

The Azure Application Platform

Ricardo Martins
Cloud Solution Architect
Enterprise and Partners Group

Twitter: @ricardommartins
E-mail: ricardo.martins@microsoft.com



The cloud is
changing expectations

Security & Management

-  Security Center
-  Portal
-  Azure Active Directory
-  Azure AD B2C
-  Multi-Factor Authentication
-  Automation
-  Scheduler
-  Key Vault
-  Store/ Marketplace
-  VM Image Gallery & VM Depot

Platform Services

Media & CDN



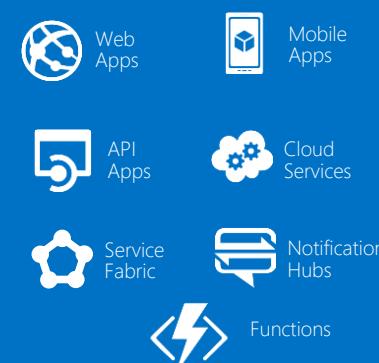
Integration



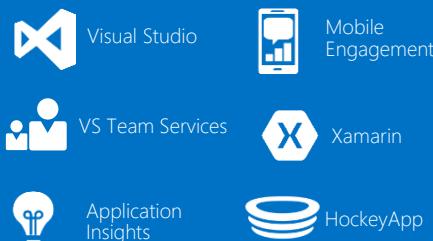
Compute Services



Application Platform



Developer Services



Data



Intelligence



Analytics & IoT



Hybrid Cloud

-  Azure AD Health Monitoring
-  AD Privileged Identity Management
-  Domain Services
-  Backup
-  Operational Analytics
-  Import/Export
-  Azure Site Recovery
-  StorSimple

Compute



Storage



Networking



Datacenter Infrastructure (32 Regions, 24 Online)



Security & Management

-  Security Center
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Balance of responsibility

Balance of control and responsibility depends on the category of the service

MOVE-IN READY

Use immediately with minimal configuration

SOME ASSEMBLY REQUIRED

Existing services are a starting point, with additional configuration for a custom fit

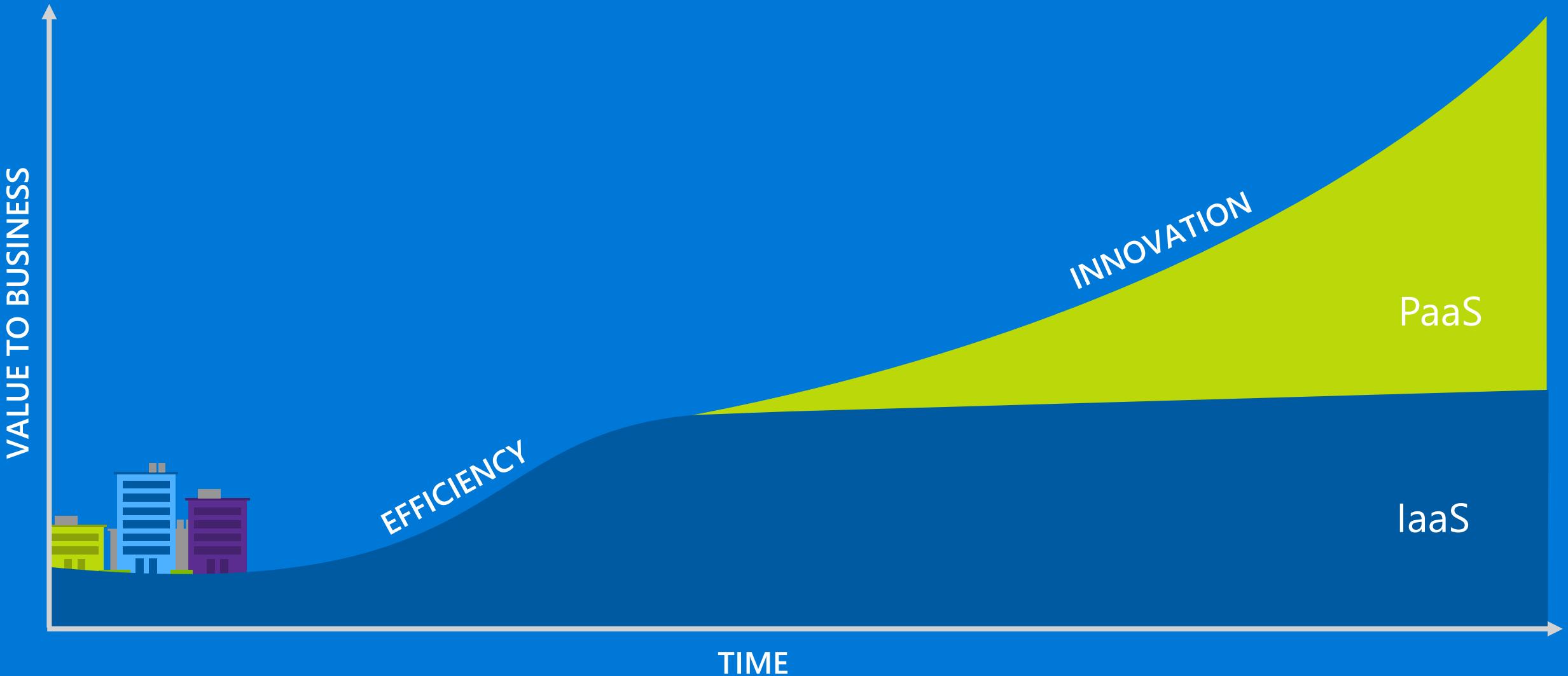
BUILD FROM THE GROUND UP

Building blocks, create your own solution or apps from scratch

Responsibility	On-Prem	IaaS	PaaS	SaaS
Applications	Customer	Customer	Customer	Microsoft
Data	Customer	Customer	Customer	Microsoft
Runtime	Customer	Customer	Microsoft	Microsoft
Middleware	Customer	Customer	Microsoft	Microsoft
O/S	Customer	Customer	Microsoft	Microsoft
Virtualization	Customer	Microsoft	Microsoft	Microsoft
Servers	Customer	Microsoft	Microsoft	Microsoft
Storage	Customer	Microsoft	Microsoft	Microsoft
Networking	Customer	Microsoft	Microsoft	Microsoft

 Customer  Microsoft

From infrastructure to innovation

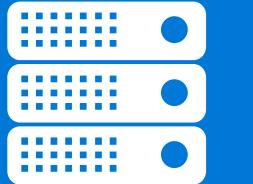


The changing world of app development

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



Physical
Machines



Virtual
Machines



Cloud
Infrastructure



Born in
the Cloud

Build on a developer
platform (PaaS)



Azure Application Platform

Build on a Developer Platform (PaaS)



App Service

Web, mobile, API,
and logic apps



Service Fabric

Cloud native,
microservices based apps



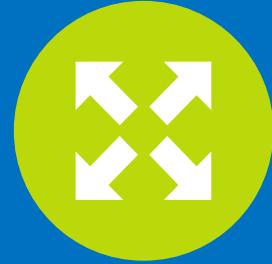
Functions

Serverless,
event driven functions



Cloud Services

Custom monolithic
3-tier stateless apps



Other PaaS

Cloud Foundry, OpenShift,
Apprenda, Jetlastic, etc.

Web and mobile

Microservices

Serverless
Compute

Existing
Frameworks

Third-party
Frameworks

The breath of Azure

"We're no longer limited by the cost of creating new databases, new queuing methodologies, new storage. Compose highly functional apps. Maximizes application development efficiency services and tools on the Azure Leverage enterprise grade services platform we've gone from zero to a fully fleshed out commerce marketplace in about 12 months"

Mike Hanrahan CTO
JET.com



Common cloud app solutions



Web & mobile



Business apps



Microservice apps



Development & test



Big data & analytics



Internet of Things



Backup, recovery
& archive



High Performance
Computing



Digital media

Mobile apps



- ✓ Smartphone adoption is 10X faster than the PC boom of the 80s
- ✓ Demand for mobile app development services will grow at least 5x faster than internal IT capacity

Build powerful mobile back ends

Offline data sync

Push notifications

Single Sign-on

Create cross-platform mobile apps

Cross-platform development

Leverage your existing skills

Target every device

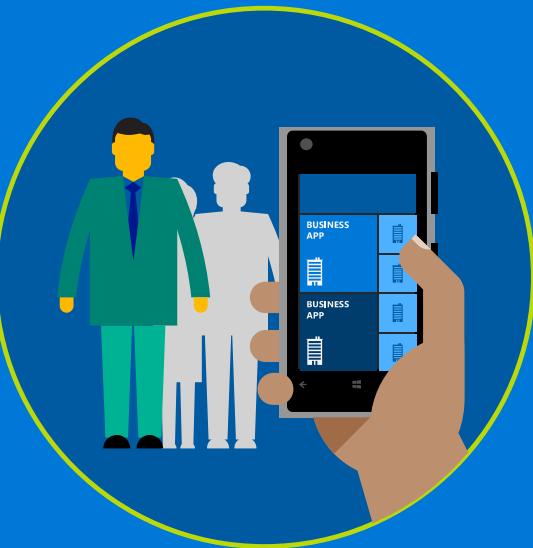
DevOps to build mobile apps

Plan, build, test, deploy, and monitor mobile apps

Deliver mobile apps quickly

Connect business data and LOB apps to mobile

Line of business apps



- ✓ New gen employees demand consumer-like experiences
- ✓ Top IT priorities: "modernization of installed on-premises core enterprise apps" and "extending capabilities of core enterprise apps"

