

Azure Hybrid Experience Day

Strategic overview for Azure's adaptive cloud approach

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Microsoft Most Valuable Professional Azure und Azure Hybrid



Office Rhein Main
Consulting



Accelerating transformation



Get control of
sprawling strategies



Foster IT, Dev, and OT
collaboration



Maximize new and
existing investments

Initiative proliferation

Sprawling systems

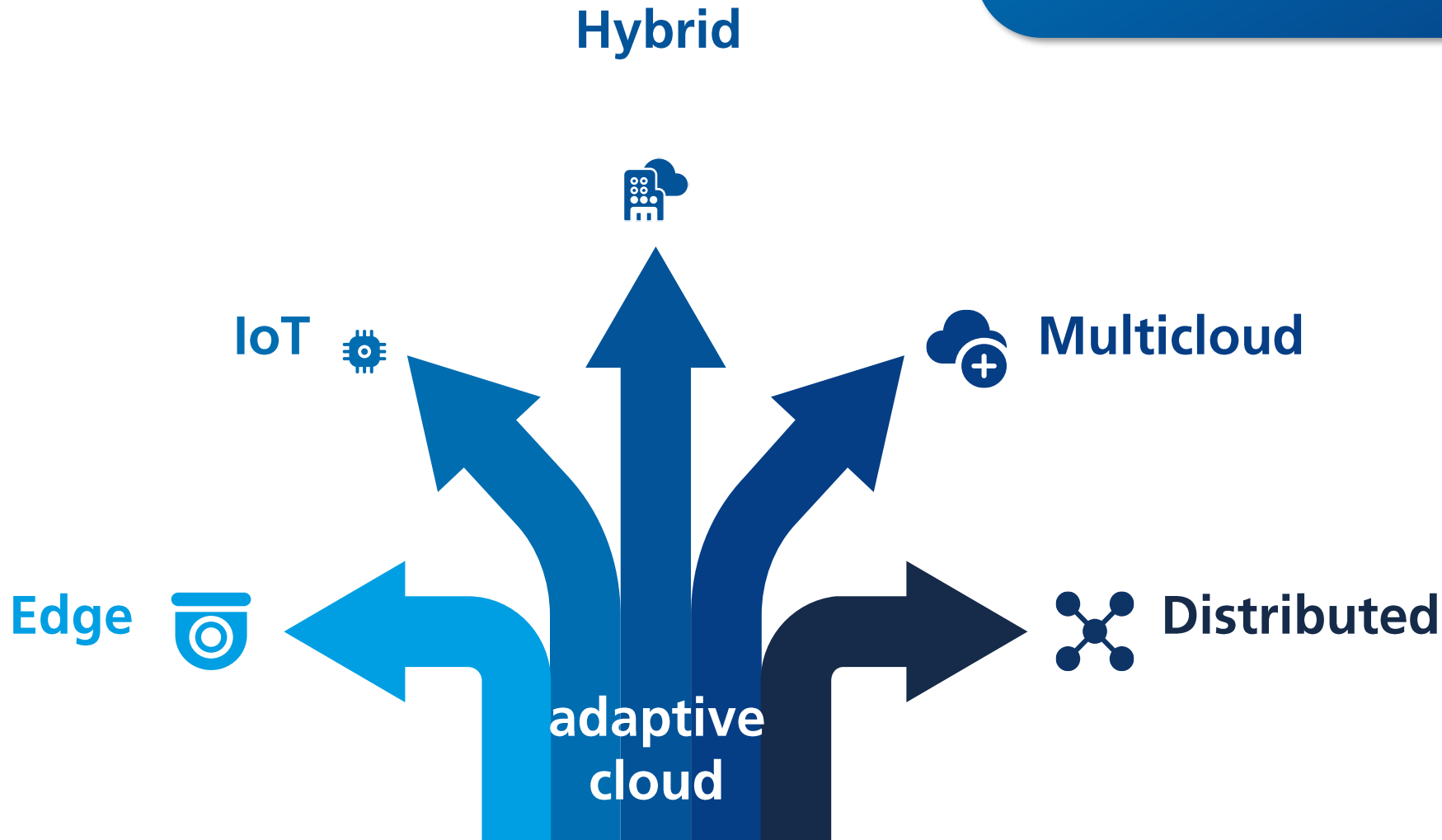
Information and process silos

Increased technical debt

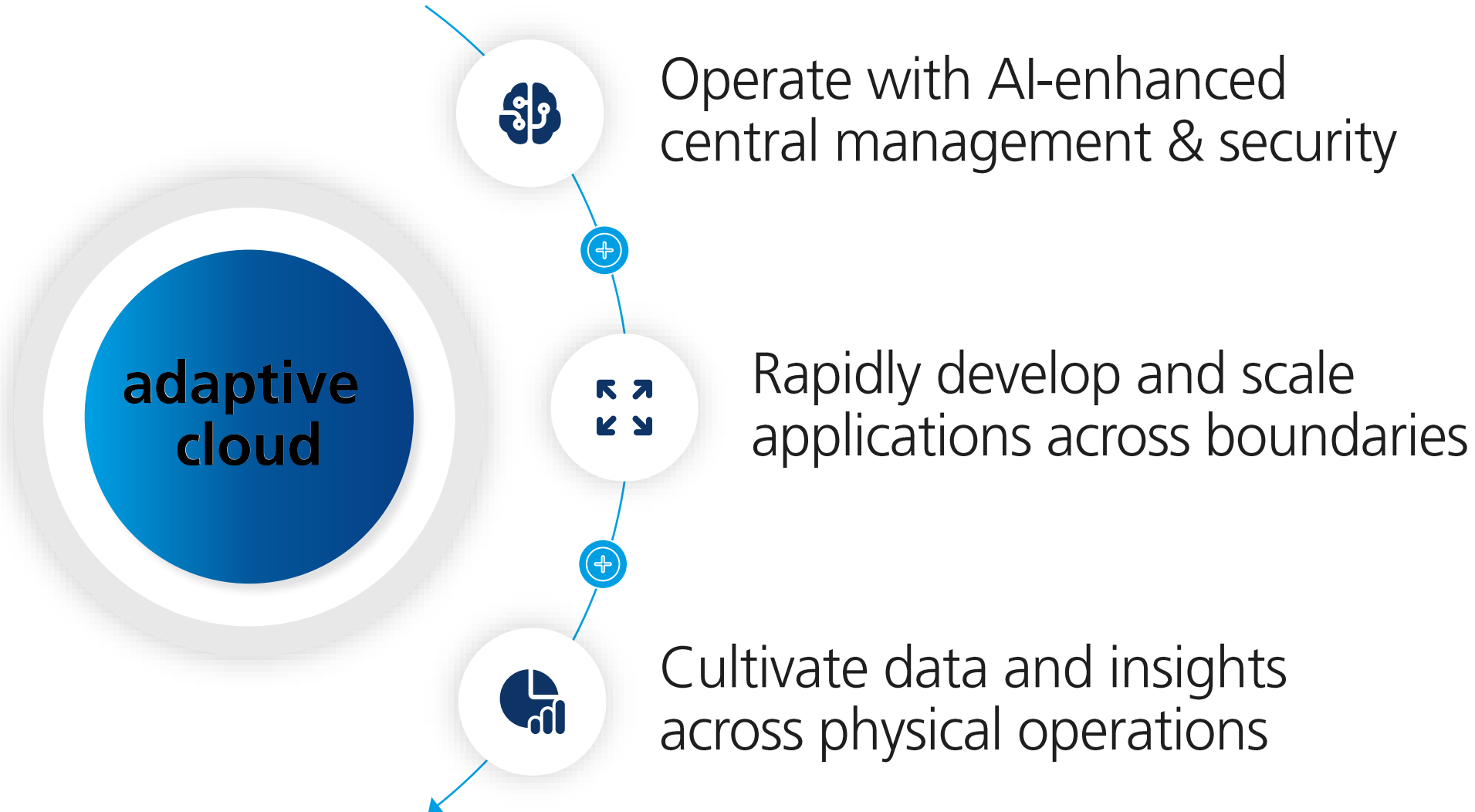


Advancing hybrid cloud to adaptive cloud

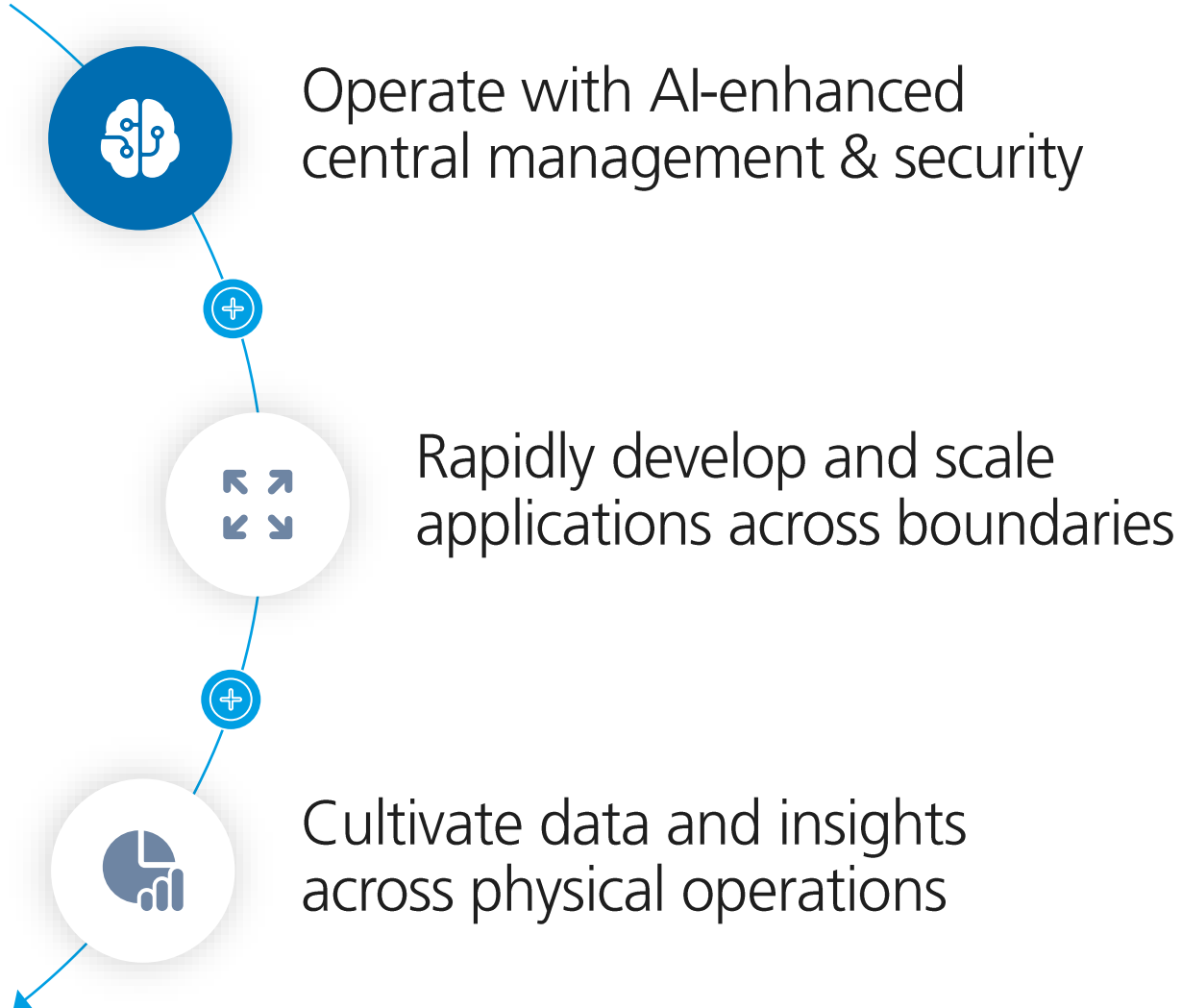
Thrive in dynamic environments by unifying teams, sites, and systems across hybrid, multicloud, edge, and IoT.



adaptive cloud



adaptive cloud



Universal AI assistant, portal and tools

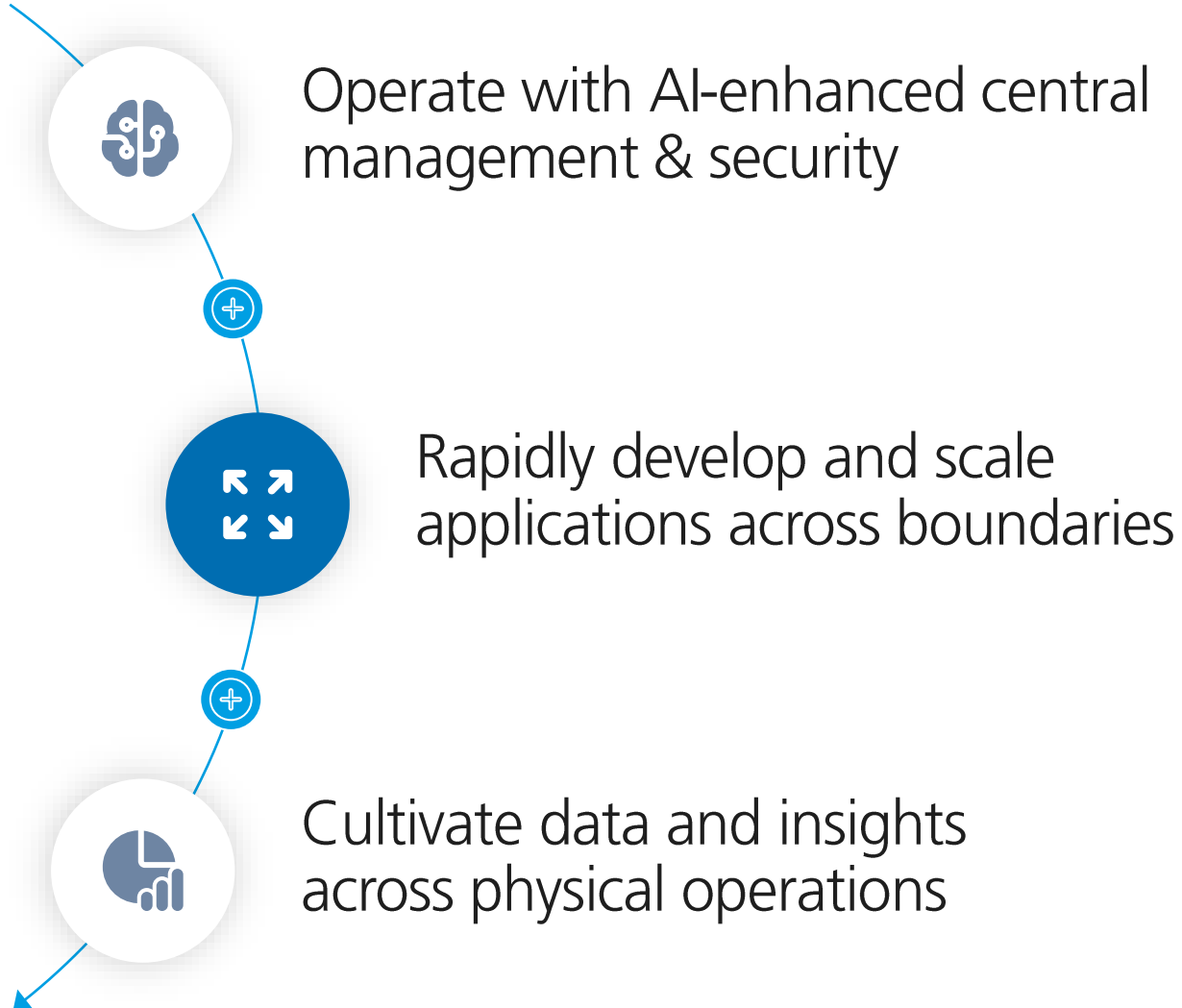
Consistent configuration management

End-to-end observability

Governance at scale

Built-in security and control

adaptive cloud



Central management & security, plus:

Kubernetes everywhere

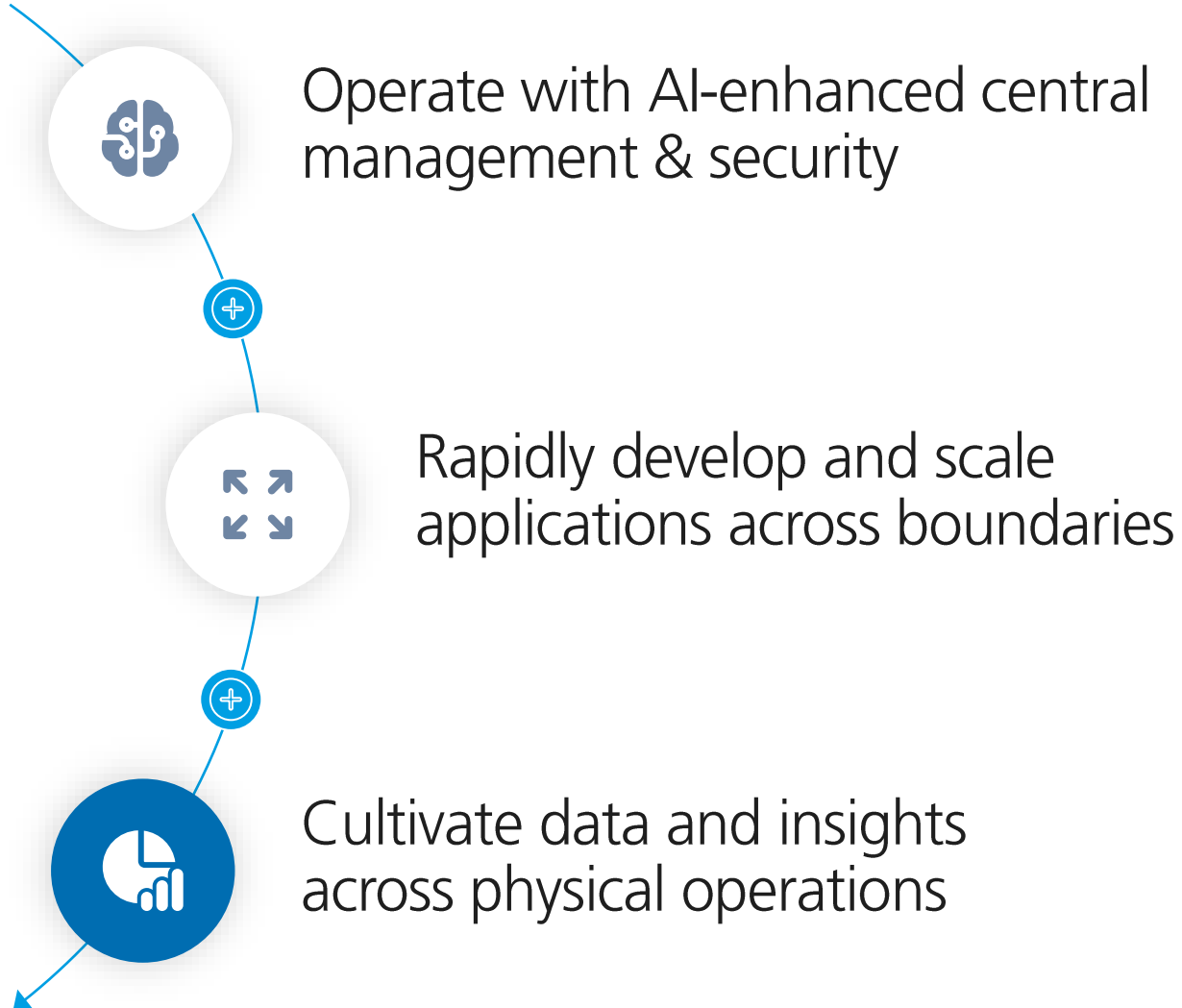
Hyperscale cloud services to the edge

Central application deployment

Streamlined DevOps integration

Global orchestration and resiliency

adaptive cloud



Rapid app dev and scale plus:

Common data foundation

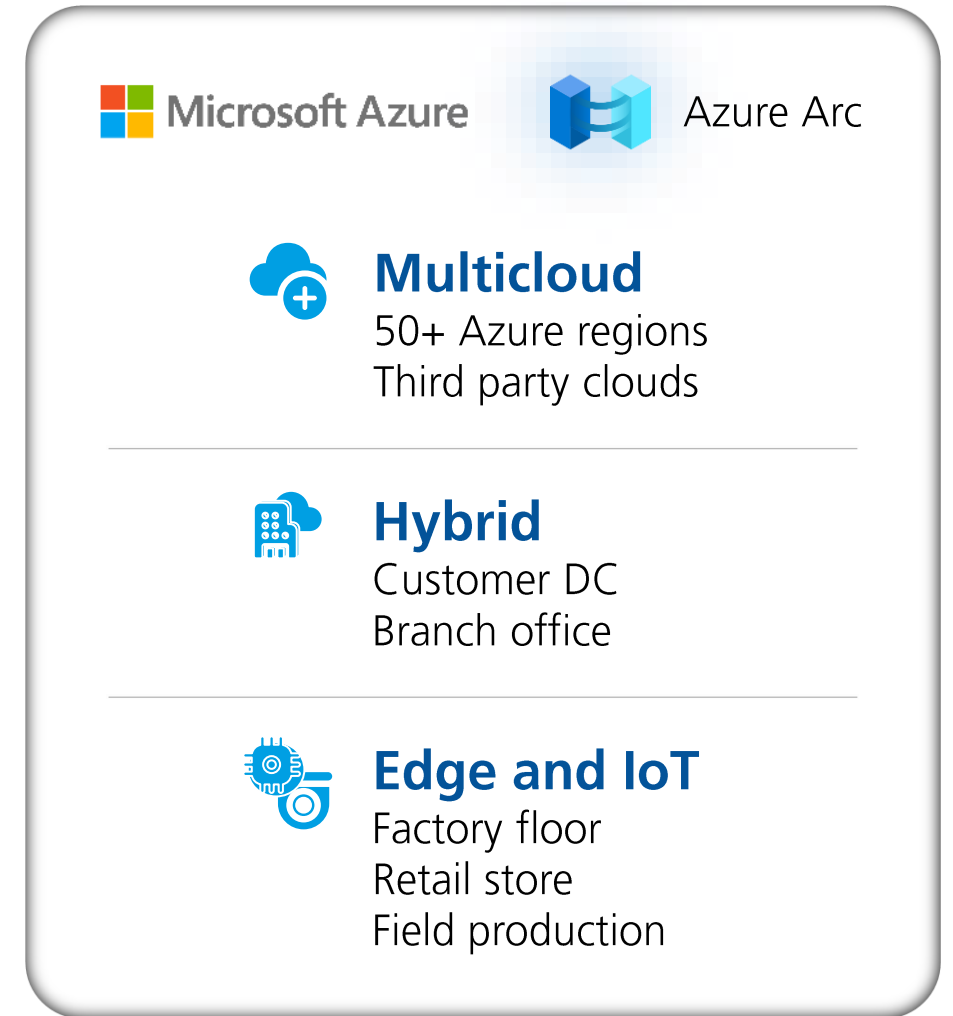
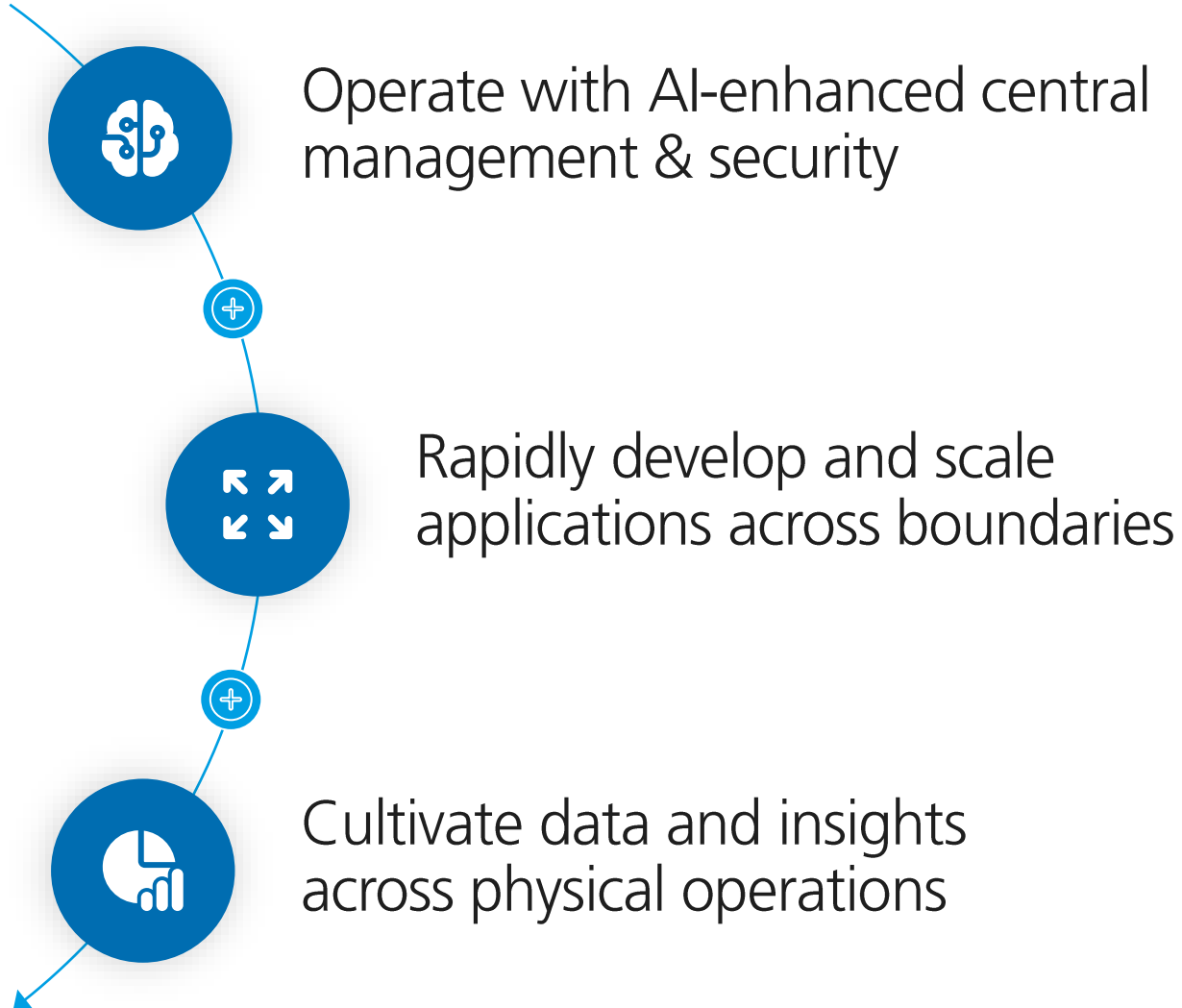
Actionable insights with AI

Coordinated workflow orchestration

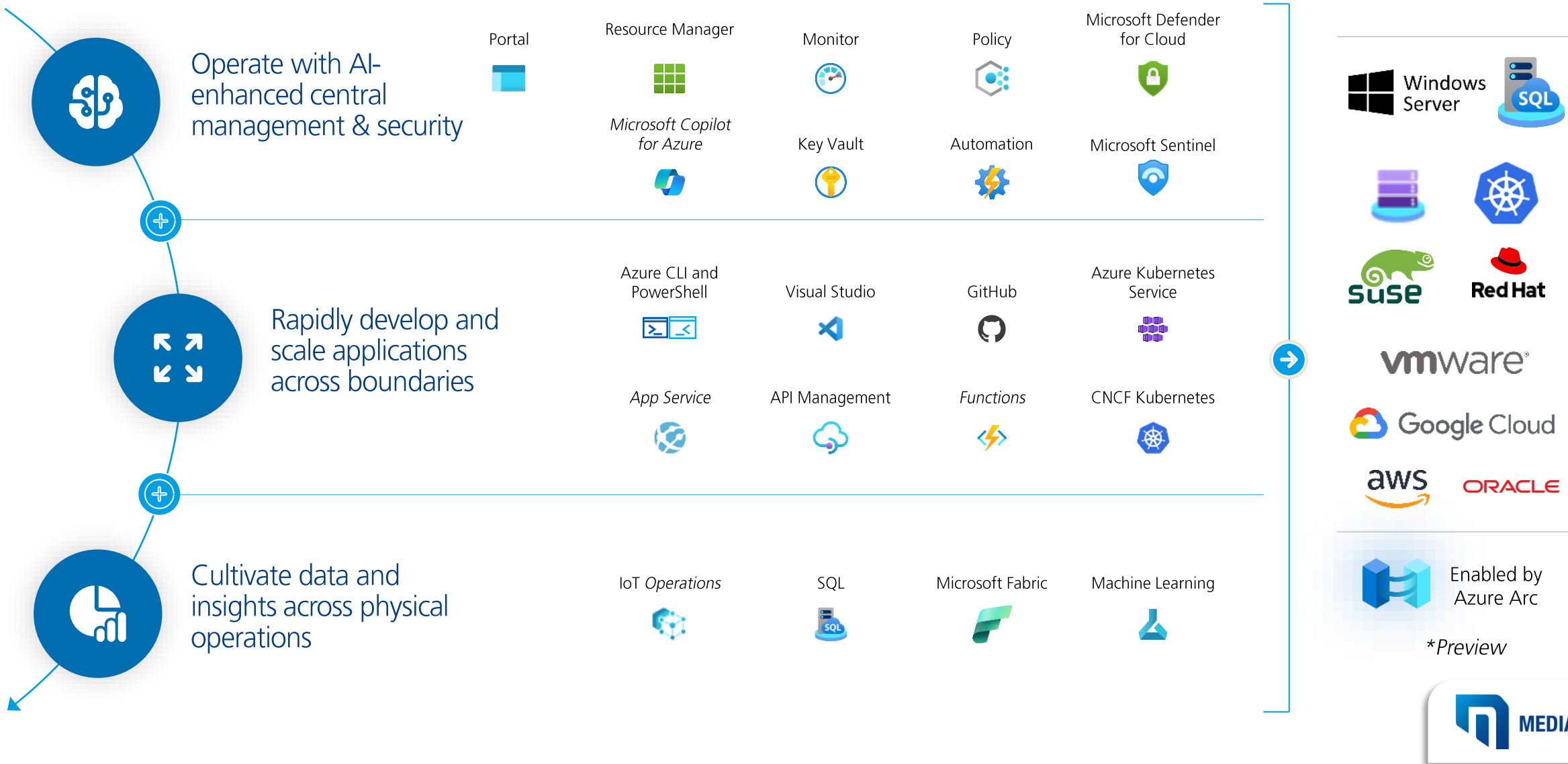
Contextualized data to information

Centralized device management

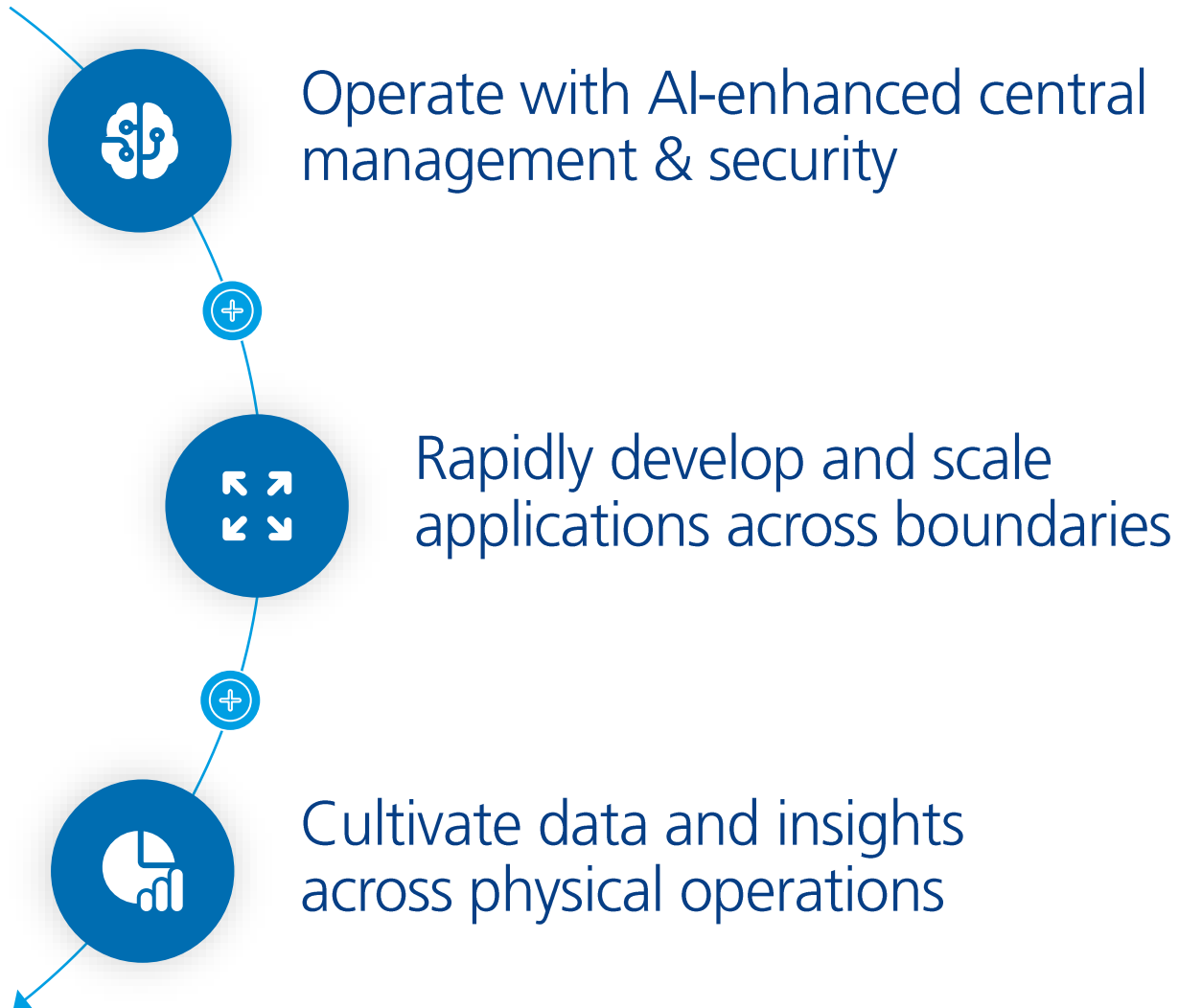
Enabling adaptive cloud with Azure Arc



Enabling adaptive cloud with Azure Arc



Enabling adaptive cloud with Azure Arc



Preview (Nov. 2023)

Microsoft Copilot for Azure
Azure IoT Operations
Monitoring for SQL Server
Enhanced HA/DR management for SQL Server
Azure Stack HCI, version 23H2

Generally available

VMware vSphere enabled by Azure Arc
SQL Server Auto patching
Windows Server 2012 & SQL Server
Extended Security Updates as a service (reminder)



Enabled by
Azure Arc

Azure Stack HCI

Modern infrastructure to deploy cloud native solutions anywhere



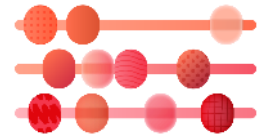
Cloud native
anywhere



Secure and run all
workloads from
cloud to edge



Familiar
management and
operations



Deploy with flexible
options at the right
price/performance
point

When to use Azure Stack HCI

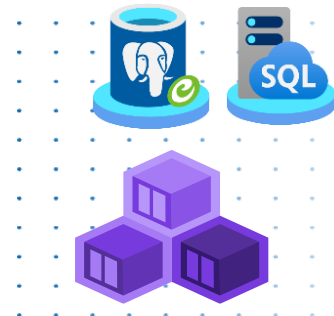
Distributed compute anywhere for low latency with central cloud management



Affordably run
intelligent edge and
remote branch office
solutions



Industry-best
performance for SQL
Server databases



Deploy cloud native apps
and Azure Arc enabled
services through tight
integration with AKS on-
prem



Best in class virtual
desktop experience with
Azure Virtual Desktop
for Azure Stack HCI

Best practices / Architecture guidelines for Azure Arc

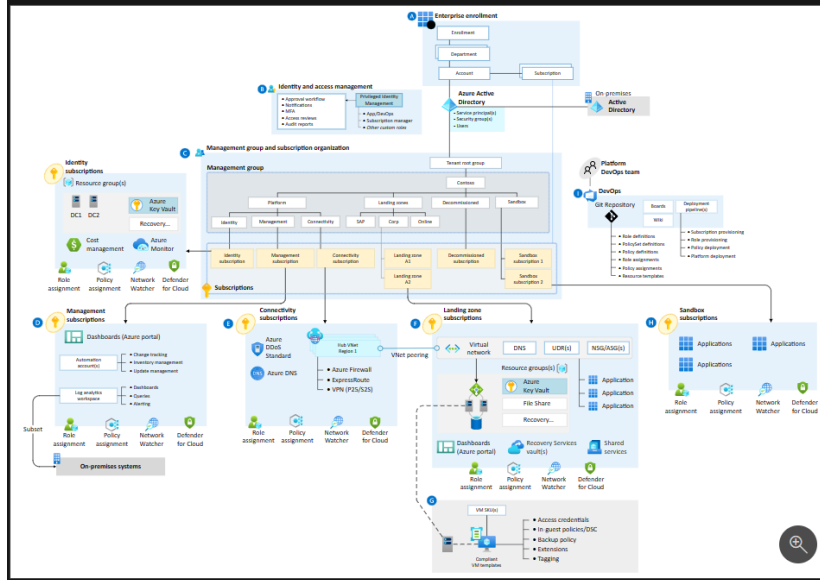
Introduction to Azure Arc landing zone accelerator for hybrid and multicloud

Article • 12/01/2022 • 7 minutes to read • 17 contributors

[Feedback](#)

Enterprises are currently building and running applications across various ecosystems on-premises, in multiple public clouds, and on the edge. When you're working in these distributed environments, it's critical that you find a way to ensure compliance and manage servers, applications, and data at scale while you still maintain agility.

