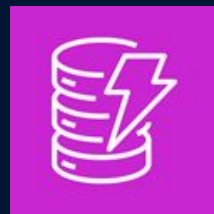# AWS

DynamoDB

AWS Database Services

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Topic 01

Introduction

A fully managed NoSQL database service provided by AWS. It offers high performance, scalability, and flexibility, making it suitable for applications requiring low latency and rapid data access. Here's a comprehensive overview of AWS DynamoDB:

Introduction

Topic 02

Key Features

01) Scalability

Auto Scaling

Automatically adjusts throughput capacity to maintain performance and accommodate traffic changes.

DAX

In-memory caching service that provides microsecond latency for read-intensive applications.

02) Data Models

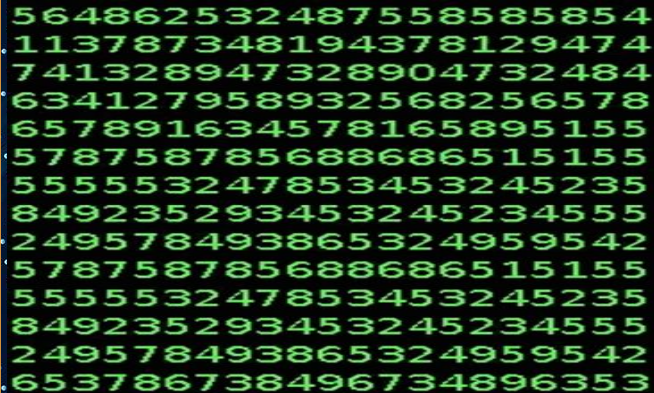## Tables, Items, and Attributes

DynamoDB organizes data into tables, each containing items (rows) and attributes (columns).

Primary Key

Each item must have a primary key, which can be either a partition key or a combination of partition key and sort key.

03) Flexible Data Types

Supports various data types, including strings, numbers, binaries, sets, lists, maps, and nulls.

04) Consistent and Eventually Consistent Reads:

Strong

Ensure the most recent write is returned.

Eventually

Provide the best read performance but may not reflect the most recent changes immediately.

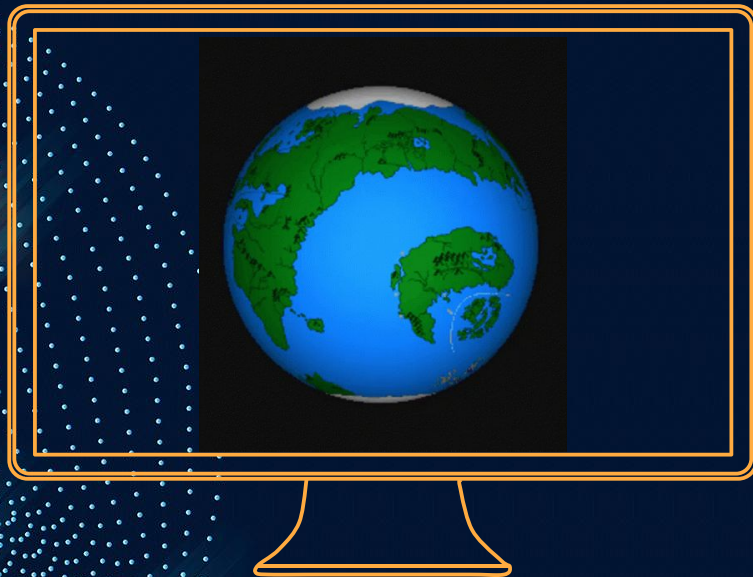# 05) High Availability and Durability:

Multi AZ Replica

Automatically replicates data across multiple AWS Availability Zones for fault tolerance.

Backup & Restore

Supports on-demand and continuous backups, allowing point-in-time recovery.

06) Global Tables

Enable multi-region, fully replicated databases, allowing applications to read and write data locally in multiple AWS regions.

07) Streams

DynamoDB Streams capture a time-ordered sequence of item-level changes in a table, enabling features like change data capture and real-time analytics.

08) Integrations

Seamlessly integrates with other AWS services, including Lambda, S3, Kinesis, and CloudWatch, facilitating event-driven architectures and monitoring.

09) Security

Encryption at Rest & In-Transit:

Ensures data is protected both at rest and during transmission.

IAM Policies

Controls access to tables and items using AWS Identity and Access Management (IAM).

Topic 03

How it Works

How it Works

Create a Table

Insert Data

Query & Scan

Update & Delete

Topic 04

Use Cases

Use Cases

Backend for web apps requiring high throughput & low latency, such as user profiles and session management.

