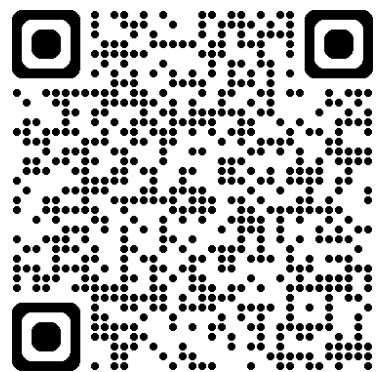




Azure Infra Updates: Le Ultime Novità Dal Cloud

(01100010 01101111 0110110)



From the Ignite Book of News

<https://news.microsoft.com/ignite-2024-book-of-news/>

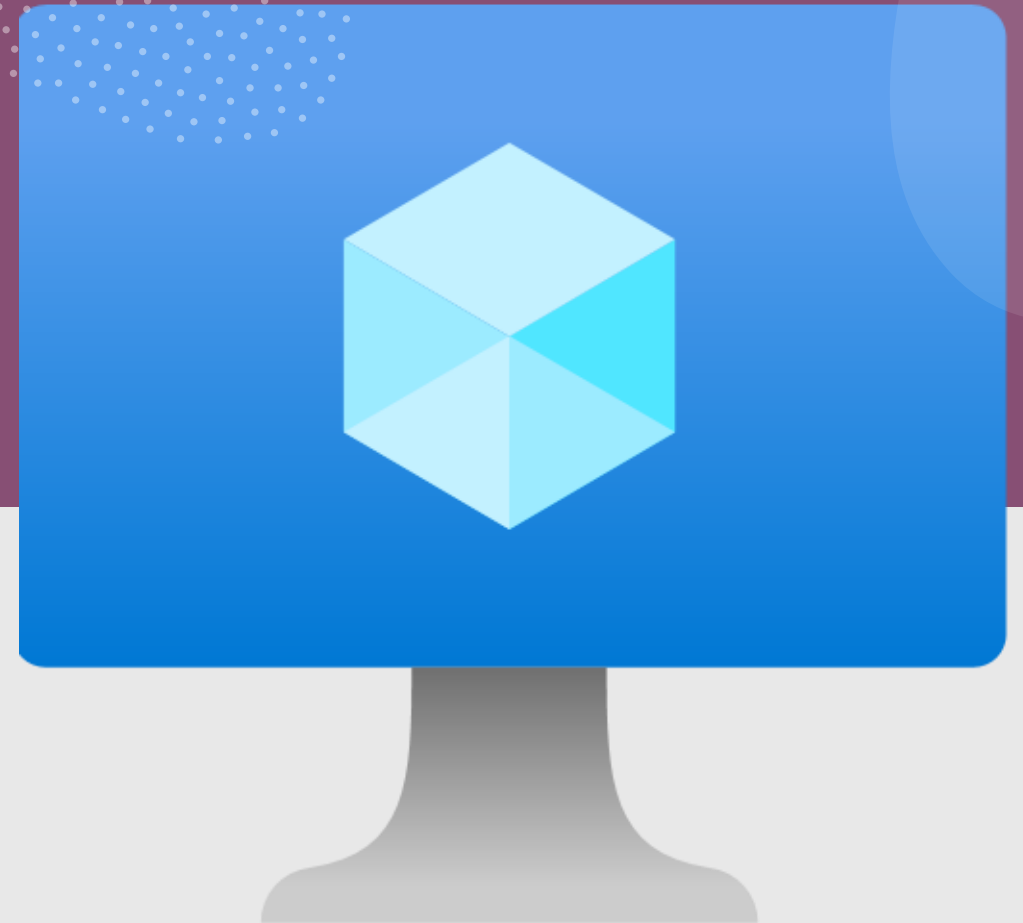
Oracle Database@Azure

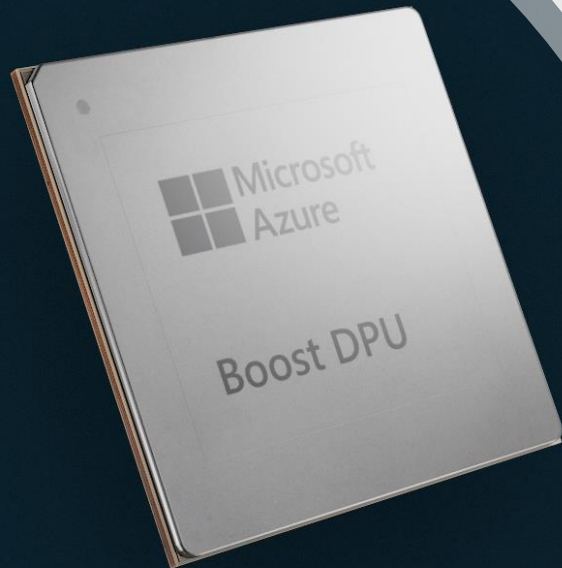
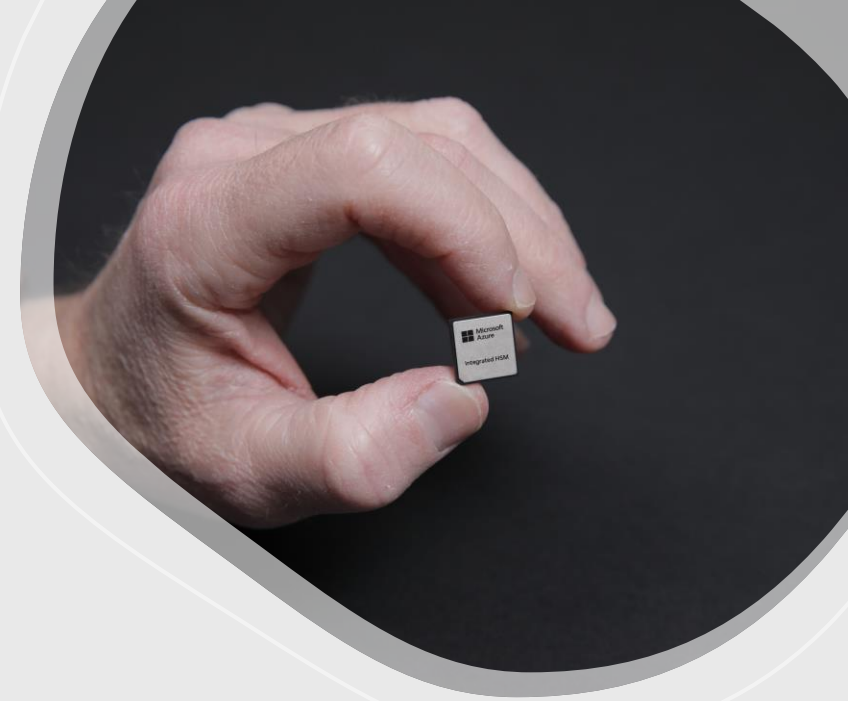
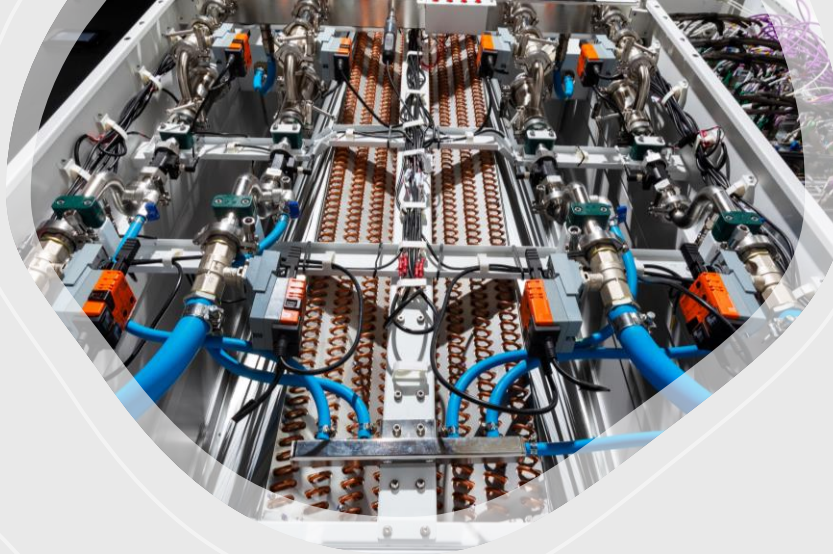
- New regions available
- Integration with Purview Data Map
- Open Mirroring with Fabric
- Advanced networking capabilities
 - UDR
 - NSG
 - Global Peering
 - Support for Private Link



