01/

Compute Services

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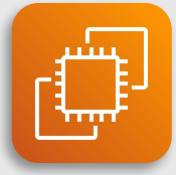
Compute services overview



Amazon Elastic Compute Cloud (Amazon EC2)

Virtual servers in the cloud

Amazon EC2 Auto Scaling

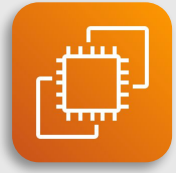
Add or remove compute capacity to meet changes in demand

AWS Lambda

Run code without thinking about servers

What is Amazon Elastic Compute Cloud (EC2) ?

Instance	vCPU*	CPU Credits/hour	Mem (GiB)	Storage
t3.nano	2	6	0.5	EBS-Only
t3.micro	2	12	1	EBS-Only
t3.small	2	24	2	EBS-Only
t3.medium	2	24	4	EBS-Only
t3.large	2	36	8	EBS-Only
t3.xlarge	4	96	16	EBS-Only
t3.2xlarge	8	192	32	EBS-Only



Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides **resizable** compute capacity in the cloud.

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Amazon EC2 Instance Types

General Purpose

- provide a balance of compute, memory and networking resources
- can be used for a variety of diverse workloads.
- ideal for applications that use these resources in equal proportions such as web servers and code repositories.

Compute Optimized

- suited for batch processing workloads, media transcoding, high performance web servers, scientific modeling, dedicated gaming servers and ad server engines, machine learning and other compute intensive applications.

Amazon EC2 Instance Types

Memory Optimized

- designed to deliver fast performance for workloads that process large data sets in memory.

Accelerated Computing

- To perform functions, such as floating point number calculations, graphics processing, or data pattern matching, more efficiently than is possible in software running on CPUs.

Storage Optimized

- designed for workloads that require high, sequential read and write access to very large data sets on local storage.

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Instance Pricing Type

Spot instances are recommended for:

- Applications that have flexible start and end times
- Applications that are feasible only at very low compute prices
- Users with urgent computing needs for large amounts of additional capacity

On-Demand instances are recommended for:

- Users that prefer the low cost and flexibility of Amazon EC2 without any upfront payment or long-term commitment
- Applications with short-term, spiky, or unpredictable workloads that cannot be interrupted
- Applications being developed or tested on Amazon EC2 for the first time

Reserved Instances(Savings Plans)

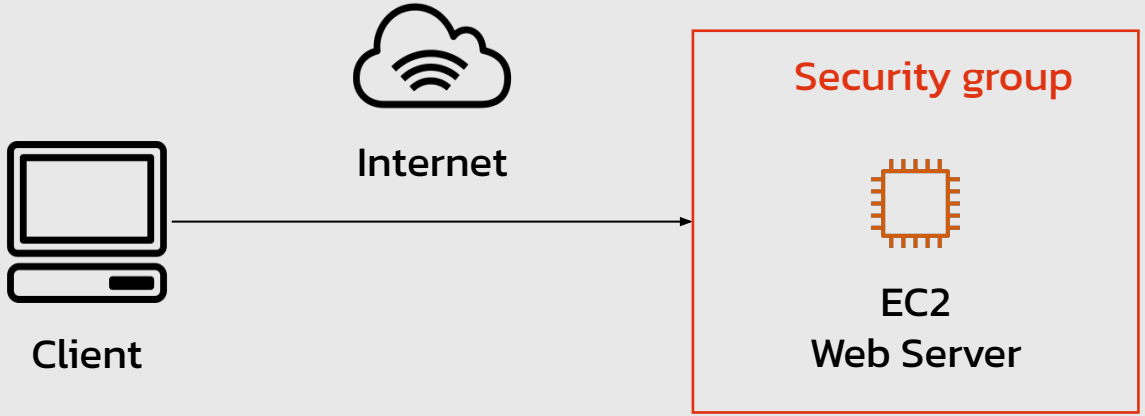
- provide you with a significant discount (up to 72%) compared to On-Demand Instance pricing.

Dedicated Hosts

- help you reduce costs by allowing you to use your existing server-bound software licenses, including Windows Server, SQL Server, and SUSE Linux Enterprise Server
- help you meet compliance requirements

Use Case

Run cloud-native web applications

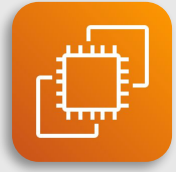


What is Amazon EC2 Auto Scaling ?

Scheduled Scaling

Dynamic Scaling

Predictive Scaling



Amazon EC2 Auto Scaling helps you maintain application availability and allows you to automatically add or remove EC2 instances according to conditions you define.

