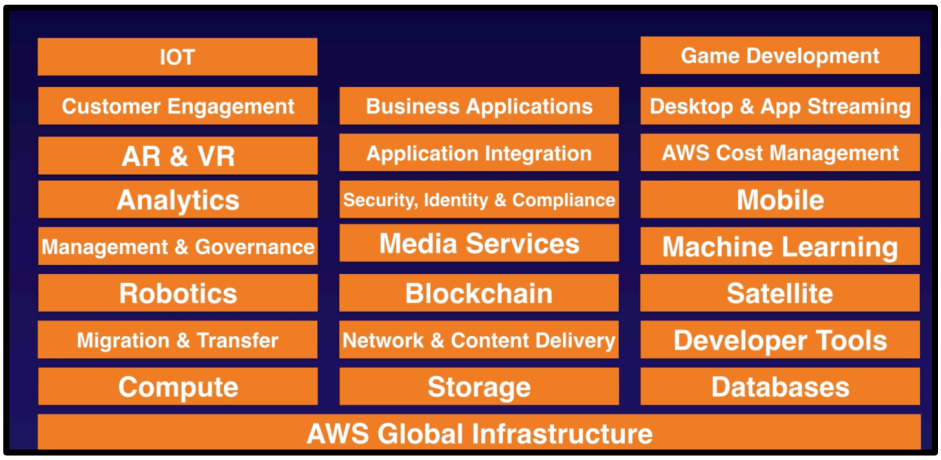
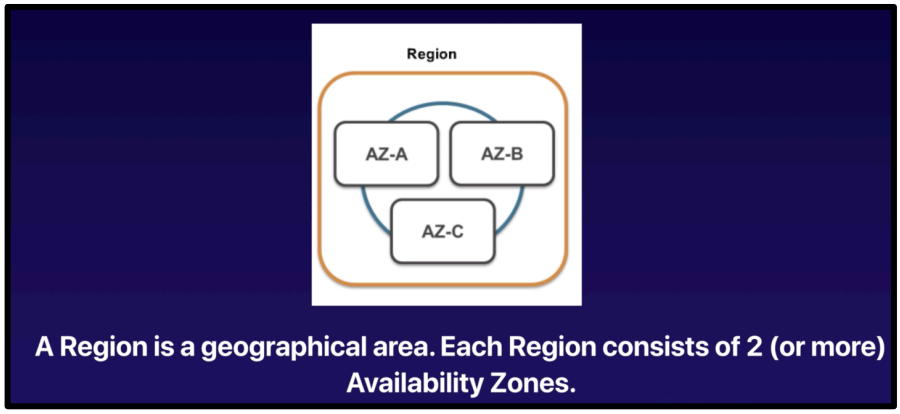
AWS EC2 (Compute Service)

Different Service Categories:



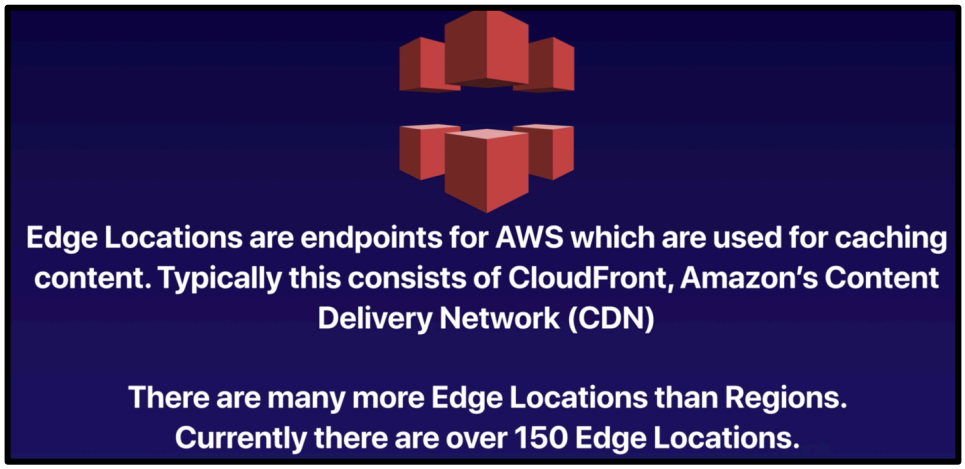
Three Things to Remember:

1. REGION:



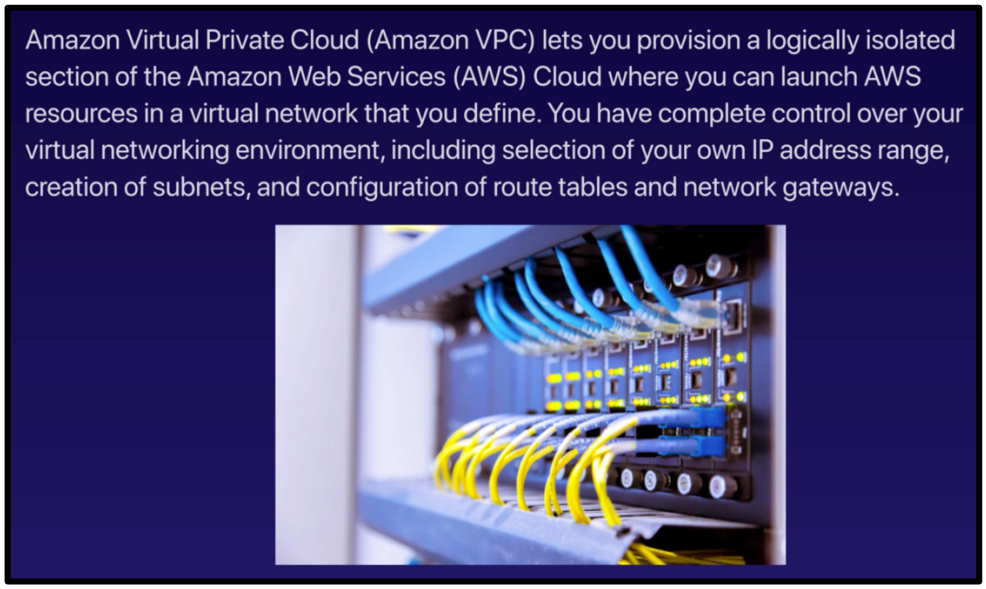
2. AVAILABILITY ZONES:

3. EDGE LOCATIONS:



No of Edge Locations > No of Availability Zones > No of regions.

Where is my EC2 instance living/dying??
What is a VPC??



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EC2 Instances:

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change.

1

On Demand

Allows you to pay a fixed rate by the hour (or by the second) with no commitment.

2

Reserved

Provides you with a capacity reservation, and offer a significant discount on the hourly charge for an instance. Contract Terms are 1 Year or 3 Year Terms.

3

Spot

Enables you to bid whatever price you want for instance capacity, providing for even greater savings if your applications have flexible start and end times.

4

Dedicated Hosts

Physical EC2 server dedicated for your use. Dedicated Hosts can help you reduce costs by allowing you to use your existing server-bound software licenses.

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1. **Standard Reserved instances**
   These offer up to 75% off on demand instances. The more you pay up front and the longer the contract, the greater the discount.
2. **Convertible Reserved Instances**
   These offer up to 54% off on demand capability to change the attributes of the RI as long as the exchange results in the creation of Reserved Instances of equal or greater value.
3. **Scheduled Reserved Instances**
   These are available to launch within the time windows you reserve. This option allows you to match your capacity reservation to a predictable recurring schedule that only requires a fraction of a day, a week, or a month.