Web & Mobile Applications

Store game state, player data, and leaderboards with real-time updates and high availability.
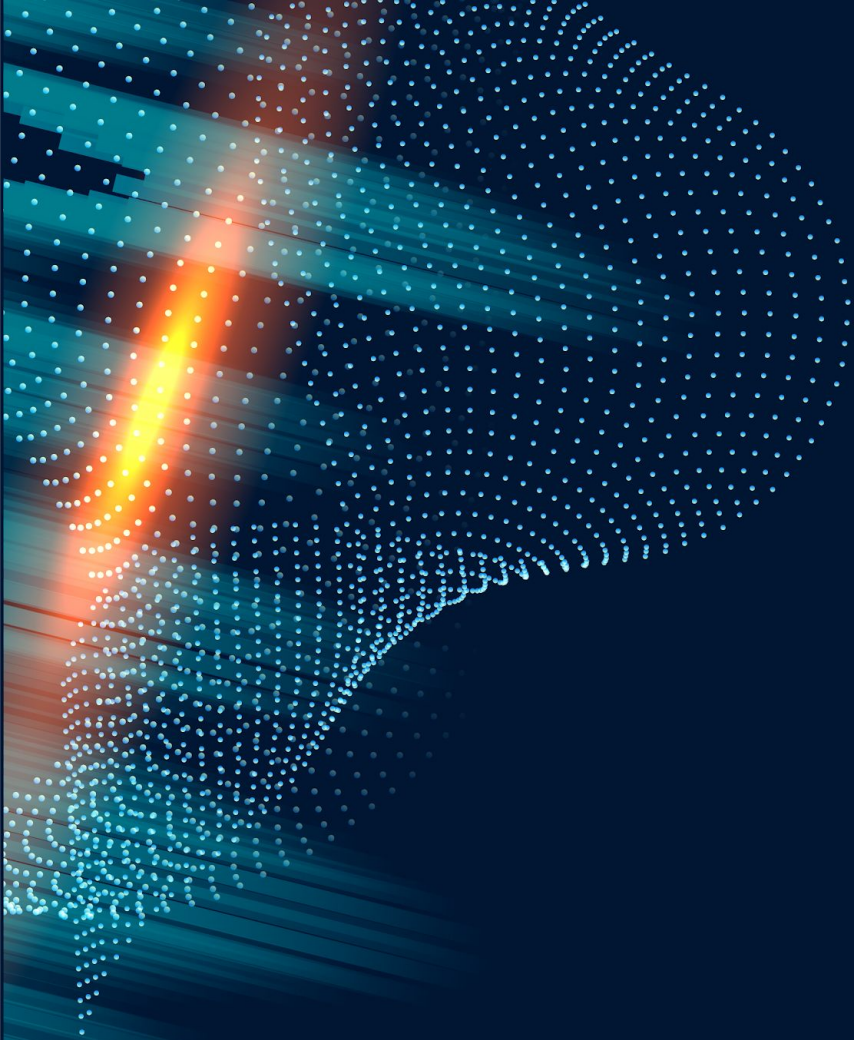
Gaming

Manage IoT data streams and perform real-time analytics on sensor data.

IoT Applications

Integrate with AWS Lambda for event-driven workflows without server management.

Serverless Architecture

Topic 05

Benefits

Benefits

Performance at Scale:

-

Performance at Scale

Consistent, single-digit millisecond response times for any scale of workloads.

Fully Managed

Allowing you to focus on application development.

Flexible Pricing

Pay for the throughput and storage you use
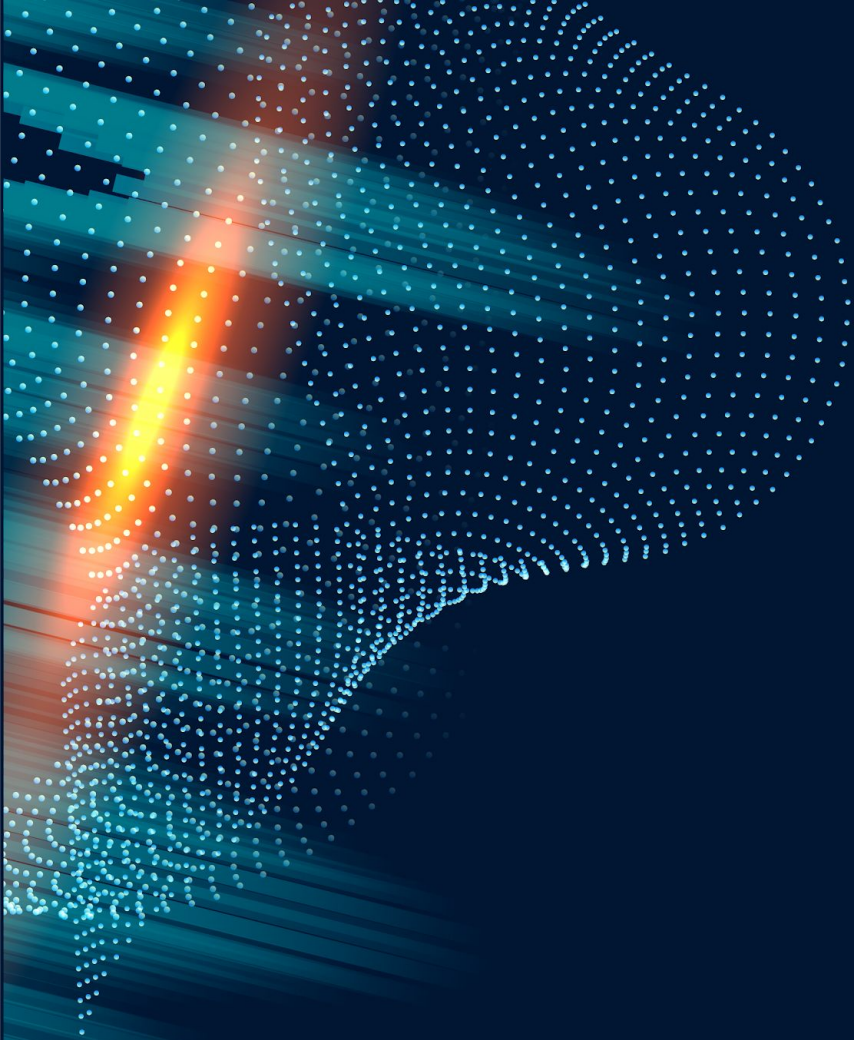
Benefits

High Availability

Multi-AZ replication and built-in fault tolerance ensure high availability and durability.

Strong Security

Advanced security features, including encryption and fine-grained access control, protect your data.

Topic 06

Pricing

Pricing

On Demand

Suitable for unpredictable workloads.

Provisioned

Ideal for predictable workloads with the option for auto-scaling.

THANKS!

Do you have any questions?
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The Tech Stuff