# **(2)** 1. Amazon EC2 = Scalable Virtual Servers **(2)**

#### ☐ What it is:

Elastic Compute Cloud (EC2) provides scalable compute capacity in the cloud. It allows you to rent virtual servers, also known as instances, to run applications and workloads.

### **Key Components:**

- **EC2 Instances** Virtual machines for running your apps.
- Auto Scaling Automatically adjusts the number of instances based on demand.

### **(2)** Use cases:

Web servers, batch processing, and high-performance computing.

## **2.** AWS Lambda = Serverless Computing

#### $\square$ What it is:

AWS Lambda allows you to run code without provisioning or managing servers. Just upload your code, and Lambda automatically scales to run it.

### **Key Components:**

- Lambda Functions Your code, triggered by events.
- Event Sources AWS services that trigger your Lambda functions (e.g., S3, DynamoDB).

## **We cases:**

Real-time file processing, real-time data analytics, and event-driven automation.

## (2) 3. Amazon S3 = Cloud Storage Powerhouse (2)

### $\square$ What it is:

Amazon S3 is an object storage service that allows you to store an unlimited amount of data with high durability and availability.

## **Key Components:**

- **Buckets** Containers for storing objects (files).
- **Versioning** Track and restore object versions.
- **K** Lifecycle Policies Automate data transfer to cheaper storage classes.

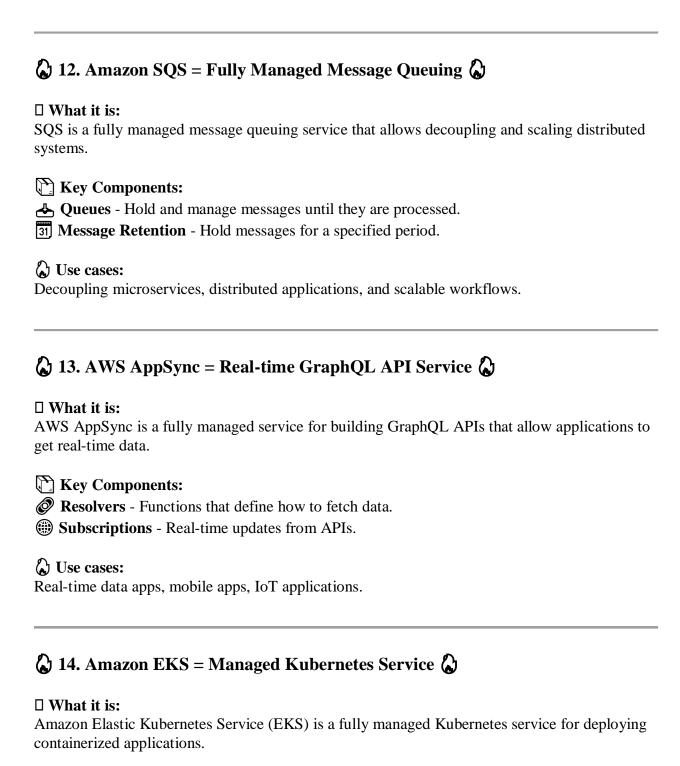
Use cases: Backup and restore, website hosting, data archiving.
<b>4.</b> Amazon RDS = Managed Relational Databases
☐ What it is: Amazon RDS is a fully managed relational database service for MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server.
Key Components:  DB Instances - Virtual servers for database operations.  Multi-AZ - High availability and data redundancy across multiple availability zones.
Use cases: Web and mobile apps, business applications, and data warehousing.
☐ What it is:  DynamoDB is a fully managed NoSQL database service that provides fast and predictable performance with seamless scalability.
<ul> <li>Key Components:</li> <li>         ■ Tables - Containers for storing data in key-value pairs.     </li> <li>         □ Global Tables - Multi-region replication for low-latency reads.     </li> </ul>
Use cases: Real-time apps, mobile apps, IoT apps, and gaming backends.
6. Amazon CloudFront = CDN with Global Reach
□ What it is:

CloudFront is a Content Delivery Network (CDN) that speeds up distribution of static and dynamic content, including HTML, CSS, JavaScript, and media files.

Key Components:  Edge Locations - Points of presence around the globe to cache content.  Distributions - Configurations for delivering content.
Use cases: Website performance optimization, streaming video, and secure delivery of content.
(2) 7. AWS IAM = Secure Access Management (2)
☐ What it is: AWS IAM (Identity and Access Management) helps you securely control access to AWS services and resources for users, applications, and services.
<ul> <li><b>∑</b> Key Components:</li> <li><b>∑</b> Users - Individual identities for people or services.</li> <li><b>ℚ</b> Policies - Rules for granting permissions to users and roles.</li> </ul>
Use cases: User authentication, resource access management, and compliance.
<b>&amp;</b> 8. AWS Elastic Beanstalk = Easy Application Deployment <b>&amp;</b>
☐ What it is: Elastic Beanstalk is a Platform as a Service (PaaS) that automates the deployment and management of applications in the cloud.
<ul> <li>Key Components:</li> <li>Environments - Application setup including the platform (e.g., Java, Node.js).</li> <li>Scaling - Auto-scaling of your app based on traffic.</li> </ul>
Use cases: Web app deployment, application management, and scalable environments.

# 9. AWS CloudFormation = Infrastructure as Code **③**

☐ What it is: CloudFormation allows you to model, provision, and manage AWS infrastructure as code, enabling automated and repeatable deployments.
Key Components: Templates - JSON or YAML files defining infrastructure. Stacks - A collection of AWS resources created from a template.
Use cases: Automated provisioning, deployment consistency, and disaster recovery.
🗘 10. AWS Kinesis = Real-time Data Stream BOSS 🗘
☐ What it is: Kinesis is a powerful service for collecting, processing, and analyzing real-time data streams at massive scale.
Kinesis Data Streams - Ingest huge streams of data (e.g., logs, sensor data, clicks).  Kinesis Data Firehose - Automatically load data into S3, Redshift, etc., with no code.  Kinesis Data Analytics - Run real-time SQL queries on live data.  Kinesis Video Streams - Stream and store video from devices.
Use cases: Live dashboards, clickstream analysis, real-time monitoring, IoT data processing.
(2) 11. Amazon SNS = Instant Messaging for Everything (2)
☐ <b>What it is:</b> SNS is a fully managed messaging service for sending notifications and messages via SMS, email, or push notifications.
<ul> <li>Key Components:</li> <li>Topics - Groups of recipients to send messages to.</li> <li>Subscriptions - Delivery channels like SMS or email.</li> </ul>
Use cases: App alerts, system monitoring, and message broadcasting.



