



**UNLEASHING THE POWER  
OF CLOUD COMPUTING**



# Who is Chad Green

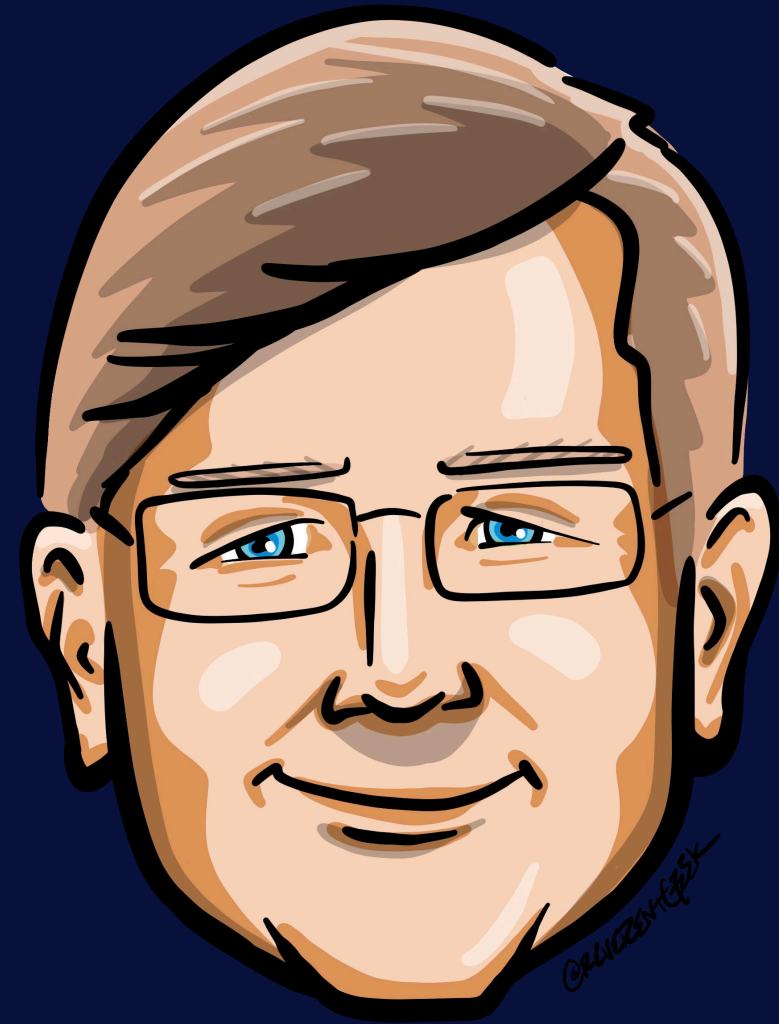
✉ chadgreen@chadgreen.com

💬 TaleLearnCode

🌐 ChadGreen.com

🐦 ChadGreen & TaleLearnCode

🌐 ChadwickEGreen



# Memphis Azure User Group



MEMPHIS AZURE USER GROUP  
MEMPHISAZURE.COM

- October 2023 – Azure: Unleashing the Power of Cloud Computing
- November 2023 – Azure on the Cheap – Your First Azure Application
- December 2023 – Automating my Dog with Azure Cognitive Services

<https://memphisazure.com/>

# Louisville Azure Meetup

- October 12 – Implementing Multi-Tenant AKS
- November 9 – Enterprise Scale IaC using Terraform



<https://meetup.com/louisville-azure-meetup>

# DevSpace



- Development without Downloads: Using Online Developer Tools 2023
- Multidevice Applications with Flutter



- Building Great Libraries
- Time Travelling Data: A Quick Overview of SQL Server Temporal Tables

# Unleashing the Power of Cloud Computing

- Understanding Cloud Computing
  - History
  - Importance of Cloud Computing
  - Cloud Service and Deployment Models
  - Cloud Marketplace
- Microsoft Azure
  - History
  - Azure Regions
  - Azure Services
  - Example Architectures



# Understanding Cloud Computing

Azure: Unleashing the Power of Cloud Computing



# History of Cloud Computing

- 1950s and 1960's – Precursors to Cloud Computing





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- 1990s – Internet and Web Services



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- 2000s – Emergence of Cloud Computing



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- Late 2000s – Expansion of Cloud Services



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- 2020s – Ongoing Evolution





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- 2020s – Ongoing Evolution
- Future – AI, Edge, and Quantum Computing

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- 2020s – Ongoing Evolution
- Future – Edge and Quantum Computing



# Importance of Cloud Computing

**Scalability and  
Flexibility**



# Importance of Cloud Computing

Scalability and  
Flexibility

Cost Efficiency



# Importance of Cloud Computing

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Global Accessibility





# Importance of Cloud Computing

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Acceleration



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Disaster Recovery  
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Focus on Core  
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# Cloud Service Models

**Infrastructure as a  
Service (IaaS)**





# Cloud Service Models

**Infrastructure as a  
Service (IaaS)**

**Platform as a  
Service (PaaS)**



# Cloud Service Models

Infrastructure as a  
Service (IaaS)

Platform as a  
Service (PaaS)

