

Azure arendajatele

Webinar

10.12.2020



Tere!

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- Microsoft Certified: Azure Solutions Architect Expert
- Microsoft Certified: Azure Administrator Associate
- Microsoft® Certified Solutions Expert: Mobility



Key concepts

High availability

Fault tolerance

Scalability

Elasticity

Global reach

Customer latency capabilities

Agility

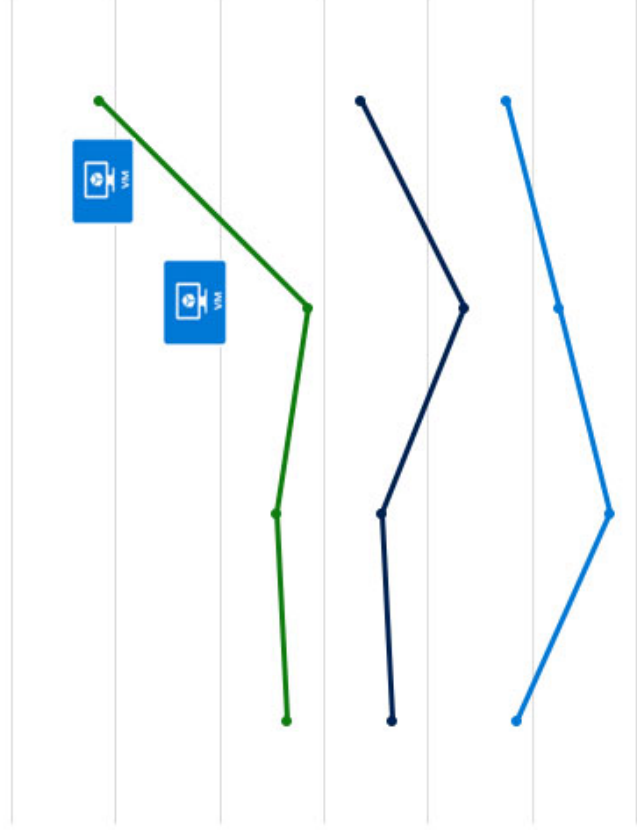
Predictive cost considerations

Disaster recovery

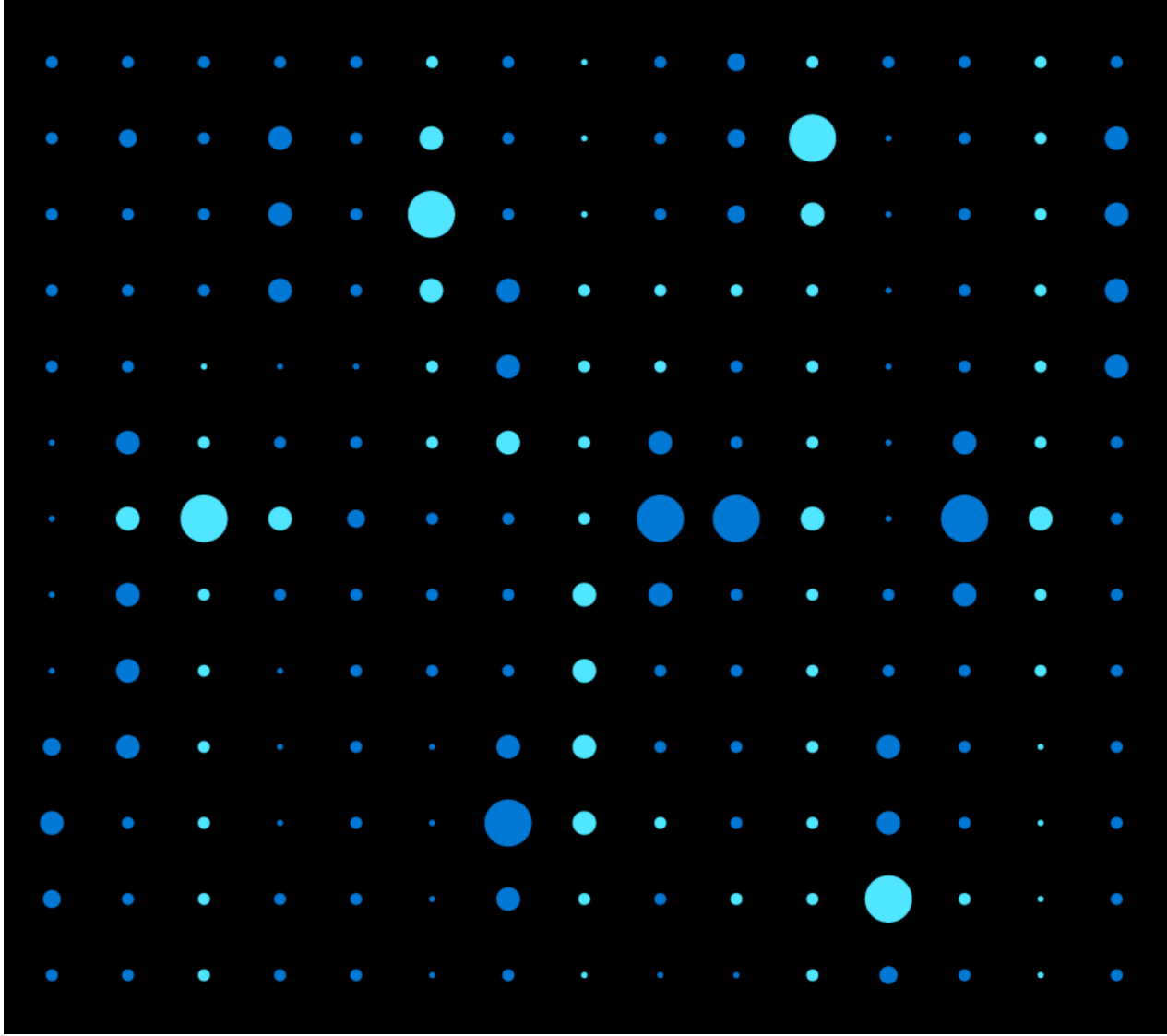
Security

Consumption-based model

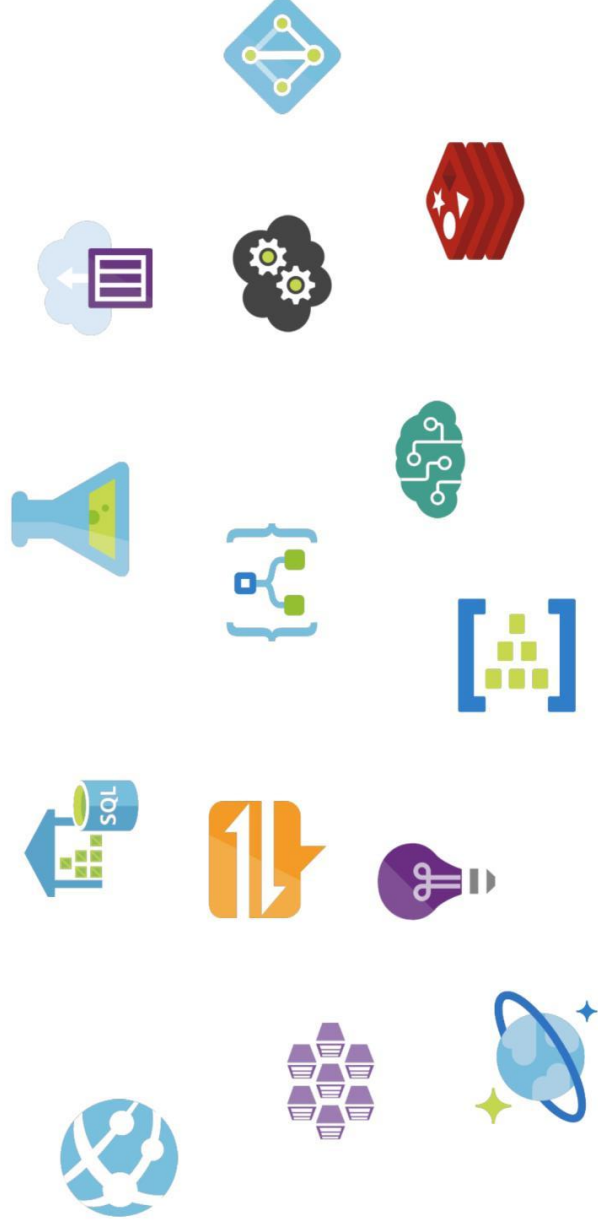
- No upfront costs.
- No need to purchase and manage costly infrastructure.
- Ability to pay for additional resources as they are needed.
