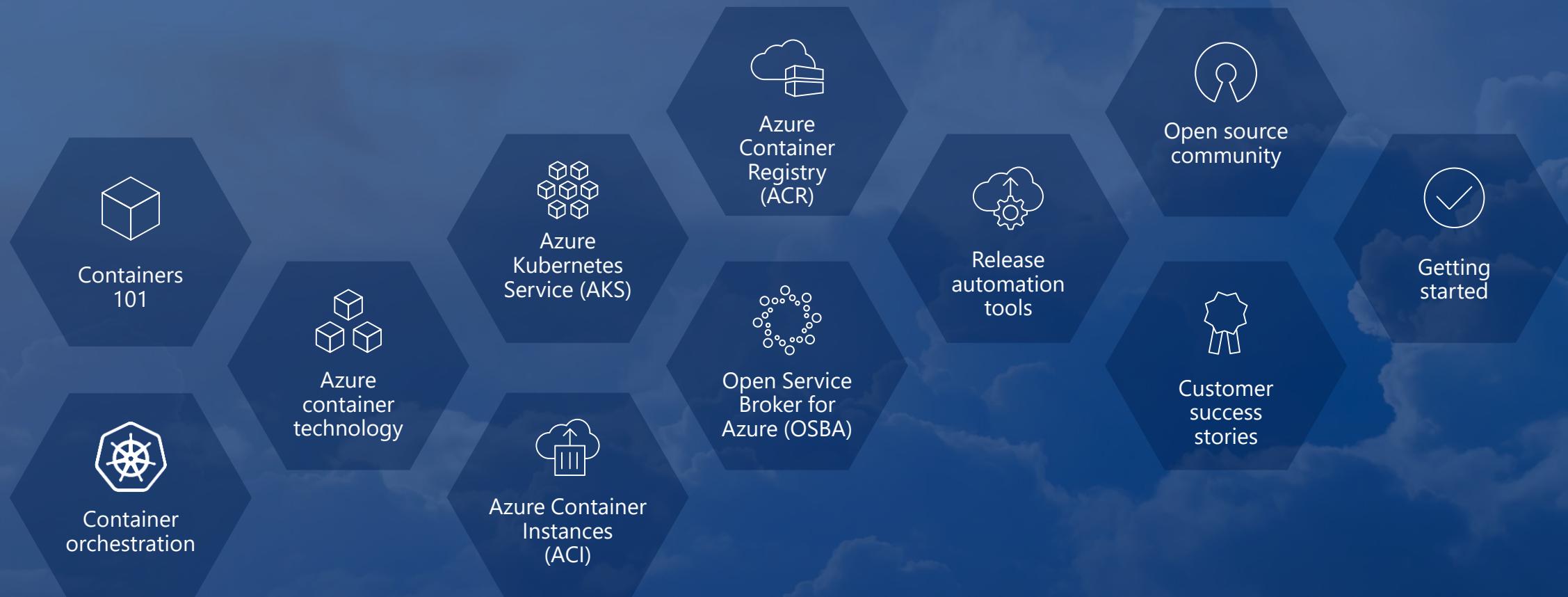




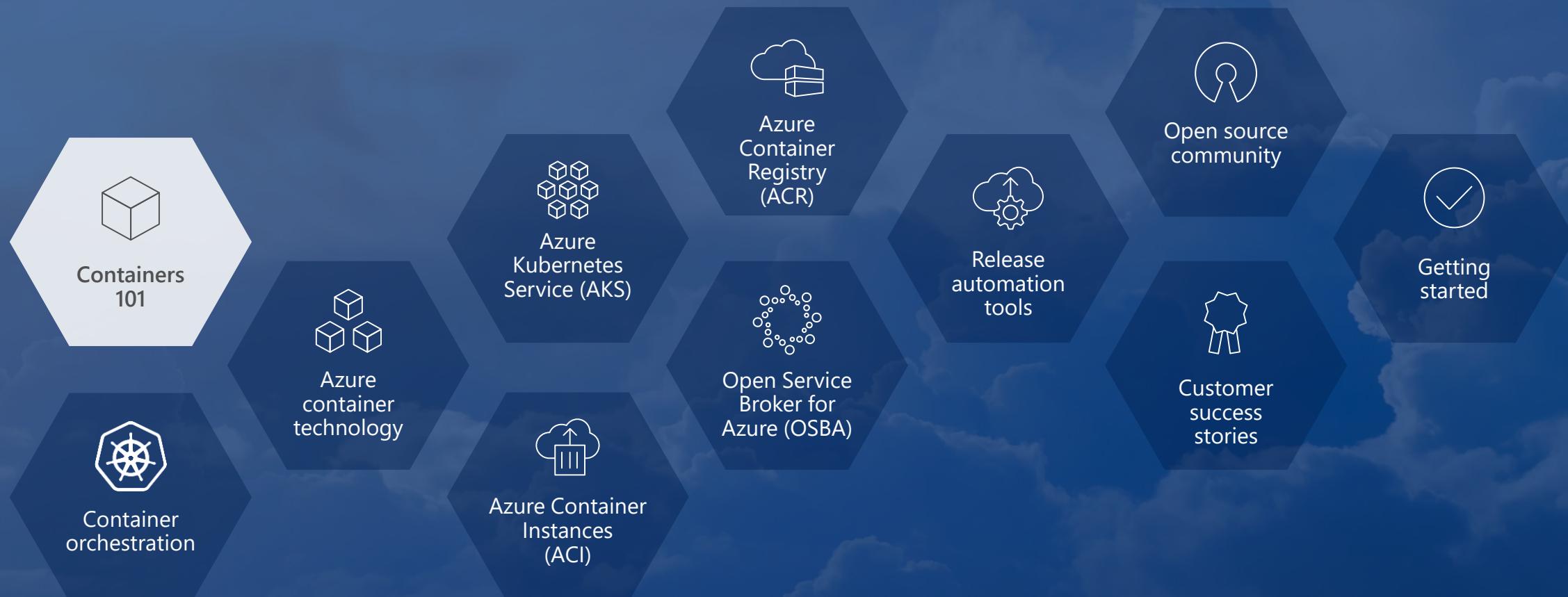
# Introducing Azure Kubernetes Service (AKS)

Mathieu Benoit – Cloud Solution Architect  
Canadian Partner Tech Talk Thursday - May 2018

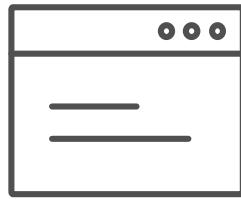
# Table of contents



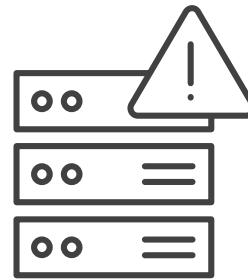
# Containers 101



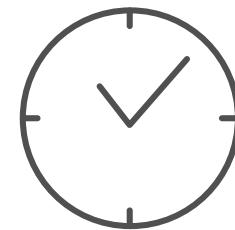
# What we hear from **developers**



I need to create applications at a competitive rate without worrying about IT



New applications run smoothly on my machine but malfunction on traditional IT servers



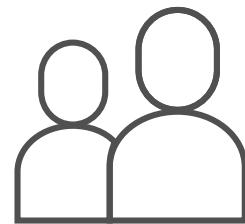
My productivity and application innovation become suspended when I have to wait on IT



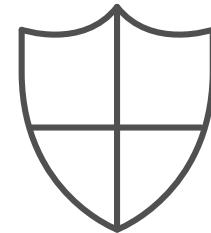
# What we hear from **IT**



I need to manage servers  
and maintain compliance  
with little disruption



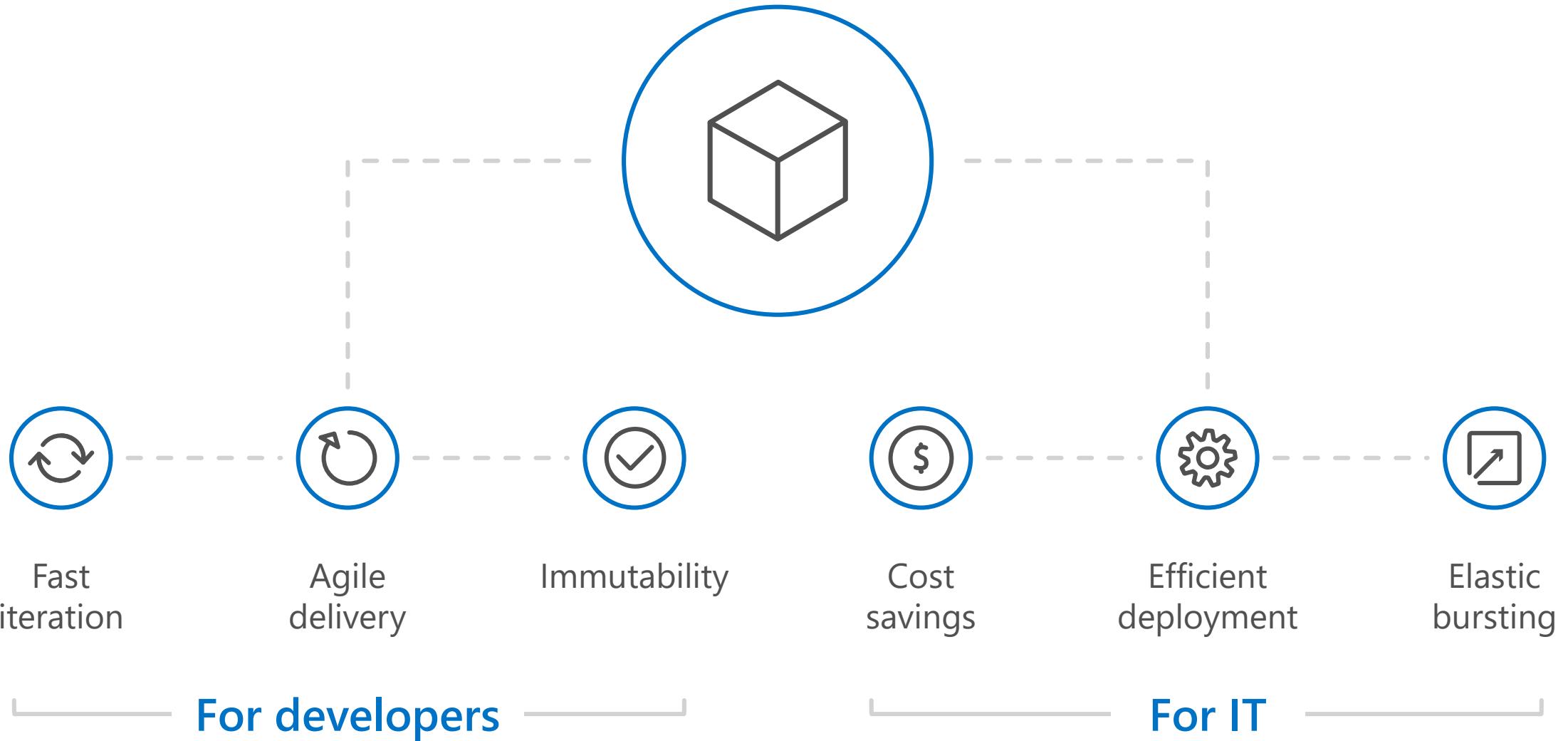
I'm unsure of how to integrate  
unfamiliar applications, and I  
require help from developers



I'm unable to focus on both  
server protection and  
application compliance

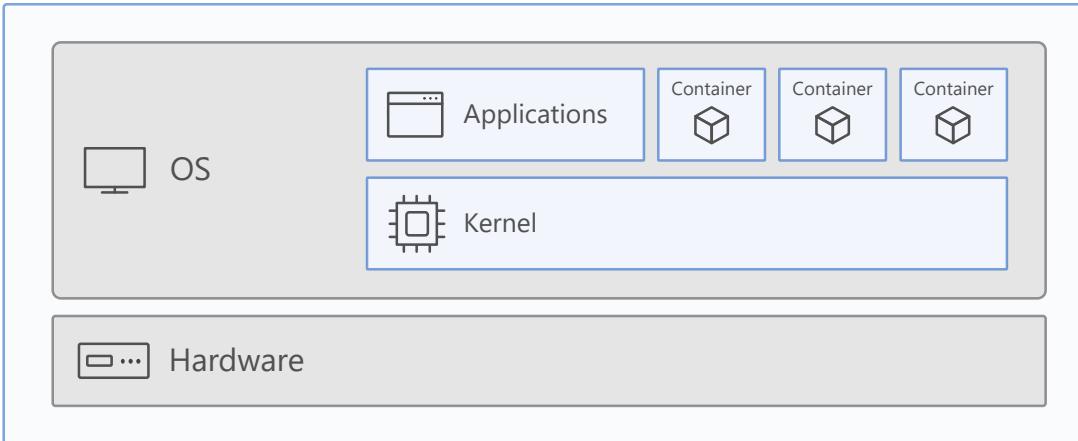


# The container **advantage**

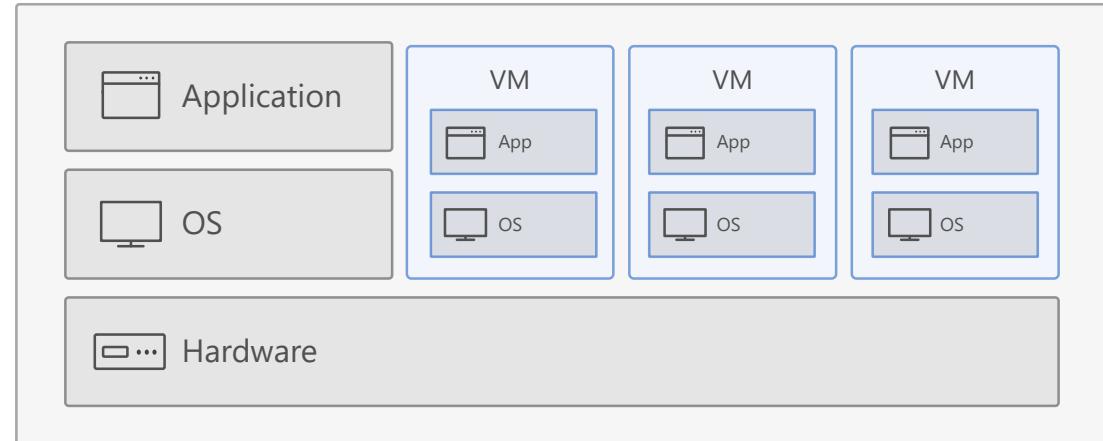


# What is a **container**?

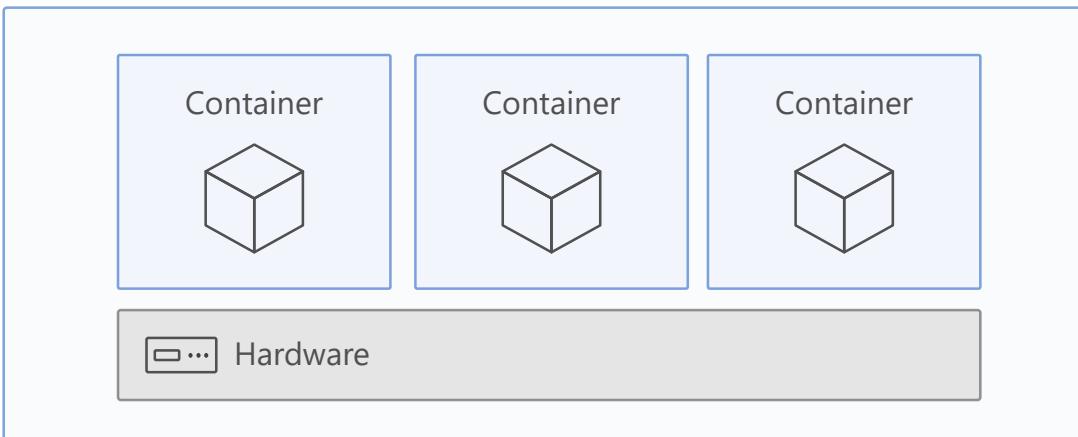
**Containers** = operating system virtualization