Serverless



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# Cloud Deployment Models

**Public Cloud**



# Cloud Deployment Models

**Public Cloud**

**Private Cloud**



# Cloud Deployment Models

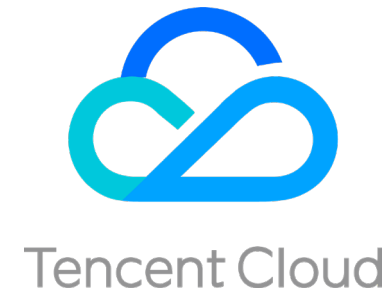
**Public Cloud**

**Private Cloud**

**Hybrid Cloud**



# Cloud Marketplace



# Microsoft Azure

Azure: Unleashing the Power of Cloud Computing



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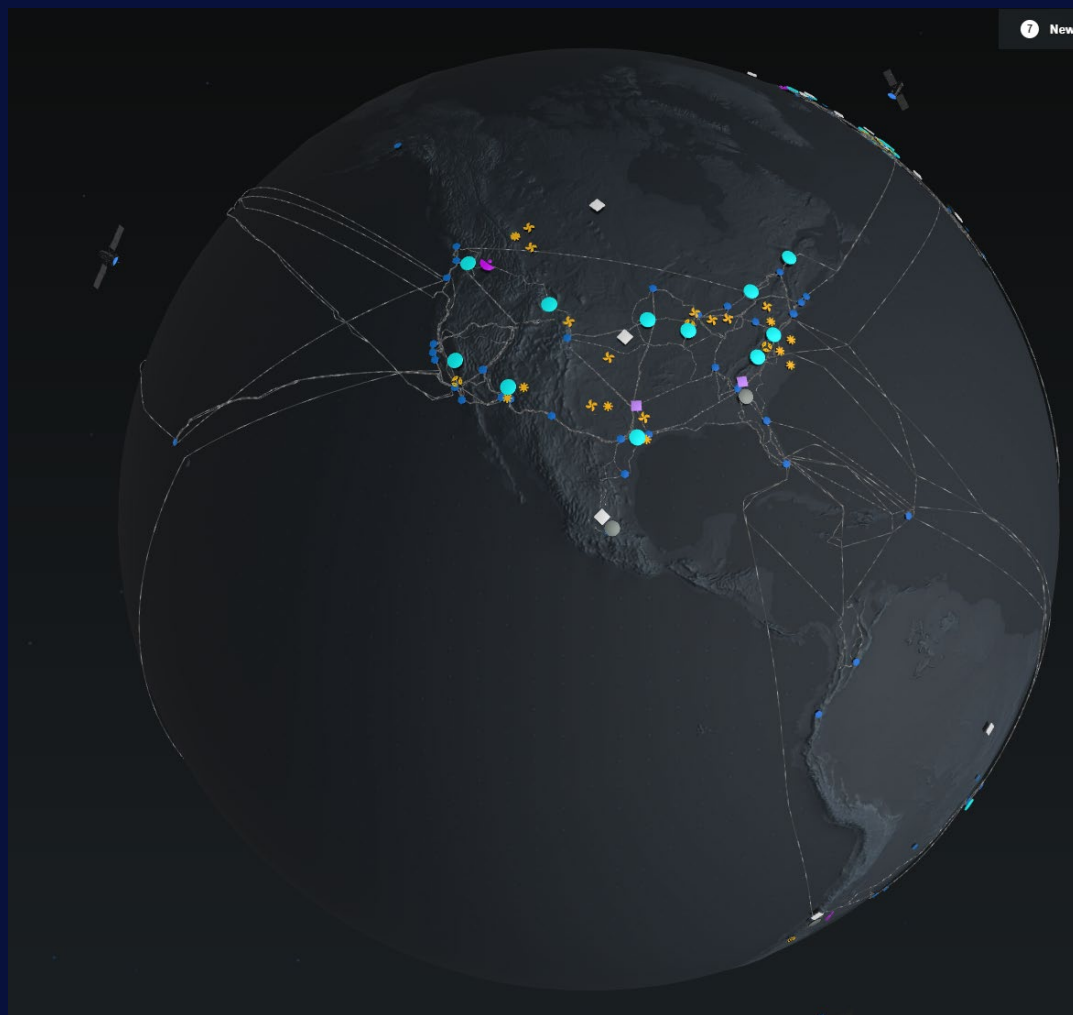
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- Hybrid Cloud Solutions (2015-2016)
- Global Data Center Expansion
- AI and Machine Learning Advancements
- Edge Computing
- Sustainability Commitments

# Azure Regions



**48 Active Regions**  
**17 Regions In-Development**

# Azure Regions

## United States

- Central US (Iowa)
- East US (Virginia)
- East US 2 (Virginia)
- East US 3 (Georgia) \*
- North Central US (Illinois)
- South Central US (Texas)
- West Central US (Wyoming)
- West US (California)
- West US 2 (Washington)
- West US 3 (Arizona)

## United States Government

- US DoD Central (Iowa)
- US DoD East (Virginia)
- US Government Arizona (Arizona)
- US Government Texas (Texas)
- US Government Virginia (Virginia)
- US Secret East (Undisclosed)
- US Secret West (Undisclosed)
- US Secret West Central (Undisclosed) \*

# Azure Regions

## Americas

- Brazil South (São Paulo)
- Canada Central
- Canada East
- Chile Central \*
- Mexico Central \*

## Oceania / Africa

- Australia Central (Canberra)
- Australia East (New South Wales)
- Australia Southeast (Victoria)
- New Zealand North (Auckland) \*
- South Africa North (Johannesburg)

