



Azure Application Development Platform

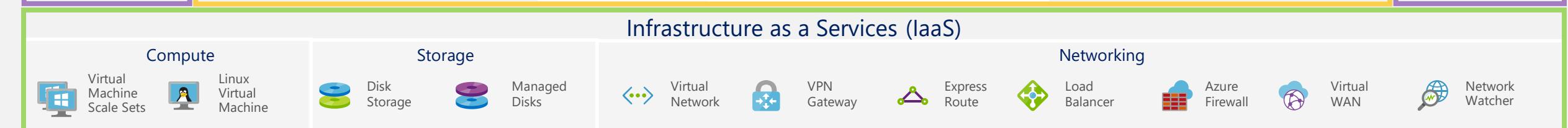
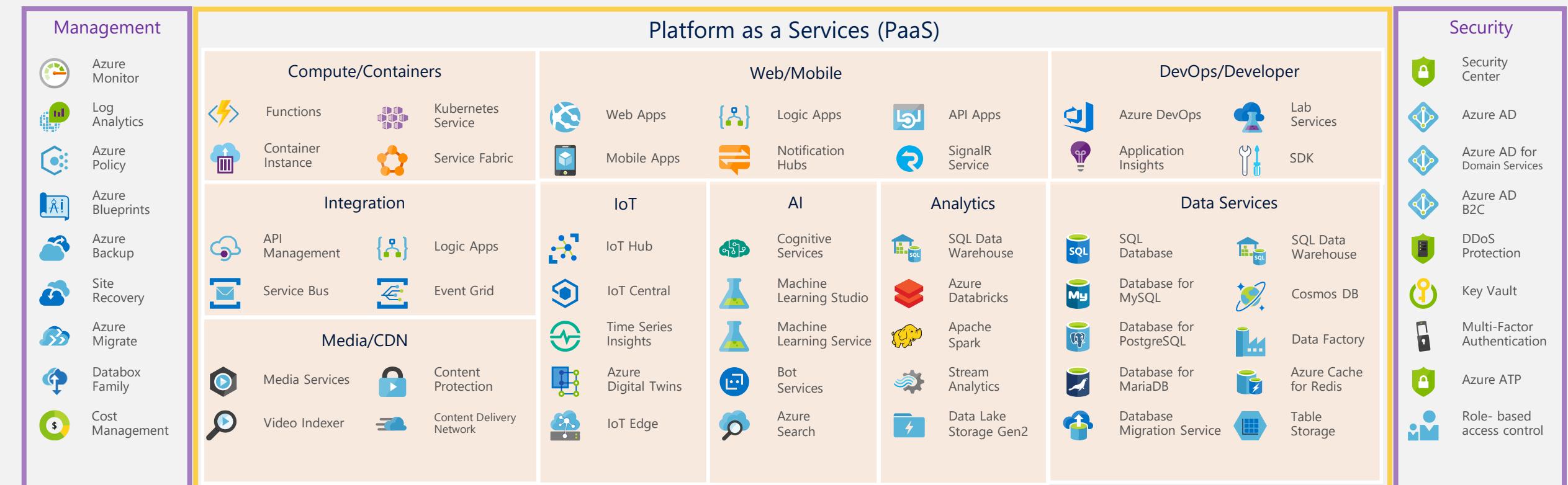
Ngan Menegay – Azure AppDev Specialist
Pradeep Kumar – Sr. Cloud Solutions Architect

Agenda

- Introductions
- Azure Platform
 - Azure Fundamentals
 - App Services
 - Serverless
 - Containers and AKS
 - Architectures
- Q&A

What is Azure?





Azure Datacenter Infrastructure



Regions

A region represents a collection of datacenters

Provides flexibility and scale

Preserves data residency

Select regions close to your users

Be aware of region deployment availability

There are global services that are region independent

Regions are paired for high availability

Worldwide there are 60+ regions representing 140 countries



A list of regions and their locations is available at <https://azure.microsoft.com/en-us/global-infrastructure/locations/>

Azure Global Network

Enable a wide range of enterprise and consumer services with a highly available, secure, and agile network

Extend your reach across 60+ Azure regions with speed and scale to meet your needs.

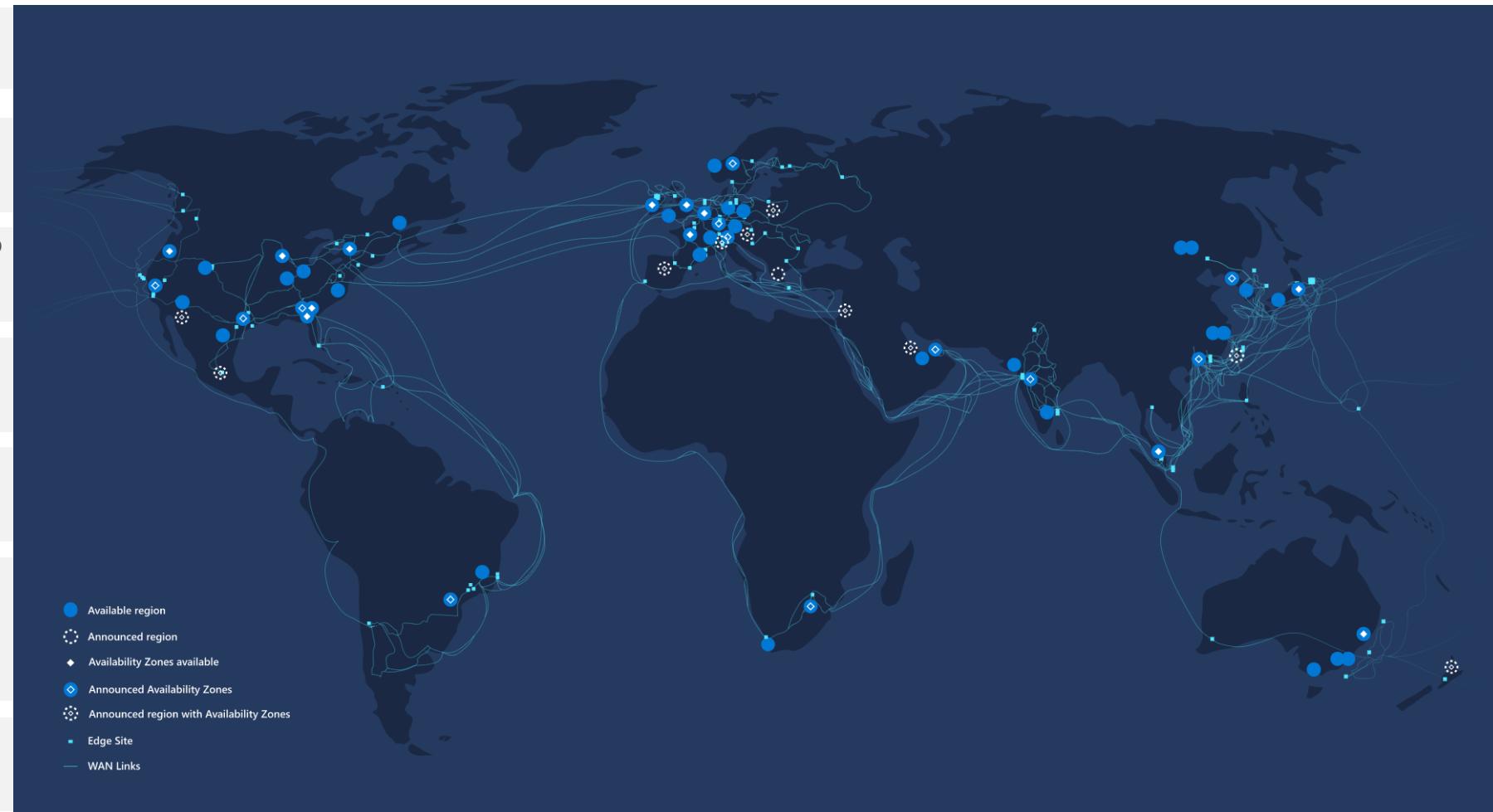
Trust the same resilient network infrastructure that supports Skype, Bing, and Microsoft Exchange.

Fastest connectivity from your datacenter to the cloud at 100 Gbps through Azure ExpressRoute.

More than 170 global network POPs.

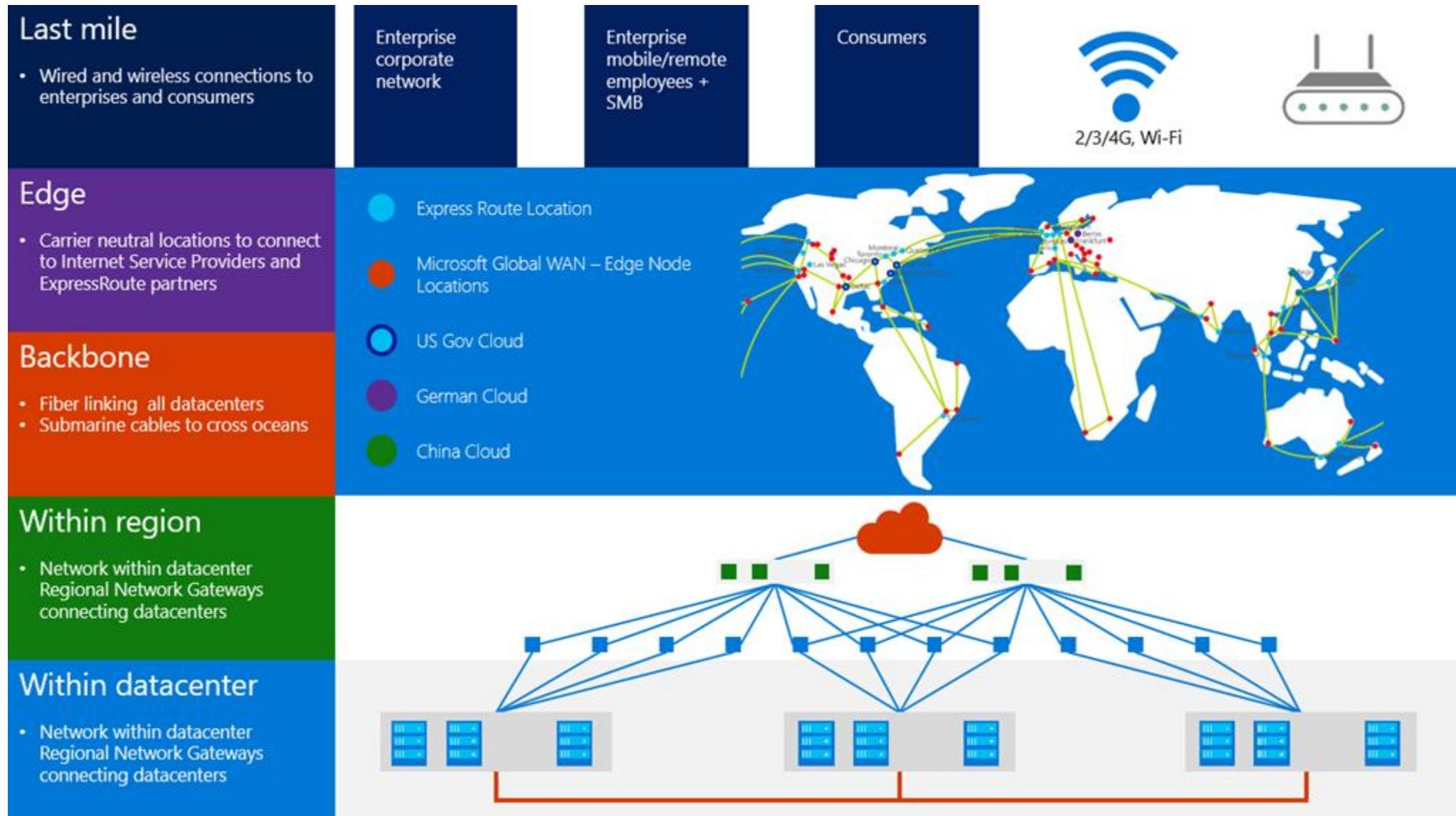
IP traffic stays entirely within our global network and never enters the public Internet.

130,000 Miles of lit fiber optic and undersea cable systems.



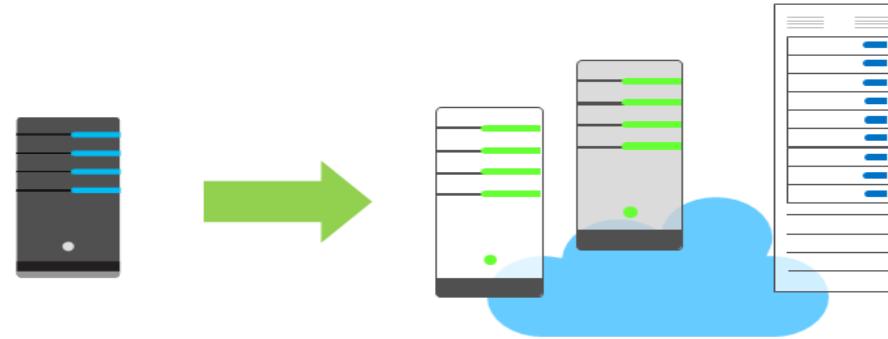
[Global Network – Backbone Networking Infrastructure | Microsoft Azure](#)

Azure Global Network



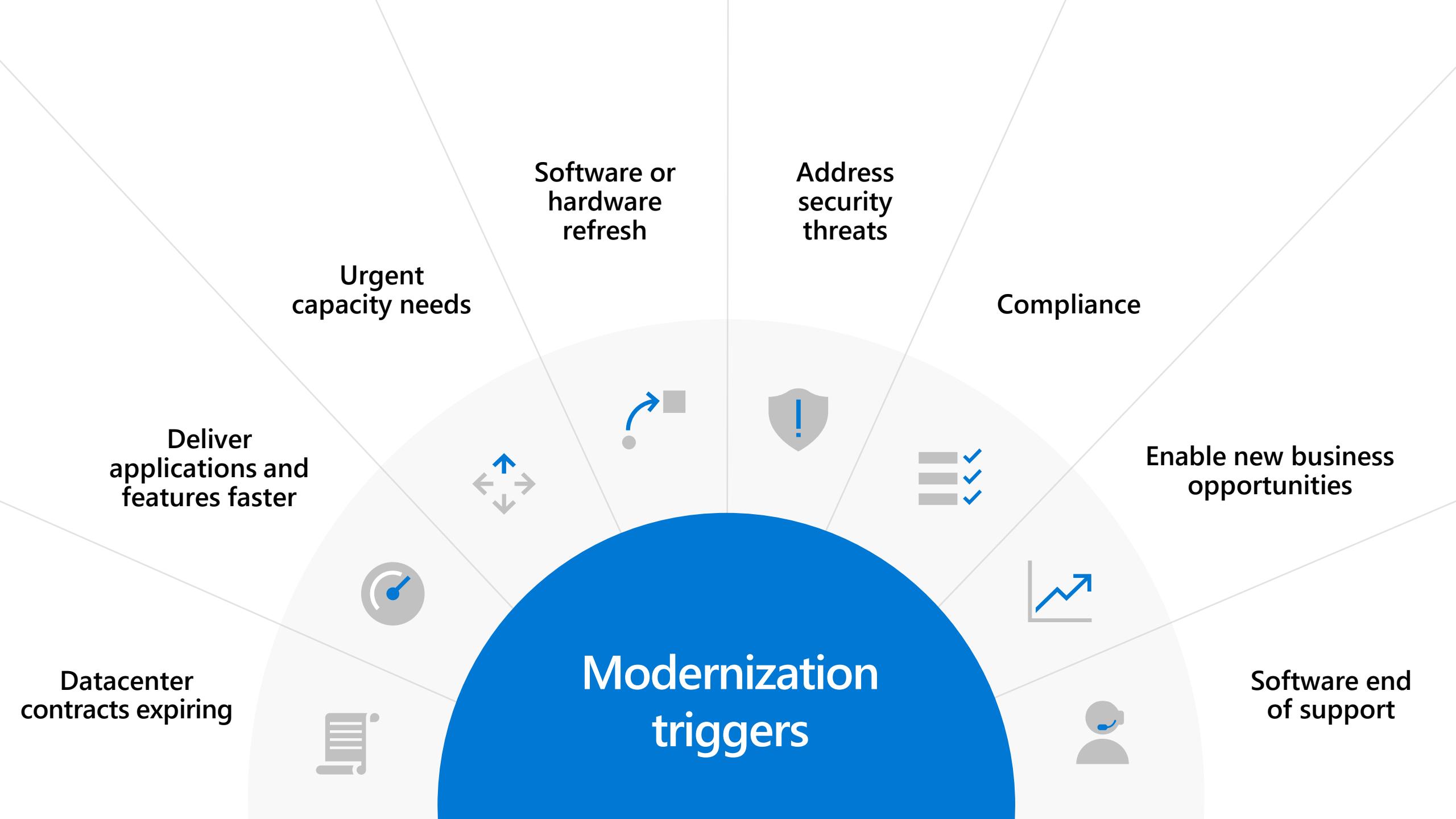
Economies of Scale

The concept of *economies of scale* is the ability to reduce costs and gain efficiency when operating at a larger scale in comparison to operating at a smaller scale.



Cloud providers are very large businesses, and thus can leverage the benefits of economies of scale and then pass those benefits on to their customers.