App modernization

Modernize user interfaces - browser or mobile

Update functionality to match how people work today

Leverage existing investments

Bring existing, on premises data and business processes to the web and mobile

Re-host existing applications in Azure

Invest in innovation, not maintenance

Reduce costs of supporting old application hardware

Replace aging and unmaintainable code



Microservice-based apps



- ✓ 44% of organizations have Microservices in dev or production
- ✓ 2/3 enterprises are already using or investigating containers

Scale to the most demanding workloads

Start small, grow with your business

Cloud Native distributed architectures deliver the full potential of the Cloud

Deliver the latest features to all your customers

Update only the changed component without impacting other areas

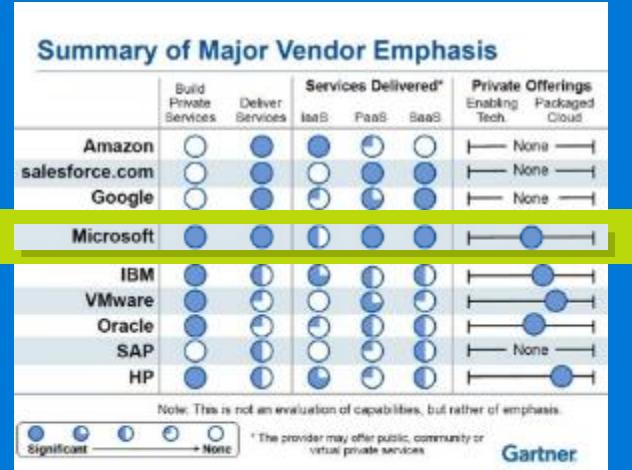
Containerization tailored for agile development practices and tools

Operate 24x7 services without interruption

Self-healing fabric copes with infrastructure failures

Reliable code and data for low-latency, high performance

Microsoft—leading cloud development platform



"Microsoft's comprehensive hybrid story, which spans applications and platforms as well as infrastructure, is highly attractive to many companies, drawing them towards the cloud in general"

LYDIA LEONG
GARTNER

Enterprise Application PaaS



Mobile App Development Platforms



Application Lifecycle Management



Public Cloud IaaS



Software Quality Suites



Summary

App development is the innovation engine for business

PaaS provides the best ROI for application development

Azure offers a comprehensive and productive platform for developing applications of all kinds

Next steps

- ➔ Download "[Understanding Azure—A Guide for Developers](#)"
- ➔ Try [Azure App Service experience](#) with no subscription, free of charge and commitment

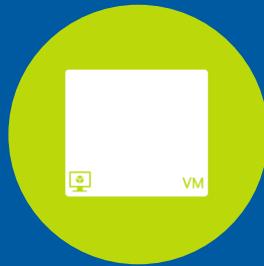


Other approaches—
build on IaaS



Virtual Machines

Windows Server and Linux OS images



Virtual Machine ScaleSets

Slider-based mechanism for scaling stateless VMs



Container Service

Orchestrate Docker-based images in production



Marketplace

Hub for PaaS platforms in VM images

Containers

Form of OS virtualization

Operates inside an instance
of the OS

Acts as a fully isolated and
independent OS

Ideal for iterative app
development and testing



Azure Container Service

In partnership with Mesosphere
and Docker

Standard Docker tooling and
API support

Streamlined provisioning of Apache
Mesos Clusters

DCOS Marathon, Chronos, and Docker
Swarm support

Linux and Windows Server containers

Azure and Azure Stack



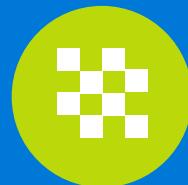
The Container Revolution



Docker image format for portability across environments



VM-independence for efficiency, scalability and resilience



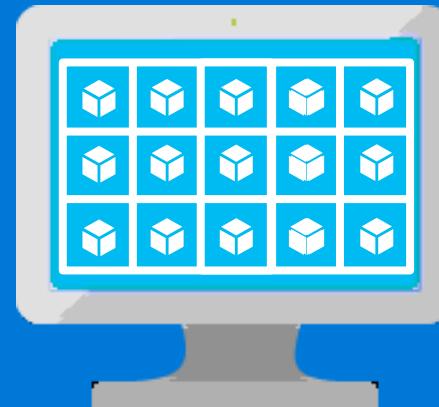
Lightweight and agile for Cloud Native, Microservice architectures



Rich ecosystem of images with tools for development and operations



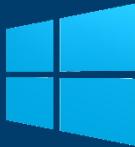
Virtual
Machine



Virtual
Machine
+
Containers

Containers in Azure

Docker support
for Azure VMs



Container-based
PaaS



Service
Fabric



CLOUD
FOUNDRY™

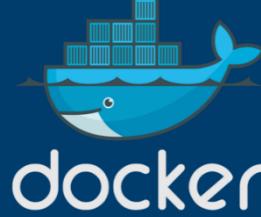


OPENSIFT

Azure
Container Service



DC/OS



docker

Container
Management



docker



DC/OS



kubernetes



CoreOS



RANCHER

Microsoft Azure

App Service

Azure App Service

Build and scale great web and mobile apps



Auto-patching and auto-scale

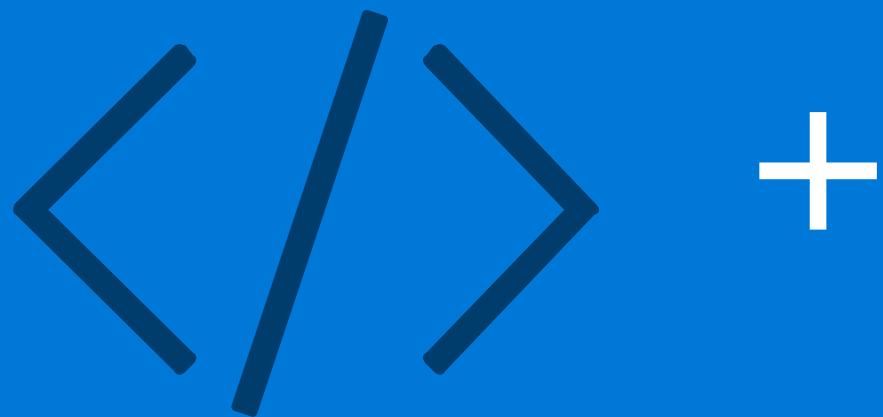
.NET, Java, Node.js, PHP, Python

Integrate with SaaS and on-premises

**Continuous integration with VSTS,
Github, BitBucket, and more**

Azure functions

CODE AZURE FUNCTIONS + DATA



Azure functions

Asynchronous, event-driven,
serverless experience

AZURE FUNCTIONS

Respond to events occurring in
other Azure services, SaaS products
(e.g., Office365, Salesforce),
on-premises systems