# Azure Regions (Europe)

- Austria East (Vienna) \*
- Belgium Central (Brussels) \*
- Denmark East (Copenhagen) \*
- North Europe (Ireland)
- West Europe (Netherlands)
- Finland Central (Helsinki) \*
- France Central (Paris)
- Germany West Central (Frankfurt)
- Greece Central (Athens) \*
- Italy North (Milan)
- Norway East (Oslo)
- Poland Central
- Spain Central (Madrid) \*
- Sweden Central (Gävle)
- Switzerland North (Zürich)
- UK South (London)
- UK West (Cardiff)



# Azure Regions (Asia)

- Israel Central (Israel) \*
- Qatar Central (Doha)
- UAE North (Dubai)
- Southeast Asia (Singapore)
- China East (Shanghai)
- China East 2 (Shanghai)
- China North (Beijing)
- China North 2 (Beijing)
- China North 3 (Hebei)
- Central India (Pune)
- India South Central (Hyderabad) \*
- South India (Chennai)
- Indonesia Central (Jakarta) \*
- Japan East (Tokyo)
- Japan West (Osaka)
- Korea Central (Seoul)
- Malaysia West (Kuala Lumpur) \*
- Saudi Arabia Central (Saudi Arabia) \*
- Taiwan North (Taipei) \*