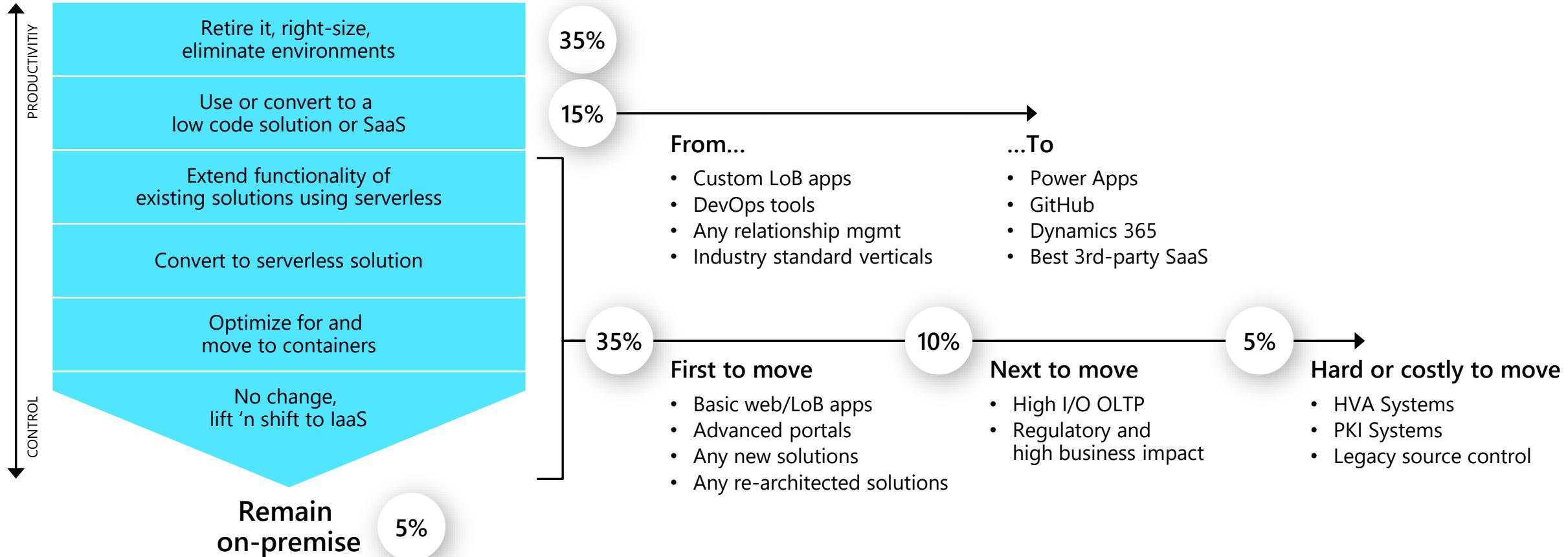
Modernization triggers



Different paths - one journey to the cloud

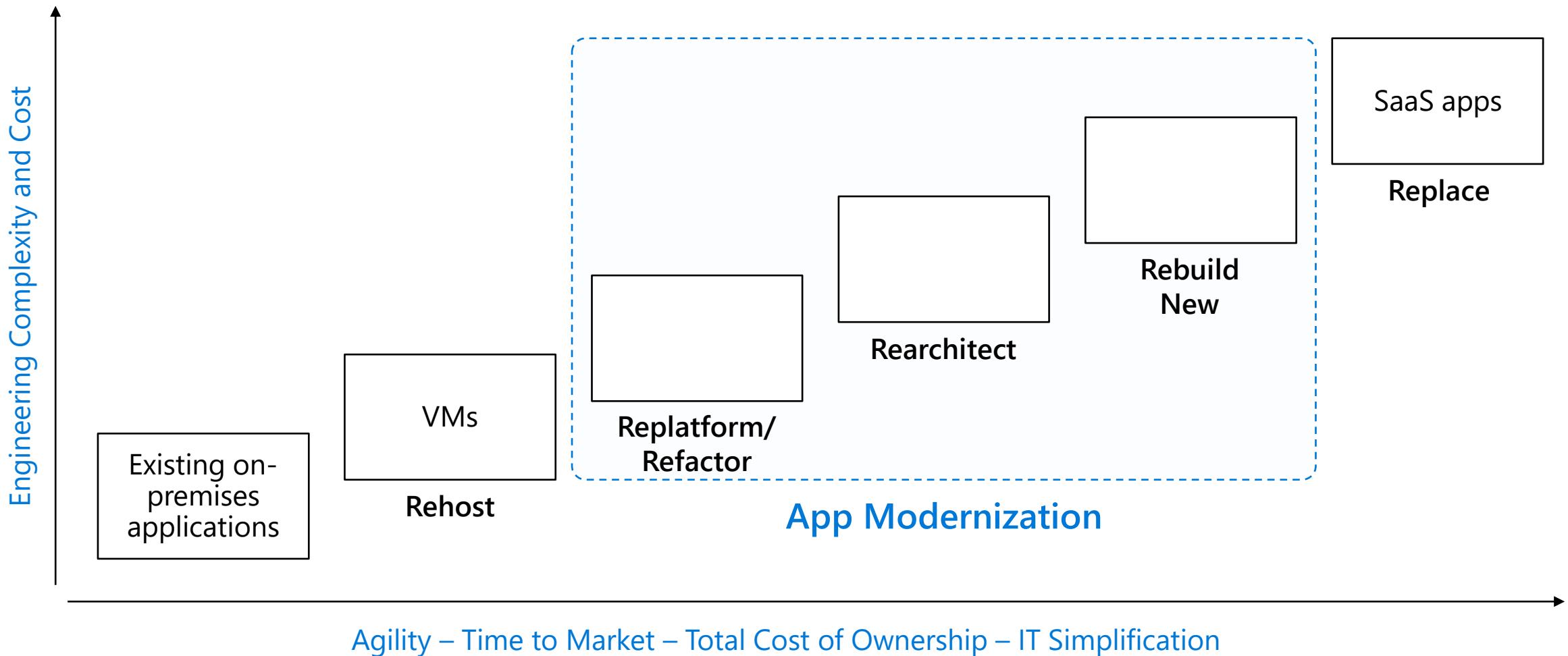
On-premises	Migration & Modernization					SaaS
	App	Data	Infrastructure	Rehost	Replatform / Refactor	Rearchitect
Description	Rehost Redeploy as-is to cloud	Replatform / Refactor Minimally alter to take better advantage of cloud	Rearchitect Materially alter/decompose application to services	Rebuild/New New code written with Cloud-Native approach		
Business drivers	<ul style="list-style-type: none">Reduce Capex.Free datacenter space.Quick cloud ROI.	<ul style="list-style-type: none">Faster, smaller updates.Code portability.Greater cloud efficiency (resources, speed, cost).	<ul style="list-style-type: none">App scale and agility.Easier adoption of new cloud capabilities/technologies.Mix technology stacks.	<ul style="list-style-type: none">Accelerate innovation.Build apps faster.Reduce operational cost.		
Core technologies	IaaS	PaaS Containers		PaaS Serverless Microservices		
Business results	IaaS: 435% ROI, 73% reduction in datacenter footprint and 83% reduced IT outsourcing cost.	PaaS: 466% ROI, 80% time saved, 5.91M NPV, 50% faster deployments. Containers: 13x more releases, 10x cost reduction, 65% faster developer onboarding, 62% better availability.				

Not all applications will follow the same path



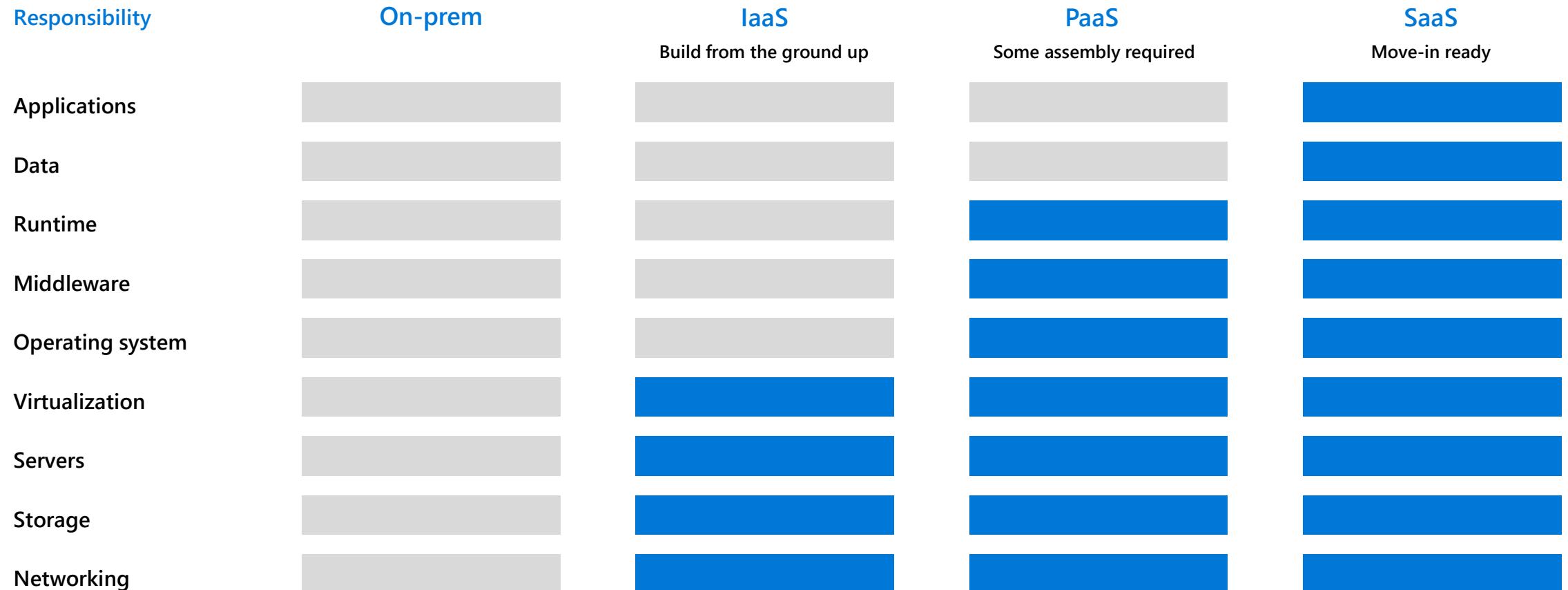
Note: This slide leverages inputs from app mod journey of Microsoft IT. % stats would vary from one customer to another.

Cloud App **Continuum**



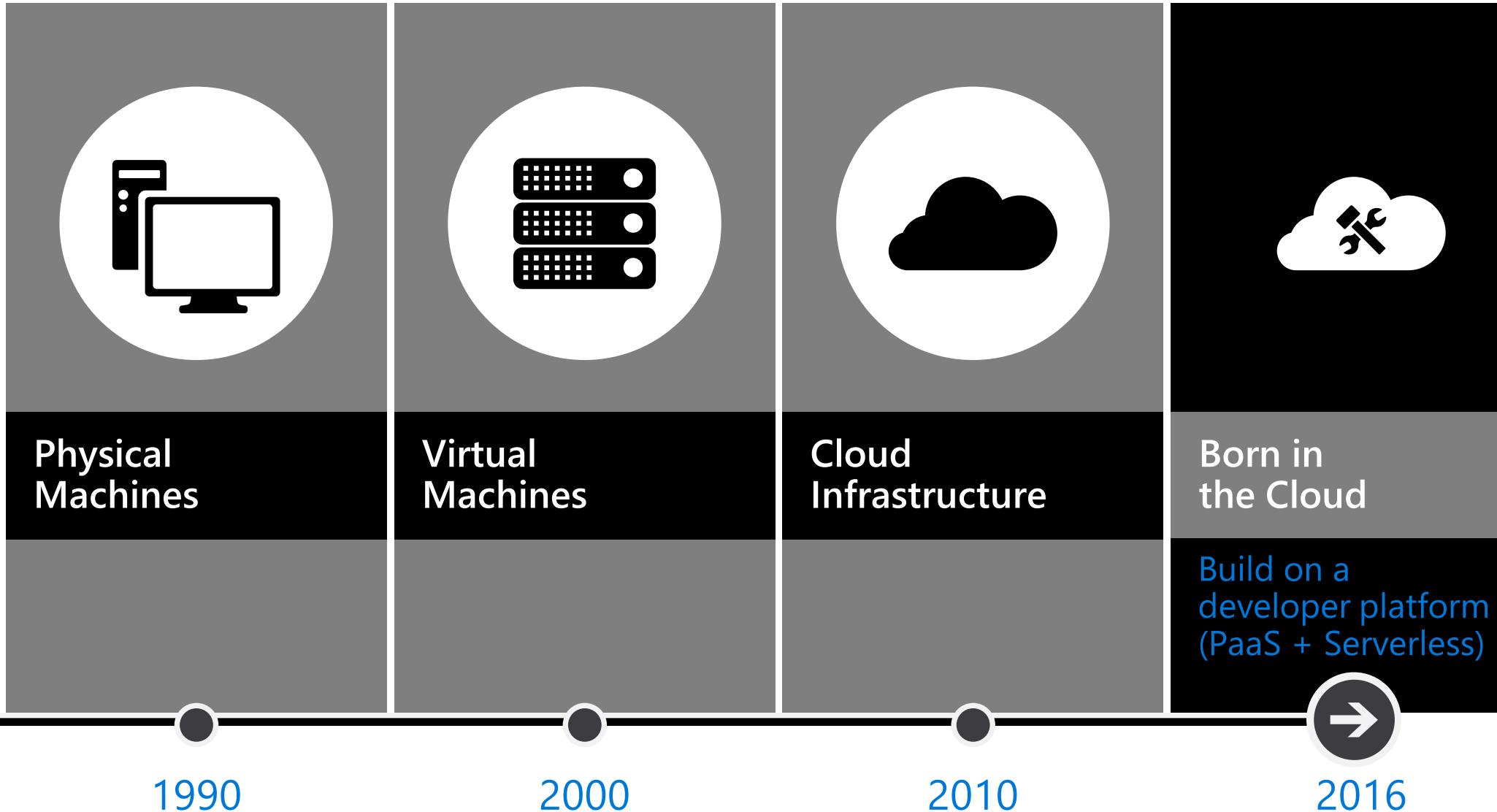
The traditional tenants of hosting

Choose the right balance of control and responsibility based on your needs

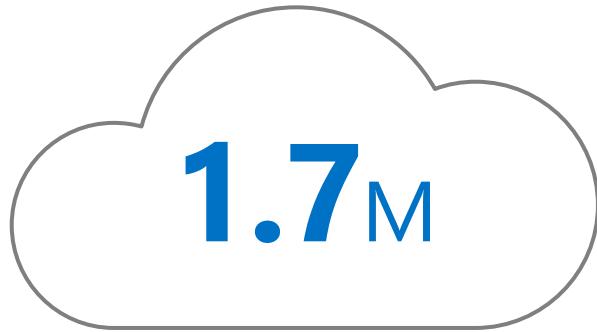


The changing world of app development

Mainframe
Monolithic
Client/Server
3 Tier
Component
RAD
Distributed
SOAP
SOA
Web
REST
Mobile
Microservices
Containers
Serverless