Only pay while function is executing

Fully open source



Service Fabric

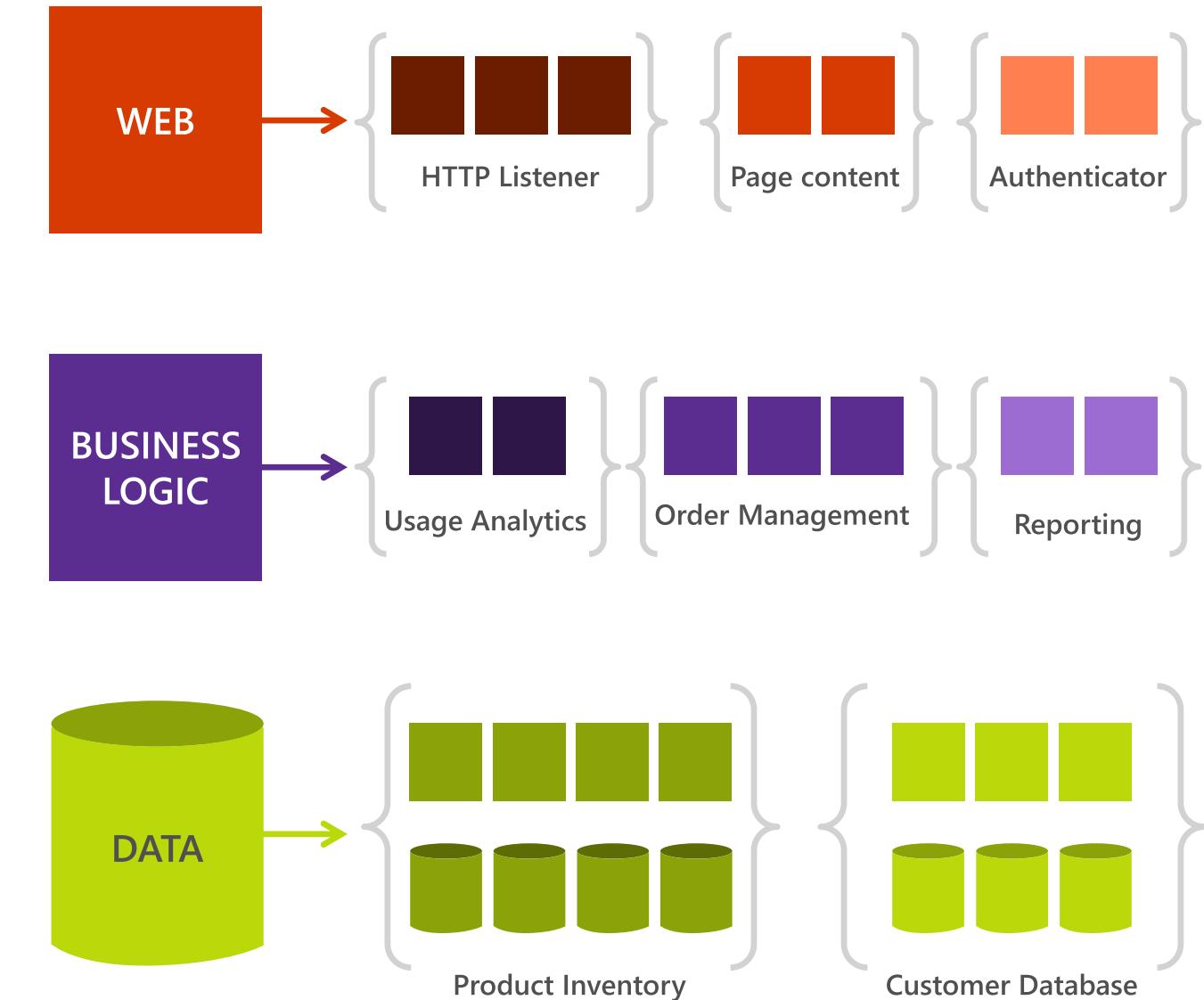
Modernization with microservices

Individually built and deployed

Small, independently
executing services

Integrate using published
API calls for overall application's
functionality

Fine-grained, loosely
coupled application



Microservices Platform

Manage microservices at scale

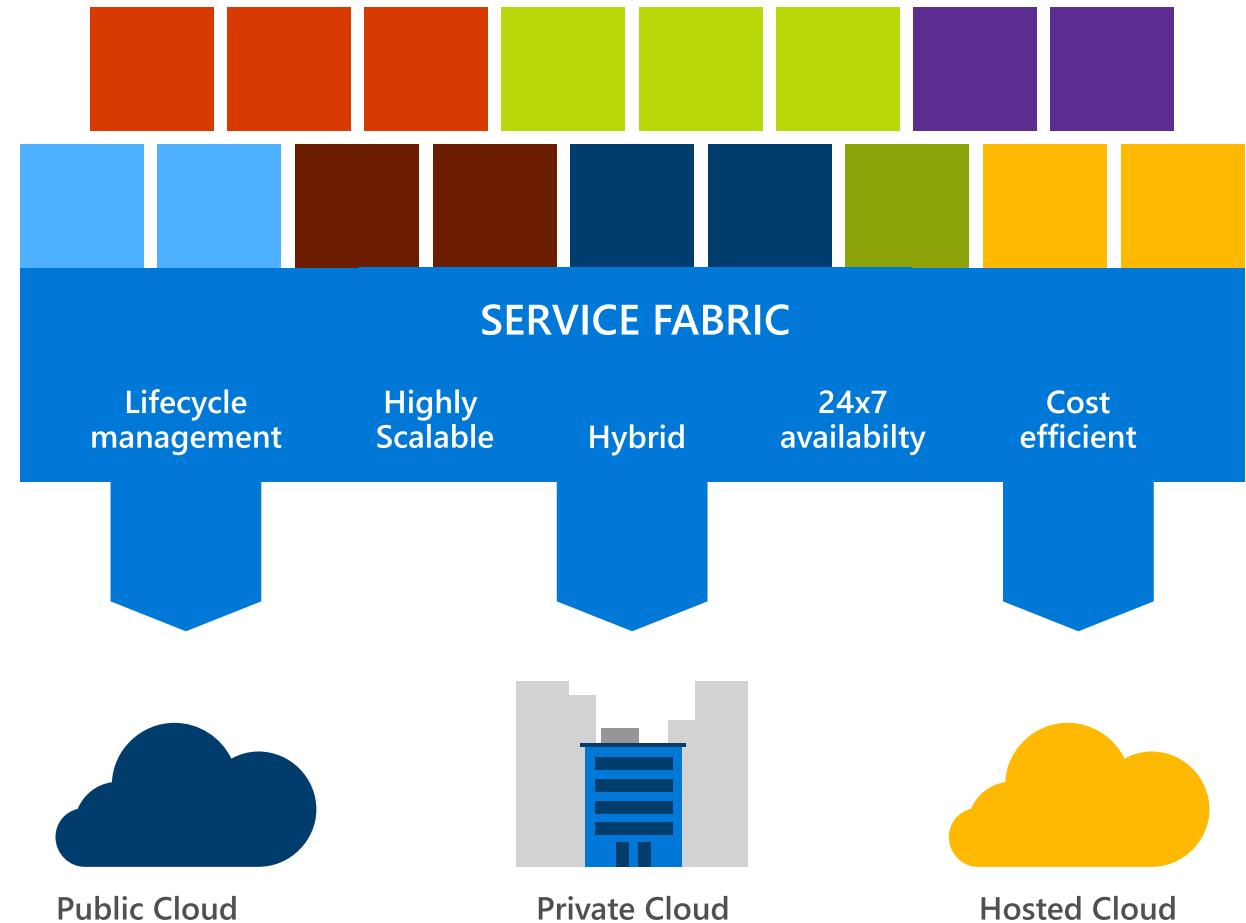
CI/CD pipeline endpoint

24x7 service availability

Stateful services

Containers and Docker

Multi-cloud



Cloud Services

Cloud services

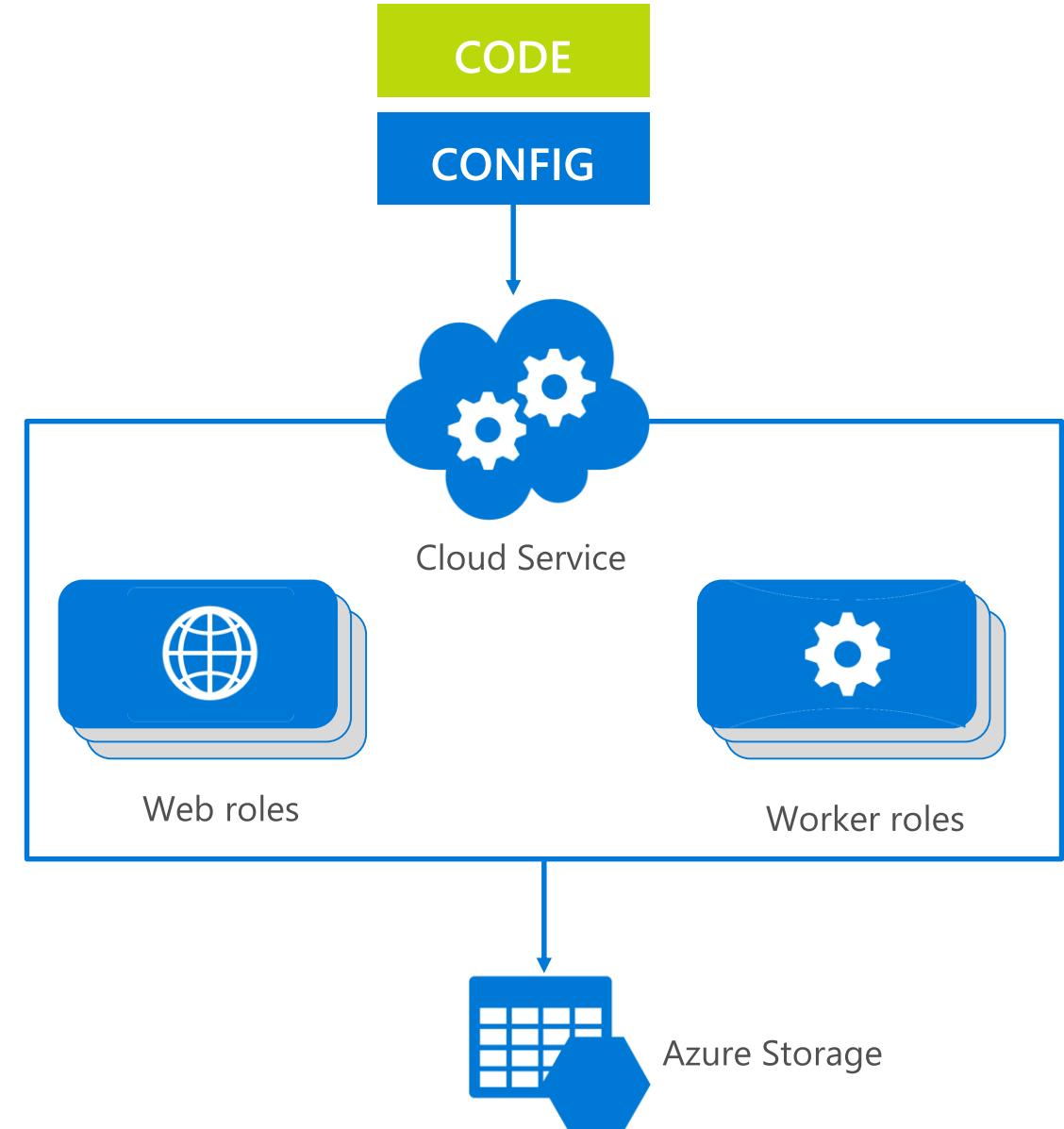
PaaS with VM control

Simple .NET runtime

Health, discovery, updates

OS Patching

The original PaaS offering from 2010. Best used when low-level OS access is required, but consider the newer PaaS models first.

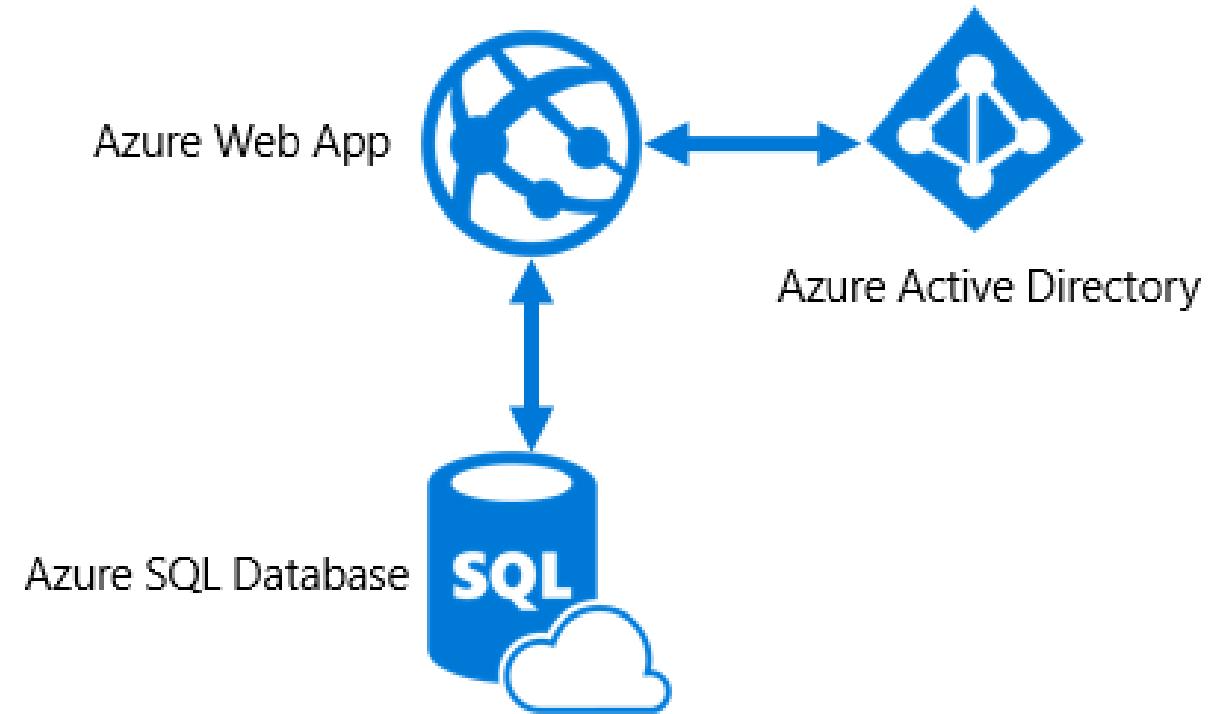


	SCENARIO	BENEFITS	AZURE SERVICES
	Simple web app	Internal LOB app with web front-end and relational database back-end.	App Service Azure AD Traffic Manager Redis Cache App Service Environment