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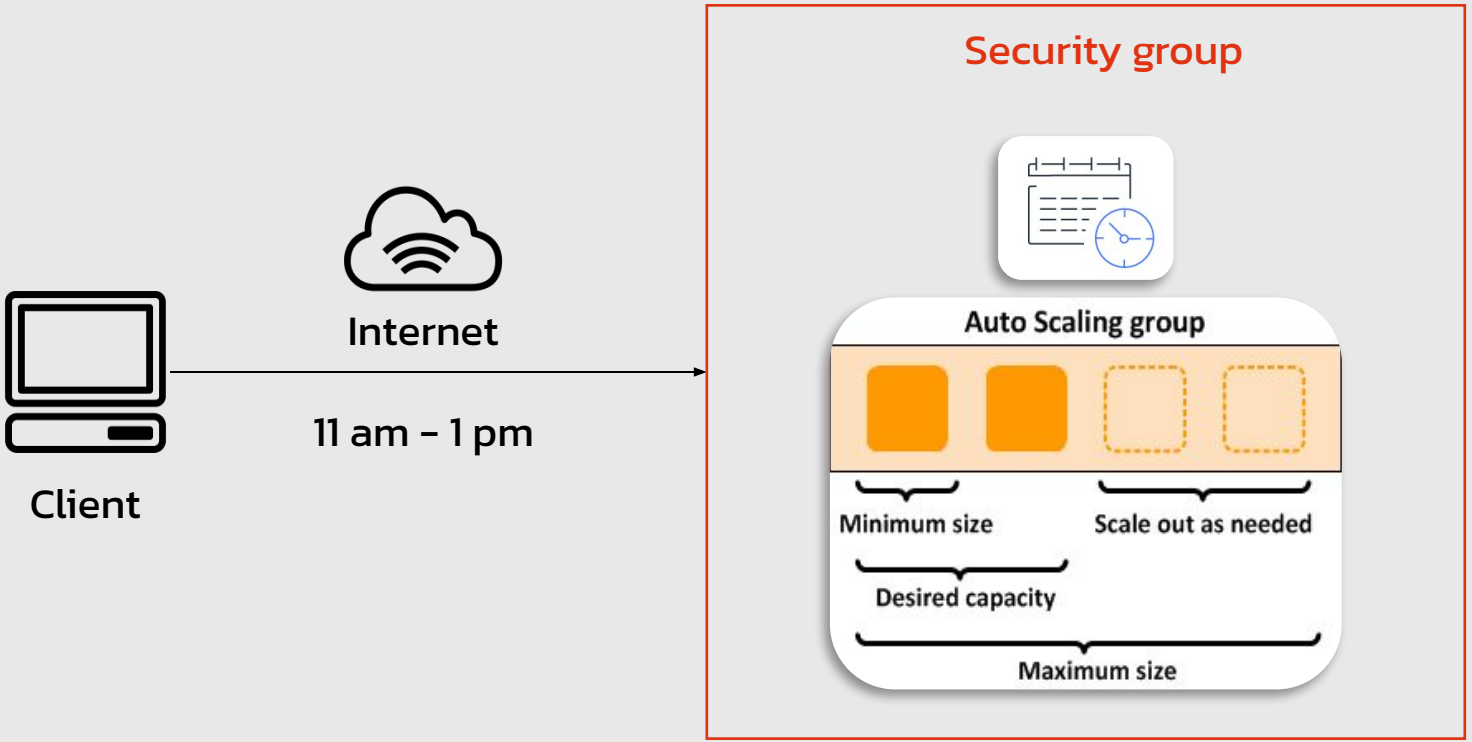
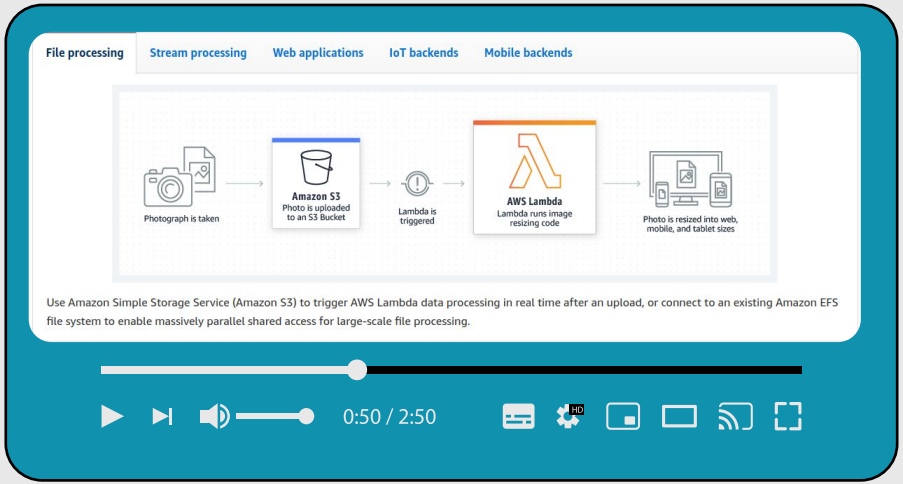
Use Case



What is AWS Lambda?



AWS Lambda is a serverless compute service that runs your code in response to events and automatically manages the underlying compute resources for you.

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Use Case

File processing | Stream processing | Web applications | IoT backends | Mobile backends

Use Amazon Simple Storage Service (Amazon S3) to trigger AWS Lambda data processing in real time after an upload, or connect to an existing Amazon EFS file system to enable massively parallel shared access for large-scale file processing.

0:50 / 2:50

Mini Workshop

Create AWS EC2 Instance

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02/

Storage Services

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Storage services overview

Amazon Simple Storage Service (Amazon S3)

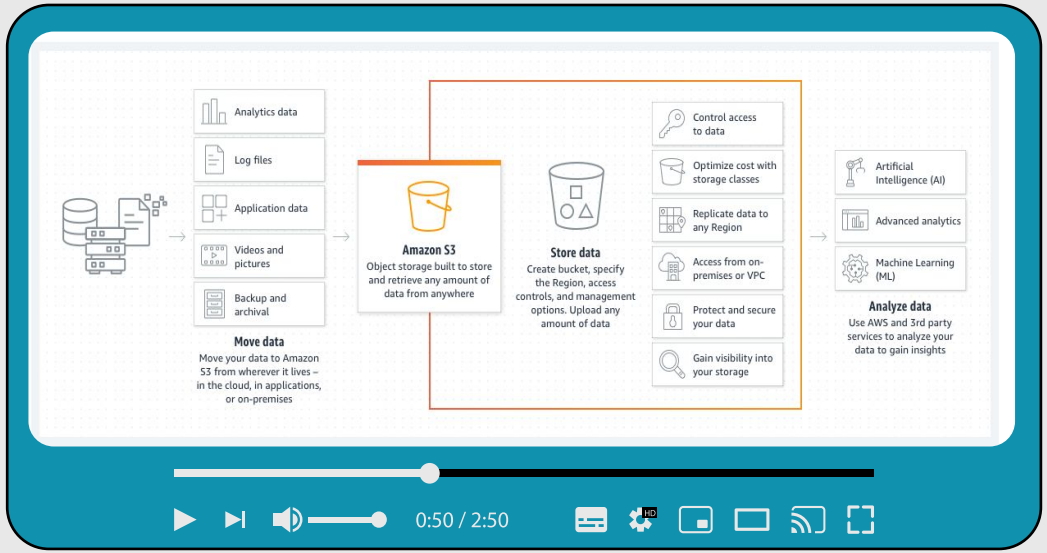
Amazon Elastic Block Store (Amazon EBS)

