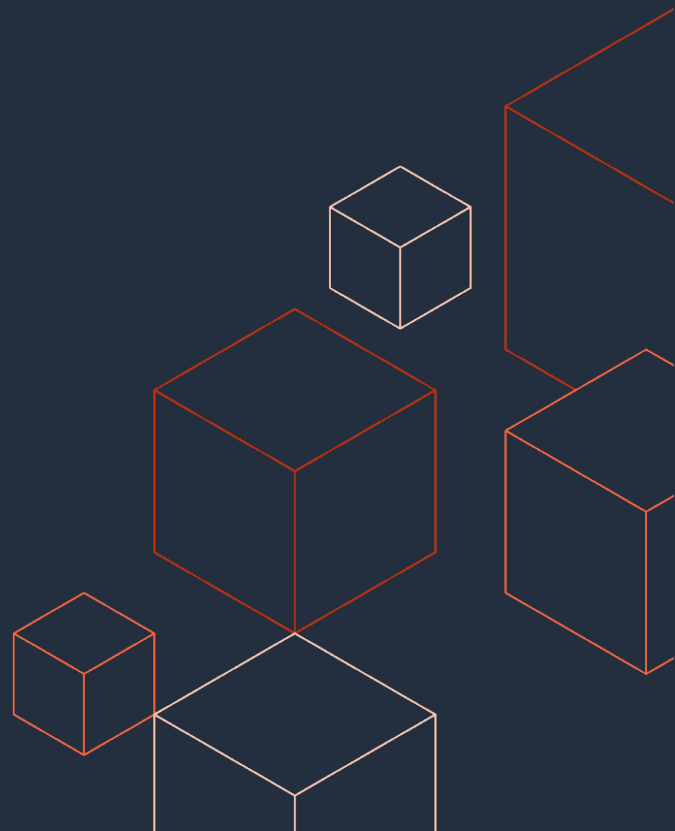
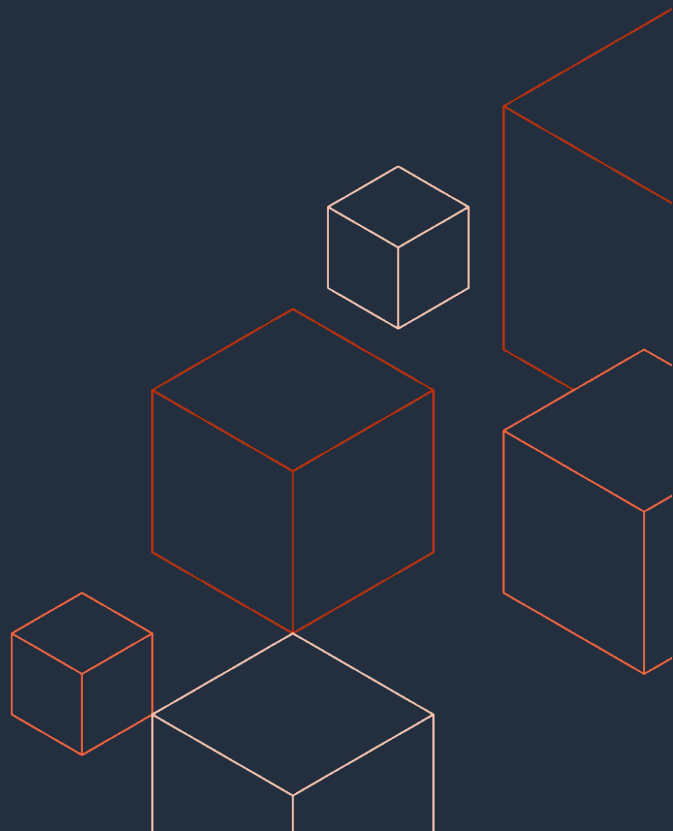
Getting Hands-on with

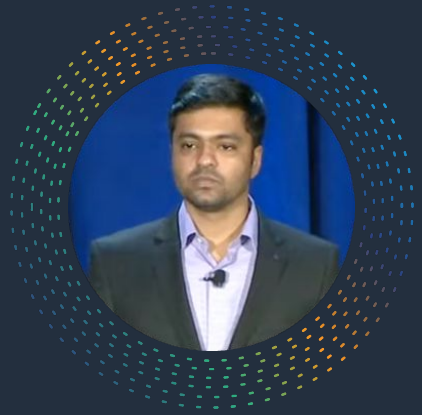


Agenda

- What is cloud computing?
- Benefits of Cloud Computing
- What is AWS?
- AWS Services & Demo
- FAQ