	Scaling a web app	Scalable and global web app and database.	
	Isolating a web app	Web app with Personally Identifiable Information (PII).	
	Adding mobile to a web app	Native or Xamarin mobile client app connecting to mobile back end and sharing data.	App Service Mobile Engagement Xamarin Notification Hubs
	Analyzing user behavior	Mobile platform focused on user engagement and fast feedback.	
	Internet of Things (IoT) app	Pipeline for connected devices and predictive analytics in a real-time dashboard.	IoT Hub Stream Analytics Machine Learning Azure Functions
	Microservice-based app	Cloud-native architecture for custom app with high degree of control and customization.	Service Fabric Azure Container Service Azure Functions SQL Elastic Database

Building a simple web app

Internal line-of-business app with web front-end and relational database back-end

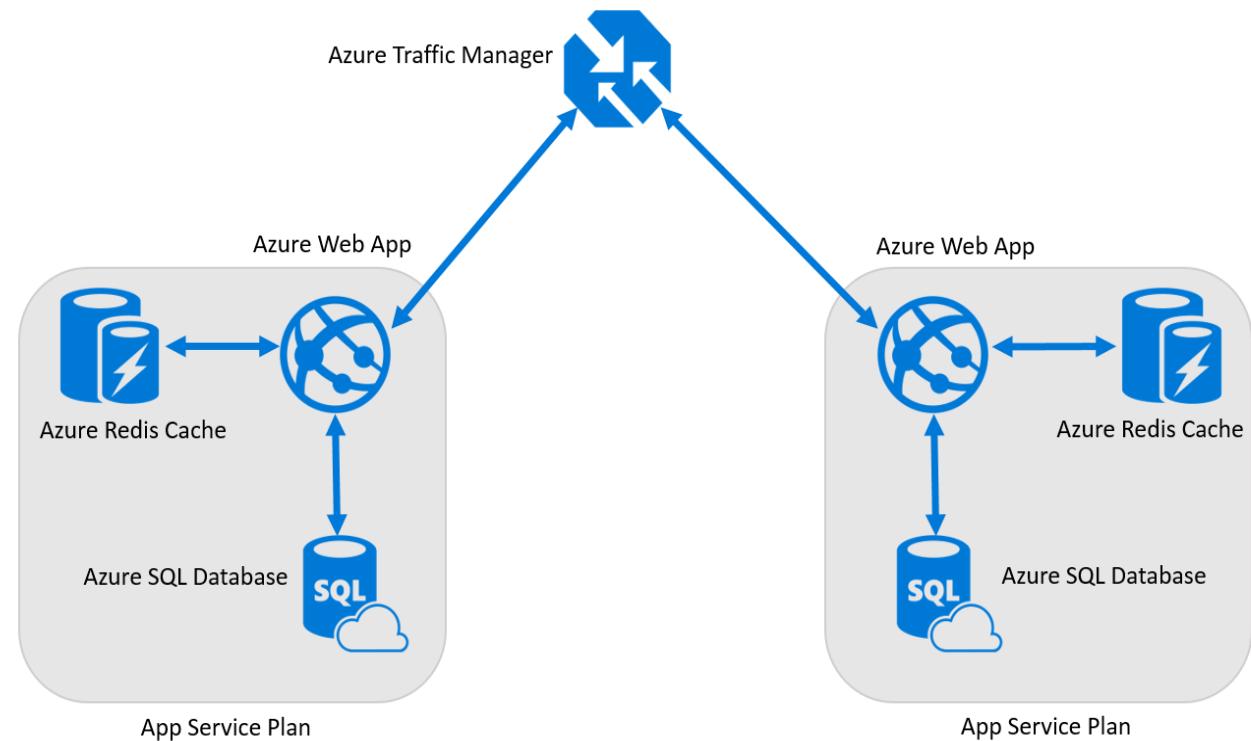
- Deploy updates earlier and often with continuous deployment
- Don't worry about managing infrastructure
- Access the web app outside of the firewall with strong security principles