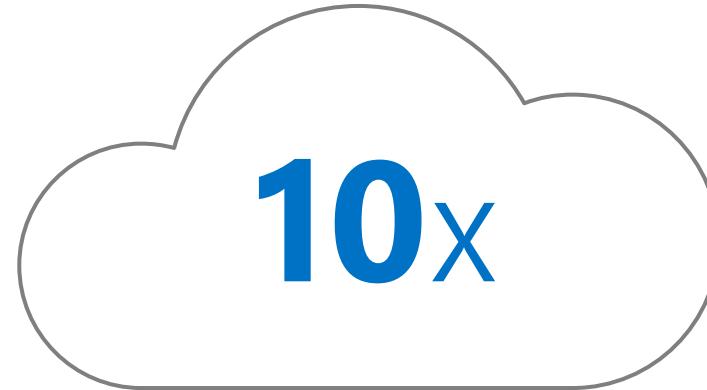


Azure App Dev Momentum



External apps and sites
hosted on **App Service**

Application Modernization



Kubernetes growth on Azure
over the last 12 months

Cloud-Native



YoY increase in deployments
to Azure from **Visual
Studio Team Services**

DevOps

The journey to the cloud



IaaS/VM/Compute

Own your car



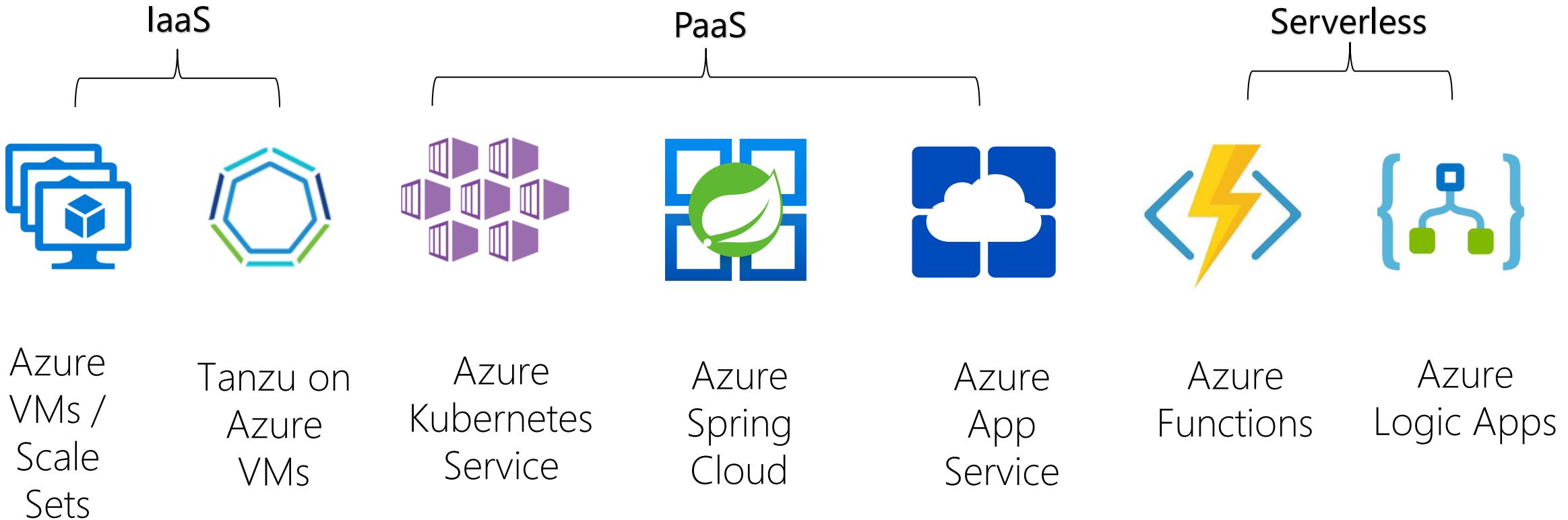
Platform as a Service

Rent a car



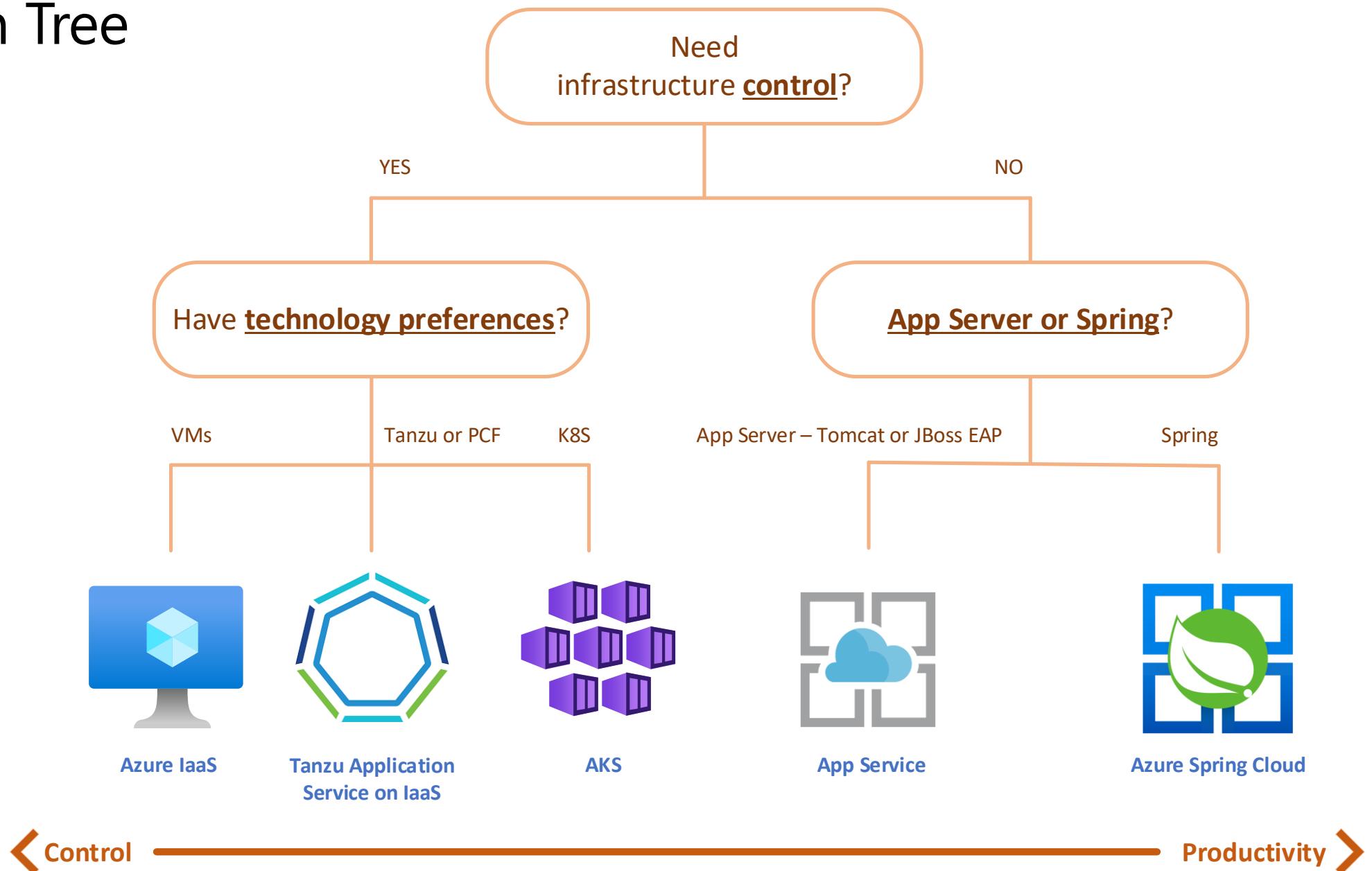
Serverless / SaaS

Rideshare

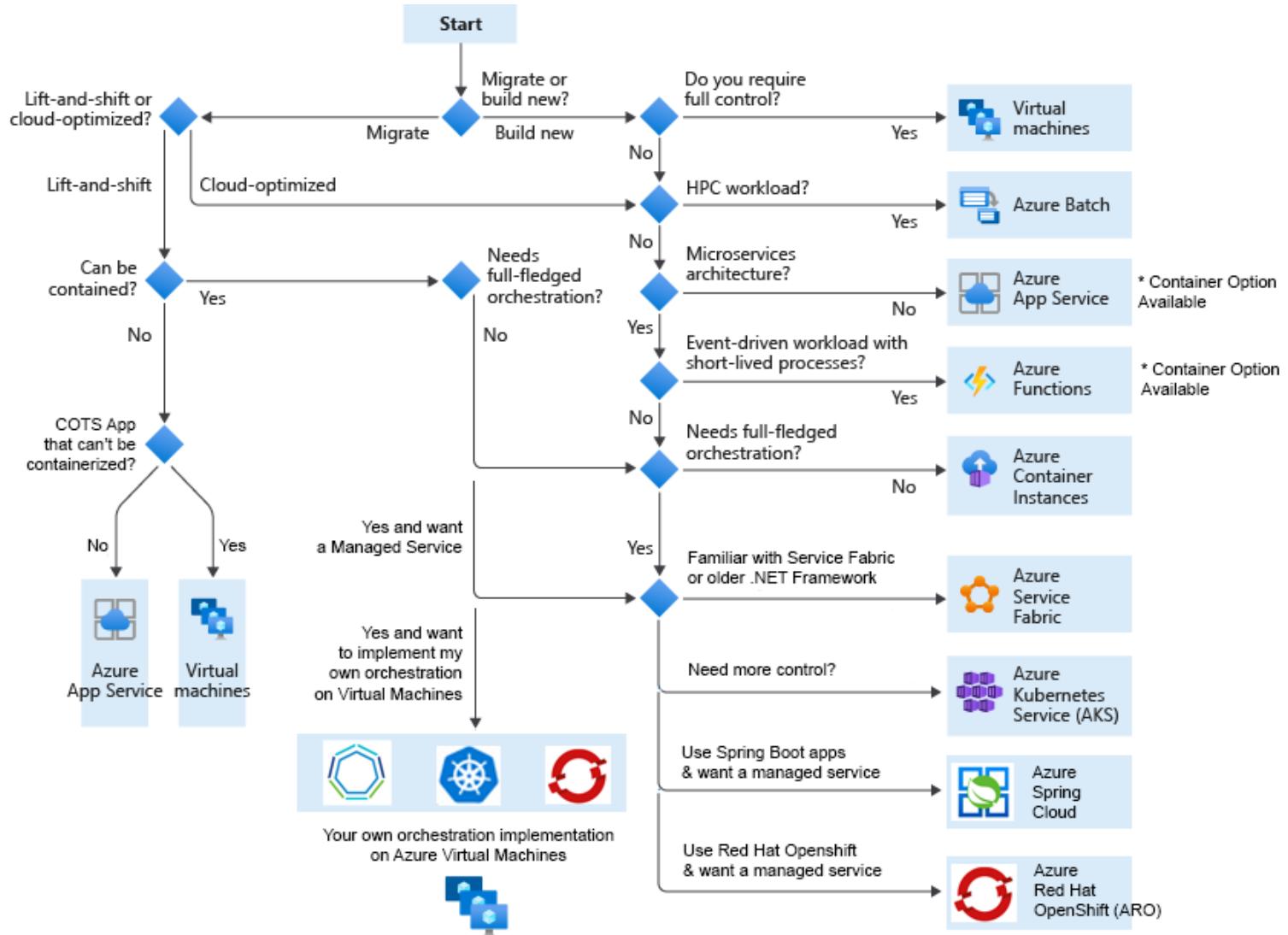


Control -----> Productivity

Decision Tree



Choose an Azure compute service for your application



Azure App Service

Create powerful web apps
using a fully-managed cloud platform



Azure App Service

Quickly build, deploy and scale powerful cloud applications without worrying about infrastructure



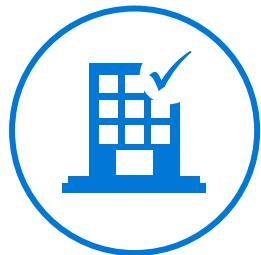
High productivity

Accelerate development using existing language skills, familiar frameworks, built-in CI/CD, and intelligent diagnostic capabilities



Fully managed

Focus on application logic and let Azure take care of mundane tasks like capacity provisioning, OS patching, scaling, load balancing and domain management



Enterprise grade

Meet rigorous performance, security and compliance requirements through a choice of hosting options, robust regulation support and MSI integration

Azure App Service Benefits



High-productivity for devs & ops



.NET, Node, Java, Docker, PHP, Ruby, Python



Deploy containers on Windows & Linux



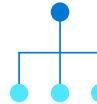
Staging & deployment



Testing in production



App gallery marketplace



Fully-managed



Auto scale & load balancing



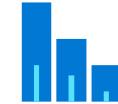
High availability w/auto patching



Reduced operations costs



Backup & recovery



Enterprise-grade



Global data center footprint



Hybrid support



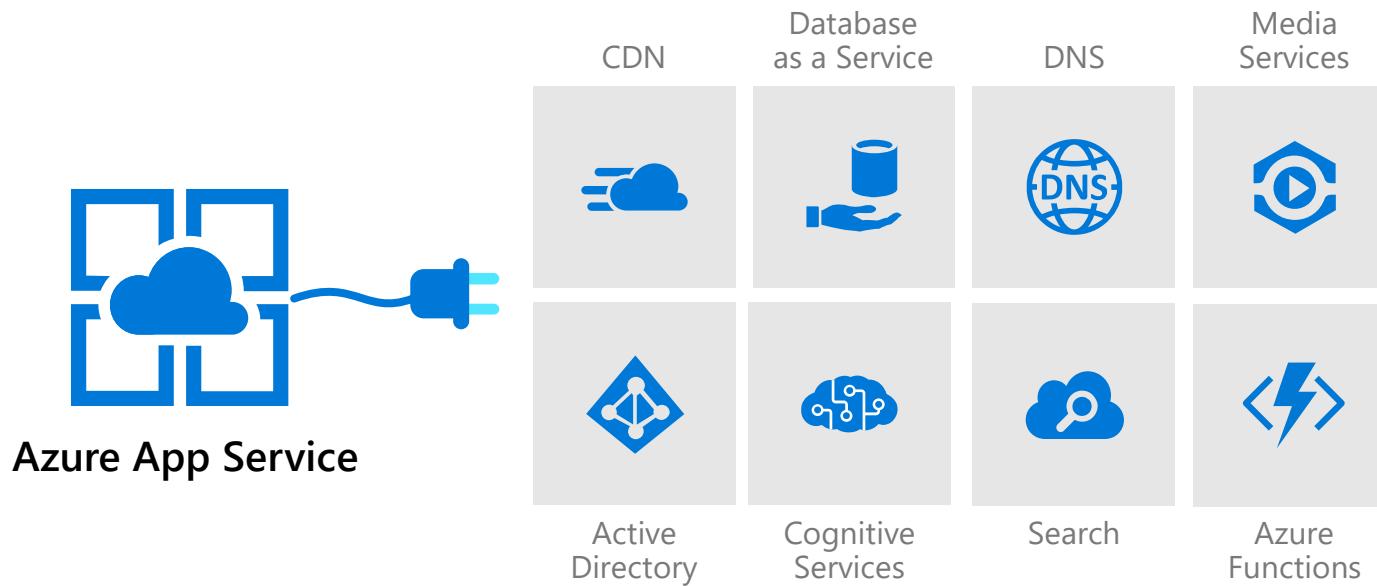
Azure Active Directory integration



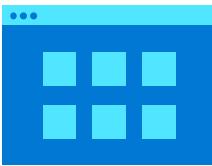
Secure & compliance

Easily extend your application's capabilities

Connect to other managed services to meet specific web app needs

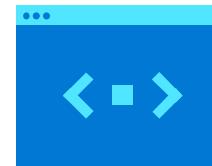


Common Azure App Service scenarios



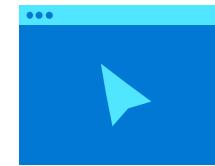
Website apps

Connect with customers worldwide with digital campaigns that are personalized and scalable



Transactional apps

Give customers what they want with a personalized, scalable, and secure shopping experience

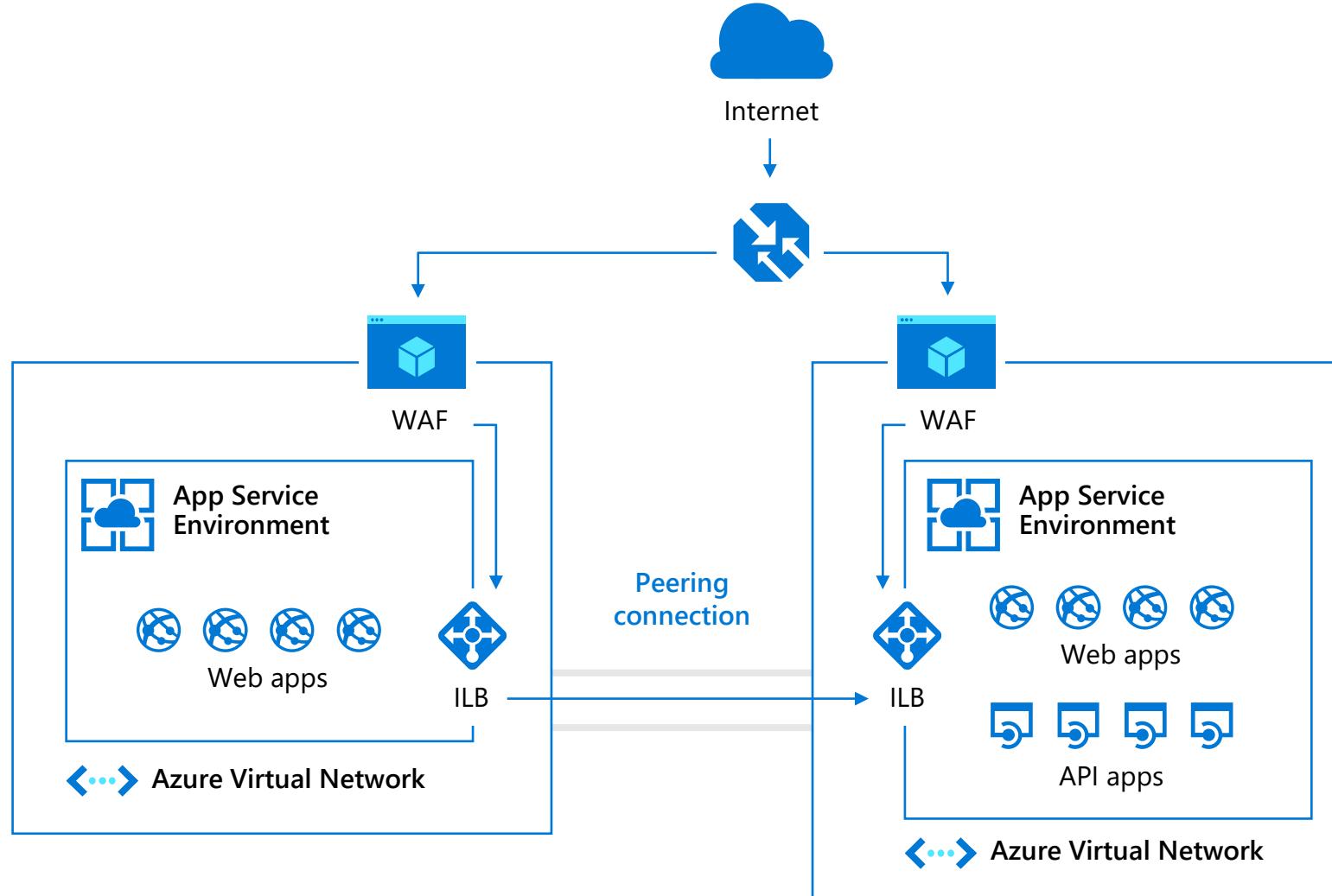


Line of business app modernization

Reduce IT development and maintenance cost leveraging consistent identity, app platform, data, and management solutions

Multi-tier apps with ASE

ILB ASE with geo distribution



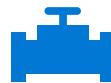
Web apps for containers

Easily deploy and run container-based web apps at scale

Accelerated outer loop



Tight integration w/
Docker Hub, Azure Container Registry



Built-in CI/CD w/
Deployment Slots



Intelligent diagnostics &
troubleshooting, remote debugging

Fully managed platform



Automatic scaling
and load balancing



High availability
w/ auto-patching



Backup & recovery

Flexibility & choices



From CLI, portal, or
ARM template

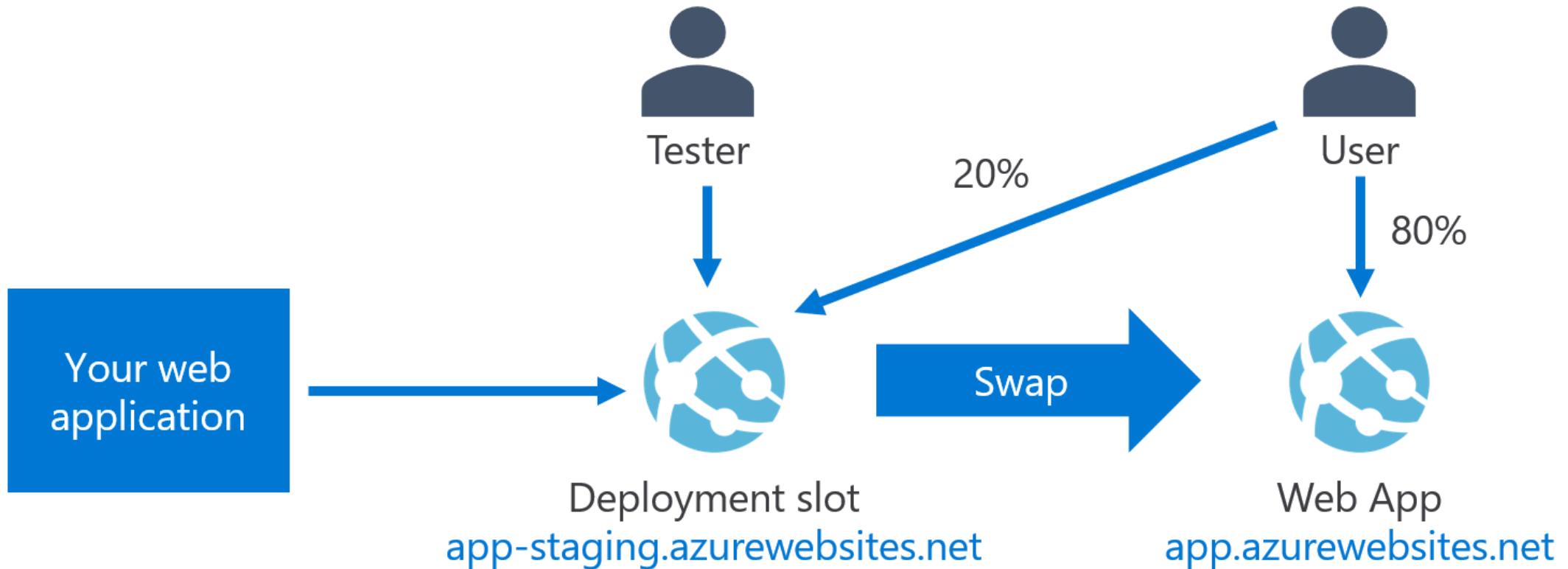


Single Docker image,
multi container w/ Docker compose,
or Kubernetes Pod Definition



IntelliJ, Jenkins, Maven Visual Studio family

App Service Deployment Slots



App Service Auto Scale (Out)

Save Discard Disable autoscale Refresh

configure Run history JSON Notify

Autoscale setting name ScaleonCPU

Resource group AzureOverview_WE

Instance count 1

Default Auto created scale condition

Delete warning The very last or default recurrence rule cannot be deleted. Instead, you can disable it.

Scale mode Scale based on a metric Scale to a specific instance count

It is recommended to have at least one scale rule.

