

# *AWS Cloud Practitioner Essentials*



IULIAN MOCANU



# *1. Introduction*

What do you need to know to pass exam  
Cloud Practitioner?

- ❖ **Compute:** EC2, Lambda
- ❖ **Storage:** S3, Glaciar
- ❖ **Databases:** RDS, DynamoDB
- ❖ **Security**
- ❖ **AWS Cost Management**
- ❖ **Network:** VPC, Route53, CloudFront



# *Region, AZ and Edge Location*

- **Region:** is a physical location in the world which consists of two or more Availability Zones
- **AZ:** is one or more data centers, each with redundant power, networking and connectivity, house in separate facilities
- **Edge Locations:** are endpoints for AWS which are used for caching content. Typically this consists of CloudFront, Amazon's CDN (Content Delivery Network)



## *Difference support packages:*

- **Basic:** Free
- **Developer:** \$29/month
- **Business:** \$100/month
- **Enterprise:** \$15.000/month

	BASIC	DEVELOPER	BUSINESS	ENTERPRISE
COST	FREE	\$29 A MONTH	\$100 A MONTH	\$15,000 A MONTH
Tech Support	Business hour access via email	24 x 7, email, chat & phone	24 x 7, email, chat & phone	
TAM	NO	NO	NO	YES
Who can open cases?	None	1 Person / Unlimited Cases	Unlimited Contacts/ Unlimited Cases	Unlimited Contacts/ Unlimited Cases

# *Cost Management*

## AWS Budgets & Cost Explorer

- ❖ **Budgets:** is used to budget (or predict) costs **BEFORE** they are incurred, you have the ability to set custom budgets that alert you when your costs or usage exceed your budgeted amount.
- ❖ **Cost Explorer:** is used to explore costs **AFTER** they have been incurred, it has an easy-to-use interface that lets you visualize, understand, and manage your AWS costs and usage over time.

**There are three fundamental drivers of cost with AWS:**

- ❖ **Compute**
- ❖ **Storage**
- ❖ **Data Outbound**

# *Cost Management*

## **Capex vs Opex**

- ❖ **Capex:** stands for Capital Expenditure which where you pay up front. It's a fixed, sunk cost
- ❖ **Opex:** stand for Operational Expenditure which is where you pay for what you use.

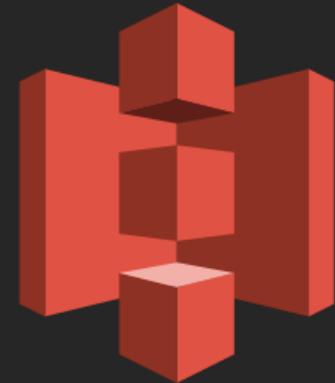
## **AWS Free Services:**

- ❖ **VPC**
- ❖ **Elastic Beanstalk**
- ❖ **CloudFormation**
- ❖ **IAM**
- ❖ **Auto Scaling**
- ❖ **Opsworks**
- ❖ **Consolidated Billing**

## 2. S3

**Simple Storage Service** is one of the most fundamental services for AWS. S3 provides developers and IT teams with secure, durable, highly-scalable object storage.

Amazon S3 is easy to use, with a simple web services interface to store and recover any amount of data from anywhere on the web.