New Azure VMs available

- **ND GB200 V6**
 - Private preview
 - NVIDIA Blackwell GB200
 - AI workloads
- **HBv5**
 - Custom AMD EPYC 9V64H
 - CPU with **H**igh **B**andwidth **M**emory – 5x faster than alternatives
 - NVIDIA Infiniband networking for every CPU



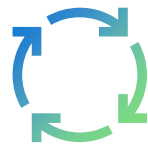


Silicon Updates

- Azure Integrated Hardware Security Module (HSM)
- Azure Boost DPU
- Liquid cooling heat exchanger unit

Introducing Azure Local

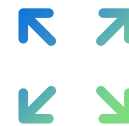
Cloud connected infrastructure
enabled by Azure Arc



Out of the box
cloud-based
operations



For VMs and
container-based
apps



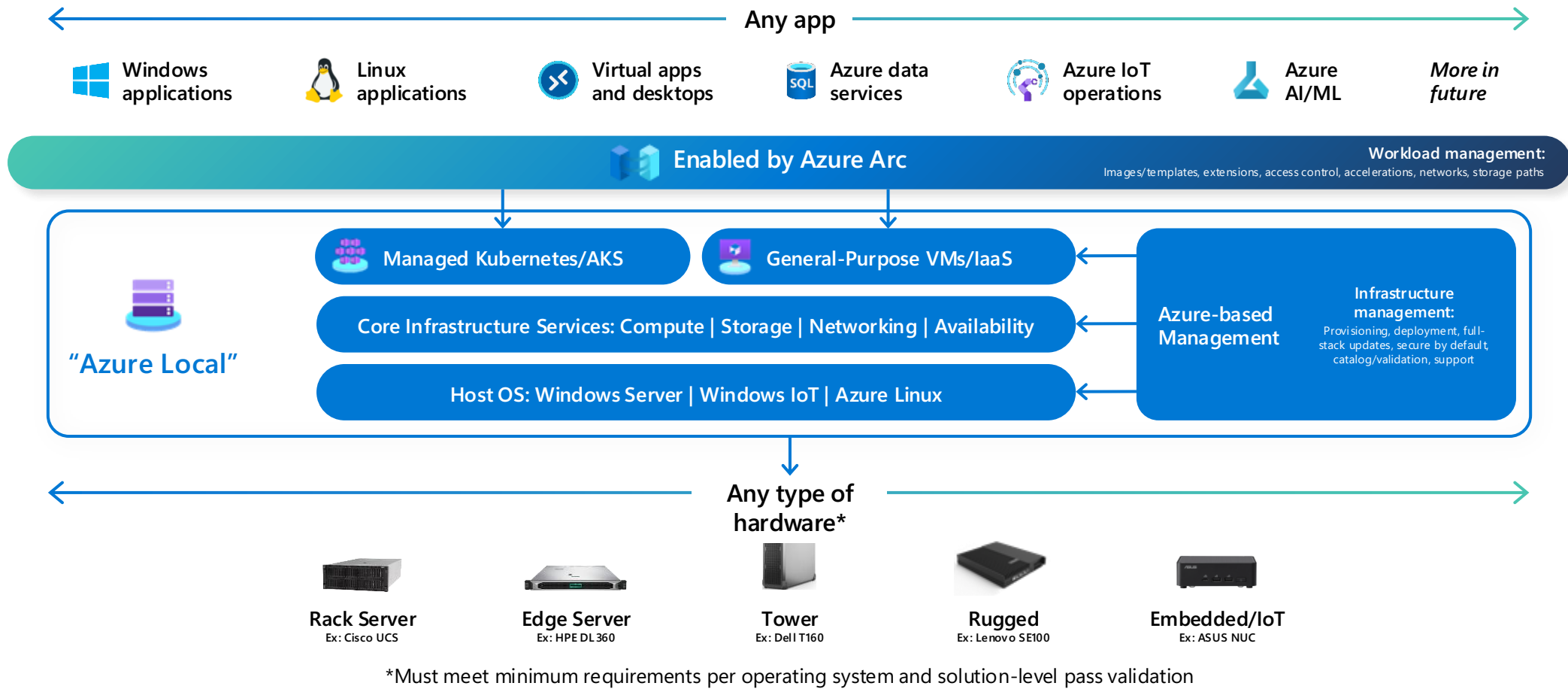
Right-sized solutions
on broad hardware
choices



Advanced security
by default

Azure Local: One flexible offering for all target use cases

Unified distributed infrastructure service spanning all hardware/scale points



*Must meet minimum requirements per operating system and solution-level pass validation

Azure Local replaces Azure Stack HCI



Consistent software platform, Portal, and APIs



Low-spec, low-cost edge servers

Simpler, smaller hardware for light computing requirements.

NEW PREVIEW



Connected servers (formerly Azure Stack HCI)

Choose from over 100 hyperconverged server platforms from major OEMs.

✓ **GA**



Disconnected operations

Meet strict data residency regulations with a permanently disconnected option.

NEW PREVIEW

Existing customers of Azure Stack HCI will transition seamlessly to Azure Local with the next software update.

Deploy distributed infrastructure from the cloud



Shift responsibility from on-site to central IT



Treat physical machines like cloud resources, using Azure portal, APIs, or even Terraform



Simple wizard, backed by powerful automation



Advanced options to customize the cluster, networking, and storage for your environment

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Home > Azure Arc | Azure Local >

Deploy Azure Local

Basics Configuration **Networking** Management Security Advanced Tags Validation Review

Choose whether to use a network switch for the storage network

No switch for storage Network switch for storage

Storage network adapters connect all machines directly

Storage network adapters connect to a network switch

Group network traffic types by intent

Choose traffic types to group together on a set of network adapters and which types to keep physically isolated on their own adapters

Group all traffic Group management and compute traffic Group compute and storage traffic

Management, compute and storage intent

Management and compute intent

Storage intent

Management intent

Compute and storage intent

Review + create

< Previous

Next: Management

Customize network values

Azure Local deployment

Data Center Bridging (for storage)