- Ability to stop paying for resources that are no longer needed.



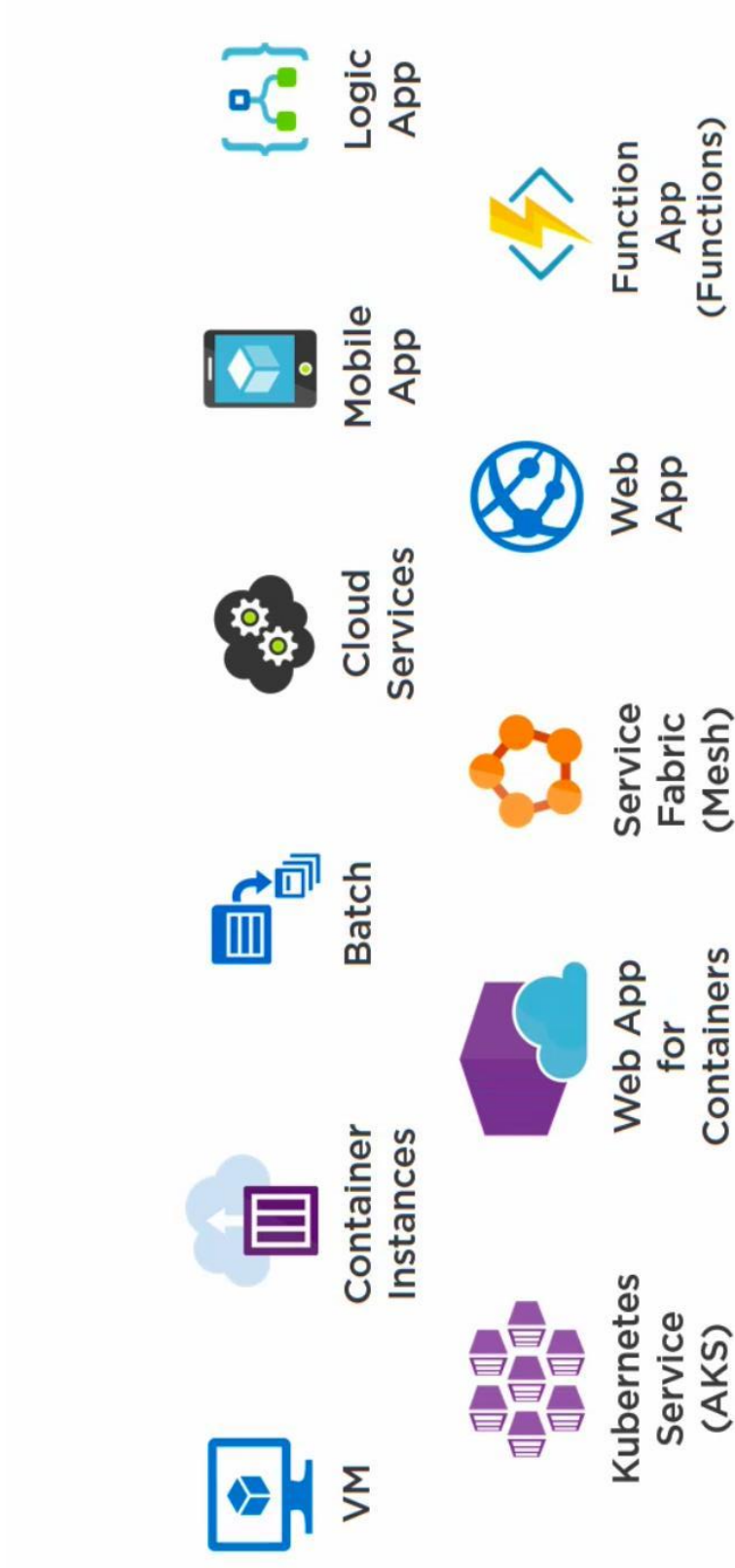
Why Azure?



Microsoft Azure is huge!



Options for running applications in Azure



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.



Worldwide there are 54 regions
representing 140 countries

Region Pairs

- Each Azure region is paired with another region.
- Azure prefers at least 300 miles of separation between datacenters in a regional pair.
- Some services provide automatic replication to the paired region.
- In an outage, recovery of one region is prioritized out of every pair.
- Azure system updates are rolled out to paired regions sequentially (not at the same time).
- Paired regions are members of the same geography – except Brazil.