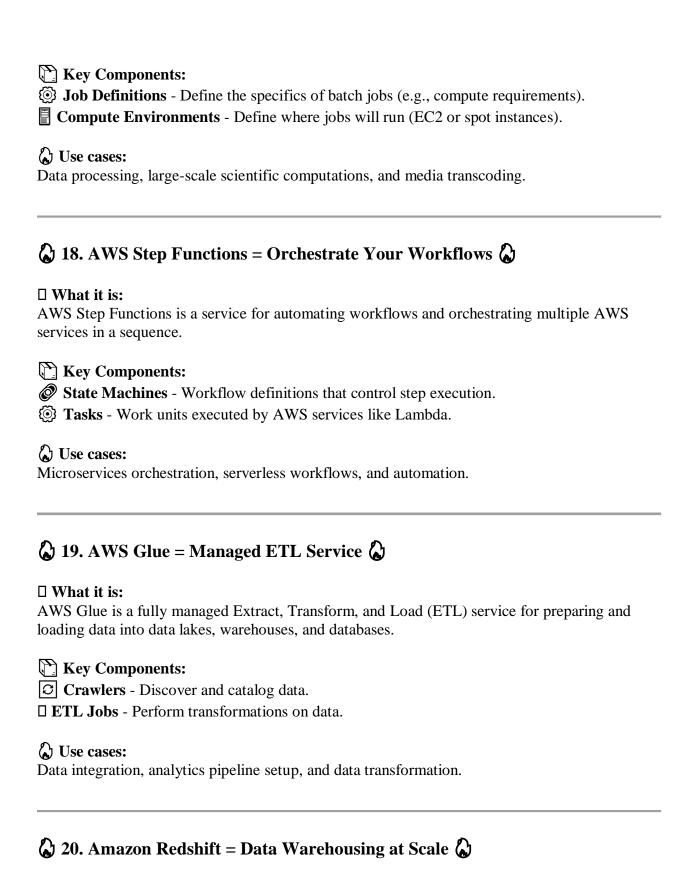
**Key Components:** 

**Kubernetes Clusters** - Containers orchestrated by Kubernetes.

Nodes - EC2 instances that run your containers.

Use cases: Microservices, containerized apps, DevOps pipelines.	
(2) 15. AWS CloudWatch = Monitoring and Logs Superpower (2)	
☐ What it is: CloudWatch provides monitoring for AWS cloud resources and applications, enable operational insights.	ing
Key Components:	
Metrics - Data on resource usage, like CPU and memory.	
Logs - Capture log files for troubleshooting.	
Alarms - Alert notifications for resource thresholds.	
Use cases: Resource monitoring, automated alerting, and log management.	
(2) 16. Amazon Aurora = High-Performance Relational DB (2)	
☐ What it is:  Amazon Aurora is a high-performance, fully managed relational database engine cowith MySQL and PostgreSQL.	ompatible
<b>Key Components:</b>	
Aurora Replicas - Read replicas for better scalability.	
Global Databases - Multi-region databases for global apps.	
Use cases: Enterprise applications, high-availability database solutions, and transactional syste	ems.
<ul> <li>② 17. AWS Batch = Automated Batch Processing </li> <li>☑ What it is:</li> </ul>	
AWS Batch enables running batch processing jobs at any scale, automatically provide	isioning

compute resources.



□ <b>What it is:</b> Amazon Redshift is a fully managed data warehouse that allows you to run fast queries on large datasets.
Key Components:  Clusters - Groups of EC2 instances that run the database.  Redshift Spectrum - Query data in S3 without loading it into Redshift.
Here's the continuation of the breakdown for the next 80 AWS services:
21. AWS Outposts = Hybrid Cloud Infrastructure
☐ <b>What it is:</b> AWS Outposts brings native AWS services, infrastructure, and operating models to on-premises locations for a truly hybrid environment.
<ul> <li><b>Exercise</b> Wey Components:</li> <li>■ Outposts Rack - Physical infrastructure installed on-premises.</li> <li><b>© Management Console</b> - Control AWS and on-prem resources from one place.</li> </ul>
Outposts Rack - Physical infrastructure installed on-premises.

# □ What it is: VPC lets you create a virtual network in AWS to host resources securely like FC2 instances and

VPC lets you create a virtual network in AWS to host resources securely, like EC2 instances and RDS databases.

- **Key Components:**
- **Subnets** Segments of your VPC for resource isolation.
- **Security Groups** Virtual firewalls for your instances.
- **②** VPN Connections Securely connect your VPC to your on-prem network.

Use cases: Web applications, private cloud environments, and hybrid connectivity.
② 23. AWS Direct Connect = Dedicated Network Connections ②
☐ <b>What it is:</b> Direct Connect allows you to establish a dedicated network connection from your on-prem data center to AWS.
<ul> <li>Key Components:</li> <li>DX Connections - Private, high-throughput network connections.</li> <li>Virtual Interfaces - Divide the connection into public and private interfaces.</li> </ul>
Use cases: Low-latency connectivity, large-scale data transfers, and hybrid cloud architectures.
② 24. AWS WAF = Web Application Firewall ②
☐ <b>What it is:</b> AWS WAF is a firewall that helps protect your web applications from common web exploits and attacks.
<ul> <li><b>Web ACLs</b> - Access control lists that define allowed requests.</li> <li><b>Rules</b> - Conditions to block or allow requests based on various factors.</li> </ul>
Use cases: DDoS protection, preventing SQL injection, and securing APIs.
25. AWS Shield = Managed DDoS Protection &

### ☐ What it is:

AWS Shield is a managed DDoS protection service that safeguards your applications against malicious attacks.