Speaker



Sanchit Jain

FOLLOW ME

- Working as Data Analytics & Cloud Practice Lead - AWS Alliance at Quantiphi
- Recognition - AWS Hero & AWS Ambassador, MVP by Multicloud4u & AWS User Group Mumbai Lead
- Speaker at various events like AWS re:Invent, AWS Summit, AWS User Groups, AWS Community Days, and various educational institutes
- Follow me @ LinkedIn, Twitter or Github

What is Cloud Computing?

What is cloud computing?

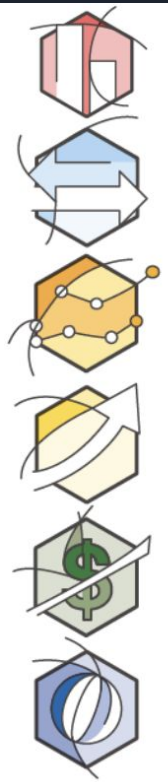
Cloud computing is the **on-demand** delivery of compute power, database storage, applications, and other IT resources through a cloud services platform **via the internet** with **pay-as-you-go** pricing.

Before Cloud Computing

Cloud computing enables you to **stop thinking of your infrastructure as hardware**, and instead **think of it (and use it) as software.**

Six Benefits of Cloud Computing

Six Benefits of Cloud Computing



Trade **capital expense** for **variable expense**.

Benefit from **massive economies of scale**.

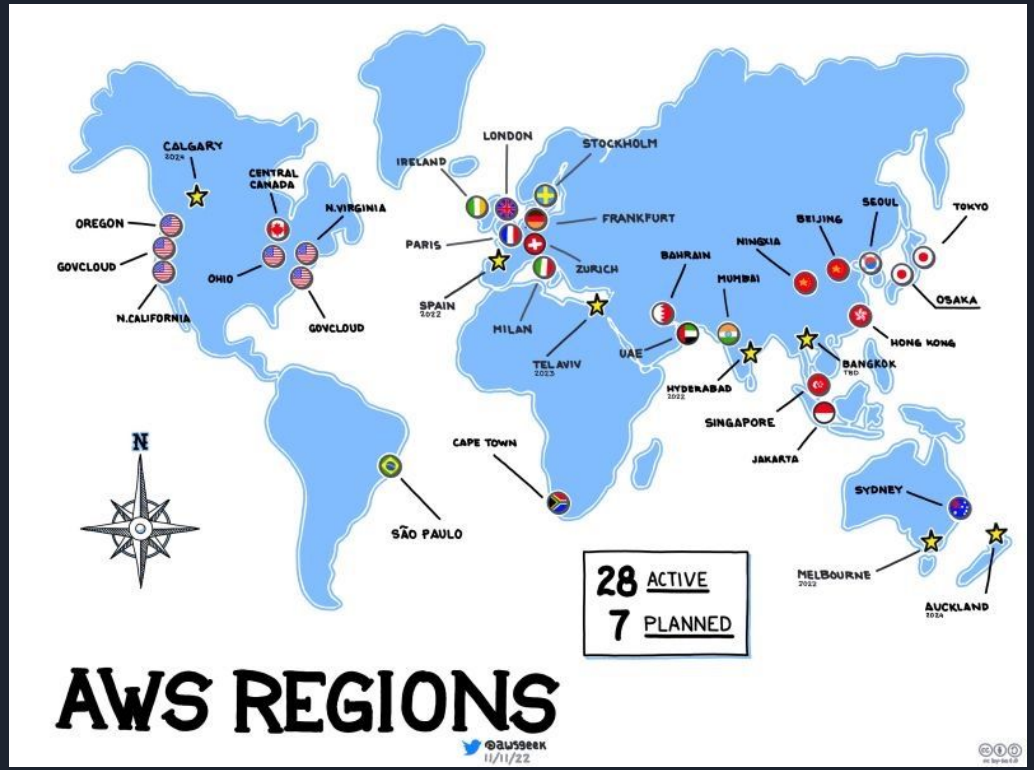
Eliminate guessing on your capacity needs.

