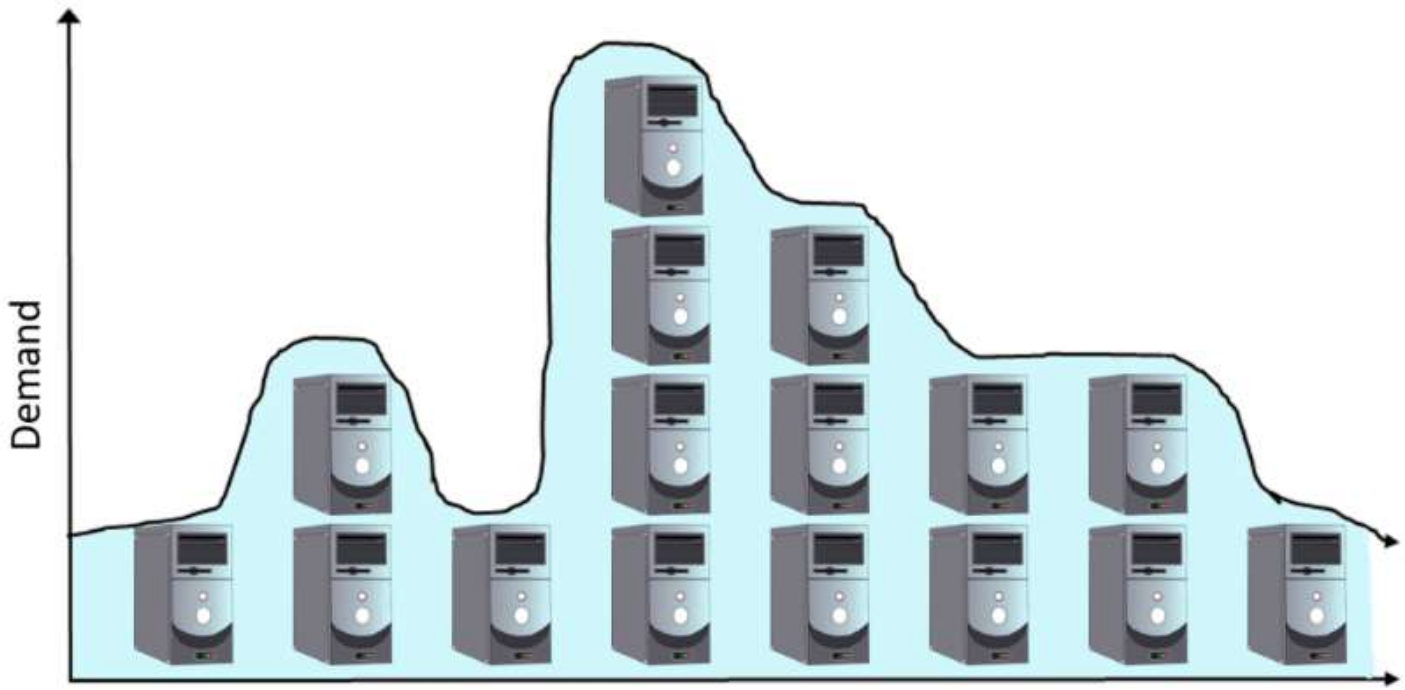
What is AWS EC2 (Elastic Compute Cloud)?

AWS EC2 stands for Amazon Elastic Compute Cloud. Amazon EC2 Service is the most used AWS service. It lets users create virtual machines of their own choice of configurations

AWS service that lets users launch and manage server instances, at any time and for as long as they need

EC2 is a machine with an operating system and hardware components of your choice. But the difference is that it is totally virtualized.

Amazon EC2 instances there is no need to maintain any rented hardware. It enables you to build and run applications faster. You can use EC2 in AWS to launch as many virtual servers as you need. Also, you can scale up or down when there is an increase or decrease in website traffic.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Why Amazon EC2?

Now that we know the EC2 overview, let's now move forward and understand Why exactly we need Amazon EC2. AWS Elastic Compute Cloud provides a lot of benefits

1. Renting Virtual Machine (EC2)

2. Storing data on virtual Devices (EBS) ==> Elastic block store

3. Distributing load across machines (ELB)

4. Scaling the services using an auto-scaling group (ASG)

Pay-as-you-Go:

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You will be charged by the hour, and you have to pay only for what you have used. A company, XYZ might be using 100 servers normally, and on Weekends, it scales down to 50 servers. So, it only has to pay for 50 servers those days, not the usual fee for the usage of 100 servers.

Even when you use your Amazon EC2 instances services for a few hours, you only need to pay for that time period and nothing more.

Increased Reliability:

AWS is spread across 31 worldwide regions with 99 availability zones (AZs) which helps your business when it is expanding. Also, this will increase the load speed of your application around the world.

You can always store multiple copies of your application in multiple AZs so that when one data center fails or loses data, the application will not fail completely.