# Azure Services

- Compute



Virtual  
Machines



VM Scale  
Sets



Azure Red  
Hat  
OpenShift



Azure  
VMware  
Solution



Dedicated  
Host



CycleCloud



Virtual  
Desktop



Kubernetes  
Service



Container  
Instances



Container  
Registry



Container  
Apps



App Service



Azure  
Functions



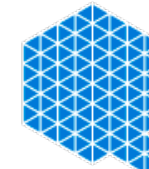
Azure Batch



Cloud  
Services



Service  
Fabric



Azure  
Quantum

# Azure Services

- Networking



Application Gateway



Azure Bastion



Azure DNS



Azure Firewall



Azure Front Door



Azure Orbital



ExpressRoute



Internet Analyzer



Load Balancer



Network Watcher



Private Link



Route Server



Traffic Manager



Virtual Network



Virtual WAN



VPN Gateway

# Azure Services

- Identity and Security



Azure  
Active  
Directory



Azure AD  
External  
Identities



Azure AD  
Domain  
Services



Defender  
for Cloud



Microsoft  
Sentinel



Dedicated  
HSM



Azure Key  
Vault



Information  
Protection



DDoS  
Protection

# Azure Services

- Management & Governance



Automation



Azure  
Advisor



Azure Arc



Azure  
Automate



Azure  