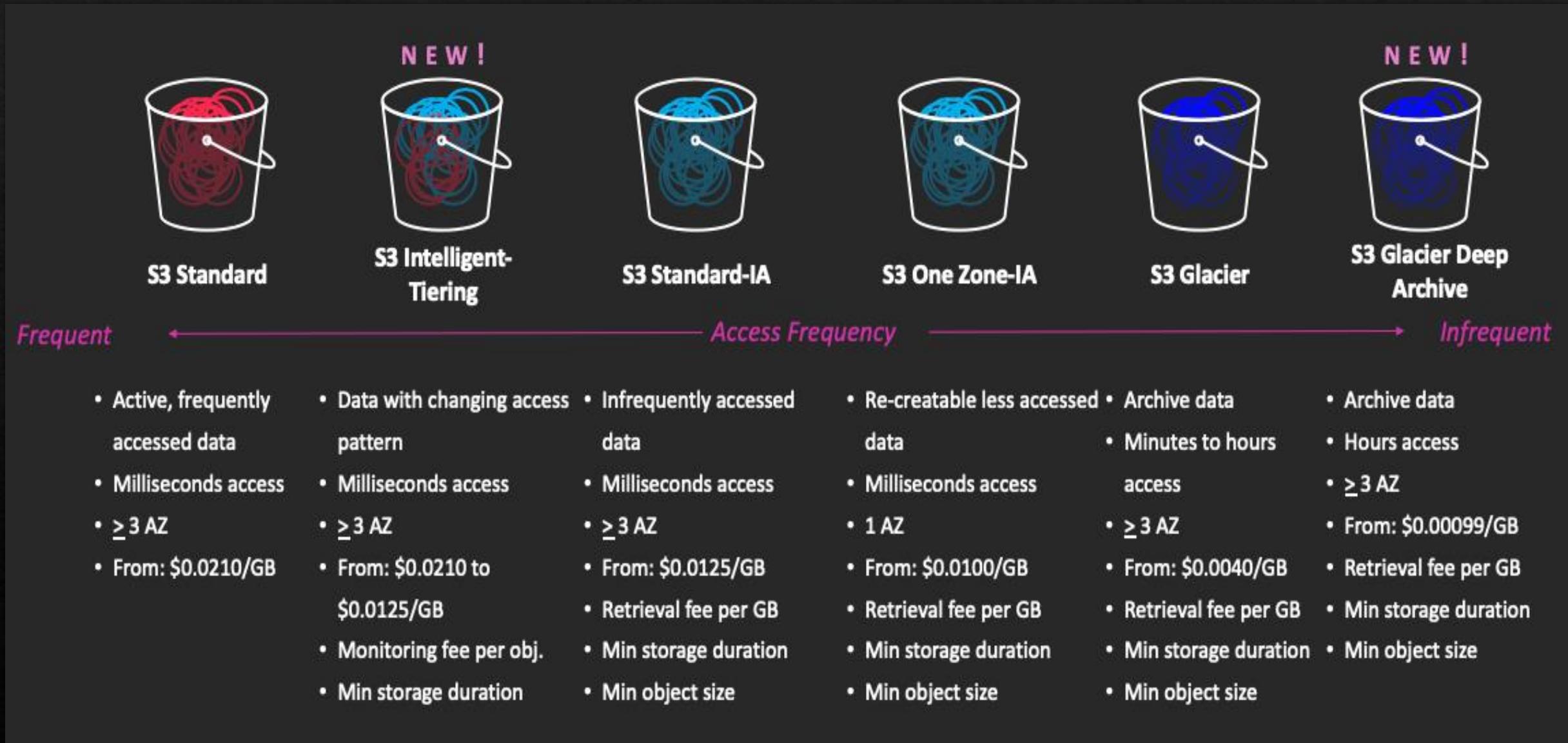
## *S3 features*

- ❖ Easy to use
- ❖ Durable (99.9999999999%)
- ❖ Available (99.99%)
- ❖ High performance
- ❖ Scalable
- ❖ Secure
- ❖ Integration

## *The basics of S3 (Buckets and Objects)*

- ❖ S3 is Object-based, so it allows you to upload files
- ❖ File can be from 0 Bytes to 5 TB
- ❖ There is unlimited storage
- ❖ Files are stored in **Buckets** (are folders in the cloud)
- ❖ Bucket name are unique globally and DNS-compliant, must be between 3 and 63 char. long (ex. <https://my-s3bucket.s3.amazonaws.com/>)
- ❖ When you upload a file to S3, you will receive a HTTP 200 code if the upload was successful.

# S3 Storage Classes



### 3. EC2

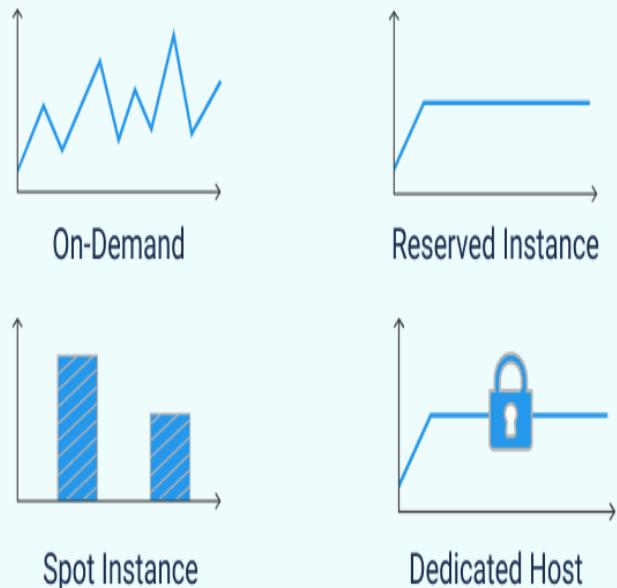
**Amazon Elastic Compute Cloud** is just a virtual server in the cloud.