Amazon Elastic File System (Amazon EFS)

AWS Backup

AWS Snowball

What is Amazon Simple Storage Service (Amazon S3)



Amazon Simple Storage Service (Amazon S3)

Object storage built to retrieve any amount of data from anywhere

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Amazon S3 Storage Classes

Short-term storage

General purpose Amazon S3 Standard (S3 Standard)

Unknown or changing access Amazon S3 Intelligent-Tiering (S3 Intelligent-Tiering)

Infrequent access Amazon S3 Standard-Infrequent Access (S3 Standard-IA)

Long-term, secure, durable storage classes for data archiving at the lowest cost and milliseconds access

Amazon S3 Glacier

Amazon S3 Glacier Deep Archive

Use Case

Build a data lake

Run big data analytics, artificial intelligence (AI), machine learning (ML), and high performance computing (HPC) applications to unlock data insights.

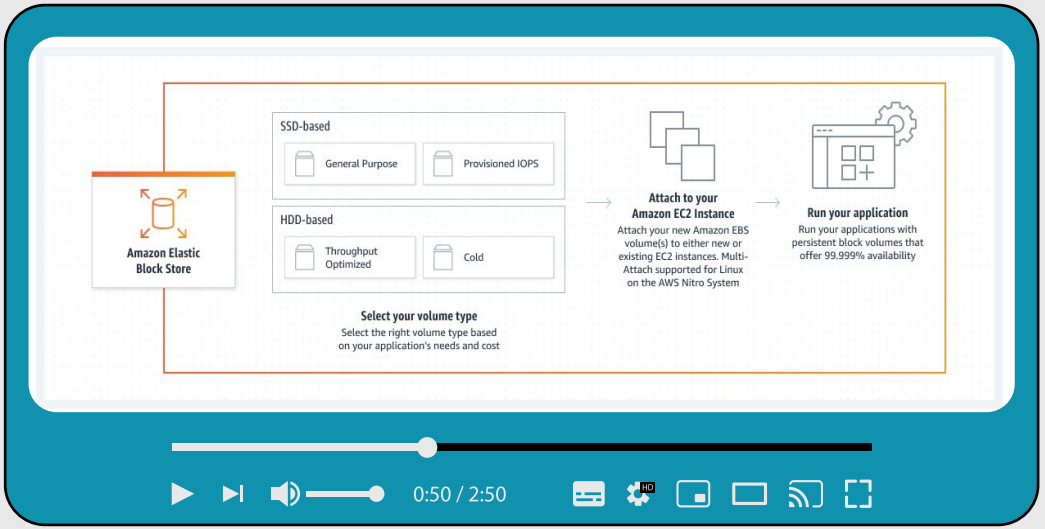
Back up and restore critical data

Meet Recovery Time Objectives (RTO), Recovery Point Objectives (RPO), and compliance requirements with S3's robust replication features.

Archive data at the lowest cost

Move data archives to the Amazon S3 Glacier storage classes to lower costs, eliminate operational complexities, and gain new insights.

What is Amazon Elastic Block Store (Amazon EBS)



Amazon Elastic Block Store (Amazon EBS)

Easy to use, high performance block storage at any scale

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Use Case

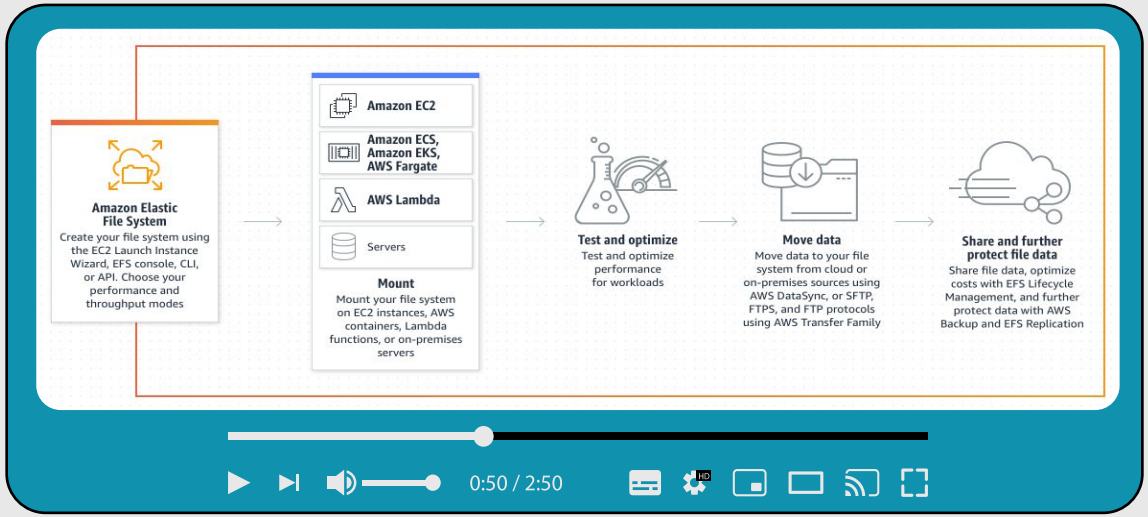
Run relational or NoSQL databases

Deploy and scale your choice of databases, including SAP HANA, Oracle, Microsoft SQL Server, MySQL, Cassandra, and MongoDB.