Storage traffic priority * ⓘ

3

System traffic priority * ⓘ

7

Storage traffic bandwidth reservation * ⓘ

50

Adapter properties

Jumbo frame size(bytes) * ⓘ

1514

RDMA protocol * ⓘ

RoCEv2

iWARP

RoCE

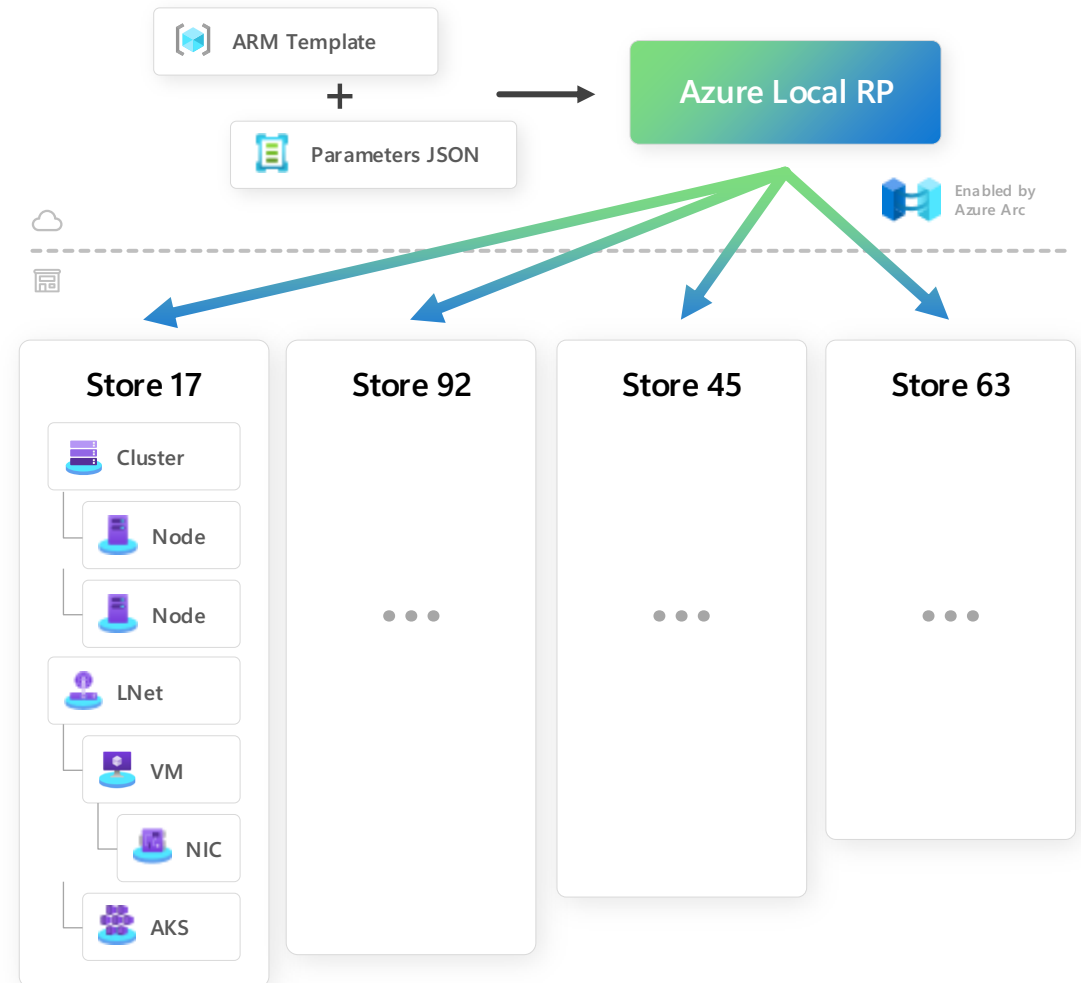
RoCEv2

Disabled

Save Discard

Repeat and scale with infrastructure-as-code

```
{} Contoso-Store-092.parameters.json X
29 "parameters": {
30   "clusterName": {
31     "value": "Contoso-Store-092"
32   },
33   "useDhcp": {
34     "value": false
35   },
36   "networkingPattern": {
37     "value": "hyperConverged"
38   },
39   "physicalNodesSettings": {
40     "value": [
41       {
42         "name": "Node1",
43         "ipv4Address": "100.156.94.11"
44       },
45       {
46         "name": "Node2",
47         "ipv4Address": "100.156.94.12"
48       },
49       {
50         "name": "Node3",
51         "ipv4Address": "100.156.94.13"
52       }
53     ]
54   },
55   "securityLevel": {
56     "value": "Recommended"
57   },
58   "clusterWitnessStorageAccountName": {
59     "value": "contoso092storageaccount"
60   }
61 }
```



One-click infrastructure updates from the cloud



Conveniently view and manage updates across locations in Azure Update Manager



Full-stack update package includes all Azure Local software plus OEM content ¹



Non-disruptive (workloads keep running)



You control when to apply updates

The screenshot shows the Azure Update Manager interface for 'Azure Local'. It includes a search bar, a 'Refresh' button, and a 'One-time update' button. Below these are filter buttons for 'Subscription == 1 selected', 'Resource group == All', 'Location == All', 'Status == All', and 'Update readiness == All'. A table lists resources with columns for Name, Status, Update readiness, and Current version. The table shows 10 resources, with 3 selected (checked boxes) and 7 with update(s) available. The status of the selected resources is 'Update(s) available', and their update readiness is 'Healthy'. The current versions range from 10.2405.0 to 10.2411.0.

Name	Status	Update readiness	Current version
Contoso-Store-1508	Up to date	Critical	10.2411.0
Contoso-Store-0695	Update(s) available	Healthy	10.2405.0
Contoso-Store-2240	Update(s) available	Healthy	10.2405.0
Contoso-Store-0137	Update(s) available	Healthy	10.2408.2
Contoso-Store-1424	Up to date	Healthy	10.2408.0
Contoso-Store-0869	Up to date	Healthy	10.2411.0
Contoso-Store-0773	Update(s) available	Healthy	10.2405.0
Contoso-Store-0774	Update(s) available	Healthy	10.2405.0
Contoso-Store-0781	Up to date	Healthy	10.2408.1
Contoso-Store-0546	Update(s) available	Healthy	10.2405.0

Showing 1 - 10 of 10 results.

¹: Firmware and driver packages available for Premier solutions like Dell APEX Cloud Platform and Lenovo ThinkAgile MX455 V3

Central visibility across all your locations



Monitor infrastructure, VMs, and Kubernetes from the Azure portal, enabled by Azure Arc