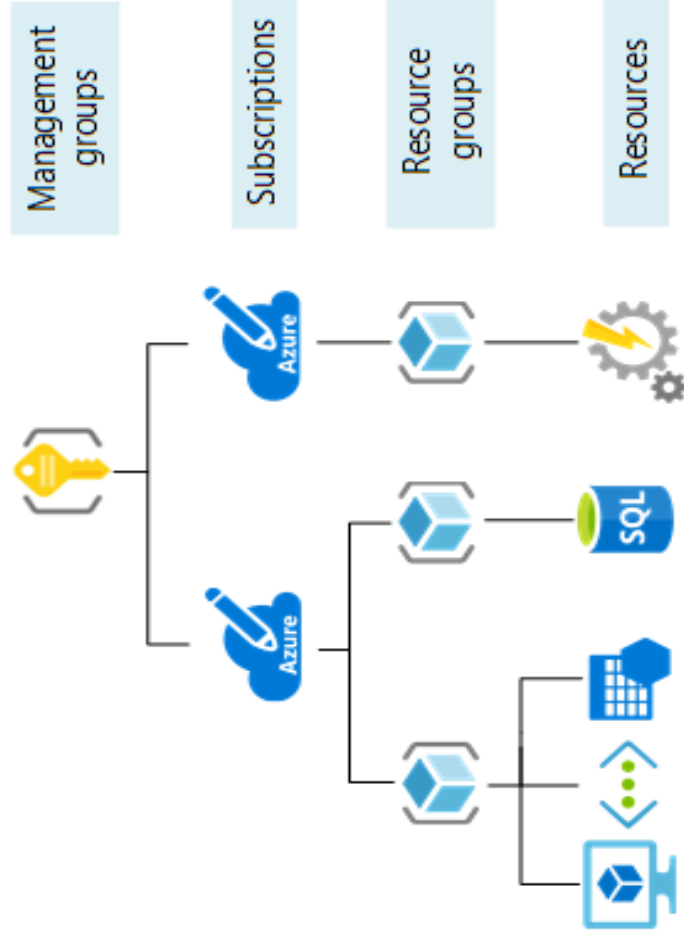
North Central US
East US
West US 2
US East 2
Canada Central
North Europe
UK West
Germany Central
South East Asia
East China
Japan East
Australia Southeast
India South
Brazil South (Primary)



South Central US
West US
West Central US
Central US
Canada East
West Europe
UK South
Germany Northeast
East Asia
North China
Japan West
Australia East
India Central
South Central US

Azure Resource Manager

- Provide a management layer that enables you to create, update, and delete resources in your Azure subscription.
- Create, configure, manage and delete resources and resource groups.
- Organize resources.
- Control access and resources.
- Automate using different tools and SDKs.

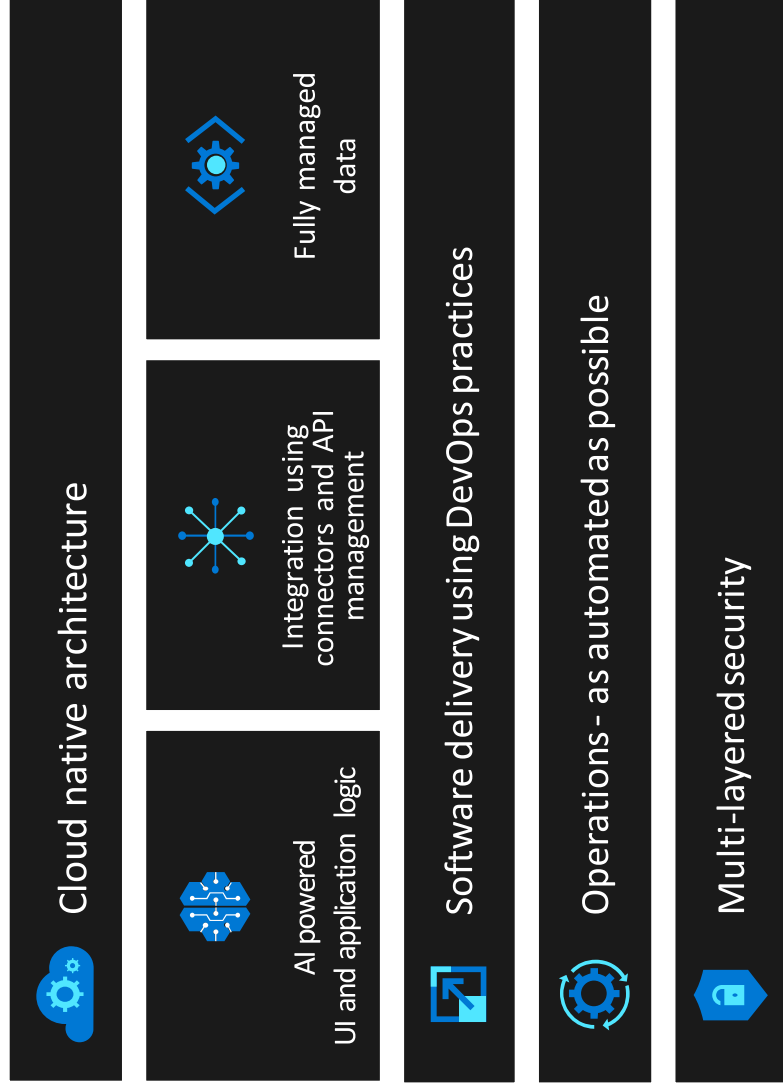




Respond to changes faster,
optimize costs and ship confidently



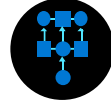
Cloud native application development



Software delivery using DevOps practices

Plan

Ideate, define, describe features and track delivery



Develop

Write, test, review, and integrate code iteratively without sacrificing quality



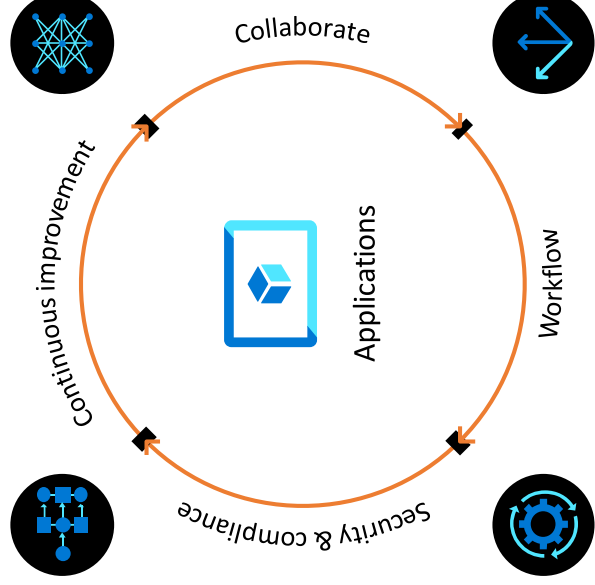
Operate

Maintain, monitor, and troubleshoot applications to ensure system reliability, high availability



Deliver

Deploy applications into fully configured environments in a consistent and reliable way