Increase **speed** and **agility**.

Stop spending money to run and maintain data centers.

Go global in minutes.

Go Global in Minutes

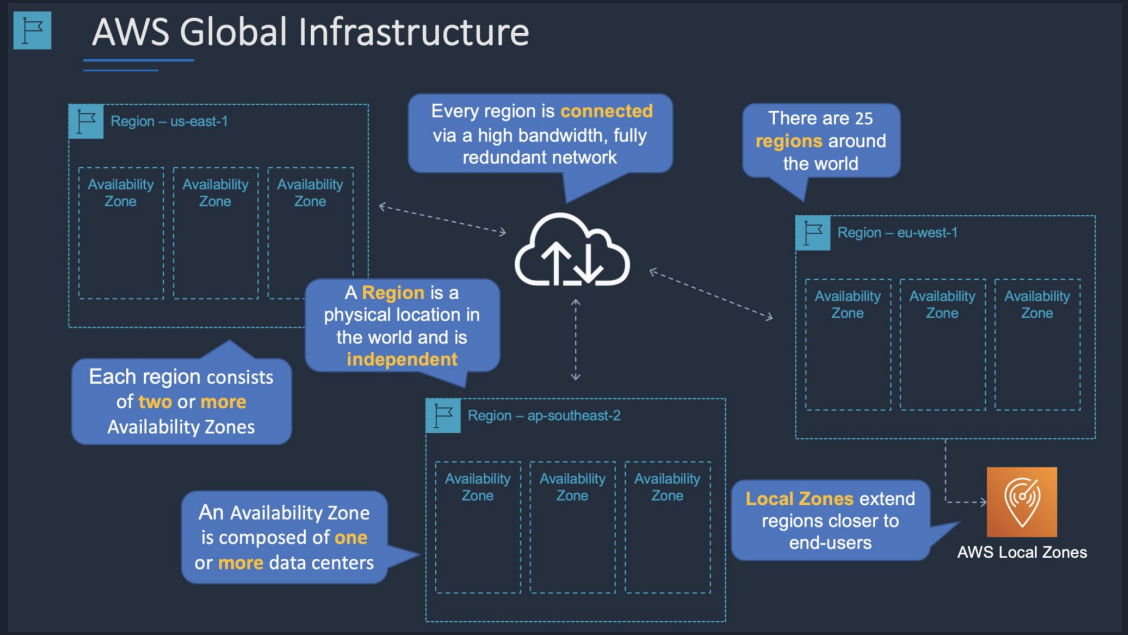


What is AWS?

Introduction to AWS

- Amazon Web Services (AWS) is a secure cloud services platform offering compute power, database storage, analytics, application and deployment services that help organizations move faster, lower IT costs, and scale applications.

- AWS provides services from dozens of data centers spread across availability zones (AZs) in regions across the world.



AWS Global Infrastructure Map

- Regions:
  - Based in a specific geographic region
  - Made up of two or more Availability Zones (AZ's)
  - Offers a specific subset of AWS services

- Availability Zones
  - Made up of one or more data centers
  - Low latency communication between availability zones
  - Designed to isolate any failure to a single availability zone

- AWS Edge Locations
  - Used as nodes of a global content delivery network
  - Allows AWS to serve content from locations closest to users
  - Primarily used by Amazon CloudFront and related services

How to choose an AWS Region?

1. Compliance with data governance and legal requirements
2. Proximity to customers
3. Available services within a Region
4. Pricing

Ways to interact with AWS

Three Ways to Interact with AWS

AWS Management Console

Easy-to-use graphical interface

Command Line Interface (AWS CLI)

Access to services via discrete command

Software Development Kits (SDKs)

Access services in your code

aws

Pricing of the Cloud

1. AWS has 3 pricing fundamentals, following the pay-as-you-go pricing model
2. Compute
    - Charged per hour/second
    - Varies by instance type
3. Storage
    - Charged typically per GB
4. Data transfer
    - Outbound is aggregated and charged
    - Inbound has no charge (with some exceptions)
    - Charged typically per GB

