

Understand concepts of cloud economics

AWS CONCEPTS



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What is cloud economics?

- Refers to the financial considerations of moving to the cloud
- Opportunities to significantly reduce IT expenses compared to traditional IT setups
 - Flexible pricing models
 - Efficient resource usage
 - Elimination of fixed costs



Fixed vs variable costs

Fixed



- Hardware
- Data centers
- Maintenance

Paying for full capacity whether it's used or not

Also incur ongoing costs

Variable



- Pay for what you use
- Scale costs with demand

Bring Your Own Licenses (BYOL)

- Avoid sunk costs
- Port existing licenses to AWS infrastructure
- Cost-effective by leveraging current investment
- Alternative: AWS includes licenses bundled into service



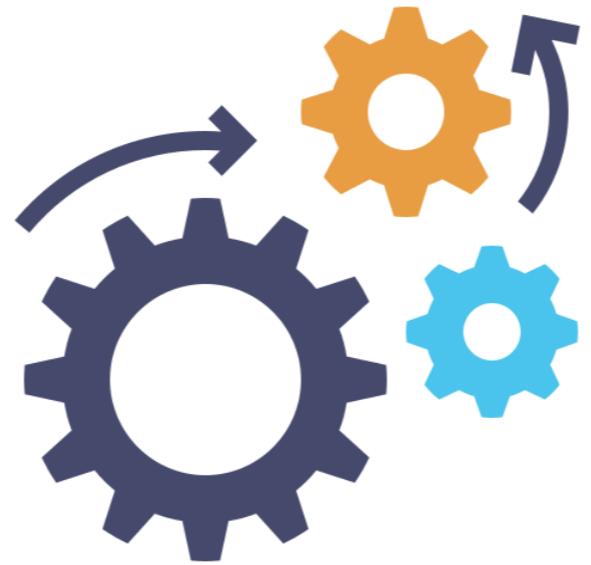
Right-sizing



- Adjust resources to meet actual demand
- Flexibility: significant cost savings and dynamic environment

¹ Scale up icons created by Freepik (Flaticon)

Automation



- Automate the setup/management of resources
- Reduces time, minimizes human error and ensures consistent configuration

Managed services



- Amazon RDS for databases
- Amazon Lambda for serverless computing
- Amazon S3 for storage

Let's practice!

AWS CONCEPTS

Deploying and operating in AWS

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Provisioning resources in AWS

- Manual vs. automatic resource creation
- CloudFormation
 - Infrastructure as Code (IaC)
 - Define your environment in templates
 - Consistent; reduces manual errors



Accessing AWS services

- AWS Management Console
 - Web based user interface
- Programmatic Access
 - AWS Command Line Interface (CLI)
 - Software Development Kits (SDKs)
 - APIs
- Infrastructure as Code
 - AWS CloudFormation
 - Third-party solutions like Terraform
 - Automatic deployment

The screenshot shows the AWS Management Console Home page. At the top, it displays "Console Home" and a "Recently visited" section with links to CloudFront, EC2, CloudWatch, S3, Lambda, and Elastic Container Service. Below this is a "Welcome to AWS" section with links to "Getting started with AWS", "Training and certification", and "What's new with AWS?". To the right, there is an "Explore AWS" section with links to "Amazon Lookout for Metrics", "Calling All Java and Python Developers", "Test Your Machine Learning Skills", and "Build Apps Faster with GraphQL".

Cloud deployment models

- Public Cloud
 - All resources are hosted on AWS and shared with others
 - Cost efficient and scalable
- Private Cloud
 - Dedicated resources to a single organization
 - Strict compliance or security
- Hybrid Cloud
 - Mix of on-premises and cloud services



Connectivity options

- AWS VPN
 - Encrypted connection between your network and AWS
 - Flexible and cost-effective
 - Temporary connections
- AWS Direct Connect
 - Private network connection
 - Higher bandwidth and better performance
- Public Internet
 - Resources that are public-facing



Let's practice!