TYPES OF EC2 INSTANCES:

Family	Speciality	Use case
F1	Field Programmable Gate Array	Genomics research, financial analytics, real-time video processing, big data etc
I3	High Speed Storage	NoSQL DBs, Data Warehousing etc
G3	Graphics Intensive	Video Encoding/ 3D Application Streaming
H1	High Disk Throughput	MapReduce-based workloads, distributed file systems such as HDFS and MapR-FS
T3	Lowest Cost, General Purpose	Web Servers/Small DBs
D2	Dense Storage	Fileservers/Data Warehousing/Hadoop
R5	Memory Optimized	Memory Intensive Apps/DBs
M5	General Purpose	Application Servers
C5	Compute Optimized	CPU Intensive Apps/DBs
P3	Graphics/General Purpose GPU	Machine Learning, Bit Coin Mining etc
X1	Memory Optimized	SAP HANA/Apache Spark etc
Z1D	High compute capacity and a high memory footprint.	Ideal for electronic design automation (EDA) and certain relational database workloads with high per-core licensing costs.
A1	Arm-based workloads	Scale-out workloads such as web servers
U-6tb1	Bare Metal	Bare metal capabilities that eliminate virtualization overhead

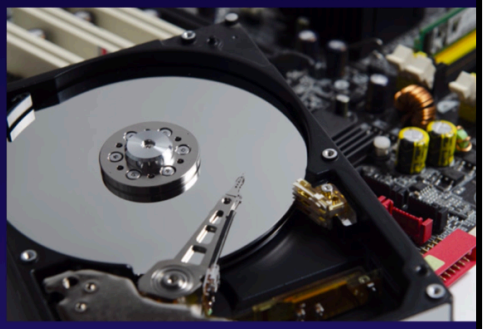
AWS EC2 (Compute Service)

Security Groups:

- Security Groups are **STATEFUL.**
- If you create an inbound rule allowing traffic in, that traffic is automatically allowed back out again.
- You cannot block specific IP addresses using Security Groups, instead use Network Access Control Lists.
- You can specify allow rules, but not deny rules.

Elastic Block Store:

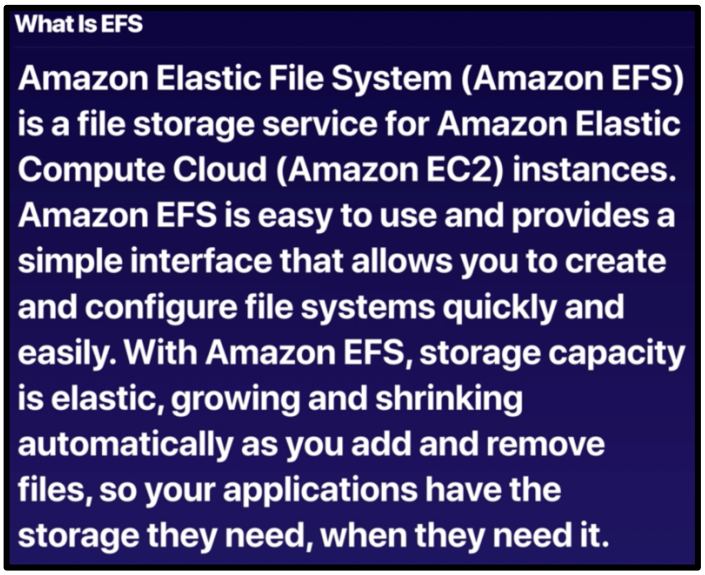
Amazon Elastic Block Store (EBS) provides persistent block storage volumes for use with Amazon EC2 instances in the AWS Cloud. Each Amazon EBS volume is automatically replicated within its Availability Zone to protect you from component failure, offering high availability and durability.