Right-size your big data analytics engines

Easily resize clusters for big data analytics engines, such as Hadoop and Spark, and freely detach and reattach volumes.

What is Amazon Elastic File System (Amazon EFS)



Amazon Elastic File System (Amazon EFS)

Simple, serverless, set-and-forget, elastic file system

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Use Case

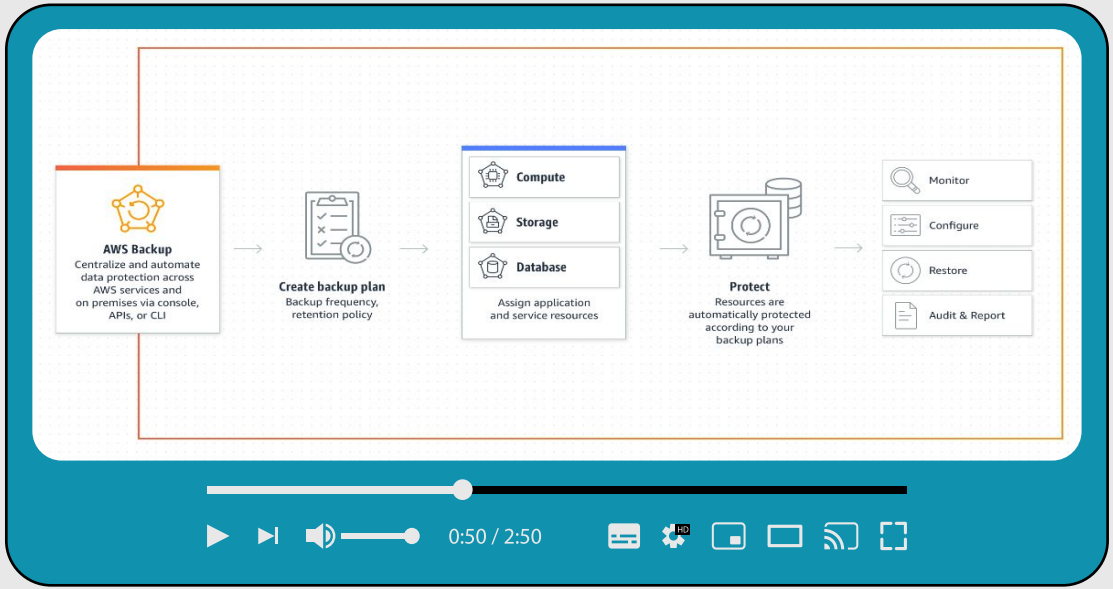
Modernize application development

Persist and share data from your AWS containers and serverless applications with zero management required.

Accelerate data science

Easy to use and scale, Amazon EFS offers the performance and consistency needed for machine learning (ML) and big data analytics workloads.

What is Amazon Backup



AWS Backup

Centrally manage and automate backups across AWS services

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Use Case

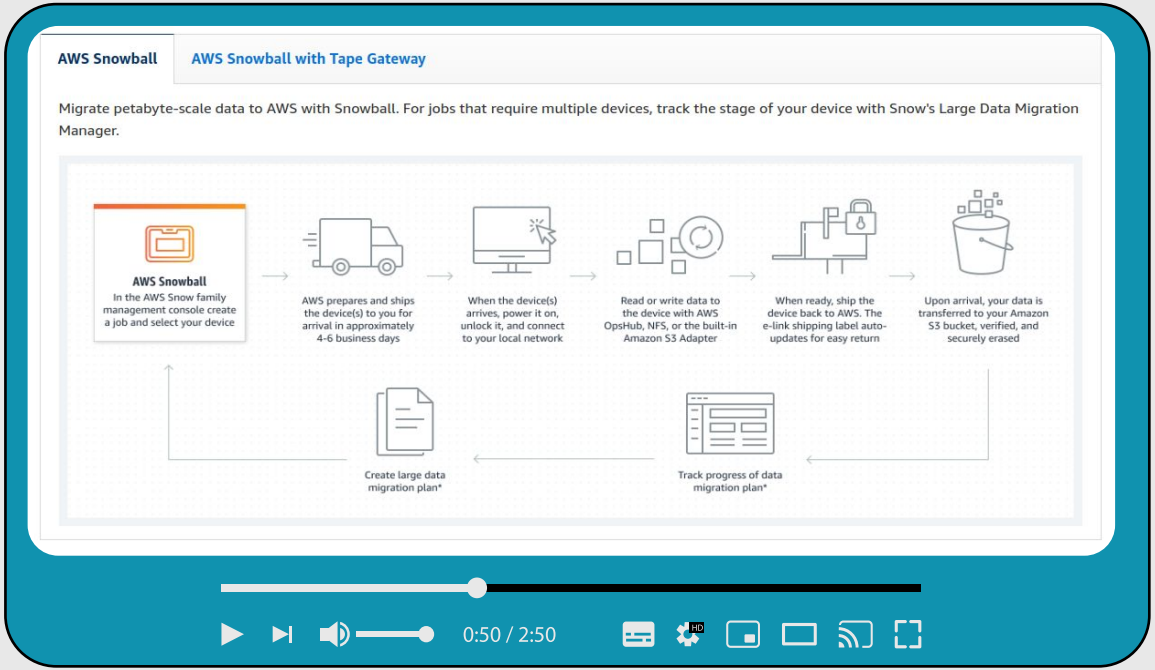
Cloud-native backup

AWS Backup provides a centralized console to automate and manage backups across AWS services. AWS Backup supports Amazon S3, Amazon EBS, Amazon RDS including Amazon Aurora, Amazon DynamoDB, Amazon Neptune, Amazon DocumentDB, Amazon EFS, Amazon FSx for NetApp ONTAP, FSx for Lustre and FSx for Windows File Server, and FSx for OpenZFS, Amazon EC2, and AWS Storage Gateway. Using AWS Backup, you can back up key data stores, such as your buckets, volumes, databases, and file systems.

