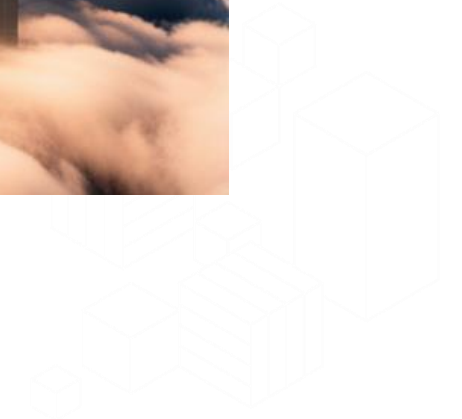


What is Cloud Computing?

Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like AWS.

(<https://aws.amazon.com/what-is-cloud-computing/>)



Why Cloud Computing?

The Cloud Value Framework



Why Cloud Computing?



Farm



Restaurant



Supermarket

Graphics created with AWS PartyRock

Why Cloud Computing?

The Farm



- Farm & restaurant staff
- Animals
 - Food
 - Vet
- Equipment
- Disasters
- ...

Cost

- Prepare, grow and harvest
- Take care of the herd
- Output can be increased by investment in equipment or more staff
- ...

**Staff
Productivity**

- Natural disasters
- Adverse weather
- Crop diseases
- Diseases affecting livestock
- Lack of staff
- ...

**Operational
Resilience**

- Crop is dictated by overall climate
- Weather
- Experience and availability of staff
- Time to harvest
- ...

**Business
Agility**



Why Cloud Computing?

The Supermarket



- Produce
- Transport
- Restaurant staff
- ...

Cost

- Focus on the core business
 - Order produce
 - Cook
 - Serve food
 - ...

**Staff
Productivity**

- Multiple suppliers locally and globally
- ...

**Operational
Resilience**

- When customer preferences change, business can adapt quickly
- Offering not impacted by season or local weather
- Staffing can easily be adjusted to required levels
- ...

**Business
Agility**



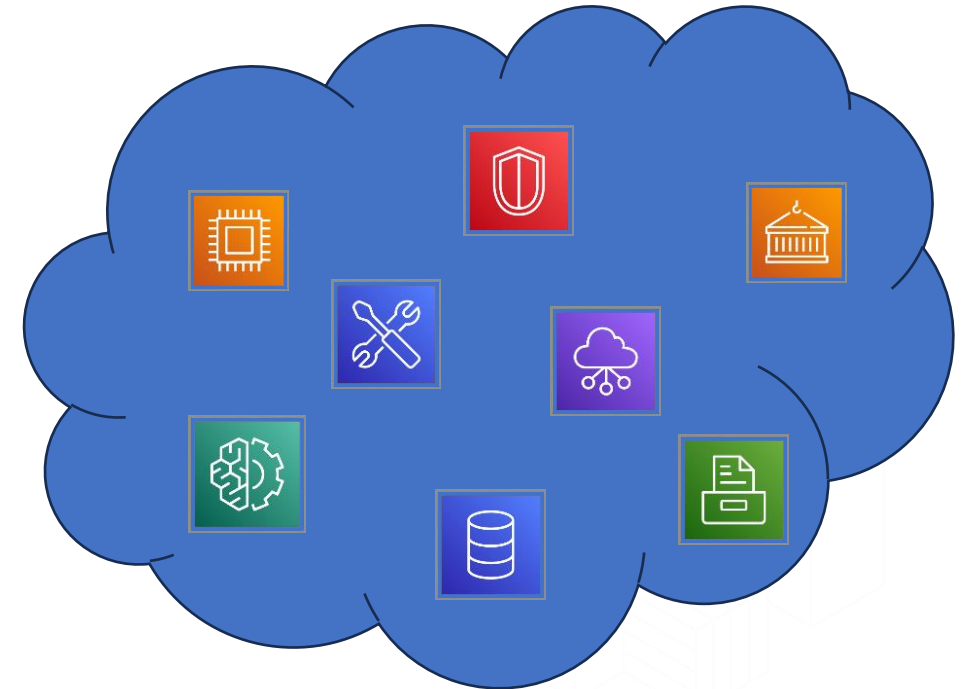
Why Cloud Computing?



Data Center



Business



Cloud

Data Center and Business Graphics created with AWS PartyRock

Why Cloud Computing?

The Cloud Value Framework



Global Infrastructure

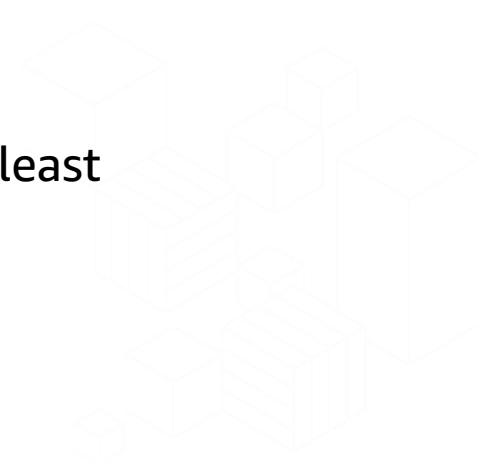


Global Infrastructure Terms

Region: A physical location where AWS clusters data centers. A region consists of at least 3 Availability Zones.

Availability Zone (AZ): One or more discrete data centers with redundant power, networking, and connectivity in an AWS Region.

Local Zones: Infrastructure deployment that places select AWS services closer to your end users and workloads. They are connected to a parent region.