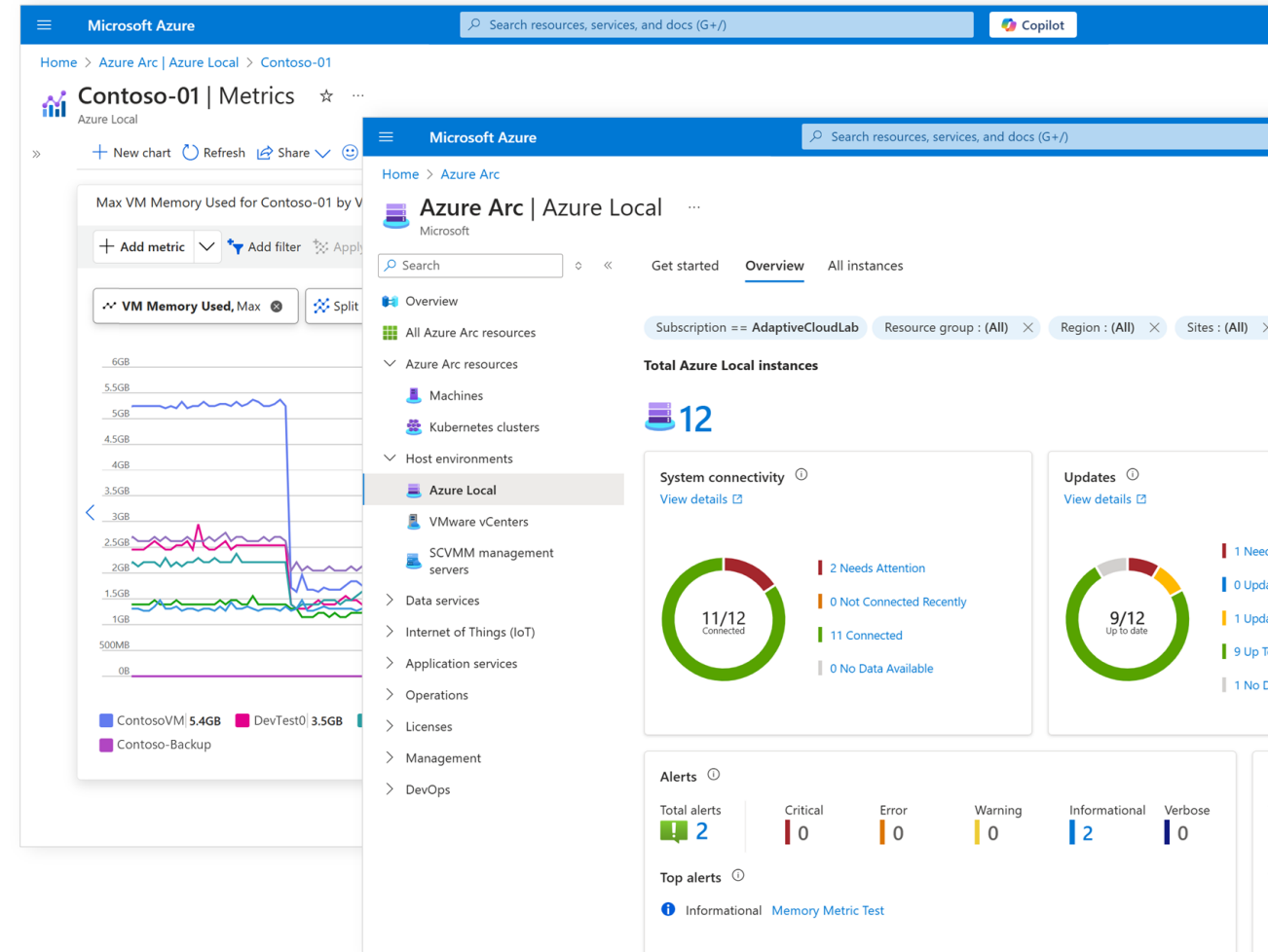
Ready-made dashboards you can customize



50+ standard metrics for infrastructure cover hypervisor, storage, and networking



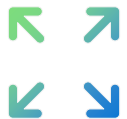
Set alert rules to send email and more



Full-featured, general-purpose virtual machines



Run traditional apps in VMs with your own images or Azure Marketplace images



Total flexibility to customize VM specs, networking, storage, and configuration



Use familiar Azure portal and automation for cloud-consistent VM operations



VM extensions for monitoring, security, updates, AD join, custom script, and more

Microsoft Azure Search resources, services, and docs (G+) Copilot

Home > Azure Arc | Azure Local > Contoso-01 >

Create an Azure Arc virtual machine

1 Basics 2 Disks 3 Networking 4 Tags 5 Review + create

Instance details

Select the custom location for your new virtual machine. Some custom locations may support more than one kind of virtual machine.

Virtual machine name *	My-VM
Custom location * ⓘ	Contoso-01-CustomLocation
Virtual machine kind * ⓘ	Azure Stack HCI
Security type * ⓘ	Trusted launch
Storage path * ⓘ	<input checked="" type="radio"/> Choose automatically Storage path with high availability is selected automatically. Learn more
	<input type="radio"/> Choose manually Choose an existing storage path on this HCI cluster. Ensure that selected storage path has sufficient storage space. Learn more
Image * ⓘ	Ubuntu Server 24.04 LTS Manage VM images
Virtual processor count * ⓘ	4
Memory (MB) * ⓘ	8192
Memory type * ⓘ	<input checked="" type="radio"/> Static <input type="radio"/> Dynamic

Previous Next

Migrate VMs from VMware to Azure Local (preview)



Reduce your VMware costs and footprint with full-stack alternative



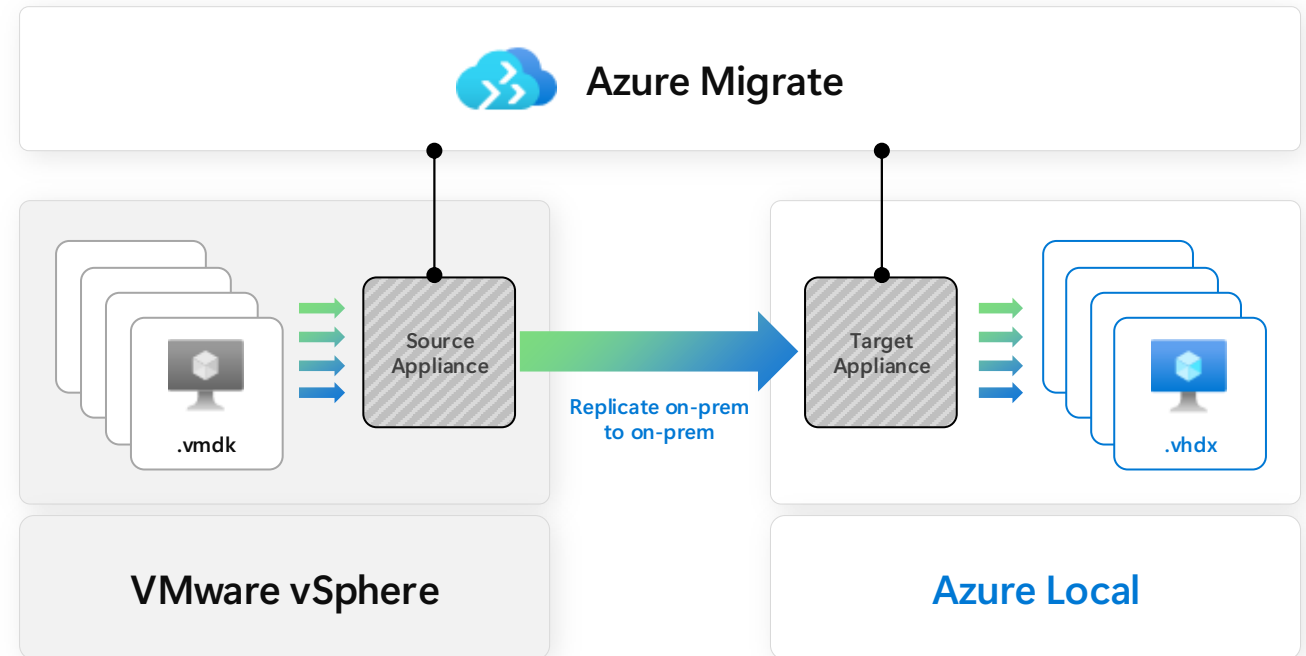
No need to change/rewrite apps



Copy and convert VMware VMDK to Azure Arc VM entirely on-premises



Guided workflow in Azure Migrate



[Try the public preview »](#)

NEW

Azure Kubernetes Service built-in and included



Deploy container and cloud-native apps leveraging open-source technology



Managed Kubernetes with AKS-consistent portal and APIs to simplify operations



Microsoft-provided storage (CSI) driver and images for Linux and Windows



Infra-as-code and continuous delivery with Terraform and GitOps support

Microsoft Azure | Search resources, services, and docs (G+)

Home > Azure Arc | Azure Local > Contoso-01 >

Create a Kubernetes cluster with Azure Arc

Basics | Node pools | Access | Networking

Project details

Select the subscription to deploy your Kubernetes cluster

Subscription *

Resource group *

Cluster details

Kubernetes cluster name *

Custom location *

Kubernetes version *

Primary node pool

Primary node pool contains Kubernetes Linux nodes that

Node size *

Node count *

Microsoft Azure | Search resources, services, and docs (G+)