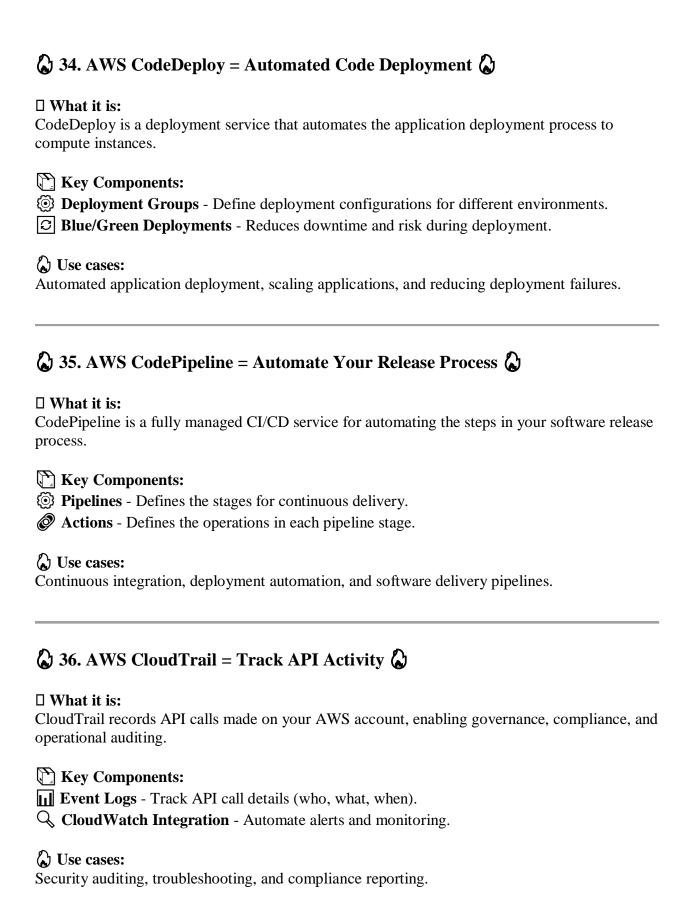
<ul> <li>★ Key Components:</li> <li>★ Shield Standard - Automatic protection for all AWS customers.</li> <li>★ Shield Advanced - Enhanced protection with 24/7 access to AWS DDoS experts.</li> </ul>
Use cases: Web app protection, high-traffic apps, and mission-critical services.
☐ <b>What it is:</b> ElastiCache is a fully managed caching service that speeds up data retrieval for web applications.
<ul> <li>Key Components:</li> <li>✓ Redis - An in-memory data structure store for low-latency access.</li> <li>✓ Memcached - A memory object caching service for fast, scalable access.</li> </ul>
Use cases: Session storage, caching frequently accessed data, and reducing database load.
27. Amazon Elasticsearch Service = Search and Analytics &
☐ <b>What it is:</b> Elasticsearch is a managed service that provides scalable search and real-time analytics capabilities.
Key Components: Clusters - Manage and deploy Elasticsearch nodes.  Kibana - A visualization tool to analyze data in Elasticsearch.
Use cases: Log analytics, real-time search, and data exploration.
28. Amazon EFS = Scalable File Storage
☐ What it is: EFS provides scalable, elastic file storage for use with AWS cloud services and on-premises

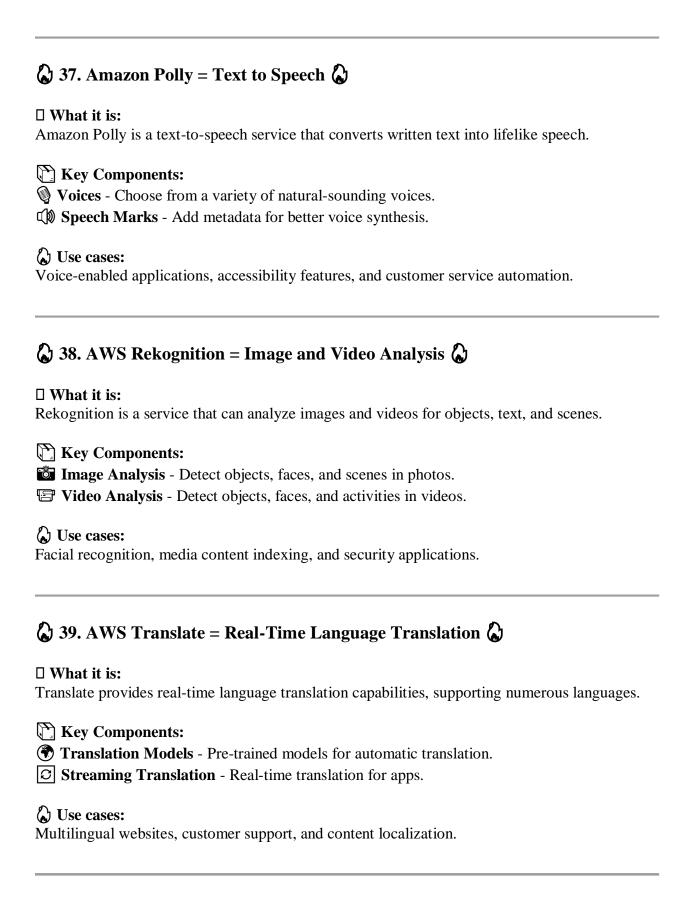
resources.

