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**AWS EC2 Overview**

**What Is Amazon EC2?**

Amazon Elastic Compute Cloud (Amazon EC2) provides scalable computing capacity in the Amazon Web Services (AWS) cloud. Using Amazon EC2 eliminates your need to invest in hardware up front, so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. Amazon EC2 enables you to scale up or down to handle changes in requirements or spikes in popularity, reducing your need to forecast traffic.

For more information about cloud computing,

**Cloud Computing**

# What is Cloud Computing?

Cloud computing is the on-demand delivery of compute power, database, storage, applications, and other IT resources via the internet with pay-as-you-go pricing.

 Whether you are using it to run applications that share photos to millions of mobile users or to support business critical operations, a cloud services platform provides rapid access to flexible and low cost IT resources. With cloud computing, you don’t need to make large upfront investments in hardware and spend a lot of time on the heavy lifting of managing that hardware. Instead, you can provision exactly the right type and size of computing resources you need to power your newest idea or operate your IT department. You can access as many resources as you need, almost instantly, and only pay for what you use.

# How Does Cloud Computing Work?

Cloud computing gives you access to servers, storage, databases, and a broad set of application services over the Internet. A cloud services provider such as Amazon Web Services, owns and maintains the network-connected hardware required for these application services, while you provision and use what you need via a web application.

## Benefits of Cloud

### Agility

The cloud allows you to innovate faster because you can focus your valuable IT resources on developing applications that differentiate your business and transform customer experiences rather than managing infrastructure and data centers. With cloud, you can quickly spin up resources as you need them, deploying hundreds or even thousands of servers in minutes. The cloud also makes it easy and fast to access a broad range technology such as compute, storage, databases, analytics, machine learning, and many other services on an as-needed basis. As a result, you can very quickly develop and roll out new applications, and your teams can experiment and innovate more quickly and frequently. If an experiment fails, you can always de-provision resources without risk

### Elasticity

Before cloud computing, you had to overprovision infrastructure to ensure you had enough capacity to handle your business operations at the peak level of activity. Now, you can provision the amount of resources that you actually need, knowing you can instantly scale up or down with the needs of your business. This reduces costs and improves your ability to meet your users’ demands.

### Cost savings

The cloud allows you to trade capital expense (data centers, physical servers, etc.) for variable expense and only pay for IT as you consume it. Plus, the variable expense is much lower than what you can do for yourself because of the larger economies of scale.

### Deploy globally in minutes

With the cloud, you can easily deploy your application in multiple physical locations around the world with just a few clicks. This means you can provide a lower latency and better experience for your customers simply and at minimal cost.

**Features of Amazon EC2**

Amazon EC2 provides the following features:

* Virtual computing environments, known as *instances*
* Preconfigured templates for your instances, known as *Amazon Machine Images (AMIs)*, that package the bits you need for your server (including the operating system and additional software)
* Various configurations of CPU, memory, storage, and networking capacity for your instances, known as *instance types*
* Secure login information for your instances using *key pairs* (AWS stores the public key, and you store the private key in a secure place)
* Storage volumes for temporary data that's deleted when you stop or terminate your instance, known as *instance store volumes*
* Persistent storage volumes for your data using Amazon Elastic Block Store (Amazon EBS), known as *Amazon EBS volumes*
* Multiple physical locations for your resources, such as instances and Amazon EBS volumes, known as *Regions* and *Availability Zones*
* A firewall that enables you to specify the protocols, ports, and source IP ranges that can reach your instances using *security groups*
* Static IPv4 addresses for dynamic cloud computing, known as *Elastic IP addresses*
* Metadata, known as *tags*, that you can create and assign to your Amazon EC2 resources
* Virtual networks you can create that are logically isolated from the rest of the AWS cloud, and that you can optionally connect to your own network, known as *virtual private clouds* (VPCs)