What is Microsoft Azure?

INTRODUCTION TO AZURE



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Public cloud computing

- Microsoft Azure is a public cloud
  - Accessible through the internet
  - Available to anyone



Other cloud types with Azure

Private cloud



- Dedicated to a single organization
- On-premises or hosted by third party

Hybrid cloud



- Allows data and application sharing

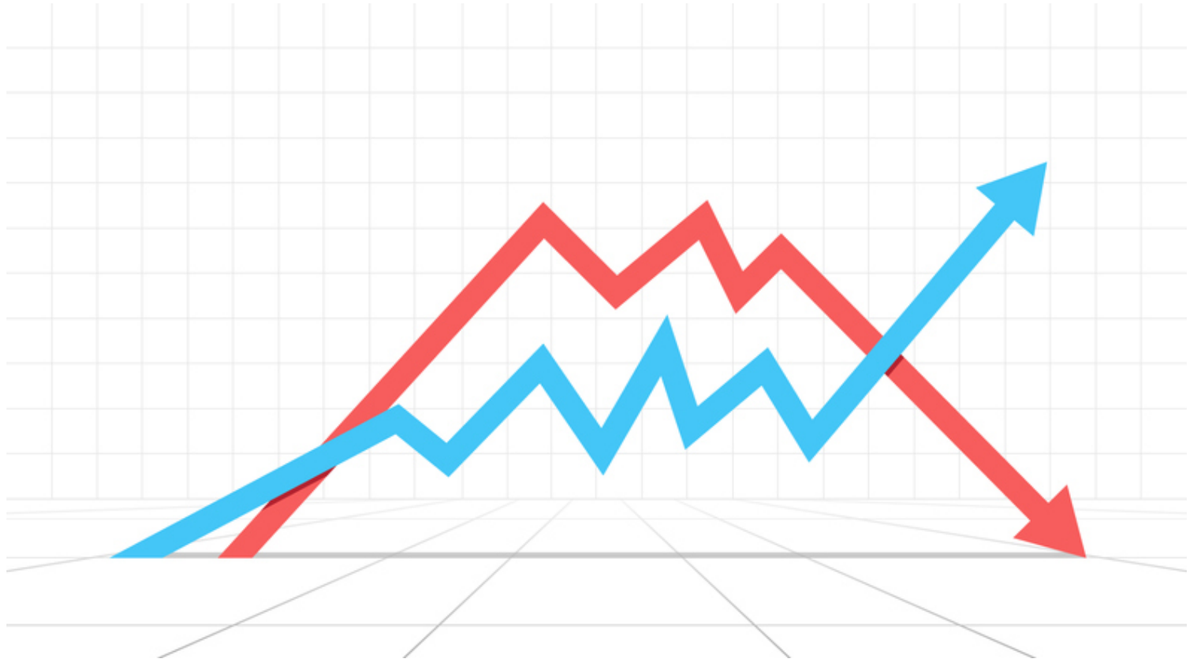
Microsoft Azure



- It's a comprehensive cloud computing platform
- Build, deploy, and manage your applications and services

Scalability

- Adjusting the capacity of a single resource (e.g., more CPU, RAM)
- Increasing or decreasing the number of system instances or nodes



Versatile compatibility



Azure support a variety of programming languages, operating systems, and frameworks

World wide access

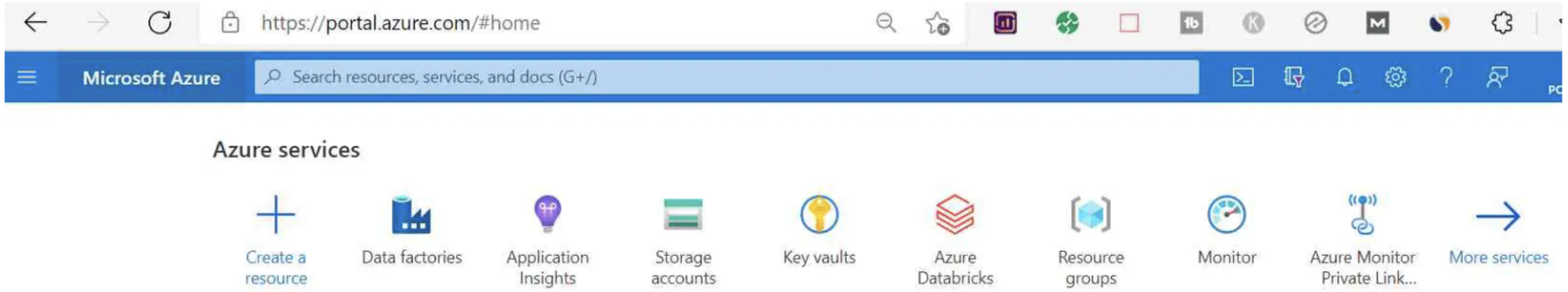
Azure operates in data centers worldwide.