Scaling a web app

Scalable and global web app and database

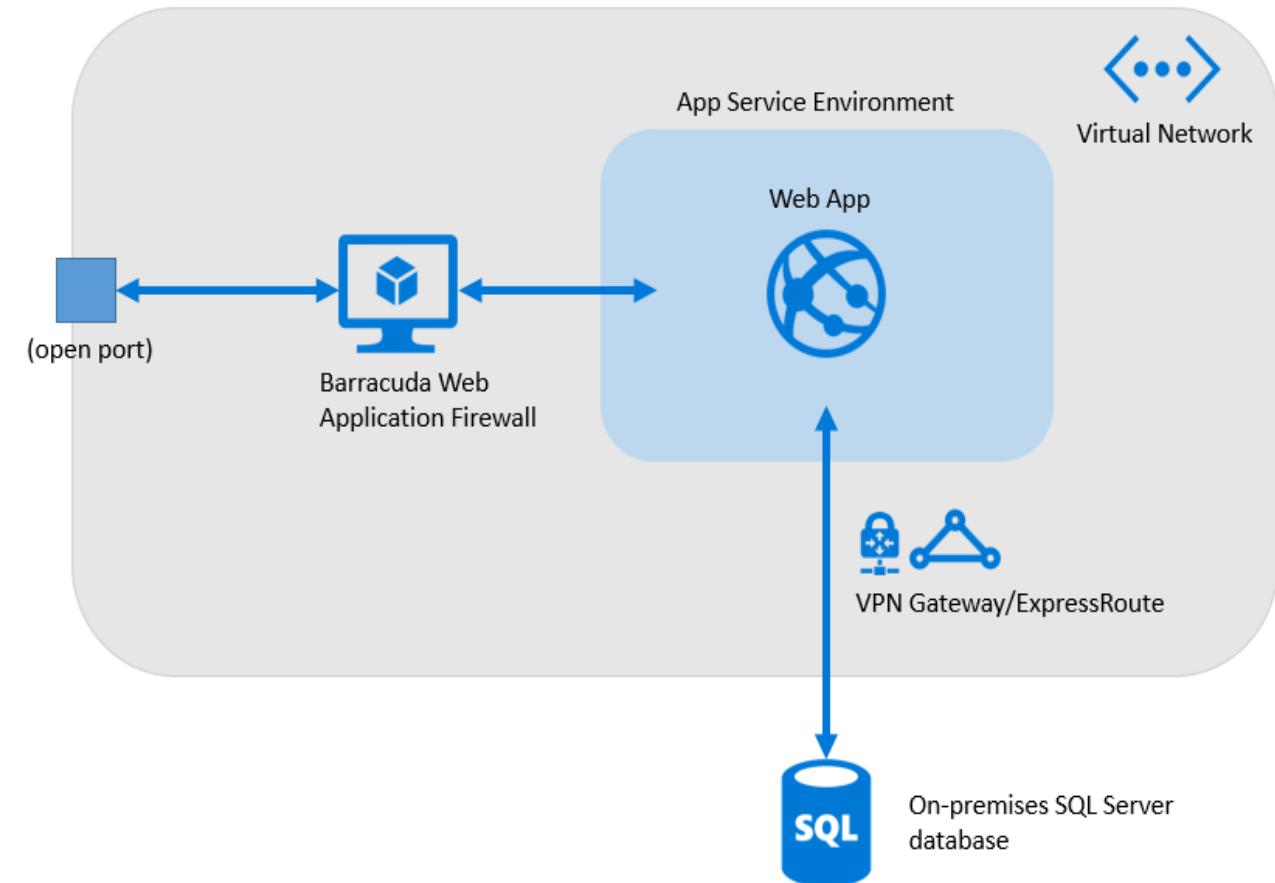
- Scale quickly with a slider bar, from a schedule, or based on CPU load
- Route users globally to copies of Web Apps and SQL Databases
- Improve performance by using a distributed cache layer



Isolating a web app

Web app with Personally Identifiable Information (PII) and database

- Host resources isolated and securely
- Block malicious requests through active defense firewalls
- Access on-premises resources from a cloud environment with a secure connection

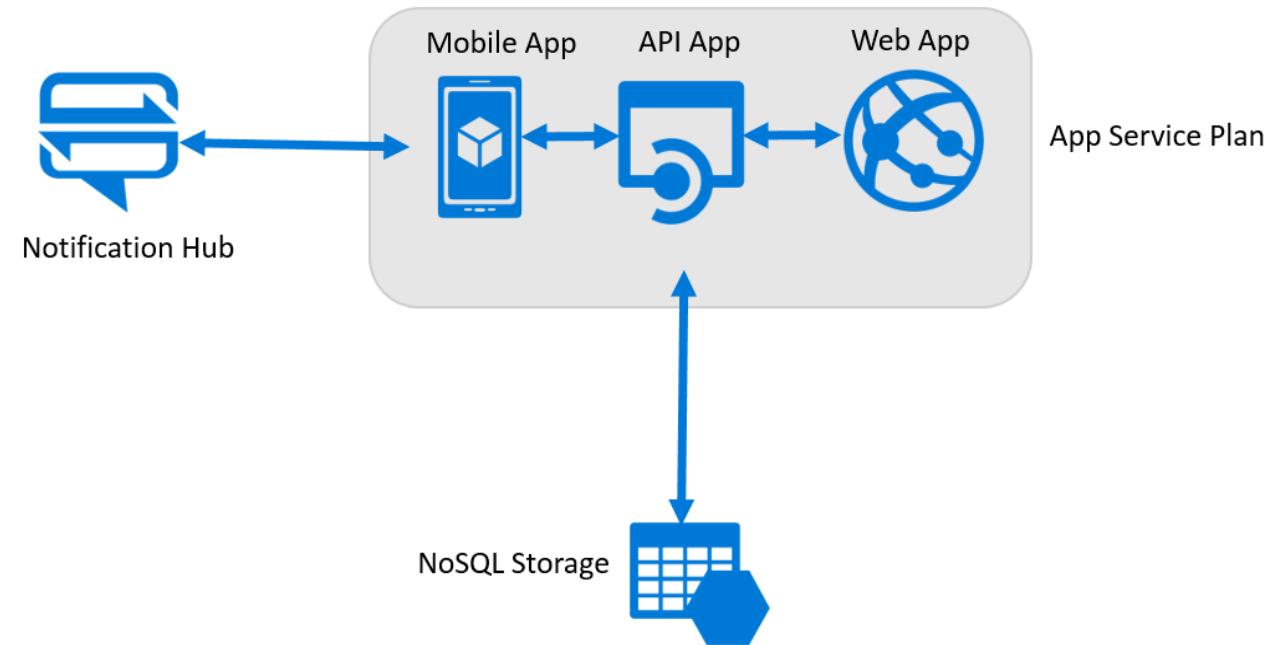


Scenario 2: mobile app

Adding mobile features to a web app

Native or Xamarin-native mobile client app that connects to an Azure Mobile App back end and shares data and APIs with an Azure Web App

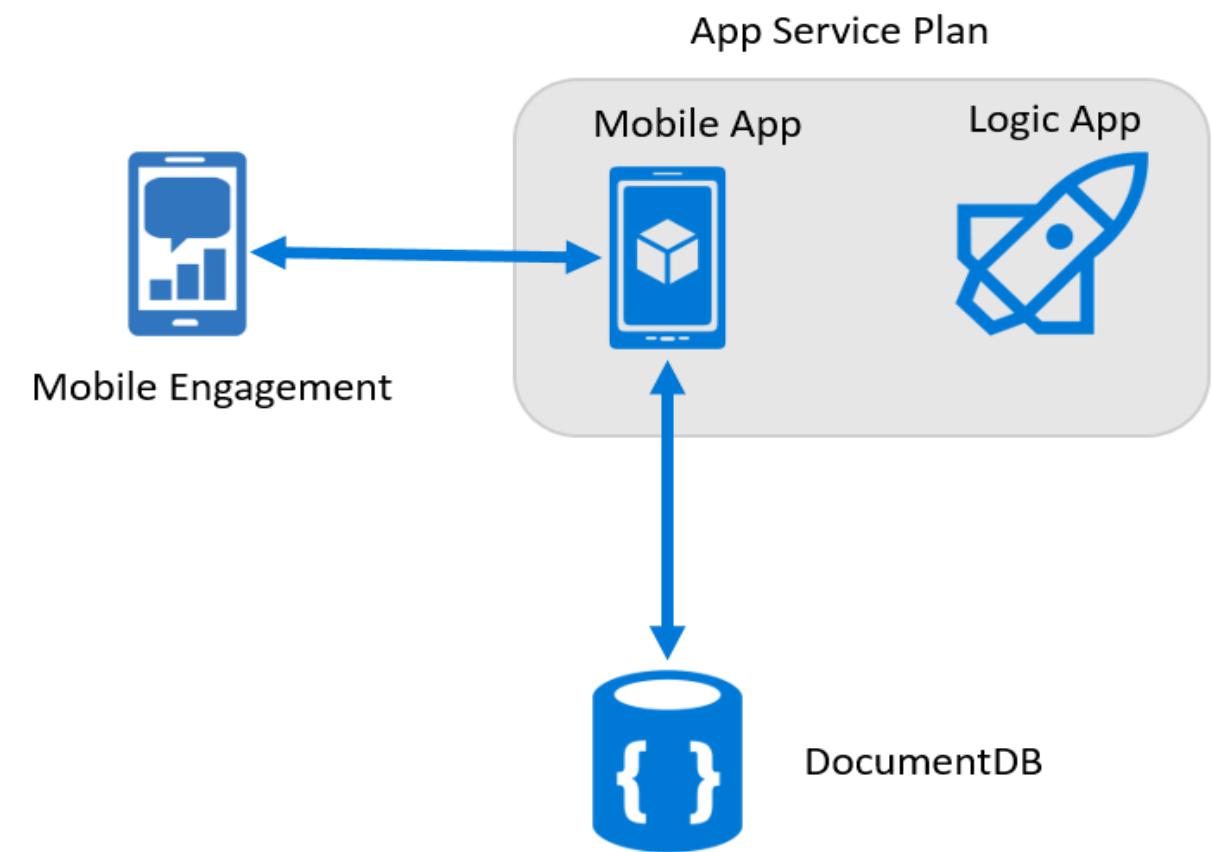
- Create cross-platform mobile clients easily and consistently
- Share data and APIs as-is across mobile and web
- Enable mobile back-end features for push notifications, offline data sync, and auto-scaling