AWS Free Tier

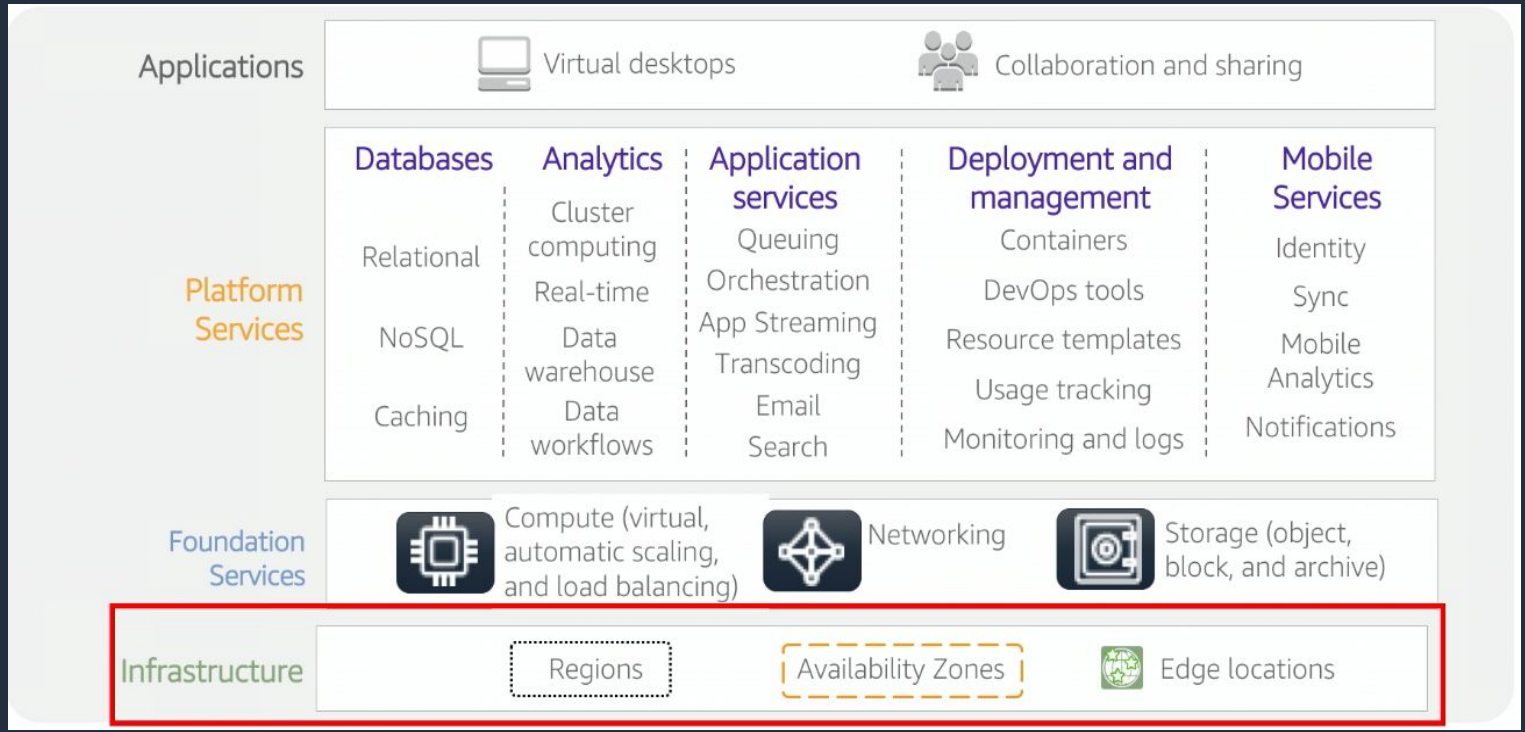
- Enables you to gain free hands-on experience with the AWS platform, products and services. Free for 1 year for new customers

- The free tier applies to certain participating AWS services up to a specific maximum amount of usage each month. The AWS Free Usage Tier is comprised of three different types of pricing models,
  - A 12-month Free Tier,
  - An Always Free offer, and
  - Short term trials.

- Services with no charge

AWS Services & Demo

AWS Services



What is Amazon S3?

- Amazon Simple Storage Service (Amazon S3) is storage for the Internet. You can use Amazon S3 to store and retrieve any amount of data at any time, from anywhere on the web.