EC2 reduces the time required to obtain and boot new server instances to hours to minutes, allowing you to quickly scale capacity, both up down, as your computing requirements change.

EC2 is a compute based service, it is not serverless. It's a server.

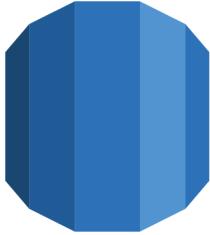


# EC2 Pricing Models



- ❖ **On Demand:** allows you to pay a fixed rate by the hour (or by second) with no commitment. It is the most flexible buying option, you can create, start, stop, and terminate at any time, although is the most expensive.
- ❖ **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.
- ❖ **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 (lets you take advantage of unused EC2 capacity in the AWS Cloud and provides up to a 90% discount compared to On-Demand)
- ❖ **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.

# *4. RDS & DynamoDB*



AMAZON RDS



Amazon DynamoDB

## RDS

- ❖ The Amazon Relational Database (RDS) Service is a web service that makes it easier to set up, operate, and scale a relational database in the cloud.

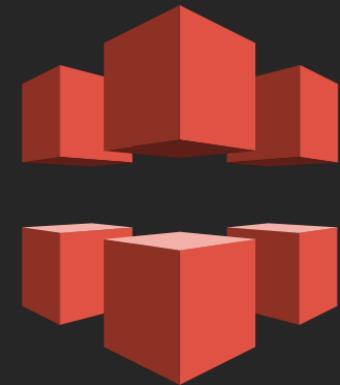
## DynamoDB

- ❖ DynamoDB is a **Non-Relational Database (NoSQL)**.

## 5. *CloudFront*

**AWS CloudFront** can be used to deliver your entire website, including dynamic, static, streaming, and interactive content using a global network of edge locations. Requests for content are automatically routed to nearest edge location.

A **CDN (Content Delivery Network)** is a system of distributed servers that delivery webpages and other web content to a user based on the geographic locations of the user, the origin of the webpage, and a content delivery server.



## 6. *CloudFormation*

**AWS CloudFormation** is a service that helps you model and set up your Amazon Web Services resources so that you can spend less time managing those resources and more time focusing on your application that run in AWS.

You create a template that describes all the AWS resources that you want (like EC2 instances or RDS DB instances), and AWS CloudFormation takes care of provisioning and configuring those resources for you. You don't need to individually create and configure AWS resources.



## 7. *CloudWatch*

**Amazon CloudWatch** is a monitoring service to monitor your AWS resources, you can configure Billing Alarm.



# *CloudWatch Features*

- ❖ CloudWatch is used for monitoring performance
- ❖ CloudWatch can monitor most of AWS as well as your applications that run on AWS
- ❖ CloudWatch with EC2 will monitor events every 5 minutes by default
- ❖ You can have 1 minute intervals by turning on detailed monitoring
- ❖ You can create CloudWatch alarms which trigger notifications
- ❖ CloudWatch is all about performance