Rules

Scale out

When azureoverviewplan (Average) CpuPercentage > 30

+ Add a rule

Instance limits

Minimum	Maximum	Default
1	10	1

Schedule This scale condition is executed when none of the other scale condition(s) match

Criteria

* Time aggregation Average

* Metric name Http Queue Length 1 minute time grain

* Time grain statistic Average

* Operator Greater than

* Threshold 70 count

* Duration (in minutes) 10

Action

* Operation Increase count by

* Instance count 1

* Cool down (minutes) 5

Add

Application Insights

- Request rates, response times, and failure rates
- Dependency rates, response times, and failure rates
- Exceptions
- Page views and load performance
- AJAX calls from web pages
- User and session counts
- Performance counters
- Host diagnostics
- Diagnostic trace logs
- Custom events and metrics

Application Insights

Home > fabrikamprod

fabrikamprod

Application Insights

Search (Ctrl+ /) Application Dashboard Search Analytics Refresh Feedback Favorites Rename Delete

We've made the new Overview the default experience. Deep linking for the new tiles is coming soon. To read more click here. →

Resource group (change) Status Location Subscription (change) Subscription ID Instrumentation Key
Fabrikam -- South Central US AI - Prototypes - 1

Tags (change)
Click here to add tags

Show data for last: 30 minutes 1 hour 6 hours 12 hours 1 day 3 days 7 days 30 days

Failed requests
25
20
15
10
5
0
10:30 AM 10:45 AM 11 AM 11:15 AM
FAILED REQUESTS (SUM)
FABRIKAMPROD
346

Server response time
800ms
600ms
400ms
200ms
0ms
10:30 AM 10:45 AM 11 AM 11:15 AM
SERVER RESPONSE TIME (AVG)
FABRIKAMPROD
76.25ms

Server requests
200
150
100
50
0
10:30 AM 10:45 AM 11 AM 11:15 AM
SERVER REQUESTS (SUM)
FABRIKAMPROD
2.53k

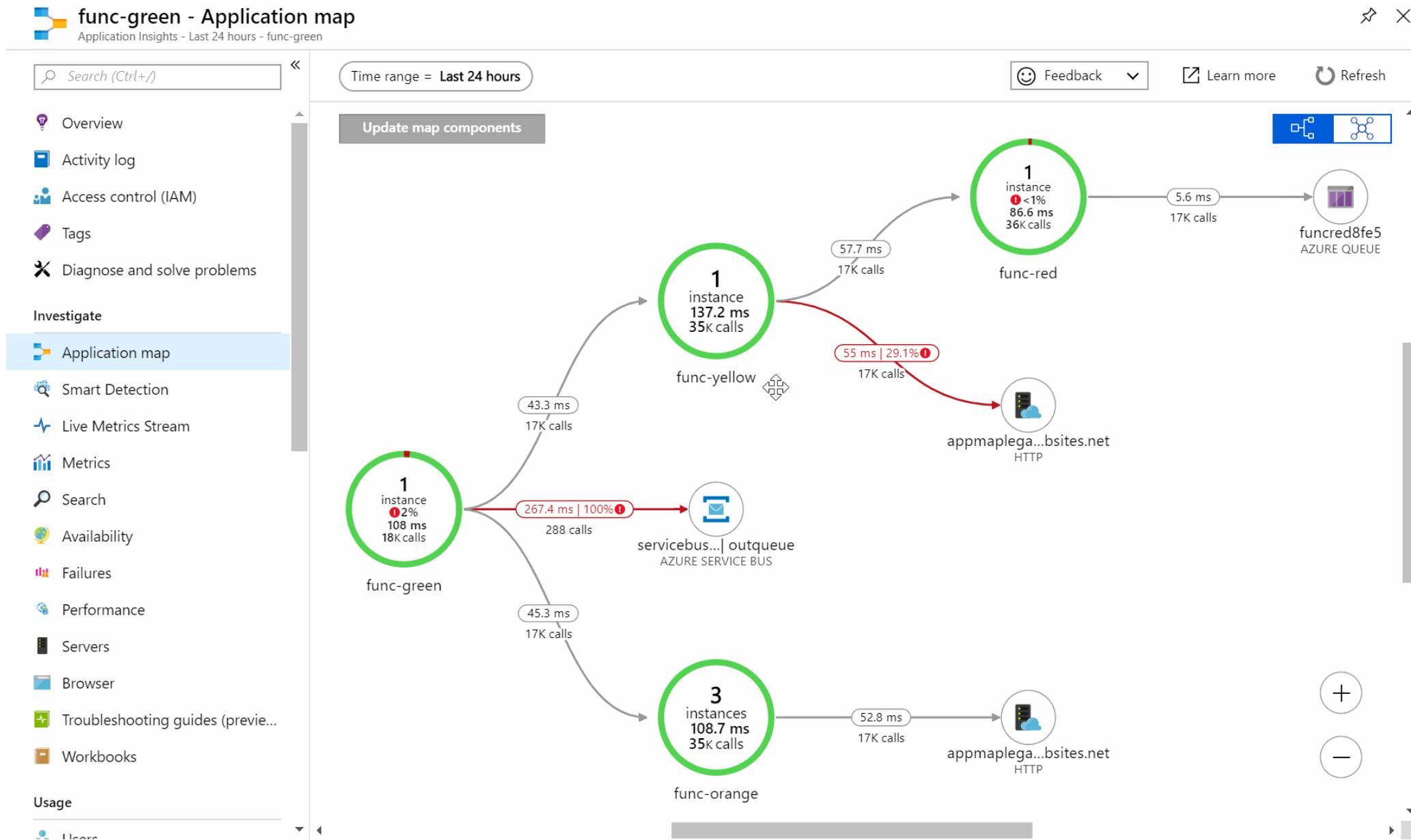
Availability
50%
40%
30%
20%
10%
0%
10:30 AM 10:45 AM 11 AM 11:15 AM
AVAILABILITY (AVG)
FABRIKAMPROD
43.5%

Overview Activity log Access control (IAM) Tags Diagnose and solve problems

INVESTIGATE

Application map Smart Detection Live Metrics Stream Metrics Explorer Metrics (preview) Search Availability

Application Map



Migrate your way

Use the code, container, or OS of your choice on Azure App Service, our fully-managed platform

Code



Container



OS



Serverless in Azure

What are the benefits?



Focus

Solve business problems—not technology problems related to undifferentiated heavy lifting



Efficiency

Shorter time to market
Fixed costs converted to variable costs
Better service stability
Better development and testing management
Less waste



Flexibility

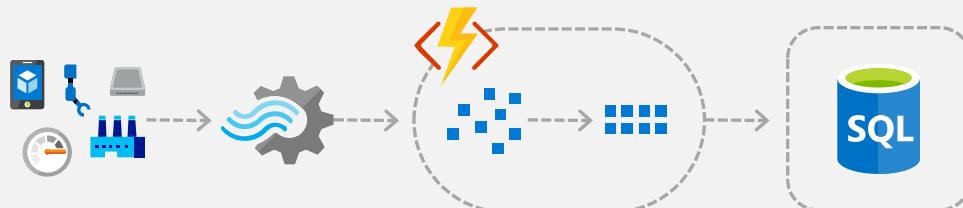
Simplified starting experience
Easier pivoting means more flexibility
Easier experimentation
Scale at your pace—don't bet the farm on Day 1
Natural fit for microservices



Scenarios for Serverless

Anything that needs to respond to events

Real-time stream processing



Millions of devices feed into Stream Analytics

Transform to structured data

Store data in SQL DB

Timer-based processing



Every 15 minutes

Find and clean invalid data

Clean table

Backends (Mobile/IoT/Web)

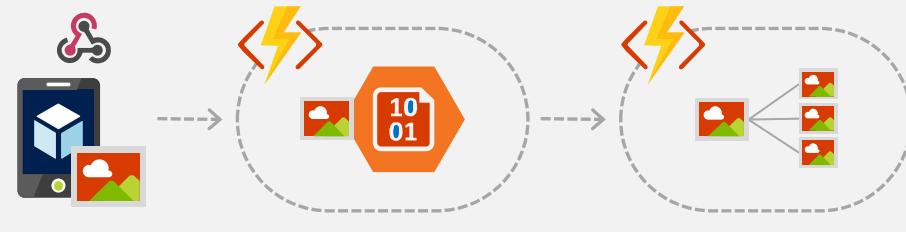


Photo taken and WebHook called

Stores in blob storage

Produces scaled images

Real-time bot messaging

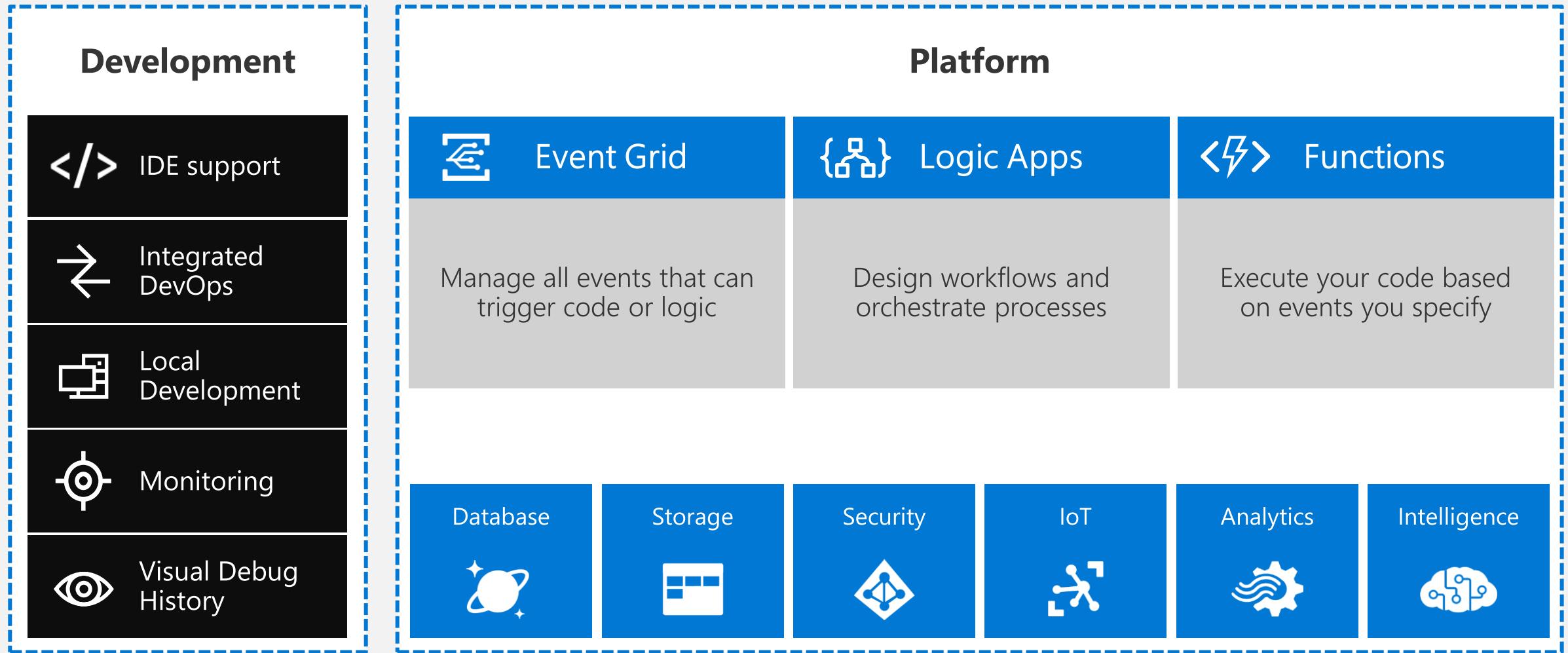


Message sent to Chatbot

Cortana Analytics answers questions

Chatbot sends response

Serverless application platform components



What are Azure Functions

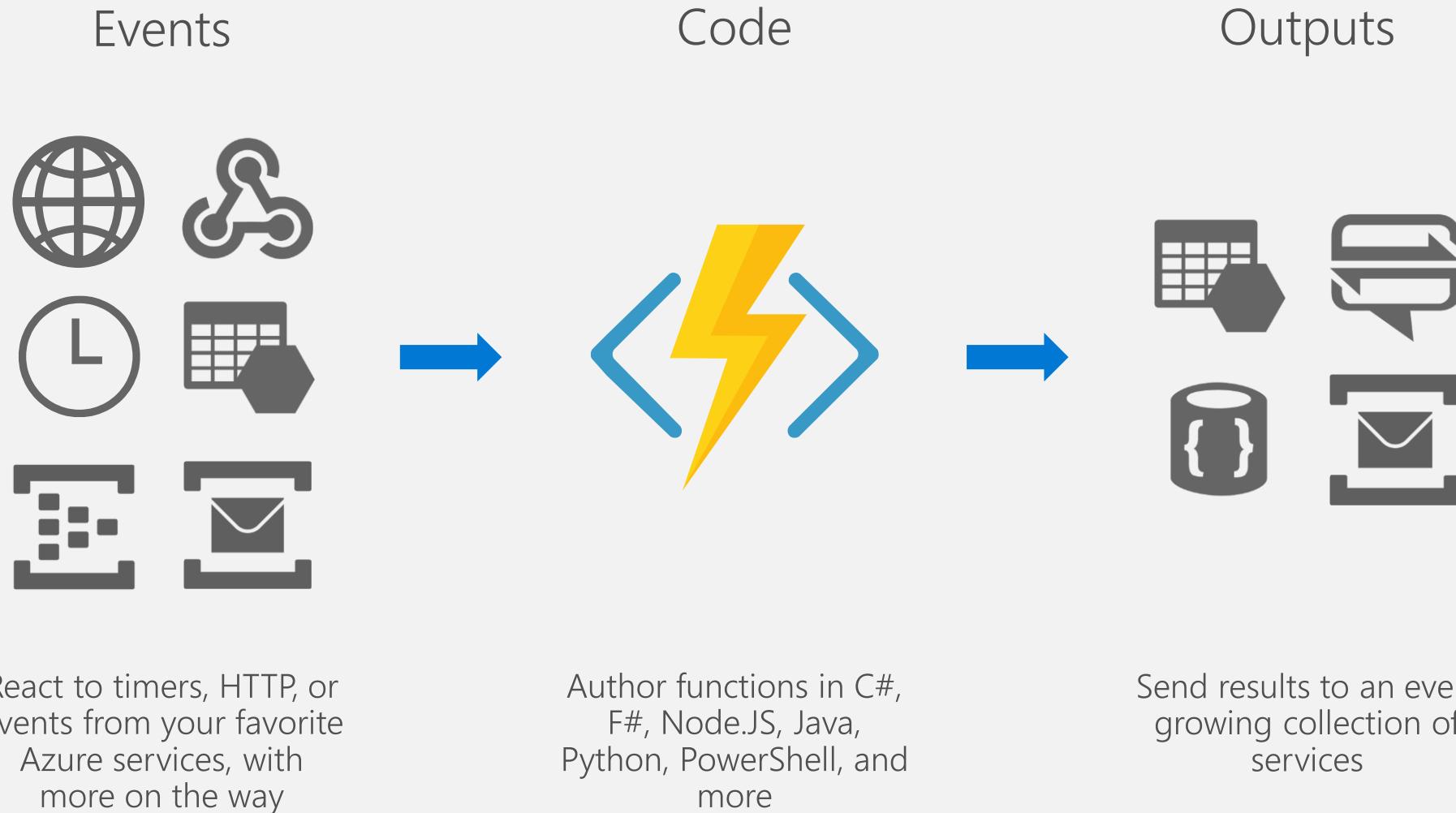
- Execute your code in response to any event

```
public static IActionResult Run([HttpTrigger(...)]HttpRequest req, TraceWriter log)
{
    log.Info("Azure Function triggered -- FunctionAPI");

    // Perform work

    return new OkResult();
}
```

Azure Functions



Azure Function Consumption vs App Service Plan

	App Service Plan	Consumption Plan
Function time out	Unlimited	Max 10 minutes
Scaling mode	Needs to be configured	Automatic
Scaling limits	Limited to App Service Plan	Unlimited
Function startup time	Fast, when you use Always On	Slower
OS options	Windows, Linux, Container	Windows
Pricing	Fixed per month	Based on consumption

Key Functions Concepts

- a. Function App – Unit of development and deployment. Can have many functions
- b. Triggers – Event source that starts the function. One per function
- c. Bindings
 - **Input** – Data that is pulled **in** at the start of an execution. Can have multiple
 - **Output** – Data that is pushed **out** after an execution. Can have multiple

Popular Triggers and Bindings

HTTP

Storage Queues

Cosmos DB

Event Hubs

Blob Storage

Service Bus Queues/Topics

Event Grid

IoT Hub

And more...

Where Functions Fit

Running custom
code in a workflow
(Logic Apps /
BizTalk)

Processing on top
of event streams
(IoT, Event Hubs,
Kafka, etc.)

Web APIs and
mobile backends

Participating in an
Enterprise Service
Bus

Automating scripts
and jobs

Language options



Levels of support

There are two levels of support:

- **Generally available (GA)** - Fully supported and approved for production use.
- **Preview** - Not yet supported but is expected to reach GA status in the future.

Languages by runtime version

Three versions of the [Azure Functions runtime](#) are available. The following table shows which languages are supported in each runtime version.

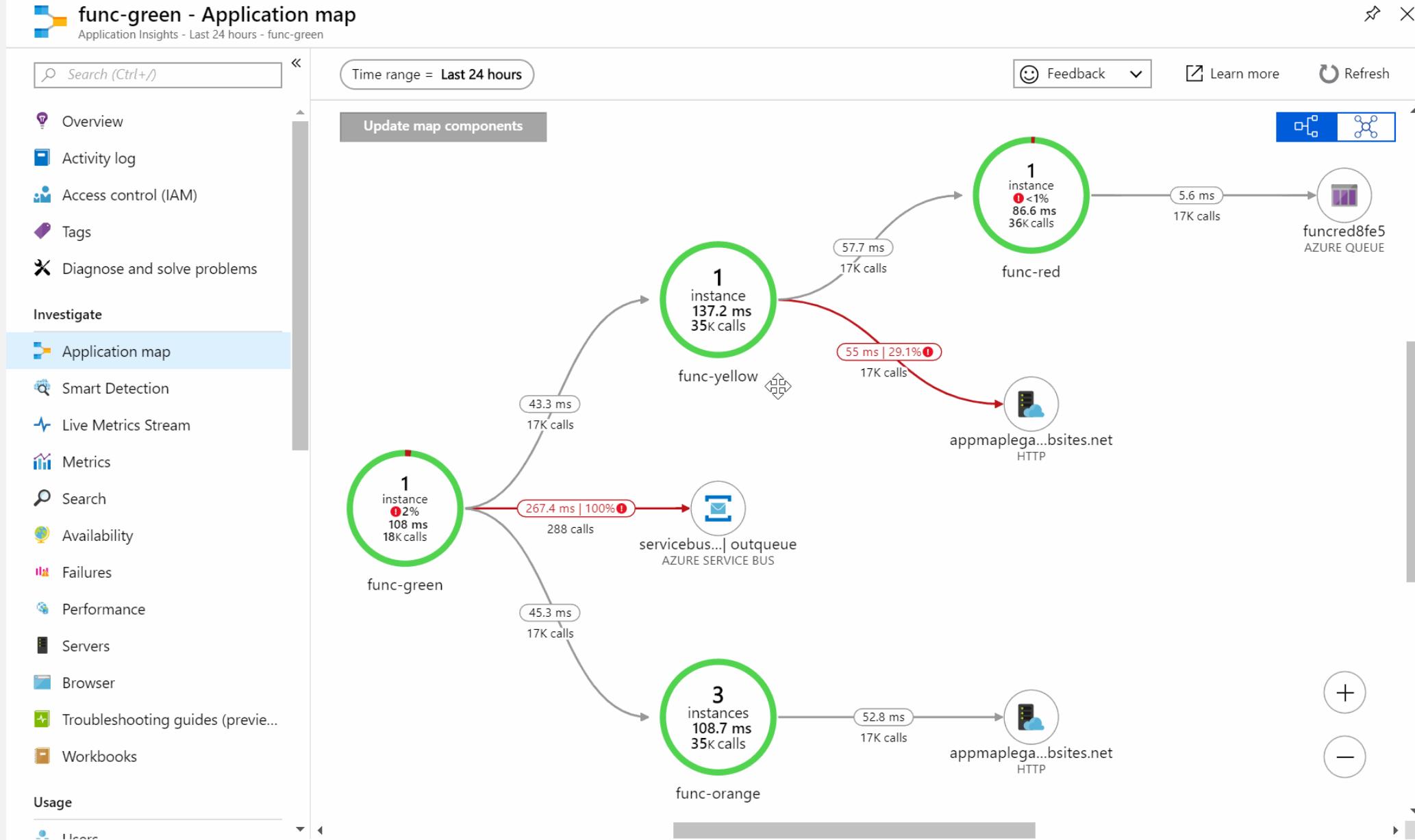
Language	1.x	2.x	3.x
C#	GA (.NET Framework 4.7)	GA (.NET Core 2.2)	GA (.NET Core 3.1)
JavaScript	GA (Node 6)	GA (Node 10 & 8)	GA (Node 12 & 11)
F#	GA (.NET Framework 4.7)	GA (.NET Core 2.2)	GA (.NET Core 3.1)
Java	N/A	GA (Java 8)	GA (Java 11 ¹ & 8)
PowerShell	N/A	GA (PowerShell Core 6)	GA (PowerShell 7 & Core 6)
Python	N/A	GA (Python 3.7 & 3.6)	GA (Python 3.8, 3.7, & 3.6)
TypeScript	N/A	GA ²	GA ²

¹ Language version support is currently in preview.