Home > Azure Arc | Azure Local >

My-AKS-Cluster

Kubernetes - Azure Arc

Search

- Security (preview)
- Kubernetes resources (preview)
 - Namespaces
 - Workloads
 - Services and ingresses
 - Storage
 - Configuration
- Settings
 - Node pools
 - Extensions
 - Open Service Mesh
 - GitOps
 - Networking
- Policies
- Monitoring
 - Insights
 - Alerts
 - Metrics
 - Logs
 - Diagnostic settings
 - Workbooks

Essentials

Subscription (move)	: Contoso	Last connectivity
Subscription ID	: eba548b-cb71-4663-9cda-a42bfa0c7bc9	Distribution
Resource group (move)	: Contoso-01-RG	Infrastructure
Status	: Connecting	Agent version
Location	: Contoso-01 (East US)	Kubernetes version

Tags (edit) : Add tags

Properties | Monitoring

Kubernetes service - Azure Arc

Agent version	1.21.10	Network
Managed identity certificate	January 5, 2025 at 10:21 AM PST	Logic
Kubernetes version	1.29.4	Network
Total node count	5	Extensions
Total core count	20	micro
		azure

Bring Azure app, data, and AI services anywhere

Management services



Portal



Copilot



Graph



Identity



Defender



Monitor



Updates



Policy



Support



Billing

Cloud region

Distributed location



Enabled by
Azure Arc

Popular



Windows and Linux



Azure Virtual Desktop



Azure IoT Operations

App services



App Service



Functions



Logic Apps

Data services



Arc-enabled SQL Server



Managed instance



PostgreSQL

AI services

NEW



Video Indexer



Local AI search (preview)



Machine Learning

Foundational services



Virtual machines



Kubernetes services



Logical networks



Storage paths

Azure Virtual Desktop with Azure Local

Microsoft Azure | Search resources, services, and docs (G+)

Home > Azure Virtual Desktop

Azure Virtual Desktop | Host pools

Subscription equals all | Resource group equals all | Location equals all

Showing 1 to 4 of 4 records.

Name	Location	Host po...	Load bal...	Applicati...
Regional-EastUS	East US	Pooled	Breadth-first	29
Regional-WestEurope	West Europe	Pooled	Depth-first	17
Local-Site337	Custom Location	Pooled	Depth-first	6
Local-Site092	Custom Location	Pooled	Depth-first	1

Microsoft Azure | Search resources, services, and docs (G+)

Home > Azure Virtual Desktop | Host pools > Local-Site337

Local-Site337 - Session hosts

Status: 12 selected | Drain mode: 2 selected

Name	Health state	Total sessions	Drain mode	VM Location	Subscription	Agent version
win10multivm1.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win10multivm2.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi05.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi07.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi08.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi09.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi10.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100
win11multi-vm20.poc01.local	Available	10	Off	-	AdaptiveCloudLab	1.0.10004.2100

Azure AI services with Azure Local (preview)

NEW



Local AI Search

Search on-premises data with small and large language models

Private Preview



Azure ML Catalog

Deploy and manage validated AI models from the cloud

Private Preview

[Sign-up now »](#)

Accelerate demanding workloads with GPUs



Over 50 GPU-capable platforms with NVIDIA A2, A16, A40, and others



Dedicate whole GPUs to workloads to maximize AI/ML performance



Partition GPUs to increase density with virtual apps and desktops



VMs with GPU partitioning support
live migration and failover NEW

virtual machine kind ⓘ Azure Stack HCI

Security type * ⓘ Trusted launch ▼

Storage path * ⓘ Choose automatically
Storage path with high availability is selected automatically. [Learn more](#) ↗

Choose manually
Choose an existing storage path on this HCI cluster. Ensure that selected storage path has sufficient storage space. [Learn more](#) ↗

Image * ⓘ ▼
[Manage VM images](#)

Virtual processor count * ⓘ

Memory (MB) * ⓘ

Memory type * ⓘ Static
 Dynamic

GPU Assignment * ⓘ Add GPU

Type

Available partition size ⌵


Previous Next

* GPU assignments in Azure Arc coming December 2024

Low-spec, low-cost options for edge use cases

NEW


Azure Stack HCI Requirements at launch	Azure Local ¹ Requirements at launch
Windows Server certified	Windows Server certified
Min. 2+ machines	1+ machine
Min. 4+ disks per machine	1+ SSD per machine ²
Min. 10-Gbps w/RDMA	1 Gbps/2.5 Gbps Ethernet ³
Active Directory required	Doesn't require AD ⁴



SuperMicro SYS-E302
Fan-less server



Dell MC-4000r/z + MC-4510c
Rugged two-sled chassis



HPE MicroServer Gen11
Micro tower server



Lenovo ThinkEdge SE350v2
Half-width, half-depth 1U

Example possible solutions, pending validation

1: Reduced requirements allowed up to maximum of 3-node cluster 2: Excludes OS boot disk 3: Must support Hyper-V virtualization 4: In preview now, coming 2025

NEW

Introducing disconnected operations (preview)



Satisfy regulatory requirements by operating permanently disconnected from the cloud



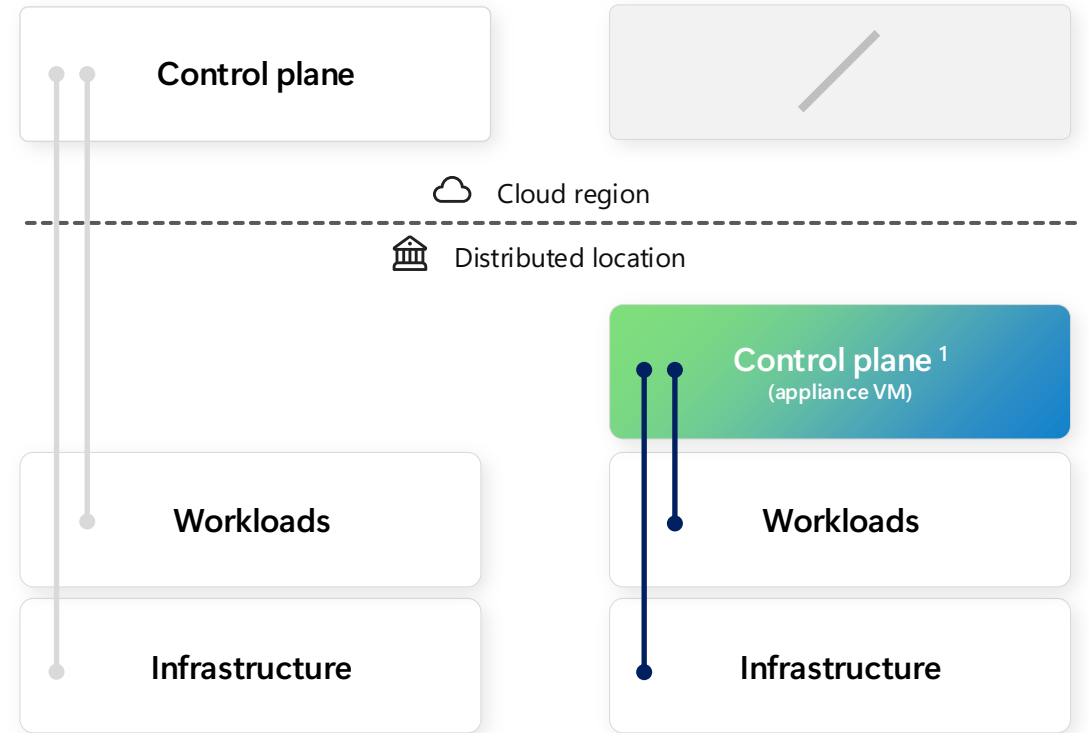
Host backend Azure resource manager, portal, and services in local appliance VM