[Azure landing zones](#) provides a specific architectural approach, reference architecture, and set of reference implementations that help you prepare your landing zones for mission-critical technology platforms and supported workloads.



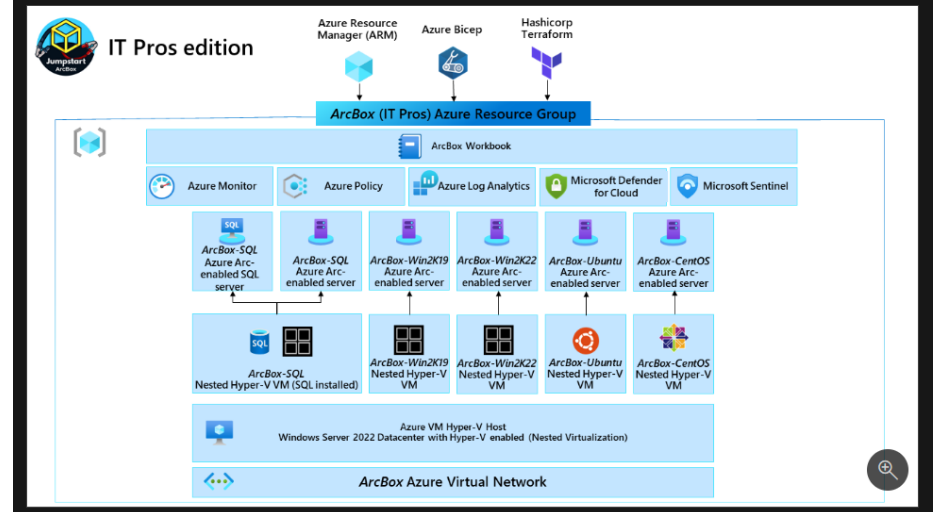
[Introduction to Azure Arc landing zone accelerator for hybrid and multicloud - Cloud Adoption Framework | Microsoft Learn](#)

Manage configurations for Azure Arc-enabled servers

[Arc](#) [Monitor](#) [Policy](#) [Azure Resource Manager](#) [Virtual Machines](#)

This reference architecture illustrates how Azure Arc enables you to manage, govern, and secure servers across on-premises, multicloud, and edge scenarios, and is based on the Azure Arc Jumpstart [ArcBox for IT Pros](#) implementation. ArcBox is a solution that provides an easy to deploy sandbox for all things Azure Arc. ArcBox for IT Pros is a version of ArcBox that is intended for users who want to experience Azure Arc-enabled servers capabilities in a sandbox environment.

Architecture



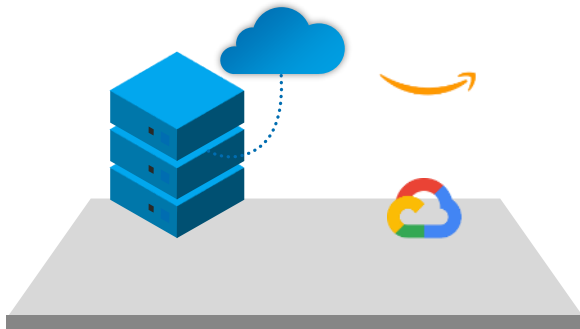
[Azure Arc-enabled server configurations - Azure Architecture Center | Microsoft Learn](#)

Azure Hybrid

Innovation anywhere mit Microsoft Azure



Single Control Plane mit Azure Arc



Bringe Azure Services
in jede Infrastruktur



Modernisiere Rechenzentren
mit Azure Stack



Erweitere Azure Dienste
ins Edge mit Azure IoT

Überblick über neue Azure-Workloads und -Vorteile

Azure Stack HCI Feature Überblick



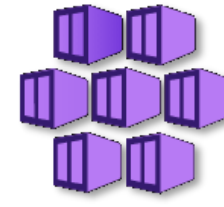
Azure Virtual Desktop

Cloud-hosted control plane in Azure, ermöglicht die Nutzung der hoch performanten Windows 10/11 Multi-Session VDI-Systeme



Windows Server

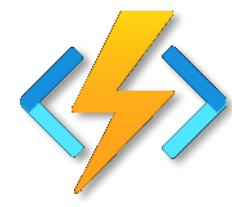
Azure Edition mit Hotpatch
kostenfrei Extended Security Updates
Pay-as-you-go Lizenzierung aus Azure



Azure Kubernetes Service

Bereitstellung und Management von AKS Clustern aus dem Azure Portal

Bereitstellen und verwalten von Windows und Linux Containern



PaaS services

Microsoft Managed SQL Instance
PostgreSQL Managed Instance

App services,
Functions, Logic Apps

Überblick über neue Azure-Workloads und -Vorteile

Azure Stack HCI Feature Überblick

Für neue Workloads...



Windows Server 2022 Azure Edition

Spezielle Version von Windows Server nur für Azure-VMs mit einzigartigen Vorteilen

- ✓ Hot patching (kein Neustart)
- ✓ Azure Extended Network
- ✓ SMB over QUIC

Für alte Workloads...



Kostenlose erweiterte Sicherheitsupdates (ESUs)

Lift-and-Shift auf Azure Stack HCI, um ältere Workloads lokal zu sichern

- ✓ Windows Server 2008/R2
- ✓ Windows Server 2012/R2

Für alle Windows basierenden Workloads



Bequeme vererbte Aktivierung (AVMA)

Vereinfachen Sie die Lizenzierung mit Automatic Virtual Machine Activation (AVMA)

New



Vorteile von Azure Virtual Desktop für Azure Stack HCI

Cloud-basierende VDI



- Vereinfachen Sie Ihre VDI-Bereitstellung – Sie müssen keine Broker, Gateways oder zugrunde liegenden Server und Speicher verwalten

Windows 11 multi-session



- Holen Sie sich Unterstützung für Windows 10 und Windows 11 für mehrere Sitzungen oder einzelne Sitzungen
- Hohe Auslastung und günstige Betriebskosten

Performance



- Optimiertes Microsoft 365 / Teams-Erlebnis
- Verwenden Sie RDP ShortPath für den Benutzerzugriff mit geringer Latenz
- Führen Sie grafikintensive Workloads mit GPU-Unterstützung aus

Volle Kontrolle



- Erfüllen Sie die Anforderungen an die Datenlokalität mit effizientem, leistungsstarkem On-Premises-Speicher und DR

Skalieren Sie in der Cloud- und lokal



- Verwalten und skalieren Sie Bereitstellungen sowohl in Azure als auch in Azure Stack HCI über ein einziges Verwaltungsportal

Kostenoptimiert



- Verwenden Sie vorhandene berechtigte Windows-Lizenzen
- Sparen Sie mit der Multisession-Unterstützung von Windows 10/11

Managed Service Hybrid

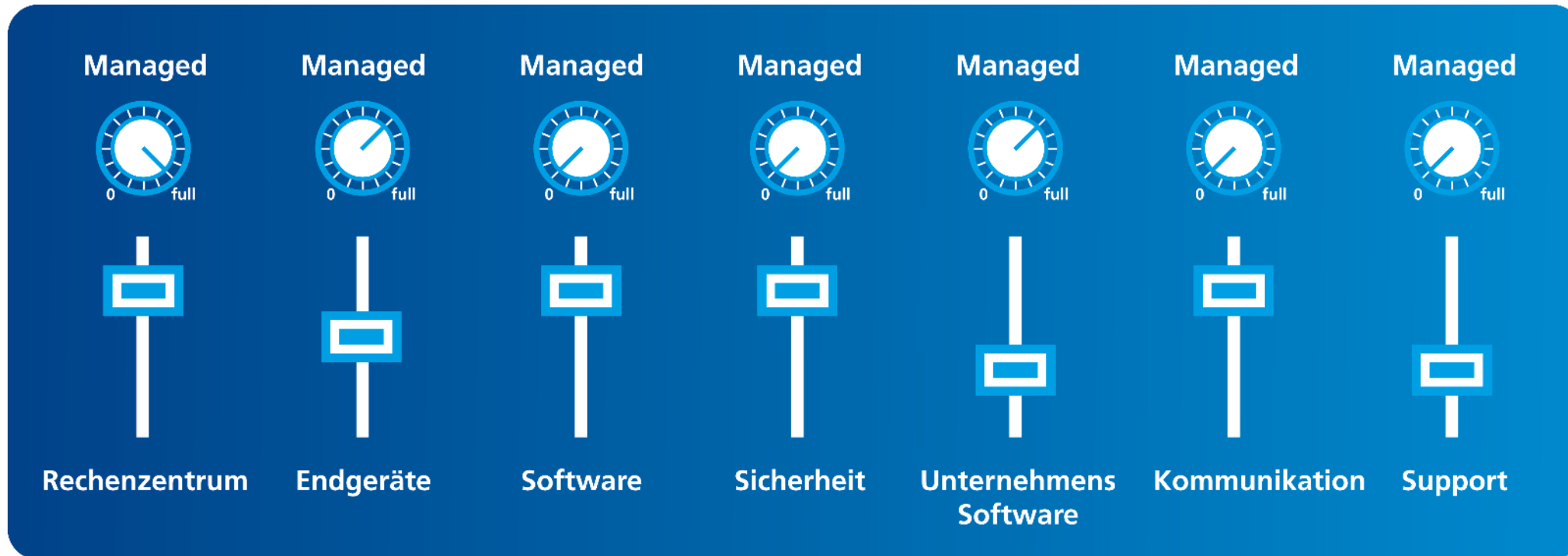
Azure Stack HCI proactive Managed Service

Die Medialine Group übernimmt das vollständige proaktive Management von Azure Stack HCI Umgebungen inkl. kontinuierlicher Optimierungen, Security Management und Monitoring zum Festpreis



Maßgeschneidert vom IT-Mischpult

Sie wählen den passenden Mix – wir übernehmen das Feintuning



Arc-fähige PaaS-Dienste auf Azure Stack HCI

Jede mit ihren eigenen Szenarien und Feature-Roadmaps



SQL managed instances

Vollständig verwaltete verwaltete SQL-Instanz mit integrierten Verwaltungsfunktionen zur drastischen Reduzierung Ihres Verwaltungsaufwands.



PostgreSQL Hyperscale

Halbverwaltete PostgreSQL Hyperscale-Servergruppe, die Ihre Anforderungen an Datenresidenz und Kundenkontrolle erfüllt.



App services

Leistungsstarke Web-, Mobil- und API-Apps. Erstellen Sie standardbasierte Webanwendungen und APIs mit .NET, Java, Node.js, PHP und Python.



Functions

Verarbeiten Sie Ereignisse mit serverlosem Code. Beschleunigen und vereinfachen Sie die serverlose Anwendungsentwicklung mit Serverless Computing.



Logic apps

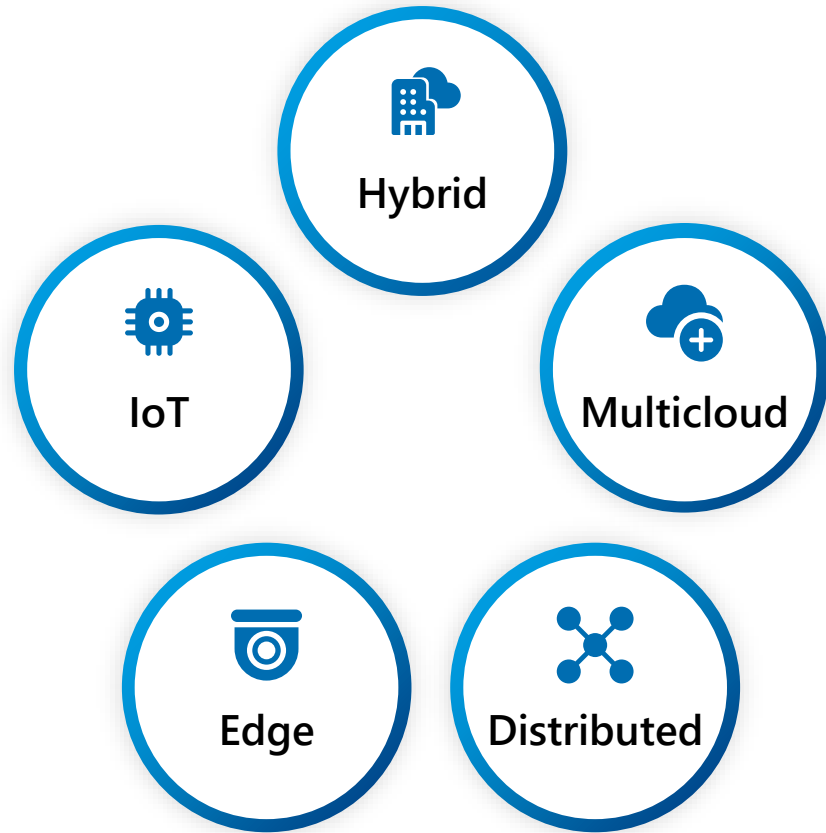
Erstellen Sie schnell leistungsstarke Integrationslösungen. Erstellen Sie Workflows, indem Sie Hunderte von Konnektoren und den visuellen Designer nutzen.



API management

Bewegen Sie sich schneller mit einer einheitlichen Verwaltungsplattform für APIs in Hybrid-, Edge-, Multi-Cloud- und all Ihren Umgebungen.