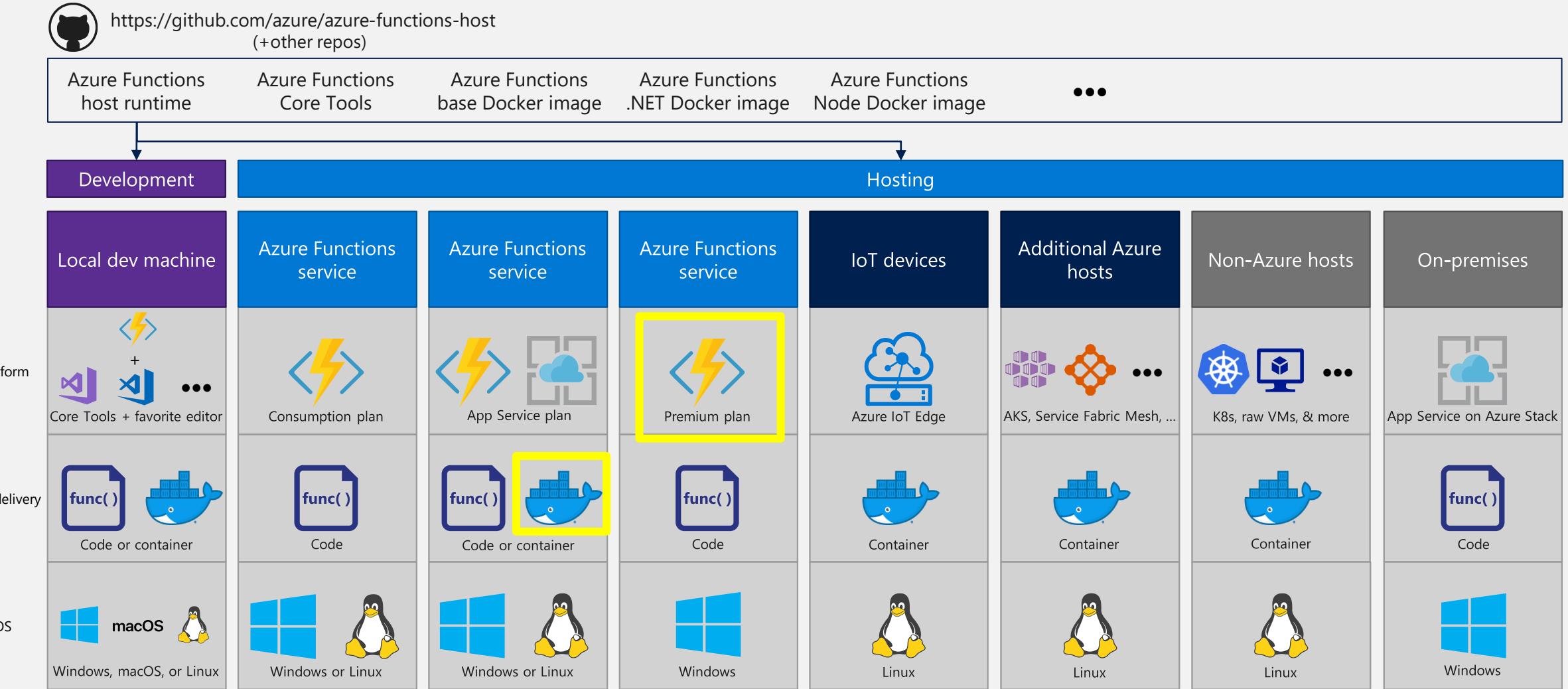
² Supported through transpiling to JavaScript.

For information about planned changes to language support, see [Azure roadmap](#).

Application Map

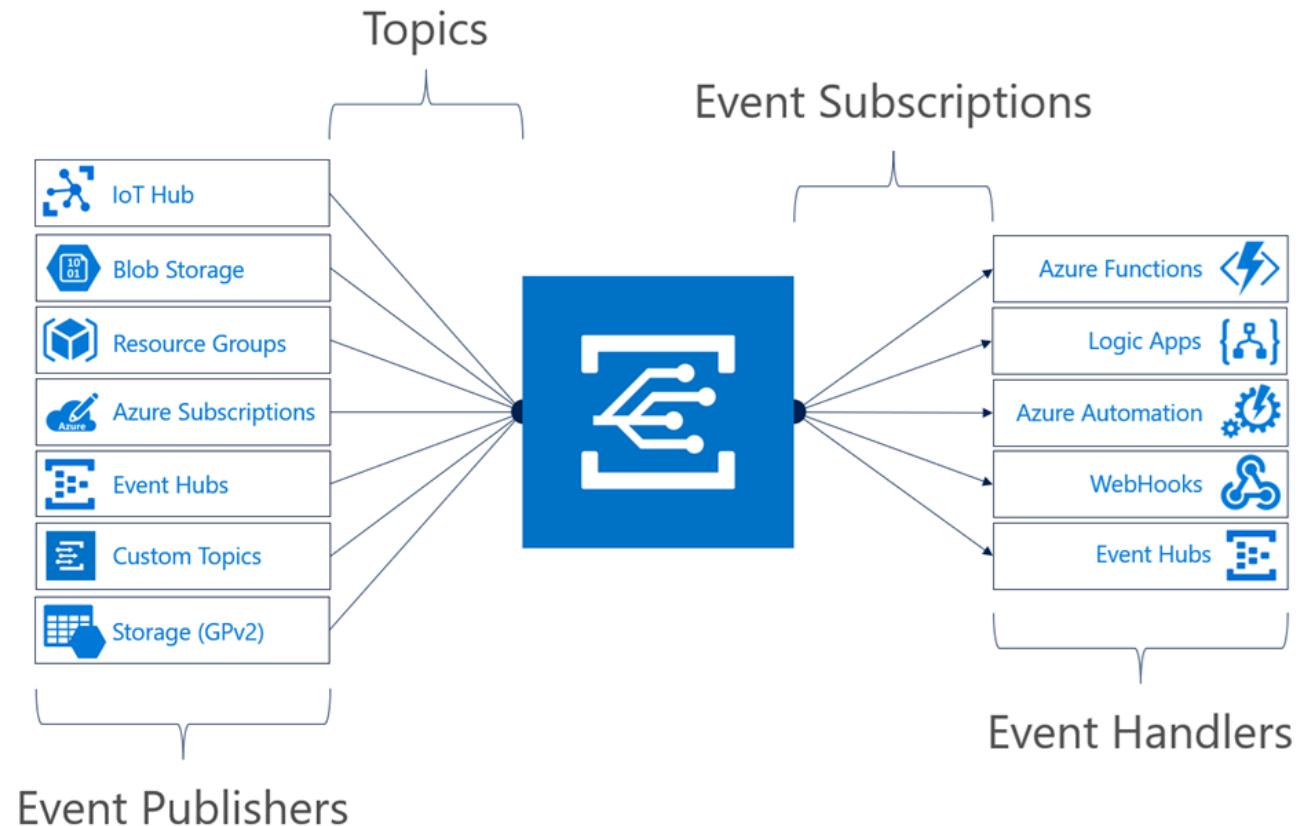


Functions Everywhere



Event Grid

- Fully managed event routing service that simplifies the development of event-based applications.
- Enables customers to easily react to Azure and custom events
- Delivers millions of events at scale
- Provide multiple ways of reacting to event including serverless compute
- Makes it easy to react to Azure native events and build modern apps anywhere, on-premises and cloud. This is unique to Azure Event Grid.



Logic Apps

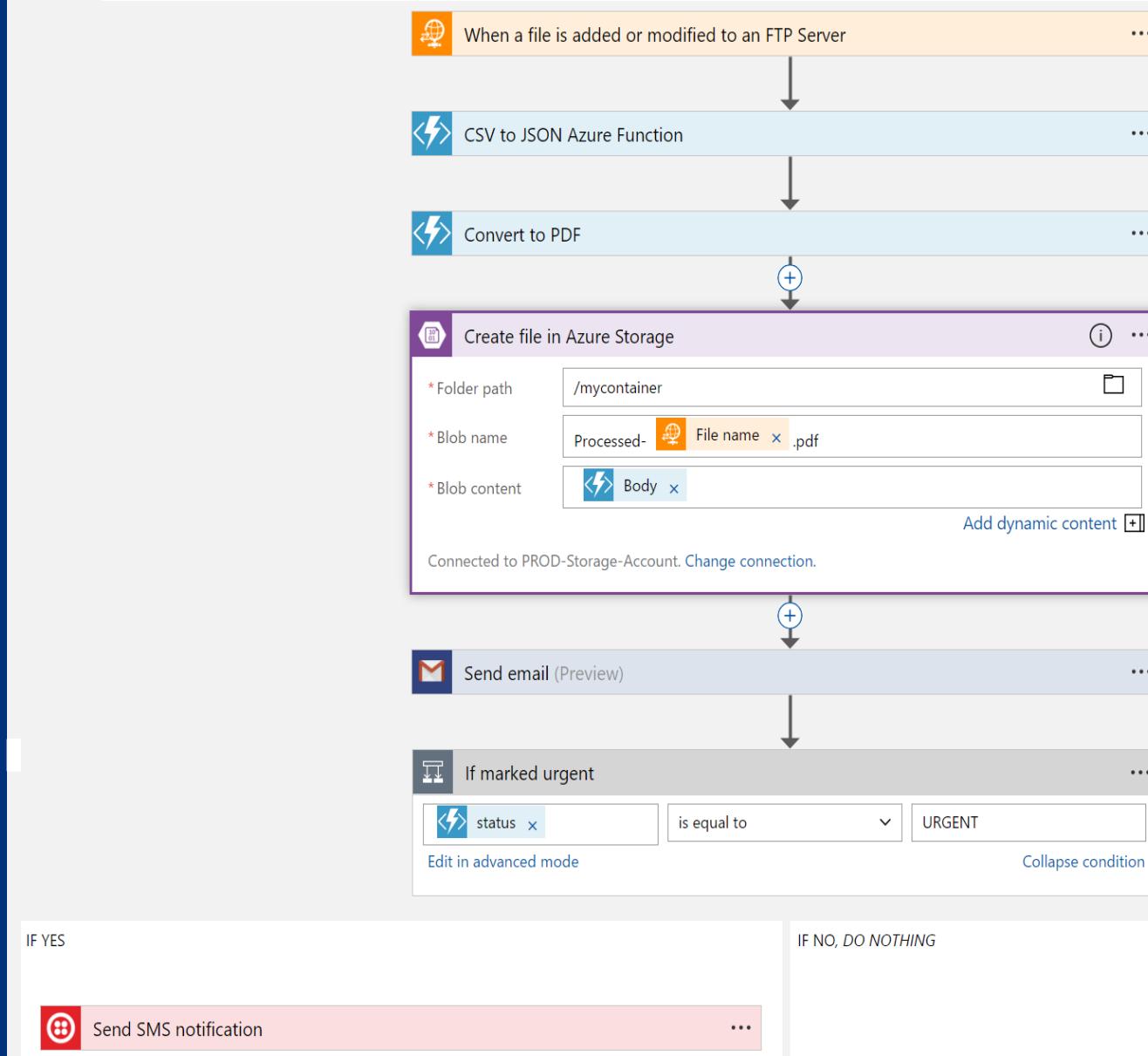
Visually design workflows
in the cloud

Express logic through
powerful control flow

Connect disparate
functions and APIs

Utilize declarative definition
to work with CI/CD

Over 180 Connectors –
Dropbox, Facebook,
GitHub, Box, Twitter,
Salesforce and more



Containers in Azure

 App Service	 Service Fabric	 Kubernetes Service	 Container Instance	 Ecosystem
Deploy web apps or APIs using containers in a PaaS environment	Modernize .NET applications to microservices using Windows Server containers	Scale and orchestrate Linux containers using Kubernetes	Elastically burst from your Azure Kubernetes Service (AKS) cluster	Bring your Partner solutions that run great on Azure



Azure Container Registry



Docker Hub

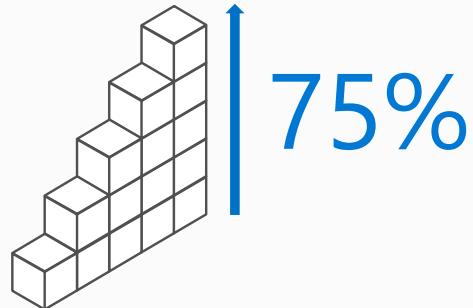
----- Choice of developer tools and clients -----

Containers and Kubernetes **momentum**

"By 2020, more than **50%** of enterprises will run **mission-critical, containerized cloud-native applications** in production."

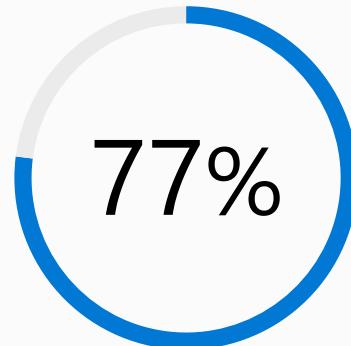
Gartner

The average size of a container deployment has grown 75% in one year.¹



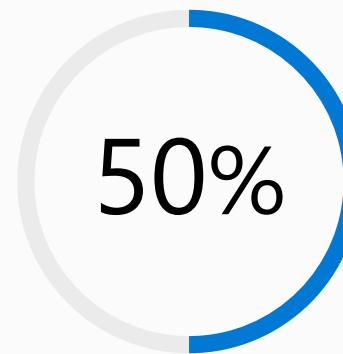
Half of container environment is orchestrated.¹

77% of companies² who use container orchestrators choose Kubernetes.



Larger companies are leading the adoption.¹

Nearly 50% of organizations¹ running 1000 or more hosts have adopted containers.



¹ Datadog [report](#): 8 Surprising Facts About Real Docker Adoption

² CNCF [survey](#): cloud-native-technologies-scaling-production-applications

What's behind the growth?

Kubernetes: the leading orchestrator shaping the future app development and management

It's widely used

Kubernetes is in production for
global companies across industries¹

Capital One	eBay	SAP
New York Times	Pokémon Go	Spotify

It's vendor-neutral

A **variety of cloud providers**
offer robust Kubernetes support

Azure	AWS
VMWare	Red Hat

It's community-supported

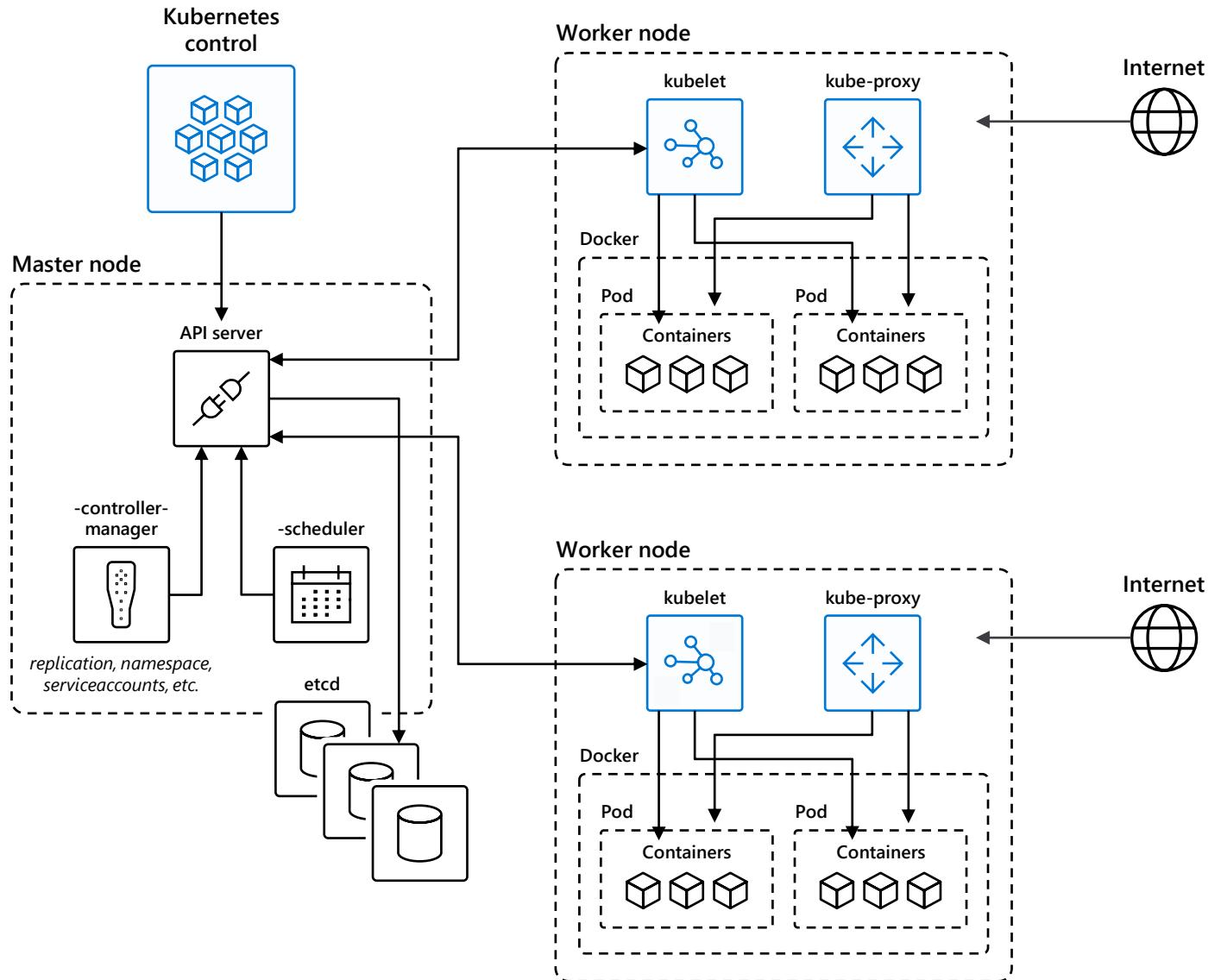
There's a **huge community** of active
contributors supporting Kubernetes³

24,000 contributors since 2016	1.1 million contributions since 2016
--------------------------------	--------------------------------------

¹Kubernetes.io. "Kubernetes User Case Studies." ²CNCF. "Kubernetes Is First..." ³CNCF. Keynote address.