Recommended Azure hosting scenarios

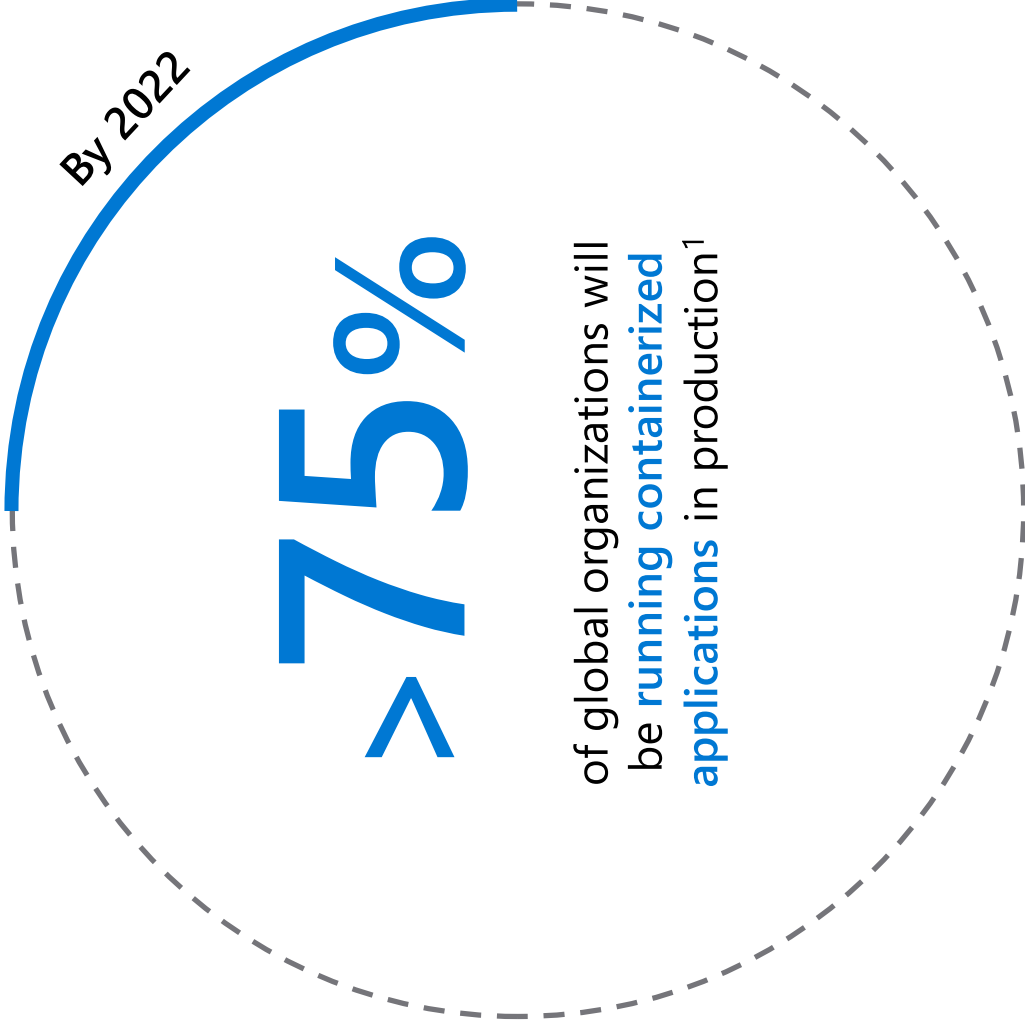
Application Architecture	VMs - Azure Virtual Machines	ACI - Azure Container Instances	Azure App Service (w-w/o containers)	AKS - Azure Kubernetes Services	Azure Functions	Azure Batch
Web apps (Monolithic)	✓	✓	✓	✓		
N-Tier apps (Services)	✓	✓	✓	✓	✓	
Cloud-Native (Microservices)		✓		✓ (Linux containers)	✓ (Event-driven)	
Batch/Jobs (Background tasks)	✓	✓	✓	✓	✓ (Background tasks)	✓ (Large-scale)

Legend

- ✓ Recommended
- ✓ Possible

Choose a load balancing option

- **Traffic type**
 - HTTP/HTTPS web application? Public or private facing?
- **Global vs regional**
 - Load balance VMs or containers within a VNET, or load balance scale unit/deployments across regions, or both?
- **Availability**
 - What is the service SLA?
- **Cost**
 - €€€ / \$\$\$
- **Features and limits**
 - What are the overall limitations of each service?



¹Gartner.