Common customer challenges

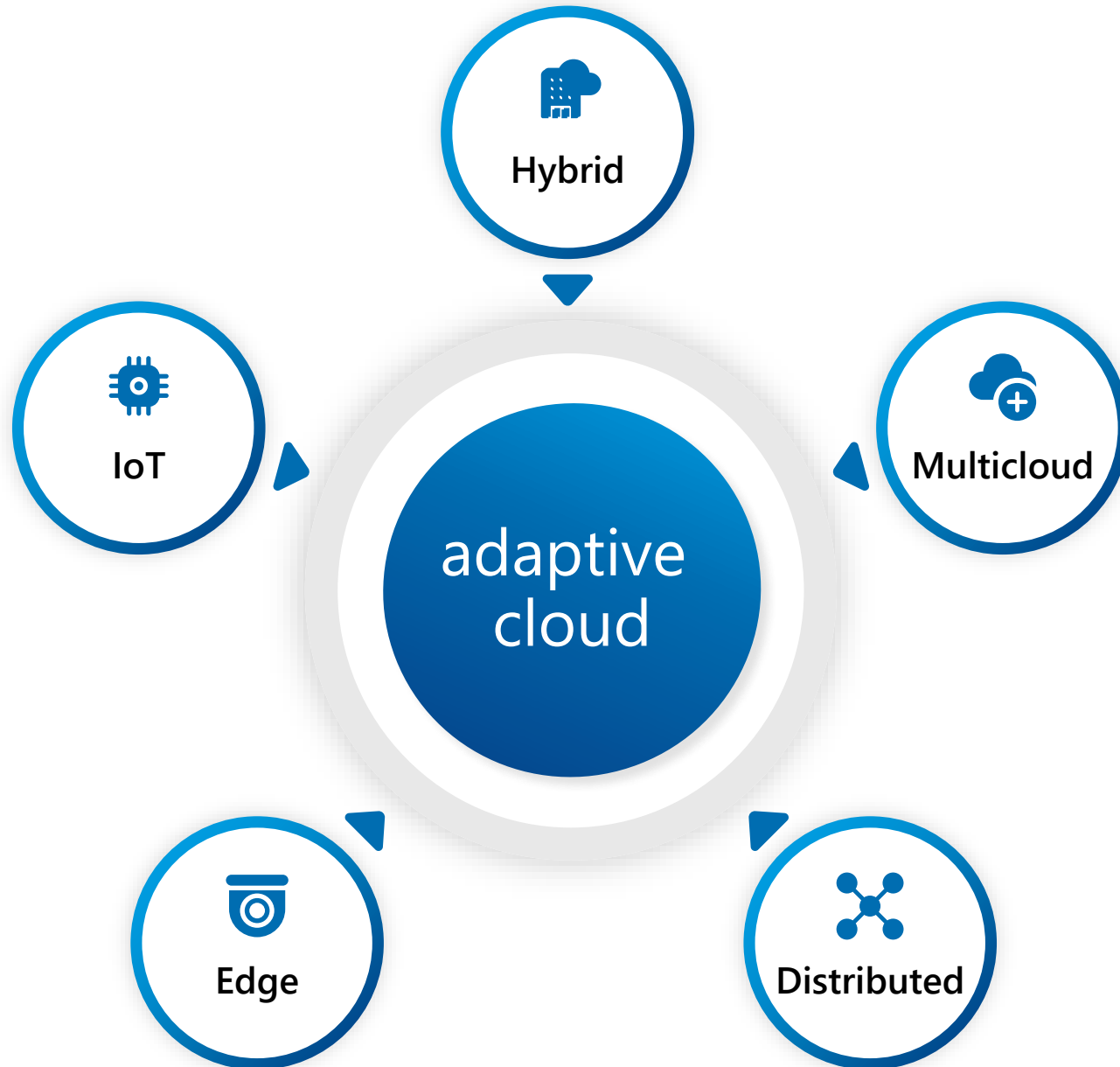


Sprawling systems

Information and process silos

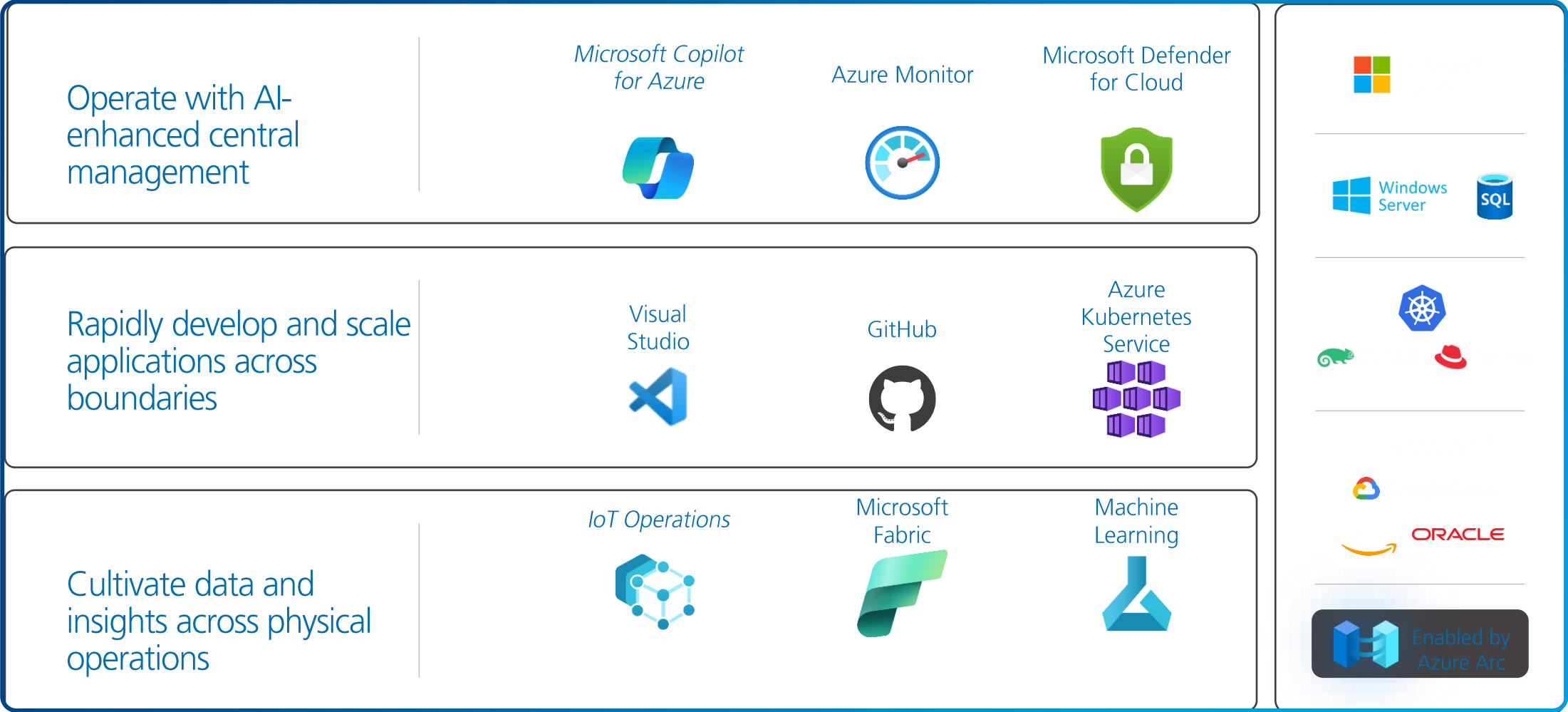
Increased technical debt

Advancing hybrid cloud to adaptive cloud



Thrive in dynamic environments by unifying teams, sites, and systems across hybrid, multicloud, edge, and IoT.

Adaptive Cloud



Customer aspirations



• Deliver products as a service



• Transform data into new products



• Accelerate application development



• Secure and govern distributed digital estate



• Modernize facilities and assets



• Manage multicloud, datacenter and edge modalities in a single control plane

Azure meets you where you are in your cloud journey



Migrate apps, data, and infra

Easily migrate to IaaS or flexible PaaS services for industry-leading performance, availability, and reliability



Migrate VMware as is

Azure VMware Solution allows you to use VMware technology stack and team expertise in Azure



Extend to hybrid and multi-cloud

Extend Azure security, operations, and management across your entire environment and unify in a single pane-of-glass

Microsoft Azure



Single control plane with Azure Arc

Infrastructure

Connect and operate hybrid resources as native Azure resources

Azure Arc-enabled infrastructure

Services

Deploy and run Azure services outside of Azure while still operating it from Azure

Azure Arc-enabled services



Arc Server



K8s



Windows



SQL Server



SQL DB



PostgreSQL



Web Apps



Functions



Logic Apps



Machine Learning



Multi-cloud

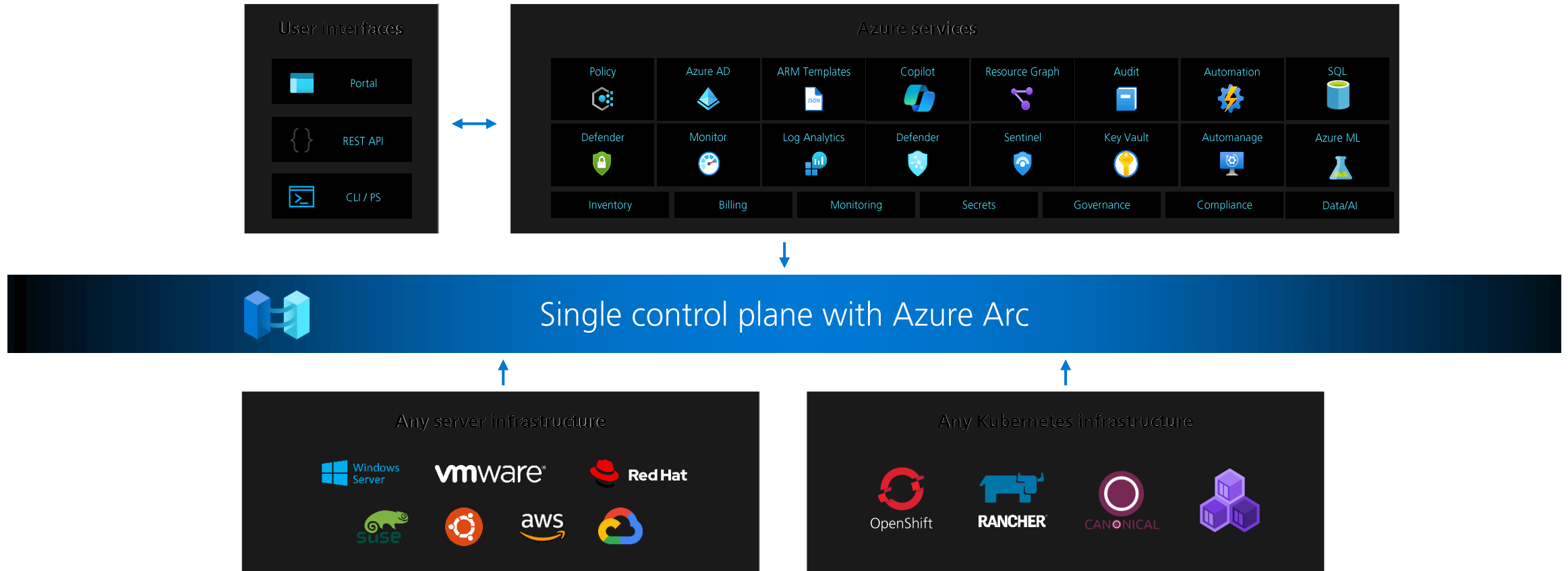


Datacenter



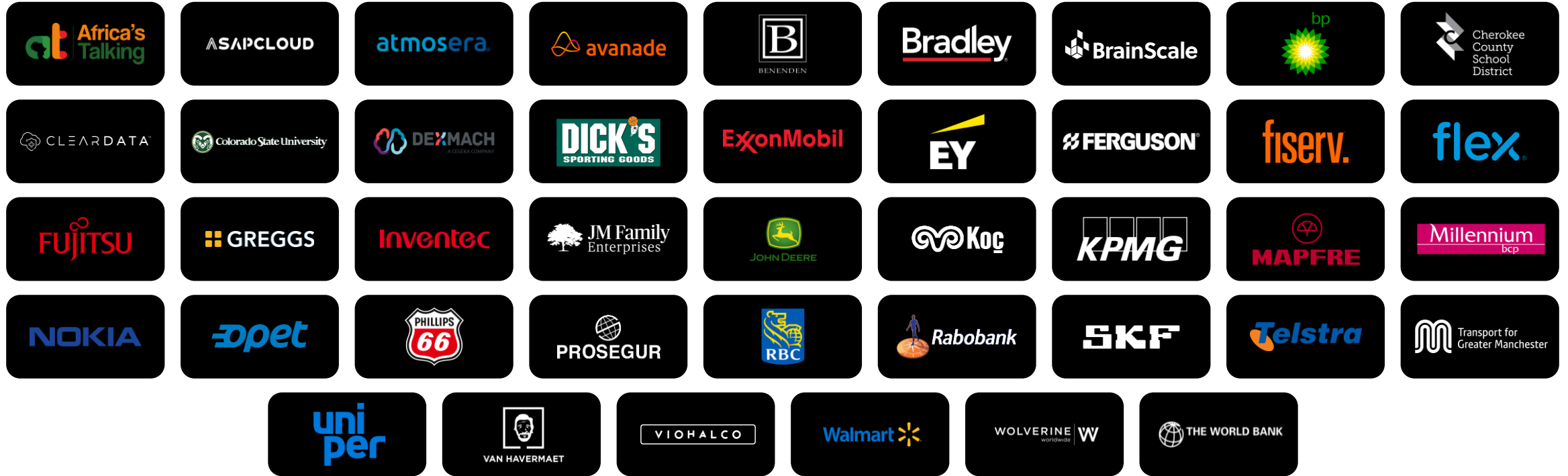
Edge

Azure Arc: extending Azure management & security to any infrastructure



Manage your private, public and edge environment in a consistent way

Azure Arc customers



"With Azure Arc, we can manage a multitude of edge devices and containerized workloads for our customers on-premises and offer this service to them at a reasonable cost."

Frank Konopka, Senior Advisor
SIEMENS HEALTHINEERS

"Our unified store strategy is all about rapid innovation. It lets us respond to market shifts and customer feedback in minutes, ensuring our stores are always current."

Jon Hathaway, Sr Director of Platform and Infra
DICKS SPORTING GOODS

Secure and govern across environments

Customer needed

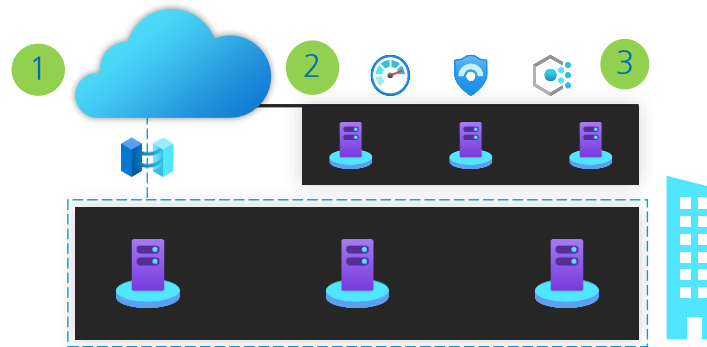
Simplified operations & management across thousands of remote sites with heterogenous assets

To leverage cloud-based threat detection, response, and analytics

To catalog and govern IT inventory with policy and role-based access control

Business continuity with observability across the stack and automated recovery from failures

How



- 1 Migrate WS/SQL/Linux to Azure regions
- 2 Arc-enable remaining WS/SQL/Linux in Datacenters and at the edge
- 3 Integrate operations, management, and security across all environments

Microsoft Offerings Enabled by Azure Arc

- Azure Resource Manager
- Microsoft Defender for Cloud
- Microsoft Sentinel
- Azure Policy
- Azure Monitor
- Microsoft Purview
- Azure Automanage
- Azure Update Manager
- Microsoft Copilot in Azure



Azure Arc-enabled servers

Bring Azure capabilities to your on-premises and multicloud servers with Azure Arc



Reach

Windows and Linux

VM and bare metal

At scale searchable inventory



Configure

Consistent VM extensions

Centralized agent
management—
monitoring, security,
update management



Govern

Built-in Azure policies

Compliance across
environments

Audit and enforce
OS settings



Secure

Entra ID Managed Identity

Server security baselines

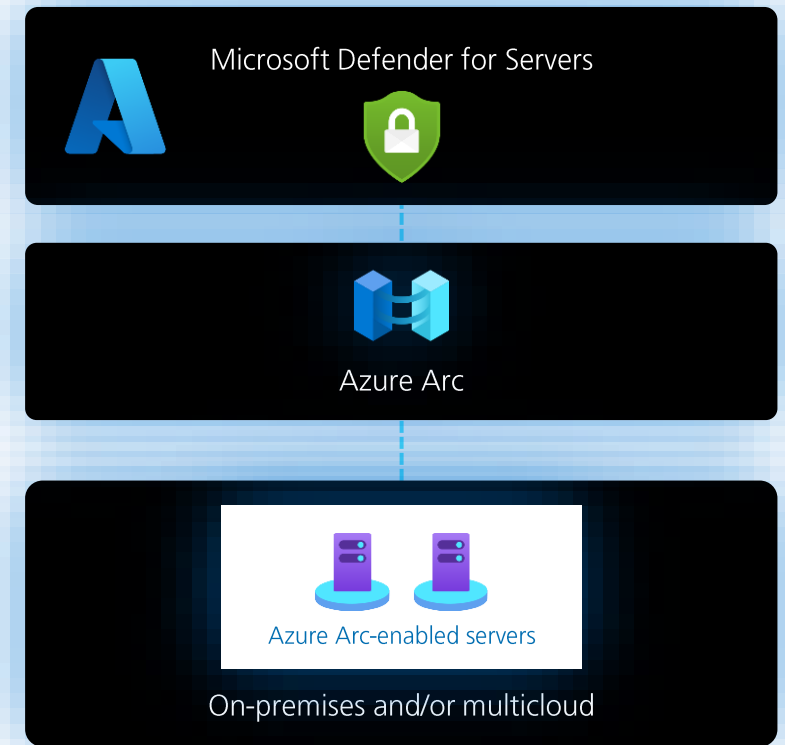
Role-Based Access control



Deploy defender for servers anywhere

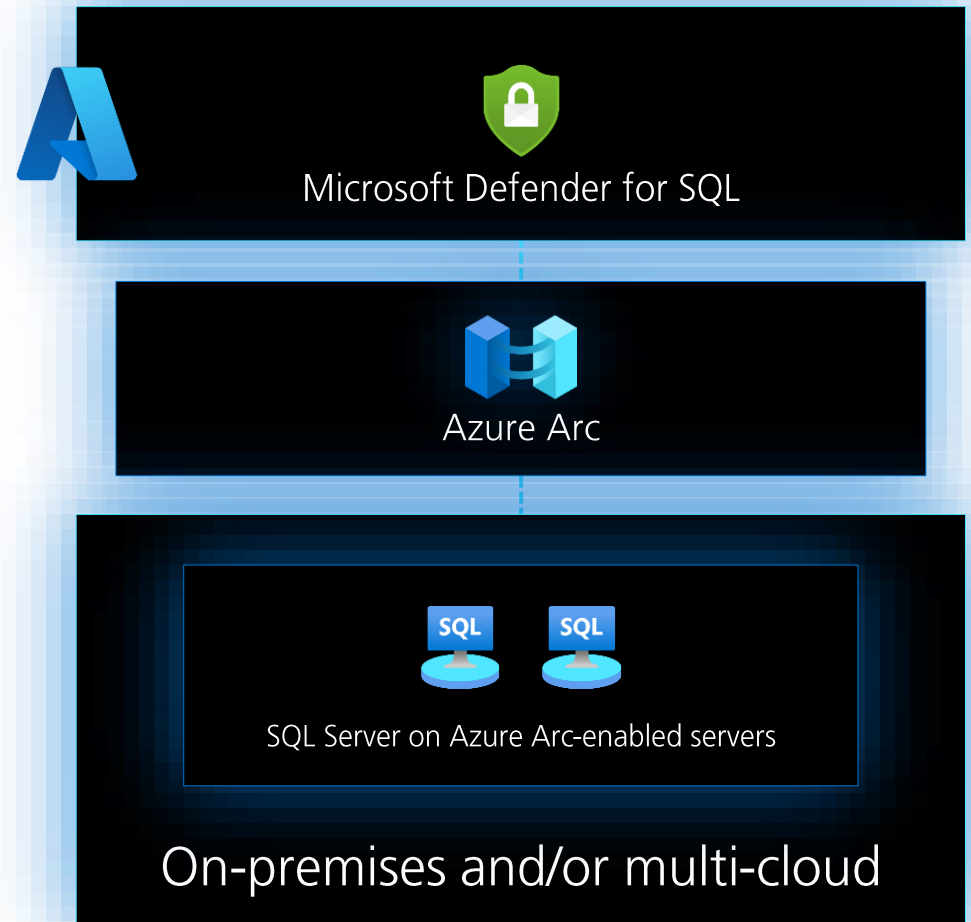
Secure hybrid and multicloud environments

