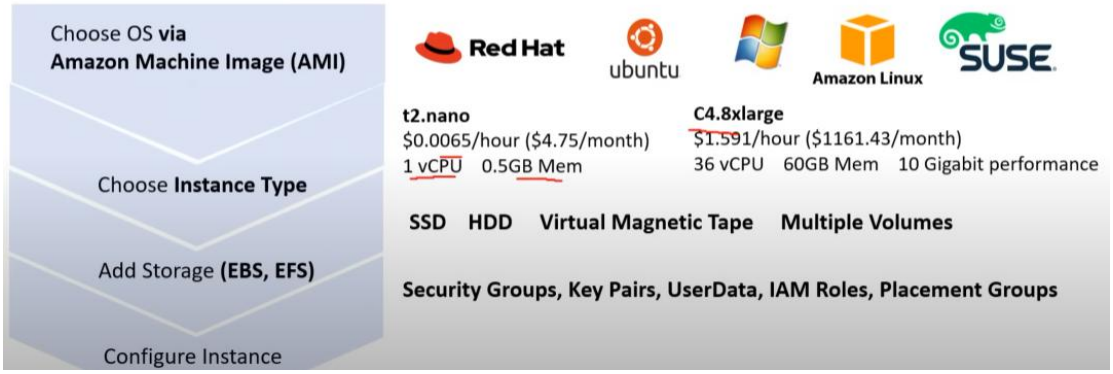
Elastic Compute Cloud (EC2) is a highly configurable virtual server EC2 is resizable compute capacity. It takes minutes to launch new instances. Anything and everything on AWS uses EC2 instances underneath.



EC2 instance Families:

What are instance Families
Instance families are different combinations of CPU, Memory Storage and Networking Security.

Instance Families allow you to choose the appropriate combination of capacity to meet your application's unique requirements.

Different instances families are different because of the varying hardware used to give them their unique properties.

Commonly instance families are called Instance types but an instance type is a combination of size and family.

Type of instance families:

General Purpose-Balance of compute, memory and networking resources. Use-cases web servers and code repo

Compute optimized-Ideal for compute bound applications. Scientific modeling, dedicated gaming server and ad servers engine.

Memory optimized- Fast performance for workload that process large data sets in memory.
Use cases- In memory caches, in-memory databases, real time big data analytics.

Accelerated Optimized-Hardware accelerators or co-processors. Use-cases Machine learning, computational finance, seismic analysis

Storage Optimized-High sequential and write access to very large data sets on local storage.
Use Cases NoSQL, in-memory or transaction database.

EC2 instance types:
A common pattern for instance sizes:
nano
micro
small
medium
large
xlarge

2xl large
....

They are generally 2 times the prev. But there are many exception like C5.9xLarge is not power of 2 or even number

EC2 Instance Sizes **generally double** in price and key attributes

Name	vCPU	RAM (GIB)	On-Demand **per hour**	On-Demand **per month**
t2.small	1	12	$0.023	$16.79
t2.medium	2	24	$0.0464	$33.87
t2.large	2	36	$0.0928	$67.74
t2.xlarge	4	54	$0.1856	$135.48

EC2- Dedicated Host

Dedicated Hosts are single-tenant EC2 instances designed to let you bring you won license based on machine characteristics.

	Dedicated Instance	Dedicated Hosts
Isolation	Instance Isolation	Physical Server Isolation
Billing	Per instance billing (+$2 per region fee)	Per host billing
Visibility of Physical characteristics	No Visibilities	Sockets, cores, host ID
Affinity between a host and instance	No Affinity	Consistency deploy to the same instances to the same physical server
Targeted instance placement	No control	Additional control over instance placement on physical server
Automatic instance placement	Yes	Yes
Add capacity using an allocation request	No	Yes

There are 5 different ways to pay for EC2 (Virtual Machines)

On-Demand Least Commitment

- low cost and flexible
- only pay per hour or the *second
- short-term, spiky, unpredictable workloads
- cannot be interrupted
- For first time apps

Spot *up to 90%* Biggest Savings

- request spare computing capacity
- flexible start and end times
- Can handle interruptions (server randomly stopping and starting)
- For non-critical background jobs

Reserved *up to 75% off* Best Long-term

- steady state or predictable usage
- commit to EC2 over a 1 or 3 year term
- Can resell unused reserved instances

Dedicated Most Expensive

- Dedicated servers
- Can be on-demand or reserved or spot
- When you need a guarantee of isolate hardware (enterprise requirements)