- Amazon S3 stores data as objects within buckets. An object consists of a file and optionally any metadata that describes that file

- Types of S3 Storage:

    - S3 Standard.
    - S3 Standard Intelligent Tiering.
    - S3 Standard IA.
    - S3 Standard one zone IA.
    - S3 Glacier.
    - S3 Deep Archive.

Amazon S3 - Overview

	S3 Standard	S3 Intelligent-Tiering*	S3 Standard-IA	S3 One Zone-IA†	S3 Glacier	S3 Glacier Deep Archive
Designed for durability	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)	99.999999999% (11 9's)
Designed for availability	99.99%	99.9%	99.9%	99.5%	99.99%	99.99%
Availability SLA	99.9%	99%	99%	99%	99.9%	99.9%
Availability Zones	≥3	≥3	≥3	1	≥3	≥3
Minimum capacity charge per object	N/A	N/A	128KB	128KB	40KB	40KB
Minimum storage duration charge	N/A	30 days	30 days	30 days	90 days	180 days

Amazon S3 - Features

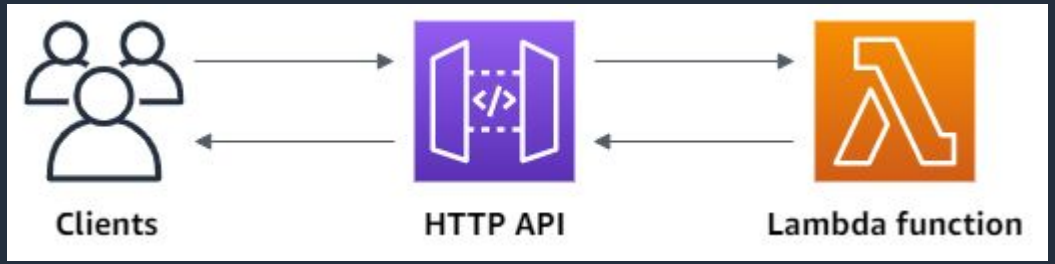
- Simple to use from console/app. REST API’s and SDK’s from third party technology integration.
- 99.999999999% durability
- Scalable and elastic
- Security - automatic encryption once uploaded. Control access using IAM (Identity and Access Management)
- Availability is 99.99% over an year. Choice of region for lower latency.
- Integrated with other AWS services.
- Easy to manage.

What is AWS API Gateway?

- Amazon API Gateway is an AWS service for creating, publishing, maintaining, monitoring, and securing REST, HTTP, and WebSocket APIs at any scale.

- API developers can create APIs that access AWS or other web services, as well as data stored in the AWS Cloud

- API Gateway creates RESTful APIs that:
  - Are HTTP-based.
  - Enable stateless client-server communication.
  - Implement standard HTTP methods such as GET, POST, PUT, PATCH, and DELETE.



What is serverless?

What is Serverless?