- Reduce risk with contextual security posture management
- Get compliance benchmarks mapped to industry standards
- Vulnerability assessment built-in with flexibility to use tools, like Qualys, offering integrated vulnerability scanning for your connected machines
- Use Just-in-Time VM access to control access to commonly attacked management ports
- Block malware with adaptive application controls
- Set guardrails with Azure Policy integration, server owners can view and remediate to meet their compliance



Deploy Defender for databases (SQL) anywhere

- Monitor and remediate potential vulnerabilities for SQL Servers in Azure, on-premises or in other clouds
- Discover, track, and remediate potential database vulnerabilities with assessment scans.
- Monitor for threats such as SQL injection, brute-force attacks, and privilege abuse with advanced threat protections



Azure Monitor anywhere enabled by Azure Arc

Consistent monitoring across your hybrid and multi-cloud compute

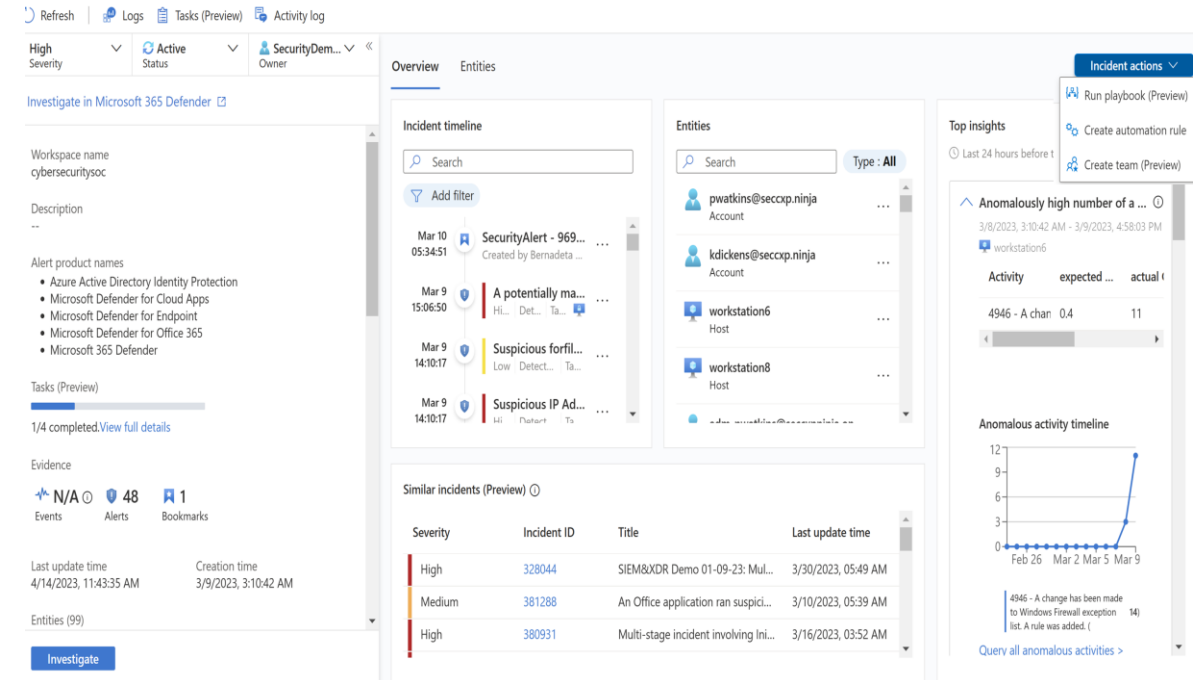
- Detect and diagnose issues across apps and dependencies with application insights
- Correlate issues at infra level with insights for VMs, containers, network, etc.
- Operationalize at scale with smart alerts and automated actions
- Drill down with Log Analytics for troubleshooting & deeper diagnostics
- Create visualizations with Azure dashboards, workbooks, and Grafana



Microsoft Sentinel, powered by AI, enabled by Azure Arc

Stay ahead of evolving attacks with a comprehensive solution to detect, investigate and respond to incidents

- Build-in enhanced UEBA, automation (SOAR), hunting capabilities, and threat intelligence (TI) to expedite investigation and response
- Industry's first unified experience for SIEM and XDR, with built in GenAI and Threat Intelligence
- Quick response to issues through collaboration with built-in case management for SOC teams
- Stay ahead of threats with built-in threat intelligence with the latest insights from Microsoft Defender Threat Intelligence (MDTI) and Microsoft threat research

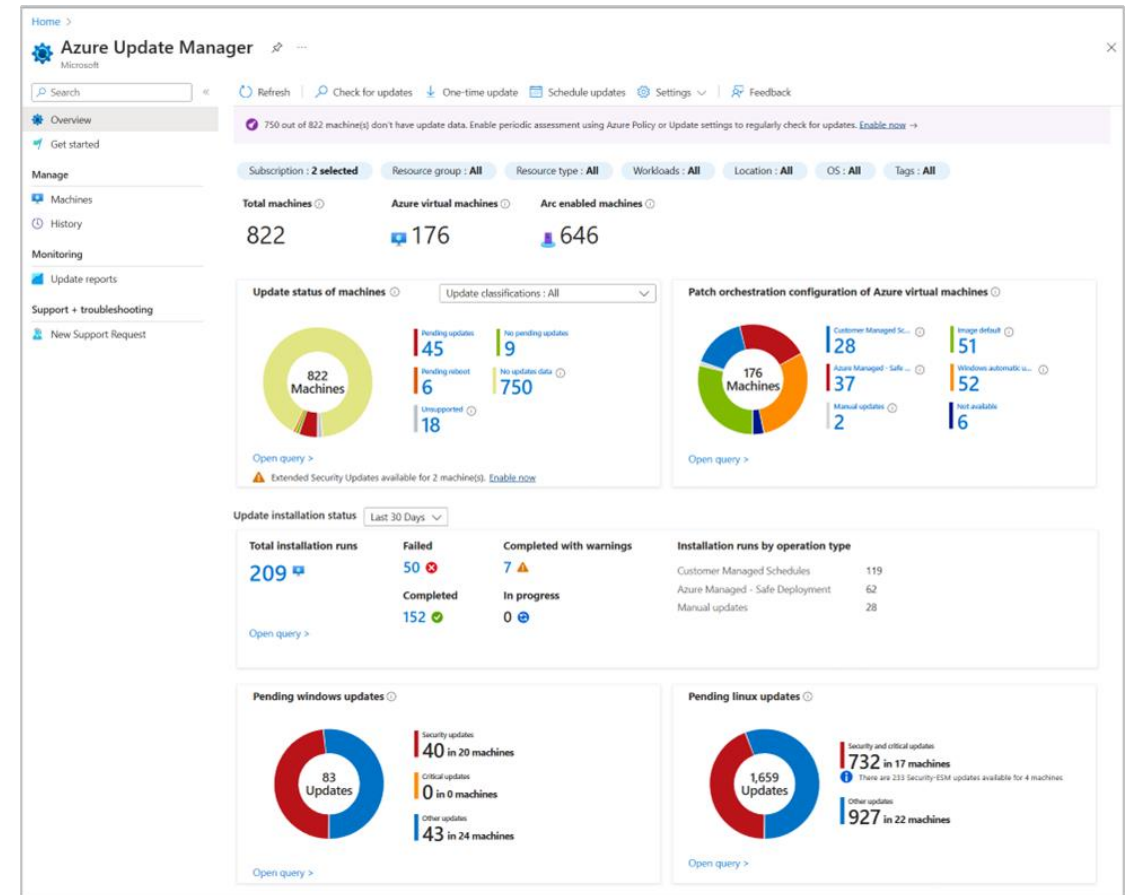


Reduce mean time to respond (MTTR) by

Comprehensive patching with Azure Update Manager

Update and patch your Windows and Linux servers running anywhere with Azure Update Manager enabled by Azure Arc

- Streamlined patch management
Oversee update compliance for your entire fleet of machines in Azure (Azure VMs), on-premises, and multicloud environments
- Centralized control with RBAC
Inherit Azure RBAC configured on the machines to control who can perform update operations and edit schedules. Seamless access management to Azure resources with Azure roles and identity
- Intelligent automation and scheduling
Automate and orchestrate securely with customized, defined maintenance schedules, hot-patching, and auto-patch to reduce reboots and optimize during VM downtimes



ESUs enabled by Azure Arc

Flexible PAYGO monthly billing and savings

Monthly billing model centralized in Azure to run end-of-support operating systems

Visibility and reliability

Ensure consistent Windows Server 2012/R2 and SQL Server 2012 performance with high availability and visibility over your entire data and server estate. Keyless delivery

Security and compliance

Seamlessly extend Azure security and governance to your environment and stay compliant with supported software



Microsoft
Defender
for Cloud



Azure
Update
Manager



Microsoft
Sentinel

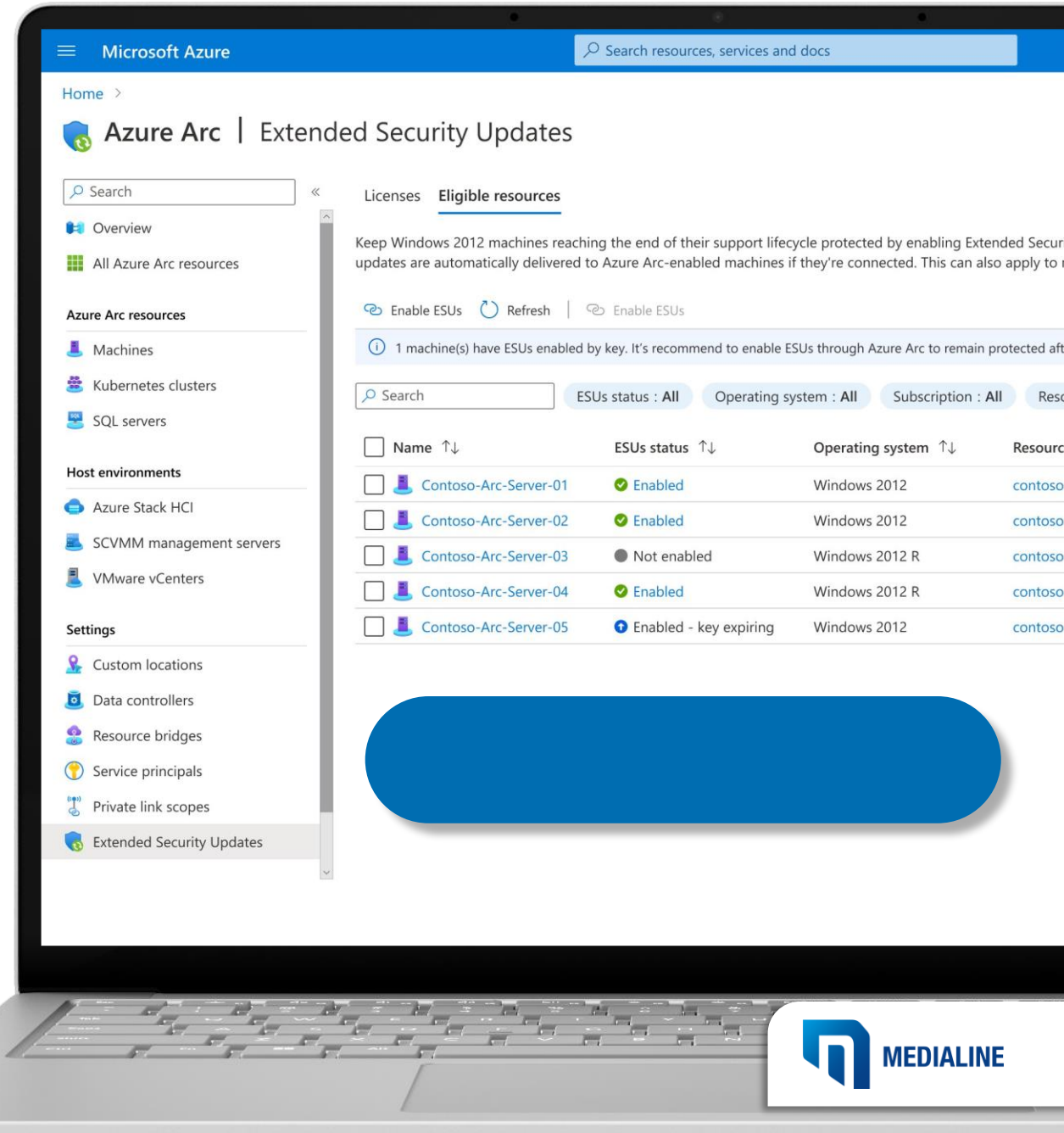


Azure
Policy



Azure
Monitor

For Windows Server 2012/2012 R2,
SQL Server 2012 and SQL Server 2014 (July 2024)



VMware vSphere and System Center VMM

GENERALLY AVAILABLE

Purpose built for VMware vSphere

Bring Azure capabilities your environments with Azure Arc

At-scale management for your VMware vSphere & SCVMM VMs in Azure



Connect at scale

Connect an entire environment managed by vCenter or System Center Virtual Machine Manager at scale



Automatic inventory discovery

Automatic up to date inventory synced from vCenter & SCVMM to Azure and available via Azure Resource Graph



Install Arc Agent at scale

Install Arc agent at scale using portal, CLI, or running the script yourself



Secure, govern and monitor

Perform governance, monitoring and security at scale using Azure Monitor, Microsoft Defender, Azure Policy, Azure Update Manager, and more



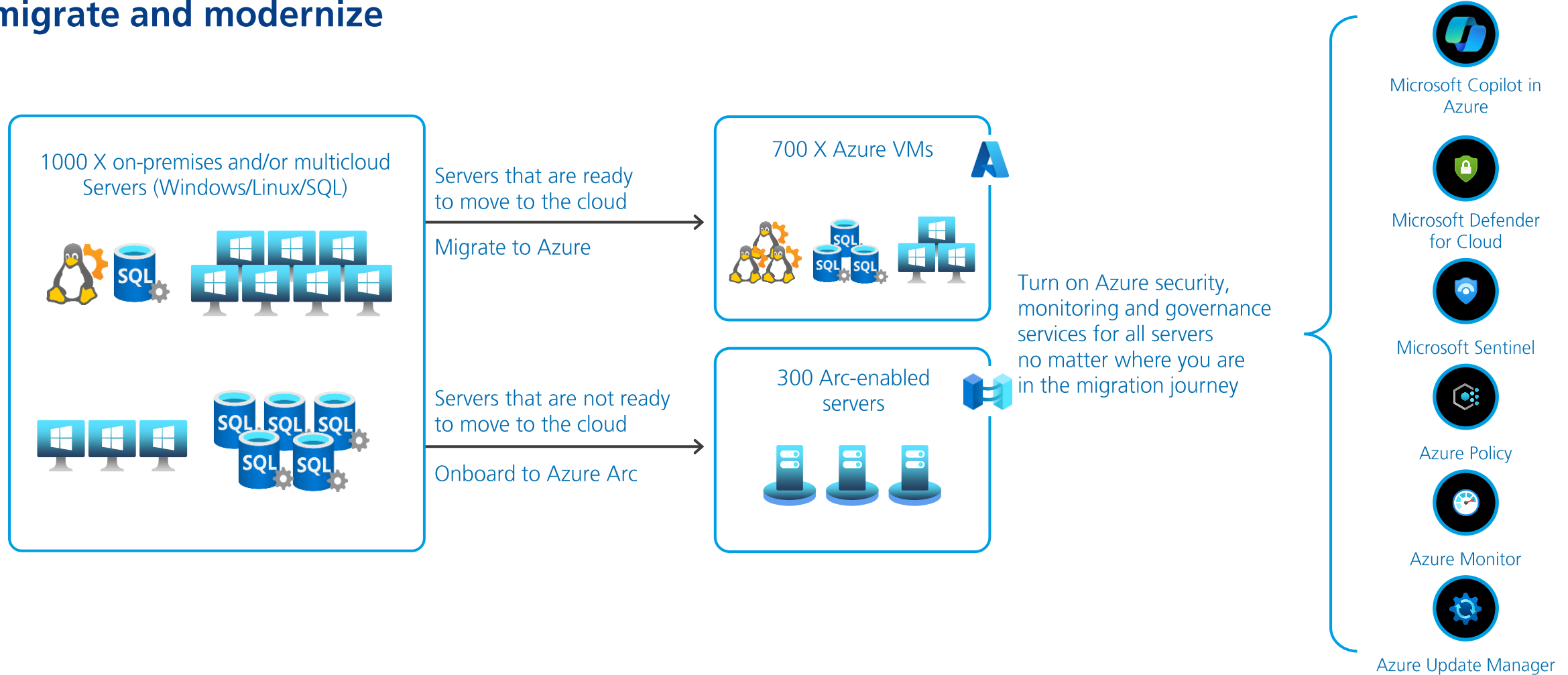
← VMware vSphere and System Center environments hosted anywhere →

Unified experience with Arc-enabled Servers



Migrate and Modernize to Azure on your own terms

Azure Arc helps you consistently secure and govern infrastructure across environments as you migrate and modernize



Azure Stack HCI

Modern subscription for flexible, familiar hyperconverged infrastructure



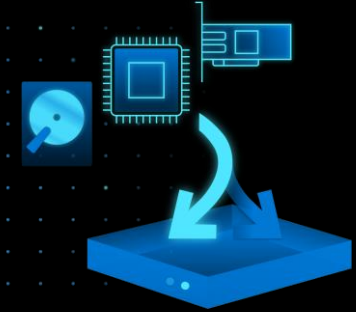
**Azure hybrid
by design**



**Enterprise scale and
price performance**



**Familiar
management
and operations**



**Choice of
deployment options**

When to use Azure Stack HCI

Distributed compute anywhere for low latency with central cloud management



Affordably run
intelligent edge and
remote
branch office
solutions



Industry-best
performance for SQL
Server databases



Deploy cloud
native apps and Azure
Arc enabled services
through tight
integration with AKS
on-prem



Best in class virtual desktop
experience with Azure
Virtual Desktop for Azure
Stack HCI



[Azure Arc] ensured our entire SQL estate, on-premises & multicloud, were meticulously prepared for migration to Azure, guaranteeing a smoother and highly successful migration experience.