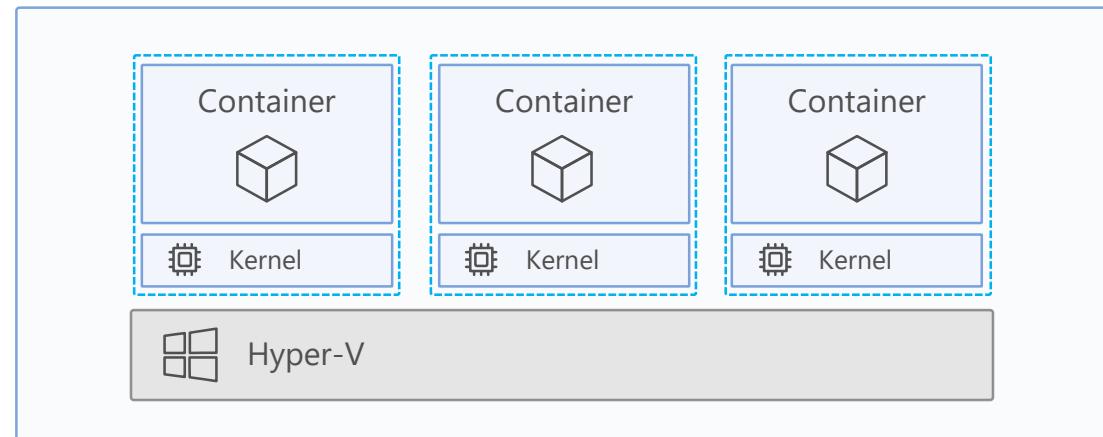
Traditional virtual machines = hardware virtualization



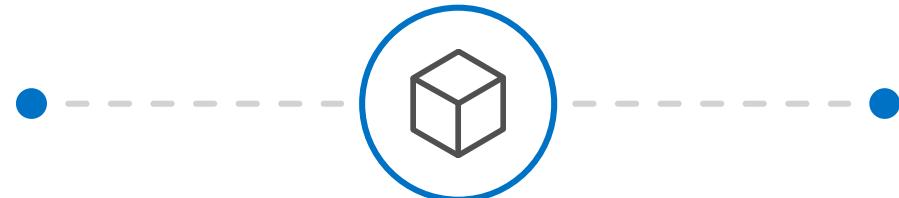
**Windows Server containers:** maximum speed and density



**Hyper-V containers:** isolation plus performance



# Industry analysts **agree**



"By 2020, more than 50% of enterprises will run mission-critical, containerized cloud-native applications in production, up from less than 5% today."

**Gartner**<sup>®</sup>

# What is docker?

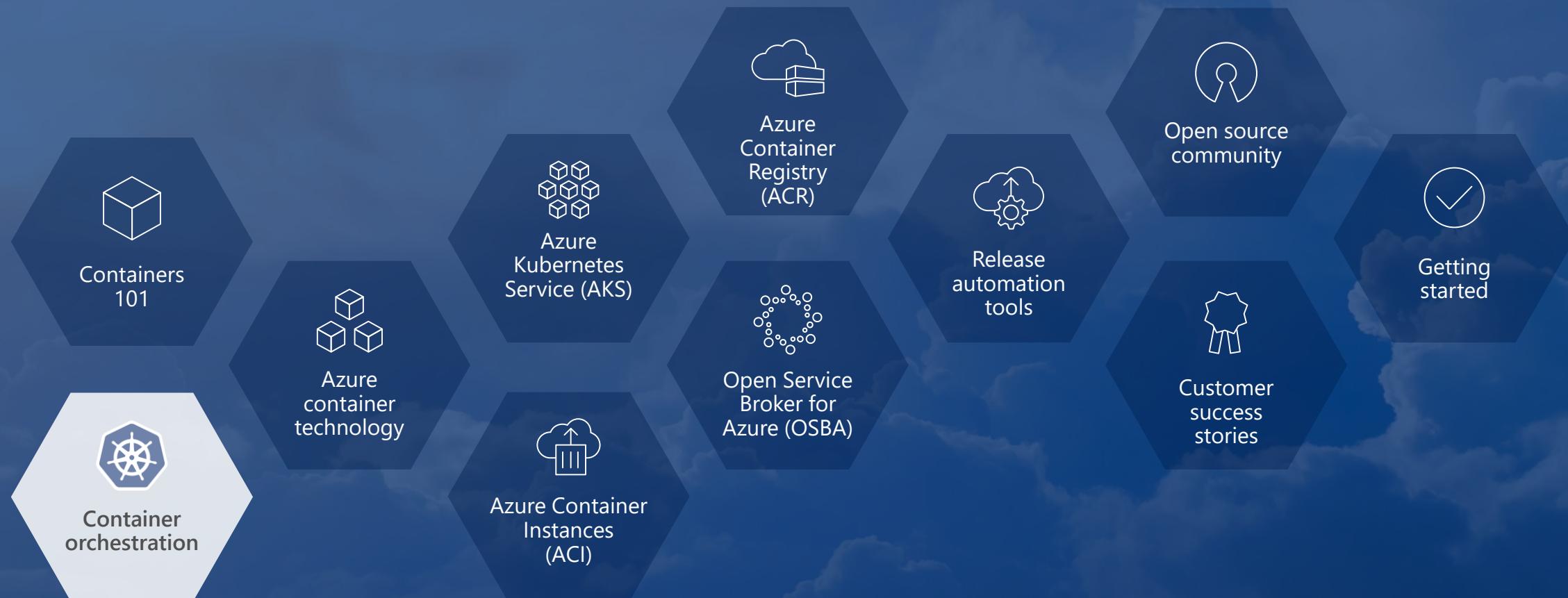
An open source container runtime  
Mac, Windows and Linux support

```
# The world's simplest Dockerfile
$ cat Dockerfile
FROM scratch
COPY hello /
CMD ["/hello"]

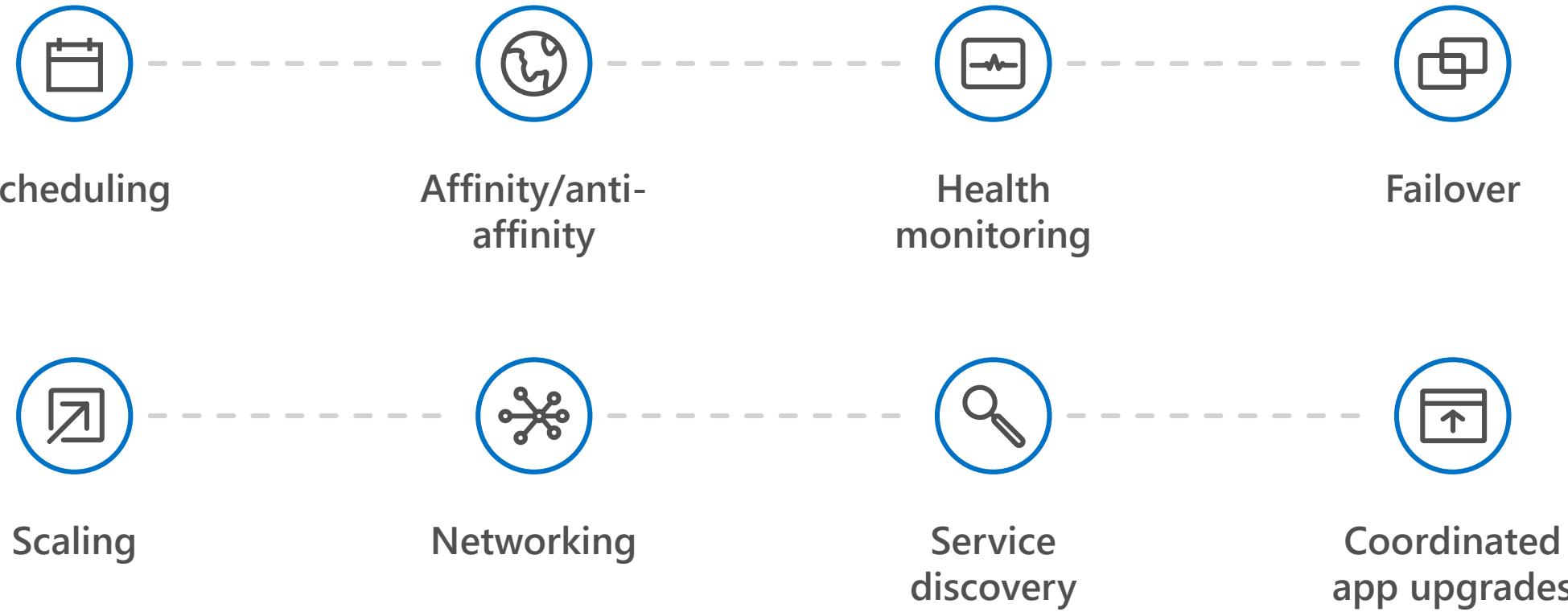
# Let's create a docker image "tagged" hello-world
$ docker build -t hello-world .

# And run it...
$ docker run hello-world
```

# Container orchestration



# The elements of **orchestration**



# Kubernetes: empowering you to do more

## Portable

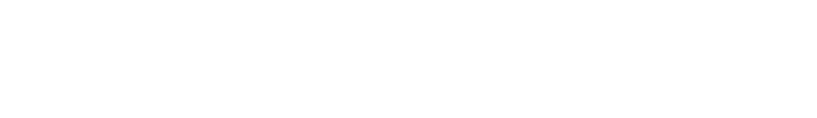
Public, private, hybrid,  
multi-cloud

## Extensible

Modular, pluggable,  
hookable, composable

## Self-healing

Auto-placement, auto-restart,  
auto-replication, auto-scaling



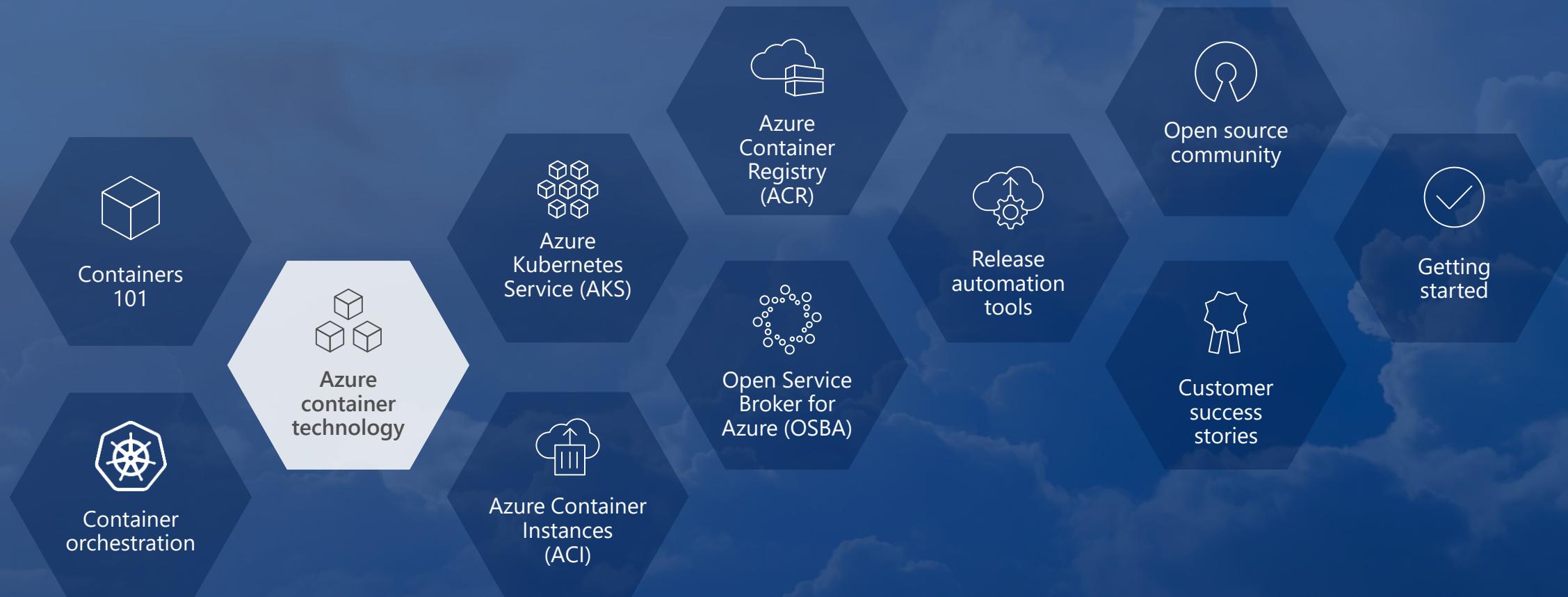
Deploy your  
applications quickly  
and predictably