Hybrid data protection

AWS Backup centralizes data protection management and compliance for your applications running in hybrid environments. Using AWS Backup, you can protect VMware workloads running on premises and in VMware CloudTM on AWS, and data stored on AWS Storage Gateway volumes.

What is Amazon Snowball



AWS Snowball

Accelerate moving offline data or remote storage to the cloud

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Use Case

Migrate data at petabyte-scale

Move databases,backups, archives, healthcare records, analytics datasets, IoT sensor data and media content to the cloud – especially when network conditions are limited.

Process and analyze data locally

Run Amazon Machine Images (AMIs) within Amazon EC2 and deploy AWS Lambda code on Snowball Edge devices with machine learning (ML) or other applications.

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Store data with AWS S3

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Database Services

03/

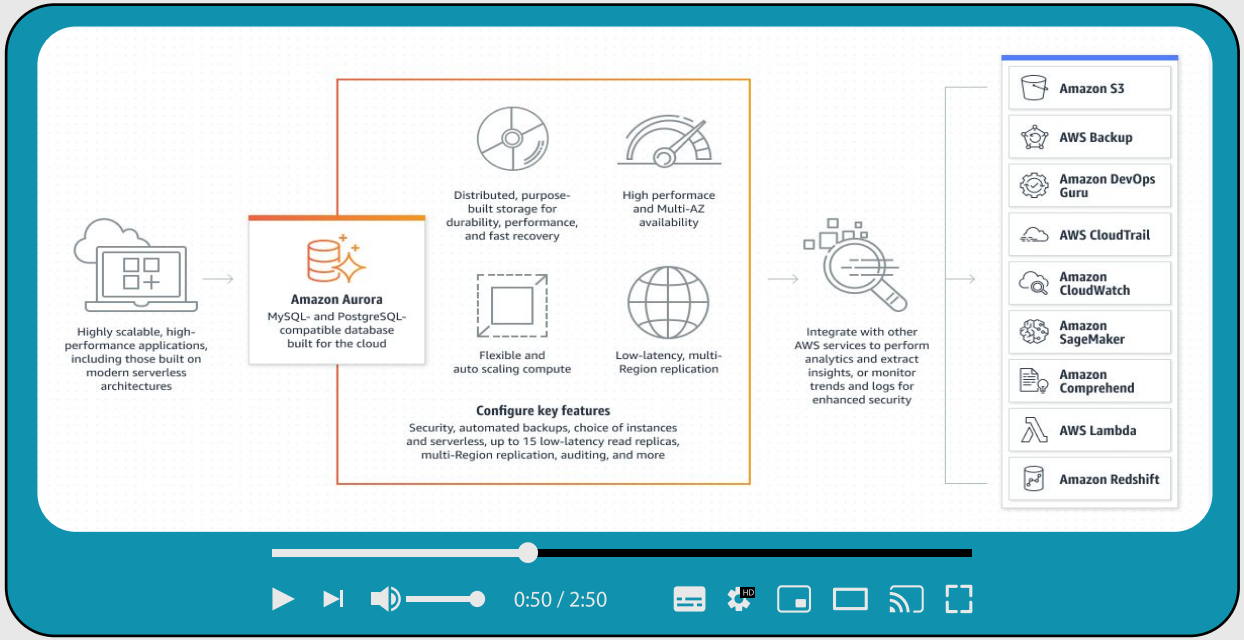
Database services overview

Amazon Aurora

Amazon DynamoDB

Amazon Relational Database Service (Amazon RDS)

What is Amazon Aurora



Amazon Aurora

Designed for unparalleled high performance and availability at global scale with full MySQL and PostgreSQL compatibility

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Use Case

Modernize enterprise applications

Operate enterprise applications, such as customer relationship management (CRM), enterprise resource planning (ERP), supply chain, and billing applications, with high availability and performance.

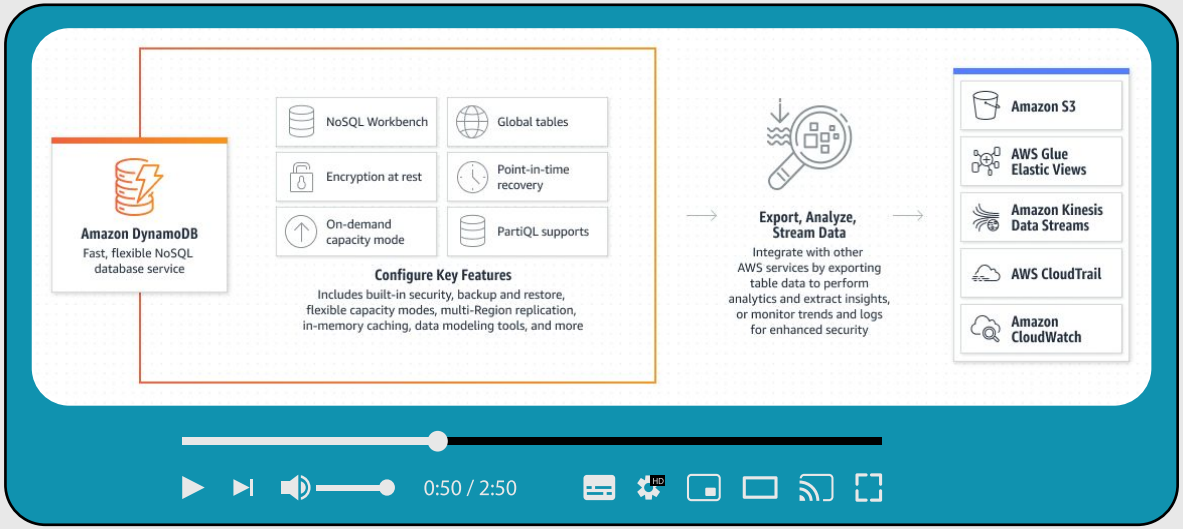
Deploy globally distributed applications