Analyzing user behavior with a mobile back end

Mobile platform focused on user engagement and fast feedback

- Collect real-time user behavior and analytics with personalized notifications
- Store and access JSON documents faster and more flexibly
- Connect disparate data sources without writing code, such as Twitter and Slack

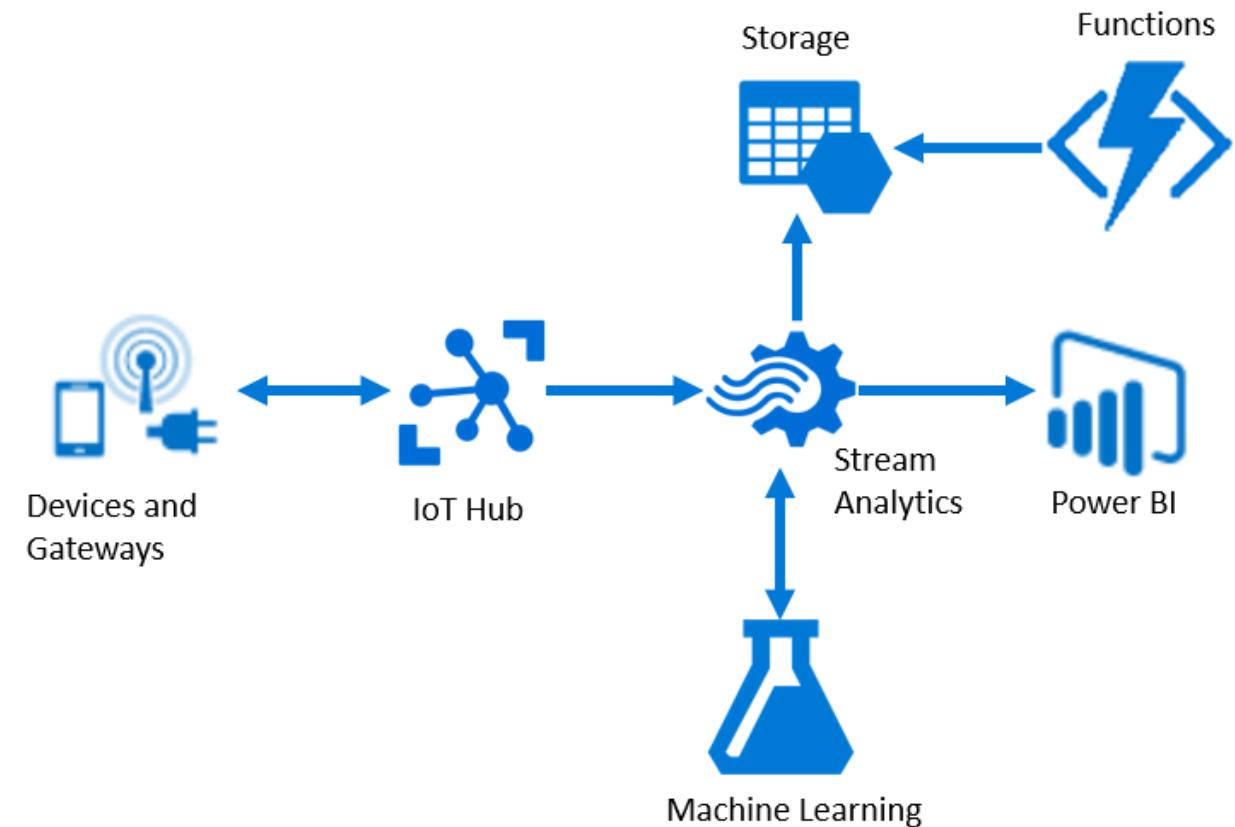


Scenario 3: Internet of Things (IoT) app

Building an Internet of Things (IoT) App

Pipeline for connected devices and predictive analytics in a real-time dashboard.

- Log and process millions of events per second from connected devices
- Deploy predictive models as ready-to-consume web services
- Display reports in real-time
- Archive and clean up data stored for future models