Global Infrastructure



Global Infrastructure Terms Part II

Edge Locations: Support low-latency content delivery

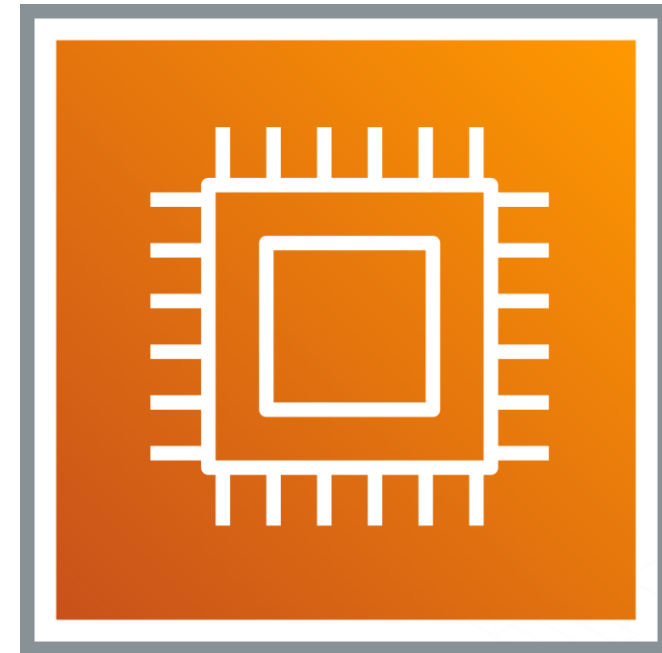
AWS Outpost: Allows you to run AWS services locally on-premise and connect to a broad range of services available in the local AWS Region.



Compute

Compute services are also known as Infrastructure-as-a-Service (IaaS). Compute platforms, such as AWS Compute, supply a virtual server instance and storage and APIs that let users migrate workloads to a virtual machine. Users have allocated compute power and can start, stop, access, and configure their computer resources as desired.

(<https://aws.amazon.com/what-is/compute/>)



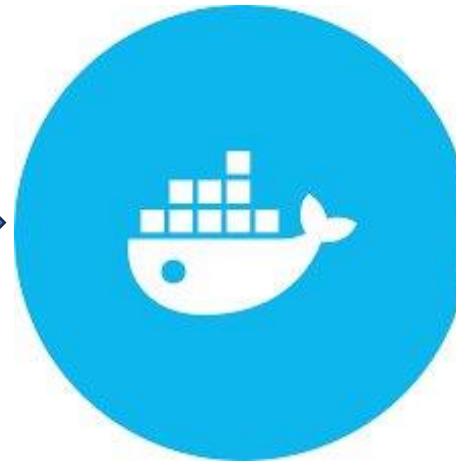
Evolution of Compute



Physical
Machines



Virtual
Machines



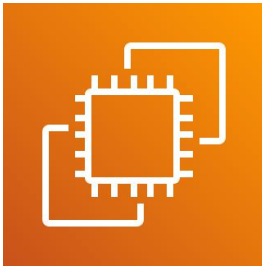
Containers



Serverless



Compute on AWS



Instances



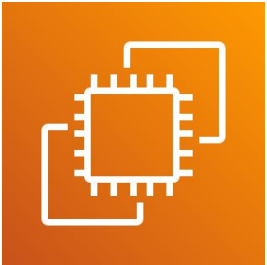
Containers



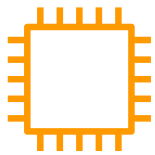
Serverless



Compute: Instances



EC2 instances are secure and resizable compute capacity (virtual servers) in the cloud. They come in different flavours to fit different use cases. There are also different different pricing options for EC2 instances, so you can optimize usage cost for your use case.



On-Demand Instances let you pay for compute capacity by the hour or second with no long-term commitments.

Example use case:

Applications being developed or tested on EC2 for the first time



Savings Plans is a flexible pricing model that can help you reduce your bill by up to 72% compared to On-Demand prices.

Example use case:

Consistent amount of usage (measured in \$/hour) for a 1- or 3-year term.



EC2 Spot Instances let you take advantage of unused EC2 capacity in the AWS cloud and are available at a discount of up to 90% compared to On-Demand prices.

Example use case:

Fault tolerant or stateless workloads

Compute: Containers



Containers are a key component of modern app development. They have become the standard way to organize compute resources, and manage the content of your application deployments. Containers provide a discrete reproducible compute environment, provide a way to simplify packaging and dependency management.



Amazon EKS is a managed service that makes it easy for you to run Kubernetes on AWS without installing and operating your own Kubernetes control plane or worker nodes.



Amazon ECS is a fully managed opinionated container orchestration service that delivers the easiest way for organizations to build, deploy, and manage containerized applications at any scale on AWS.



AWS Fargate is a serverless compute engine for containers that works with both Amazon EKS and Amazon ECS. AWS Fargate eliminates the need to provision and manage servers, lets you specify and pay for resources per application, and improves security through application isolation by design.

Compute: Serverless



AWS offers technologies for running code, managing data, and integrating applications, all without managing servers. Serverless technologies feature automatic scaling, built-in high availability, and a pay-for-use billing model to increase agility and optimize costs. These technologies also eliminate infrastructure management tasks like capacity provisioning and patching, so you can focus on writing code that serves your customers.



AWS Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume - there is no charge when your code is not running.