The benefits of using containers



Agility

+

Ship apps
faster



Portability

+

Easily move
workloads



Density

+

Achieve resource
efficiency



Rapid scale

+

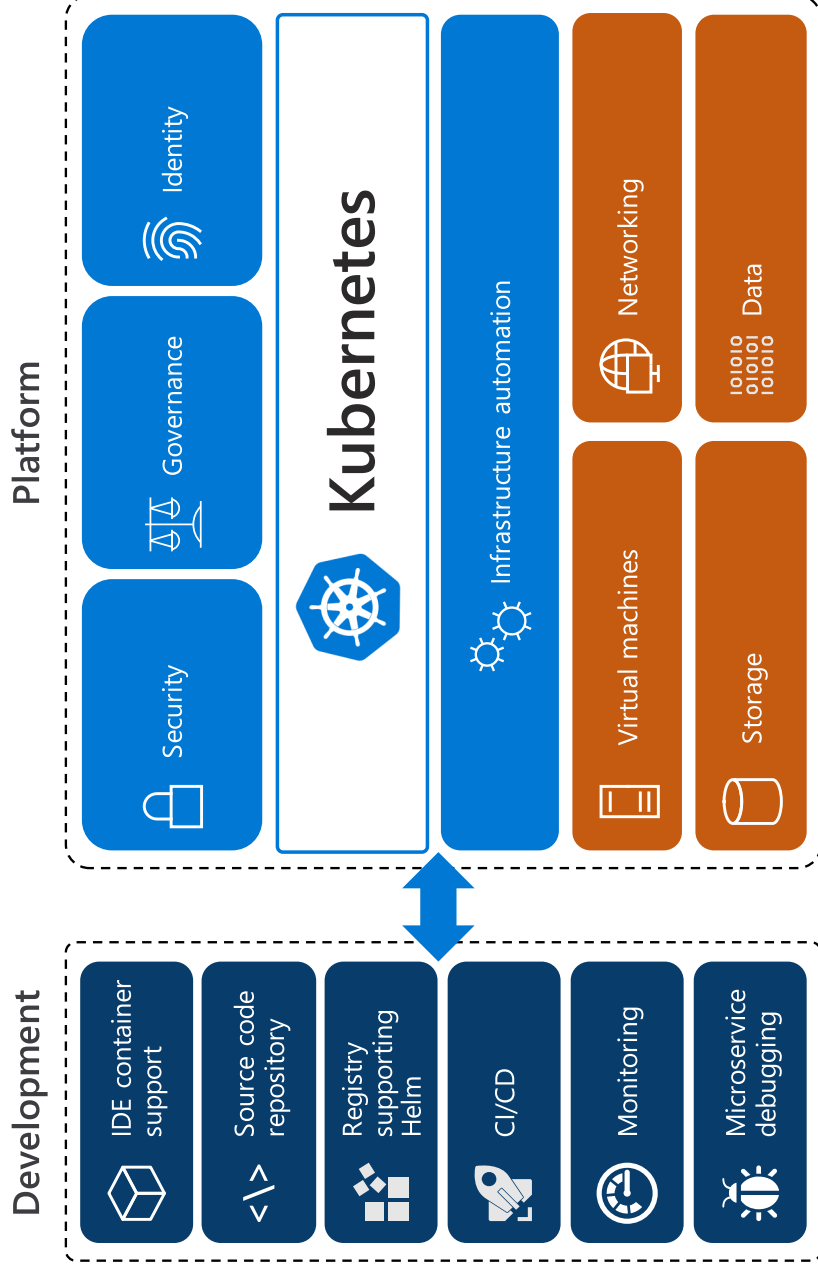
Scale easily to
meet demand

Kubernetes on its own is **not enough**

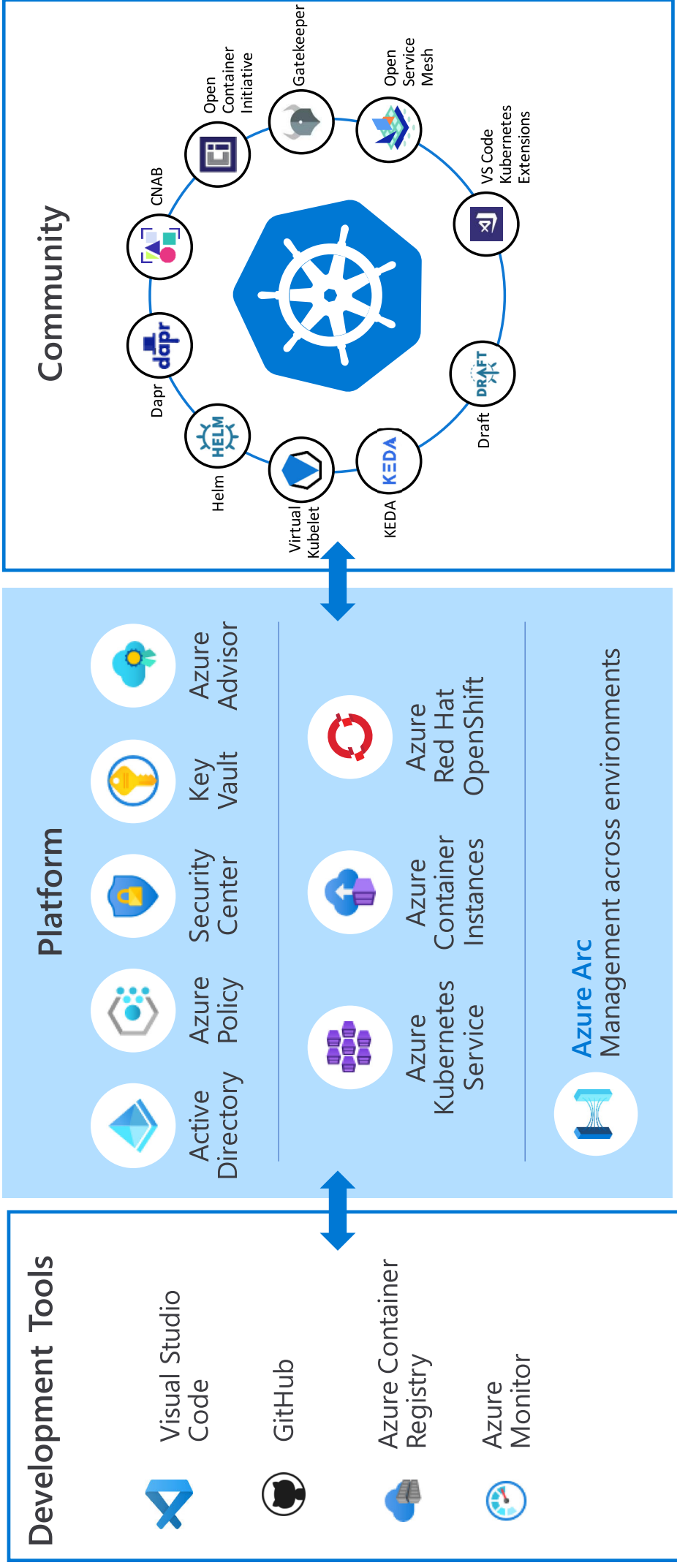
Save time from infrastructure management and roll out updates faster without compromising security

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 | Enterprise-grade by design

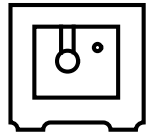


Azure makes Kubernetes easier

Accelerate containerized application development

Task	The Old Way	With Azure
Inner loop development	<ul style="list-style-type: none">Set up a local dev environment using MinikubeDetermine the transitive closure of your dependenciesIdentify behavior of dependencies for key test casesStub out dependent services with expected behaviorMake local changes, check-in, and hope things workValidate with application logs	<p>Use Visual Studio Code to run and debug services locally while connected to existing services and dependencies without having to mock them</p>
Set up a CI/CD pipeline and deploy to Kubernetes	<ul style="list-style-type: none">Create Git repoCreate a build pipelineCreate a container registryCreate a Kubernetes clusterConfigure build pipeline to push to container registryConfigure build pipeline to deploy to KubernetesDefine and set up deployment strategy	<p>Store source code on GitHub, then create a project on Azure Pipelines with Kubernetes/AKS as a target</p>
Make container images available for deployment worldwide	<ul style="list-style-type: none">Create a container registry in every regionConfigure build pipeline with multiple endpointsLoop through all regions and push following build	<p>Create an Azure Container Registry with geo-replication</p> <p>Push your image to a single endpoint</p>
Track health with consolidated cluster and application logs	<ul style="list-style-type: none">Choose a logging solutionDeploy log stack in your cluster or provision a serviceConfigure and deploy a logging agent onto all nodes	<p>Checkbox enable monitoring with centralized tracking of logging and analytics</p>

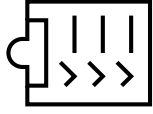
Build on an enterprise-grade, secure platform



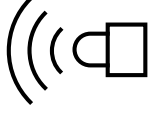
Control access through AAD and RBAC



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



Azure Policy

Stay compliant with your corporate standards and service level agreements (SLAs) by using policy definitions to enforce rules and effects for your Azure resources.

- Evaluates and identifies Azure resources that do not comply with your policies.
- Provides built-in policy and initiative definitions, under categories such as Storage, Networking, Compute, Security Center, and Monitoring.