Scale your  
applications on  
the fly

Roll out  
new features  
seamlessly

Limit hardware  
usage to required  
resources only

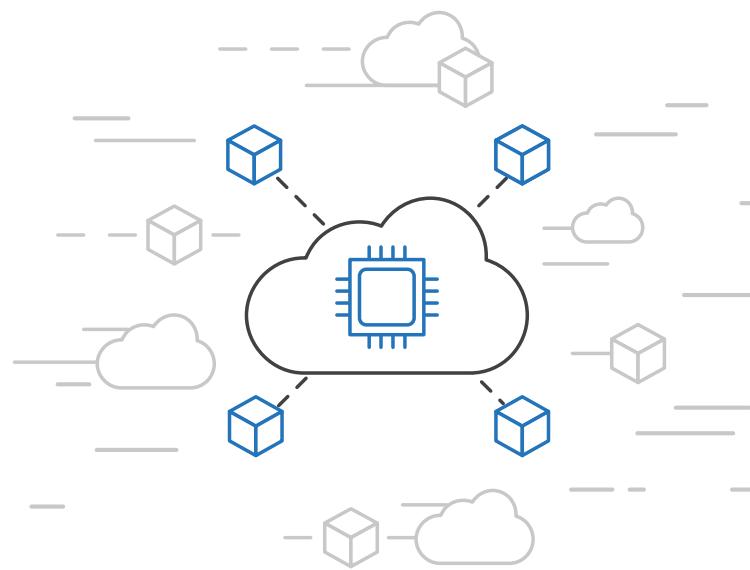
# Azure container technology



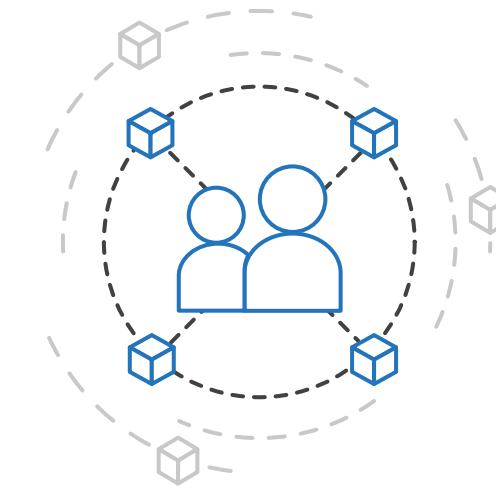
# Azure container **strategy**



Embrace containers  
as ubiquitous

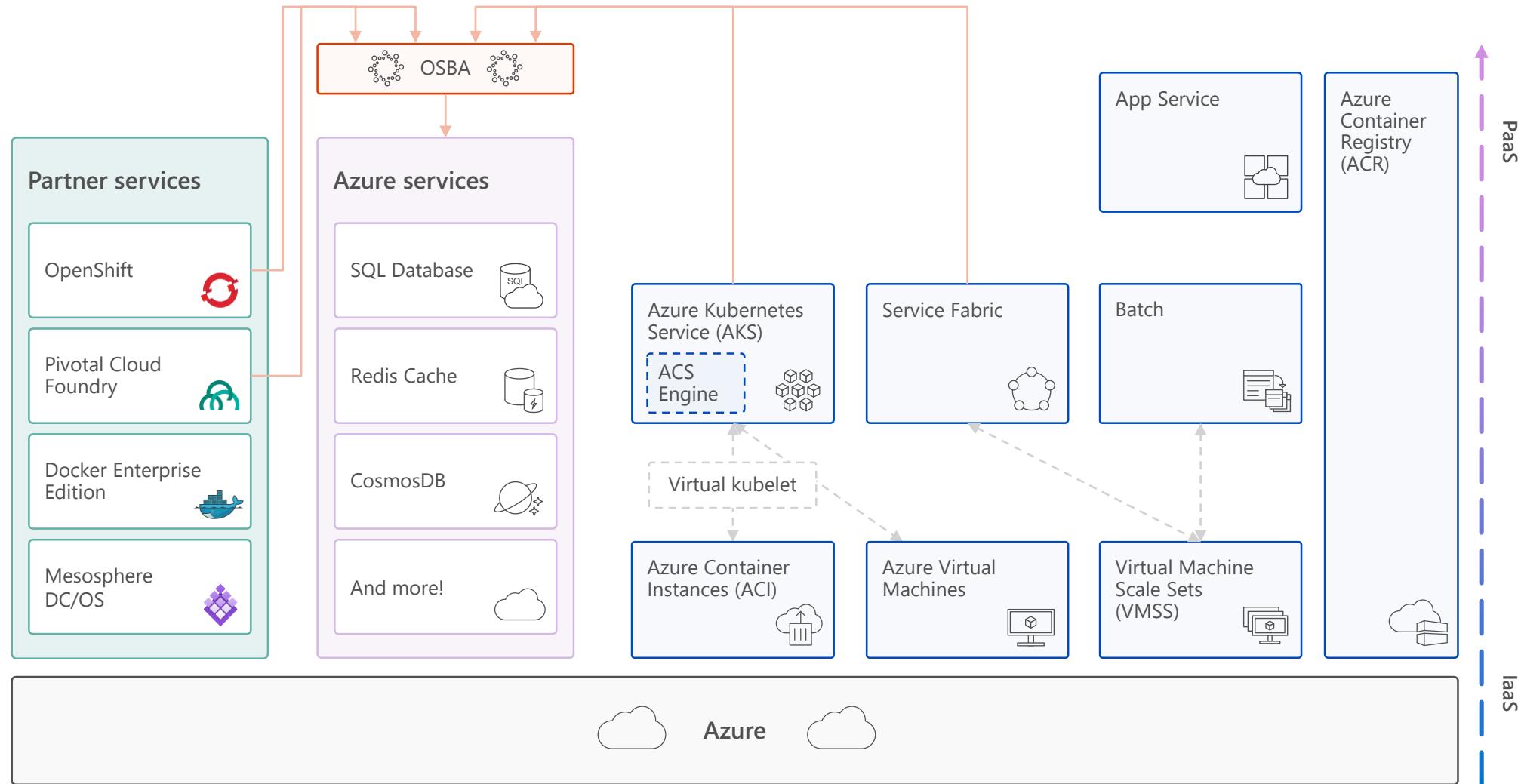


Support containers  
across the compute  
portfolio

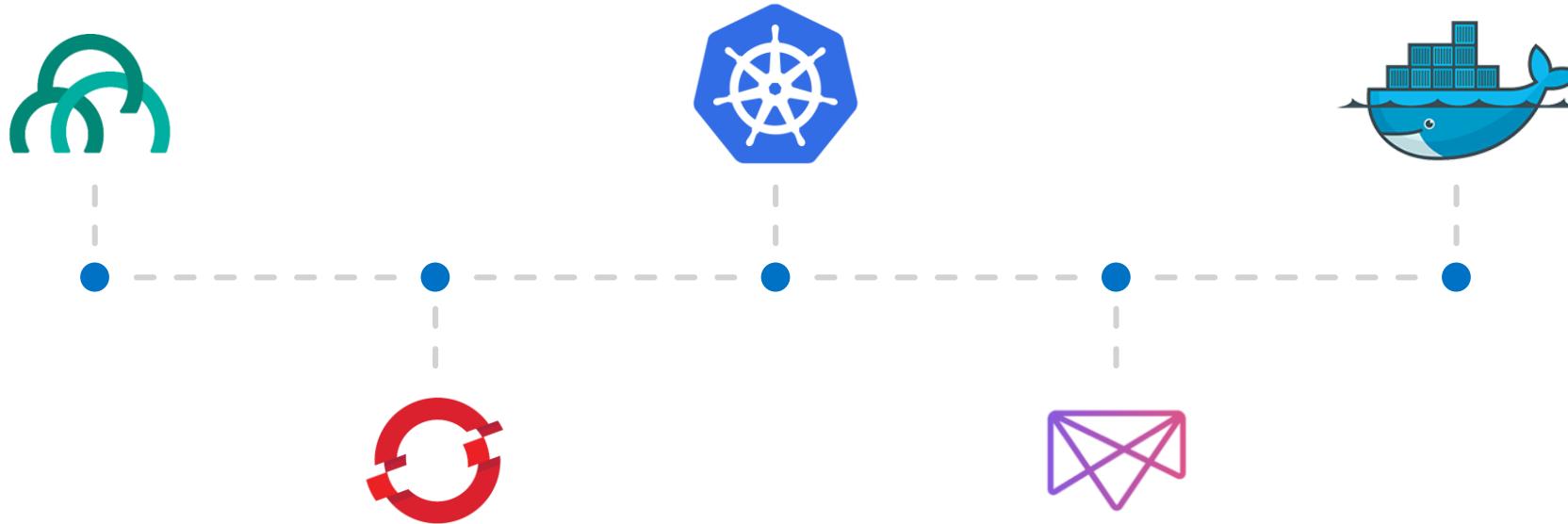


Democratize  
container technology

# Azure container ecosystem

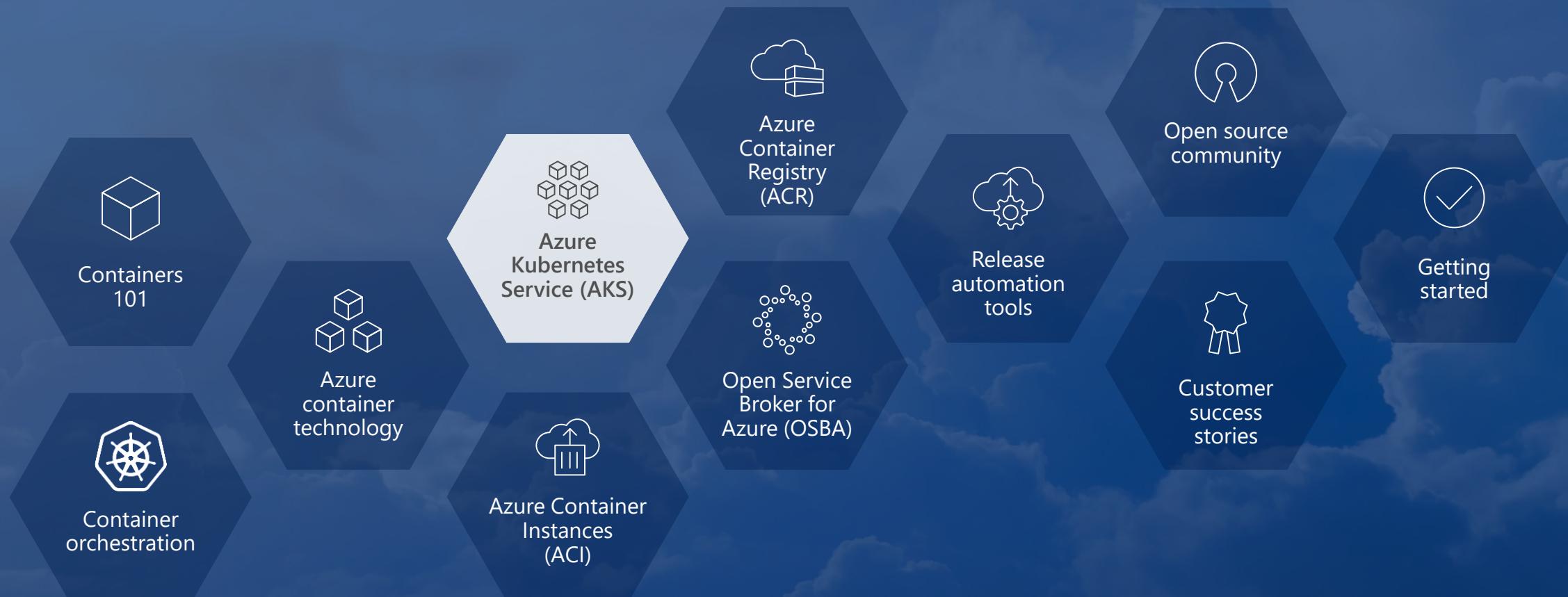


If you have a preferred container platform  
**Pivotal Cloud Foundry • Kubernetes • Docker Enterprise Edition**  
**Red Hat OpenShift • Mesosphere DC/OS**



**You could bring that platform to Azure**

# Azure Kubernetes Service (AKS)





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



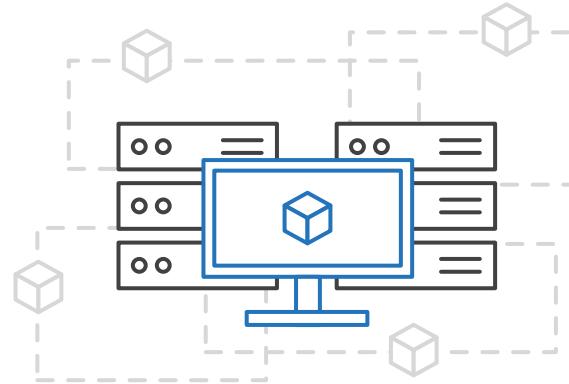
Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Azure Kubernetes Service (AKS)

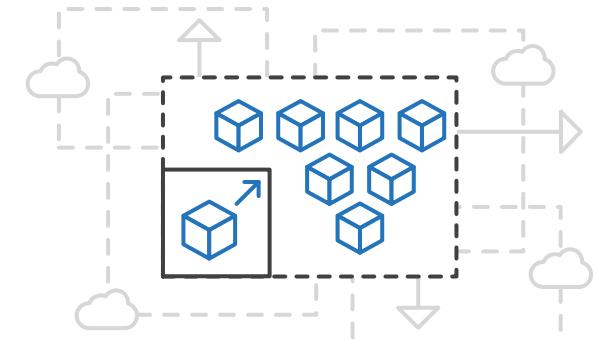
Simplify the deployment, management, and operations of Kubernetes



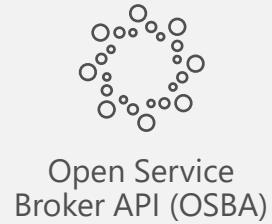
Focus on your  
containers not the  
infrastructure