	Solid-State Drives (SSD)		Hard disk Drives (HDD)		
Volume Type	**General Purpose SSD**	**Provisioned IOPS SSD**	**Throughput Optimized HDD**	**Cold HDD**	**EBS Magnetic**
Description	General purpose SSD volume that balances price and performance for a wide variety of transactional workloads	Highest-performance SSD volume designed for mission-critical applications	Low cost HDD volume designed for frequently accessed, throughput-intensive workloads	Lowest cost HDD volume designed for less frequently accessed workloads	Previous generation HDD
Use Cases	**Most Work Loads**	**Databases**	**Big Data & Data Warehouses**	**File Servers**	**Workloads where data is infrequently accessed**
API Name	gp2	io1	st1	sc1	Standard
Volume Size	1 GiB - 16 TiB	4 GiB - 16 TiB	500 GiB - 16 TiB	500 GiB - 16 TiB	1 GiB-1 TiB
Max. IOPS**/ Volume	16,000	64,000	500	250	40-200

CloudWatch:

EFS:



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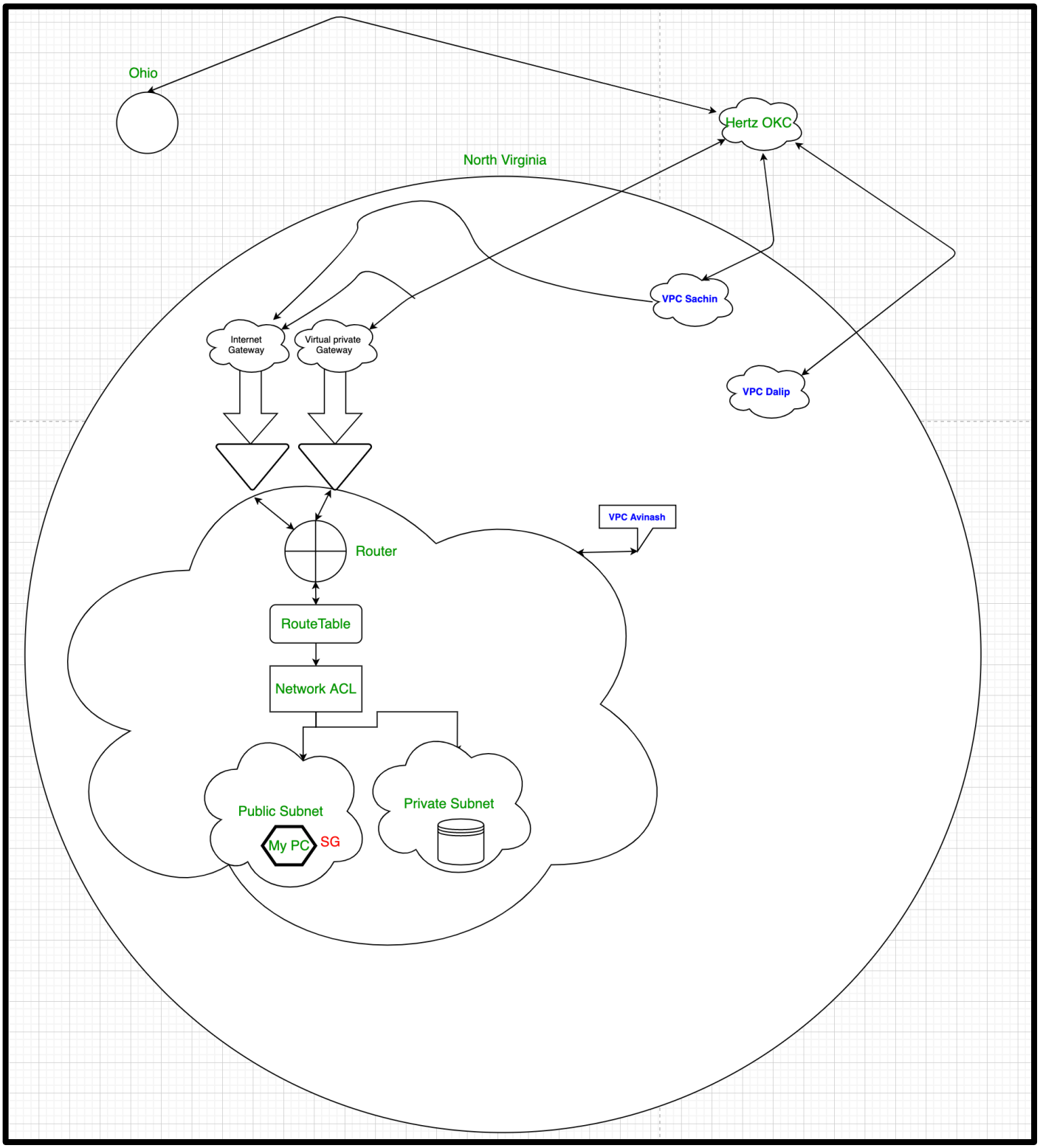