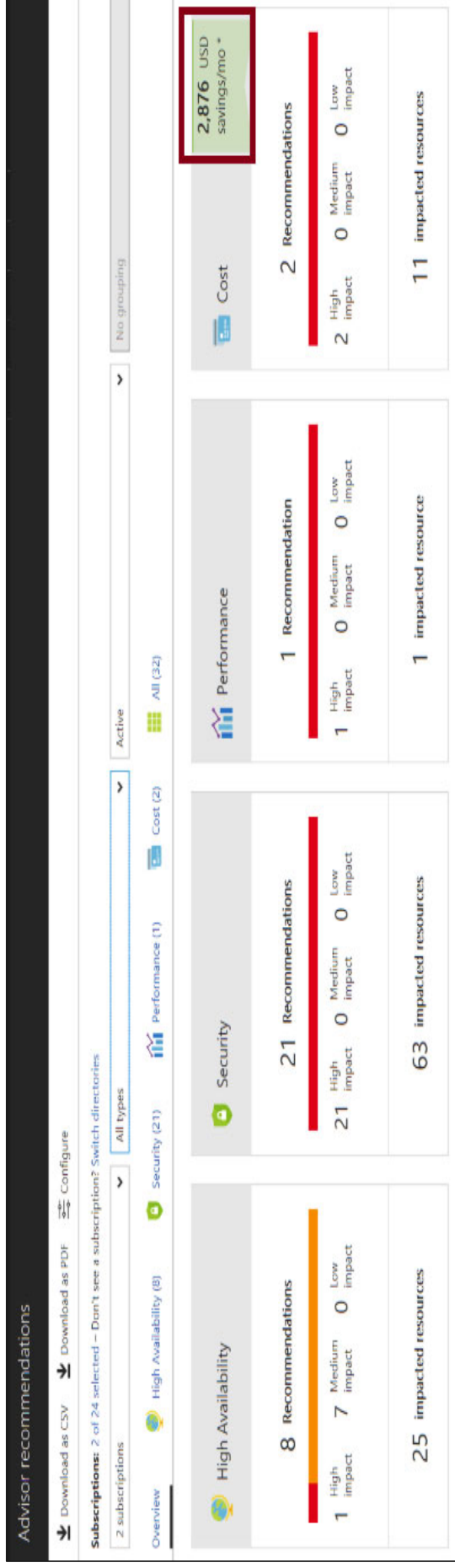


Implementing Azure Policy

Create a policy definition → Assign the definition to resources → Review the evaluation results

- A policy definition expresses what to evaluate and what action to take.
- Implement your policy definition by assigning it to a group of resources.
- Review the results. Results are either compliant or non-compliant.
- Resources are evaluated by comparing the properties of resource to the rules ie. Policy definitions
- Policies are scoped to management groups, subscriptions and resource groups
- Rules/Policies are described in JSON format

Azure Advisor



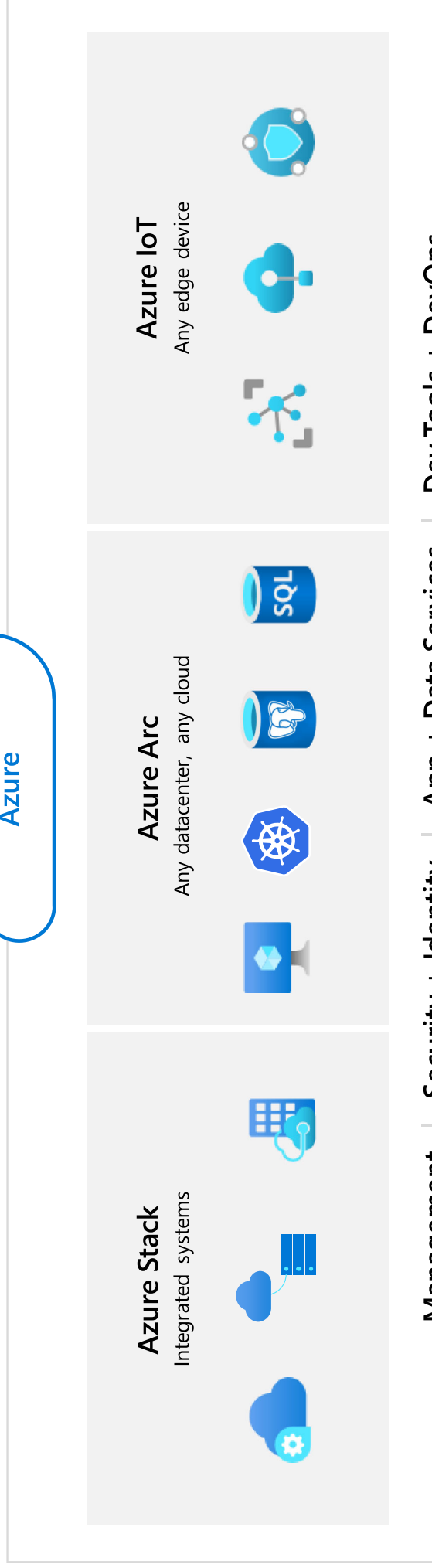
- Personalized cloud consultant
- Analyzes your configuration and recommends solutions
- Four areas: High Availability, Security, Performance, and Cost

Choosing the right SQL Server option in Azure

SQL Server on a virtual machine (VM)	Azure SQL Database (Managed Instance)	Azure SQL Database (Logical server)
<ul style="list-style-type: none"> You have full control over the SQL Server engine Up to 99.95% availability Full parity with the matching version of on-premises SQL Server Fixed, well-known database engine version Easy migration from SQL Server on-premises Private IP address within Azure VNet You have the ability to deploy application or services on the host where SQL Server is placed 	<ul style="list-style-type: none"> High compatibility with SQL Server on-premises 99.99% availability guaranteed Built-in backups, patching, recovery Latest stable Database Engine version Easy migration from SQL Server Private IP address within Azure VNet Built-in advanced intelligence and security Online change of resources (CPU/storage) 	<ul style="list-style-type: none"> The most commonly used SQL Server features are available 99.99% availability guaranteed Built-in backups, patching, recovery Latest stable Database Engine version Ability to assign necessary resources (CPU/storage) to individual databases Built-in advanced intelligence and security Online change of resources (CPU/storage)

Azure Hybrid

Innovation anywhere with Azure



Azure Arc

Bring Azure services and management to any infrastructure



Run Azure
data services
anywhere



Extend Azure
management across
your environments



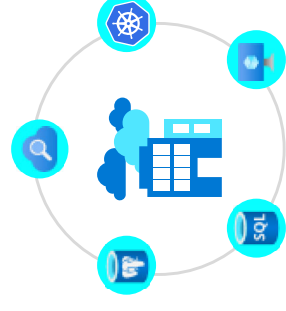
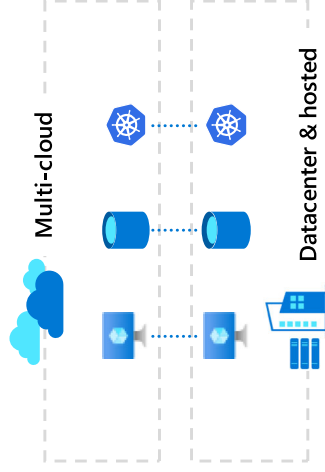
Adopt cloud
practices
on-premises



