Azure Fundamentals

Compute

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9x Microsoft Certified

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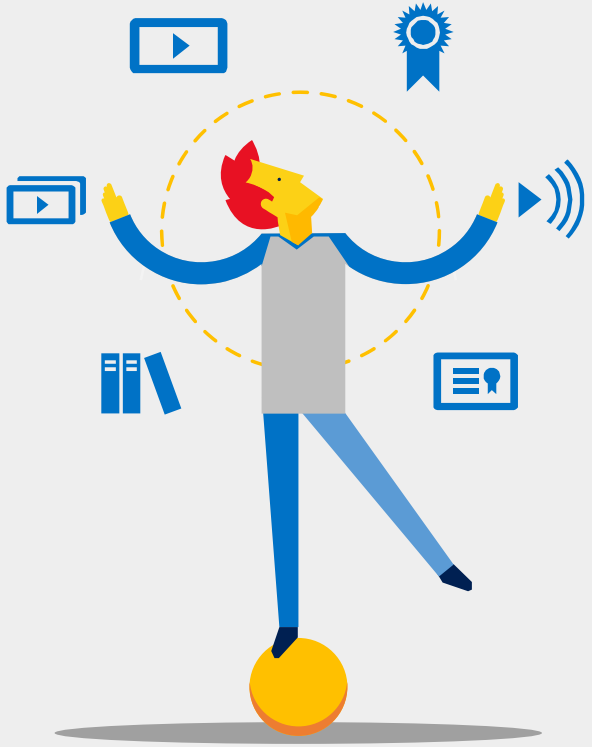
Cloud Computing

Cloud Computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet



Microsoft

Overview of cloud computing

Microsoft

- Characteristics of cloud-computing solutions:
  - On-demand self-service
  - Broad network access
  - Rapid elasticity
  - Measured service
- Advantages of cloud computing:
  - Access to a broad range of managed services
  - Minimized or eliminated capital expenses
  - Lowered operational expenses
  - Usage-based billing model
  - Improved agility

Cloud-computing models

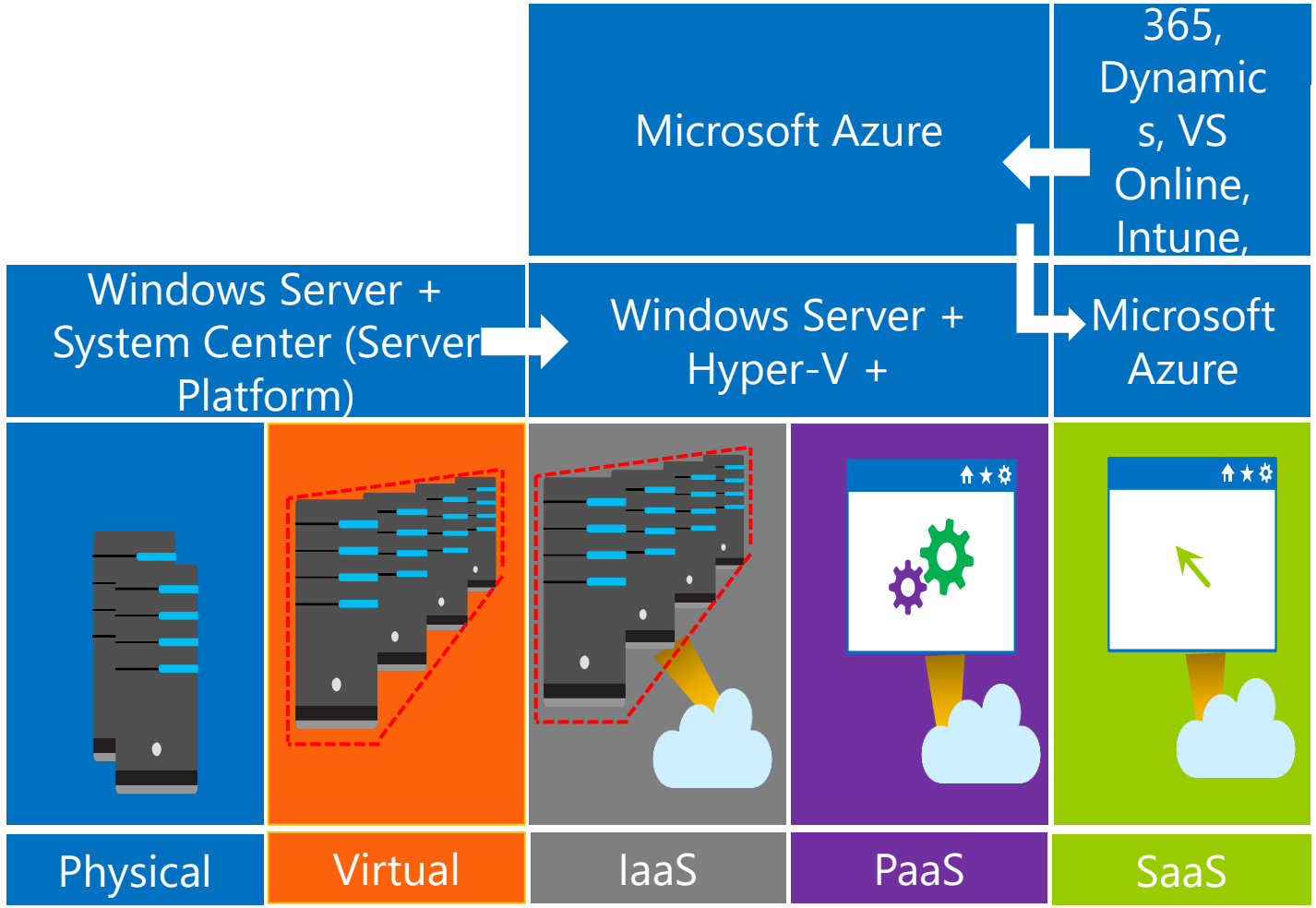
A **public cloud** is an infrastructure, platform, or application service that a cloud service provider delivers for access and consumption by the public