Elasticity:

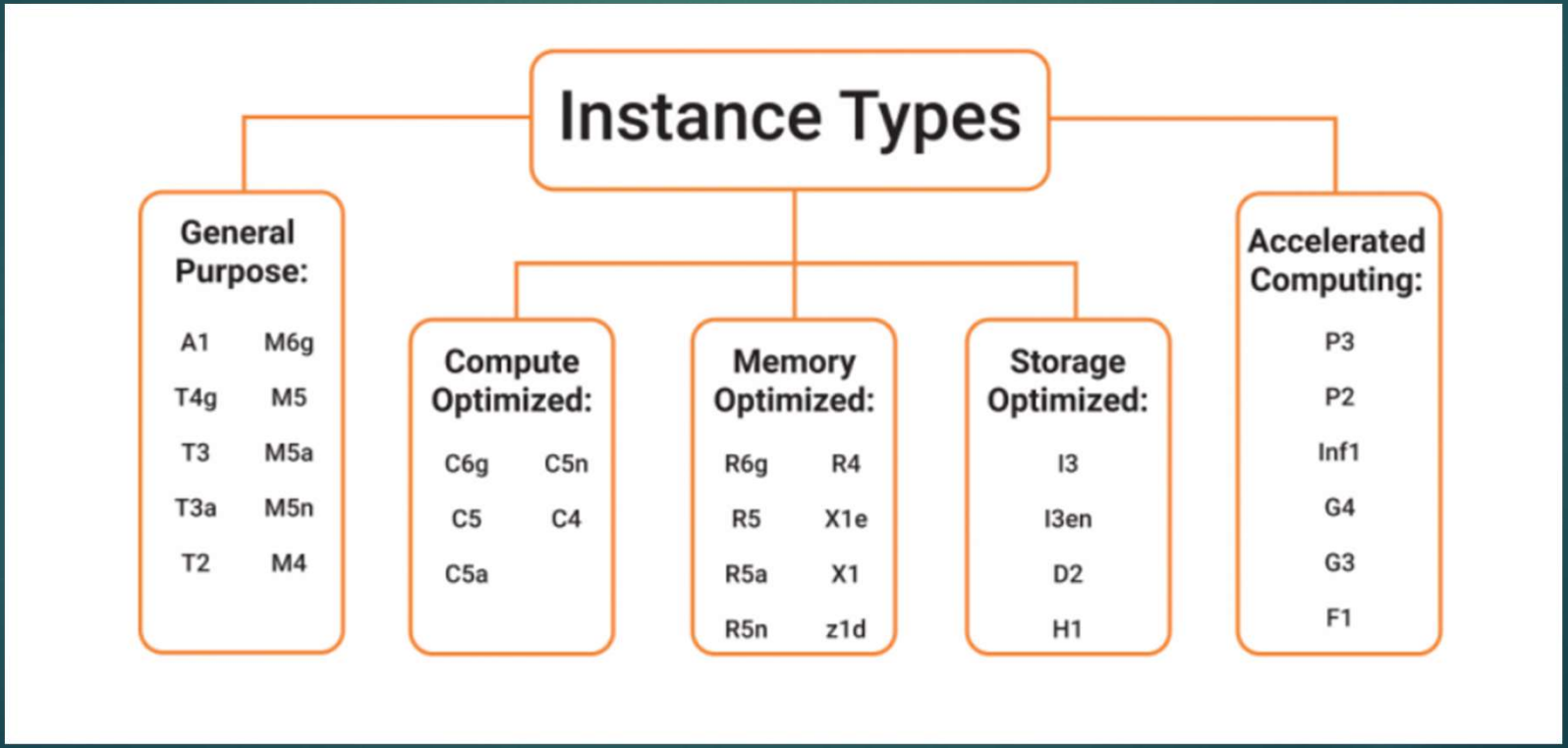
Instead of 10 low-configuration machines, you could rent a single high-configuration machine with an OS of your preferred choice for your application. Elasticity is the feature from which Elastic Compute Cloud got its name.

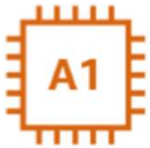
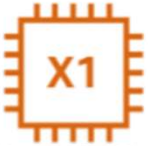
AWS has the following naming Convention:
m5.2xlarge
m: instance class
5: generation (Aws improves them over time)
2xlarge: size within the instance class

Amazon EC2 – Instance Types

Different Amazon EC2 instance types are designed for certain activities. Consider the unique requirements of your workloads and applications when choosing an instance type.

The types of Amazon EC2 Instances are:



General Purpose	Compute Optimised	Memory Optimised	Accelerated Computing	Storage Optimised
 ARM based core and custom silicon	 Compute - CPU intensive apps and DBs	 RAM - Memory intensive apps and DB's	 Processing optimised- Machine Learning	 High Disk Throughput - Big data clusters
 Tiny - Web servers and small DBs		 Xtreme RAM - For SAP/Spark	 Graphics Intensive - Video and streaming	 IOPS - NoSQL DBs
 Main - App servers and general purpose		 High Compute and High Memory - Gaming	 Field Programmable - Hardware acceleration	 Dense Storage - Data Warehousing

Introduction to Security Groups:

1) Security groups are the fundamentals of networking security in AWS

They control how traffic is allowed into or out of our EC2 instance

3. Security group only contains allow rules

4. Security group rules can reference by IP

5. Security groups are acting as a "firewall" on EC2 instances

Security groups (good to know)

1. Can be attached to multiple instances

2. All inbound traffic is blocked by default

3. All outbound traffic is authorized by default

4. If your application gives a "connection refused" error, then its a security group issue