—Chandra Kala Macha, Information Officer II, World Bank



SITUATION

- Sprawling IT operations across 130+ locations
- Various IT teams using multiple cloud providers and tools to manage the complex backend
- Difficult and time-consuming to monitor and secure on-premises SQL Server given the fact multiple teams need to be aligned and coordinated

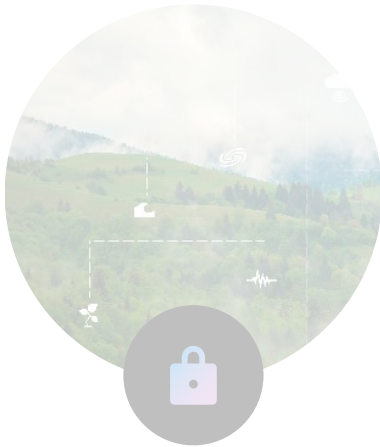
SOLUTION

- **Consolidate:** World Bank adopted [Azure Arc](#) to address multiple issues including [inventory management](#) of their SQL estate, streamlining maintenance tasks such as [backups](#) and [patching](#), [best practices assessment](#) and gaining insights on migration readiness
- **Unify:** World Bank wanted a solution that could be used to manage both Azure and AWS servers, but that would also work with its Microsoft SQL Server stack
- **Expand:** The Information Security Office at World Bank uses [Defender for Cloud](#), [Microsoft Purview](#). With Azure Arc, they extended those services to entire SQL estate, on-premises and across multicloud

IMPACT

- **90% cost saving** from consolidating tools for monitoring, security and compliance
- **Streamline cloud migration journey** using Azure Arc
- Significantly **reduced security risks and non-compliance** at the levels of both compute resources and data workloads

Innovate anywhere with Azure



Secure and govern your infrastructure and apps



Build apps once, deploy and manage them anywhere



Run Azure data, app, and AI/ML services from cloud to edge

Deliver cloud agility anywhere and modernize applications from cloud to edge using Kubernetes

Customer need to

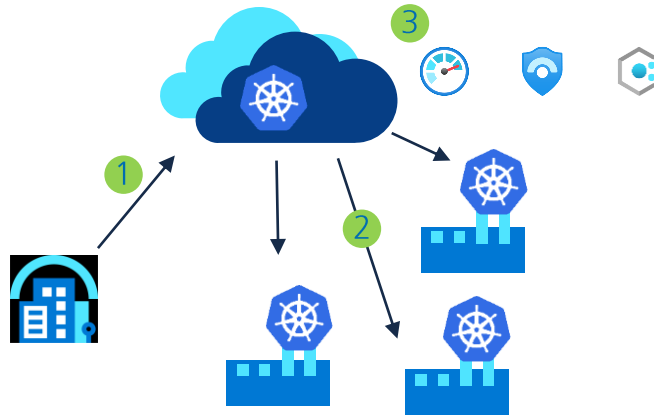
Run Azure services on-premises for low-latency, compliance and distributed computing needs

Build cloud-native Kubernetes applications and deploy in your enterprise and at the edge

Ops-as-Code: Automate repeatable configuration and deployment tasks

Deploy to new or existing infrastructure – Windows Server, VMware and more

How



- 1 Dev/Test Kubernetes apps in Azure regions
- 2 Continuously deploy and update production apps on Arc-enabled K8s at the edge
- 3 Operate, manage, and secure with the same tools

Microsoft Offerings Enabled by Azure Arc

- AKS on Azure Stack HCI, Windows Server, Windows IoT
- At-scale Kubernetes management (CNCF)
- GitOps pipelines
- Flux
- Azure monitoring and security for containers
- Open Service Mesh
- Azure Container Apps - preview
- Azure Application Services – preview

Zntain

Millennium
bcp

uni
per

 MEDIALINE

Build apps once, deploy and manage them anywhere with Azure Arc



Build and modernize to cloud-native apps on any Kubernetes



Bring cloud data management to any infrastructure



Consistent GitOps and policy driven deployment on any Kubernetes



Integrate Azure Security, governance and monitoring into your DevOps toolkit



Azure Arc-enabled Kubernetes



Azure Arc-enabled SQL Managed Instance



Azure Arc-enabled PostgreSQL



Azure Stack HCI

vmware



aws



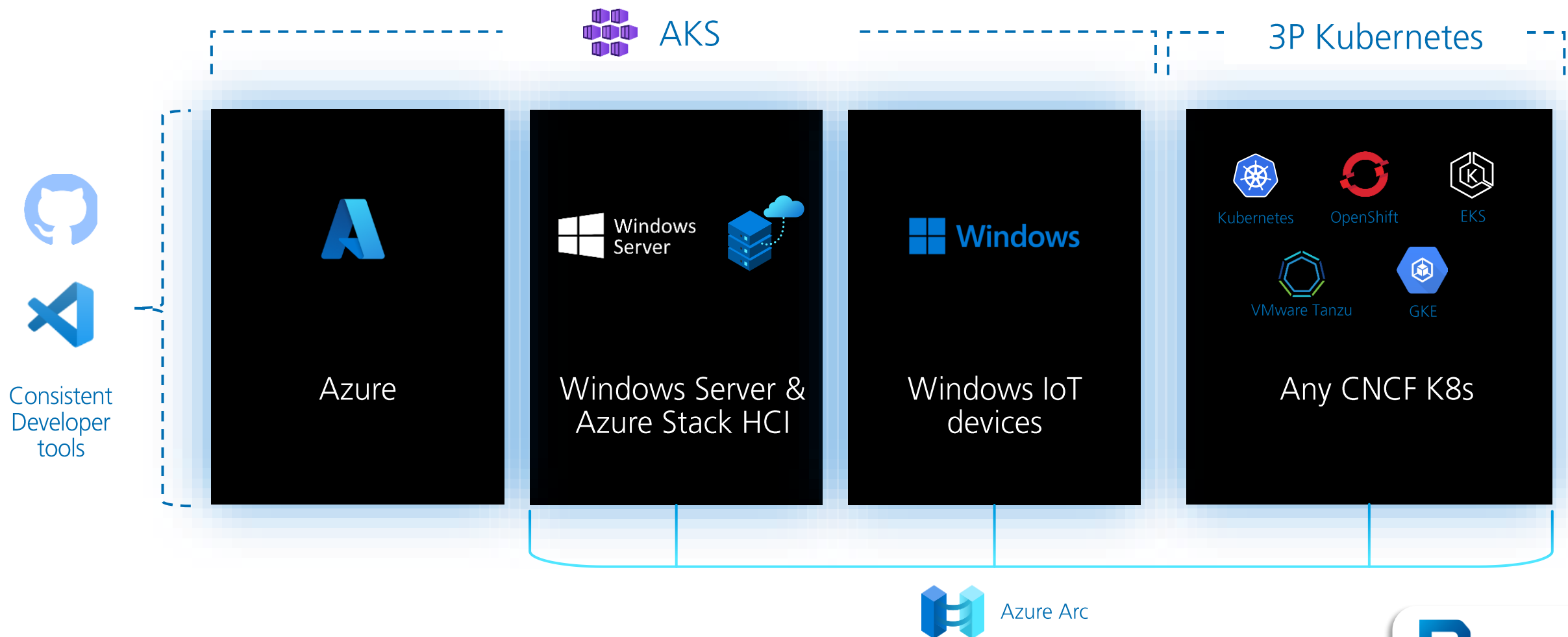
Azure IoT

On-premises, multicloud, and edge

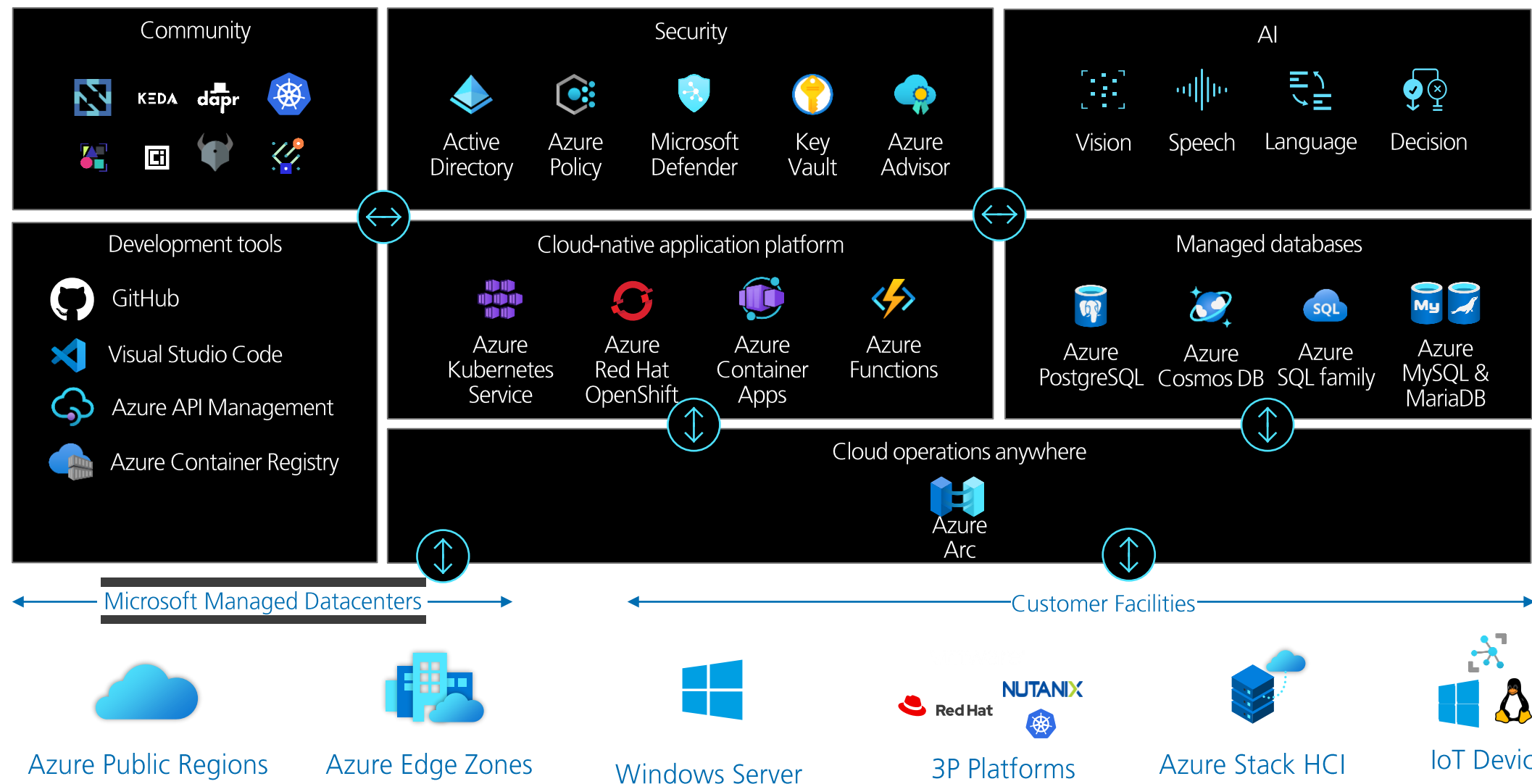
Managed Kubernetes from cloud to edge

Flexible deployment options on the infrastructure of your choice

GENERALLY AVAILABLE



Cloud-native on Azure



Azure Arc-enabled Kubernetes

GENERALLY AVAILABLE

Connect, manage, and operate Kubernetes clusters and applications running anywhere



AKS on Azure Stack
HCI or Windows Server



Multiple 3P
Kubernetes flavors
supported



Deploy apps and
configurations at-scale
with GitOps



Secure, govern and
monitor all your
clusters, from Azure



AKS



Kubernetes



OpenShift



EKS



GKE



VMware Tanzu

NUTANIX



PLATFORM9

CANONICAL



RANCHER

WINDRVR



kublr



MIRANTIS



MEDIALINE

Create Kubernetes clusters and manage them from the Azure Portal

Home > Azure Arc

Azure Arc | Kubernetes clusters

Microsoft

Search

+ Add Manage view Refresh Export to CSV Open query Assign tags

Create an AKS hybrid cluster (preview)
Add a Kubernetes cluster with Azure Arc

Subscription equals all Type equals all Resource group equals all

Name	name (tag)	function (tag)	Type	Resource	
☐	27405892-b9b8-474d-a5db-fe...	Cafe-Capitol-Hill	AKS Control Plane	Kubernetes - Azure Arc	S2010-aks
☐	68cf9c2a-3e88-4ede-8c10-9d8...	Cafe-Belltown	AKS Control Plane	Kubernetes - Azure Arc	S1010-aks
☐	ba60dc04-25c4-4271-a5d2-68...	RoasteryHQ	AKS Control Plane	Kubernetes - Azure Arc	Roastery-aks
☐	c424a846-5dbd-4249-ac0a-f93...	Cafe-Fremont	AKS Control Plane	Kubernetes - Azure Arc	S3010-aks
☐	f0b9c1db-446f-4467-94e5-0afc...	Cafe-U-District	AKS Control Plane	Kubernetes - Azure Arc	S4010-aks

Management

- Custom locations
- Data controllers
- Resource bridges (preview)
- Service principals
- Private link scopes

Infrastructure

- Azure Arc virtual machines (preview)
- Azure Stack HCI
- Kubernetes clusters
- Servers
- SQL Servers

Home > Azure Arc

Azure Arc | Kubernetes clusters

Microsoft

Search

+ Add Manage view Refresh Export to CSV Open query Assign tags

Filter for any field... Subscription equals all Type equals all Resource group equals all Location equals all

No grouping List view

Name	name (tag)	function (tag)	Type	Resource group	Kubernetes version	Location
☐	ba60dc04-25c4-4271-a5d2-68...	RoasteryHQ	AKS Control Plane	Kubernetes - Azure Arc	Roastery-aks	1.23.8 East US
☐	77df868a-793e-4fc3-bea0-2f02...	Cafe-Belltown	AKS Control Plane	Kubernetes - Azure Arc	S1010-aks	1.23.8 East US
☐	27405892-b9b8-474d-a5db-fe...	Cafe-Capitol-Hill	AKS Control Plane	Kubernetes - Azure Arc	S2010-aks	1.23.8 East US
☐	c424a846-5dbd-4249-ac0a-f93...	Cafe-Fremont	AKS Control Plane	Kubernetes - Azure Arc	S3010-aks	1.23.8 East US
☐	f0b9c1db-446f-4467-94e5-0afc...	Cafe-U-District	AKS Control Plane	Kubernetes - Azure Arc	S4010-aks	1.23.8 East US
☐	cafe-belltown-foursale	Cafe-Belltown	FourSale	Kubernetes - Azure Arc	S1010-aks	1.23.8 East US
☐	cafe-capitolhill-foursale	Cafe-Capitol-Hill	FourSale	Kubernetes - Azure Arc	S2010-aks	1.23.8 East US
☐	cafe-fremont-foursale	Cafe-Fremont	FourSale	Kubernetes - Azure Arc	S3010-aks	1.23.8 East US
☐	cafe-u-district-foursale	Cafe-U-District	FourSale	Kubernetes - Azure Arc	S4010-aks	1.23.8 East US

Management

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Infrastructure

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[Read full story here](#)



We ended up with the Azure Kubernetes Service and Azure Arc solution ... because our account team, and specifically some of our Microsoft developer advocates, knew and understood where we wanted to go as a company. Microsoft provided training and responded quickly to our team's questions throughout the migration and development process—it was a game-changer.

—Jon Hathaway, Senior Technical Lead, DICK's Sporting Goods



SITUATION

To accomplish DICK's vision of a "one store" technology strategy, they needed a new level of modularity, integration, and simplicity to connect its public cloud environment with its computing systems at the edge.

They needed a solution that would write, deploy, manage, and monitor systems nationwide on its public websites.

SOLUTION

Migration and Modernization: With the help of Microsoft, the company migrated to Microsoft Azure and created an adaptive cloud environment comprised of Azure Arc and Azure Kubernetes Services (AKS), that would manage data processing and workloads it needed in the cloud.

Cloud native development and deployment: Using Azure Kubernetes Service, DICK's IT team can deploy new applications to and databases to their 800 plus retail stores.

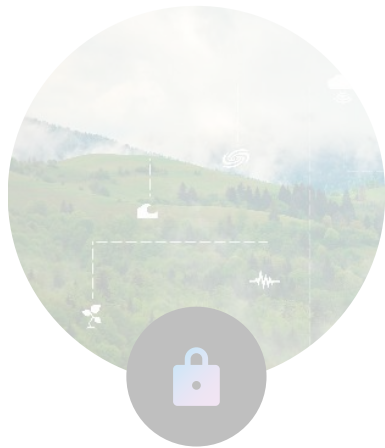
Seamless patching: Using Azure Update Manager, the IT team can patch all its Windows, Linux, and SQL machines running everywhere – in the public cloud, a private datacenter, or in the retail stores.

IMPACT

Today, DICK's tech teams are better able to manage implementation of new apps from the store's technology teams more efficiently, with system self healing, automated reprovisioning, and deployment of code to all of the stores at once.

This has enabled the company to continue omnichannel innovation faster than ever before.