A **private cloud** is a privately owned and managed cloud that offers benefits similar to those of a public cloud, but is designed and secured for use by a single organization

A **hybrid cloud** is a technology that binds two separate clouds—public and private—together for the specific purpose of obtaining resources from both

Types of cloud services

Microsoft



	On-premises (Private Cloud)	Infrastructure (as a Service)	Platform (as a Service)	Software (as a Service)
		You Manage	Cloud Provider Manages	
	Data & Access	Data & Access	Data & Access	Data & Access
	Applications	Applications	Applications	Applications
	Runtime	Runtime	Runtime	Runtime
	Operating System	Operating System	Operating System	Operating System
	Virtual Machine	Virtual Machine	Virtual Machine	Virtual Machine
	Compute	Compute	Compute	Compute
	Networking	Networking	Networking	Networking
	Storage	Storage	Storage	Storage

Azure services

Microsoft

http://azureplatform.azurewebsites.net/

Compute
- Virtual Machines
- Virtual Machine Scale Sets
- Azure Container Service
- Azure Container Registry
- Functions
- Batch
- Service Fabric
- Cloud Services

Networking
- Virtual Network
- Load Balancer
- Application Gateway
- VPN Gateway
- Azure DNS
- Traffic Manager
- ExpressRoute
- Network Watcher

Storage
- Storage: Blobs, Tables, Queues, Files, Disks
- Data Lake Store
- StorSimple
- Azure Backup
- Site Recovery

Web & Mobile
- Web Apps
- Mobile Apps
- Logic Apps
- API Apps
- Content Delivery Network
- Media Services
- Search

Databases
- SQL Database
- SQL Data Warehouse
- SQL Server Stretch Database
- DocumentDB
- Redis Cache
- Data Factory

Intelligence & Analytics
- HDInsight
- Machine Learning
- Cognitive Services
- Azure Bot Service*
- Data Lake Analytics
- Power BI Embedded
- Azure Analysis Services

Internet of Things & Enterprise Integration
- Azure IoT Hub
- Event Hubs
- Stream Analytics
- Notification Hubs
- BizTalk Services
- Service Bus
- Data Catalog

Security + Identity
- Security Center
- Key Vault
- Azure Active Directory
- B2C
- Domain Services
- Multi-Factor Authentication

Developer Services
- Visual Studio Team Services
- Azure DevTest Labs
- VS Application Insights
- API Management
- HockeyApp
- Developer Tools
- Service Profiler*

Monitoring & Management
- Azure Portal
- Azure Resource Manager
- Azure Advisor
- Azure Monitor
- Log Analytics
- Automation
- Scheduler