- You gain access to resources all over the world
- Improving performance for local users
- Improved Compliance

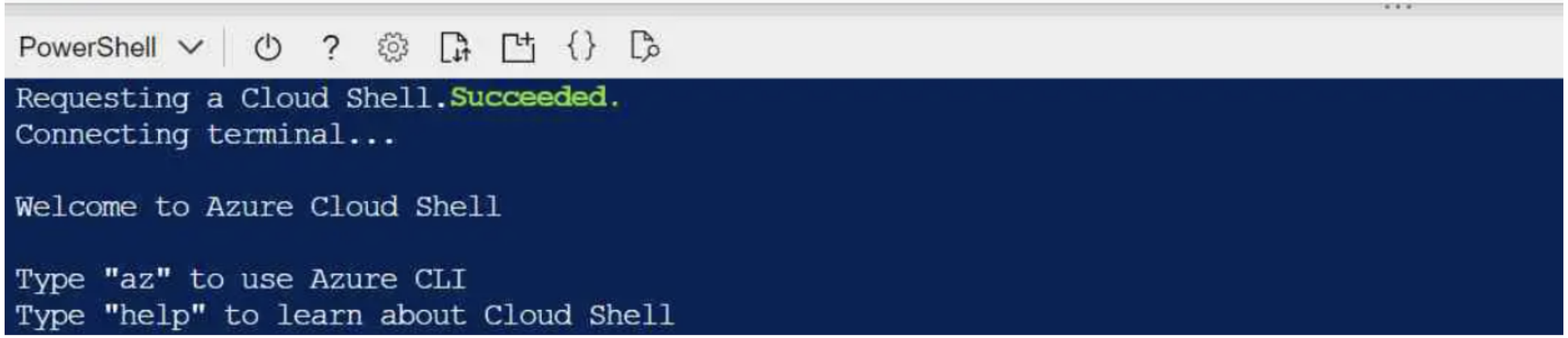


Accessing Azure

- Via the Azure Portal -- a web-based Graphical User Interface or GUI



- Shell/Command line interface (CLI) -- a tool for text-based access used by developers



Common Use Cases



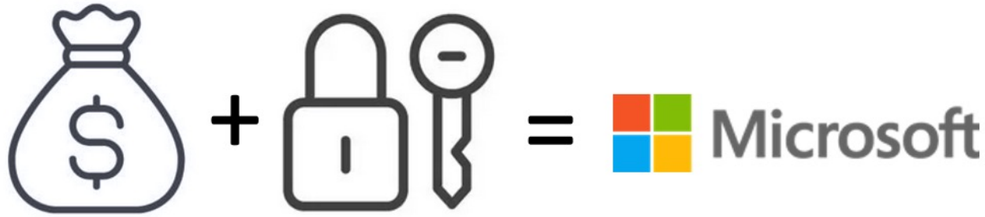
Many industries can make use of Microsoft Azure

- Regardless of the type of industries
- Use it in place of internal data center services
- Use it for web hosting, game application development, data storage, and many more

There are many advantages

Using Azure brings many benefits

- Provides a diverse array of services
- You save money
- It is safe and secure
- It's integrated with Microsoft services



Let's practice!

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Overview of Azure's Core Components

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Azure Regions

Azure has many Data centers available for your use.

- Worldwide regions available
- Separate redundant data centers
- Choose the best for your uses
- Privacy laws may be important



Azure Resource Groups



Resource groups

You can think of them as groups of resources that are related.