a cloud-native platform

for

short-running, stateless computation

and

event-driven applications

which

scales up and down instantly and automatically

and

charges for actual usage at a millisecond granularity

Greater Agility

Less Overhead

Better Focus

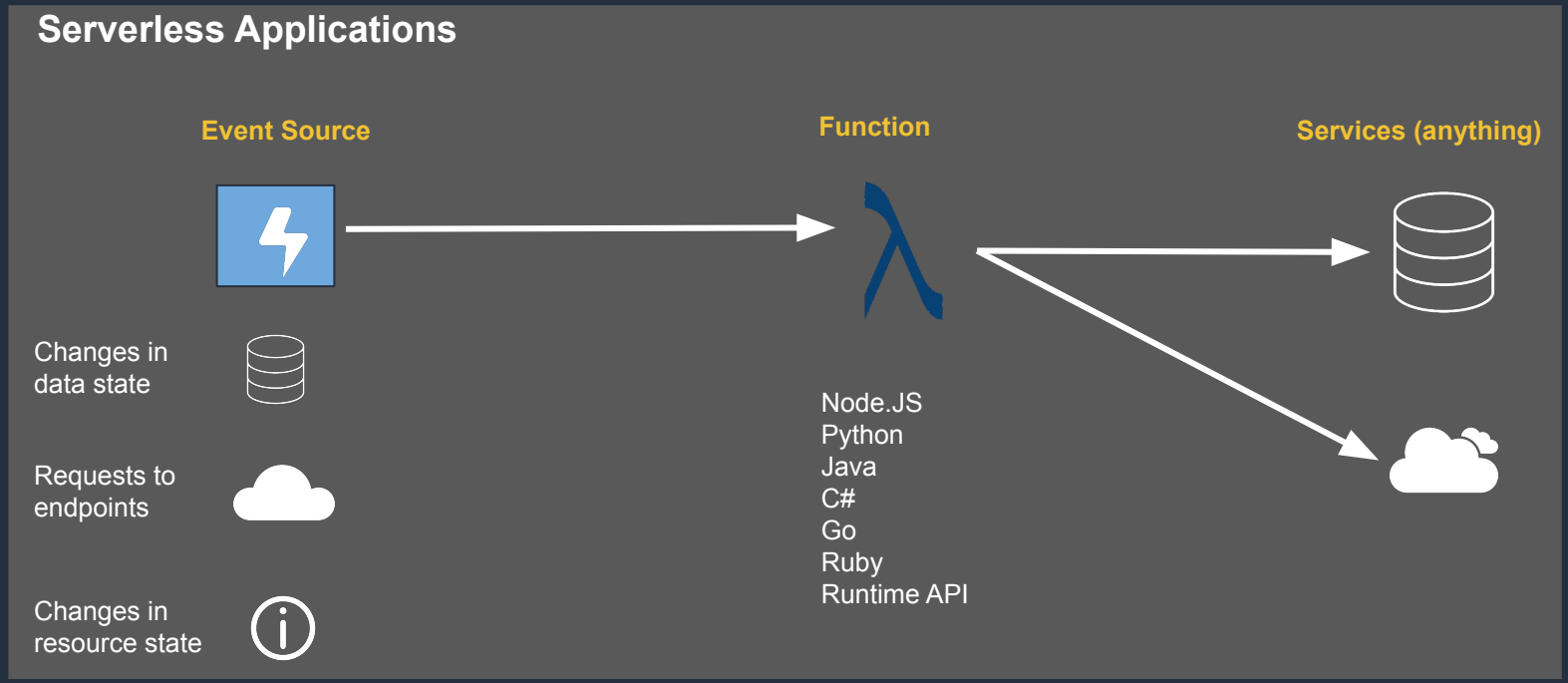
Increased Scale

More Flexibility

Faster Time To Market

What triggers code execution?