Implement
Azure security
anywhere

Azure Arc is a set of technologies that extends Azure management and enables Azure services to run across on-premises, multi-cloud, and edge

Azure Arc | Customer use cases



Organize and govern across environments

Get Kubernetes clusters and servers that are sprawling across clouds, datacenters and edge under control by centrally organizing and governing from a single place

At-scale Kubernetes app management

Deploy and manage Kubernetes applications at scale across environments using DevOps techniques. Ensure that applications are deployed and configured consistently from source control, at scale

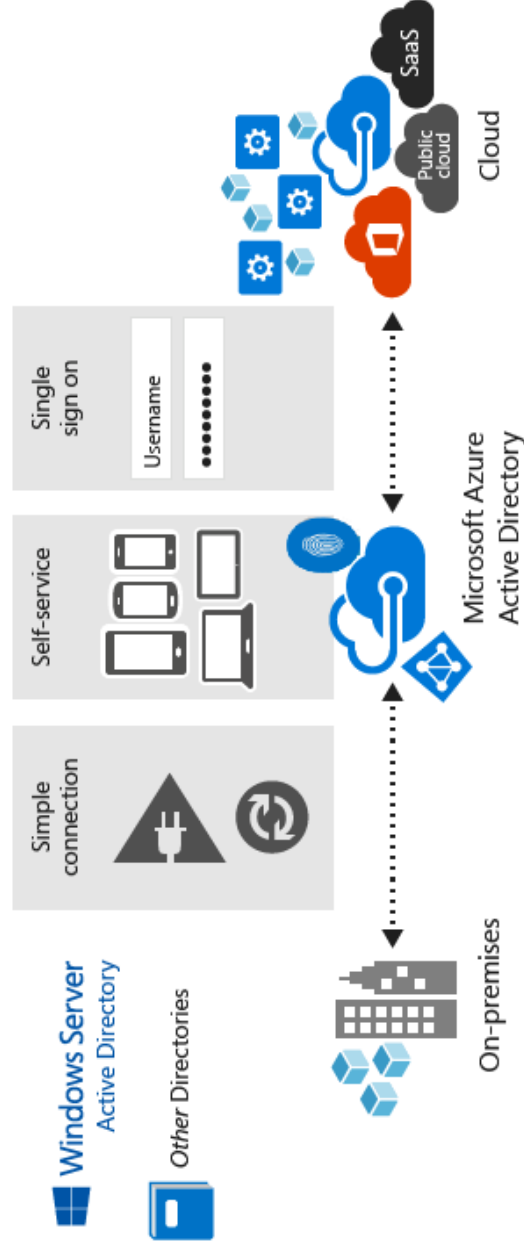
Run data services anywhere

Deploy and manage data services where you need it for latency or compliance reasons. Always use the most current technology and seamlessly manage and secure your data assets across on-premises, clouds and edge

Azure Active Directory

Multi-tenant cloud-based directory and identity management:

- Provides single sign-on access to cloud applications and resources
- Facilitates developing apps with a global scope
- Offers a full suite of identity management capabilities:
 - Self-service password and group management
 - Privileged account management
 - Role-based access control
 - App usage monitoring
 - Security monitoring
 - Device Registration
 - Alerting
 - MFA



Azure Active Directory Editions

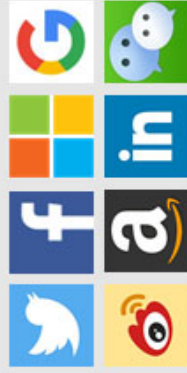
- **Free offers:**
 - user/group management, single sign-on, self-service password change, basic reporting
- **Basic offers (in addition to the Free edition features):**
 - group-based access management, self-service password reset, Azure Active Directory Application Proxy, 99.9% availability SLA
- **Premium P1 offers (in addition to the Basic edition features):**
 - access to hybrid application access, self-service identity and access management, security in the cloud
- **Premium P2 offers (in addition to the Premium P1 features):**
 - advanced identity protection and privileged identity management





