

1. EC2 Types (Pricing Models in AWS)

These are different **ways AWS lets you pay** for EC2 virtual servers depending on your use case and budget.

Description:

EC2 pricing types define **how you are charged** for using instances. They help you choose between flexibility, cost savings, or guaranteed capacity.

Table: EC2 Pricing Models

EC2 Type	Description	Best For
On-Demand Instances	Pay by the second/hour, no upfront payment. Flexible but costlier long-term.	Short-term, unpredictable workloads
Reserved Instances	Commit to 1 or 3 years for big discounts (up to 75%).	Long-term, steady-state workloads (e.g., web servers)
Spot Instances	Buy unused EC2 capacity at steep discounts (up to 90%).	Flexible, fault-tolerant jobs (batch, ML)
Savings Plans	Commit to a \$/hour spend for 1 or 3 years; flexible instance usage.	Cost-saving for variable workloads
Dedicated Instances	EC2 on single-tenant hardware but billed like On-Demand.	Compliance or licensing needs
Dedicated Hosts	Full physical server rental, visibility into sockets/cores.	Bring-your-own-license, regulatory requirements
Capacity Reservations	Reserve capacity in an Availability Zone ahead of time.	Mission-critical apps requiring guaranteed resources

2. Instance Types (EC2 Instance Families in AWS)

These are different **hardware configurations** optimized for various kinds of applications.

Description:

Instance types determine **how much CPU, memory, storage, and networking power** your virtual machine gets. Each is suited for different workloads like ML, databases, websites, or big data.

Table: EC2 Instance Types (Families)

Instance Family	Prefix	Optimized For	Example Types	Best For
General Purpose	t, m	Balanced compute, memory, and networking	t4g, m5, t3a	Web servers, Dev/Test, small DBs
Compute Optimized	c	High-performance CPU	c6g, c7i, c5n	Gaming servers, ML inference, batch jobs
Memory Optimized	r, x, z, u	Large RAM for big datasets	r6g, x2idn, z1d	In-memory DBs, real-time analytics
Storage Optimized	i, d, h	High IOPS, local storage (SSD or HDD)	i3, d2, h1	Big data, NoSQL DBs, file storage
Accelerated Computing	p, g, f, inf, trn	GPU, FPGA, ML/AI	p4, g5, f1, inf1	Deep learning, 3D rendering, inference
High Performance (HPC)	hpc, c7gn	High-throughput, low latency	hpc6id, hpc6a	Scientific modeling, genomics
Bare Metal	.metal suffix	Full access to physical hardware	m5.metal, u-12tb1.metal	Legacy apps, full control, licensing

Summary

Topic	EC2 Type	Instance Type
Meaning	How AWS charges you for using EC2	The kind of virtual machine you run
Focus	Billing / Cost Management	CPU, RAM, storage, and network performance
Examples	On-Demand, Reserved, Spot, Dedicated	t2.micro, c5.large, g4dn.xlarge, r6g.2xlarge
Controlled by	AWS Pricing Plans	AWS EC2 Hardware Families