- Logical groupings for application-related resources
- Single-unit policy application on multiple resources
- Post-deployment Azure resource management and security

Azure Compute

Azure Compute is one of the main components of Azure.

- Provisioning and management of computing resources
- Computational power as needed



Azure Storage



Azure Storage offers a variety of data storage services.

- Cloud based
- Readily accessible
- Wide range of uses
- A dependable foundation

Azure Networking

Azure Networking allows you to connect your resources together.

- Resources like Virtual Machines or Databases
- Connect internally to other Azure resources
- Connect to external sources
- Like a digital highway system
- Provides secure communications and data transfer



The cloud kitchen



The cloud kitchen

Resource groups are specific sections



Compute resources are chef stations



Storage holds the ingredients



Networking is the layout



Databases on Azure



Databases are brilliant for storing data.

- They provide a structured repository for data
- Allows efficient data retrieval and management
- Many different types available

User Management

Like most systems you can easily manage users.

- Via the web portal
- Via the CLI
- Secured with multifactor authentication



Authenticator locked

User Management: Active Directory

Let's talk about Active Directory.

- Microsoft's identity and access management service
- Azure has a cloud version
- Integrates with your on-premises Active Directory service



Let's practice!

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Azure Services Overview

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Infrastructure and Platform Services

- Infrastructure Services (IaaS)
  - You build the environments
    - e.g Azure Virtual Machines



- Platform Services (PaaS)
  - A ready to use environment
    - e.g Azure app services



Azure Virtual machines



Azure Virtual Machines are a key aspect of Azure

- On-demand & scalable resources
- Virtualized server emulation
- Swift resource modification
- Digital replica of physical computer
- Create or delete as required

Azure Serverless Offerings



Azure Serverless Offerings

The term serverless isn't accurate.

- Serverless doesn't mean "No Servers"
- The infrastructure is just hidden from you
- Developers can focus more on their code
- Auto-scales based on workload



Azure Functions



A serverless compute service

- Execute code in response to events or triggers
- Scales automatically when needed
- You pay only for the compute time you use

Azure App Services

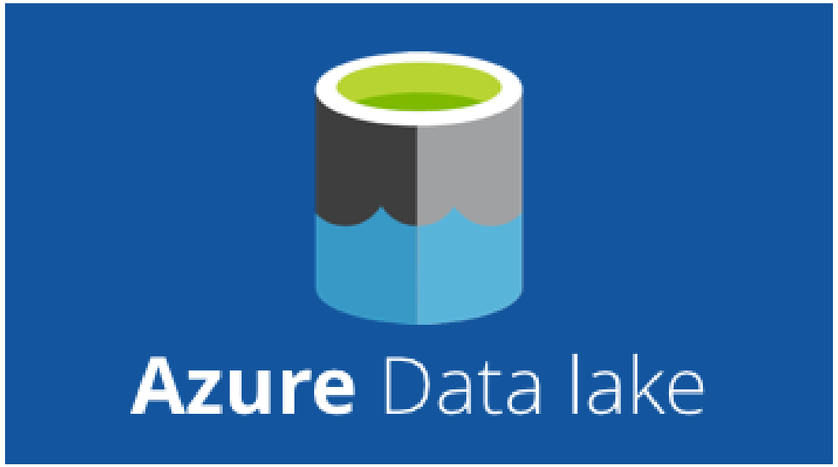


Streamlining Web & Mobile Development with Azure App Services

- Platform as a Service (PaaS)
- Build, deploy, and scale applications
- Supports multiple languages and frameworks
- Integrated development operations

Analytics and Big Data

Data Lake: Scalable data storage



HDInsight: Big data framework



Synapse Analytics: Analytics platform



Stream Analytics: Real-time data insights



AI and Machine Learning



Cutting-Edge AI and Machine Learning in Azure

- Azure Machine learning
  - Build, train, and deploy machine learning models
- Azure Cognitive Services
  - Ready-to-use AI (vision, speech, language)
- Azure Databricks
  - Collaborative platform for big data and AI analytics

Vast ecosystem

Azure is very powerful

- Azure has many services
- From infrastructure to intelligent services
- Continuously evolving



Let's practice!

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