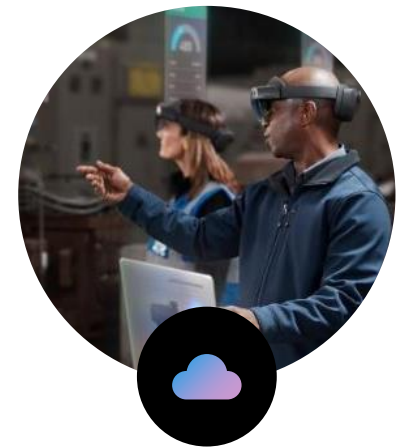
Innovate anywhere with Azure



Secure and
govern your
infrastructure and
apps



Build apps once,
deploy and manage
them anywhere



Run Azure data, app,
and AI/ML services
from cloud to edge

Transform physical operations with cloud and AI

Customer needed

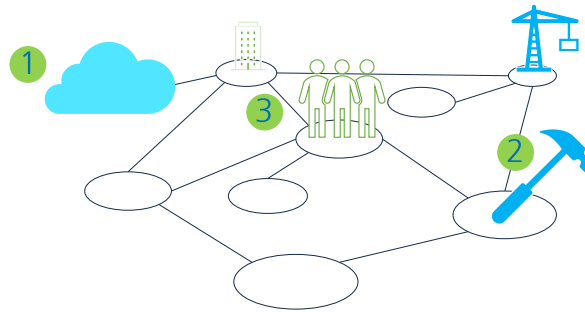
Data connections from physical operations to the cloud, to harness AI and insights

Automated and improve site workflows centrally, from the cloud across multiple locations

Reliable edge solutions that could operate with intermittent connectivity

Distributed compute at the edge for low latency with central cloud management

How



- 1 Model & describe physical processes in Azure
- 2 Collect data, create context, derive insights where needed
- 3 Make decisions and take actions. Repeat.

Microsoft Offerings Enabled by Azure Arc

- SQL MI
- Azure SQL MI Business Critical
- PostgreSQL – preview
- Azure Machine Learning
- Azure IoT Hub
- Azure Digital Twins
- Azure Stack HCI
- Windows IoT



CARNIVAL
CORPORATION & PLC



Run Azure data, app, and ML services

Configuration management | Observability | Governance | Security



Microsoft
Copilot
for Azure



Microsoft
Defender
for Cloud



Azure
Monitor



Microsoft
Sentinel



Azure
Policy



Azure
Update
Manager



Configuration
Management



Inventory
Management

Azure Services across your infrastructure



Azure
Stack HCI

vmware



ORACLE



Azure
IoT



Datacenter, multicloud, and edge

Bring cloud manageability to SQL Server anywhere

Manage, govern, and protect your SQL Server from Azure



Manage all SQL estate with better observability

Single view of all SQL Servers deployed on-premises, in Azure and other clouds

Capture key performance metrics and realize faster time-to-value with **monitoring**

Gain proactive & actionable insights with automated **best practices assessment**



Enhance business continuity

Manage **Availability Groups** inventory and track real-time health status

View Always-on **Failover Cluster Instances** and protect with Defender

Automated backups and point-in-time restore for seamless application of policy



Govern and protect all SQL estate using Azure

Protect your on-premises & multicloud data using **Microsoft Defender** for Cloud

Enhance security using **Extended Security Updates** as a service & **auto patching**

Central insights and governance across all SQL Servers with Microsoft Purview



Azure billing enabled by Azure Arc for SQL Server anywhere, with simplified onboarding

Management Capabilities Comparison

✗ Not supported

✓ Supported

✓ Future support

Built-in capabilities	Customer Infrastructure or 3P Clouds		Azure
	SQL Server	Arc Enabled SQL Server	SQL Server Azure VM
Pay-as-you-go billing	✗	✓	✓
Azure AD auth	✗	✓	✓
Best practices assessment	✗	✓	✓
Inventory management	✗	✓	✓
Auto patching	✗	✓	✓
Auto backup	✗	✓	✓
Monitoring	✗	✓	✓
Defender for SQL Server	✓	✓	✓
TDE with Azure Key Vault	✗	✓	✓
HA/DR inventory management	✗	✓	✓
License usage management	✗	✓	✓
Cluster aware patching and upgrades	✗	✓	✓
Purview premium	✗	✓	✓
Point-in-time restore	✗	✓	✓
Backup long-term retention to Azure	✗	✓	✓

*Some information regarding product roadmap may be substantially modified before it's commercially released. Microsoft makes no warranties, express or implied, with respect to the information provided here.

Home >

 **bwsqlserver2022** ☆ ...

Server - Azure Arc

🔍 Search

🗑️ Delete

🔄 Refresh

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
- Connect (preview)
- Windows Admin Center (preview)
- Security
- Extensions
- Properties
- Locks
- Operations
- Policies
- Machine Configuration
- Automanage
- Updates
- Inventory
- Change tracking
- Monitoring

Essentials

JSON View

Resource group (move)	: bwvmsrg	Computer name	: bwsqlserver2022
Status	: Connected	FQDN	: bwsqlserver2022
Location (move)	: East US	Operating system	: Windows Server 2022 Datacenter
Subscription (move)	: Microsoft Azure Sponsorship	Operating system version	: 10.0.20348.1487
Subscription ID	: e1775f9f-a286-474d-b6f0-29c42ac74554	Cloud provider	: N/A
Agent version	: 1.25.02203.713	Manufacturer	: Microsoft Corporation
		Model	: Virtual Machine

Tags ([edit](#)) : [Click here to add tags](#)

Capabilities Recommendations Tutorials

**Updates**
Customize updates for your Arc-enabled server.

**Logs**
Enable additional monitoring capabilities.

**Monitoring insights**
Enable additional monitoring capabilities.

**Policies**
View compliance by assigning guest configuration policies to your machine.
● Not configured

**Change tracking and inventory**
Enable consistent control and compliance of this machine with Change tracking and inventory.

**Security**
Continuously monitor for potential security vulnerabilities and recommendations.

**Windows Admin Center (preview)**
Manage your operating system from anywhere — without needing a VPN

Azure Arc-enabled data services

Bring cloud data management to any infrastructure

GENERALLY AVAILABLE

Azure Arc-enabled SQL Managed Instance –
Business Critical

PREVIEW

Azure Arc-enabled PostgreSQL



Supports all connectivity modes



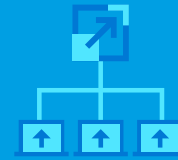
Always up to date

Automated updates
No downtime, evergreen



Multi-layer security

Comprehensive encryption
Azure RBAC & Policy



Elastic scale

Scale up and down
Pay for what you use



Simplified DevOps

Deploy in seconds
Built in HA/DR



Any infrastructure



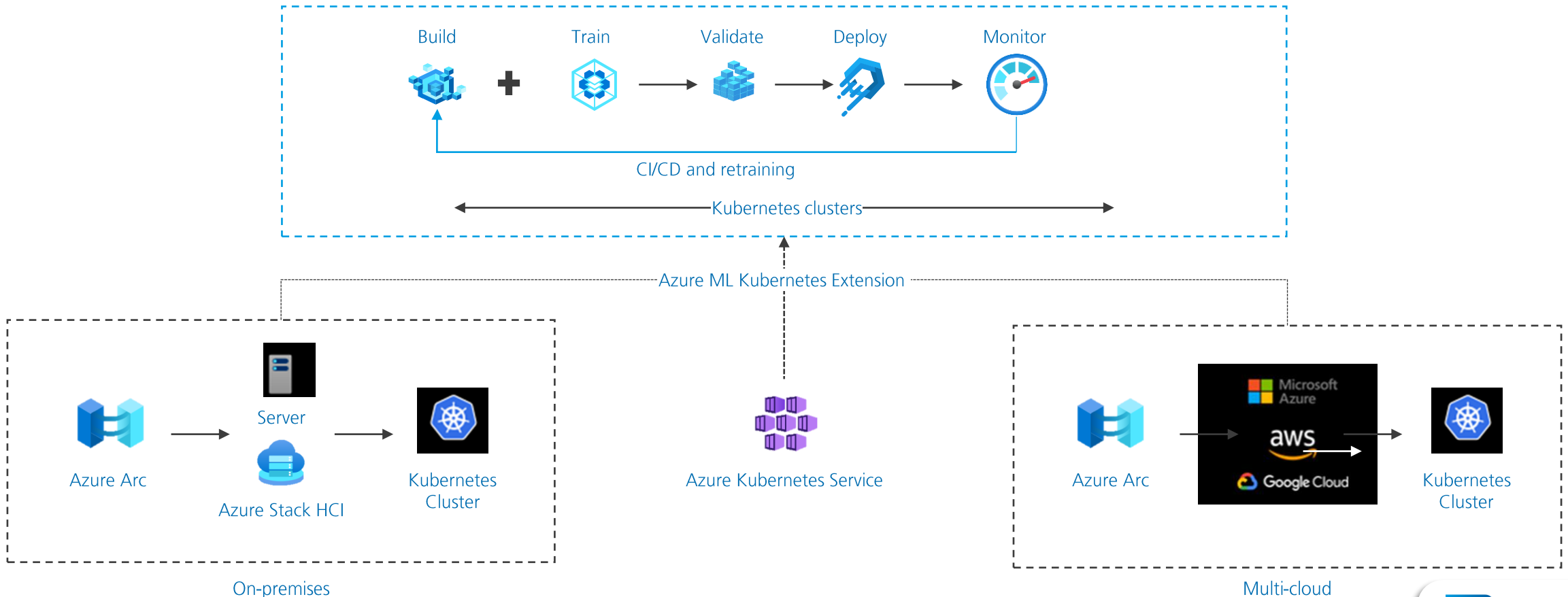
Azure Arc-enabled machine learning

GENERALLY AVAILABLE

Bring fully operationalized machine learning to on-premises and multicloud



Azure Machine Learning





Cloud-native patterns and practices help us deliver the factory solutions that are a key to our future success. Azure Arc-enabled data services help make this possible for us.

Jason Wallin

PRINCIPAL ARCHITECT, JOHN DEERE

Azure Arc-enabled Servers pricing

Azure Arc is free to install. Basic management services like inventory, tagging, server organization, RBAC, and querying with Azure Resource Graph are free. Paid services are:



Microsoft Defender for Cloud \$5/server/month (Plan 1) or \$15/server/month (Plan 2)

Free for the first 30 days, with 500MB/server included data. \$0.02/server/hr.



Azure Monitor \$2.30/GB [pay-as-you-go]

Billed for log analytics, tests, metrics, alerts, and notifications. 5GB per billing account/month is included



Microsoft Sentinel \$2/GB-ingested [pay-as-you-go]

Billed for volume of data ingested for analysis in Microsoft Sentinel, stored in the Azure Monitor Log Analytics workspace



Azure Update Manager \$5/server/month [pay-as-you-go]

Charged at a daily prorated value of \$0.16/server/day. Only charged for days when Arc servers are connected and managed



Azure Policy Guest Configuration \$6/server/month

Policies assigned by Defender for Cloud, ESUs, or on Azure Stack HCI resources are exempt

New cloud billing model for SQL Server (pay-as-you-go*)

Better cost efficiency when paying only for what you use



SQL Server pay-as-you-go
licensing enabled by Azure Arc
(per core per month/hour)

Pricing	Monthly rate	Hourly rate
Standard Edition	\$73	\$0.100
Enterprise Edition	\$274	\$0.375



Optimize asset capitalization

- Organizations that focus on EBITDA and capitalized expenses prefer to purchase their licenses
- Customers that bill on a cost-plus or other expense-based chargeback model will prefer the Pay-As-You-Go model



Optimize upfront costs

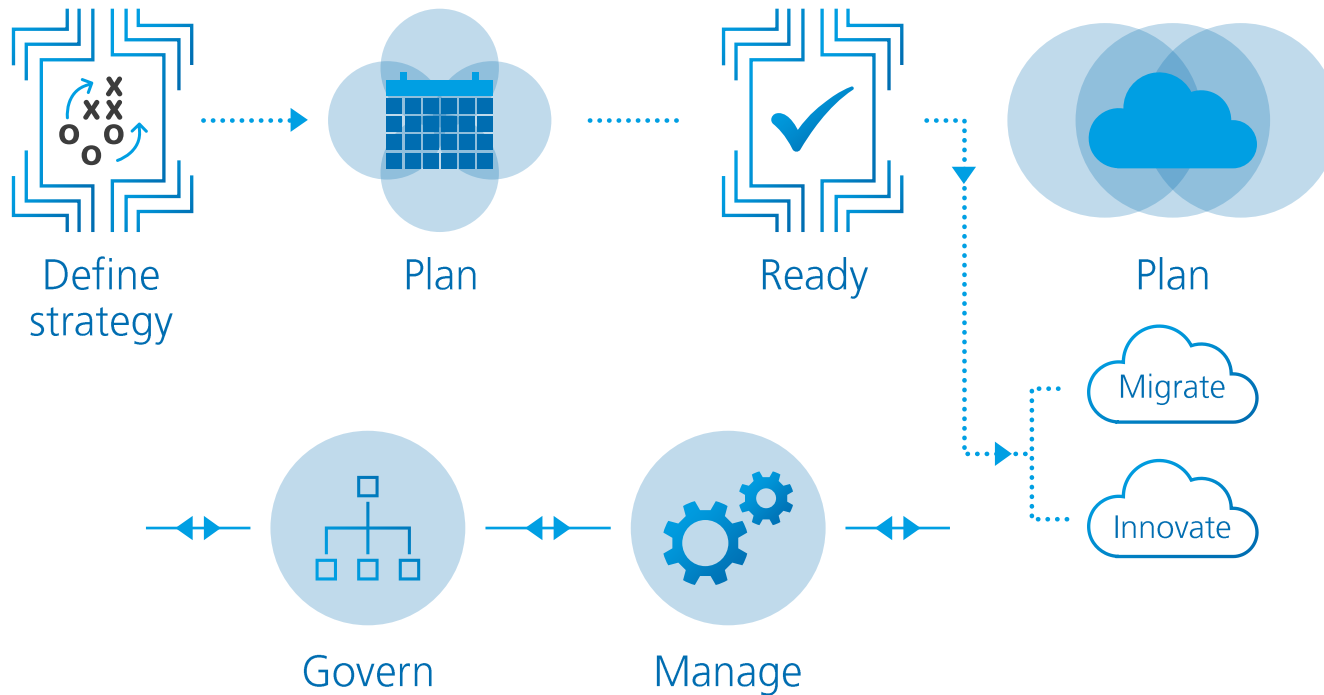
- Pay-As-You-Go doesn't have any upfront costs and is billed monthly but in the long term it may have a higher TCO



Optimize for periodic consumption

- Reduced IP cost of periodic workloads such as of ERP, payroll, giving campaigns and others
- Scale down the entire VM or stop SQL Server instance

Complete guidance for an adaptive cloud approach



[Microsoft Cloud Adoption Framework for Azure](#) | [Microsoft Azure](#)

Start with the cloud adoption framework to guide your cloud journey and build on it using the hybrid adoption scenario guidance

-  Build skills across your team with Microsoft Learn
-  Accelerate deployment with Reference Architectures
-  Optimise workloads with Azure Well-Architected
-  Apply best practices to rapidly onboard
-  Review technical documentation on featured products

Next steps

Install Azure Arc

Gain visibility into your entire on-premises and multicloud estate for a single pane of glass

Manage and secure

Get started using Microsoft Defender for Cloud, Azure Monitor, Copilot, and more

Azure Migrate and Modernize

Utilize the Azure Migrate and Modernize program to deploy Arc at scale and securely move to the cloud with proven best practices and incentives to accelerate

Learn More

Azure Arc Jumpstart:

<https://aka.ms/AzureArcJumpstart>

Technical documentation:

<https://aka.ms/AzureArcDocs>

Azure Arc Learning Path:

<https://aka.ms/AzureArcLearn>

Azure Arc Learning Companion:

<https://aka.ms/pathways>

Azure Arc ESU Docs:

<https://aka.ms/arcesudocs>

Azure Arc Total Economic Impact Report:

<https://aka.ms/arcforresterstudy>

SQL Arc:

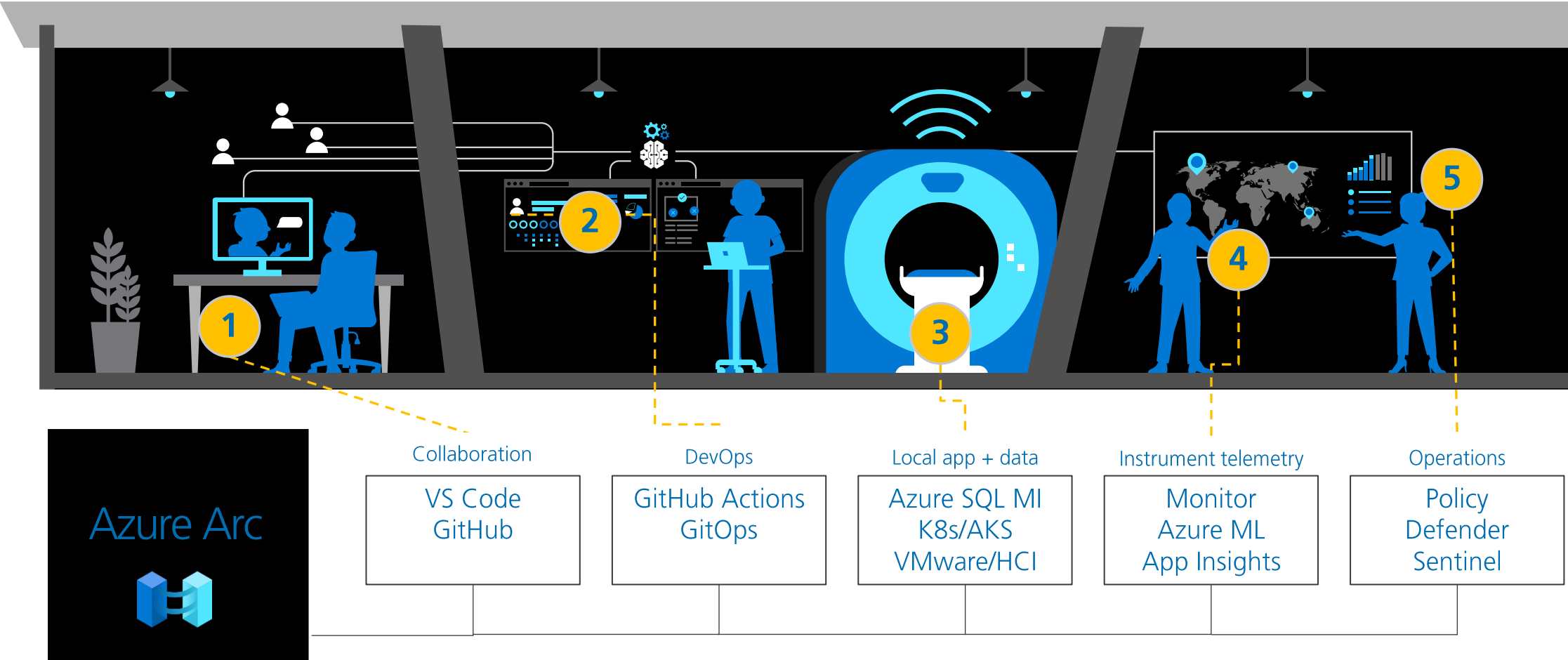
<https://aka.ms/ArcSQL>



Thank you

Azure Arc use cases

How it works: accelerate and scale innovation



Example: Clinical analytics

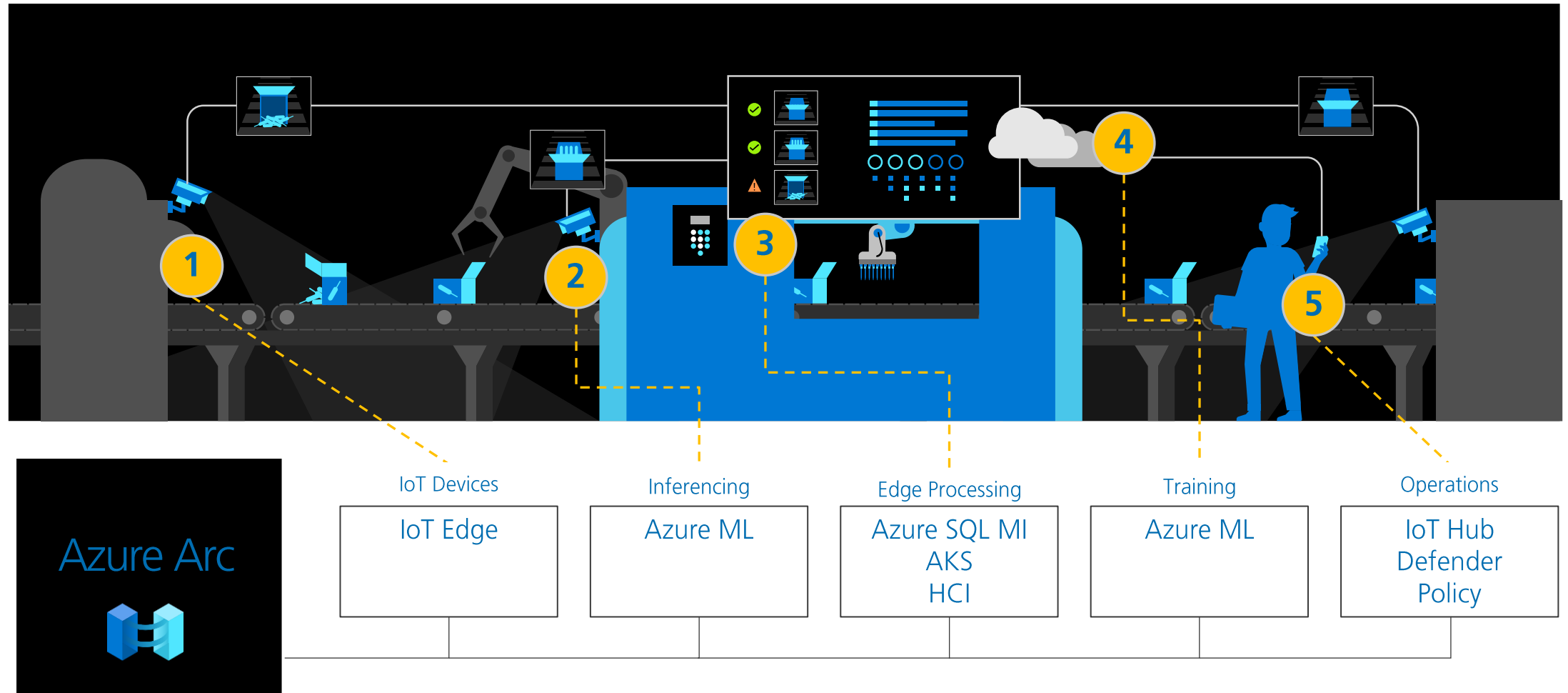


Azure Arc is a game-changer for us. It gives our customers choices and enables the continuous delivery of Kubernetes workloads from the cloud to the edge, at scale and as a service."

Thomas Gossler

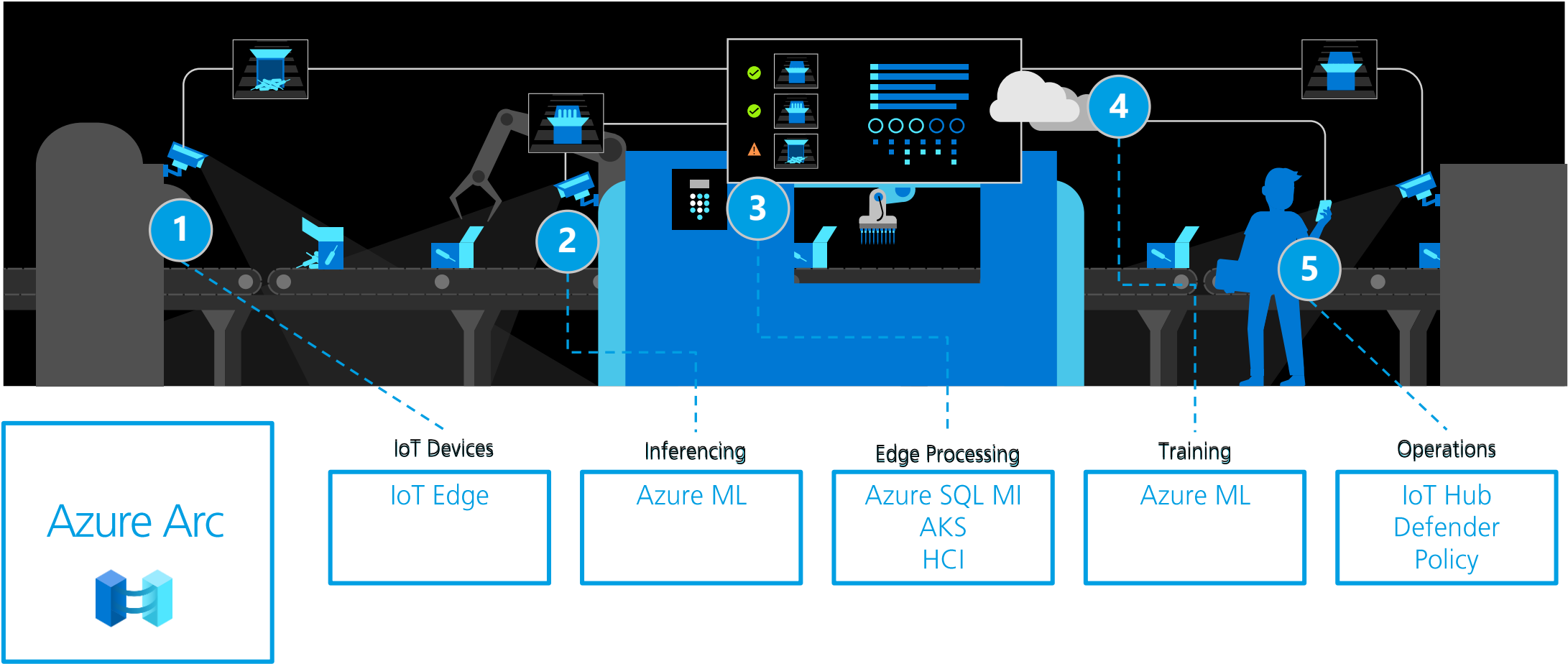
Chief Architect for Teamplay
Siemens

How it works: improve operational efficiency



Example: predictive maintenance for manufacturing

How it works: improve operational efficiency



Example: predictive maintenance for manufacturing



Reliable Rotation through Data-Driven Manufacturing



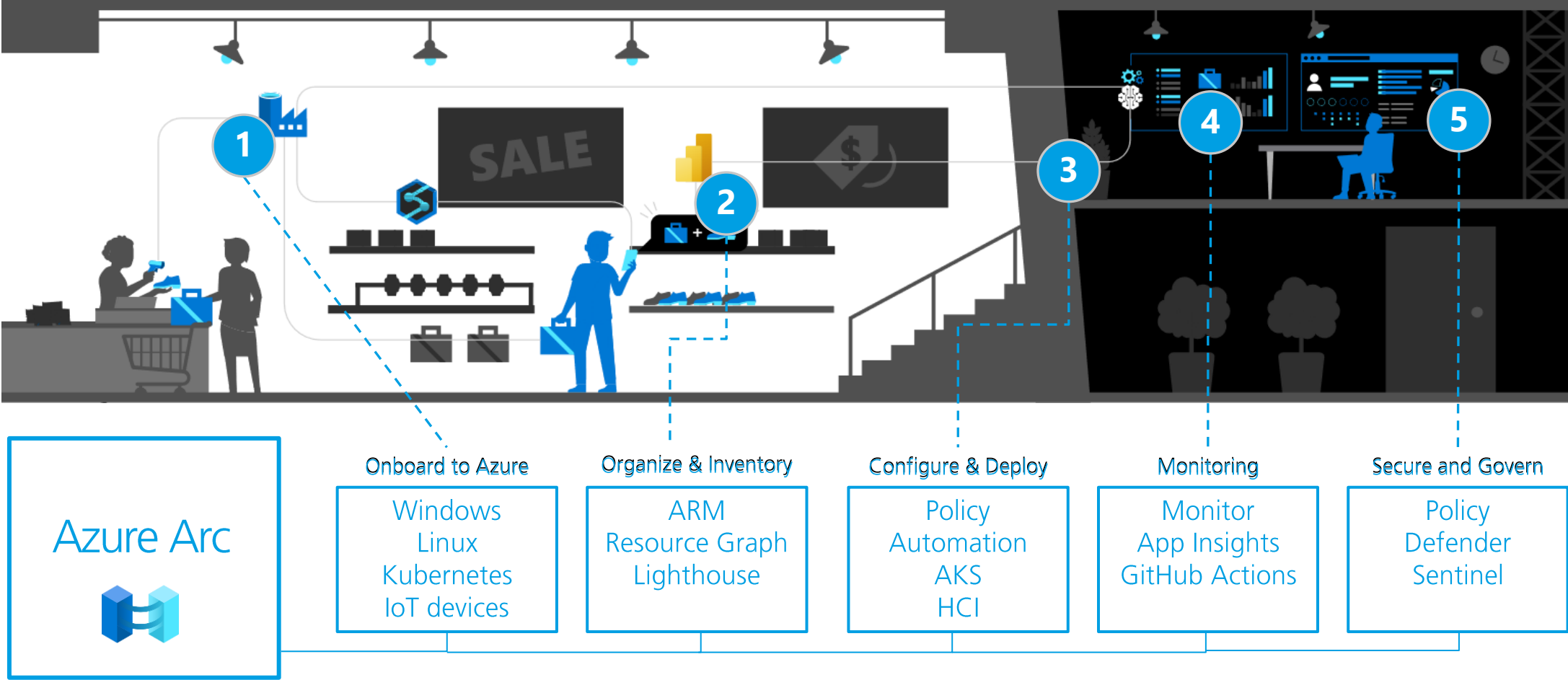
SKF is proud to be at the forefront of the hybrid cloud revolution. Azure Hybrid Cloud Solutions enable us to maximise our efficiency, grow our digital platform for world class manufacturing and empower the SKF Factories of the Future to innovate towards data driven manufacturing.

Azure Stack HCI, together with Azure Kubernetes Services, Azure Arc-enabled Data Services, and Azure SQL Edge for IoT create SKF a scalable platform across on-premises, cloud and edge—all with single-pane-of-glass while driving costs down.”

Sven Vollbehr
Head of Digital Manufacturing,
SKF Group



How it works: secure and govern digital estate



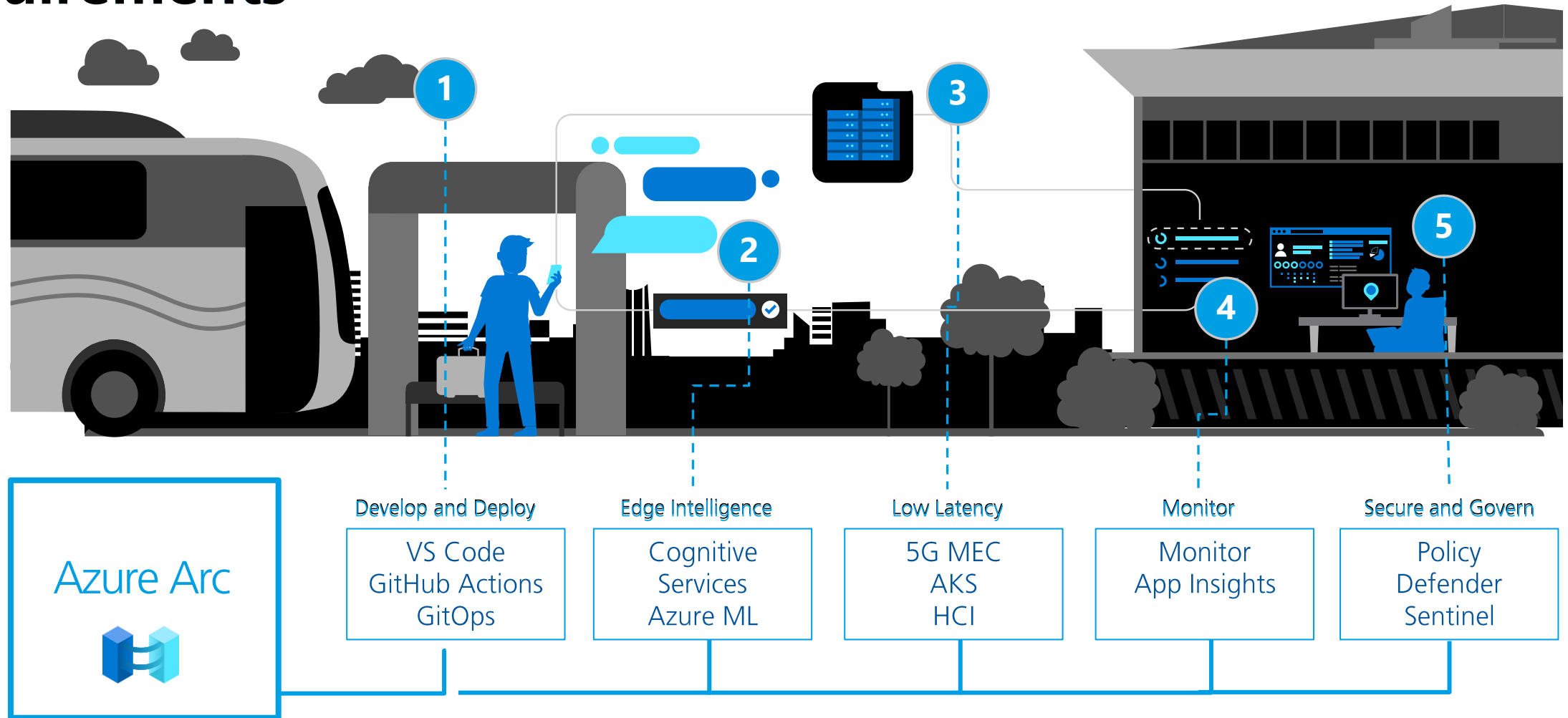
Example: Intelligent retail



Azure Arc supports us by freeing up our time from the day-to-day activities of the technical team and focusing on the customer value-add activities. It helps us to make sure that services are always on at the right time for the customer.”

Scott Clennell
Platform and Infrastructure Services Manager,
Greggs

How it works: meet custom latency and sovereignty requirements



Example: Smart city crosswalks

adaptive cloud & Azure Stack HCI

Customer Success Stories

Huge efficiency improvements
through a single pane of glass



Rapid innovation to respond
to market shifts



Maximizing production
efficiencies with data visibility



Enabled by
Azure Arc





1 Situation

SKF Group, a Swedish industrial leader, recognized the need to modernize its operations by digitizing the entire value chain.

This move aims to simplify business interactions and enhance decision-making processes.

2 Solution

SKF partnered with Microsoft to deploy Azure Stack HCI, a hyperconverged infrastructure solution, across its 100 factories.

This technology, along with Azure Arc, enables scalable virtual workloads and centralized management of hybrid cloud resources.

3 Results

The implementation of Azure Stack HCI and Azure Arc technologies has allowed SKF to automate and scale its hybrid cloud platform efficiently across multiple sites, leading to a more streamlined and data-driven manufacturing approach.

“We're an established industrial giant on our way to do something that even the other digital companies are not yet able to do. And we're having such good success with the help of Microsoft bringing that cloud capability on the edge.”

— Sven Vollbehr, Head of Digital Manufacturing, SKF

SKF Group's partnership with Microsoft to implement Azure Stack HCI and Azure Arc has digitally transformed their manufacturing operations across 100 factories, enabling a data-driven, scalable, and automated industrial ecosystem.

SKF

 **MEDIALINE**



1 Situation

Carnival Corporation has a fleet of 94 vessels across nine cruise line brands. Although it relies on satellite connectivity, it wanted to tap into a hybrid, multicloud environment for maritime and environmental compliance.

2 Solution

Two Carnival ships, the Costa Toscana and Seabourn Venture, are using Microsoft Azure Stack HCI along with Azure Kubernetes Service (AKS) and Azure Arc to improve processes like fleet and crew management and support sustainability efforts.

3 Results

Carnival Corporation is positively affecting the operations and safety of its ships and crews. And its customers ultimately benefit from more efficient back-end operations, more ships getting to port on time, and fewer disrupted itineraries. It's now exploring new ways to wow guests using Azure Digital Twins for its ships.

"Azure Kubernetes Service and Azure Arc ... [have] the potential to provide a strong reduction in the time required to roll out new software to multiple ships."

—Stefano Zunino, IT Architectures and Solutions Director, Carnival Corporation