- Runs code in response to events
- Event-programming model



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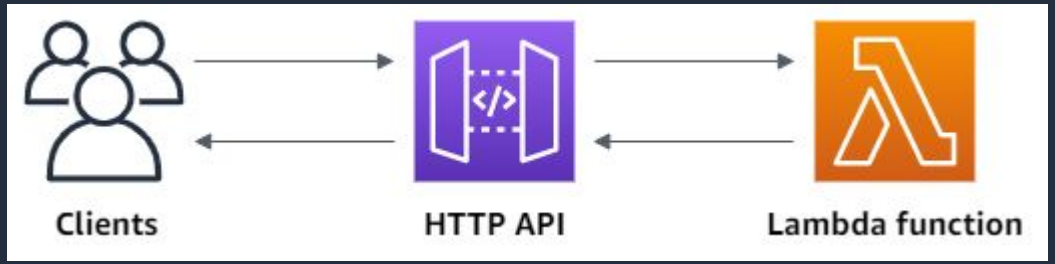
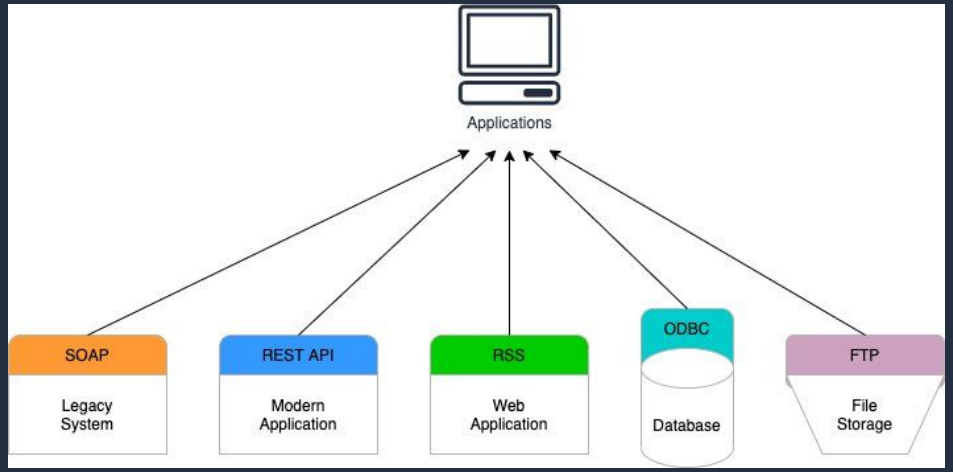
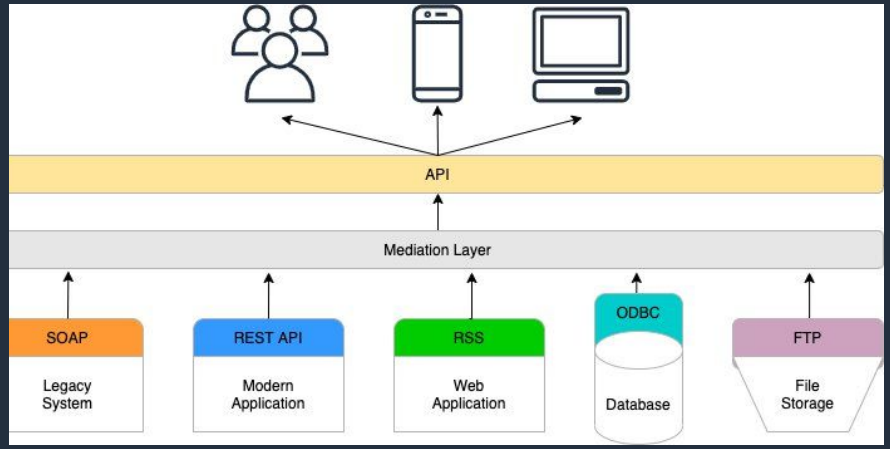