Azure services

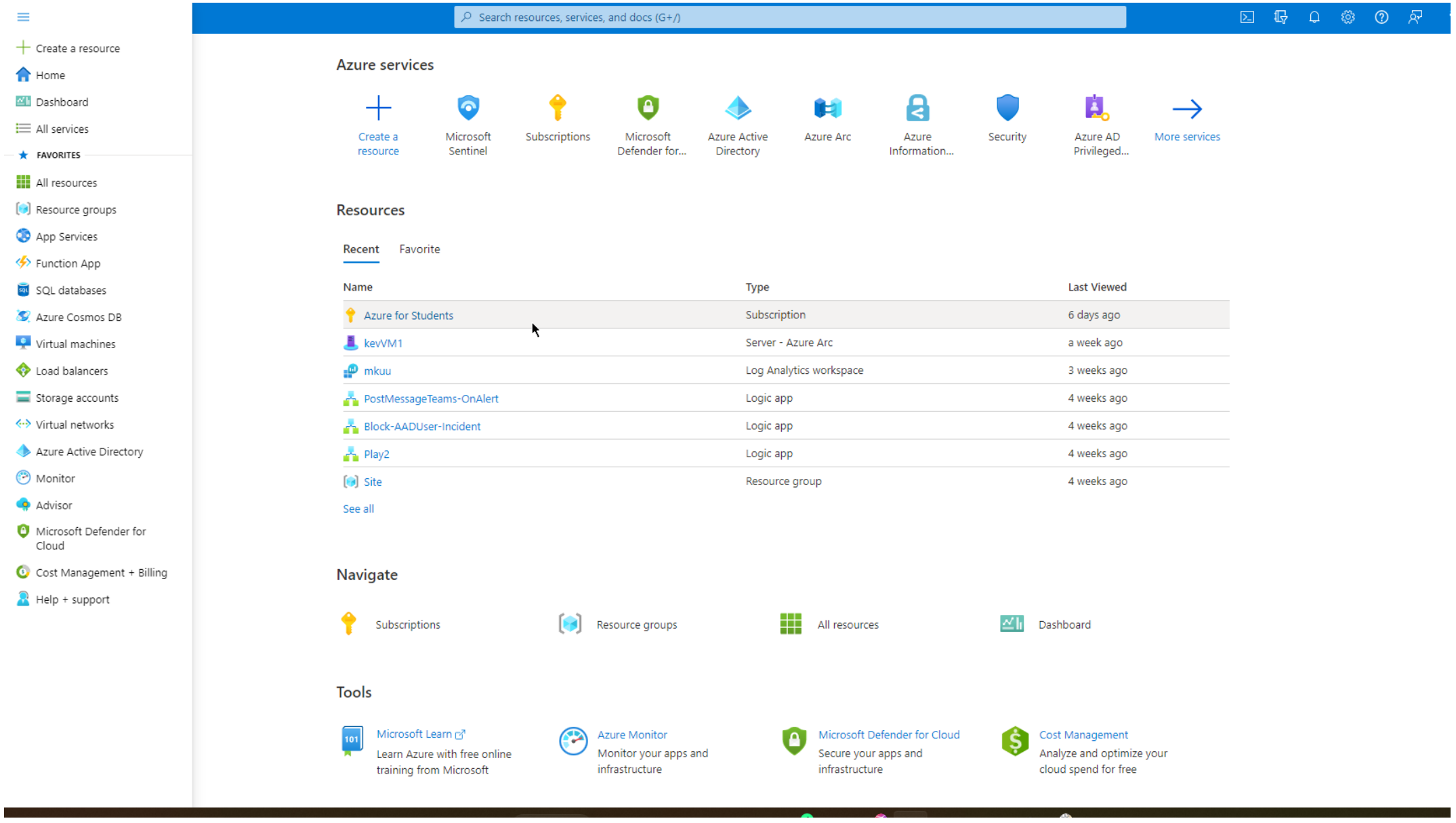
- Azure services allow you to:
  - Deploy and operate cloud-based applications
  - Host workloads in the cloud
  - Integrate cloud services with an on-premises infrastructure
- Datacenter placement follows the principle of pairing

Azure Vocabulary

Account	App Service app	Azure Resource Manager	Resource group
Region	Subscription	Storage account	Fault Domain Update Domain