Develop internet-scale applications, such as mobile games, social media apps, and online services, that require multi-Region scalability and resilience.

Go serverless

Hands-off capacity management, and pay only for capacity consumed with instantaneous and fine-grained scaling to save up to 90% of cost.

What is Amazon DynamoDB



Amazon DynamoDB

Fast, flexible NoSQL database service for single-digit millisecond performance at any scale

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Use Case

Develop software applications

Build internet-scale applications supporting user-content metadata and caches that require high concurrency and connections for millions of users and millions of requests per second

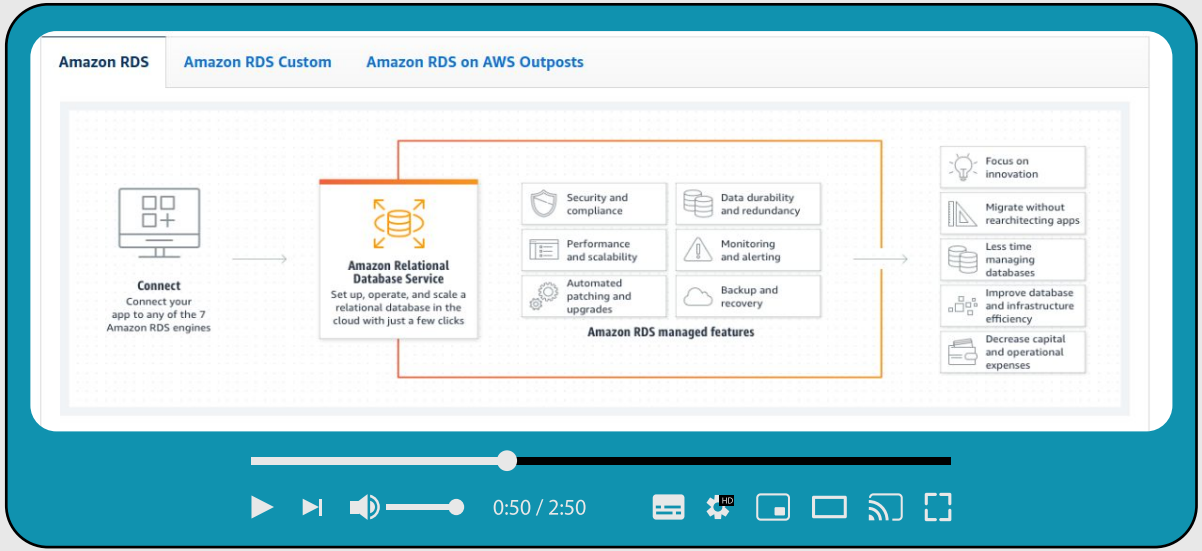
Create media metadata stores

Scale throughput and concurrency for media and entertainment workloads such as real-time video streaming and interactive content, and deliver lower latency with multi-Region replication across AWS Regions.

Scale gaming platforms

Focus on driving innovation with no operational overhead. Build out your game platform with player data, session history, and leaderboards for millions of concurrent users.

What is Amazon Relational Database Service (RDS)



Amazon Relational Database Service (Amazon RDS)

Set up, operate, and scale a relational database in the cloud with just a few clicks.

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Use Case

Build web and mobile applications

Support growing apps with high availability, throughput, and storage scalability. Take advantage of flexible pay-per-use pricing to suit various application usage patterns.

Move to managed databases

Innovate and build new apps with Amazon RDS instead of worrying about self-managing your databases, which can be time consuming, complex, and expensive.

Break free from legacy databases

Free yourself from expensive, punitive, commercial databases by migrating to Amazon Aurora. When you migrate to Aurora, you get the scalability, performance, and availability of commercial databases at 1/10th the cost.