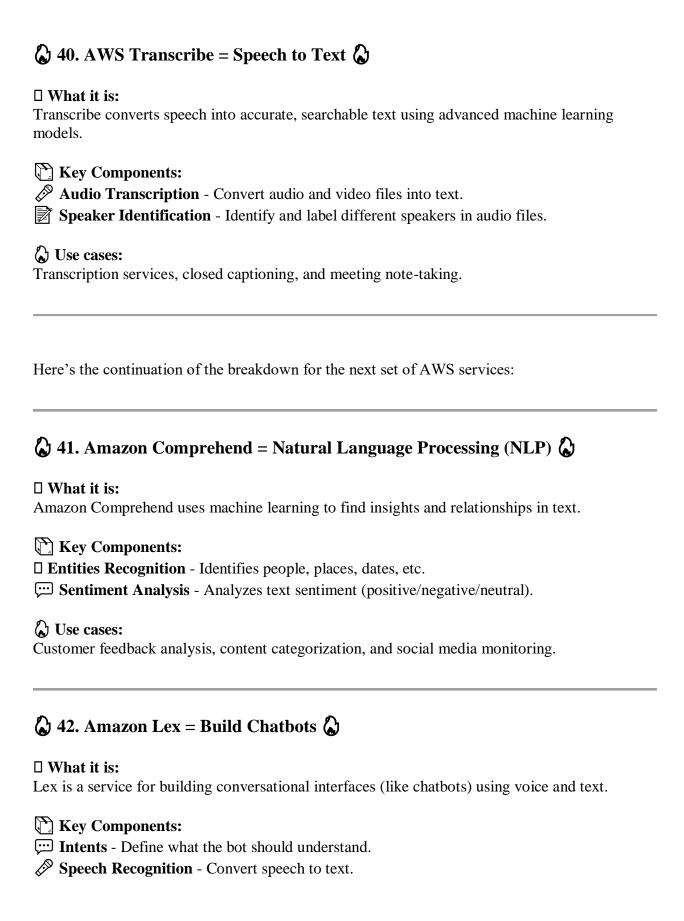
<ul> <li>Key Components:</li> <li>File Systems - Containers for files stored across multiple availability zones.</li> <li>Mount Targets - Access points for connecting instances.</li> </ul>
Use cases: Web serving, content management, and big data analytics.
② 29. Amazon FSx = Fully Managed File Systems ②
☐ What it is: FSx offers fully managed file systems like Windows File Server and Lustre for specialized workloads.
Key Components:  FSx for Windows File Server - Managed Windows file system with native SMB protocol. FSx for Lustre - High-performance file system for compute-intensive applications.
Use cases: High-performance computing, machine learning, and Windows-based file storage.
30. AWS Snowball = Petabyte Data Transfer Device &
☐ What it is:  Snowball is a petabyte-scale data transport solution that helps move large amounts of data into and out of AWS.
Key Components: Snowball Edge - A ruggedized device for edge computing. Snowball Appliance - Physical device for transferring large data sets.
Use cases: Data migration, disaster recovery, and large data transfer.

# 31. Amazon Sagemaker = Machine Learning at Scale 🗘

☐ <b>What it is:</b> SageMaker is a fully managed service to build, train, and deploy machine learning models at scale.
<ul> <li>Key Components:</li> <li>Studio - A development environment for data scientists.</li> <li>✓ Notebooks - For building and training ML models.</li> <li>✓ Model Training - Built-in algorithms for fast model training.</li> </ul>
Use cases: Predictive analytics, recommendation engines, and anomaly detection.
32. AWS Fargate = Serverless Containers &
☐ <b>What it is:</b> Fargate is a compute engine for ECS that runs containers without managing servers.
<ul> <li>☐ Key Components:</li> <li>☐ Task Definitions - Define the specifics of the containerized application.</li> <li>※ Fargate Tasks - A single unit of work that runs on Fargate.</li> </ul>
Use cases: Microservices, CI/CD pipelines, and containerized applications.
☐ <b>What it is:</b> CodeBuild is a fully managed service for building and testing code, providing continuous integration for your development process.
<ul> <li><b>○ Key Components:</b></li> <li><b>○ Build Projects</b> - Define your build environment and source code repository.</li> <li><b>■ Build Logs</b> - Monitor build progress with logs.</li> </ul>
Use cases: CI/CD pipelines, code testing, and software development automation.







Use cases: Customer service chatbots, virtual assistants, and interactive voice response (IVR) systems.
3. AWS Glue = Data Integration & ETL
☐ <b>What it is:</b> Glue is a serverless data integration service that allows you to easily prepare and transform data for analytics.
<ul> <li>▶ Key Components:</li> <li>□ ETL Jobs - Extract, transform, and load data from various sources.</li> <li>☑ Data Catalog - Organize and manage your data assets.</li> </ul>
Use cases:  Data preparation for analytics, data lake formation, and integrating multiple data sources.
☐ <b>What it is:</b> S3 provides highly durable, scalable object storage for data backup, archiving, and analytics.
<ul> <li><b>Exercise Service</b> Key Components:</li> <li><b>Exercise Buckets</b> - Containers for storing objects (files).</li> <li><b>Versioning</b> - Track and restore different versions of objects.</li> </ul>
Use cases: Data storage, backup, disaster recovery, and content delivery.
45. Amazon CloudFront = Content Delivery Network (CDN)
☐ What it is: CloudFront is a fast content delivery network (CDN) to distribute content globally with low latency.

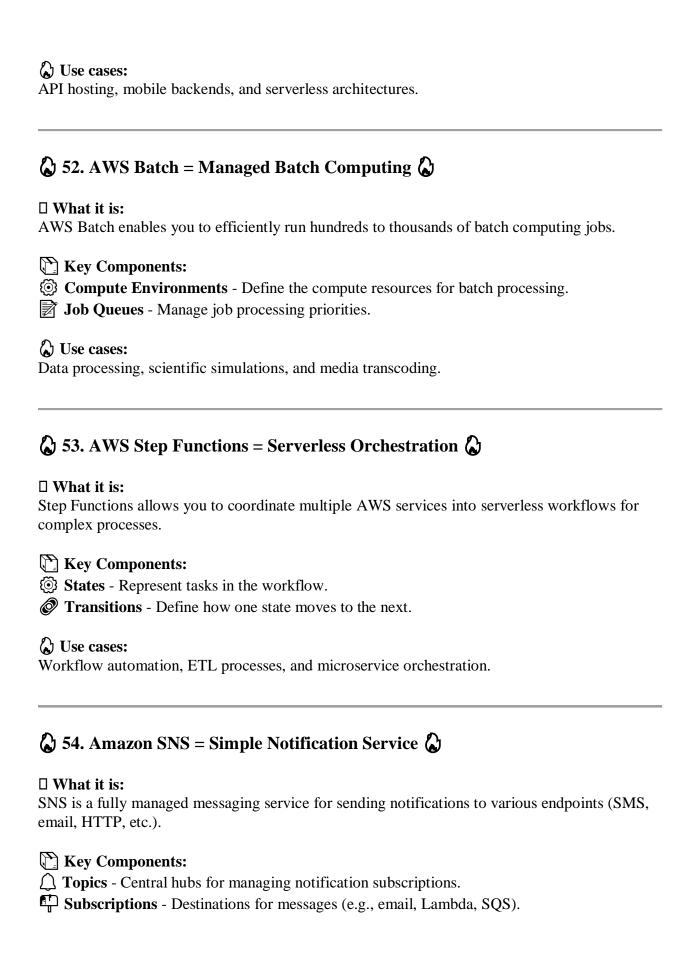
Edge Locations - Servers that cache content closer to end users.