Backup



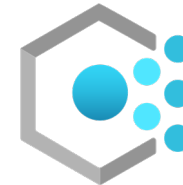
Azure  
Blueprints



Azure  
Lighthouse



Azure  
Monitor



Azure Policy



Azure  
Portal



Cloud Shell



Cost  
Management



Kubernetes  
Fleet  
Manager



Managed  
Apps

# Azure Services

- Storage



Avere vFXT



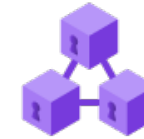
Azure  
Elastic SAN



Azure  
NetApp  
Files



Azure  
Storage



Confidential  
Ledger



Data Lake  
Storage



Data Share



HPC Cache



Managed  
Disks



Managed  
Lustre



StorSimple

# Azure Services

- Databases



SQL  
Database



SQL  
Managed  
Instance



SQL Server  
Stretch DB



Cosmos DB



Database  
for MariaDB



Database  
for MySQL



Database  
for  
PostgreSQL



Apache  
Cassandra  
Managed  
Instance



Azure  
Cache for  
Redis

**NoSQL**

NoSQL



MongoDB



Apache  
Cassandra



Apache  
Gremlin



Table



PostgreSQL

# Azure Services

- Analytics



Analysis  
Services



Azure  
Purview



Data  
Catalog



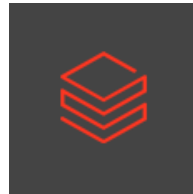
Data  
Explorer



Data  
Factory



Data Lake  
Analytics



Databricks



HDInsight



Microsoft  
Fabric



Operator  
Insights