Mini Workshop

Create RDS Instance

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Analytics Services

04/

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Analytics services overview

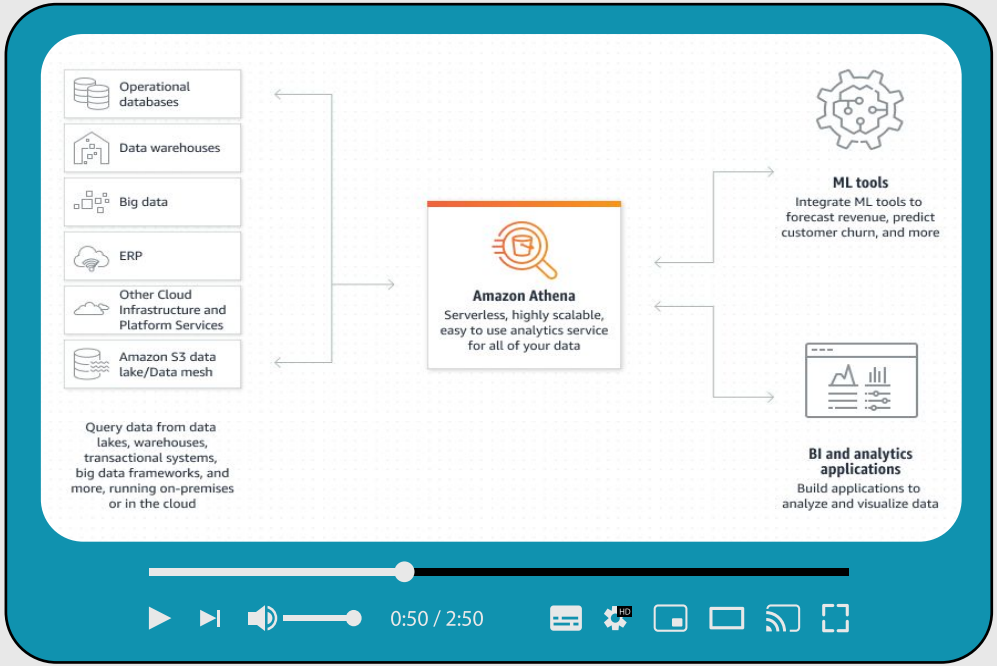
Amazon Athena

Amazon Redshift

Amazon QuickSight

Amazon EMR

What is Amazon Athena



Amazon Athena

Start querying data instantly. Get results in seconds. Pay only for the queries you run.

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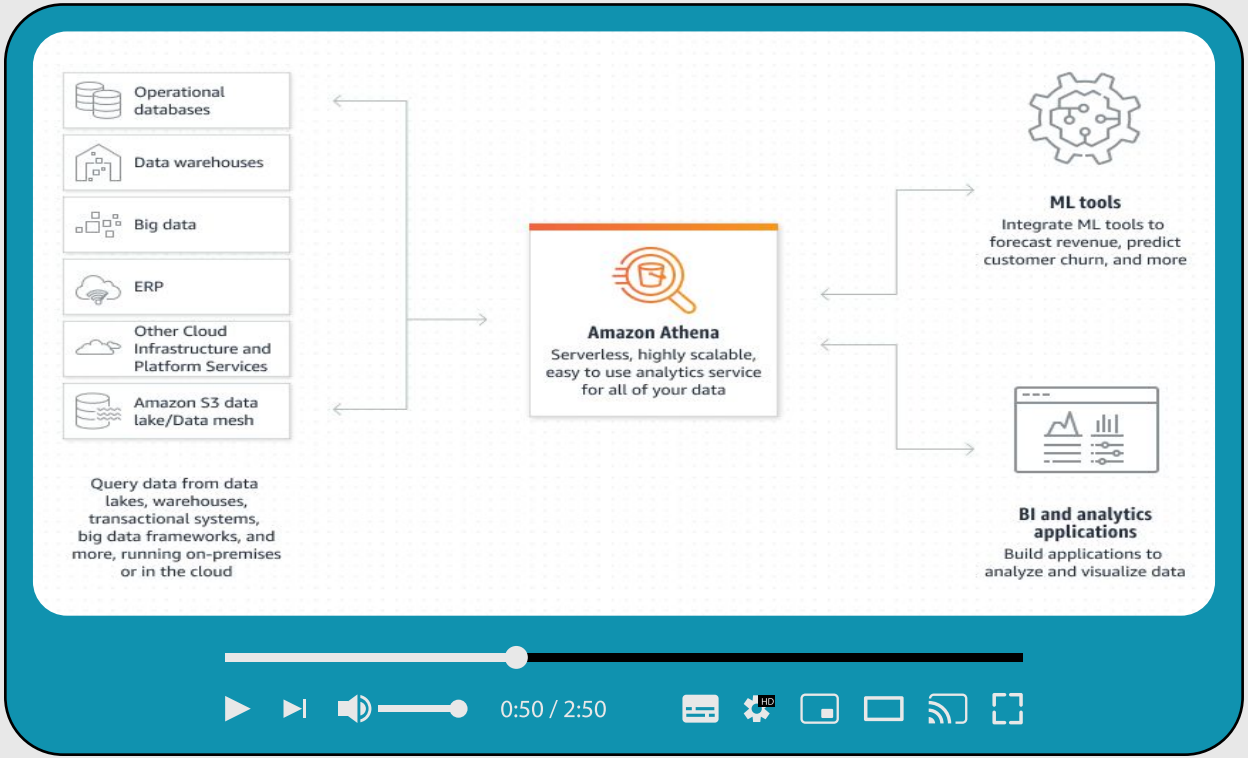
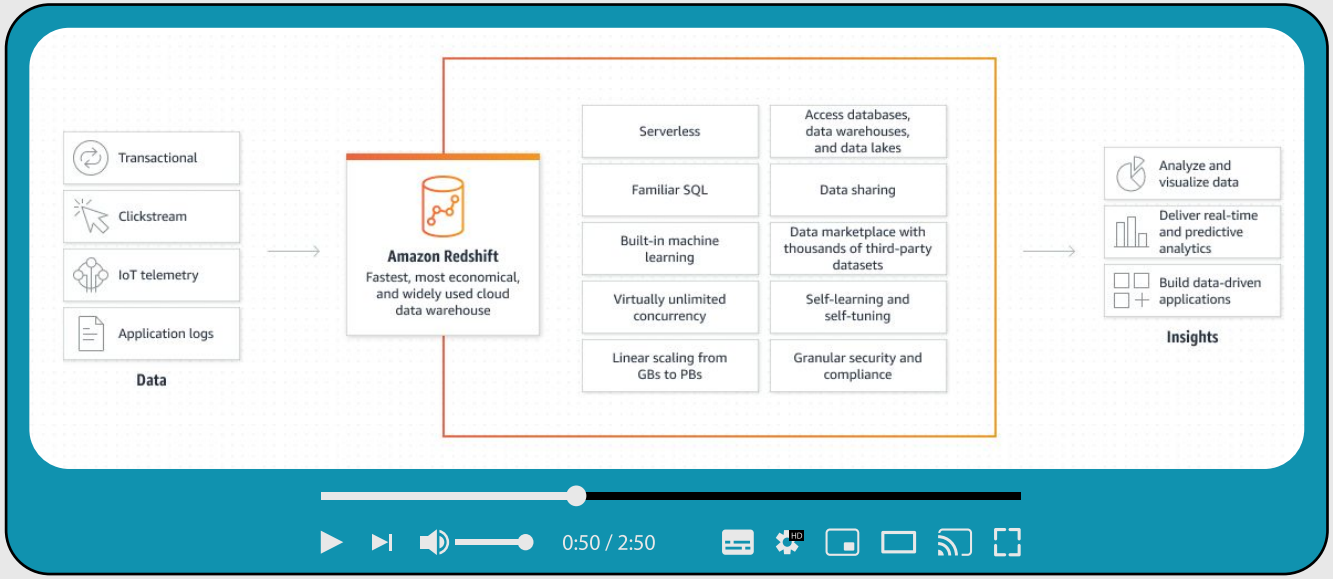
Use Case