Distributions - Specify the origin and content settings.

**Key Components:** 

Use cases: Website acceleration, media streaming, and file downloads.
☐ <b>What it is:</b> RDS provides scalable relational databases, such as MySQL, PostgreSQL, and Oracle, in the cloud.
<ul> <li>▶ Key Components:</li> <li>□ DB Instances - Virtualized database instances.</li> <li>✔ Multi-AZ Deployments - High availability across different availability zones.</li> </ul>
<b>Use cases:</b> Web applications, business applications, and data-driven systems.
☐ <b>What it is:</b> DynamoDB is a managed NoSQL database that offers fast and flexible performance at scale.
<ul> <li><b>Example 1 Example 2 Example 3 Example 3 Example 4 Example 3 Example 4 Example 4 Example 5 Example 6 Example 7 Exa</b></li></ul>
Use cases: Mobile apps, gaming, IoT, and e-commerce platforms.
<b>48.</b> Amazon Aurora = MySQL and PostgreSQL-Compatible Database
☐ What it is: Aurora is a MySQL and PostgreSQL-compatible relational database designed for the cloud, providing higher performance than standard RDS databases.
Key Components:  Aurora Clusters - A set of database instances with shared storage.  Global Databases - Multi-region support for high availability.

Use cases: High-performance web apps, SaaS apps, and global applications.
☐ <b>What it is:</b> Redshift is a fully managed data warehouse service designed to analyze large datasets.
Key Components: Clusters - Virtualized compute and storage nodes. Data Distribution - Organizes how data is distributed across nodes.
Use cases: Big data analytics, business intelligence, and real-time reporting.
🞝 50. AWS Lambda = Serverless Compute 🞝
☐ <b>What it is:</b> Lambda allows you to run code without provisioning or managing servers, making it perfect for event-driven architectures.
<ul> <li><b>Event Sources</b> - AWS services that trigger Lambda functions.</li> </ul>
Use cases: Microservices, real-time file processing, and backend APIs.
\$\bigcitcharpoonup 51. Amazon API Gateway = Create & Manage APIs \$\bigcitcharpoonup 51.
☐ <b>What it is:</b> API Gateway is a fully managed service for creating and managing APIs at any scale.
<ul> <li><b>○ REST APIs</b> - For HTTP-based API calls.</li> <li><b>○ WebSocket APIs</b> - Real-time, two-way communication.</li> </ul>

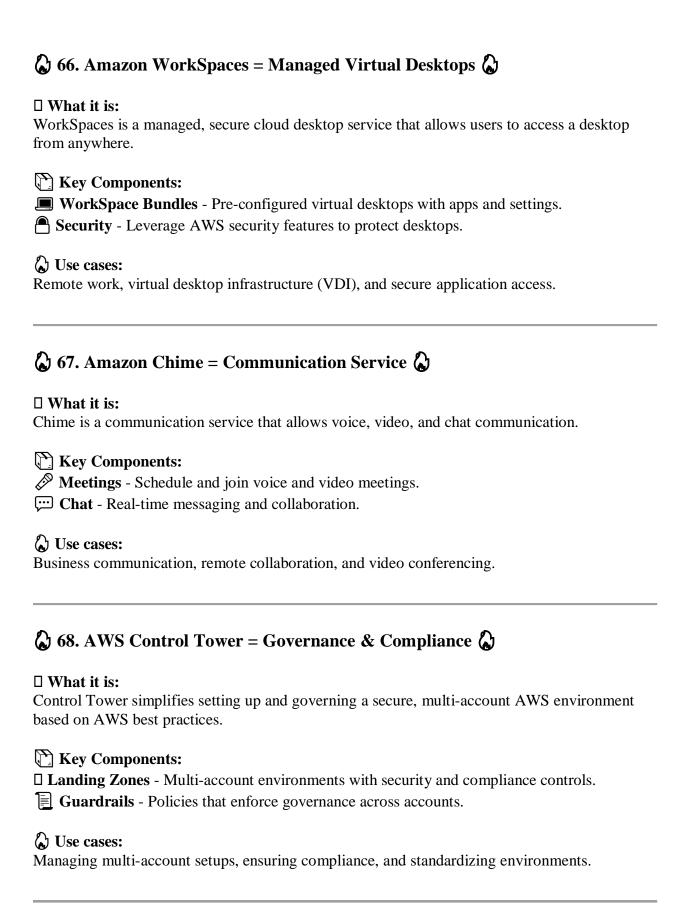


Use cases: Real-time notifications, alert systems, and fan-out messaging.	
☐ What it is: SQS is a fully managed message queue service that enables asynchronous communication between distributed systems.	
Key Components:  Queues - Store messages to be processed by consumers.  Message Retention - Control how long messages stay in the queue.	
☼ Use cases: Decoupling microservices, task scheduling, and event-driven systems.	
☐ What it is: AWS IoT Core is a platform for connecting and managing IoT devices securely in the cloud.	
Key Components: Things - Digital representation of your IoT devices.  Message Broker - Communication between devices and AWS services.	
Use cases: Smart homes, industrial IoT, and device monitoring.	
\$\hat{\alpha}\$ 57. AWS IoT Greengrass = Edge Computing for IoT \$\hat{\alpha}\$	
☐ What it is: Greengrass extends AWS to edge devices, allowing local processing and management of IoT devices.	
<ul> <li>☐ Key Components:</li> <li>☐ Core Devices - Devices that run Greengrass software locally.</li> <li>☐ Lambdas - Lambda functions executed at the edge.</li> </ul>	