AWS API Gateway - Overview

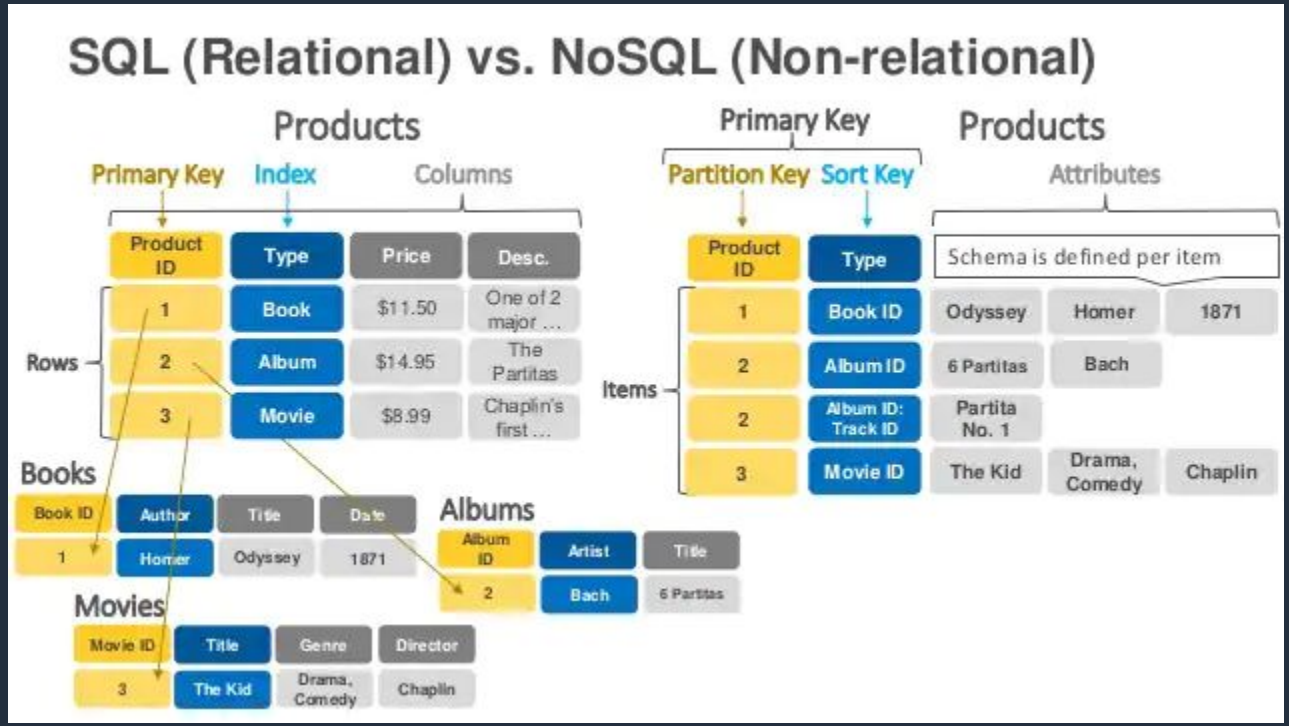


Traditional way



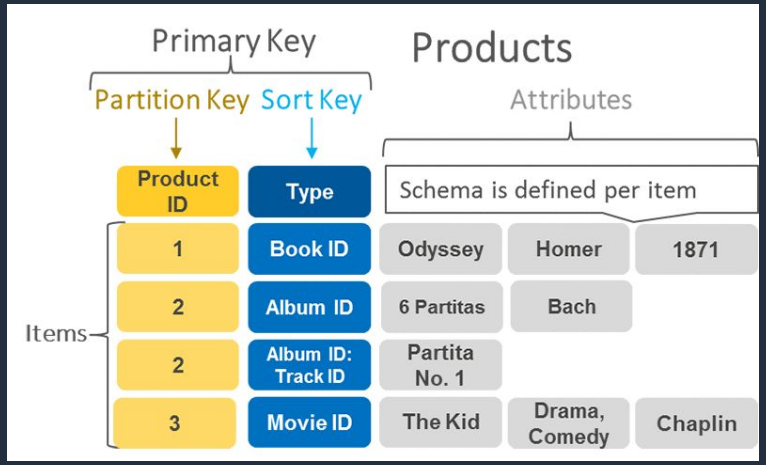
REST Based System

SQL (Relational) vs. NoSQL (Non-Relational)



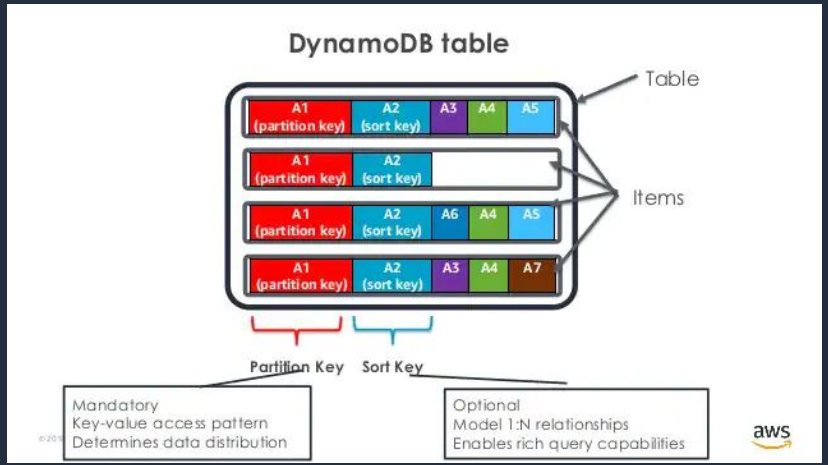
What is DynamoDB?

- Fully managed, fast NoSQL key-value database service
- No hardware provisioning, setup and configuration, replication, software patching, or cluster scaling required
- Allows to delete expired items from tables automatically to help reduce storage usage using TTL



Overview

- DynamoDB can handle more than 10 trillion requests per day and can support peaks of more than 20 million requests per second
- Primary Key - Two types of primary key
  - Partition Key (Hash Key) will help determine the physical location of data.
  - Composite key: Partition Key (Hash Key) & Sort Key (Range key – e.g date)
- Secondary Indexes - Secondary indexes allow you to perform queries on attributes that are not part of the table's primary key
- Local Secondary Index - Same Partition Key + Different Sort Key (can only be created while creating the table, cannot be added/removed or modified later)
- Global Secondary Index - Different Partition Key + Different Sort Key (can be created during the table creation or can be added later or removed / modified later)



Questions?

Thank you!

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