Work how you  
want with open-  
source APIs

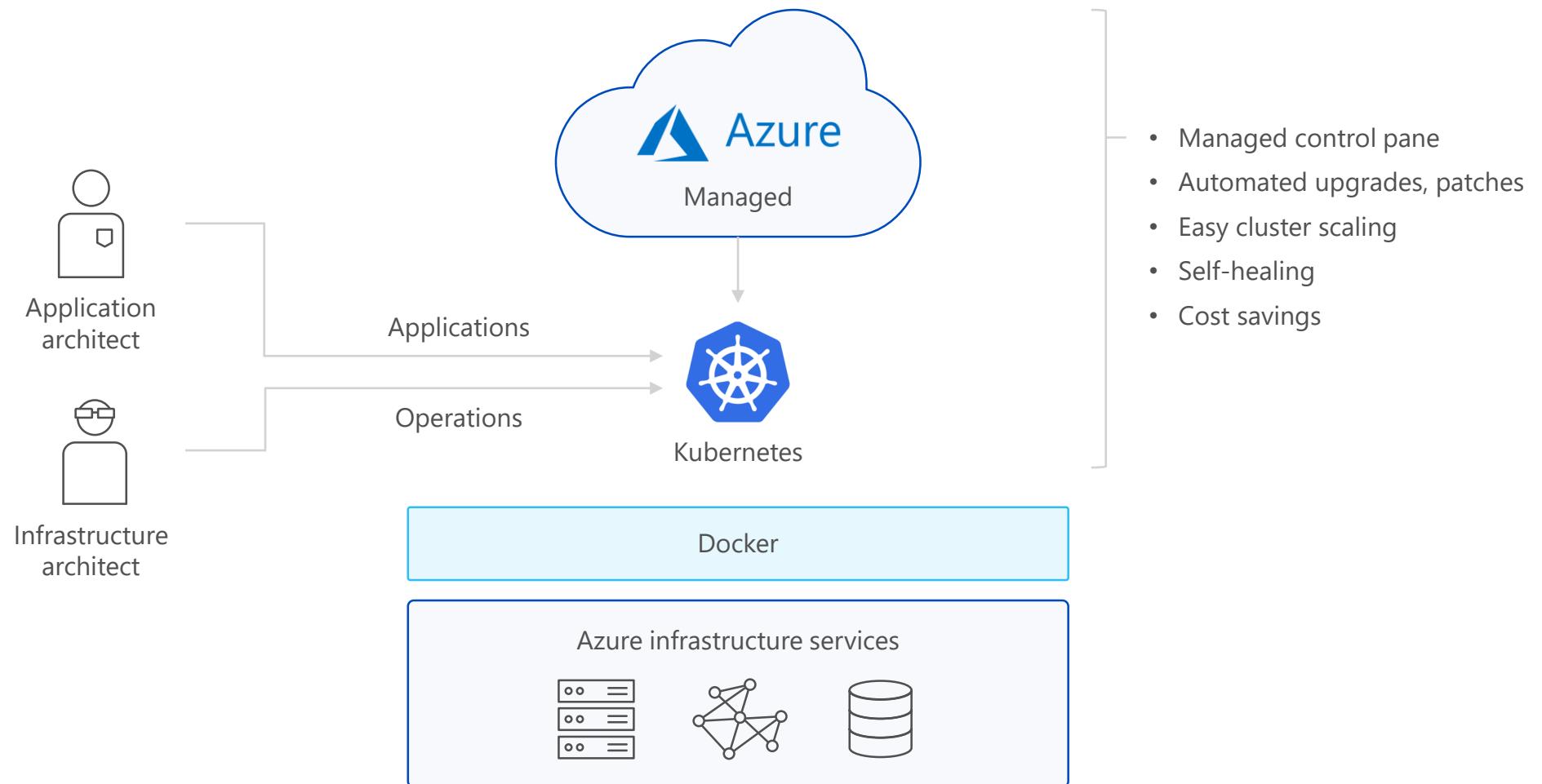


Scale and run  
applications with  
confidence

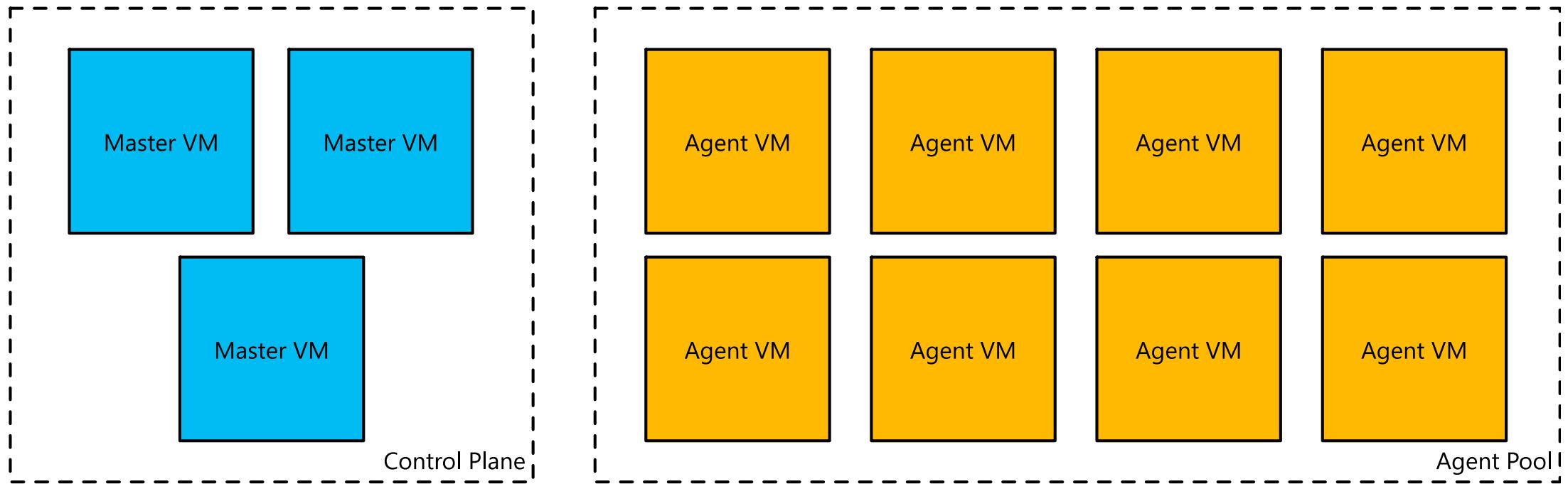


# Azure Kubernetes Service (AKS)

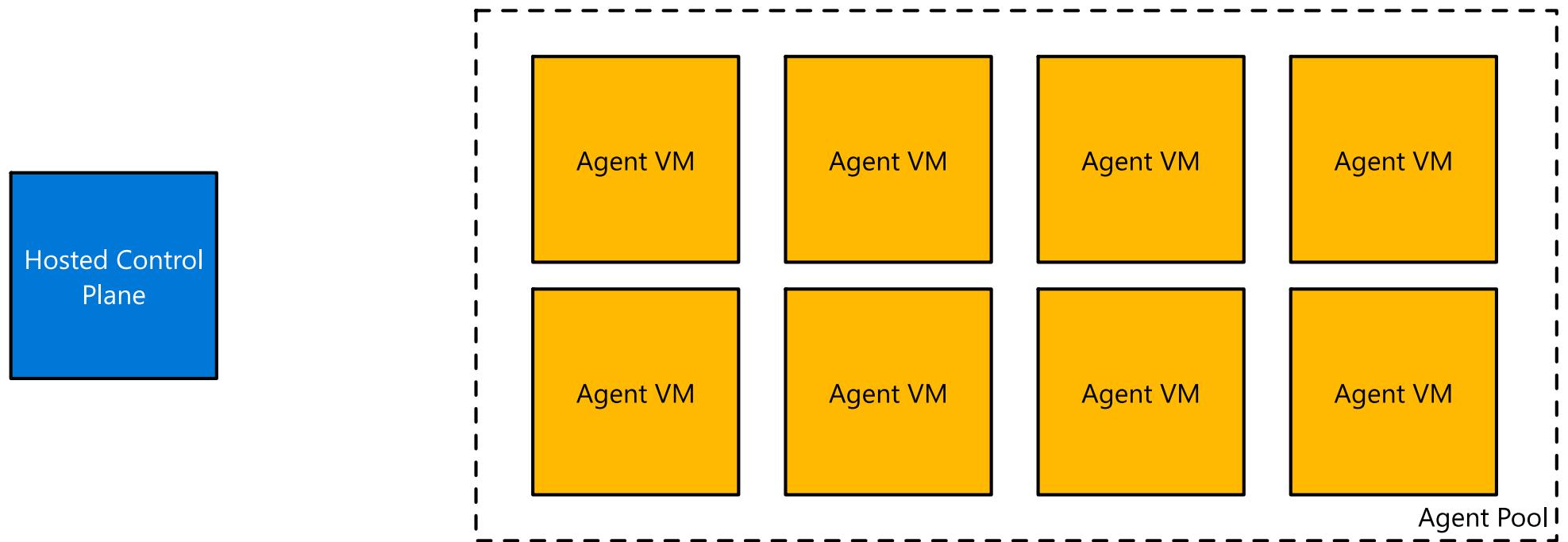
A fully managed Kubernetes cluster



# Kubernetes without AKS



# Kubernetes with AKS





Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Azure Kubernetes Service (AKS)

Get started easily

```
$ az aks create -g myResourceGroup -n myCluster --node-count 3 --generate-ssh-keys
```

\ Running ..

```
$ az aks install-cli
```

Downloading client to /usr/local/bin/kubectl ..

```
$ az aks get-credentials -g myResourceGroup -n myCluster
```

```
$ kubectl get nodes
```

NAME	STATUS	AGE	VERSION
aks-mycluster-36851231-0	Ready	4m	v1.8.1
aks-mycluster-36851231-1	Ready	4m	v1.8.1
aks-mycluster-36851231-2	Ready	4m	v1.8.1



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Azure Kubernetes Service (AKS)

## Manage an AKS cluster

**\$ az aks list -o table**

Name	Location	ResourceGroup	KubernetesRelease	ProvisioningState
-				
myCluster	westus2	myResourceGroup	1.8.1	Succeeded

**\$ az aks upgrade -g myResourceGroup -n myCluster --kubernetes-version 1.9.6**

\ Running ..

**\$ kubectl get nodes**

NAME	STATUS	AGE	VERSION
aks-mycluster-36851231-0	Ready	12m	v1.9.6
aks-mycluster-36851231-1	Ready	8m	v1.9.6
aks-mycluster-36851231-2	Ready	3m	v1.9.6

**\$ az aks scale -g myResourceGroup -n myCluster --agent-count 10**

\ Running ..

PREVIEW



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

Microsoft Azure

Create a resource

All services

Favorites

Dashboard

All resources

Resource groups

App Services

SQL databases

SQL data warehouses

Azure Cosmos DB

Virtual machines

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

Cost Management + Billing

Help + support

Container services

Kubernetes services

Home > New > Create Kubernetes cluster

Create Kubernetes cluster

Basics Networking Monitoring Tags Review + create

Azure Kubernetes Service (AKS) manages your hosted Kubernetes environment so you can run containerized applications without container orchestration expertise. It handles the maintenance by provisioning, upgrading, and scaling resources on demand.

PROJECT DETAILS

Subscription: Gabe Internal  
Resource group: my-resource-group

CLUSTER DETAILS

Kubernetes cluster name: my-cluster  
Region: East US  
Kubernetes version: 1.9.6  
DNS name prefix: my-cluster

AUTHENTICATION

Service principal: (new) default service principal

SCALE

The number and size of nodes in your cluster. For production workloads or development/test workloads, only one node is required. You will not be able to change the number of nodes in your cluster after creation.

Node size: Standard DS1 v2 (1 vCPU, 3.5 GB memory)

Review + create Next: Networking Download a template

## Azure Portal Experience

gabrtv - Health (preview)

Nodes Controllers Containers

Metric: CPU Usage (millicores)

NAME	STATUS	Avg %	Average	Containers	Uptime	Pod	Controller	Trend Avg % (1 Bar = 15M)
aks-agentpool-3186882...	Ok	18%	180 mc	14	30 mins			
Other Processes	-	6%	62 mc	-	-	-	-	
tunnel-front	running	10%	104 mc	1	19 mins	tunnelfront-6dbb88...	tunnelfront-6dbb88...	<a href="#">View Logs</a>
redirector	running	0.4%	4 mc	1	22 mins	kube-svc-redirect-p...	kube-svc-redirect	<a href="#">View Logs</a>
kube-proxy	running	0.2%	2 mc	1	22 mins	kube-proxy-pdxx	kube-proxy	<a href="#">View Logs</a>
addon-http-applic...	running	0.2%	2 mc	1	20 mins	addon-http-applicat...	addon-http-applicat...	<a href="#">View Logs</a>
kube-dns-v20-7c5...								
healthz	running	0.2%	2 mc	1	19 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
kubedns	running	0.1%	1 mc	1	19 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
dnsmasq	running	0%	0.3 mc	1	19 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
kube-dns-v20-7c5...								
healthz	running	0.2%	2 mc	1	19 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
kubedns	running	0.1%	0.8 mc	1	21 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
dnsmasq	running	0%	0.3 mc	1	19 mins	kube-dns-v20-7c55...	kube-dns-v20-7c55...	<a href="#">View Logs</a>
omsagent	running	0.1%	0.6 mc	1	18 mins	omsagent-4hwnf	omsagent	<a href="#">View Logs</a>
main	running	0%	0.1 mc	1	21 mins	kubernetes-dashboard	kubernetes-dashboard	<a href="#">View Logs</a>
addon-http-applic...	running	0%	0 mc	1	19 mins	addon-http-applicat...	addon-http-applicat...	<a href="#">View Logs</a>
addon-http-applic...	running	0%	0 mc	1	21 mins	addon-http-applicat...	addon-http-applicat...	<a href="#">View Logs</a>



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

The screenshot shows the Microsoft Azure Dashboard interface. The left sidebar contains a navigation menu with the following items:

- Create a resource
- All services
- Favorites
- Dashboard
- All resources
- Resource groups
- App Services
- SQL databases
- SQL data warehouses
- Azure Cosmos DB
- Virtual machines
- Load balancers
- Storage accounts
- Virtual networks
- Azure Active Directory
- Monitor
- Advisor
- Security Center
- Cost Management + Billing
- Help + support
- Container services
- Kubernetes services

The main dashboard area displays a list of resources under "All resources" and a "Quickstart tutorials" section.

**All resources** (GABE INTERNAL)

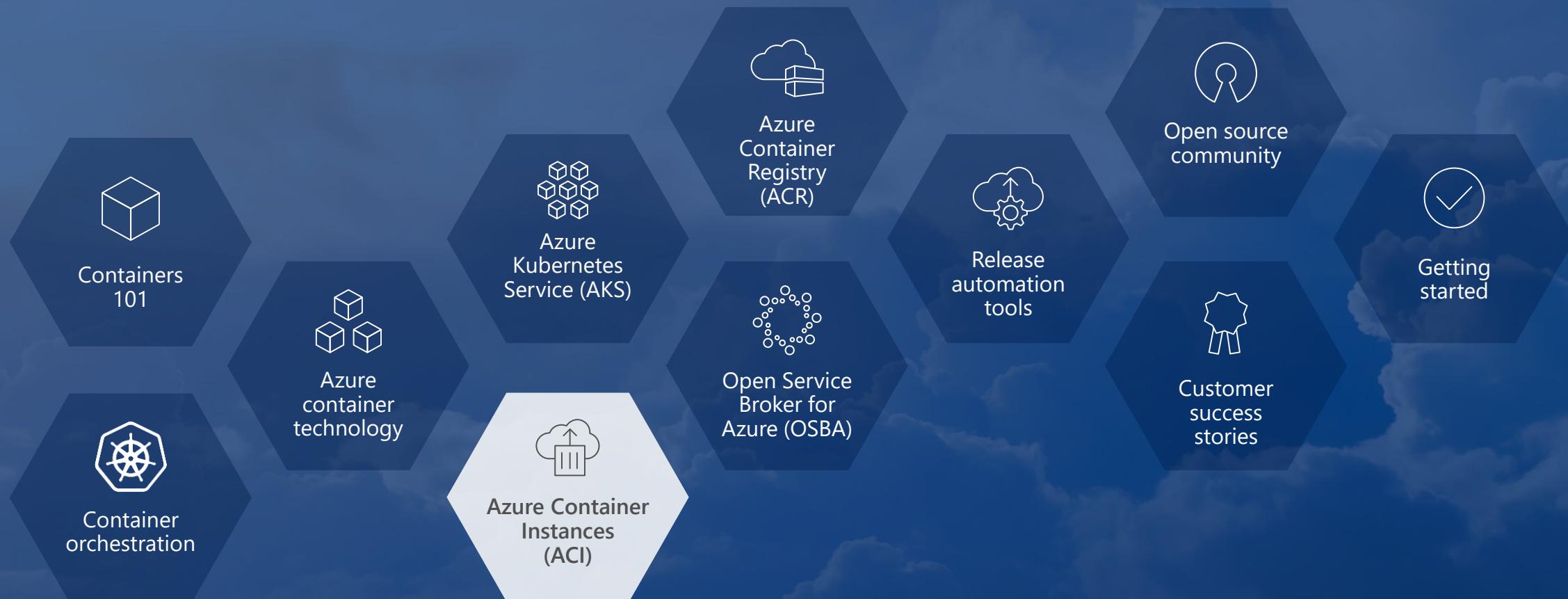
- gabrtv (Kubernetes service)
- gabrtv (Container registry)
- aks-nodepool1-30046036-0 (Virtual machine)
- frdemo (Storage account)
- gabrtv.io (DNS zone)
- redshirt.io (DNS zone)
- 9c28c051-f327-4e13-a47b-fb5... (DNS zone)
- agentpool-availabilitySet-3186... (Availability set)

**Quickstart tutorials**

- Windows Virtual Machines: Provision Windows Server, SQL Server, SharePoint VMs
- Linux Virtual Machines: Provision Ubuntu, Red Hat, CentOS, SUSE, CoreOS VMs
- App Service: Create Web Apps using .NET, Java, Node.js, Python, PHP
- Functions: Process events with a serverless code architecture
- SQL Database: Managed relational SQL Database as a Service

At the bottom of the dashboard, there are links for "Service Health" and "Marketplace".