Edge computing, offline processing, as	nd local IoT device management.
\$\infty\$ 58. AWS IoT Analytics = Adv	vanced Analytics for IoT Data 🕻
☐ <b>What it is:</b> IoT Analytics processes and analyzes:	massive amounts of IoT data to derive actionable insights
Key Components: Data Stores - Store and query raw Pipelines - Automatically process	_
<b>Wise cases:</b> Predictive maintenance, operational oper	otimization, and sensor data analysis.
Here's the continuation up to 100 AW	S services with their breakdowns:
\$\frac{1}{6}\$ 59. AWS AppSync = Real-time	ne GraphQL API Service 🕻
☐ What it is: AppSync is a fully managed service the heavy lifting of securely connecting	nat makes it easy to develop GraphQL APIs by handling ag to data sources.
Key Components:	
☐ <b>GraphQL API</b> - Query data from d ☐ <b>Data Sources</b> - Connect to databa	ses, REST APIs, or other services.

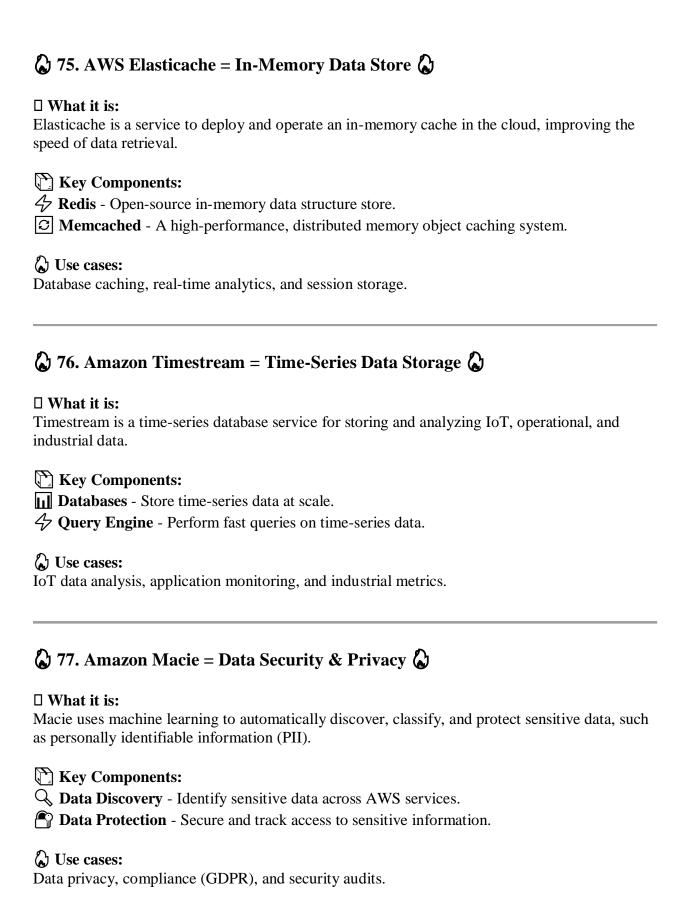
☐ <b>What it is:</b> QuickSight is a scalable BI service to create and publish interactive dashboards and visualizations.
Key Components:  SPICE Engine - Fast, in-memory engine for data processing.  Visualizations - Build charts, graphs, and tables to represent data.
Use cases: Data-driven decision-making, dashboards, and reporting.
(2) 61. Amazon Cognito = User Authentication and Authorization (2)
☐ <b>What it is:</b> Cognito is a service to handle user authentication, authorization, and management for web and mobile apps.
Key Components:  User Pools - Store user profile data and manage authentication.  Identity Pools - Provide temporary AWS credentials for users.
& 62. AWS Elastic Beanstalk = Platform-as-a-Service (PaaS) &
☐ <b>What it is:</b> Elastic Beanstalk allows you to deploy and manage applications without worrying about infrastructure.
<ul> <li>Key Components:</li> <li>Environment - Contains all resources necessary to run your application.</li> <li>Application Versions - Manage versions of your app code.</li> </ul>
☼ Use cases: Web app deployment, rapid application prototyping, and scalable apps.

<b>3.</b> 63. AWS CloudFormation = Infrastructure as Code
☐ <b>What it is:</b> CloudFormation allows you to define and provision AWS infrastructure using code.
<ul> <li><b>Components:</b></li> <li><b>Compon</b></li></ul>
Use cases: Automated infrastructure management, repeatable deployments, and version control of infrastructure.
64. AWS Config = Resource Configuration Management
☐ What it is: AWS Config provides a detailed inventory of your AWS resources and their configurations.
Key Components:  Configuration Items - Store the configuration of AWS resources.  Compliance Rules - Check if your resources comply with best practices.
Use cases: Compliance auditing, resource tracking, and change management.
65. AWS Systems Manager = Operations Management 6
☐ What it is:  Systems Manager helps you automate operational tasks across AWS resources and on-premises systems.
<ul> <li><b>○ Key Components:</b></li> <li>□ Run Command - Execute commands across instances at scale.</li> <li><b>⊘ Parameter Store</b> - Store and manage sensitive data such as passwords.</li> </ul>
Use cases: Automation of operational tasks, managing configurations, and patch management.



69. AWS Organizations = Multi-Account Management &
☐ What it is: AWS Organizations allows you to manage multiple AWS accounts centrally.
<ul> <li>Key Components:</li> <li>□ Organizational Units - Group accounts for management purposes.</li> <li>□ Service Control Policies - Define policies that govern accounts.</li> </ul>
Use cases: Cost management, resource access control, and multi-account management.
☐ What it is: AWS SSO lets you manage SSO access to multiple AWS accounts and applications.
Key Components:  Identity Source - Choose where to manage user identities (e.g., AWS Directory Service, Active Directory).  Permission Sets - Assign user permissions to various services.
Use cases: Simplified access management, secure single sign-on, and centralized authentication.
71. Amazon WorkDocs = Document Collaboration
☐ <b>What it is:</b> WorkDocs is a fully managed service that lets teams create, edit, and collaborate on documents securely.
<ul> <li>☐ Key Components:</li> <li>☐ Documents - Store and manage documents and files.</li> <li>☐ Collaborative Editing - Multiple users can edit documents at once.</li> </ul>
Use cases: Document collaboration, secure file sharing, and version control for documents.