Subset of services available:

Portal	ARM	Copilot	Key Vaults	Policy ²	Defender
Local	Machines	Kubernetes	Registries	AVD	Others

Azure Local (connected)

Azure Local disconnected



1: Available only to customers who prequalify based on industry, use case, and other considerations 2: Partial functionality

- + Create a resource
- Dashboard
- All services
- FAVORITES
- All resources
- Recent
- Resource groups
- Identity management
- Key vaults**
- Subscriptions
- Azure Arc
- Machines - Azure Arc
- Kubernetes - Azure Arc
- Tags
- Resource Explorer
- Marketplace
- Container registries

My Dashboard

Private dashboard

+ New dashboard Refresh Full screen Edit Export Clone Delete

Marketplace

Feedback


All resources

All subscriptions Refresh

sclusterkvuzk2Inx	Key vault
s-cluster	Azure Local
v-Host1	Machine - Azure Arc
v-Host2	Machine - Azure Arc
v-Host3	Machine - Azure Arc
v-Host4	Machine - Azure Arc

Azure Local with disconnected operations

Secure foundation for Azure Local infrastructure



All your apps

Azure Local



AI-enhanced central management and security

Centralized security management

Azure Policy, OS Config

Simplified compliance

Azure Policy, Azure Security Benchmarks

Security posture mgmt.

Azure policy, Azure Monitor, Microsoft Defender for Cloud

Simplified operational hardening

VM isolation

Hardware enforced VM isolation

Privileged access

JIT, JEA, PIM, PAM, CG

Network security

Datacenter Firewall
Secure DNS

Data-at-rest and integrity protection

Encryption and Data protection

SMB, BitLocker

System security & Zero trust

Hardened defaults, Trusted Boot, Certificates, Cryptography, Code Signing and Integrity, Device Attestation, Zero trust

Secured-core certification

Hardware Root-of-Trust

TPM 2.0, DRTM, Secure Boot

Silicon assisted security

Firmware, DMA, Memory, Secured Kernel

Highly regulated industries

Security assurance

Certification

Secure supply chain

Host component governance

Provenance, patching and continuous vulnerability management of OS components

Home > Microsoft Defender for Cloud

Microsoft Defender for Cloud | Recommendations

Showing subscription 'AdaptiveCloudLab'

Search

Refresh Download CSV report Open query Governance report Guides & Feedback Switch to classic view

General

- Overview
- Getting started
- Recommendations**
- Attack path analysis
- Security alerts
- Inventory
- Cloud Security Explorer
- Workbooks
- Community
- Diagnose and solve problems
- Cloud Security
 - Security posture
 - Regulatory compliance
 - Workload protections
 - Data security
 - Firewall Manager

Search by title / resource

Risk factors == All Risk level == All Resource type == 6 selected

Group by title:

Add filter

Title	Affected resources	Risk factors ⓘ
Machines should have a vulnerability assessment solution	49/106 resources	
Storage accounts should restrict network access using virtual network rules	47/53 Storage accounts	Exposure to the Internet
Machines should be configured securely (powered by MDVM)	19/21 resources	Exposure to the Internet Vulnerability
Diagnostic logs in Key Vault should be enabled	15/29 Key vaults	
Azure Local machines should meet Secured-core requirements	9/11 Azure Local	
Vulnerabilities in security configuration on your Linux machines should be remediate...	6/21 resources	Exposure to the Internet
Non-internet-facing virtual machines should be protected with network security gro...	6/14 Virtual machines	
Immutable (read-only) root filesystem should be enforced for containers	5/11 Kubernetes - Azure Arc	
Guest Attestation extension should be installed on supported Windows virtual machi...	5/5 Virtual machines	
Services should listen on allowed ports only	5/11 Kubernetes - Azure Arc	
Kubernetes clusters should disable automounting API credentials		

Microsoft Defender for Cloud with Azure Local

Introducing network security groups (preview)

NEW



Protect network access with inbound and outbound allow and deny rules



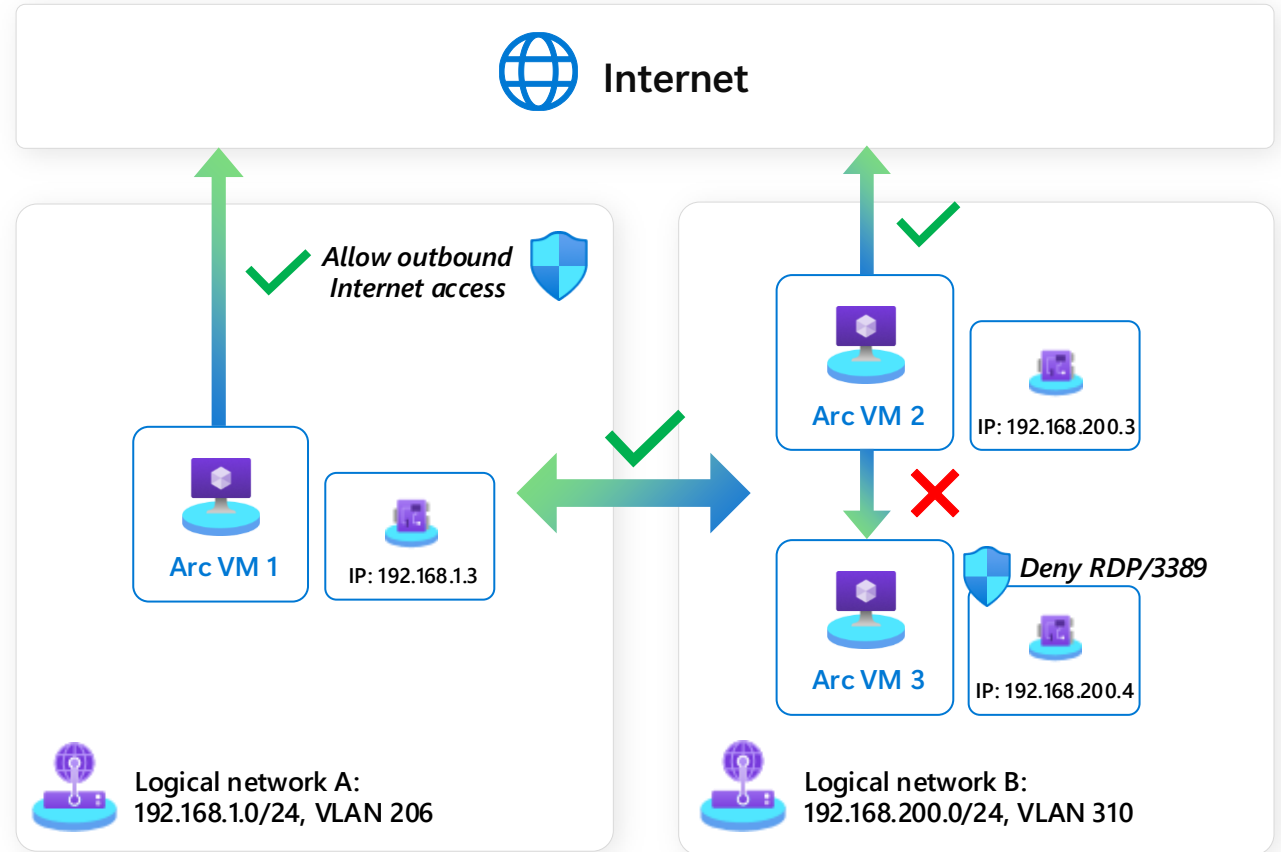
Complete 5-tuple control: source and destination IP, port, and protocol