How Kubernetes works

1. Kubernetes users communicate with API server and apply desired state
2. Master nodes actively enforce desired state on worker nodes
3. Worker nodes support communication between containers
4. Worker nodes support communication from the Internet

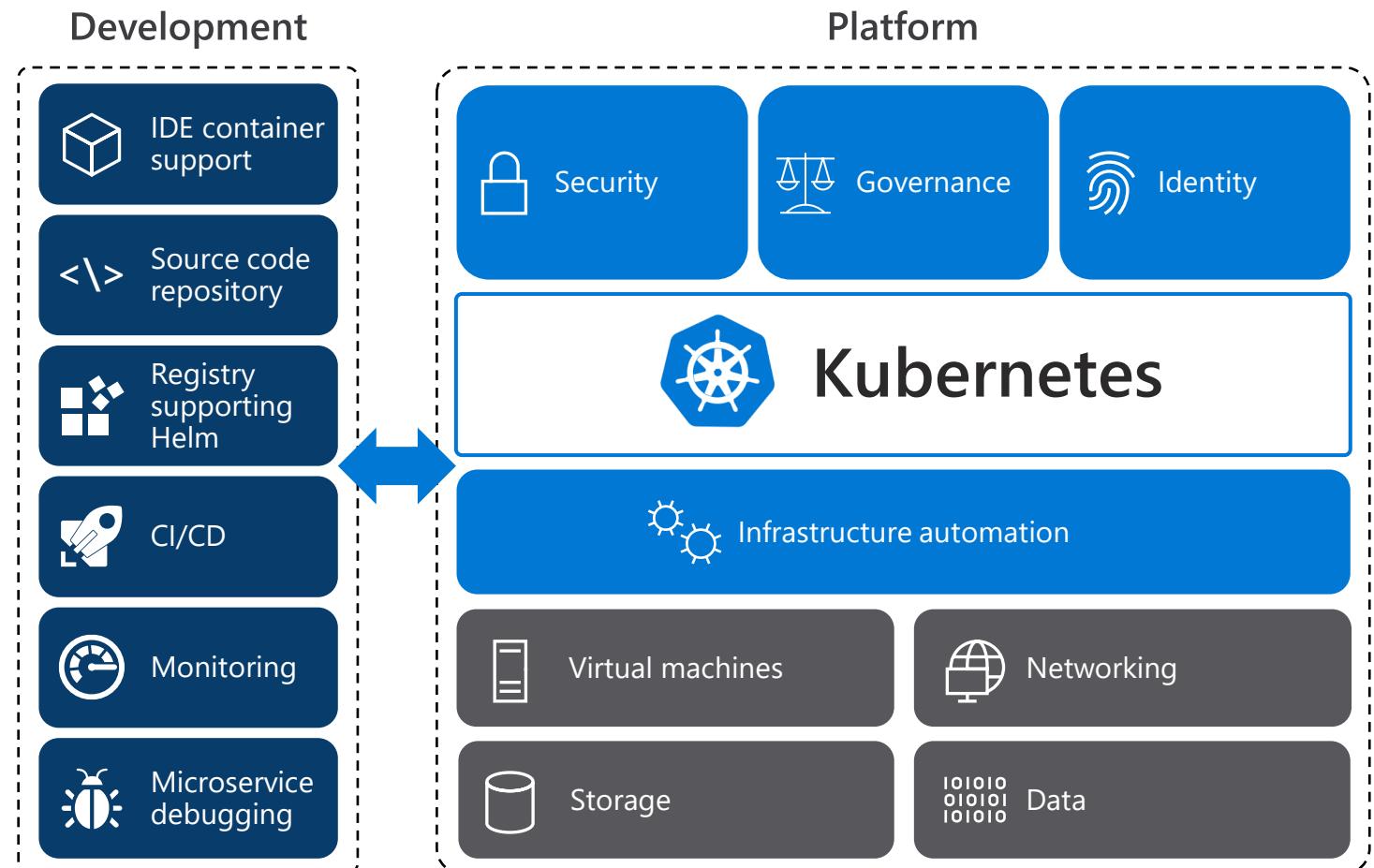


Kubernetes on its own is not enough

Save time from infrastructure management and roll out updates faster without compromising security

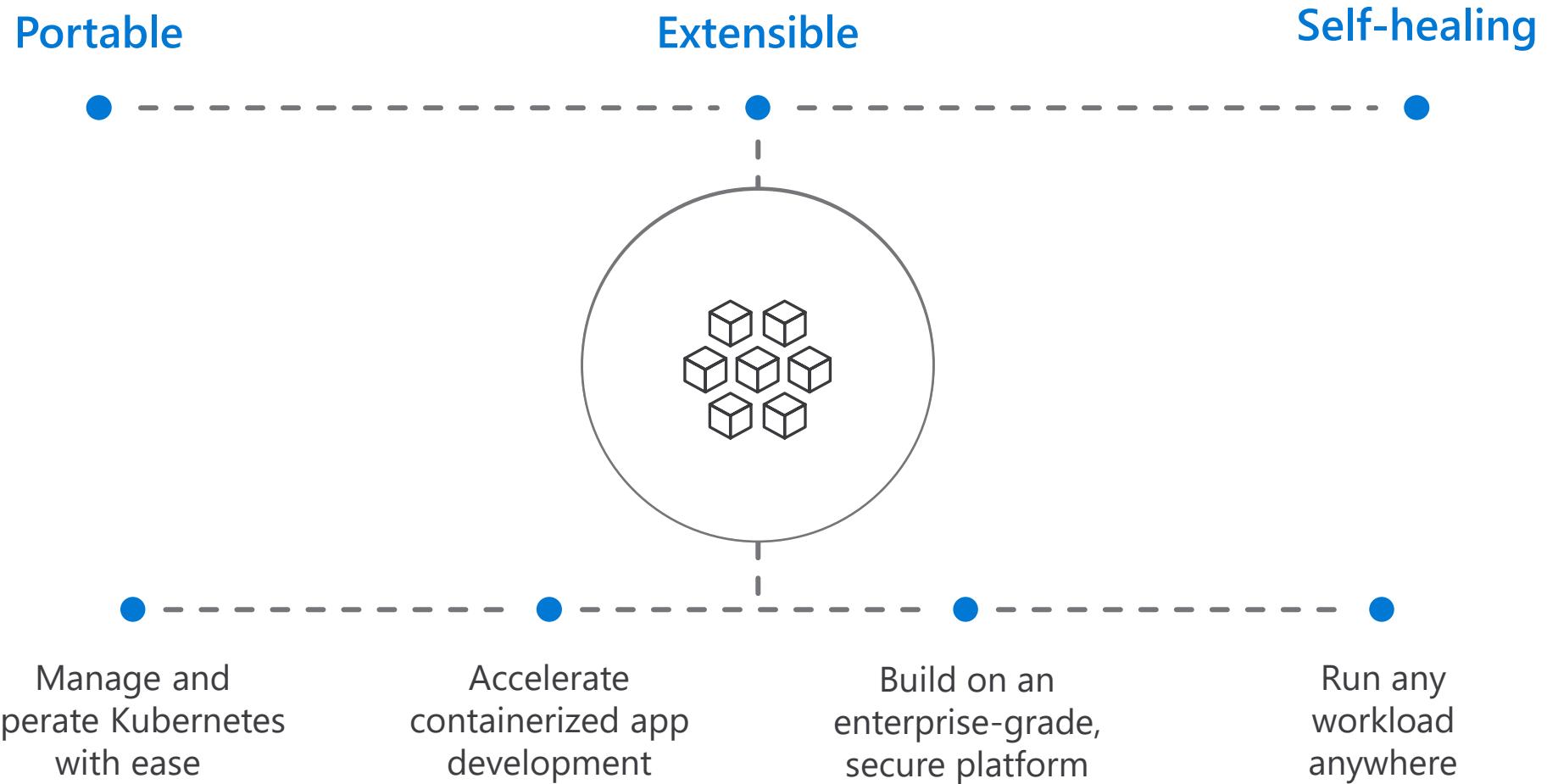
Unlock the agility for containerized applications using:

- Infrastructure automation that simplifies provisioning, patching, and upgrading
- Tools for containerized app development and CI/CD workflows
- Services that support security, governance, and identity and access management



Kubernetes on Azure

Simplify the deployment, management, and operations of Kubernetes

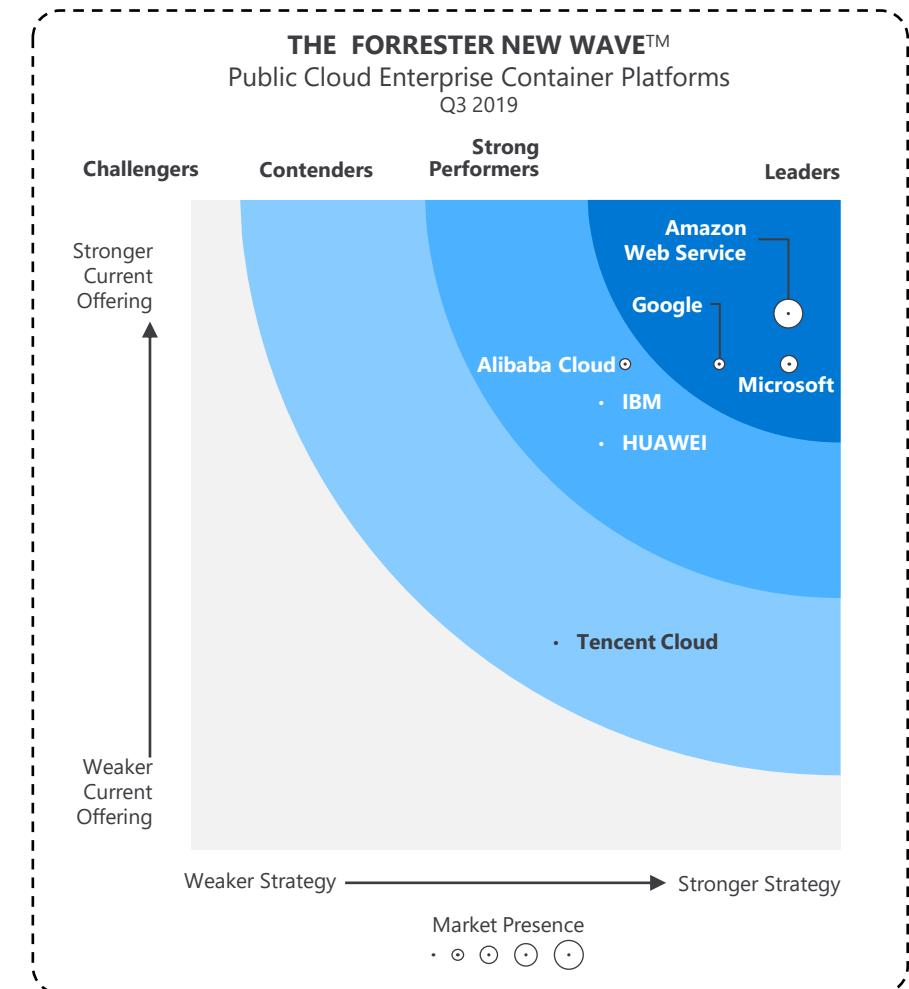


Microsoft among leaders in inaugural Forrester New Wave report

Forrester finds Microsoft "leads the pack with the strongest developer experience and global reach"

Reference customers share

- "Azure has **the best integration** with our development tools and processes."
- "Azure manages the k8s control plane for us—we don't even have to think about it."
- "Easy cluster setup, integration with database and other Azure services, the best developer experience, and rock-solid support keep them highly satisfied with Azure containers."



Azure Kubernetes Service momentum

The fastest
growing
compute
service on
Azure

Trusted by thousands of customers



Manage Kubernetes with ease

Focus on your containers and code, not the plumbing of them

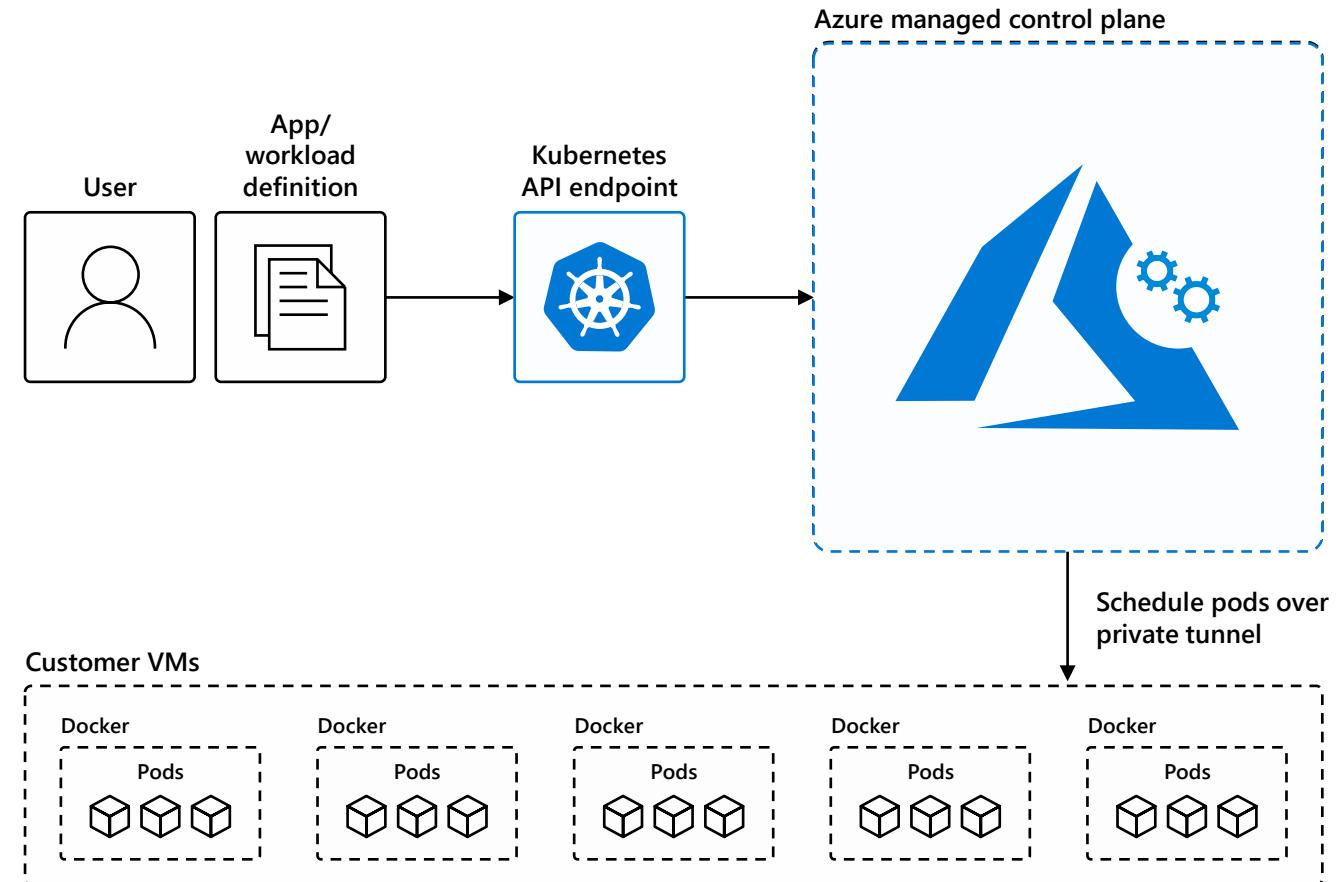
Responsibilities	DIY with Kubernetes	Managed Kubernetes on Azure
Containerization		
Application iteration, debugging		
CI/CD		
Provisioning, upgrades, patches		
Reliability availability		
Scaling		
Monitoring and logging		



Customer

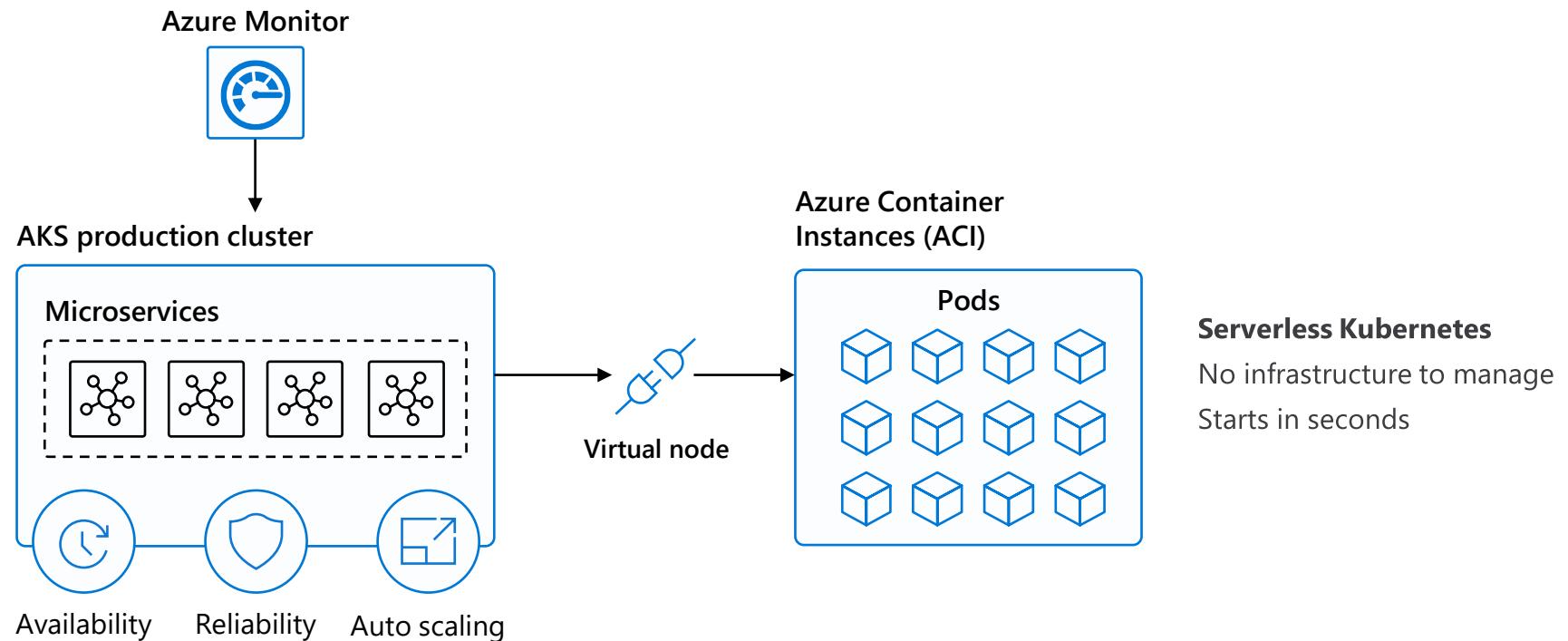


Microsoft



Manage Kubernetes with ease

Highly available, reliable service with serverless scaling



Azure makes Kubernetes easier

Manage and operate Kubernetes with ease



Task



The Old Way



With Azure

Create a cluster

Provision network and VMs

`az aks create`

Install dozens of system components including etcd

Create and install certificates

Register agent nodes with control plane

Upgrade a cluster

Upgrade your master nodes

`az aks upgrade`

Cordon/drain and upgrade worker nodes individually

Scale a cluster

Provision new VMs

`az aks scale`

Install system components

Register nodes with API server

Build on an enterprise-grade, secure platform



Control access through AAD and RBAC



Get runtime vulnerability scanning and auditing through Azure Security Center



Put guardrails in your development process with Azure Policy



Secure network communications with VNET and network policy

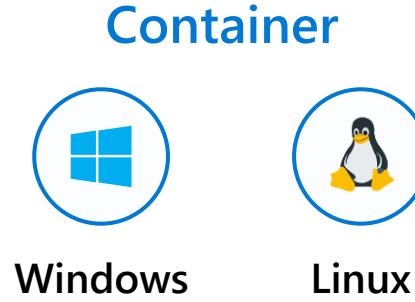


Gain automated threat protection and best practice recommendations for Kubernetes clusters



Run anything, anywhere

Your choice of...