The Azure portal- portal.azure.com

Microsoft

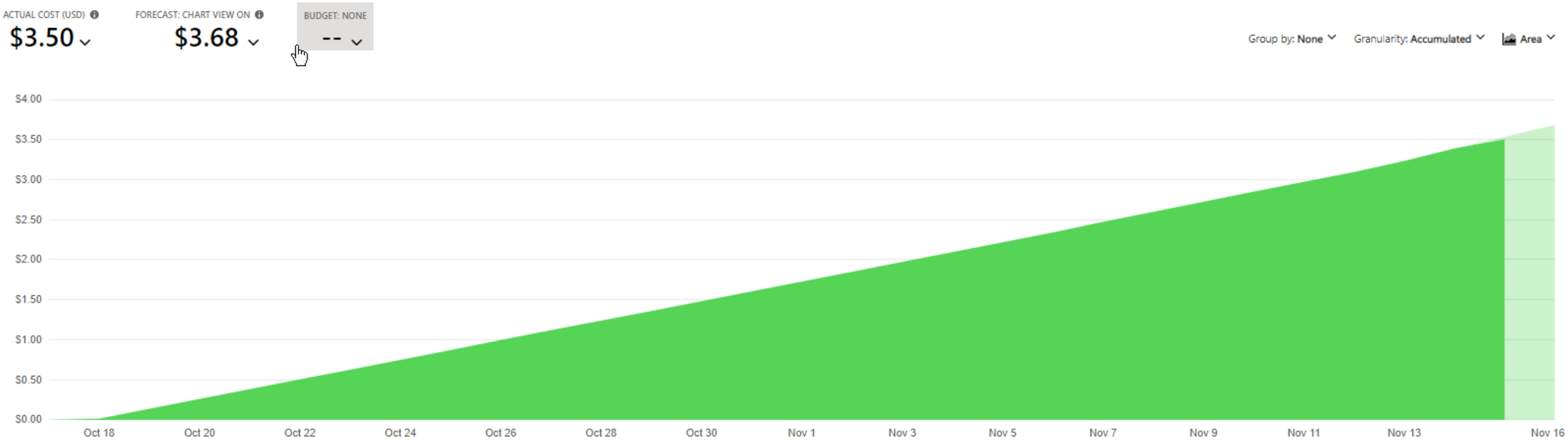


Client tools

- Windows PowerShell with Azure PowerShell modules:
  - Run commands and scripts to manage Azure from Windows, Linux, OS X
- Visual Studio with Azure SDK for .NET:
  - Build solutions targeting Azure
- Azure Cloud Shell:
  - Use command line interactively directly from within the Azure portal

Azure pricing

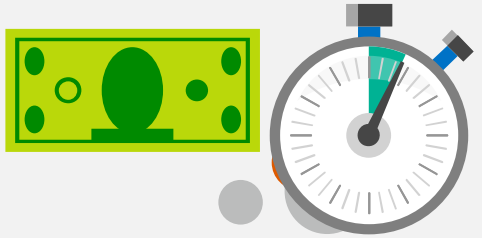
- No upfront costs
- No termination fees
- Pay only for what you use
- Per minute billing



Azure billing and support options

The most common Azure billing options include:

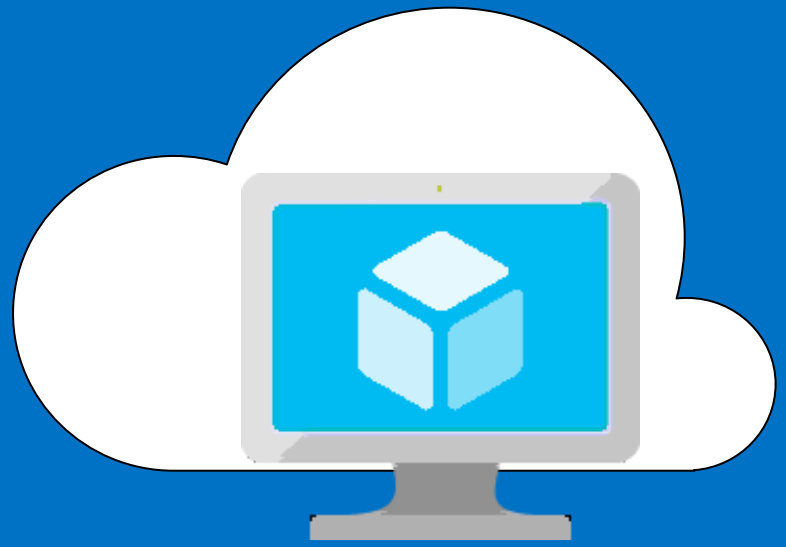
Pay-As-You-Go

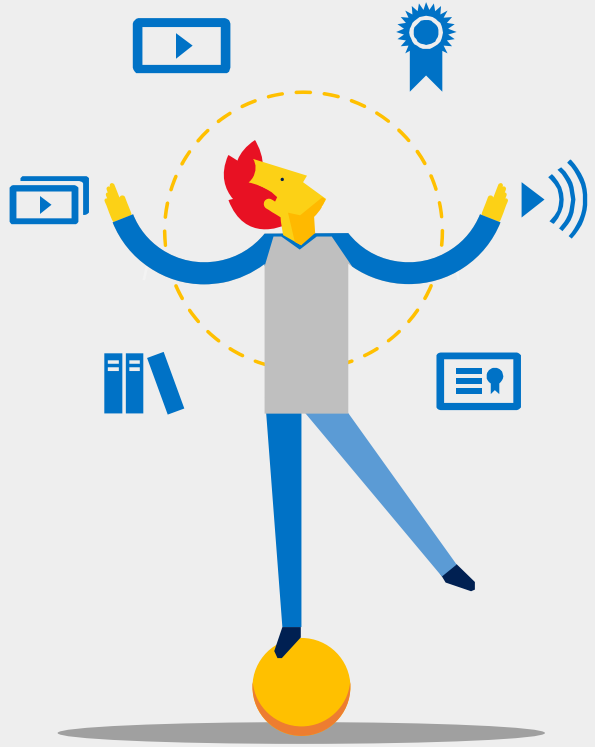


Buy from a Microsoft Reseller

Enterprise agreements

Compute Instances





Microsoft

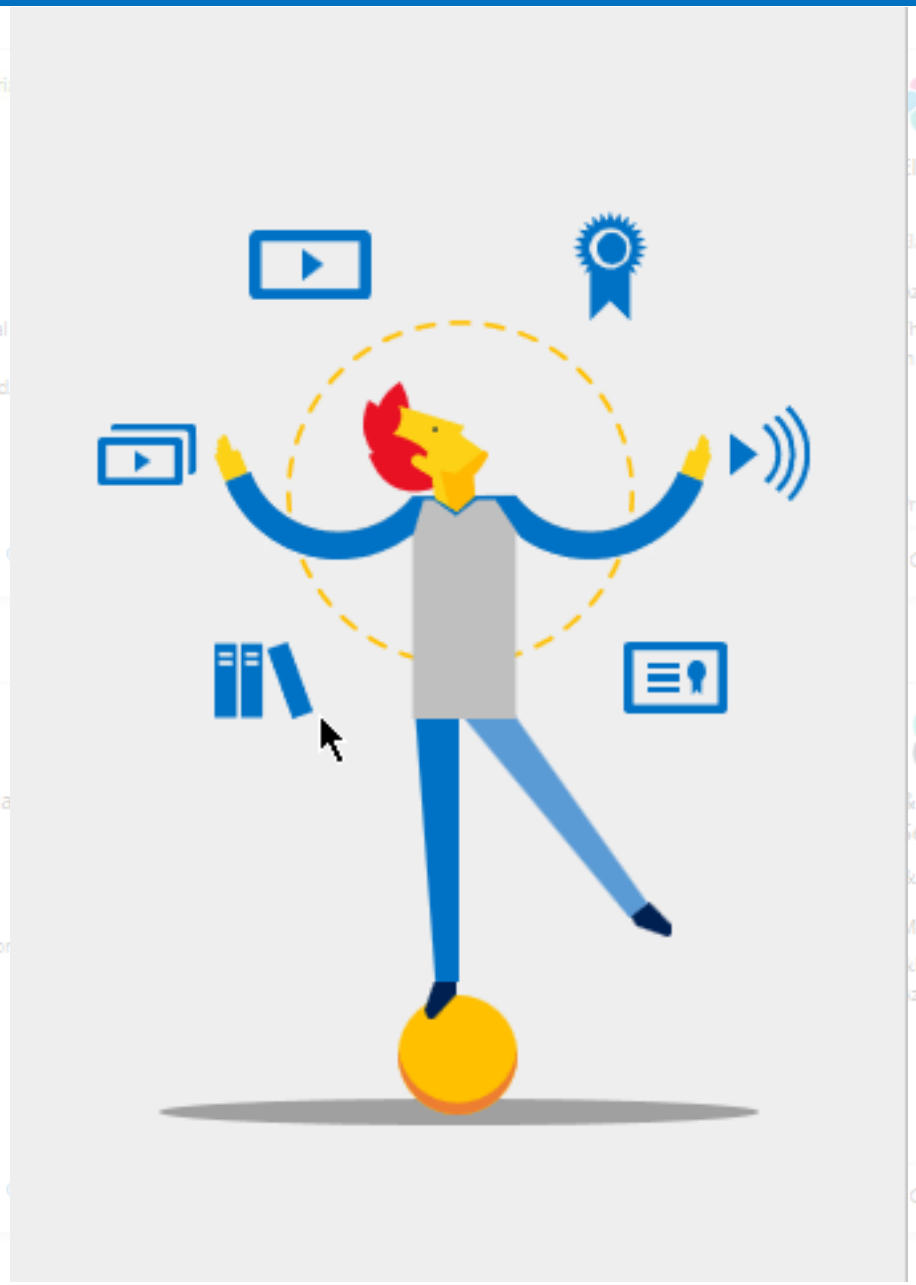
What are Azure VMs?