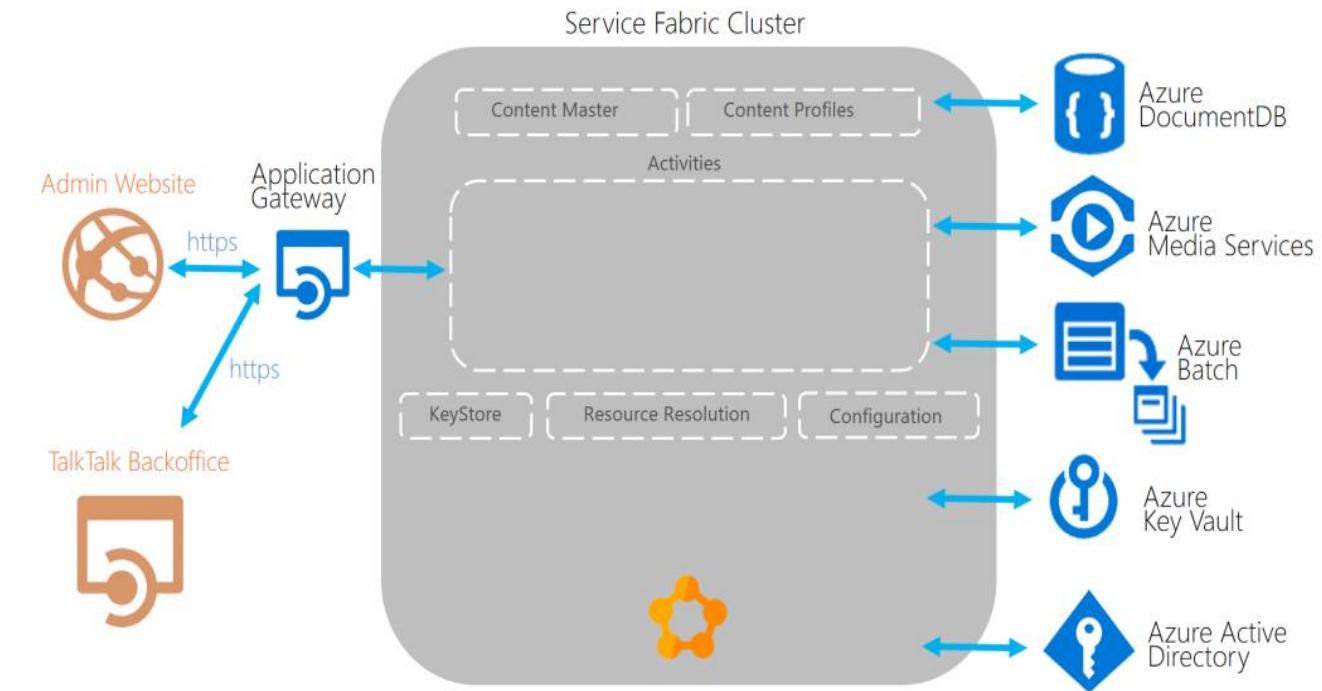


Scenario 4: custom microservice-based app

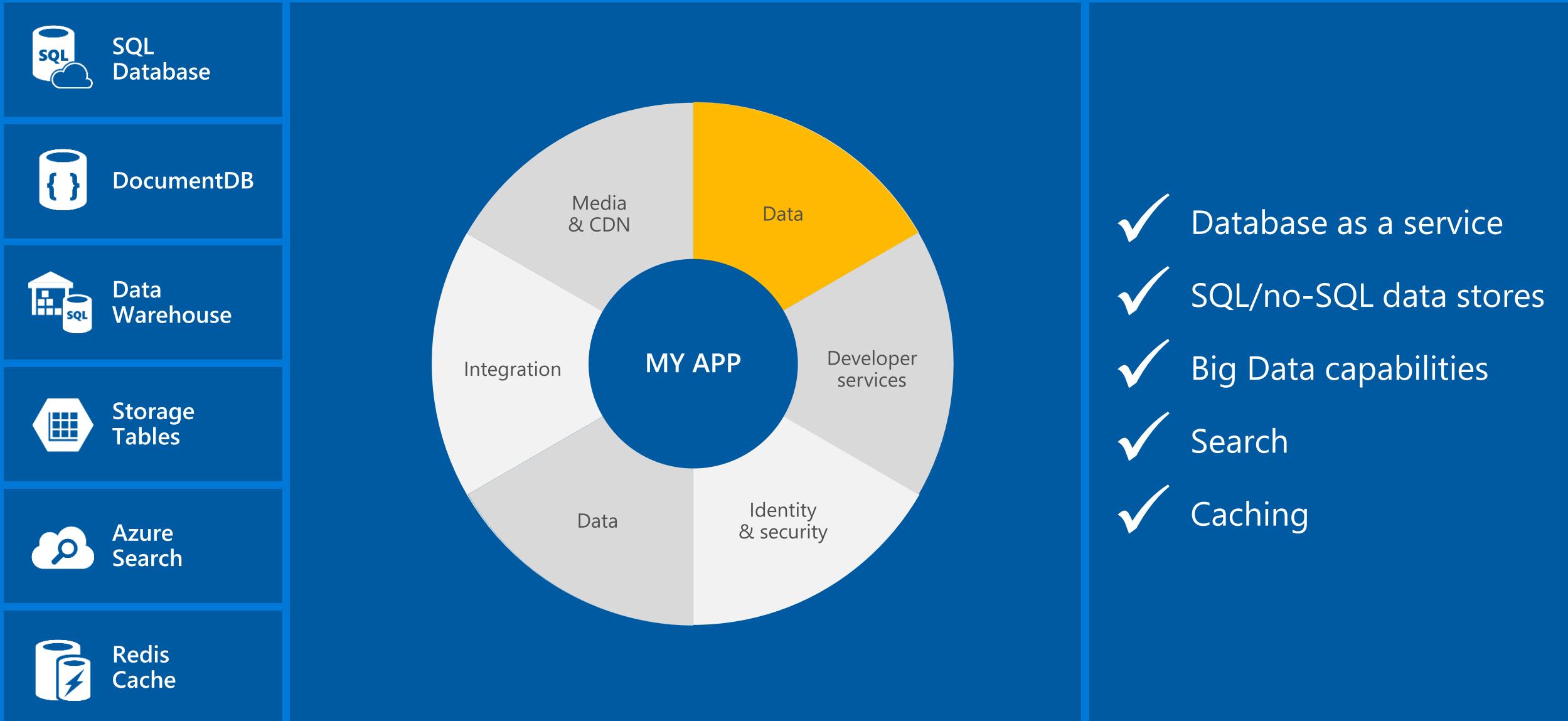
Custom microservice-based applications

Cloud-native architecture for custom app with high degree of control and customization

- Build and deploy small, independently-executing microservices
- Deploy rolling updates with no downtime



Data services



Developer services



Visual Studio
Team Services



Azure
SDK



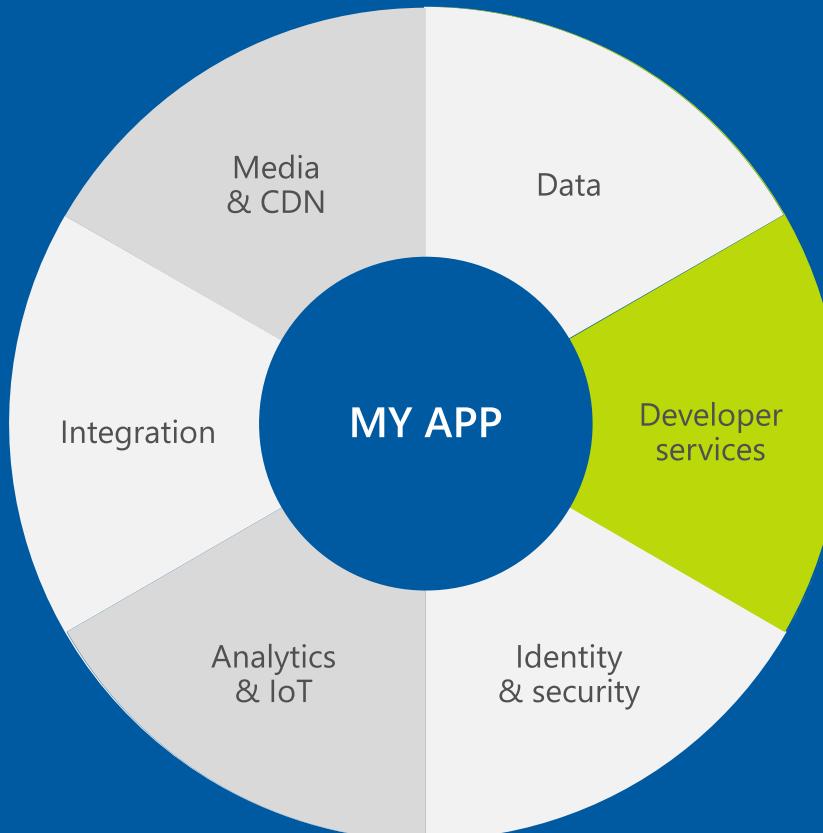
Dev-Test
Labs



HockeyApp



App
Insights



- ✓ Team collaboration
- ✓ Version Control
- ✓ Continuous integration and deployment
- ✓ Dev-Test environments
- ✓ Application monitoring and diagnostics

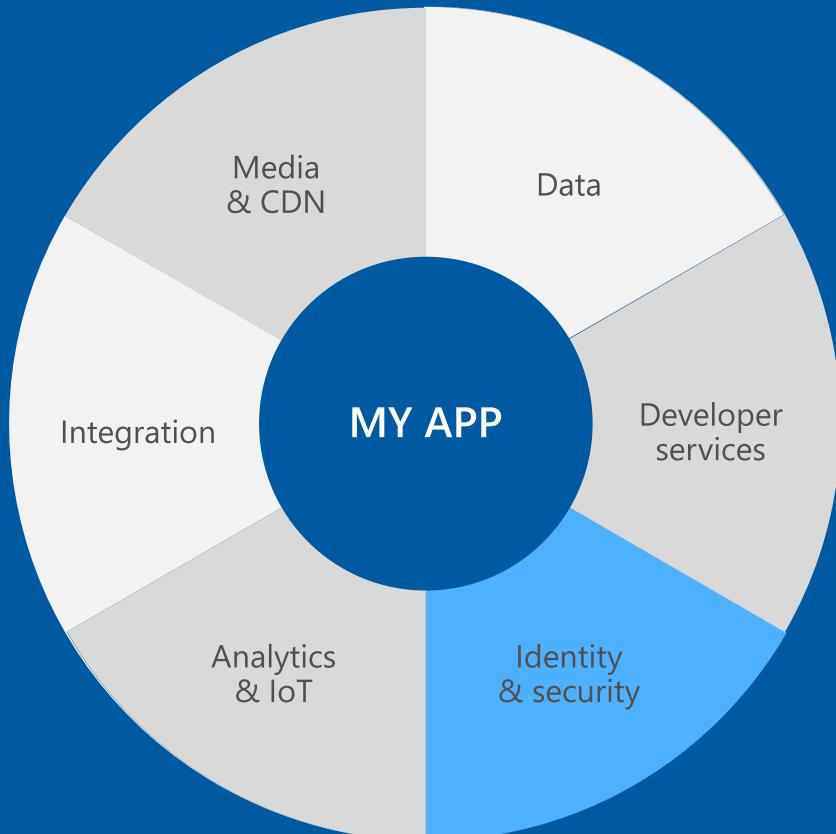
Identity & security



Azure Active
Directory



Microsoft
Graph



- ✓ Single Sign-on
- ✓ Access Control
- ✓ User Provisioning
- ✓ Groups and distribution lists
- ✓ Multi-Factor Authentication
- ✓ Anomalous sign in detection