Kubernetes is built and maintained by the community

Kubernetes collects **wisdom, code, and efforts** from hundreds of corporate contributors and thousands of individual contributors

150,000 commits **24,000** contributors **#1** GitHub project

Microsoft is part of this vibrant community and **leads in the associated committees** to help shape the future of Kubernetes and its ecosystem



CNCF
[platinum member](#)



CNCF
[technical oversight committee](#)



CNCF
[governing board](#)



Kubernetes
[steering committee](#)

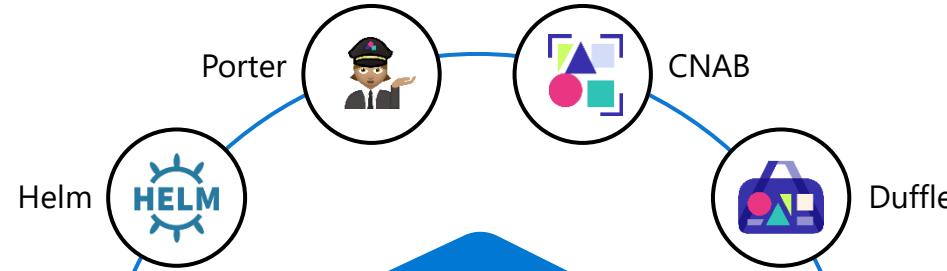


Linux Foundation
[board member](#)

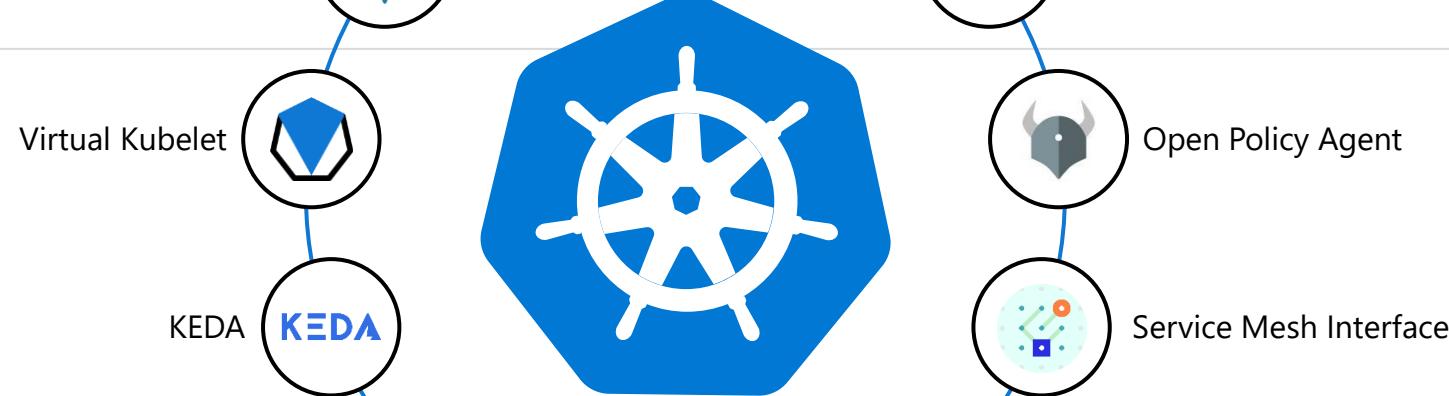
AKS is certified Kubernetes conformant, ensuring portability and interoperability of your container workloads

Microsoft contributions to the community

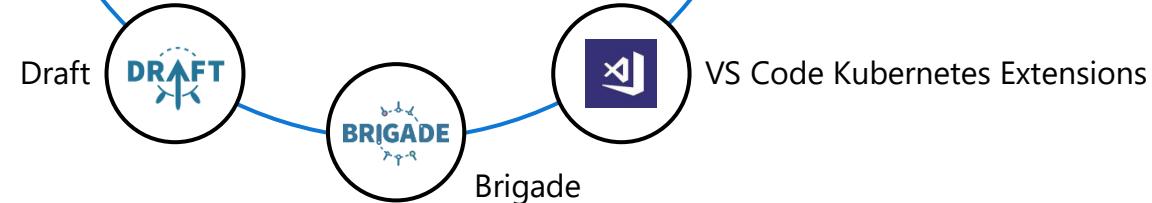
Packaging & distribution



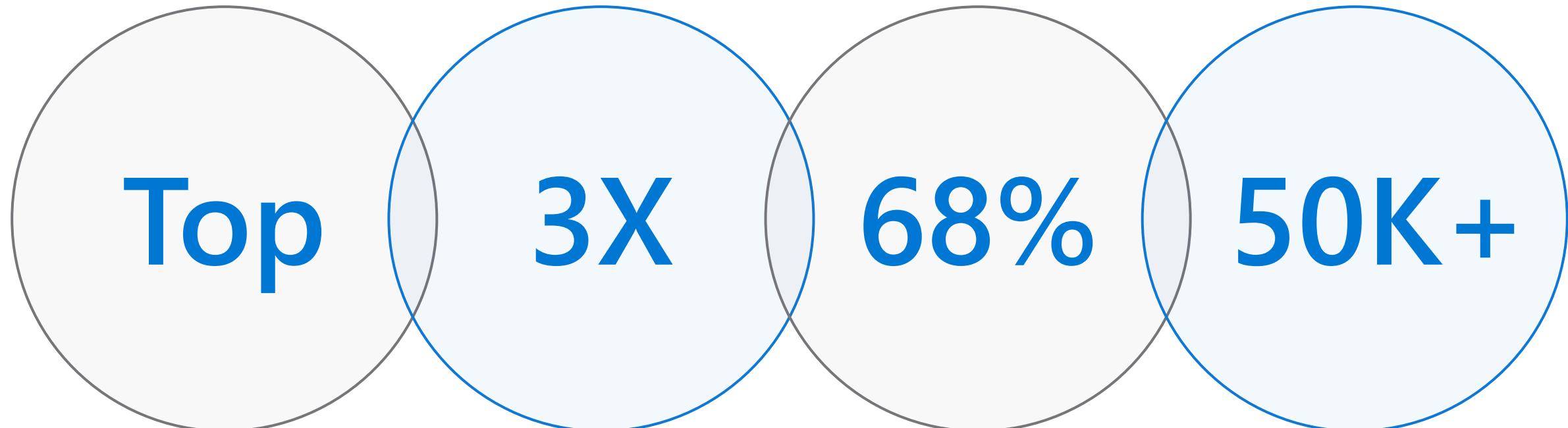
Scalability & control



Kubernetes developer tooling



Microsoft contributions to the community



code contributor to
Windows support in
Kubernetes

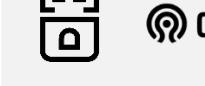
growth of employee
contributors within
three years

of Kubernetes
users prefer
Helm¹

monthly active
VSCode Kubernetes
Extension user²

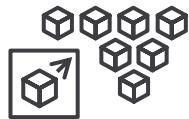
¹CNCF. ²Microsoft..

Work how you want with opensource tools and APIs

	Development	DevOps	Monitoring	Networking	Storage	Security
Take advantage of services and tools in the Kubernetes ecosystem	   	  	   	 	    	  
Leverage 100+ turn-key Azure services	 	  		 	 	   

Top scenarios for Kubernetes on Azure

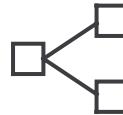
Lift and shift
to containers



Cost saving
without refactoring
your app



Microservices



Agility
Faster application
development



Secure
DevOps



Automation
Deliver code faster and
securely at scale

Machine
learning



Performance
Low latency
processing

IoT



Portability
Build once,
run anywhere

Data
streaming

— 101010
— 010101
— 101010

Analytics
Real-time data
collection and streaming

Azure Spring Cloud



Are you ready



To take Spring apps to production?



Without worrying about infrastructure



Make apps even more cloud-native



On K8S but without worrying about K8S

On Kubernetes

You do not have to learn or
manage Kubernetes

Spring – trusted and growing

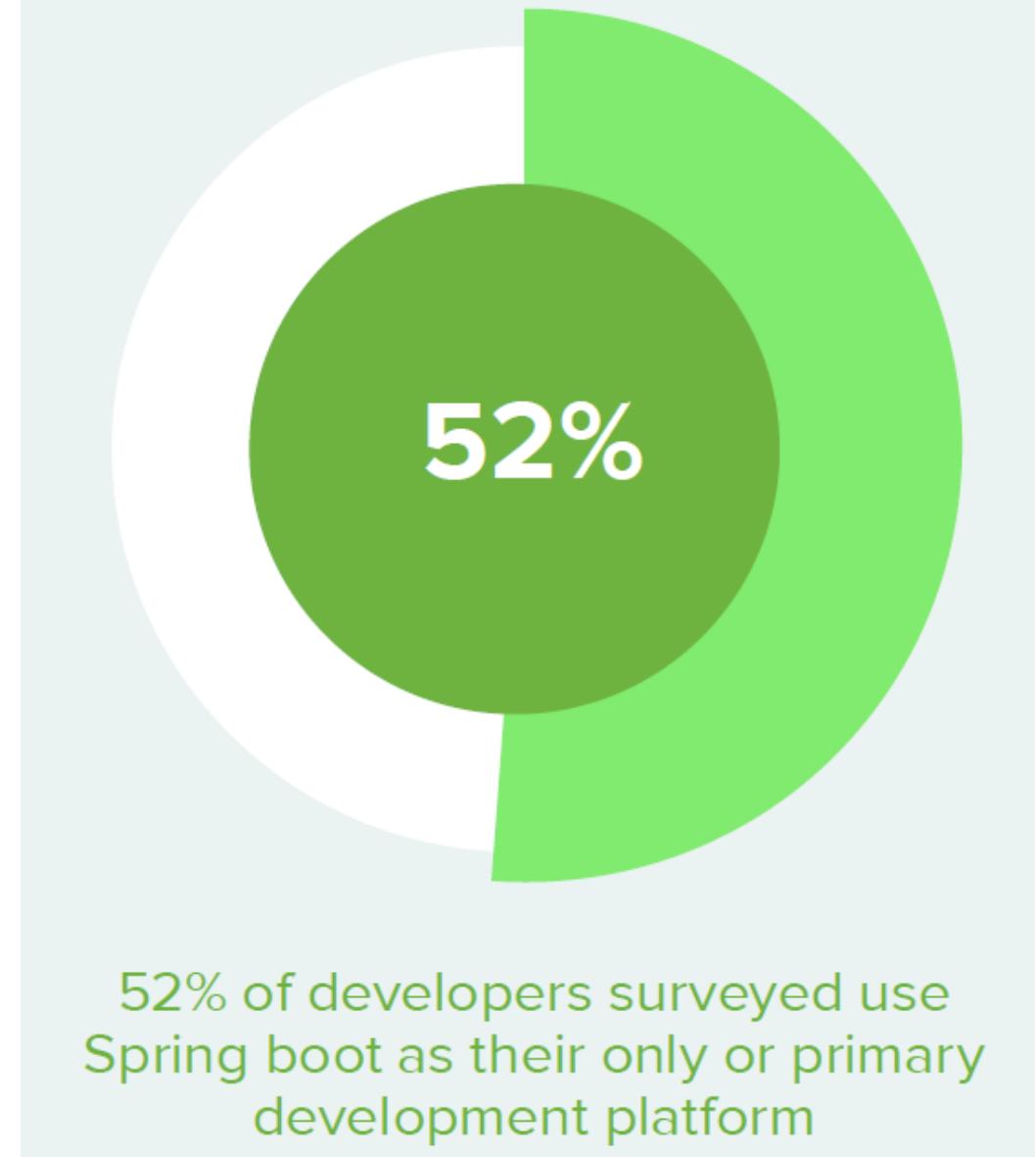


75%
of respondents expect
Spring Boot usage
to grow over the next
2 years



82%
of respondents say Spring
Boot is growing because
of new project starts

Nov 2018	Nov 2019
52.5 Million+ Spring Boot downloads per month	95 Million+ Spring Boot downloads per month



52% of developers surveyed use
Spring boot as their only or primary
development platform

The world's leading brands run on Azure



Spring on Azure

cloud.spring.io/spring-cloud-azure/

 Spring Cloud	 Spring Data	 Spring Security	 Spring Resource
App Configuration	SQL Database	Active Directory (AAD)	Storage
Event Hubs	MySQL	AAD B2C	
Service Bus	PostgreSQL		
Storage	Maria DB		
Redis	Cosmos DB		
Functions	<ul style="list-style-type: none">• SQL• MongoDB• Cassandra• Gremlin		
 R2DBC		 Spring Cache	 Micrometer
SQL Database		Redis Cache	Monitor (includes Log Analytics)
PostgreSQL			
MySQL			

Spring-based Microservices



Spring
Boot

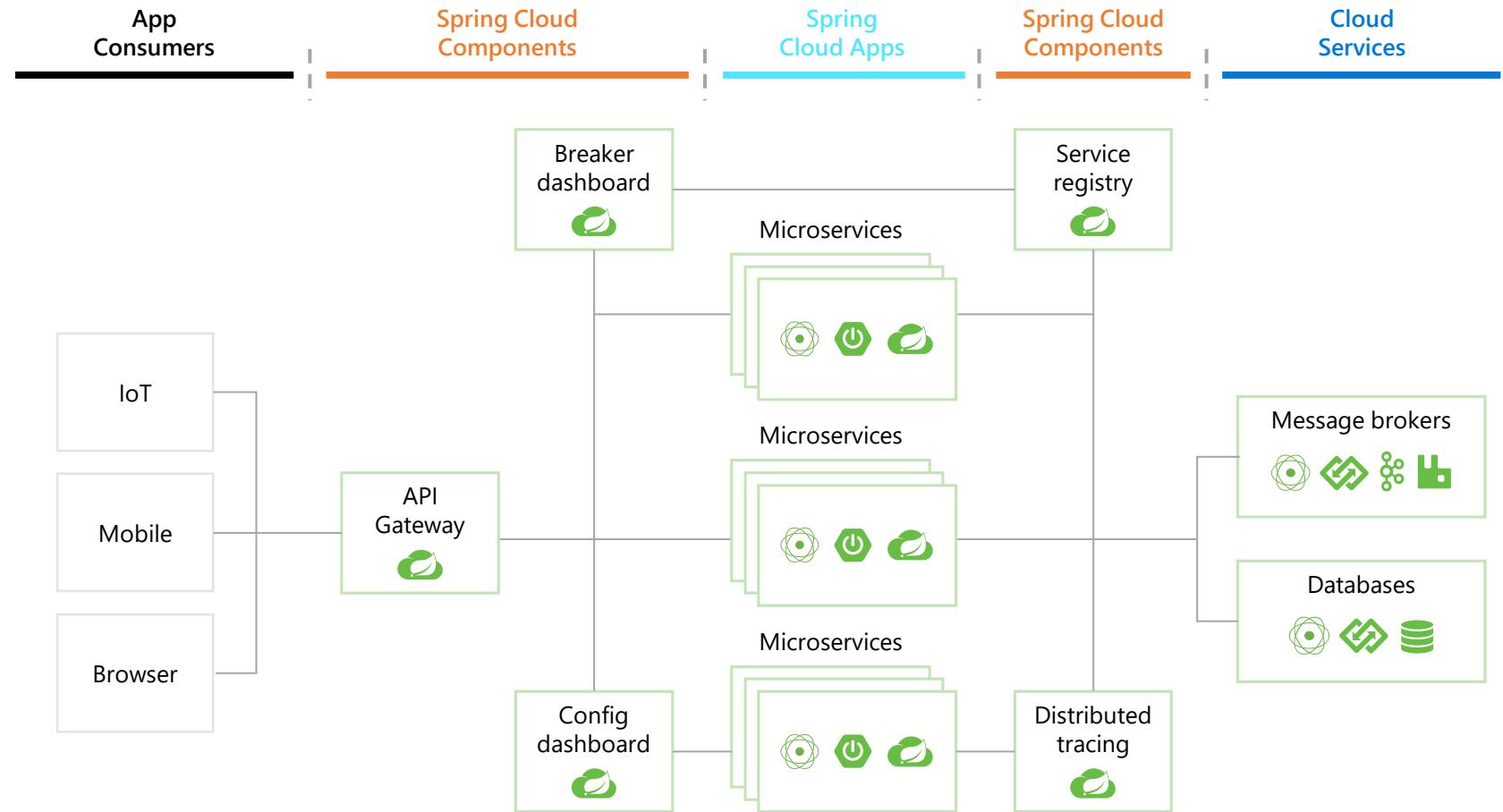
Build anything



Spring
Cloud

Coordinate anything

Spring-based Microservices

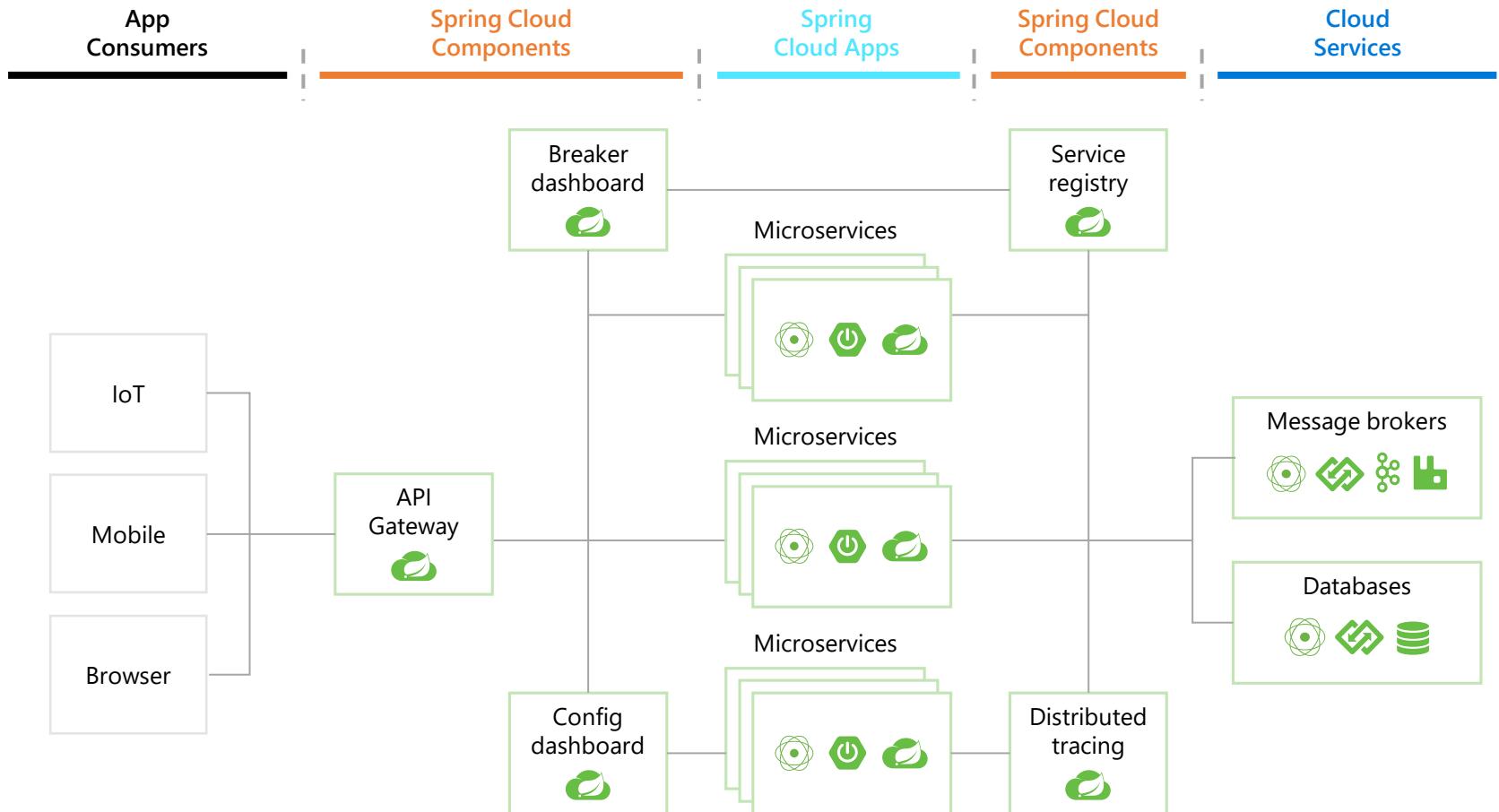


Common Impediments

High effort required to manage cloud infrastructure for Spring boot applications

Application lifecycle is difficult to manage

Painful to troubleshoot application issues



Azure Spring Cloud

A fully managed service for Spring Boot microservices

More choices and full integration into Azure's ecosystem and services



Enterprise ready

Azure Spring Cloud

**Jointly developed,
operated, and supported**



Microsoft

vmware[®]