- Azure virtual machines are one of several types of scalable computing resources that Azure offers
- Use Azure VMs to:
  - Extend your datacenter to increase agility
  - Migrate your workloads from on-premises datacenters or from other cloud providers
  - Implement production, test, or development
- Cost calculated on per-minute basis:
  - Does not apply when VM is stopped (deallocated)
  - Does not include VM disks in Azure Storage

Azure VM sizes

- General purpose:
  - balanced CPU-to-memory ratio
  - A0-A7, Av2 series, D series, Dv2 series, DS series, DSv2 series
- Compute optimized:
  - high CPU-to-memory ratio
  - Fs and F series
- Memory optimized:
  - high memory-to-CPU ratio
  - D, Dv2, DS, DSv2, M, G, and GS series
- Storage optimized:
  - high-performance disk I/O
  - Ls series
- GPU:
  - Graphic Processing Unit support
  - NV and NC series
- High performance compute:
  - fastest CPUs and optional high-throughput RDMA
  - H series and A8-A11

How Can I Create A Virtual Machine??



Here!

portal.azure.com

Microsoft Azure

Search resources, services, and docs (G+/)

Home > Create a resource >

Marketplace

Management

Private Marketplace

Private Offer Management

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Categories

Compute (2722)

IT & Management Tools (2064)

Security (1935)

Analytics (1634)

Web (1452)

Developer Tools (1418)

Networking (974)

Windows Server 2022 Datacenter: Azure Edition Core

[smalldisk] Windows Server 2022 Datacenter: Azure Edition Core

Windows Server 2022 Datacenter: Azure Edition

[smalldisk] Windows Server 2022 Datacenter: Azure Edition

Windows Server 2022 Datacenter

[smalldisk] Windows Server 2022 Datacenter

Windows Server 2022 Datacenter Server Core

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Windows Server 2019 Datacenter

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Windows Server 2019 Datacenter with Containers

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Windows Server 2019 Datacenter Server Core

Windows Server 2019 Datacenter Server Core with Containers

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Windows Server 2019 Datacenter with Containers