## **CloudWatch can monitor things like:**

- ❖ Compute
- ❖ Storage & Content Delivery

## Identity & Access Management



AWS IAM



AWS Directory Service



AWS Organizations

## Detective Controls



AWS CloudWatch



AWS Trusted Advisor

## Infrastructure Protection



AWS GuardDuty



AWS WAF



AWS VPC



AWS Shield

## Data Protection



AWS Macie



AWS KMS



AWS CloudHSM



AWS Elastic Load Balancer

## Incident Response



AWS CloudTrail



AWS CloudWatch Alarm



AWS SNS

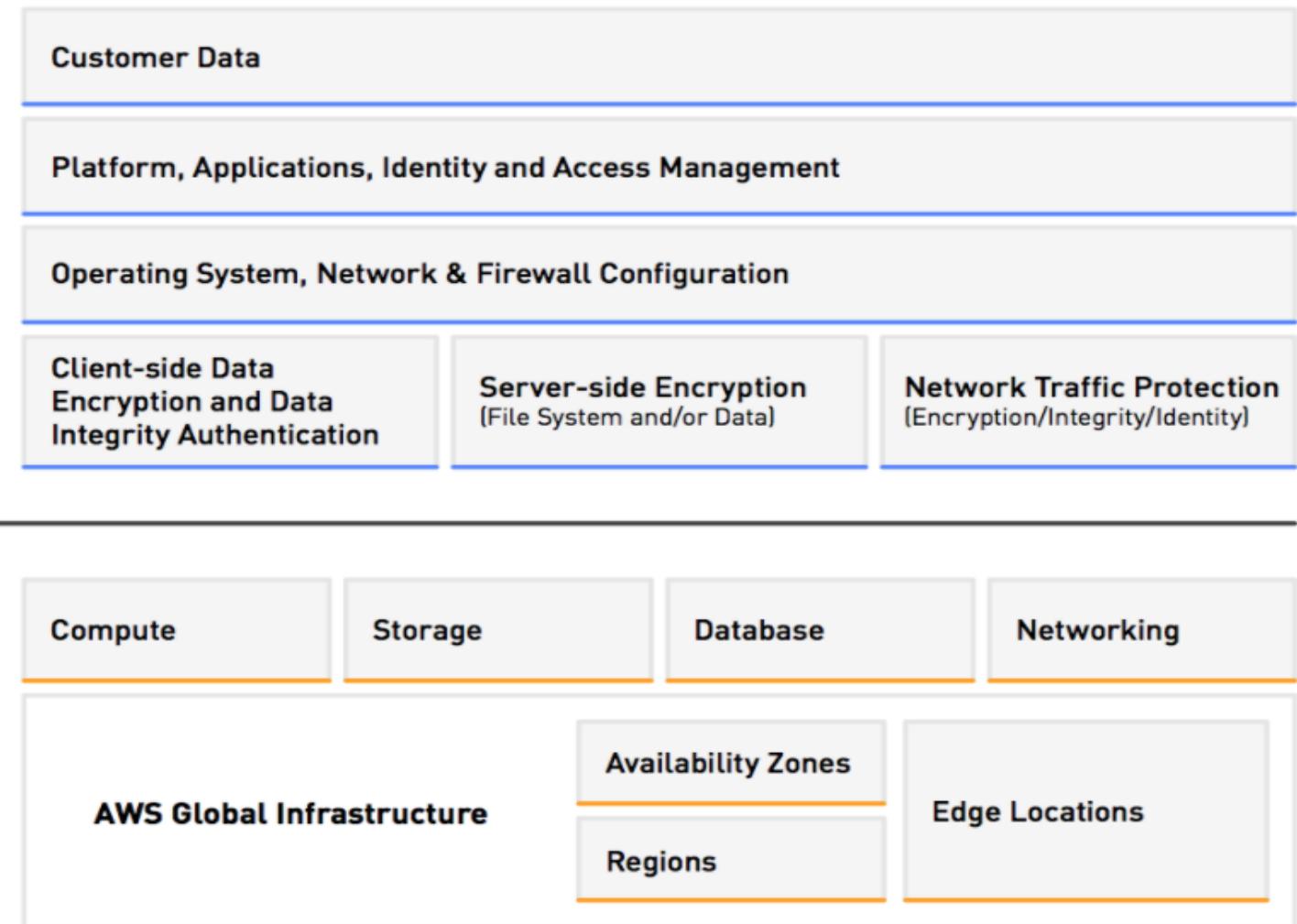
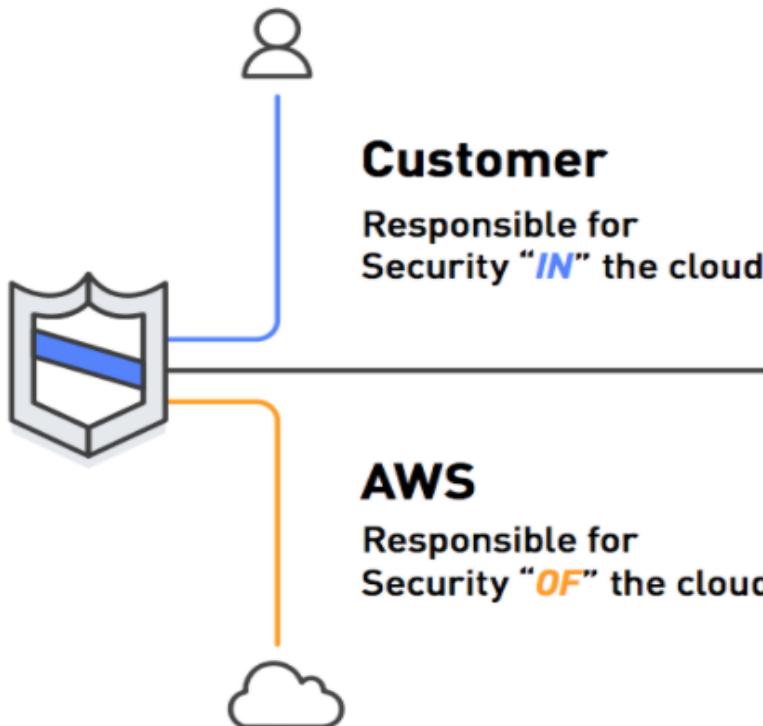
## Application Protection