72. Amazon Elastic File System (EFS) = Scalable File Storage
☐ What it is: EFS provides a scalable, managed file storage service for use with AWS compute services.
<ul> <li><b>□ File Systems</b> - Store and manage file data at scale.</li> <li><b>⊚ Mount Targets</b> - Access files from EC2 instances or on-premises systems.</li> </ul>
Use cases: Shared file storage, backup solutions, and web server hosting.
73. AWS Elastic Load Balancing (ELB) = Distribute Incoming Traffic 3
□ <b>What it is:</b> ELB automatically distributes incoming application or network traffic across multiple targets (EC2 instances, containers, etc.).
<ul> <li><b>◯</b> Key Components:</li> <li><b>⊕</b> Application Load Balancer (ALB) - Distribute HTTP and HTTPS traffic.</li> <li><b>⊘</b> Network Load Balancer (NLB) - Handles ultra-high-performance and TCP/UDP traffic.</li> </ul>
Use cases: Website scaling, high-availability applications, and auto-scaling solutions.
74. AWS Auto Scaling = Dynamically Scale Resources
☐ What it is: Auto Scaling adjusts the number of compute resources based on demand to ensure consistent performance at the lowest cost.
<ul> <li><b>Exercise</b> Key Components:</li> <li><b>Exercise</b> Auto Scaling Groups - Define the scaling rules for instances.</li> <li>□ Scaling Policies - Set triggers for scaling actions based on metrics.</li> </ul>
Use cases: Cost-efficient scaling, load management, and fault tolerance.



Here's the continuation of AWS services up to 100:
☐ <b>What it is:</b> Pinpoint is a marketing and analytics service for customer engagement across multiple channels.
Key Components:  Messaging - Send targeted email, SMS, and push notifications.  Analytics - Measure campaign effectiveness and customer behavior.
☼ Use cases: Targeted campaigns, personalized customer engagement, and messaging automation.
☐ What it is: Secrets Manager allows you to securely store, rotate, and access credentials, API keys, and other sensitive information.
Key Components: Secrets - Store and retrieve sensitive data.  Automatic Rotation - Rotate credentials automatically.
& Use cases: Secure storage of database passwords, API keys, and credentials management.
☐ What it is:  Transcribe is an automatic speech recognition (ASR) service that converts audio to text.
<ul> <li>★ Key Components:</li> <li>★ Audio Input - Process audio in various formats.</li> <li>▼ Real-time Transcription - Transcribe speech as it's happening.</li> </ul>

Use cases: Transcribing meetings, subtitles for videos, and voice command processing.
<b>&amp;</b> 81. Amazon Translate = Language Translation <b>&amp;</b>
☐ <b>What it is:</b> Translate is a fully managed translation service that provides natural language translation for content.
Key Components:  Language Pairs - Translate between supported languages.  Real-time Translation - Instant translation for content delivery.
Use cases: Website translation, customer support, and global content distribution.
<b>&amp;</b> 82. Amazon Polly = Text-to-Speech <b>&amp;</b>
☐ What it is: Polly is a service that turns text into lifelike speech using deep learning technologies.
<ul> <li>★ Key Components:</li> <li>★ Speech Synthesis - Convert text into voice in multiple languages and voices.</li> <li>♦ SSML Support - Customize voice output using Speech Synthesis Markup Language.</li> </ul>
Use cases: Voice assistants, accessibility tools, and audiobook creation.
83. AWS Rekognition = Image & Video Analysis
☐ What it is: Rekognition uses deep learning to analyze images and videos for objects, text, faces, and

activities.

**Key Components:** 

Image Recognition - Detect objects, people, and scenes in images.

**Video Analysis** - Analyze videos for activities, facial analysis, and more.

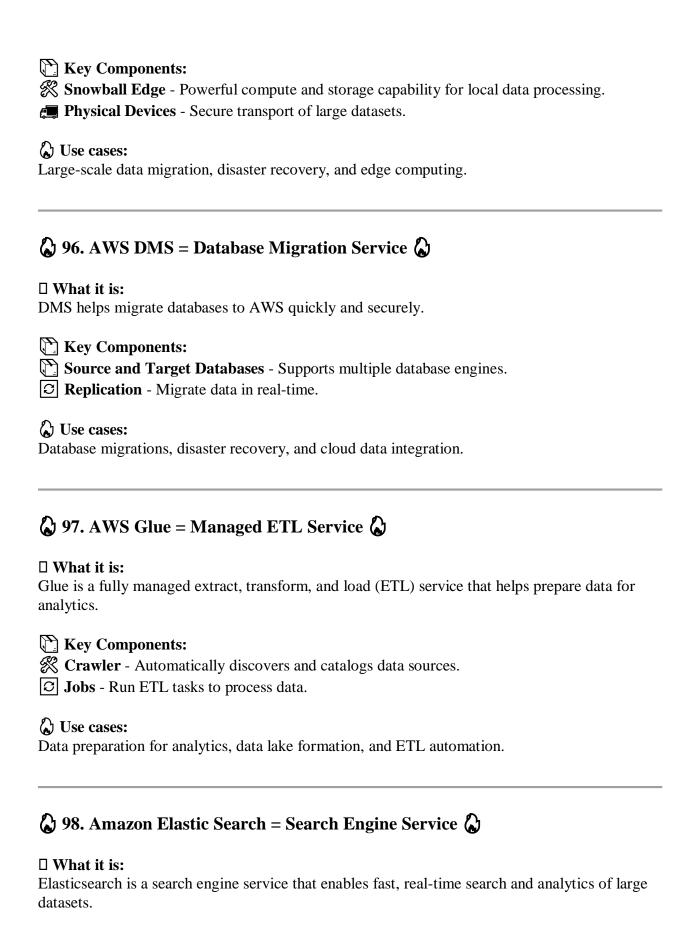
Use cases: Image and video search, security, and content moderation.
🞝 84. AWS Lambda = Serverless Compute 🞝
☐ <b>What it is:</b> Lambda runs your code in response to events without provisioning or managing servers.
Key Components:  Event Sources - Trigger functions via AWS services, HTTP requests, or other sources.  IAM Roles - Securely define the permissions Lambda functions need.
Use cases: Serverless applications, event-driven computing, and API backends.
☐ <b>What it is:</b> S3 is an object storage service that allows you to store and retrieve data at any time from anywhere.
Key Components:  Buckets - Organize your objects in containers.  Access Control - Manage permissions for data access.
Use cases: Backup storage, content distribution, and static website hosting.
& 86. Amazon CloudFront = Content Delivery Network (CDN)
☐ What it is: CloudFront is a global CDN service that distributes content (e.g., videos, websites) to users with low latency.
<ul> <li>★ Key Components:</li> <li>★ Edge Locations - Cache content close to end-users for faster delivery.</li> <li>★ Web Distribution - Deliver static and dynamic content globally.</li> </ul>