Zero code changes



Managed service



Tanzu Build Service

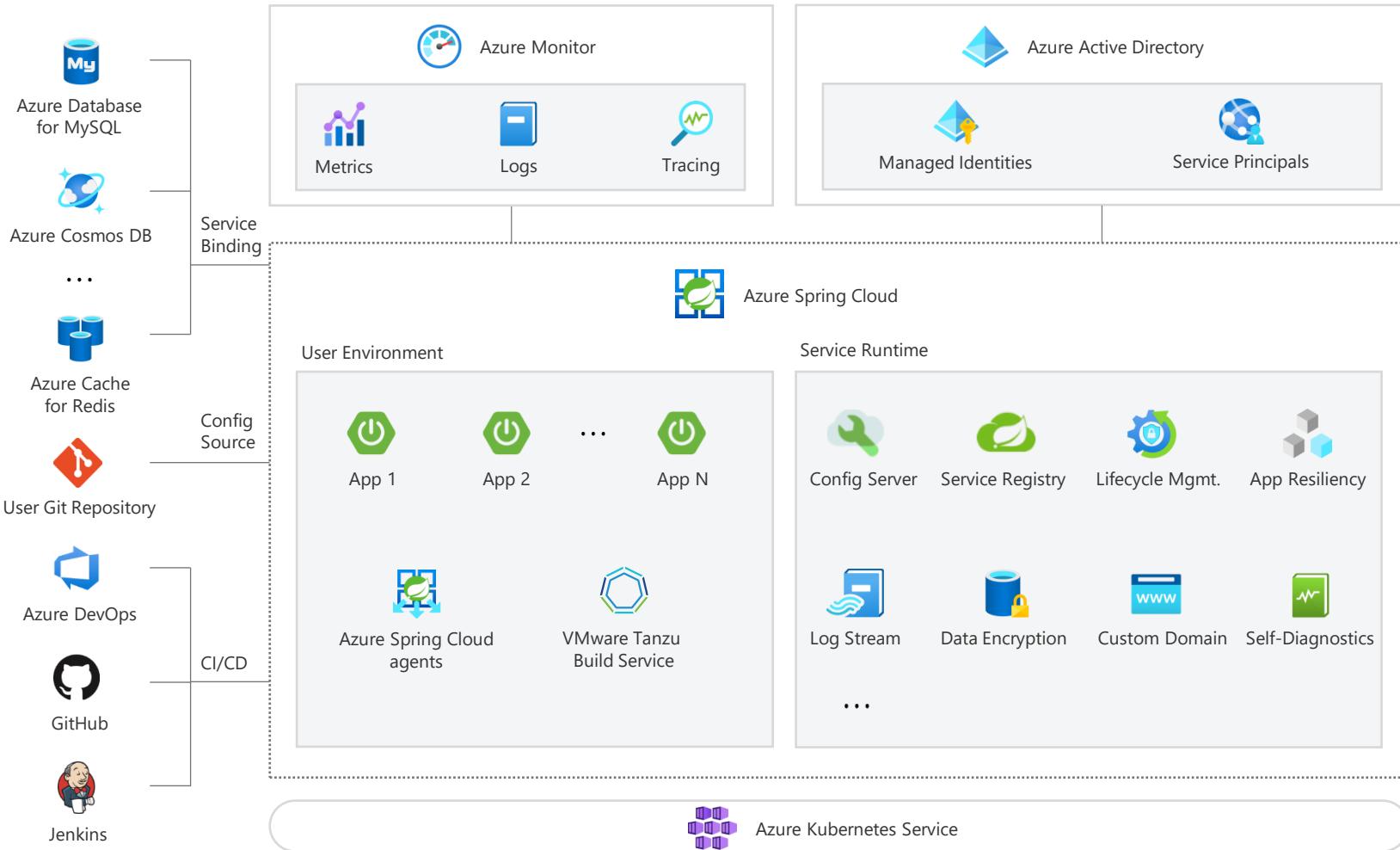
**Out-of-the-box
monitoring and tracing**



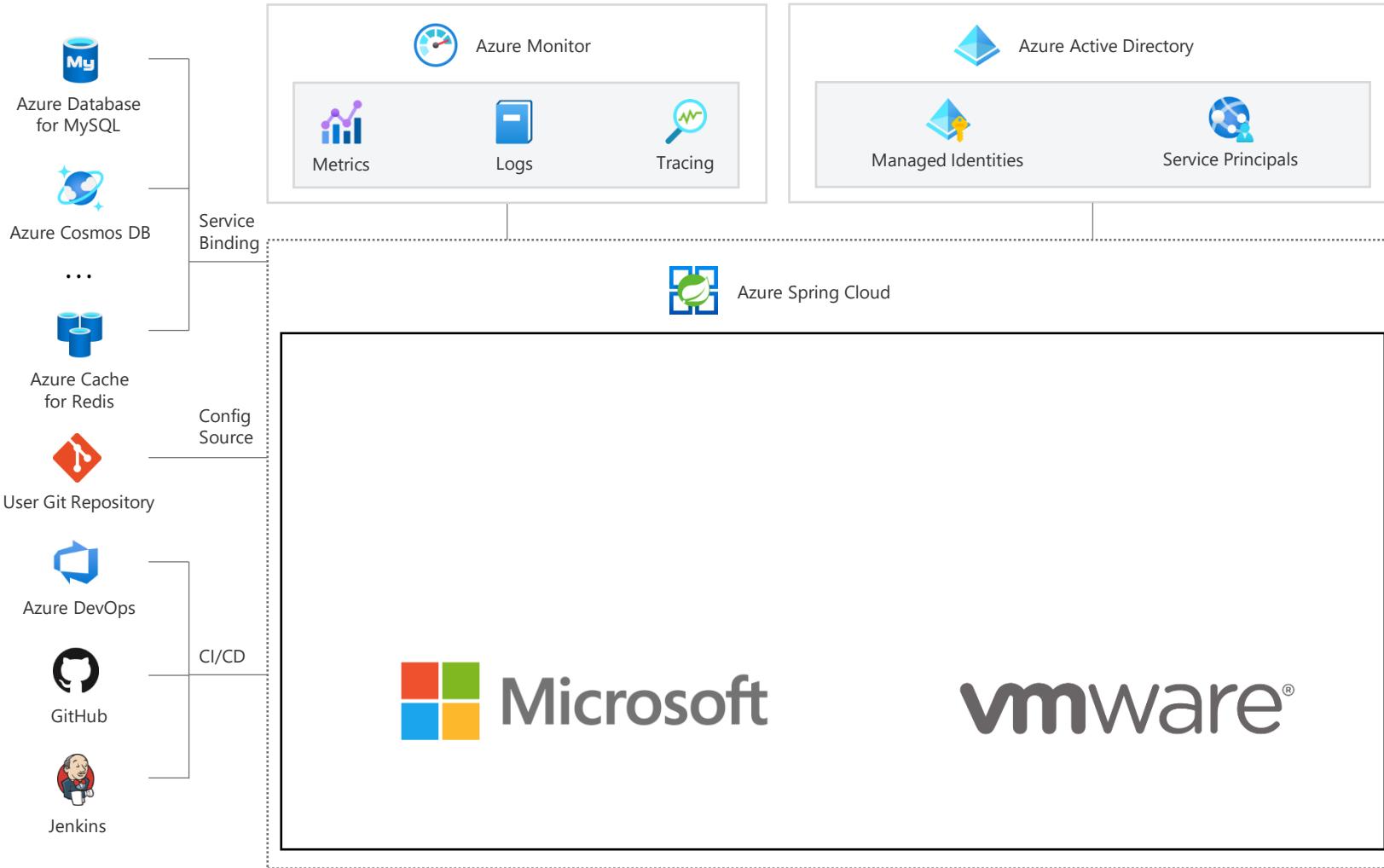
New Relic[®]



Fully Managed Infrastructure – Azure Spring Cloud



Fully Managed Infrastructure – Azure Spring Cloud



Cross-referencing workloads to value areas



Web & API apps

Web Apps, IIS, ASP.NET [Core], Java, Python, Node.js, Angular, JavaScript, .NET/C#, WCF, Windows Service, SQL, Docker.



Data transformation & reporting

SQL, Excel, MS Access, ETL, SSIS/SSAS/SSRS, Informatica, SAS, Micro Strategy.



Microservices

Loosely-coupled, independently deployable services.



Rapid Application Development

Line of Business, Mendix, MS Access, Domino, IBM Notes, SQL, MS Excel, VBA, MS Word, Sharepoint.

Products

- App Service Isolated (ASI)
- Azure SQL
- PowerBI
- Applications Insights
- Application Gateway

Products

- Azure Data Factory
- Azure Storage
- Azure SQL [DW]
- Data Lake Store & Analytics
- Azure Analysis Services
- PowerBI

Products

- Azure Container Registry (ACR)
- App Service Isolated (ASI)
- Applications Insights
- Azure Container Instances (ACI)
- Azure Kubernetes Services (AKS)
- Service Fabric Mesh
- API Management

Products

- App Service Isolated (ASI)
- Azure SQL
- PowerBI
- Applications Insights
- Application Gateway
- PowerApps
- Flow

Guidance for architecting solutions on Azure using established patterns and practices.



ARCHITECTURE
[Browse Azure architectures](#)



CONCEPT
[Explore cloud best practices](#)



HOW-TO GUIDE
[Assess, optimize, and review your workload](#)



WHAT'S NEW
[See what's new](#)

Architecting Applications on Azure

Best practices and patterns for building applications on Microsoft Azure



Designing for the cloud
[Principles of a well-designed application](#)
[Responsible innovation](#)
[Web API design](#)
[Building microservices on Azure](#)
[Application design patterns](#)
[Managing identity in multitenant apps](#)



Optimizing your workload
[Guiding tenets for your architecture](#)
[Examine your workload](#)
[Performance tuning](#)
[Performance antipatterns](#)
[Securing your infrastructure](#)



Choosing the right technology
[Choosing a Compute Service](#)
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Azure Architecture Center

Architecture icons

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> Design Patterns

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> Hybrid

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> Integration

> Internet of Things

> Management and Governance

> Media

> Migration

> Mixed Reality

> Mobile

> Networking

> SAP

> Security

> Storage

> Web

Cloud Adoption Framework

Azure Architectures

Architecture diagrams, reference architectures, example scenarios, and solutions for common workloads.

AI + Machine Learning | Analytics | Blockchain | Compute | Containers | Databases | DevOps | Development and Governance | Media | Migration | Mixed Reality | Mobile | Networking | Security | Storage | Web | V

AI + Machine Learning



AI at the Edge with Azure Stack Hub

9/01/2020 2 min read

Move AI models to the edge with a solution architecture that includes Azure Stack Hub.



AI at the Edge with Azure Stack Hub - disconnected

9/01/2020 2 min read

Move AI models to the edge with a solution architecture that includes Azure Stack. A step-by-step workflow will help you harness the power of edge AI when disconnected from the cloud.



AI for Earth

6/23/2020 7 min read

Learn how to use the AI for Earth APIs to help build solutions for environmental problems. See other AI for Earth projects and initiatives.



Auditing, risk, and compliance management

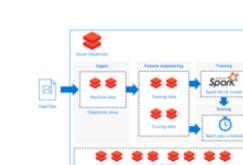
12/16/2019 2 min read

Developers could use knowledge mining attorneys quickly identify entities of importance from discovery documents and flag important ideas across documents.



Batch scoring of Python models on Azure

10/22/2019 1 min read

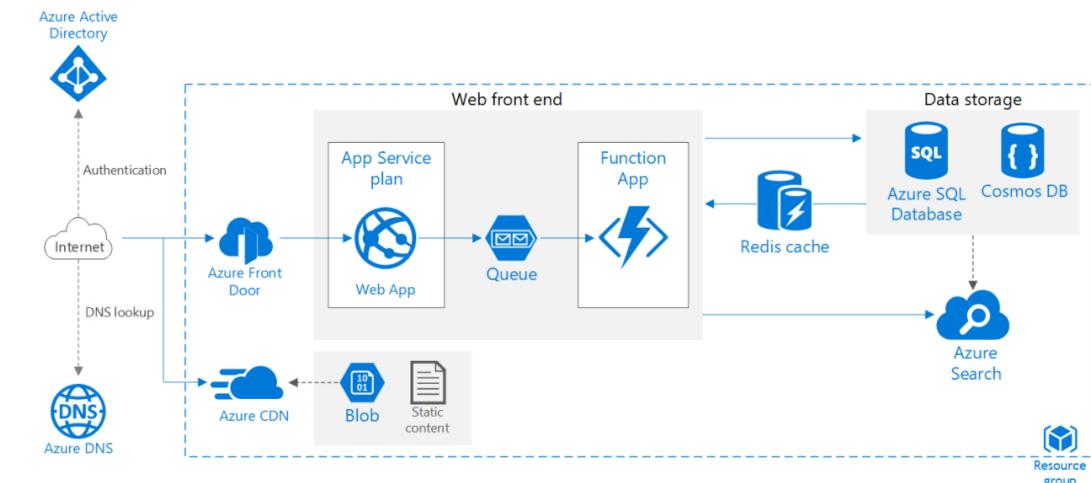


Batch scoring of Spark models on Azure Databricks

Improve scalability in an Azure web application

10/03/2019 • 7 minutes to read • 11 comments +14

This reference architecture shows proven practices for improving scalability and performance in an Azure App Service web application.

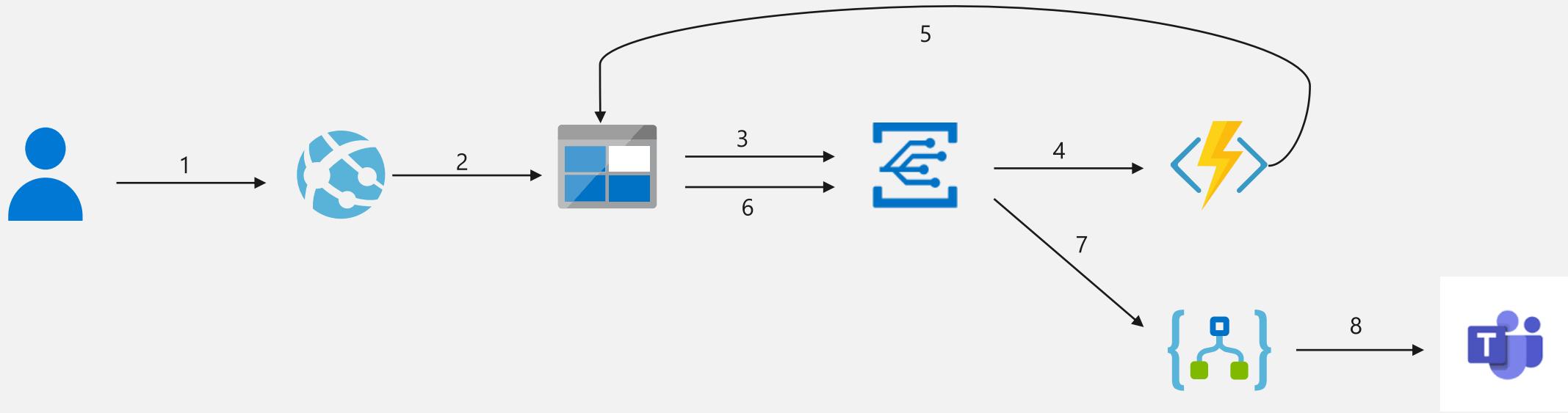
A reference implementation for this architecture is available on [GitHub](#).[Download a Visio file of this architecture.](#)

Architecture

This architecture builds on the one shown in [Basic web application](#). It includes the following components:

- **Web app.** A typical modern application might include both a website and one or more RESTful web APIs. A web API might be consumed by browser clients through AJAX, by native client applications, or by server-side applications. For considerations on designing web APIs, see [API design guidance](#).
- **Front Door.** **Front Door** is a layer 7 load balancer. In this architecture, it routes HTTP requests to the web front end. Front Door also provides a [web application firewall \(WAF\)](#) that protects the application from common exploits and vulnerabilities.
- **Function App.** Use [Function Apps](#) to run background tasks. Functions are invoked by a trigger, such as a timer event or a message being placed on queue. For long-running stateful tasks, use [Durable Functions](#).
- **Queue.** In the architecture shown here, the application queues background tasks by putting a message onto an [Azure Queue storage](#) queue. The message triggers a function app. Alternatively, you can use Service Bus queues. For a comparison, see [Azure Queues and Service Bus queues - compared and contrasted](#).
- **Cache.** Store semi-static data in [Azure Cache for Redis](#).
- **CDN.** Use [Azure Content Delivery Network \(CDN\)](#) to cache publicly available content for lower latency and faster delivery of content.

Demo – Image Resize Application



1. User uploads a photo.
2. Web app saves the uploaded photo to blob storage (under "images" container).
3. Blob storage sends a triggering event to Event Grid (with path filter = "images").
4. An Azure Function, subscribed to the Event Grid trigger, retrieves the image and resizes it to thumbnail size.
5. Azure Function saves the thumbnail image back to blob storage (under "thumbnails" container).
6. Blob storage sends a triggering event to Event Grid (with path filter = "thumbnails").
7. A Logic App, subscribed to the Event Grid trigger, parses the event content and sends a message to Teams channel with the thumbnail image's URL.

Thank You!



Resources

Get started with Azure: aka.ms/azuregetstarted

Azure Application Development: aka.ms/azureappdev

[Azure Architecture Center - Azure Architecture Center | Microsoft Docs](#)

[Azure Architecture - Azure Architecture Center | Microsoft Docs](#)

[Scalable web application - Azure Reference Architectures | Microsoft Docs](#)

[Choosing an Azure compute service - Azure Architecture Center | Microsoft Docs](#)



Thank You!

ευχαριστώ

Salamat Po

متشكرٌ

شَكْرًا

Grazie

благодаря

ありがとうございます

Kiitos Teşekkürler

謝謝

ឧបករណ៍

Obrigado

شُكْرِيَّه

Terima Kasih Dziękuję

Hvala

Köszönöm

Tak

Dank u Wel

дякую

Tack

Mulțumesc

спасибо

Danke

Cám ơn

Gracias

多謝晒

Ďakujem

תודה

ശ്രദ്ധി

Děkuji

감사합니다