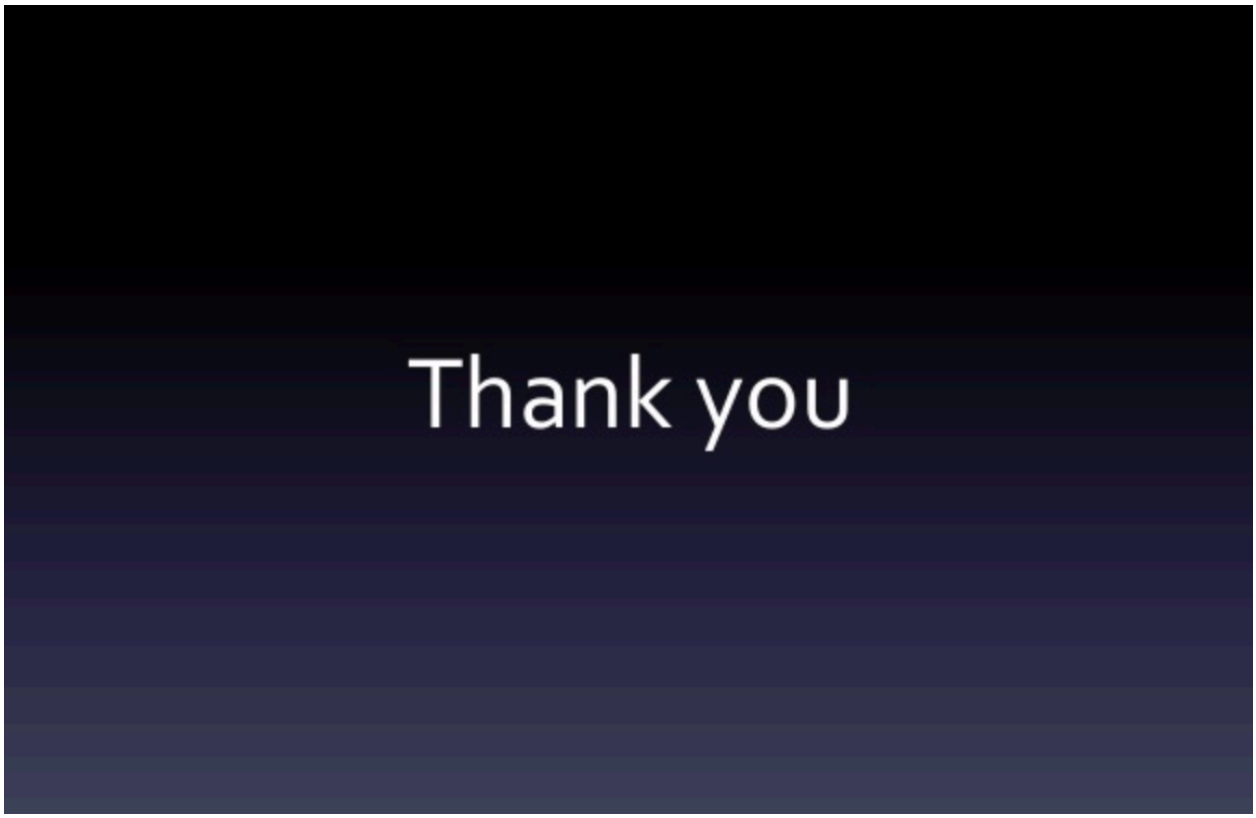
Thank you