optimize resource use

Scaling the cluster means adding new nodes to the cluster

Demo

Scaling Your App & The ACS Cluster

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Alternative Cluster Solutions

Alternative Solutions

Google Cloud Platform
Runs Kubernetes

Amazon EC2 Container Service
Runs DC/OS
Management nodes are PaaS

Microsoft Service Fabric
Cluster manager that is used to build Microsoft Azure solutions
E.g. SQL Database, Event hub, etc.

Docker Enterprise Edition

Summary

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