AWS CONCEPTS

Define the AWS Global Architecture

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AWS's geographical diversity



AWS data centers

- Data centers in each region
- Highly secure, reliable, and high-speed



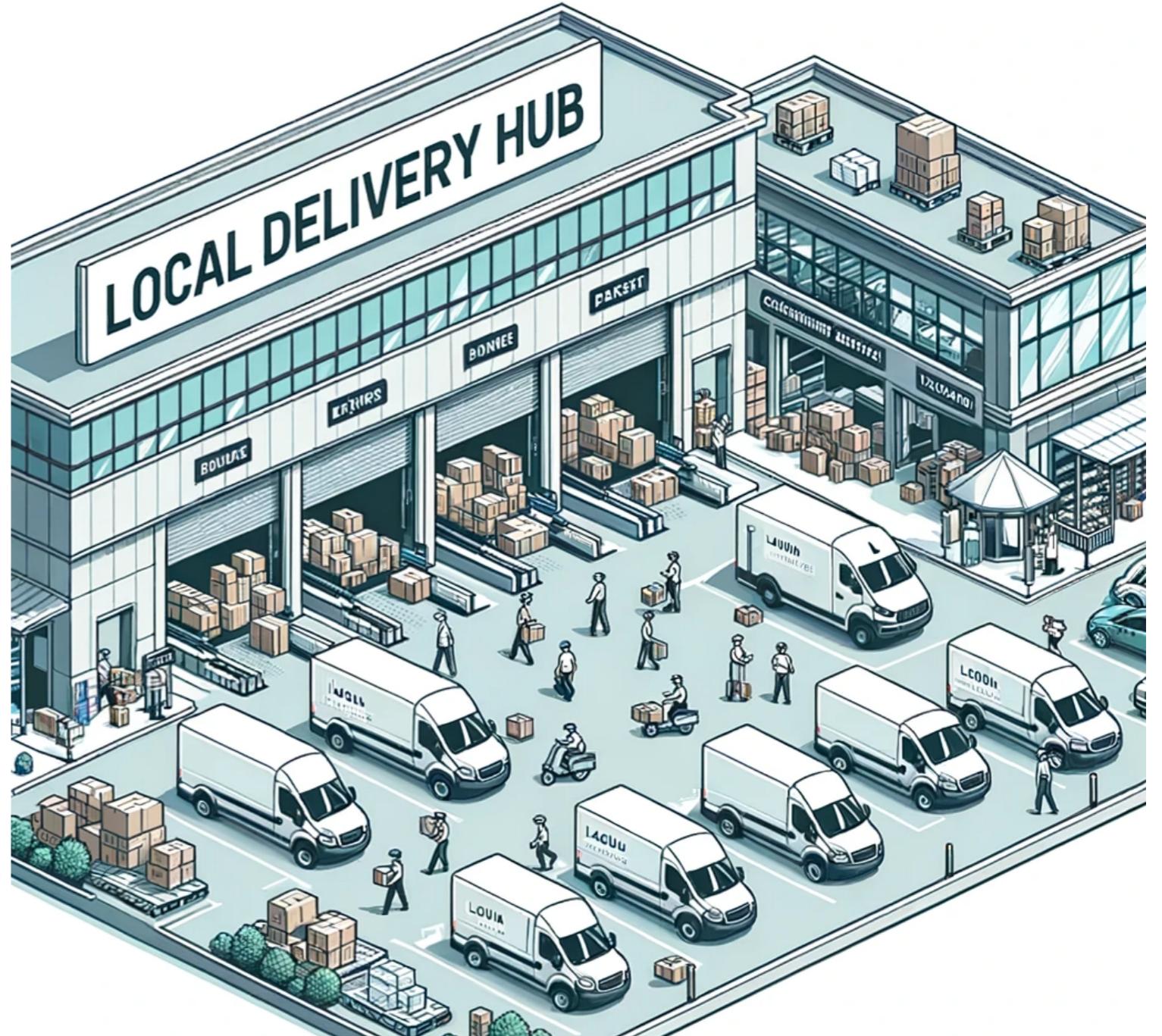
Availability zones

- Multiple Availability Zones (AZs) per region
- Each AZ is one or more discrete data centers
- Built for redundancy and availability



Edge locations: speed of light

- Over 400 Edge Locations worldwide
- Stores copies of data
- Faster content delivery with AWS CloudFront



Black Friday: AWS global architecture in action

Data Centers

- Core processing and data storage
- Scalable resources to manage the surge in traffic

Availability Zones

- Redundancy to prevent service disruptions
- Multiple data centers ready to take over the load if one faces an issue

Edge Locations

- Fast content delivery to global customers
- AWS CloudFront caching content closer to users for lower latency



Let's practice!

AWS CONCEPTS