Power BI  
Embedded



Stream  
Analytics

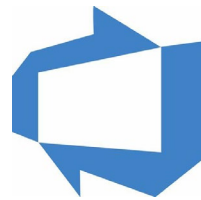


Synapse  
Analytics



# Azure Services

- Development



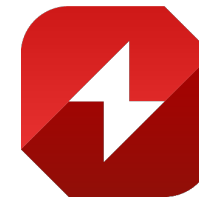
Azure  
DevOps



Visual  
Studio App  
Center



Managed  
Grafana



Azure  
Chaos  
Studio



App  
Configuration



Deployment  
Environments



DevTest  
Labs



Load  
Testing



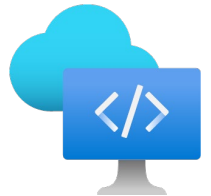
Lab  
Services



SingaIR  
Service



Azure  
Spring Apps



Microsoft  
Dev Box

# Azure Services

- Integration



Event Hubs



Service Bus



Web  
PubSub



Notification  
Hub



Event Grid



Logic Apps



API  
Management



Energy Data  
Manager



Health Data  
Services



# Azure Services

- Media



Azure CDN



Media  
Service



# Azure Services

- Communications



Azure  
Communications  
Gateway



Communication  
Services



# Azure Services

- IoT



IoT Hub



IoT Central



IoT Edge



Azure  
Sphere



Digital  
Twins



Defender  
for IoT



Azure Maps

# Azure Services

- AI and Machine Learning



Cognitive  
Services



Machine  
Learning



OpenAI  
Service



Cognitive  
Search



AI Vision