What is Amazon Redshift



Amazon Redshift

Fastest, easiest, and most widely used cloud data warehouse

Use Case

Optimize your business intelligence

Build insight-driven reports and dashboards using Amazon QuickSight, Tableau, Microsoft PowerBI, or other business intelligence tools.

Increase developer productivity

Get simplified data access, ingest, and egress from numerous programming languages and platforms without configuring drivers and managing database connections.

What is Amazon QuickSight

QuickSight powers millions of dashboard views weekly for customers, allowing their end-users to make better data-driven decision.

Amazon QuickSight

The most popular cloud-native, serverless BI service

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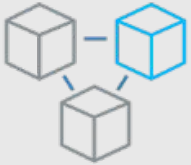
Use Case

Enable BI for everyone with QuickSight Q

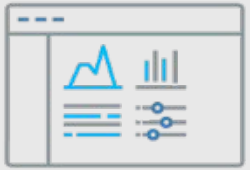
Ask conversational questions of your data and use Q's ML-powered engine to receive relevant visualizations without the time consuming data preparation from authors and admins.



Perform advanced analytics with ML insights

Discover hidden insights from your data, perform accurate forecasting and what-if analysis, or add easy-to-understand natural language narratives to dashboards by leveraging AWS' expertise in machine learning.

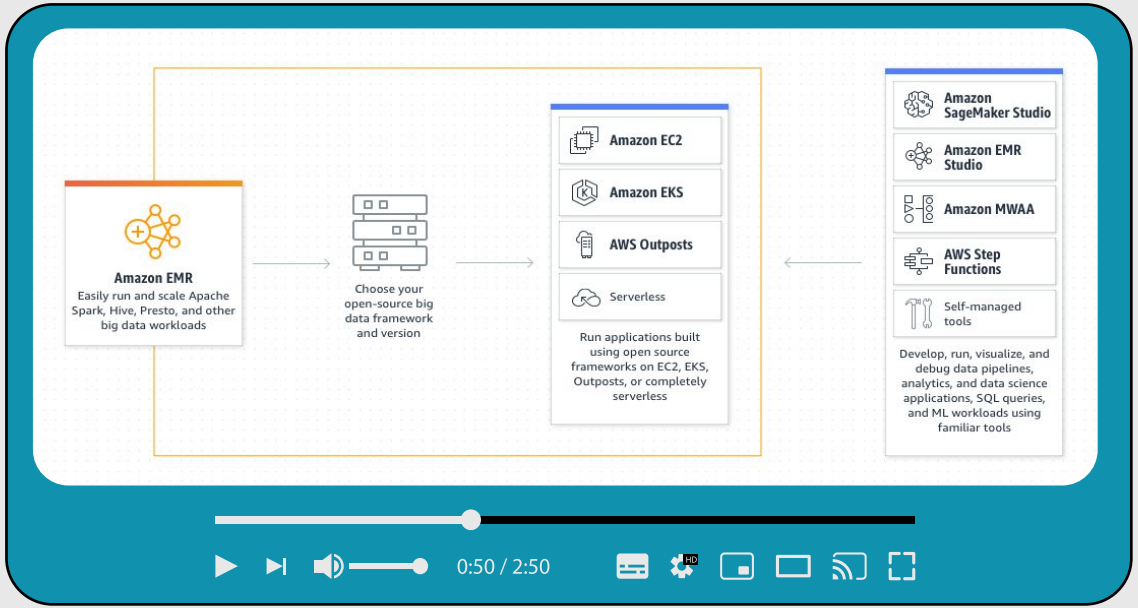
Use Case



Embed analytics to differentiate your applications

Easily embed interactive visualizations and dashboards, sophisticated dashboard authoring, or natural language query capabilities in your applications to differentiate user experience and unlock new monetization opportunities.

What is Amazon EMR



Amazon EMR

Easily run and scale Apache Spark, Hive, Presto, and other big data workloads

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Use Case

Perform big data analytics

Run large-scale data processing and what-if analysis using statistical algorithms and predictive models to uncover hidden patterns, correlations, market trends, and customer preferences.

Process real-time data streams

Analyze events from streaming data sources in real-time to create long-running, highly available, and fault-tolerant streaming data pipelines.

Accelerate data science and ML adoption

Analyze data using open-source ML frameworks such as Apache Spark MLlib, TensorFlow, and Apache MXNet. Connect to Amazon SageMaker Studio for large-scale model training, analysis, and reporting.

Mini Workshop

Query data with AWS Athena

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Thank You

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