# Azure Container Instances (ACI)





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



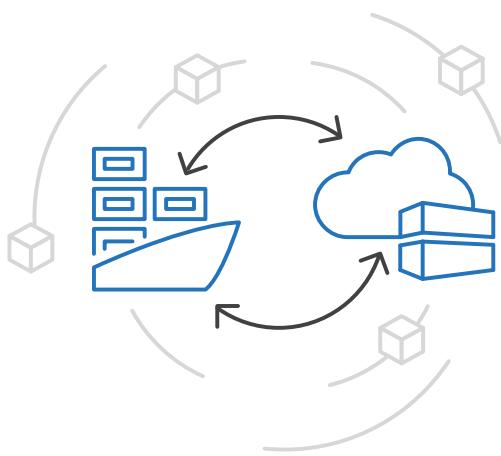
Open Service  
Broker API (OSBA)



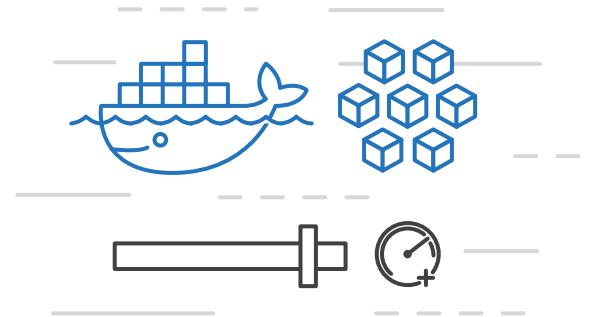
Release  
Automation Tools

# Azure Container Instances (ACI)

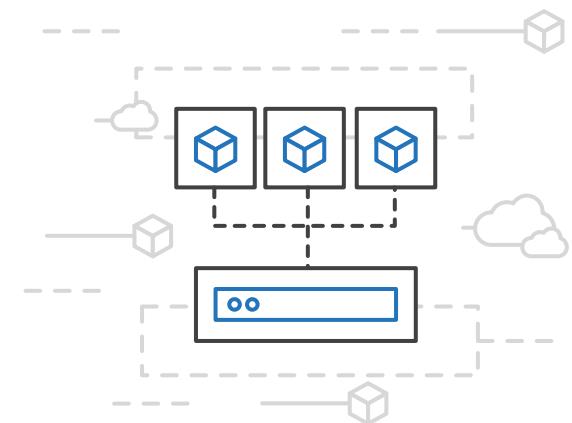
Easily run containers on Azure with a single command



Start using  
containers right away



Cloud-scale  
container capacity



Hyper-vision  
isolation



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Azure Container Instances (ACI)

## ACI in action

```
$ az container create --name mycontainer --image microsoft/aci-helloworld --resource-group myResourceGroup --os-type Linux --ip-address public
```

```
  "ipAddress": {  
    "ip": "52.168.86.133",  
    "ports": [...]  
  },  
  "location": "eastus",  
  "name": "mycontainer",  
  "osType": "Linux",  
  "provisioningState": "Succeeded",
```

```
$ curl 52.168.86.133
```

```
<html>  
<head>  
  <title>Welcome to Azure Container Instances!</title>  
</head>
```



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Azure Container Instances (ACI)

## Azure Portal Experience

The screenshot shows the Azure Portal interface for managing Container Instances. The left sidebar navigation includes Home, Resource groups, and the current blade, mabenoitaci - Containers. The main content area is titled 'mabenoitaci - Containers' and shows 'Container instances'. A search bar and refresh button are at the top. On the left, a sidebar lists Overview, Activity log, Access control (IAM), Tags, SETTINGS (Containers selected), Properties, Locks, Automation script, MONITORING (Metrics (preview), Alerts), and SUPPORT + TROUBLESHOOTING (New support request). The main table displays one container:

NAME	IMAGE	STATE	START TIME	RESTART COUNT
mabenoitaci	microsoft/aci-helloworld	Running	2018-05-09T21:58:13Z	0

Below the table are three tabs: Events (selected), Properties, and Logs. The Events table shows log entries:

NAME	TYPE	FIRST TIMESTAMP	LAST TIMESTAMP	MESSAGE	COUNT
Pulling	Normal	2018-05-09T21:58:07Z	2018-05-09T21:58:07Z	pulling image "microsoft/aci-helloworld"	1
Pulled	Normal	2018-05-09T21:58:13Z	2018-05-09T21:58:13Z	Successfully pulled image "microsoft/ac..."	1
Created	Normal	2018-05-09T21:58:13Z	2018-05-09T21:58:13Z	Created container with id 42bcda6ab50...	1
Started	Normal	2018-05-09T21:58:13Z	2018-05-09T21:58:13Z	Started container with id 42bcda6ab50...	1



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



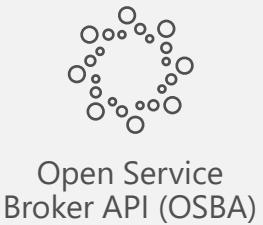
Open Service Broker API (OSBA)



Release Automation Tools

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with links for Chrome, File, Edit, View, History, Bookmarks, People, Window, Help, and a user profile for gamonroy@microsoft.com. Below the navigation bar is a search bar labeled "Search resources, services, and docs". The main content area is titled "New" and features a "Search the Marketplace" input field. On the left, a sidebar lists various Azure services under "FAVORITES" and "All services". The "Containers" category is highlighted with a blue selection bar. The main content area displays a grid of service cards under the "Featured" tab. Each card includes a thumbnail icon, the service name, and a "Quickstart tutorial" link. The services listed are:

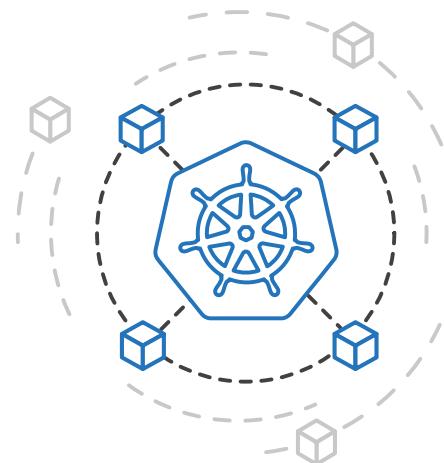
Service	Thumbnail	Description
Kubernetes Service	Three cubes icon	Quickstart tutorial
Container Service	Three cubes icon	Quickstart tutorial
Container Instances	Cloud with container icon	Quickstart tutorial
Container Registry	Cloud with container icon	Quickstart tutorial
Service Fabric Cluster	Red flower-like icon	Quickstart tutorial
Web App for Containers	Cloud with web icon	Quickstart tutorial
Batch Service	Document icon	Quickstart tutorial
DC/OS on Azure	DC/OS logo	Quickstart tutorial
RancherOS	RancherOS logo	Learn more
Docker on Ubuntu Server	Docker logo	Learn more



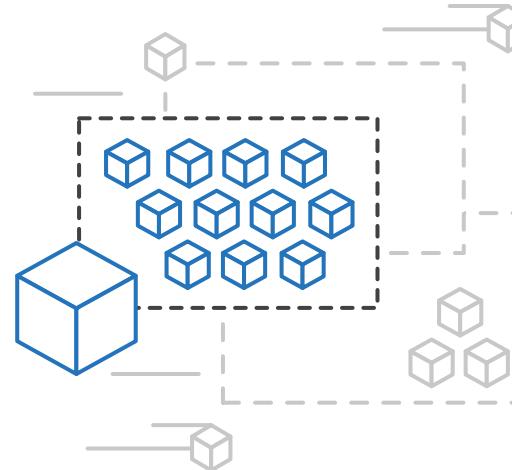
# Azure Container Instances (ACI)

PREVIEW

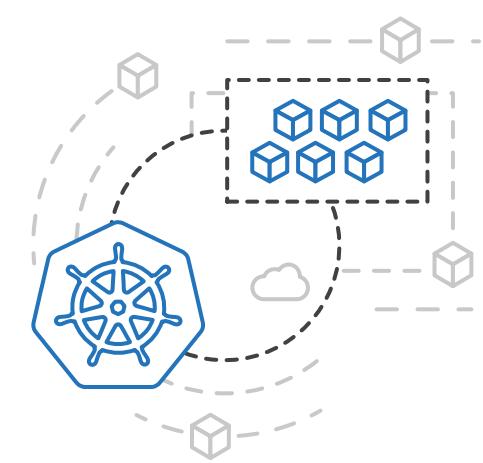
## Virtual Kubelet



Kubernetes provides rich  
orchestration capabilities



ACI provides infinite  
container-based scale



The Virtual Kubelet  
brings them together



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)

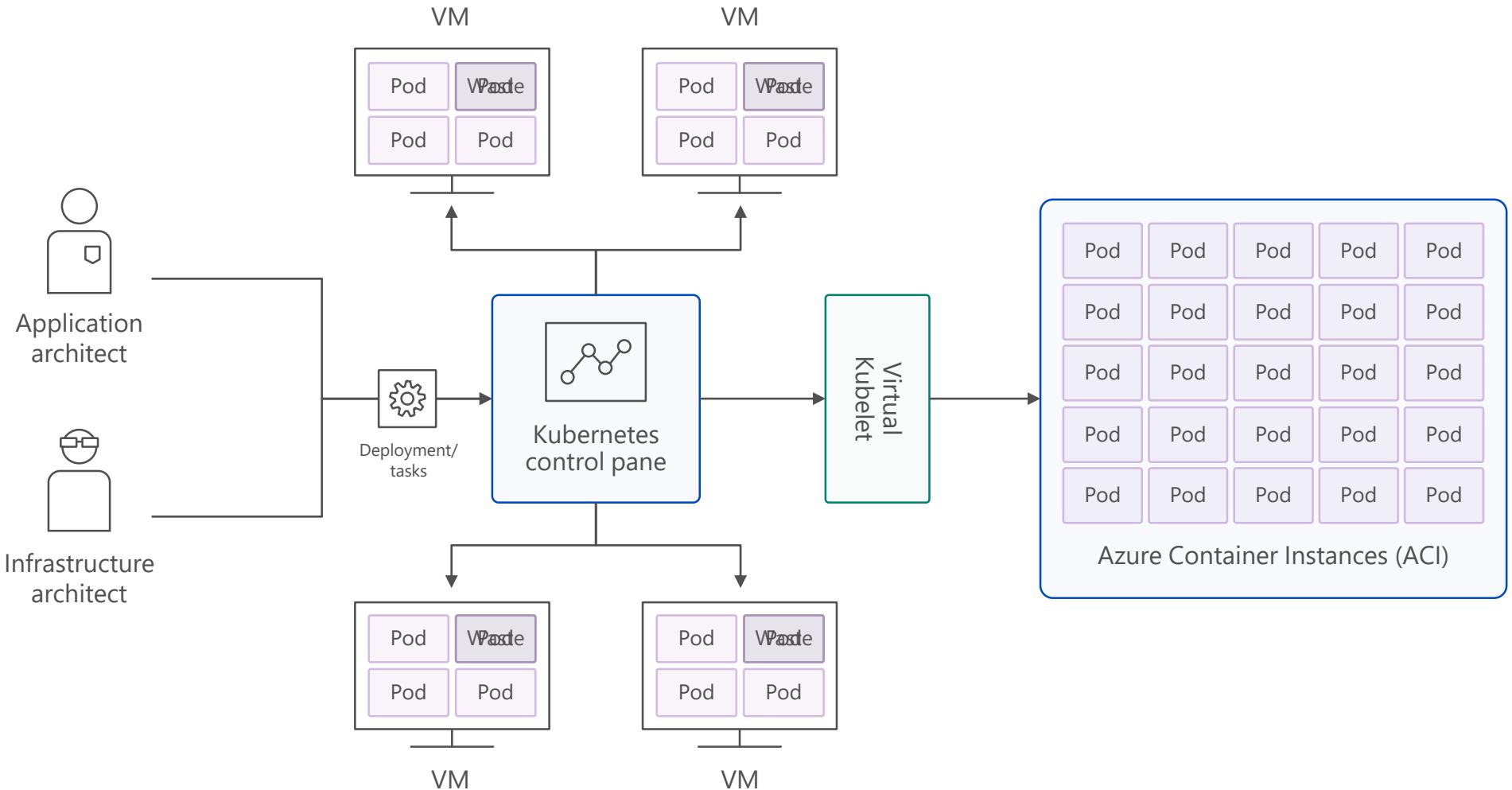


Release Automation Tools

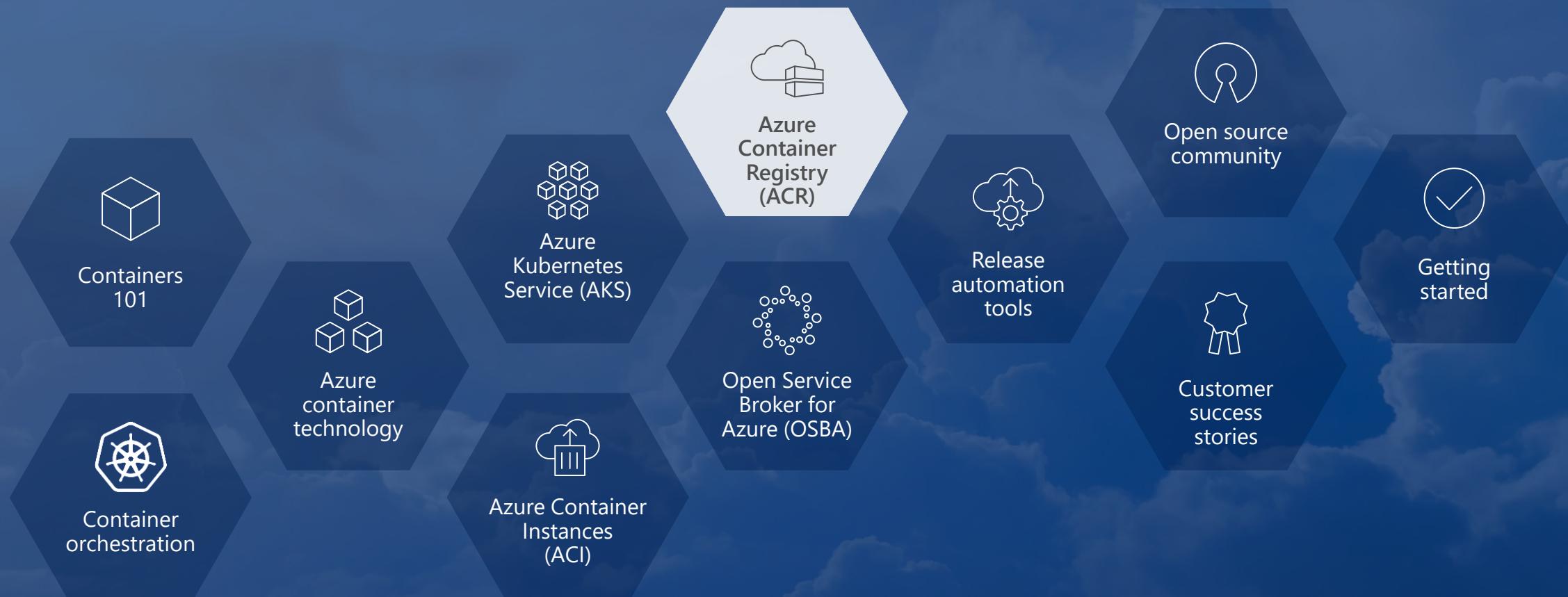
# Azure Container Instances (ACI)

PREVIEW

## Bursting with the Virtual Kubelet



# Azure Container Registry (ACR)





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



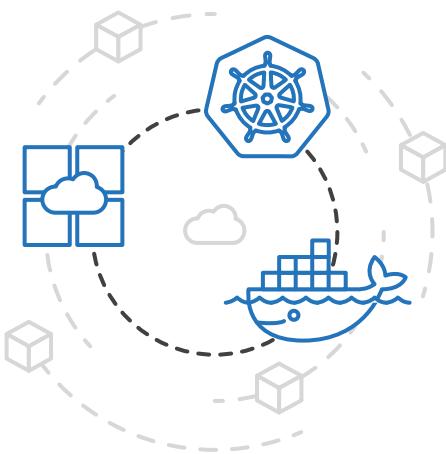
Open Service  
Broker API (OSBA)



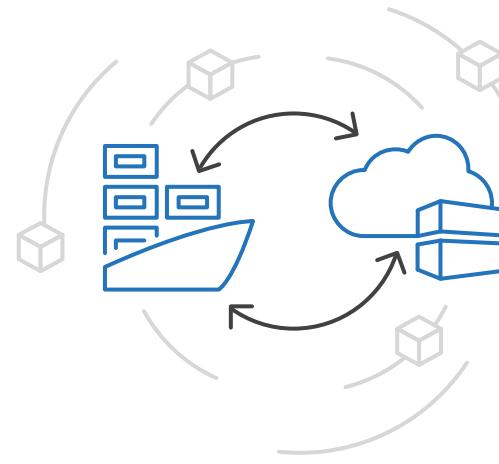
Release  
Automation Tools

# Azure Container Registry (ACR)

Manage a Docker private registry as a first-class Azure resource



Manage images for all  
types of containers



Use familiar, open-  
source Docker CLI tools



Azure Container Registry  
geo-replication



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Azure Container Registry (ACR)

## Azure Portal Experience

The screenshot shows the Azure Portal interface for managing an Azure Container Registry (ACR). The top navigation bar includes 'Home', 'Resource groups', 'MyResGroup', and the specific ACR resource name 'mabenoitacr'. The main content area is titled 'mabenoitacr Container registry'.