AI Speech



AI Language



AI Translator



AI Document  
Intelligence



AI Bot  
Service



AI Video  
Indexer



AI Anomaly  
Detector



AI Content  
Safety



AI Personalizer



AI Metrics  
Advisor



AI Immersive  
Reader

# Azure Services

- AI and Machine Learning



Machine Learning



Cognitive Services



OpenAI Services



Applied AI Services



Open Datasets



Project Bonsai



Microsoft Genomics



# Azure Services

- Mixed Reality



Remote  
Rendering



Object  
Anchors



Spatial  
Anchors



Time Series  
Insights





# Azure Services

- Migration



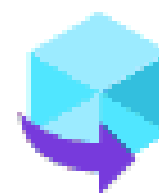
Azure  
Migrate



Data Box



DB  
Migration  
Service



Resource  
Mover

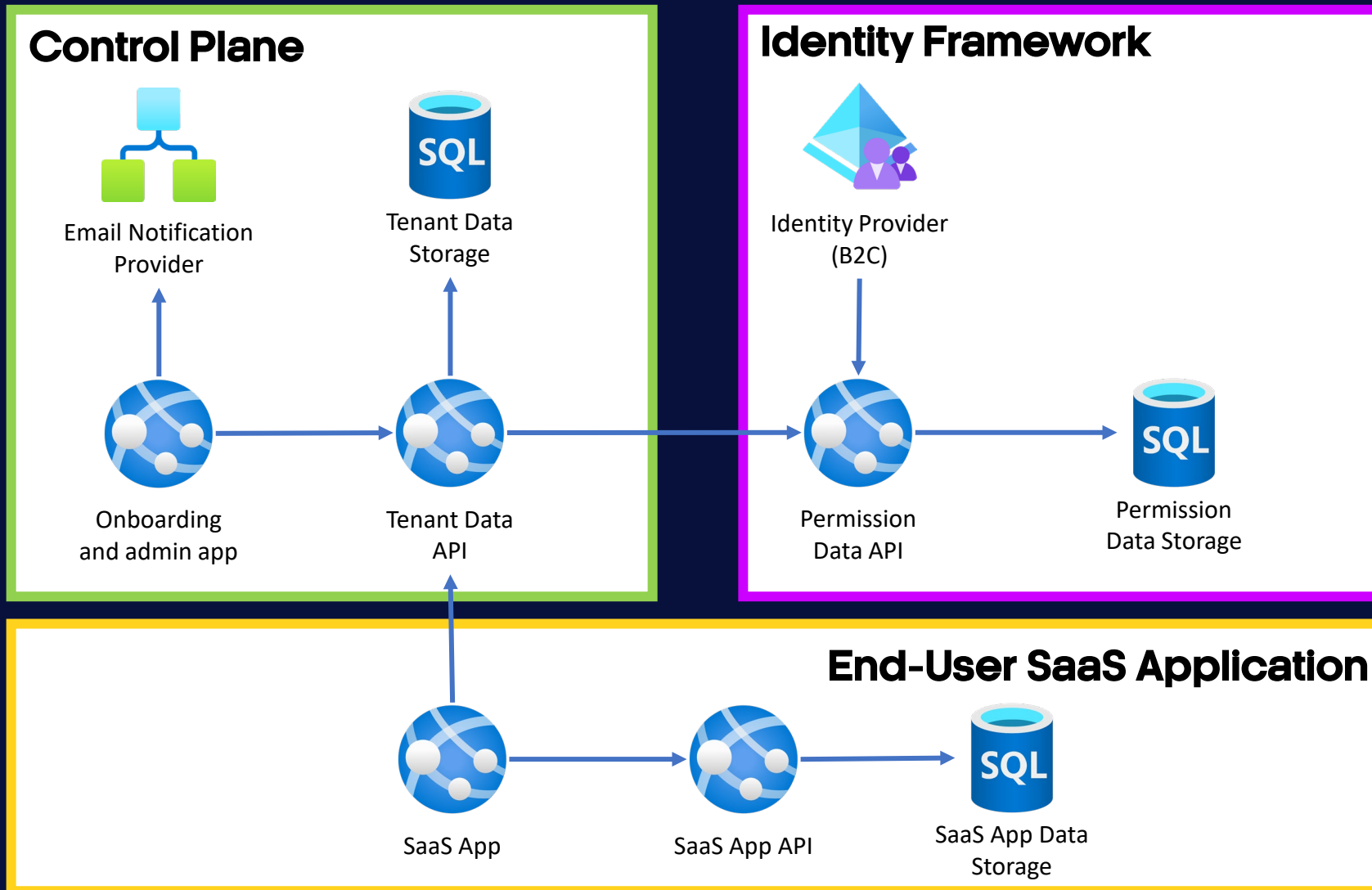


Site  
Recovery

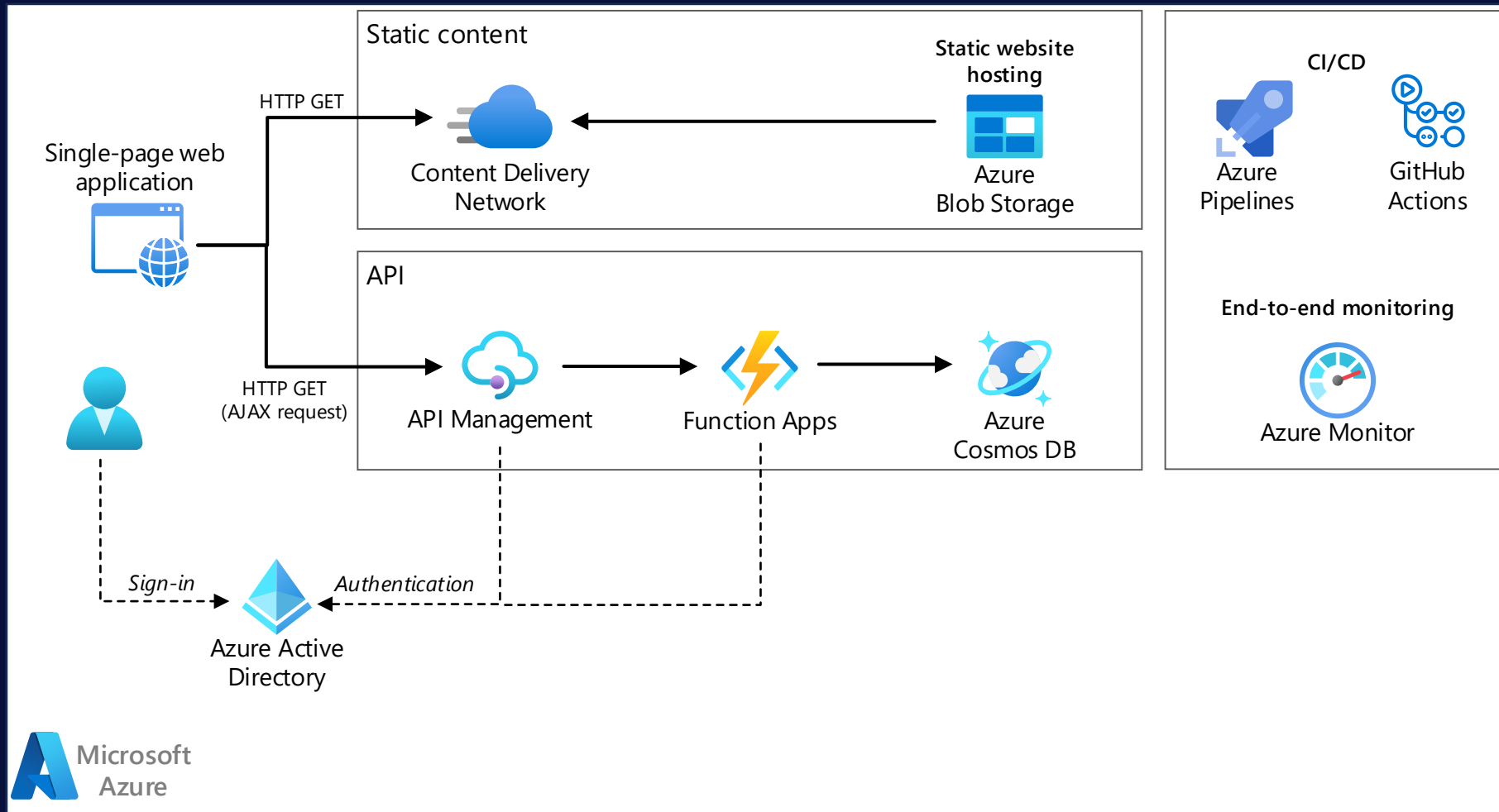
# Example Architectures

Azure: Unleashing the Power of Cloud Computing

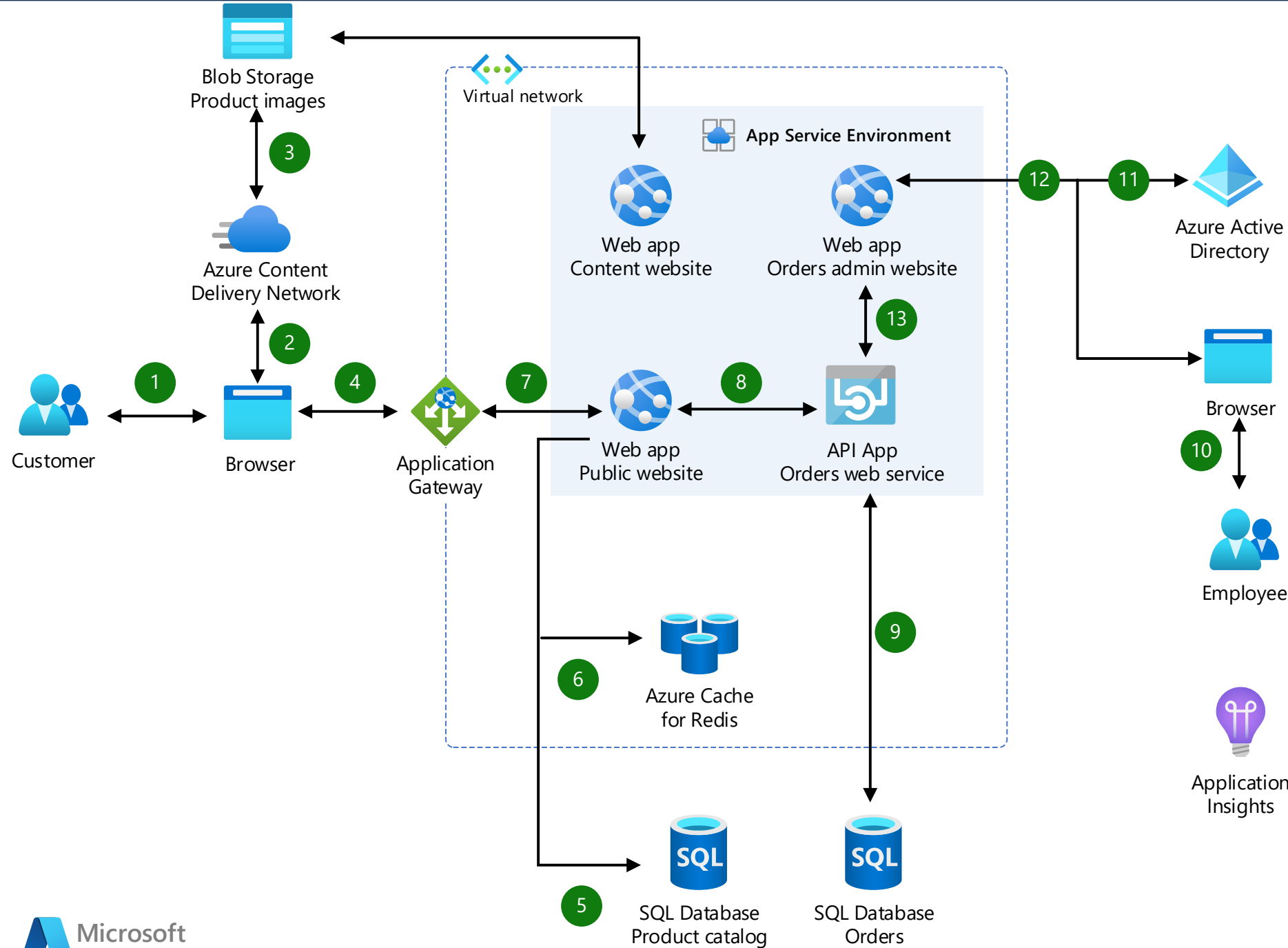
# Simple SaaS Application



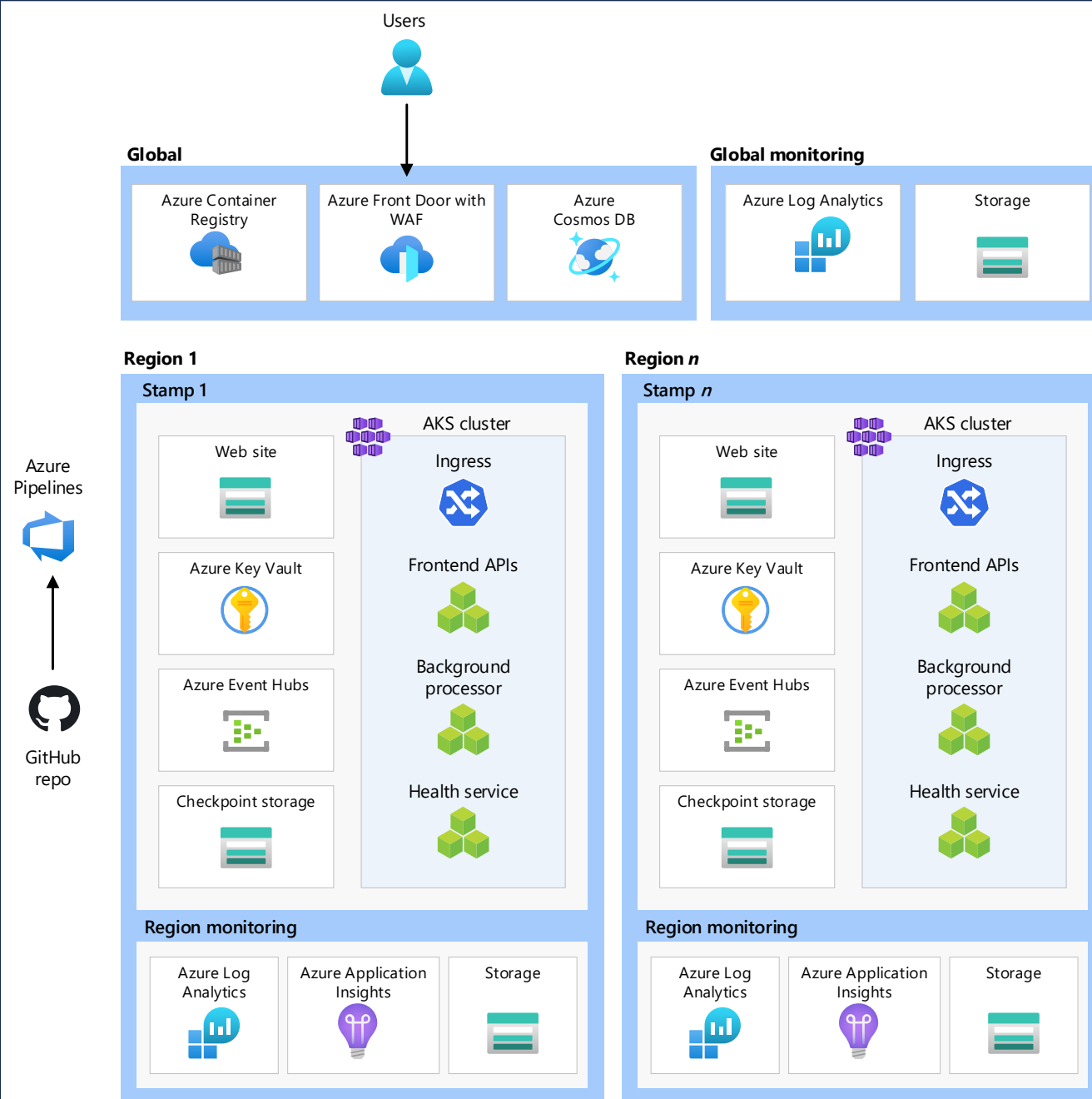
# Serverless Web Application



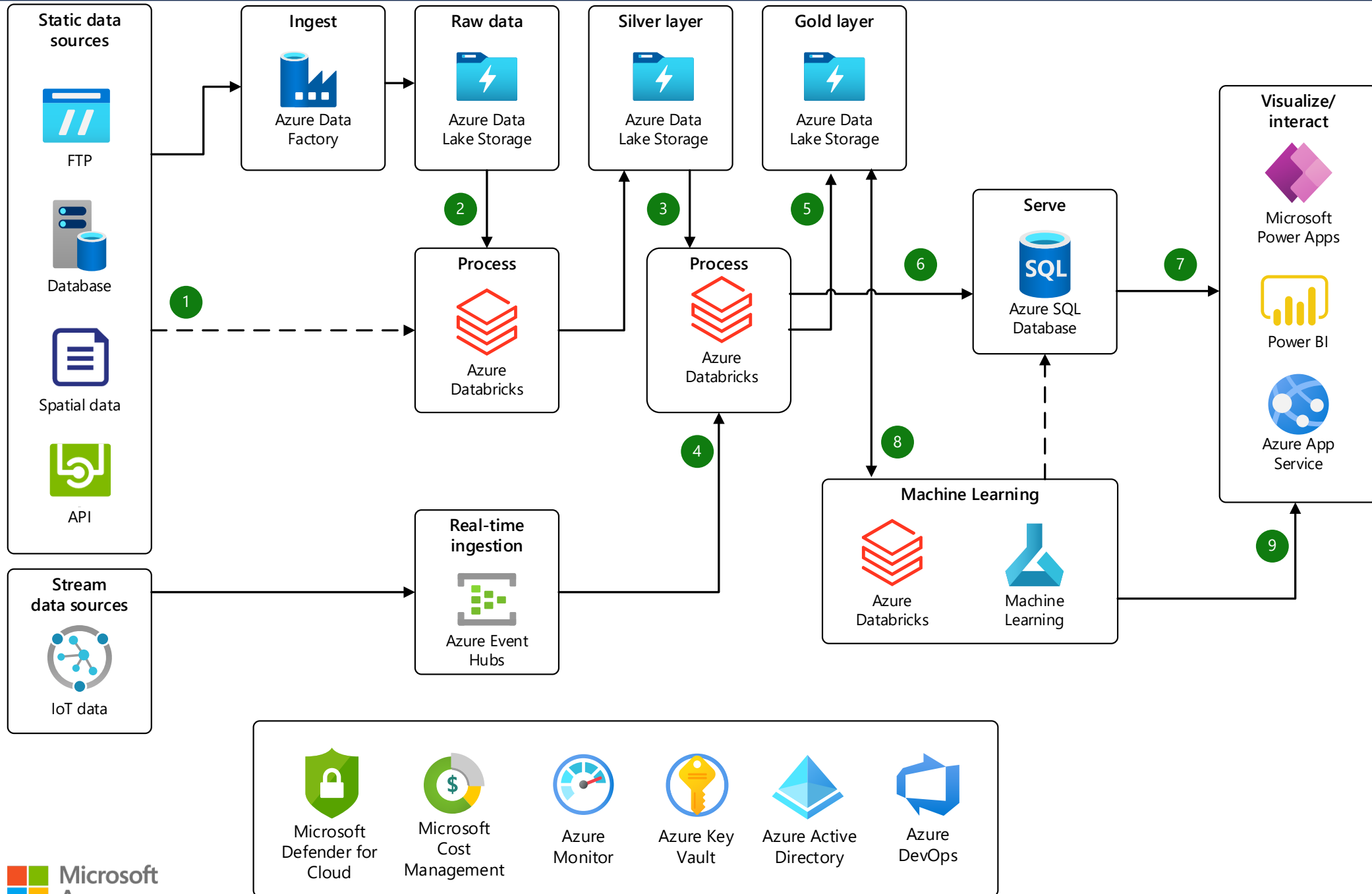
# E-Commerce Website



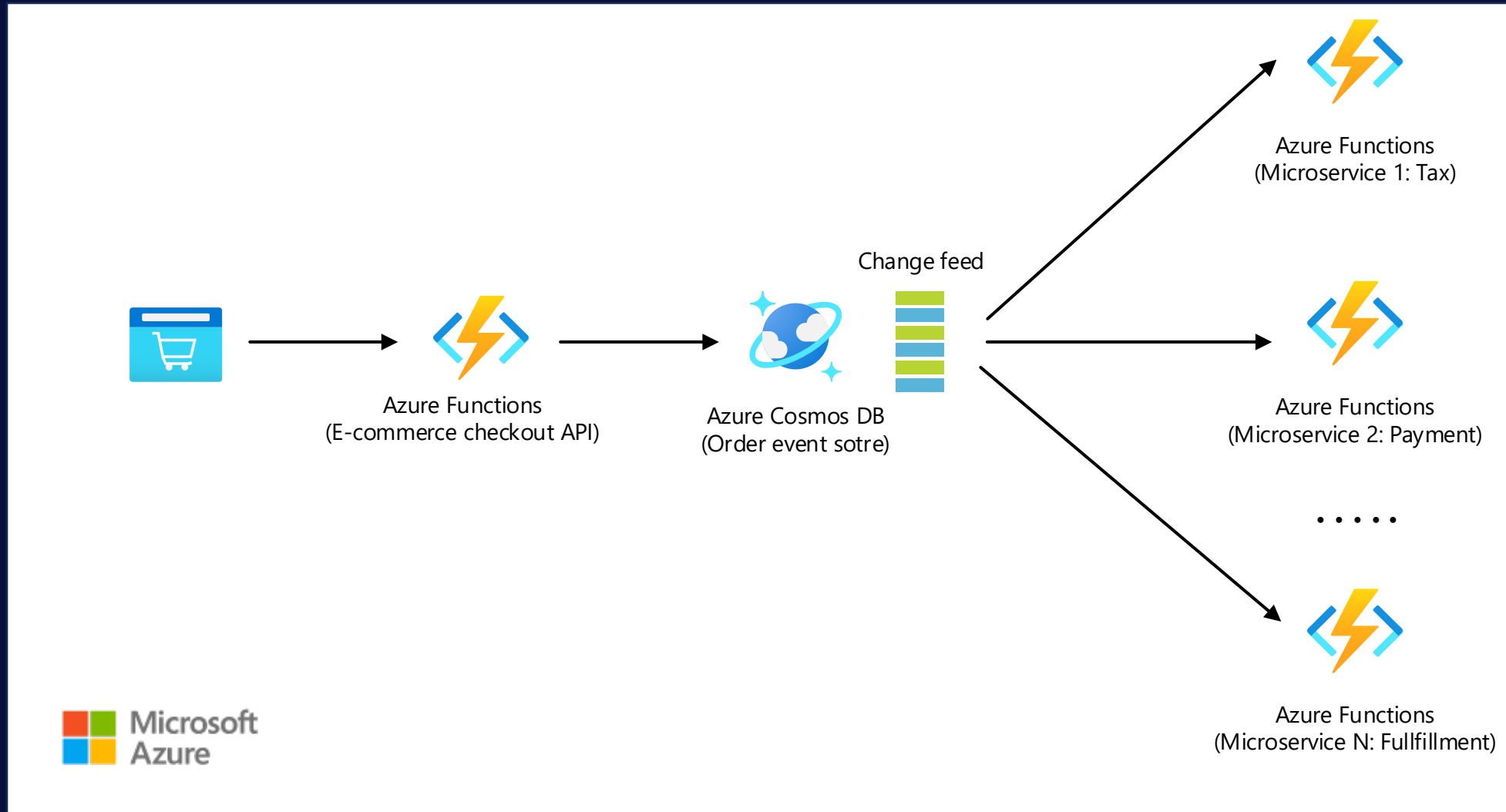