Assign NSGs to individual VM interfaces or whole logical networks



Enforced within the virtual switch at the virtual port level



NetworkSecurityGroup-01

Azure Local Network Security Group

Search Delete Refresh

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Inbound security rules
 - Outbound security rules
 - VM network interfaces
 - Logical networks
 - Properties
 - Locks
- Automation
 - Tasks
- Help
 - Support + Troubleshooting

Essentials

Resource group : [Contoso-01](#) Security rules : 1 inbound, 0 outbound
Location : East US Associated with : [0 Logical network](#), [1 VM network interface](#)
Subscription : [AdaptiveCloudLab](#) Custom location : [Contoso-01](#)
Subscription ID : fbaf508b-cb61-4383-9cda-a42bfa0c7bc9
Tags ([edit](#)) : [Add tags](#)

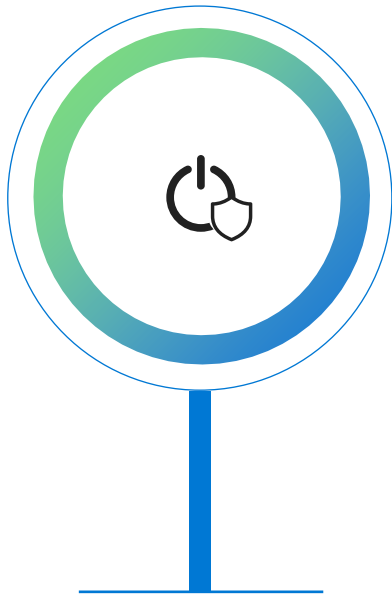
[JSON View](#)

Priority ↑	Name	Provisioning state	Port	Protocol	Source	Destination	Action
Inbound security rules							
300	RDP	✓ Succeeded	3389	Any	Any	Any	✓ Allow
310	SSH	✓ Succeeded	22	Any	Any	Any	✗ Deny
Outbound security rules							
100	ContosoApp	✓ Succeeded	80, 443	TCP	LogicalNetwork	LogicalNetwork	✓ Allow
200	AllowLogs	✓ Succeeded	80, 443	TCP	Any	Internet	✓ Allow
4000	DenyAllOutBound	✓ Succeeded	Any	Any	Any	Any	✗ Deny

Network security groups with Azure Local

Trusted launch for virtual machines (preview)

NEW



Secure Boot

Critical components of the OS and bootloader are provided from a trusted source



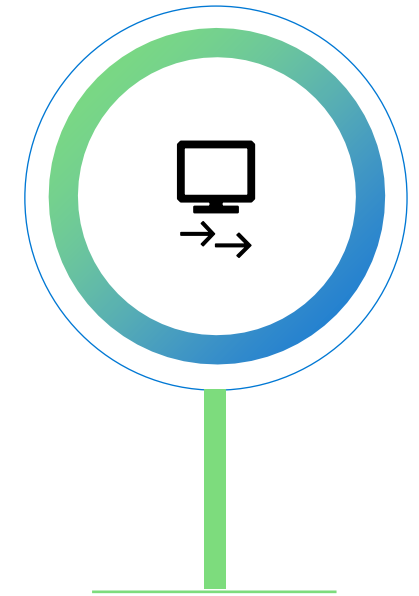
Boot Integrity

Extends security benefits of Secure Boot and flags known vulnerabilities



Guest Attestation

Built-in integration with Microsoft Azure Attestation service (MAA) to regularly verify TVM components



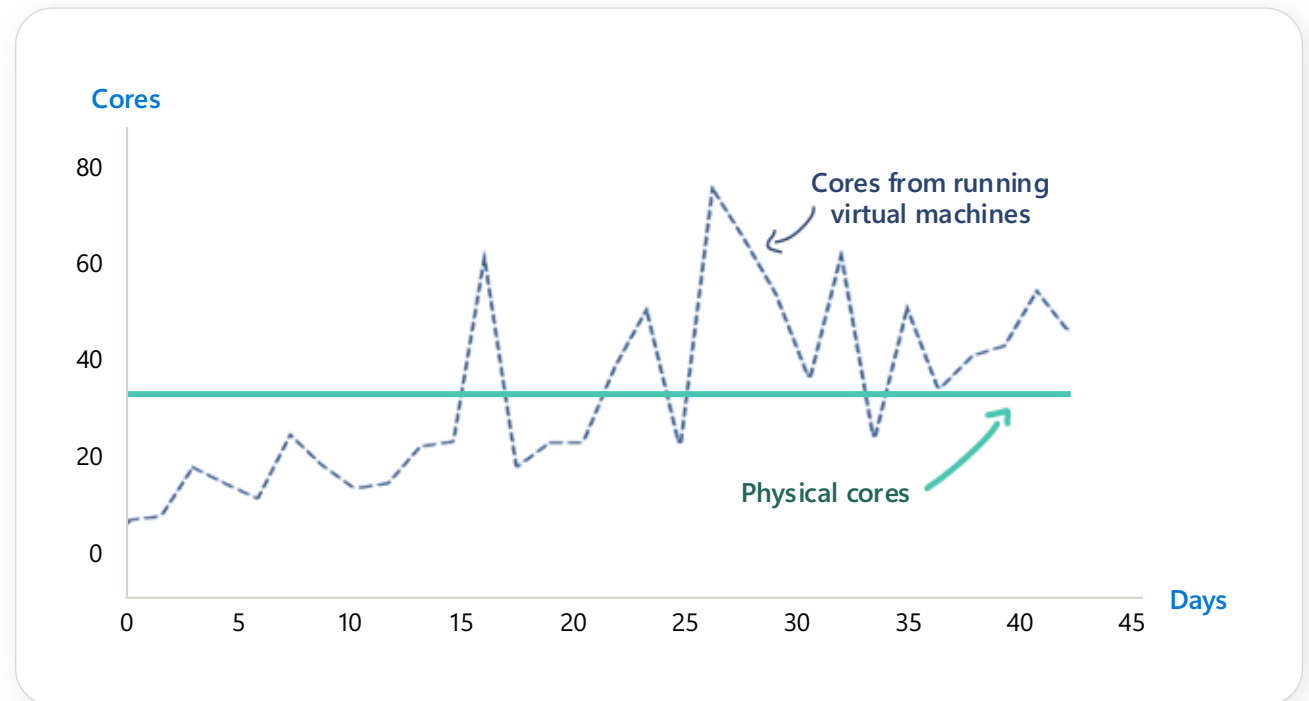
Seamless VM migration

Persists Arc VM secrets and keys to support Live Migration

What does Azure Local charge for?