**Essentials:**

- Resource group: MyResGroup
- Location: East US
- Subscription name: Microsoft Azure Internal Consumption
- Subscription ID: [REDACTED]
- Login server: [REDACTED].azurecr.io
- Creation date: 5/7/2018 11:38 AM EDT
- SKU: Basic
- Provisioning state: Succeeded

**Registry metrics:**

Registry quota usages

USED	10.2 GiB
SIZE QUOTA	10 GiB

REMAINING 9.8 GiB

**Container security integrations:**

- Aqua Security**: Aqua provides development-to-production lifecycle controls for securing containerized applications.
- Twistlock**: Providing vulnerability management and runtime protection across your environments.

[Azure Marketplace](#)



Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



Open Service  
Broker API (OSBA)



Release  
Automation Tools

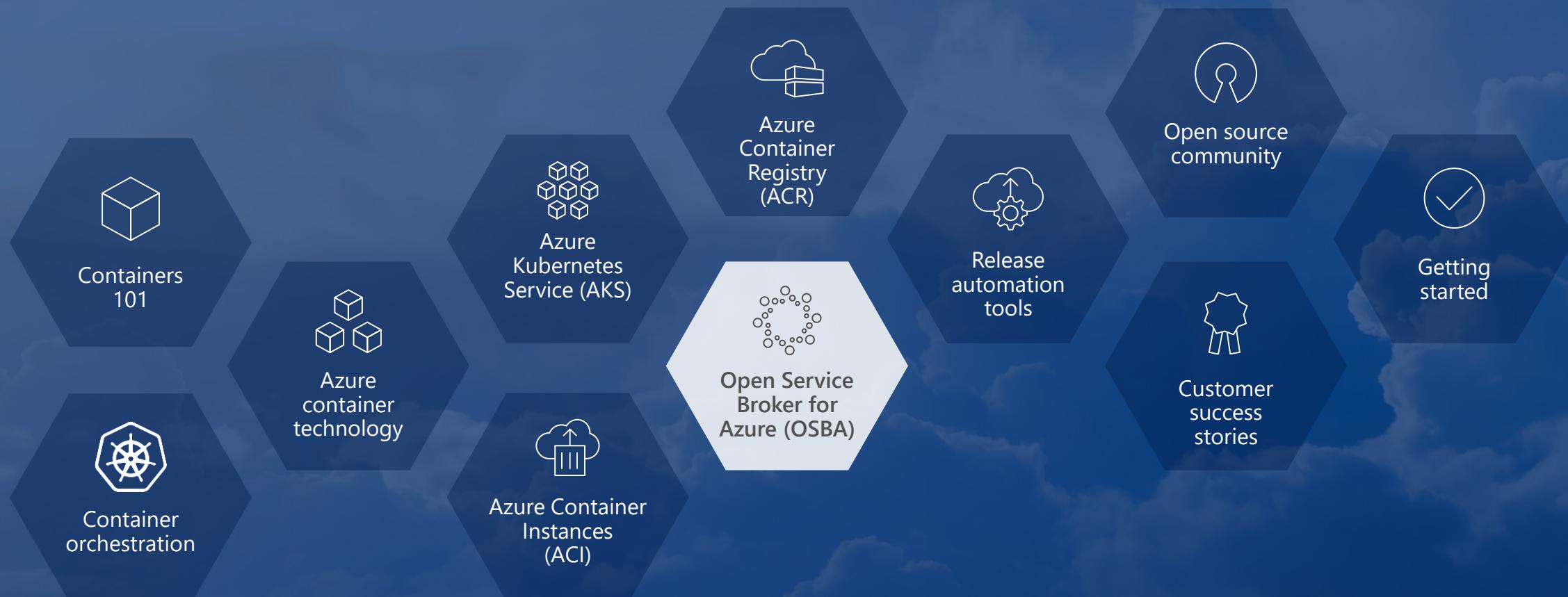
# Azure Container Registry (ACR)

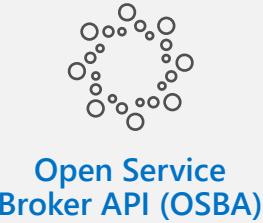
ACR Build PREVIEW

```
$ az acr build -t helloworld{{.Build.ID}} .
```

```
$ az acr build-task create
  --image helloworld{{.Build.ID}}
  --name myBuildTask
  --registry jengademos
  --context https://github.com/me/helloworld
  --branch master
  --git-access-token $PAT
```

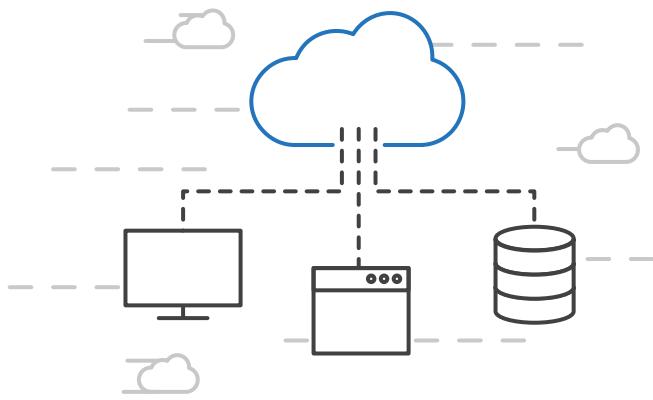
# Open Service Broker for Azure



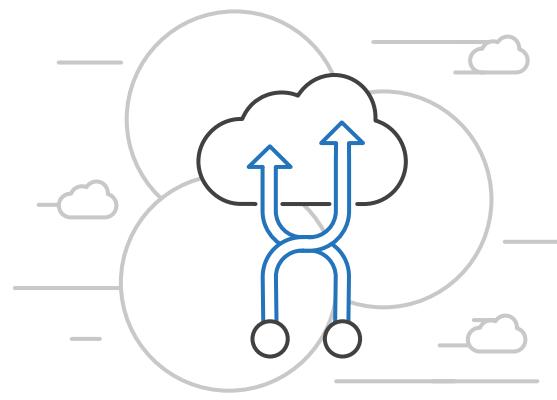


# Open Service Broker for Azure (OSBA)

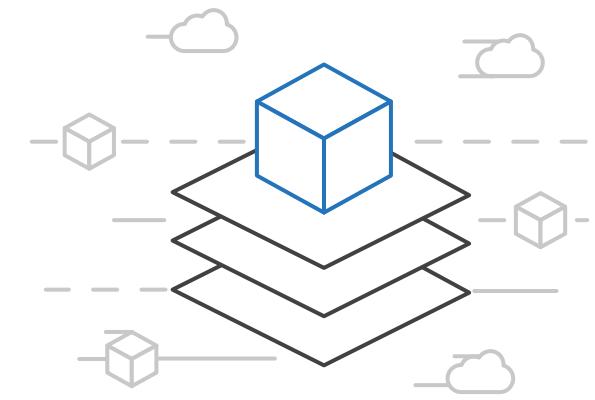
Connecting containers to Azure services and platforms



A standardized way to connect with Azure services



Simple and flexible service integration



Compatible across numerous platforms



# Open Service Broker for Azure (OSBA)

An implementation of the Open Service Broker API

Azure SQL Database



Redis Cache



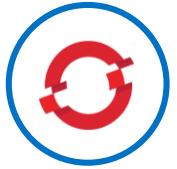
CosmosDB



And more!



Open Service Broker  
for Azure (OSBA)



OpenShift



Cloud Foundry

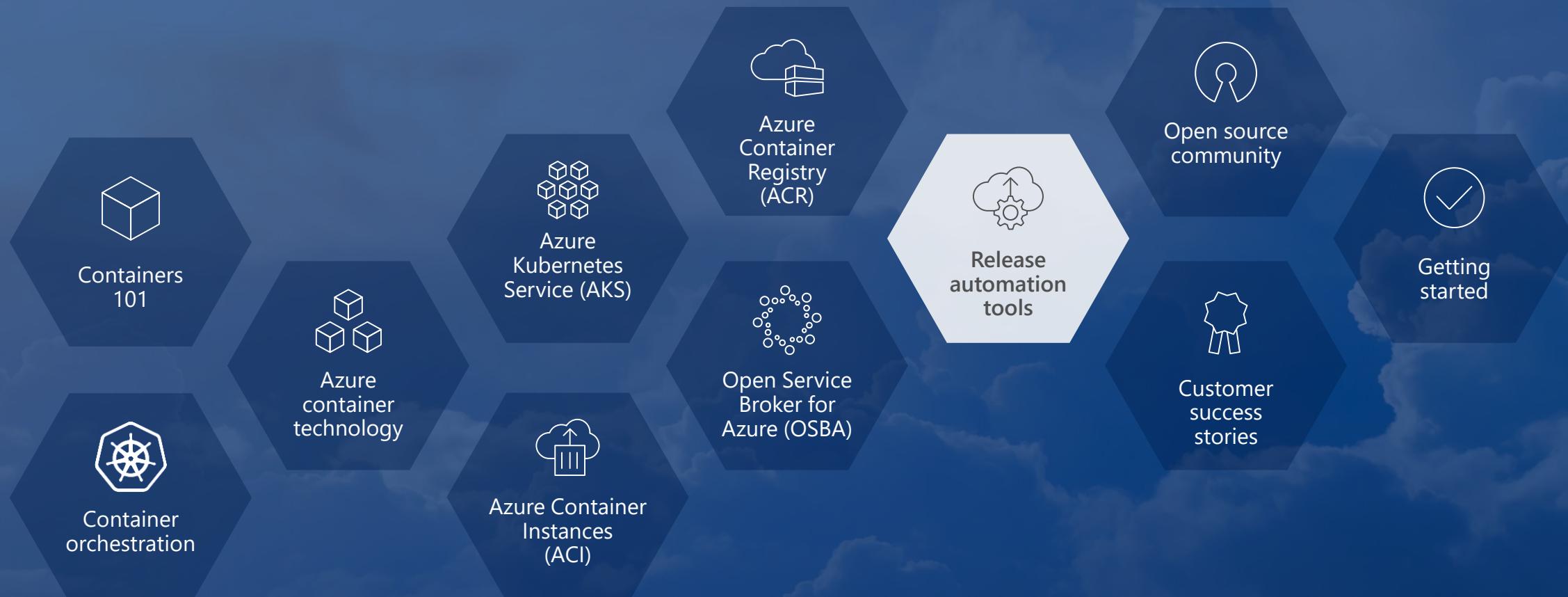


Service Fabric  
(Coming soon)



Kubernetes  
(AKS)

# Release automation tools





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Release automation tools

Simplifying the Kubernetes experience



The package  
manager for  
Kubernetes



Streamlined  
Kubernetes  
development



Event-driven  
scripting for  
Kubernetes





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



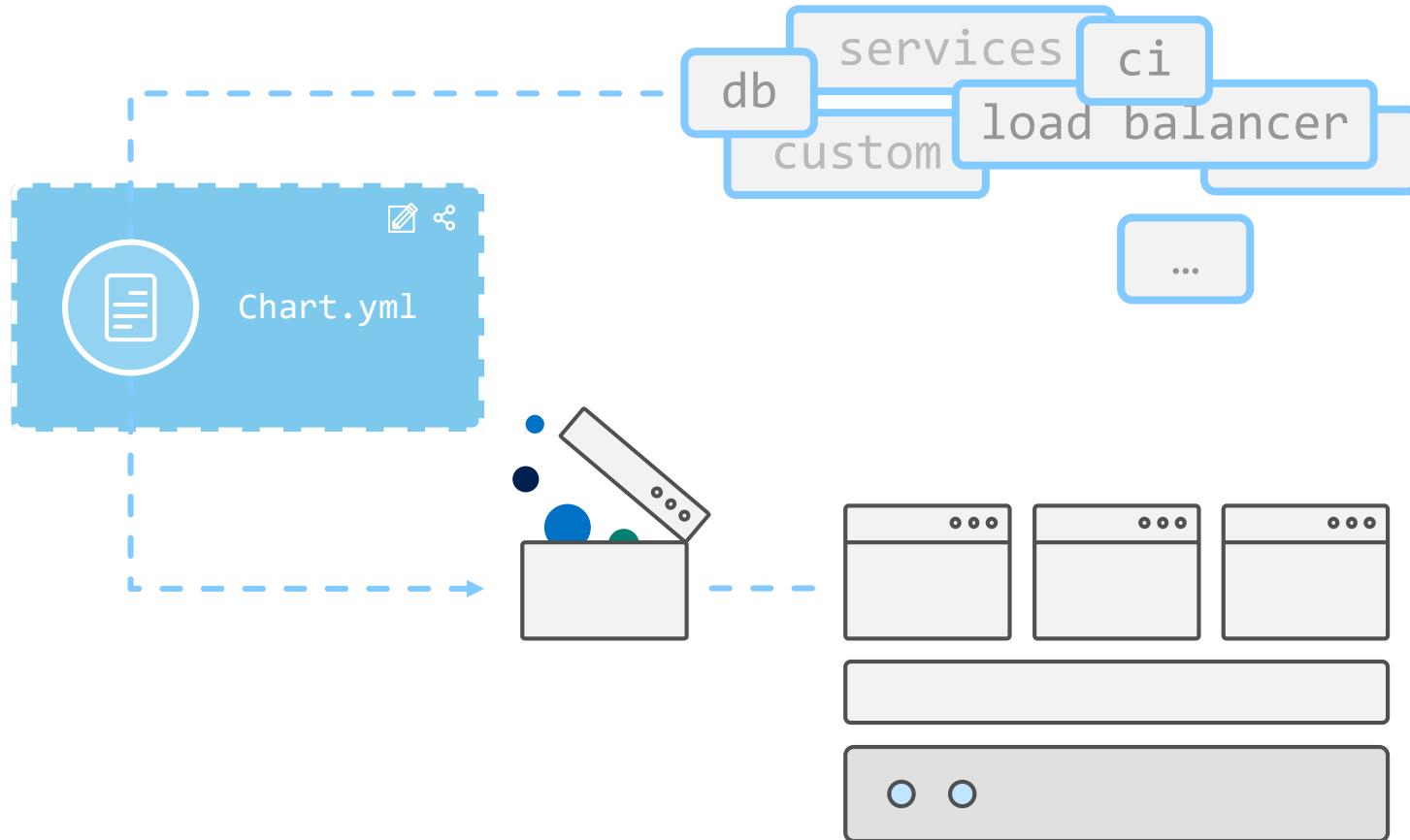
Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Helm

Helm Charts helps you define, install, and upgrade even the most complex Kubernetes application





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Helm

## Helm in action

```
$ helm repo add azure Azure/helm-charts  
$ helm install azure/wordpress
```

The screenshot shows the homepage of hub.kubeapps.com. At the top, there's a search bar with the placeholder "Search charts" containing the text "WordPress, Jenkins, Kubeless...". Below the search bar, a message says "Discover & launch great Kubernetes-ready apps". A count of "186 charts ready to deploy" is displayed. The main area features a grid of 16 Helm chart cards arranged in four rows of four. Each card includes the chart name, version, rating, and status.

