2.0 Azure Basics

- Azure is Microsoft's private & public cloud computing platform

- Provides developers & IT admins tools to provide, build, manage, and deploy applications

    - on a massive global network

    - freedom to choose tools and frameworks

- More than 90% of Fortune 500 companies run on the Microsoft Cloud

▼ Azure Services

- More than 100 services

- **Compute services** such as VMs and containers that can run your applications

- **Database services** that provide both relational and NoSQL choices

- **Identity services** that help you authenticate and protect your users

- **Networking services** that connect your datacenter to the cloud, provide high availability or host your DNS domain

- **Storage solutions** that can accomodate massive amounts of both structured and unstructured data

- **AI and machine-learning** services can analyze data, text, images, comprehend speech, and make predictions using data

▼ How Azure works

- It uses virtualization

    - Uses an abstraction layer called **hypervsior**

        - Separates tight coupling between hardware (CPU, RAM, GPU..) and its OS

- Emulates a real computer in a **virtual machine**

  - Can run multiple VMs at same time

  - Optimizes capacity of abstracted hardware

  - Can run any OS such as Windows, Linux, & macOS

- Azure repeats virtualization in a massive scale

  - Each data center has many racks filled with servers

  - Each server includes a hypervisor to run multiple VMs

  - A network switch provides connectivity to all those servers

  - One server in each rack runs a special software called a **fabric controller**

    - Each fabric controller is connected to another software called as **orchestrator**

      - Orchestrator manages everything in Azure, including responding to user requests

        - Users requests using **Azure API**

          - Azure API can be reached in many ways including Azure Portal

        - Orchestrator packages everything it's needed and sends to package & request to fabric controller

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