\$10 USD/month
per physical processor core*

*Does not include
Guest OS licensing



Predictable

Doesn't vary with consumption, more VMs doesn't cost more



Simple

No math with memory, storage, or network ingress/egress



Efficient

Virtualize efficiently, with higher v-to-p density

Azure Local delivers simplicity and flexibility for licensing

How it works: License guests and apps separately



What you want to run:
Linux applications
Open-source software

What you buy:
OEM HW
+
Azure Local

Nothing else from Microsoft
See provider if fees apply



What you want to run:
A few Windows Server
roles or applications
persistent licensing

What you buy:
Validated OEM HW
+
Azure Local
+
Windows Server 2022
Standard(s)



What you want to run:
Unlimited Windows Server
roles or applications
persistent licensing

What you buy:
Validated OEM HW
+
Azure Local
+
Windows Server 2022
Datacenter



What you want to run:
Unlimited Windows Server
roles or applications
guest
subscription licensing

What you buy:
Validated OEM HW
+
Azure Local
+
Latest Windows Server
subscription guest licensing

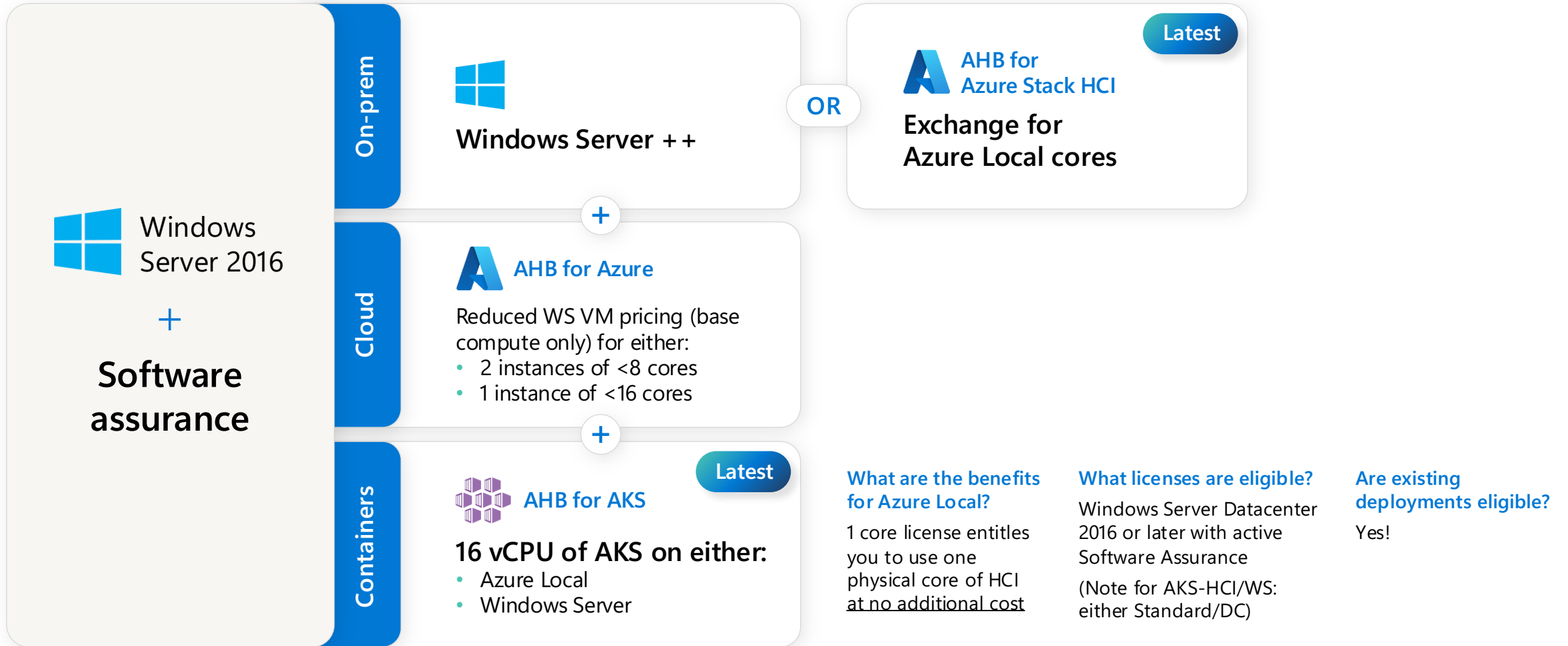
Host:
Subscription

Guest:
Perpetual or
subscription

Note: Valid for all Windows Server versions

Expanding Azure Hybrid benefits to the Edge

Each 16-core license covers:



Keep workloads protected after support ends

Extended Security Updates free in Azure or Azure Local for Windows Server and SQL Server

July 9, 2022

SQL Server 2008, 2008 R2
Extended Security Updates end

Get one more year of ESUs free
in Azure or Azure Stack HCI

July 12, 2022

SQL Server 2012 End of Support

Buy Extended Security Updates
to get 3 more years on-premises
(free in Azure or Azure Local)

January 10, 2023

Windows Server 2008 and 2008 R2
Extended Security Updates end

Get one more year of ESUs free
in Azure or Azure Local

October 10, 2023

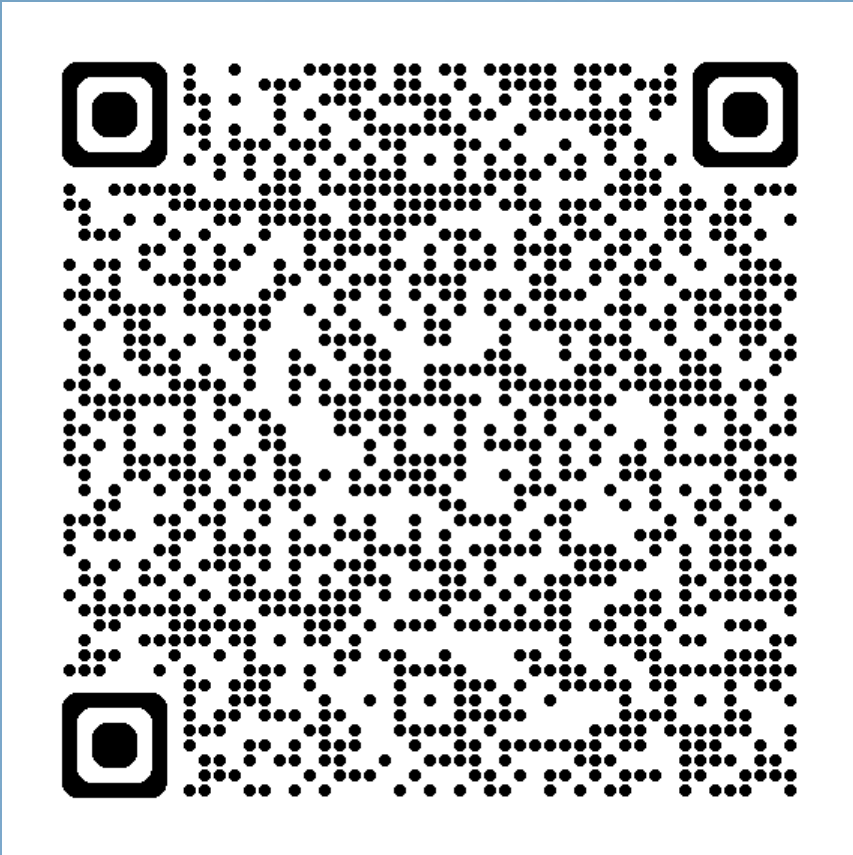
Windows Server 2012 and
2012 R2 End of Support

Buy Extended Security Updates
to get 3 more years on-premises
(free in Azure or Azure Local)



Additional info

<https://techcommunity.microsoft.com/blog/azurearcblog/introducing-azure-local-cloud-infrastructure-for-distributed-locations-enabled-b/4296017>



Almost-gone
services



Thank you!

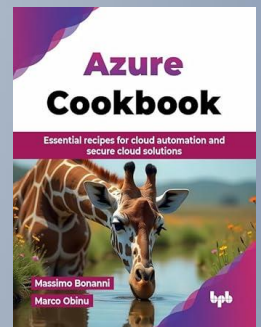
Marco Obinu

Technical Trainer @ Microsoft

- Geek to the 🦷
- Based in Genova, Italy
- 20+ years of experience in IT
- ❤️ Azure & Data platform
- Founder of Turchin – the community for Azure Lovers in Genova
- Former Microsoft MVP (Azure)
- 🛠️ DIY-addicted
- 🍺 lover



SCAN ME!



Social: <https://aka.ms/omegamadlab>