Name	Version	Rating	Status
acs-engine-autoscaler	2.1.1	☆ 2	stable
aerospike	v3.14.1.2	☆ 1	stable
anchore	0.1.10	☆ 4	stable
artifactory	5.10.1	☆ 18	stable
artifactory-ha	5.10.1	☆ 3	stable
bitcoind	0.15.1	☆ 0	stable
buildkite	3	☆ 2	stable
burrow	0.17.1	☆ 0	stable



Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



Open Service  
Broker API (OSBA)



Release  
Automation Tools

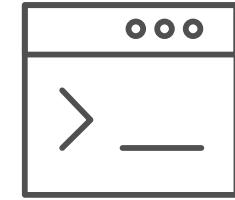
# Draft

Simple app development and deployment – into any Kubernetes cluster



## Simplified development

Using two simple commands, developers can now begin hacking on container-based applications without requiring Docker or even installing Kubernetes themselves



## Language support

Draft detects which language your app is written in, and then uses packs to generate a Dockerfile and Helm Chart with the best practices for that language





Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Draft

## Draft in action

```
$ ls
```

```
README.md    app.py    requirements.txt
```

```
$ draft create
```

```
--> Python app detected  
--> Ready to sail
```

```
$ ls
```

```
Dockerfile    app.py    draft.toml  
README.md    charts    requirements.txt
```

```
$ draft up
```

```
--> Building Dockerfile
```

```
...
```



Azure Kubernetes  
Service (AKS)



Azure Container  
Instances (ACI)



Azure Container  
Registry (ACR)



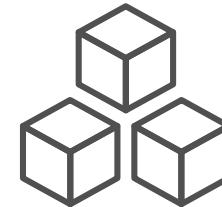
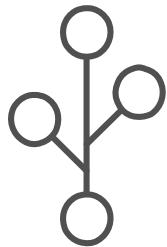
Open Service  
Broker API (OSBA)



Release  
Automation Tools

# Brigade

Run scriptable, automated tasks in the cloud — as part of your Kubernetes cluster



## Simple, powerful pipes

Each project gets a `brigade.js` config file, which is where you can write dynamic, interwoven pipelines and tasks for your Kubernetes cluster

## Runs inside your cluster

By running Brigade as a service inside your Kubernetes cluster, you can harness the power of millions of available Docker images



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

# Brigade

## Brigade in action

```
const { events, Job, Group } = require('brigadier')

events.on("push", (brigadeEvent, project) => {

    // setup variables
    var gitPayload = JSON.parse(brigadeEvent.payload)
    var brigConfig = new Map()
    brigConfig.set("acrServer", project.secrets.acrServer)
    brigConfig.set("acrUsername", project.secrets.acrUsername)
    brigConfig.set("acrPassword", project.secrets.acrPassword)
    brigConfig.set("dbImage", "chzbrgr71/rating-db")
    brigConfig.set("gitSHA", brigadeEvent.commit.substr(0,7))
    brigConfig.set("eventType", brigadeEvent.type)
    brigConfig.set("branch", getBranch(gitPayload))
    brigConfig.set("imageTag", `${brigConfig.get("branch")}-${brigConfig.get("branch")}`)
    brigConfig.set("dbACRImage", `${brigConfig.get("acrServer")}/${brigConfig.get("acrUsername")}`)

    console.log(`==> GitHub webhook ${brigConfig.get("branch")}) with commit`)

    // setup brigade jobs
    var docker = new Job("job-runner-docker")
    var helm = new Job("job-runner-helm")
    dockerJobRunner(brigConfig, docker)
    helmJobRunner(brigConfig, helm, "prod")

    // start pipeline
    console.log(`==> starting pipeline for docker image: ${brigConfig.get("dbImage")}`)
    var pipeline = new Group()
    pipeline.add(docker)
    pipeline.add(helm)
```

File: brigade.js -- rating-db

Author: Azure: rasquill@microsoft.com

Line: 78, Col: 2 | Spaces: 4 | UTF-8 | LF | JavaScript | ☺



Azure Kubernetes Service (AKS)



Azure Container Instances (ACI)



Azure Container Registry (ACR)



Open Service Broker API (OSBA)



Release Automation Tools

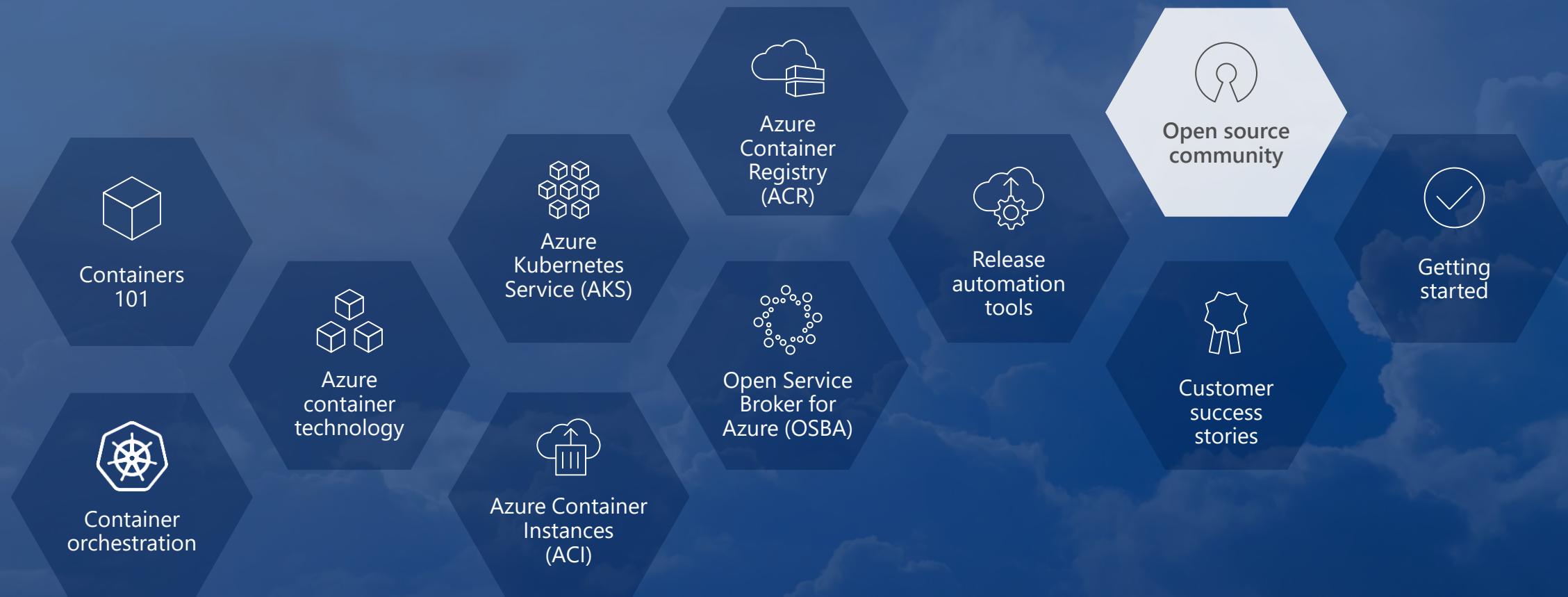
# Team Service (VSTS)

PREVIEW

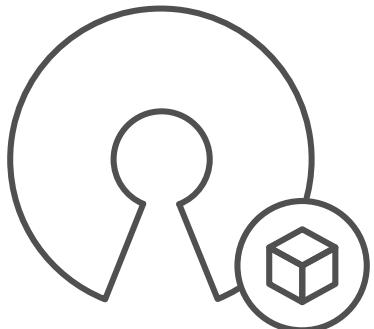
## VSTS with DevOps Project in action

The screenshot displays the VSTS DevOps Project interface. On the left, there's a navigation bar with 'Home > New > DevOps Project > DevOps Project (preview)'. Below it, a section titled 'Launch an app running in Azure in a few quick steps' offers templates for .NET, Java, PHP, and Python web apps. The main area is titled 'KubernetesDotNetCoreProject DevOps Project - PREVIEW'. It shows a 'CI/CD Pipeline' with three stages: 'Code' (nodejs-on-azure-containers master), 'Build' (Test, Build 334 Succeeded 21 h ago), and 'Dev' (KubernetesDotNetCoreProject - CD). A 'Repository' section at the bottom shows the repository nodejs-on-azure-containers with a 'Code' button.

# Open source community



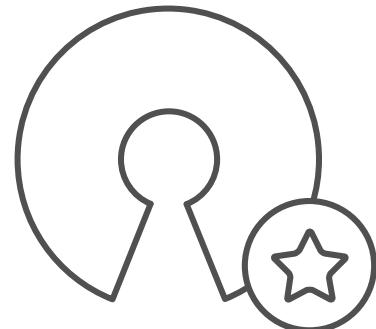
# Community culture



Open source container  
code contributions



Numerous open source  
project builds



Open source community  
leadership



# Open Source @ Microsoft



## Ross Gardler

Apache Foundation  
Principal Program Manager



## Jessie Frazelle

Docker / Linux  
Principal Cloud Developer Advocate



## Brendan Burns

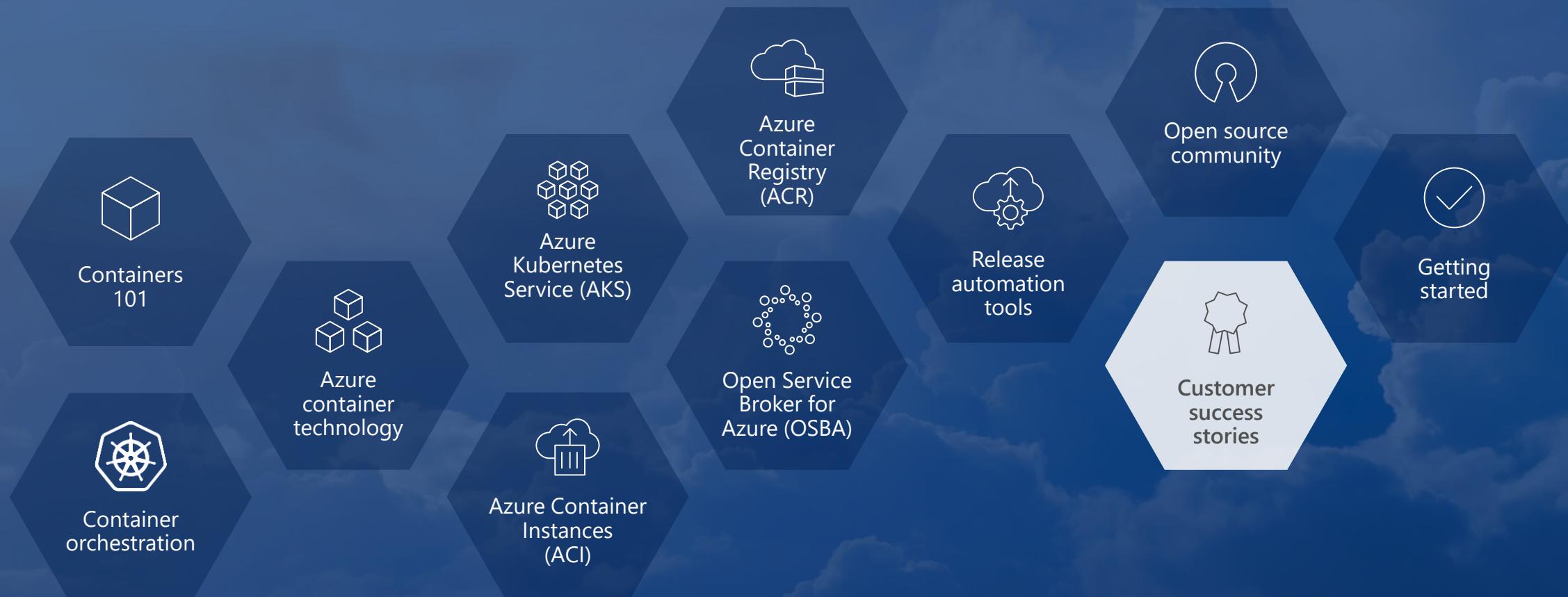
Kubernetes  
Distinguished Engineer



## Gabe Monroy

Deis / CNCF  
Principal Program Manager

# Customer success stories



# Rapidly growing software company attracts customers with seamless cloud demo experience

Headquartered in Freiburg, Germany, Jedox develops enterprise performance management software for businesses around the globe. Jedox chose Microsoft Azure to help it scale and grow. The company needed a more lightweight compute unit than virtual machines to power its website demos and provide a good customer experience. Jedox deployed Azure Container Instances to spin up customer demos on demand, improve provisioning speed, build confidence in the cloud, and lower IT costs.



## Products and Services

Microsoft Azure  
Microsoft Azure Container Instances

## Organization Size

170 employees

## Industry

Professional Services

## Country

Germany



# Altair Engineering democratizes HPC access using the cloud

Altair Engineering makes computer-aided engineering software used to create stronger, better, more innovative products, from bicycles to space shuttles. To make its HyperWorks and Inspire applications available to more engineers, Altair delivers them through its Unlimited platform running in Microsoft Azure. In Azure, these solutions have access to affordable high-performance computing (HPC) resources, which enables low-cost collaboration among large engineering teams and opens up new markets for Altair.



## Products and Services

Microsoft Azure  
Microsoft Azure Container Service  
Microsoft Azure Virtual Machines

## Organization Size

2,000 Employees

## Industry

Manufacturing

## Country

United States





# Energy company electrifies pace of innovation and expansion

An aerial photograph showing a large array of solar panels in a grid pattern, with a field of crops visible between sections of the panels.

Ambit Energy provides electricity and natural-gas services in deregulated markets around the world. It uses technology as a competitive differentiator, employing microservices, DevOps, and continuous deployment to speed software development. To stand up infrastructure just as quickly, Ambit uses Microsoft Azure services such as Azure Container Service, together with infrastructure as code and open source technologies, to completely automate infrastructure provisioning. By implementing Azure, Ambit can move dramatically faster to enhance its services and enter new markets. Infrastructure redundancy is flexible and worry-free. And costs are 22 percent lower, which helps Ambit compete in the crowded electricity market. Because Ambit's cloud journey is gradual, it appreciates the fact that Azure is a great hybrid-cloud enabler, connecting easily to Ambit datacenters.