Advanced Analytics and IoT

 Machine Learning

 Stream Analytics

 Data Factory

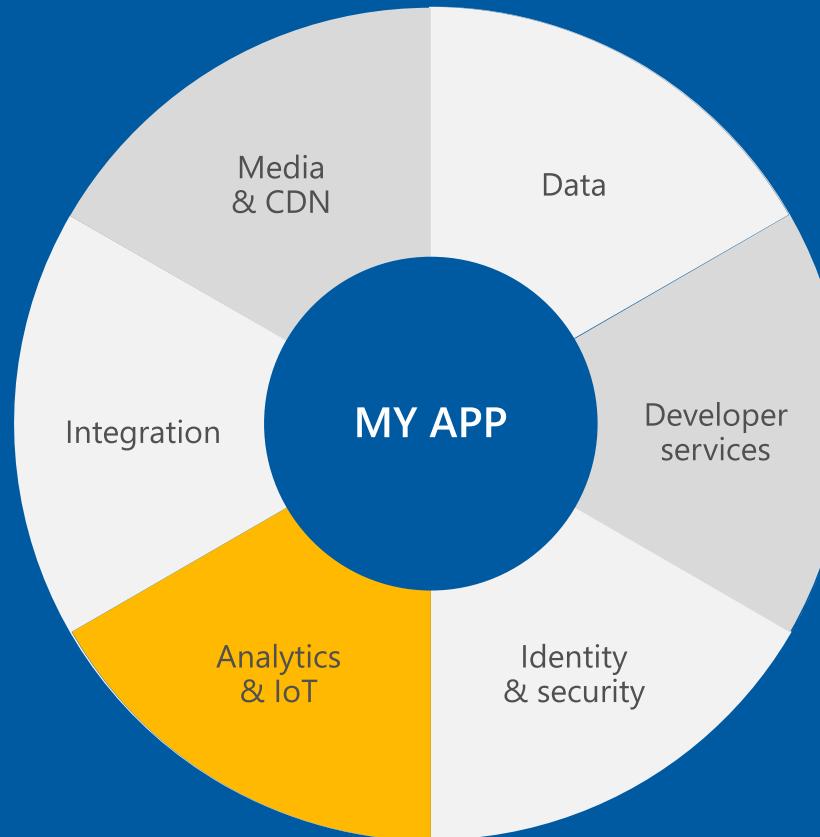
 Data Lake Store

 Cortana Intelligence Suite

 Cognitive Services

 HDInsight

 IoT Hub



-  Machine Learning
-  IoT for devices and data collection
-  Analytics
-  Cognitive Services

Integration services



Logic
Apps



API
Apps



API
Management



Service
Bus



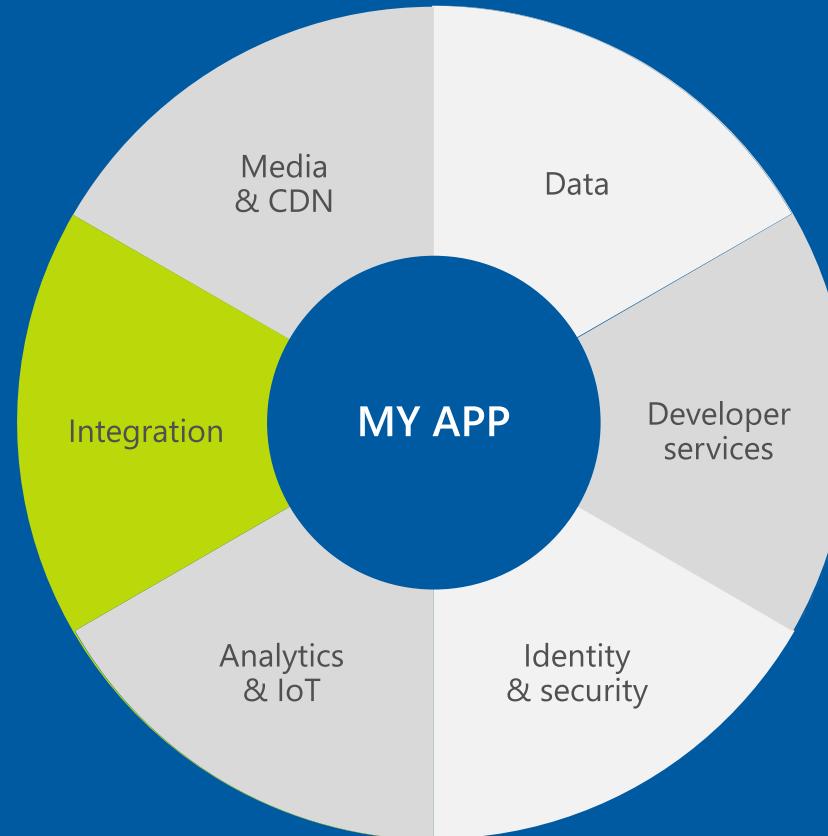
Biztalk
Services



Hybrid
Connections

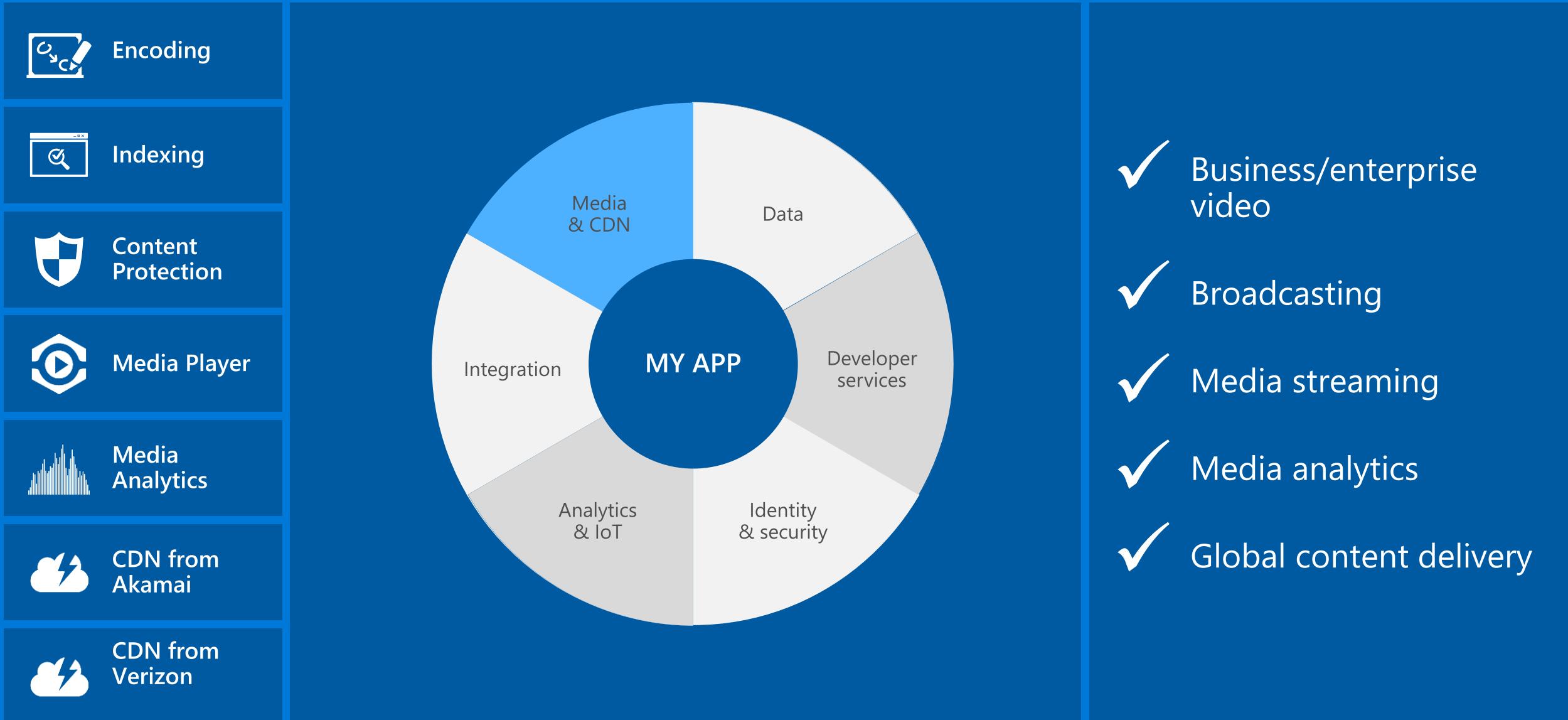


Queues



- ✓ Business process workflow
- ✓ On-Premises/SaaS Connectivity
- ✓ Messaging
- ✓ API Management

Media services and content delivery network



34

Azure regions

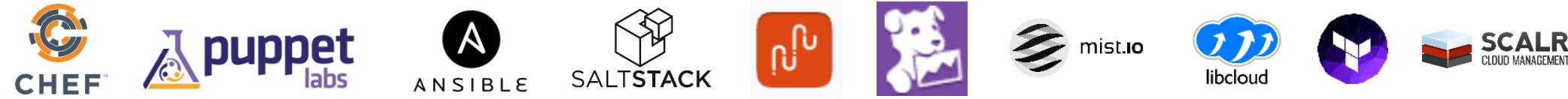


Azure is an open cloud

DevOps



Management



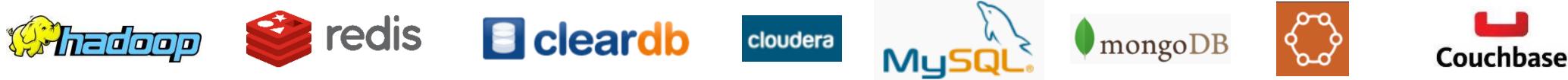
Applications



App frameworks and tools



Databases and middleware



Infrastructure



Azure Learning

→ [Azure Skills](#)

→ [Microsoft Learning](#)

→ [Azure Readiness](#)

