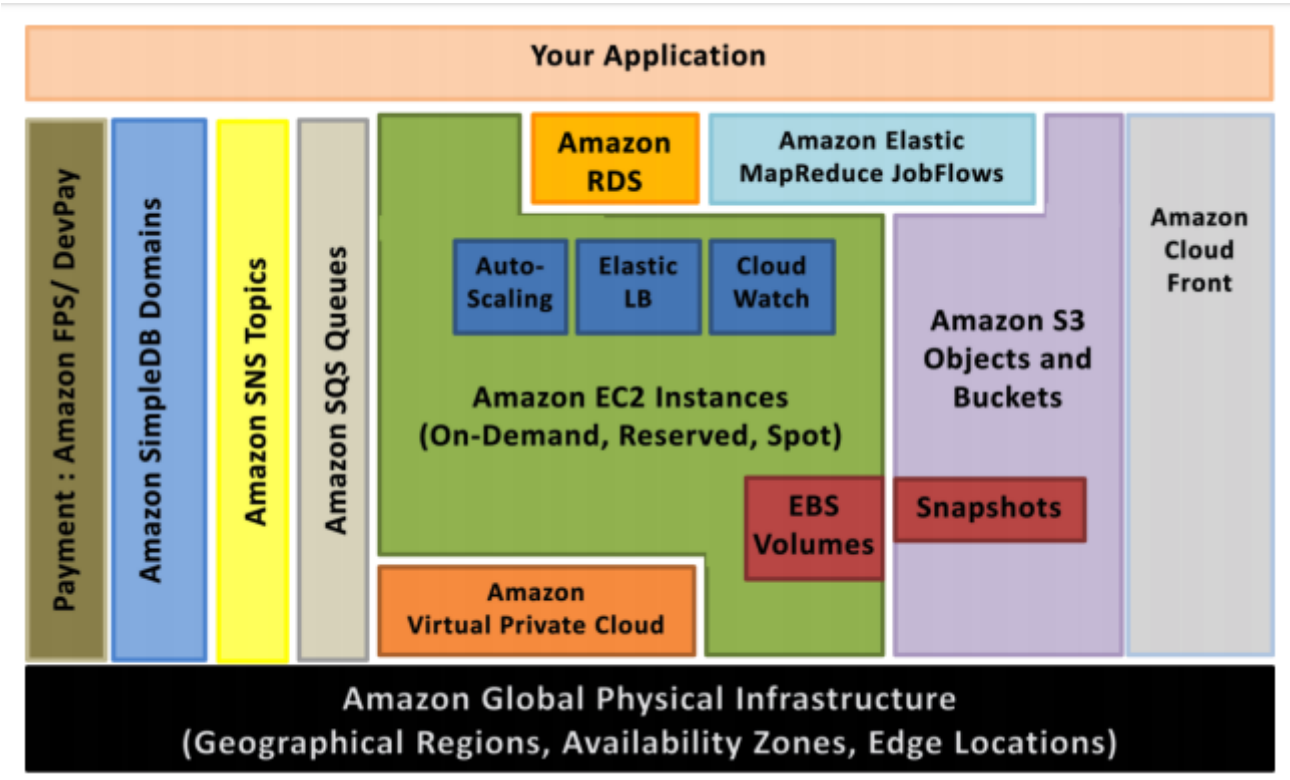
Understanding Amazon Web Services (AWS)

Review the fundamental building blocks of Amazon Web Services (AWS) and how they all fit together. Look at basic compute, Load Balancers, Identity & Access Management, Storage, etc.

The Amazon Web Services (AWS) cloud provides a highly reliable and scalable infrastructure for deploying web-scale solutions, with minimal support and administration costs, and more flexibility than you've come to expect from your own infrastructure, either on-premise or at a datacenter facility.

AWS offers variety of infrastructure services today. The diagram below will introduce you the AWS terminology and help you understand how your application can interact with different Amazon Web Services and how different services interact with each other.



Compute / VMs

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides re-sizable compute capacity in the cloud. You can bundle the operating system, application software and associated configuration settings into an

Amazon Machine Image (AMI).

Identity & Access Management

You can then use these AMIs to provision multiple virtualized instances as well as decommission them using simple web service calls to scale capacity up and down quickly, as your capacity requirement changes. You can purchase On-Demand Instances in which you pay for the instances by the hour or Reserved Instances in which you pay a low, one-time payment and receive a lower usage rate to run the instance than with an On-Demand Instance or Spot Instances where you can bid for unused capacity and further reduce your cost. Instances can be launched in one or more geographical regions.

Reliability / Fault Tolerance

Each region has multiple Availability Zones. Availability Zones are distinct locations that are engineered to be insulated from failures in other Availability Zones and provide inexpensive, low latency network connectivity to other Availability Zones in the same Region.

Public & Private DNS

Elastic IP addresses allow you to allocate a static IP address and programmatically assign it to an instance. You can enable monitoring on an Amazon EC2 instance using Amazon CloudWatch in order to gain visibility into resource utilization, operational performance, and overall demand patterns (including metrics such as CPU utilization, disk reads and writes, and network traffic). You can create an auto-scaling group using the Auto-scaling features to automatically scale your capacity on certain conditions based on metric that Amazon CloudWatch collects.

Load Balancing

You can also distribute incoming traffic by creating an elastic load balancer using the Elastic Load Balancing service.

Storage

Amazon Elastic Block Storage (EBS) volumes provide network-attached persistent storage to Amazon EC2 instances. Point-in-time consistent snapshots of EBS volumes can be created and stored on Amazon Simple Storage Service (Amazon S3).

Amazon S3 is highly durable and distributed data store. With a simple web

services interface, you can store and retrieve large amounts of data as objects

in buckets (containers) at any time, from anywhere on the web using standard HTTP verbs.

Amazon SimpleDB is a web service that provides the core functionality of a database- real-time lookup and simple querying of structured data - without the operational complexity. You can organize the dataset into domains and can run queries across all of the data stored in a particular domain. Domains are collections of items that are described by attribute-value pairs.

Content Deliver Network (CDN)

Copies of objects can be distributed and cached at 14 edge locations around the world by creating a distribution using Amazon CloudFront service – a web service for content delivery (static or streaming content).

Simple Notification Service

Amazon SNS is a fully managed pub/sub messaging service that makes it easy to decouple and scale microservices, distributed systems, and serverless applications. With SNS, you can use topics to decouple message publishers from subscribers, fan-out messages to multiple recipients at once, and eliminate polling in your applications.

Amazon Simple Queue Service (SQS)

SQS is a fully managed message queuing service that enables you to decouple and scale microservices, distributed systems, and serverless applications. SQS eliminates the complexity and overhead associated with managing and operating message oriented middleware.