# Mission-Critical Baseline Architecture



# Sports Analytics



# Serverless Apps using Cosmos DB





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    - Cost Efficiency
    - Global Accessibility
    - Innovation Acceleration
    - Faster Time-to-Market
    - Disaster Recovery and Business Continuity
    - Security and Compliance
    - Environmental Impact
    - Collaboration and Mobility
    - Focus on Core Competencies
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  - Azure Regions
  - Services

- Compute
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- Storage
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- Analytics
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- Media
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- IoT
- AI and Machine Learning
- Mixed Reality
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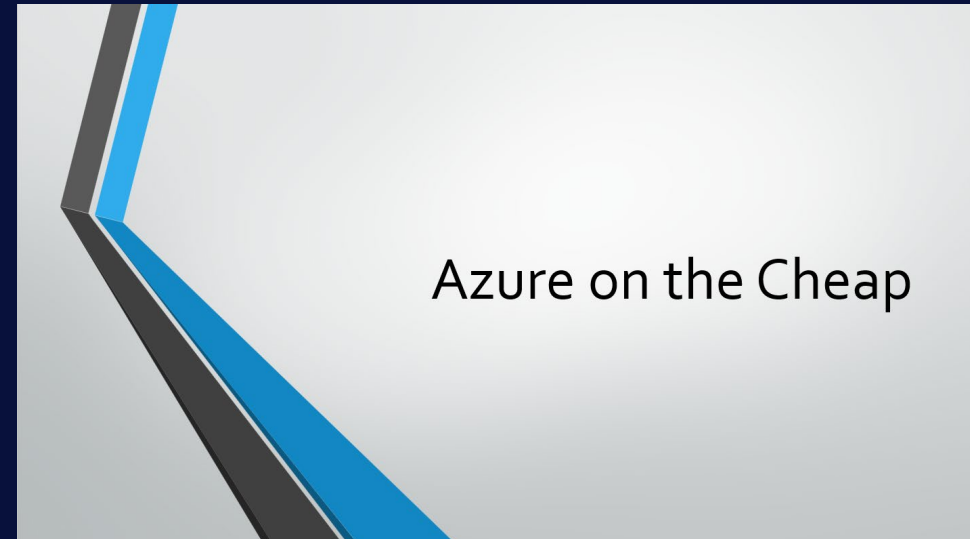
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# What Next?



Download Slides

**Free Azure Account**  
<https://azure.microsoft.com/free>



Attend Next Month's Meetup

# Thank You

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