Pricing : **All**

Operating System : **All**

Publisher Type : **All**

Free trial

Ubuntu Server 20.04 LTS

Canonical

Virtual Machine

Linux For The Cloud

Create

Red Hat Enterprise Linux

Red Hat Inc

Virtual Machine

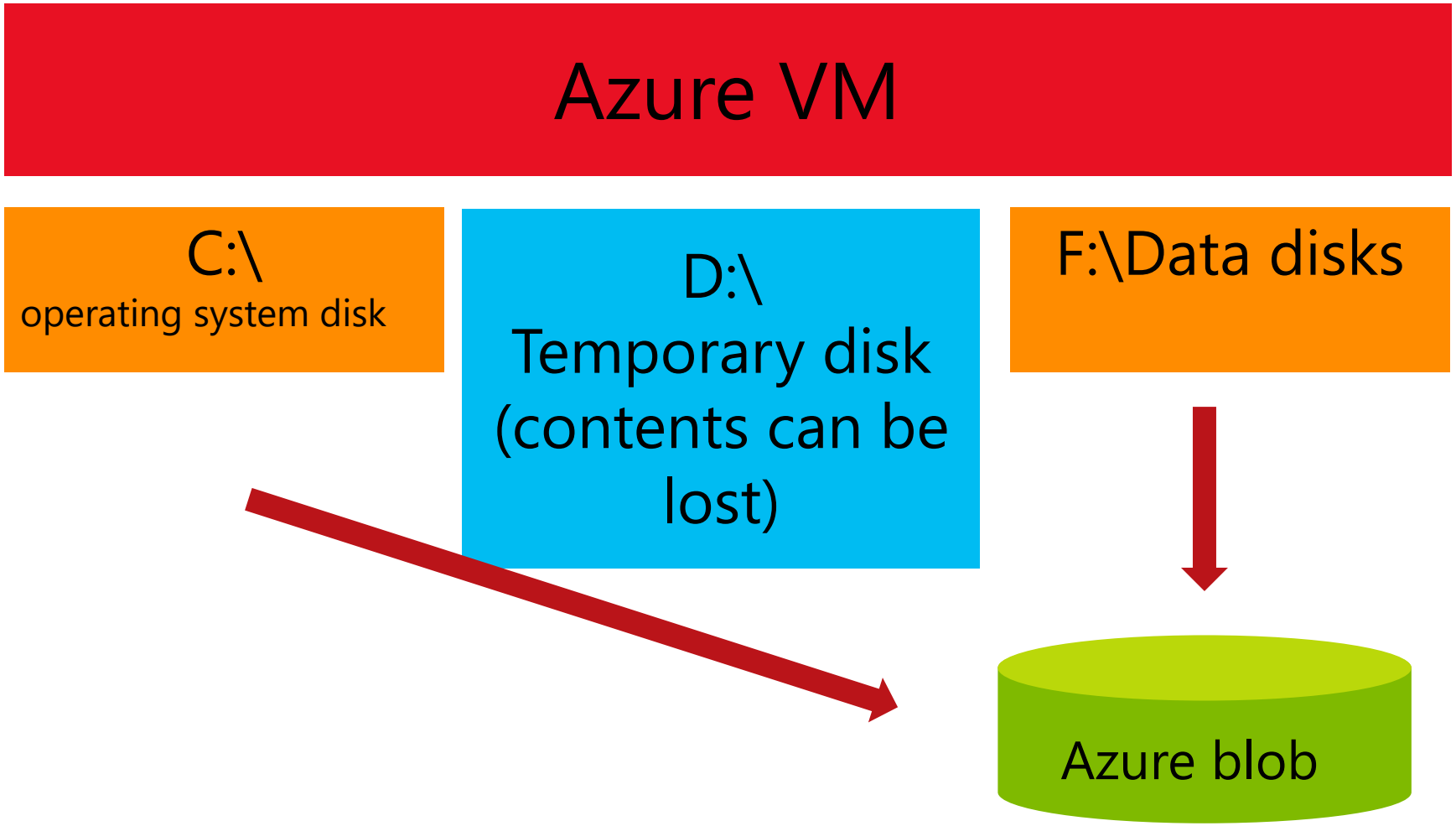
Red Hat Enterprise Linux Pay-As-You-Go Images. This offer contains all images, including Gen 2.