## Products and services

Microsoft Azure  
Container Service

## Organization size

1,000 employees

## Industry

Power and utilities

## Country

United States

## Business need

Optimize operational efficiency





Azure



## Siemens Health leverages technology to connect medical devices to the cloud through AKS

Digitization and networking between healthcare providers and software development companies are essential to value-based care. Moving from the development of value-added services into becoming more of a platform provider, it became important for Siemens to adopt a microservices approach to application delivery. To that end, Siemens adopted Azure Container Service (AKS) to run their microservices-based apps. AKS puts Siemens in a position not only to deploy business logic in Docker containers—including the orchestration—but also enables them to use an applicant gateway and API management to manage exposure, control, and to meter the access continuously. With their cloud-based development approach, Siemens has driven newfound product development agility. This project is already having a positive impact within the healthcare industry.

**SIEMENS**

### Products and services

Microsoft Azure  
Container Service

### Organization size

100,000+ employees

### Industry

Healthcare

### Country

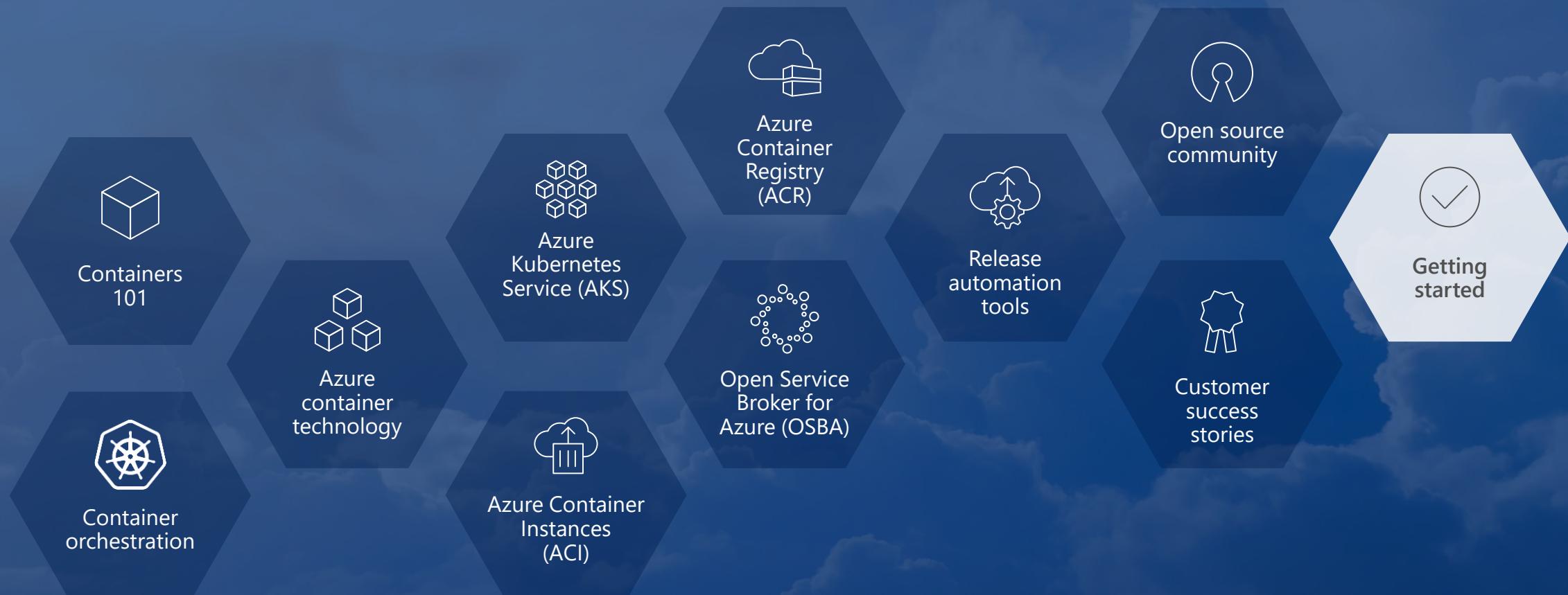
Germany

### Business need

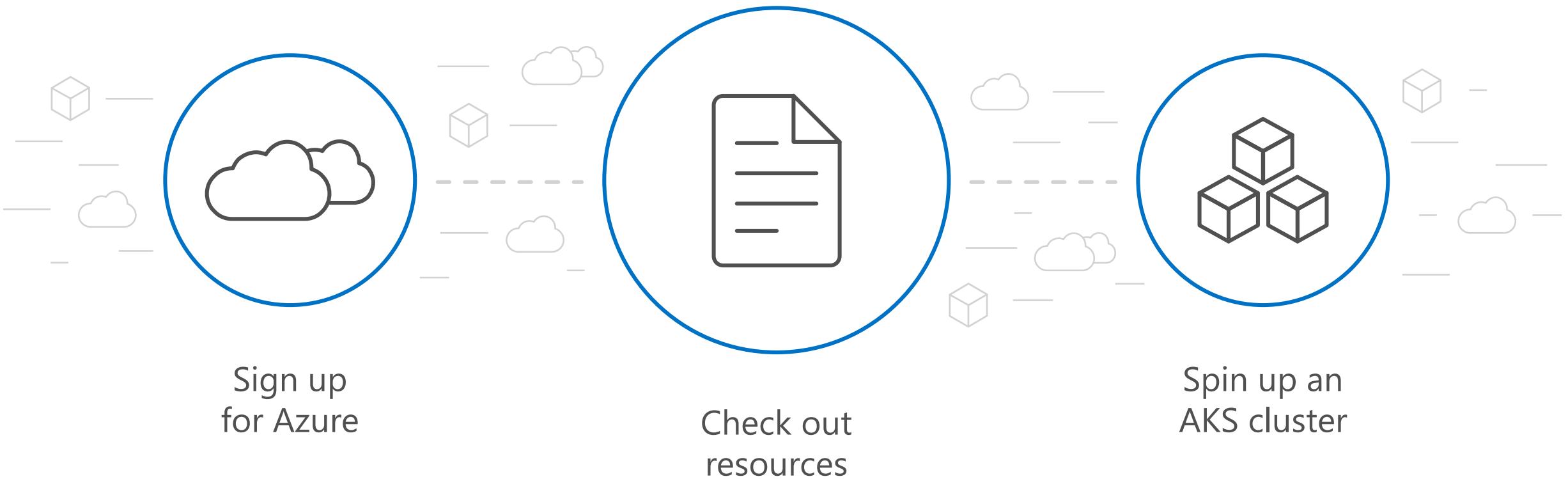
Faster application  
development



# Getting started



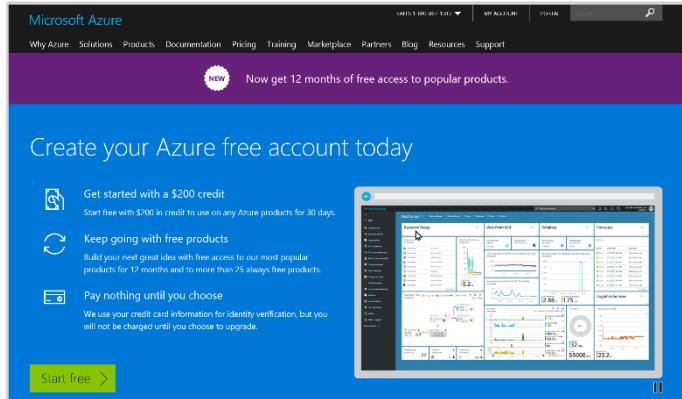
# Get started **today!**



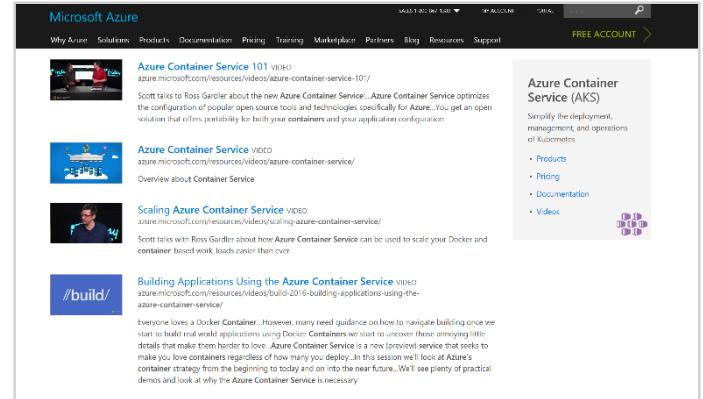
# Check out resources

- Azure Kubernetes Service (AKS)
  - Part of the K8S Conformance Program
- Azure Container Instances (ACI)
  - <https://aka.ms/aci/ga-blog>
- Azure Container Registry (ACR)
  - <https://aka.ms/acr/build>
- OSBA announcement blog
- Draft | Helm | Brigade
- IoT Edge + Virtual Kubelet

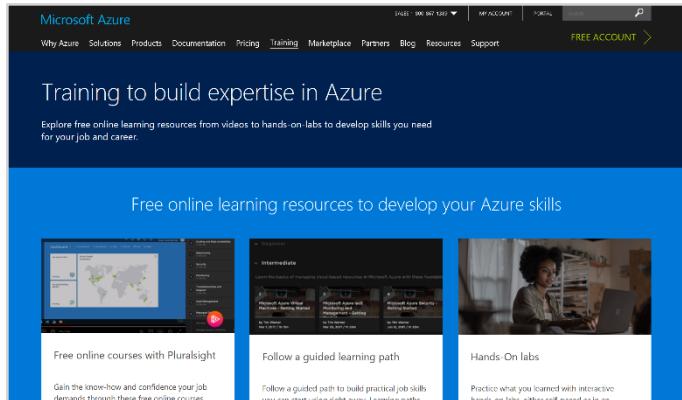
## Sign up for a free Azure account



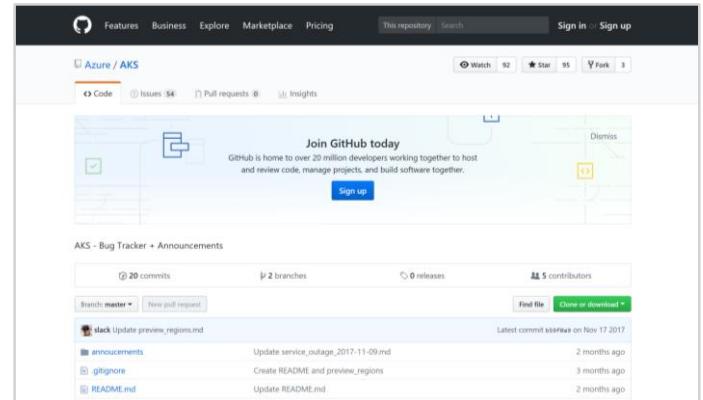
## Check out the Azure container videos page



## Hone your skills with Azure training



## Get the code from GitHub



# Microsoft //build 2018

channel9.msdn.com/Events/Build/2018?tag=containers

filters ▾ Recent<sup>x</sup> Containers<sup>x</sup>



Microsoft Build 2018  
Easily run containers on Azure using Azure Container Instances (ACI)



Microsoft Build 2018  
Modernize applications and reduce TCO with Windows containers on Azure Service Fabric



Microsoft Build 2018  
Building, Running, Patching Docker Containers – The Paradigm Shift



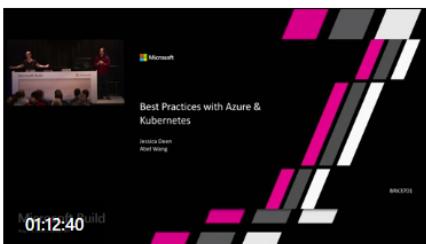
Microsoft Build 2018  
Building Resilient Microservices with .NET Core and Azure Container Services (AKS)



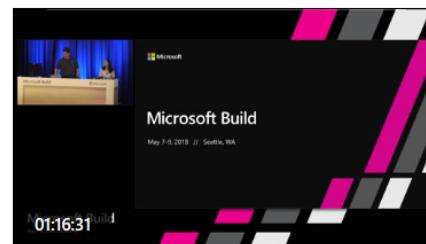
Microsoft Build 2018  
Modernizing existing .NET applications with Windows Containers and Azure cloud



Microsoft Build 2018  
Iteratively Develop Microservices with Speed on Kubernetes



Microsoft Build 2018  
Best Practices with Azure & Kubernetes



Microsoft Build 2018  
Modernizing Mission-Critical Apps with...



Microsoft Build 2018  
Enhancing DevOps with SQL Server on Linux

# Scott Hanselman

## Why should I care about Kubernetes, Docker, and Container Orchestration?

SCOTT HANSELMAN

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## Why should I care about Kubernetes, Docker, and Container Orchestration?

February 8, '18   [Comments \[37\]](#)   Posted in [Docker](#) | [Kubernetes](#)

A person at work chatted me, commenting on my recent blog posts on the [Raspberry Pi Kubernetes Clusters](#) that are being built, and wondered "why should I care about Kubernetes or Docker or any of that stuff?"



Great question, and I'm figuring it out myself. There are lots of resources out there but none that spoke my language, so here's my thoughts and how I explain it.

# Brendan Burns

## The Future of Kubernetes Is Serverless

### The Future of Kubernetes Is Serverless

24 Apr 2018 11:03am, by [Brendan Burns](#)



3

From the beginning of the container revolution two things have become clear: First, the decoupling of the layers in the technology stack are producing a clean, principled layering of concepts with clear contracts, ownership and responsibility. Second, the introduction of these layers has enabled developers to focus their attention exclusively on the thing that matters to them — the application.

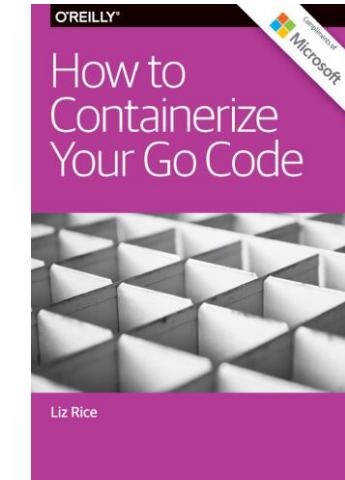
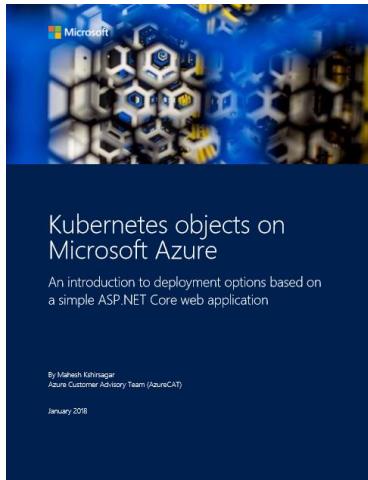
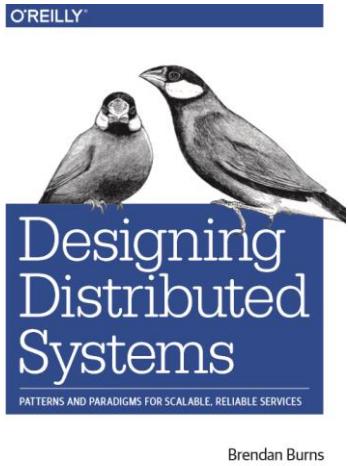
In fairness, this has happened before, and the first generation of Platforms as a Service (PaaS) was squarely aimed at enabling developers to adopt “serverless” architectures. The trouble was, that as is the case in many



Brendan Burns,  
Distinguished  
Engineer,  
Microsoft

Brendan Burns is a Kubernetes co-founder and now a

# Download **free ebooks**





Merci !  
Thank You!