AWS Inspector

# 8. AWS Security

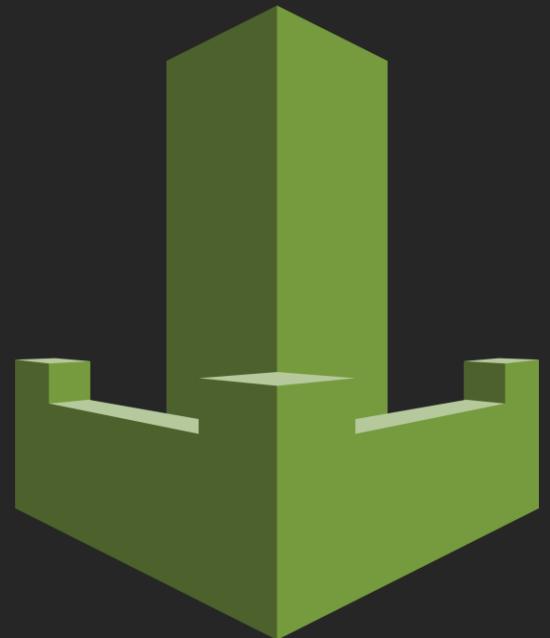
# AWS Shared Responsibility Model



# AWS WAF

**AWS WAF (Web Application Firewall)** is a web application firewall that helps protect your web applications from common web exploits that could affect application availability, compromise security, or consume excessive resources.

**AWS WAF is designated to stop hackers.**



# AWS *Shield*

**AWS Shield** is a managed DDoS (Distributed Denial of Service) protection service that safeguards web applications running on AWS. There are two tiers of AWS Shield: Standard and Advanced.

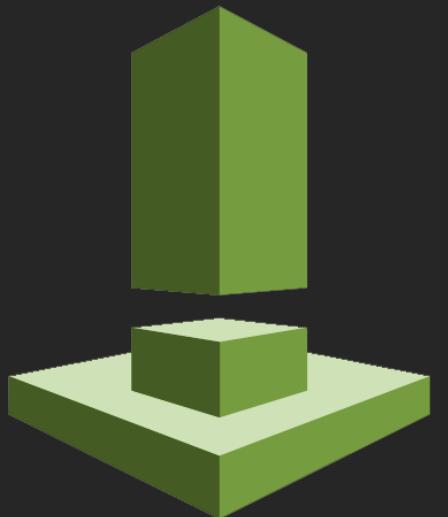
**AWS Shield is designed to stop DDOS attacks.**



# *AWS Inspector*

**AWS Inspector** is an automated security assessment service that helps improve the security and compliance of applications deployed on AWS. Amazon Inspector automatically assesses applications for vulnerabilities or deviations from best practices.

**AWS Inspector is used for inspecting EC2 instances for vulnerabilities.**



# *AWS Trusted Advisor*

**AWS Trusted Advisor** is an online resource to help you reduce cost, increase performance, and improve security by optimizing your AWS environment, it help you provision your resources following AWS best practices.

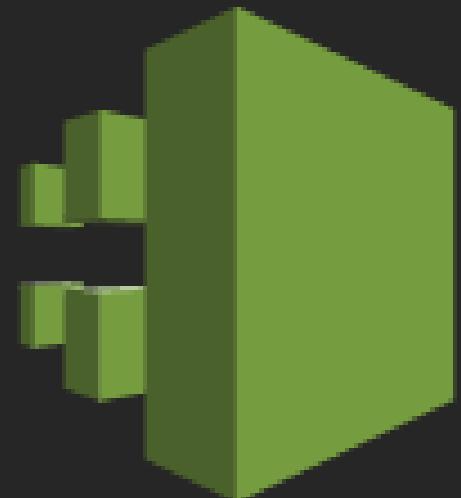
**Advisor will advise you on Cost Optimization, Performance, Security, Fault Tolerance.**



# AWS CloudTrail

**AWS CloudTrail** increases visibility into your user and resource activity by recording AWS Management Console actions and API calls.

You can identify which users and accounts called AWS, the source IP address from which the calls were made, and when the calls occurred.



# AWS Config

**AWS Config** is used to monitor configurations of your AWS Resources, are related to one another and how they were configured in the past so that you can see how the configurations and relationships change over time.