Create

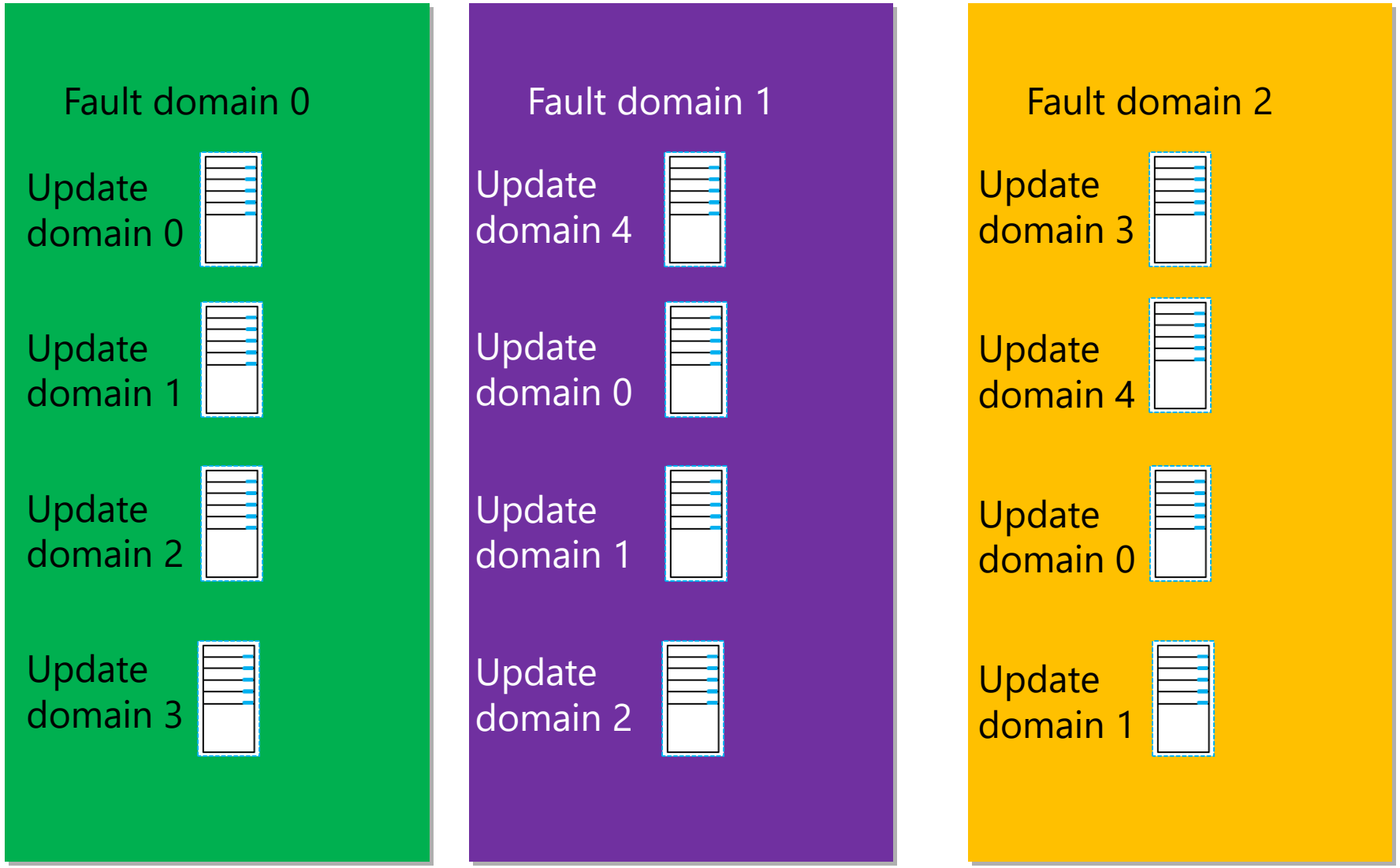
Ubuntu 16.04 LTS Hardened

Ubuntu 20.04 LTS Cloud Ready

Overview of virtual hard disks



Configuring VM availability



VM scaling

- Vertical scaling:
  - Change individual VM size
- Horizontal scaling:
  - Change number of VMs in the same availability set
  - On demand or scheduled
  - Azure Resource Manager model:
    - VM scale sets: automatically provisioned VMs
  - Classic model:
    - Preprovisioned VMs

Connecting to a VM

- Windows VMs:
  - RDP (Remote Desktop Protocol) :
    - User based authentication
    - Generate **.rdp** file from the portal or via Windows PowerShell
    - Incoming connections:
      - Allowed by default (when using the Azure Portal)
      - Windows Firewall rule
      - Network Security Group rule
- Linux VMs:
  - SSH (Secure SHell) :
    - User based or certificate based authentication
    - Use an SSH client
    - Incoming connections:
      - Allowed by default (when using the Azure Portal)
      - Network security group rule

THANK YOU!!

Microsoft