Customers

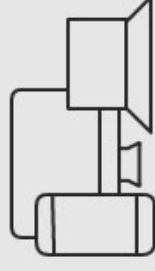
Social IDs, email, or local accounts



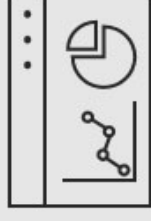
Business & Government IDs



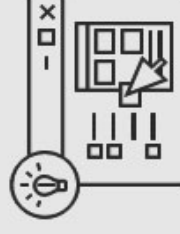
Business



Apps and APIs



Analytics

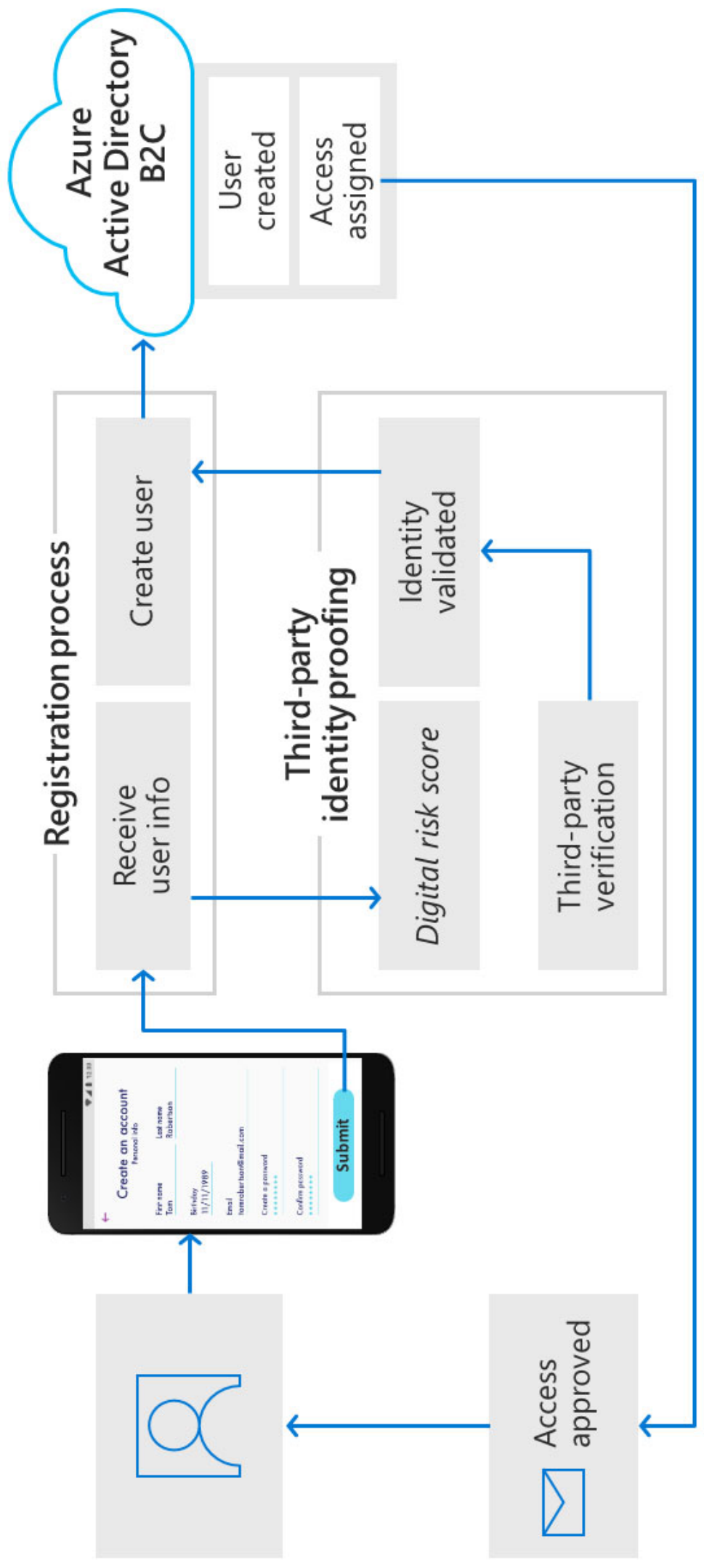


Integration with other systems

→ Securely authenticate your customers using their preferred identity provider

→ Capture login, preference, and conversion data for customers

→ Provide branded (white-label) registration and login experiences



Registration process

Azure Active Directory B2C

User created
Access assigned

Receive user info

Create user

Third-party identity proofing

Digital risk score

Identity validated

Third-party verification

Access approved



Sign-in names

- User name
- Email address
- Employee id

Password

Social identities

- Facebook
 - IDP name
 - IDP Identifier
- Twitter
 - IDP name
 - IDP Identifier



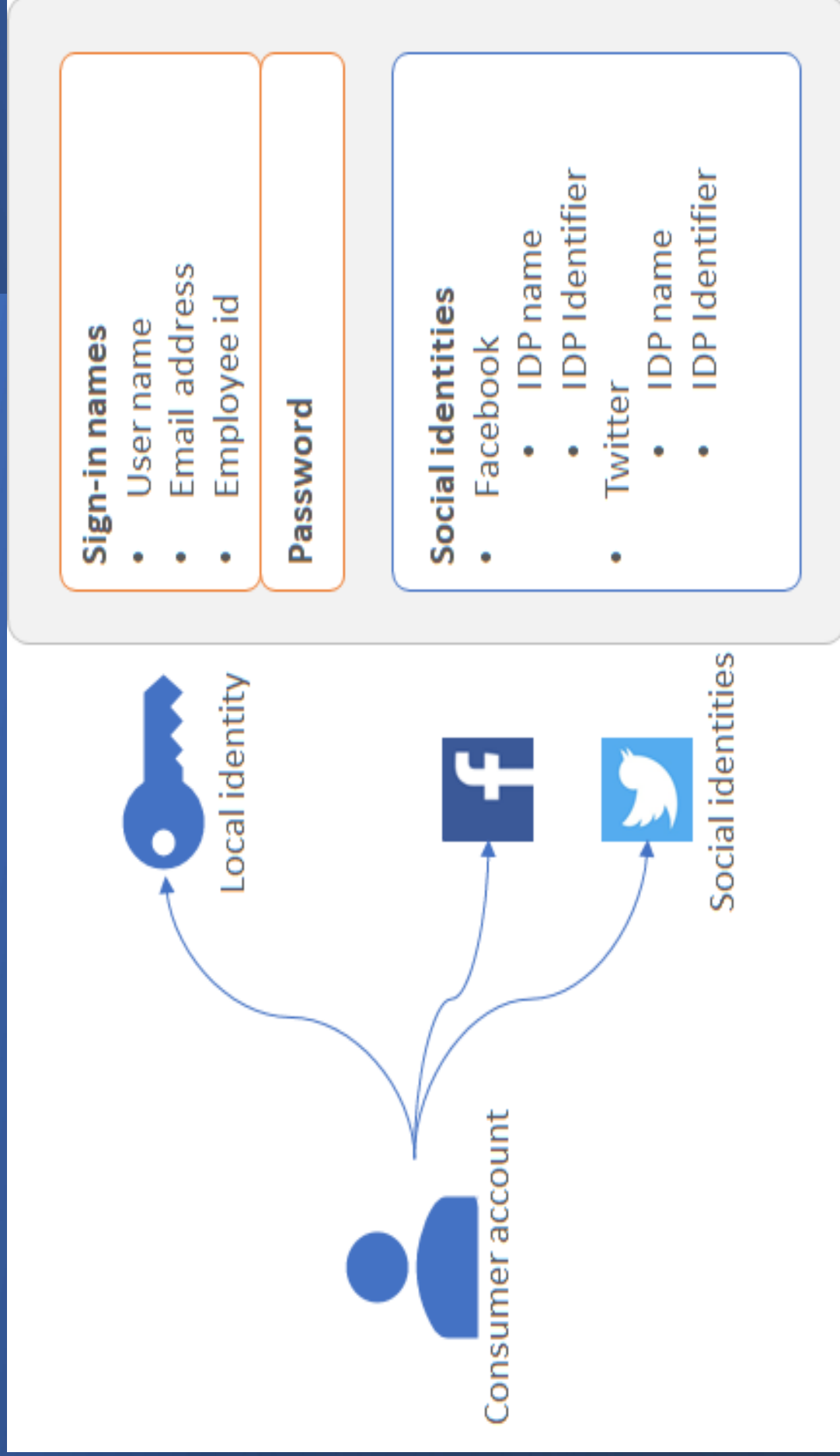
Local identity



Consumer account



Social identities



Public and private preview features

- Microsoft offer previews of Azure features for evaluation purposes.
- With Azure previews, you can test beta and other pre-release features, products, services, software, and regions.
- **Private Preview** is an Azure feature available to certain Azure customers for evaluation purposes.
- **Public Preview** is an Azure feature available to all Azure customers for evaluation purposes.

Aitäh!

- Kas on k simusi?