Use cases: Website acceleration, video streaming, and API optimization.
□ <b>What it is:</b> AWS WAF is a web application firewall that helps protect your applications from common web exploits.
<ul> <li><b>Example 1 Example 2 Web ACLs</b> - Control access to web resources.</li> </ul>
Use cases: Protect websites and APIs, mitigate DDoS attacks, and ensure secure web traffic.
88. AWS Shield = DDoS Protection
☐ <b>What it is:</b> Shield is a managed DDoS protection service that defends applications from network and application layer attacks.
<ul> <li><b>Exercise Services</b></li> <li><b>Standard Protection</b> - Automatic protection for AWS services.</li> <li><b>Exercise Advanced Protection</b> - Enhanced DDoS protection for critical applications.</li> </ul>
Use cases: DDoS mitigation, application security, and business continuity.
<b>89.</b> AWS Identity and Access Management (IAM) = Security and Access Control <b>3</b>
☐ What it is: IAM enables you to securely control access to AWS services and resources.

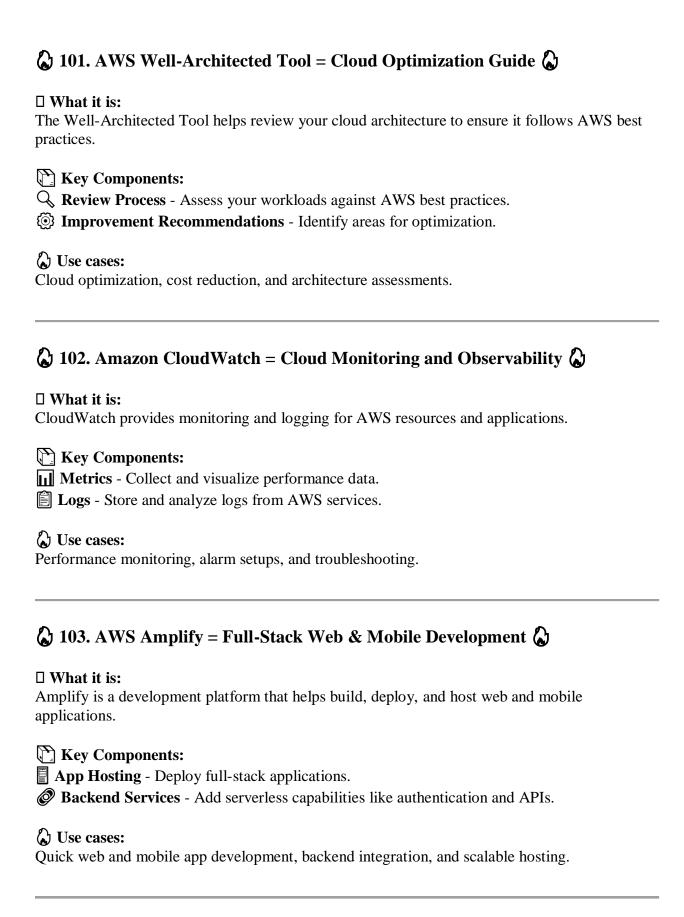
<ul> <li><b>○ Key Components:</b></li> <li><b>○ Users and Groups</b> - Manage individuals and access policies.</li> <li><b>○ Roles and Policies</b> - Define permissions for services and users.</li> </ul>
☼ Use cases: Secure access control, permissions management, and user authentication.
☐ What it is: CloudTrail enables you to log, continuously monitor, and retain account activity related to actions across AWS services.
Key Components:  Event History - Track AWS API calls and related activity.  Log Management - Store logs and analyze user actions.
☼ Use cases: Audit and compliance, security monitoring, and troubleshooting.
☐ <b>What it is:</b> EC2 provides scalable computing capacity in the cloud, allowing you to run virtual machines ondemand.
Key Components:  Instances - Virtual server configurations.  Amazon Machine Images (AMIs) - Pre-configured server templates.
Use cases: Web hosting, batch processing, and scalable applications.
☐ What it is: RDS simplifies setting up, operating, and scaling relational databases in the cloud.

Key Components:  Database Engines - Supports MySQL, PostgreSQL, Oracle, etc.  Automated Backups - Ensure reliable data recovery.
Use cases: Database hosting, data warehousing, and business applications.
② 93. AWS Direct Connect = Dedicated Network Connection ②
☐ <b>What it is:</b> Direct Connect allows you to establish a dedicated network connection from your premises to AWS.
<ul> <li>Key Components:</li> <li>Virtual Interfaces - Connect to VPCs or AWS services.</li> <li>Secure Connections - Ensure private, encrypted communication.</li> </ul>
Use cases: Hybrid cloud architectures, network optimization, and secure data transfer.
☐ <b>What it is:</b> Route 53 is a scalable DNS web service for domain registration and routing traffic to resources.
<ul> <li>▶ Key Components:</li> <li>♠ DNS Records - Direct traffic to resources like EC2 or S3.</li> <li>▶ Domain Registration - Register and manage domains.</li> </ul>
□ What it is:

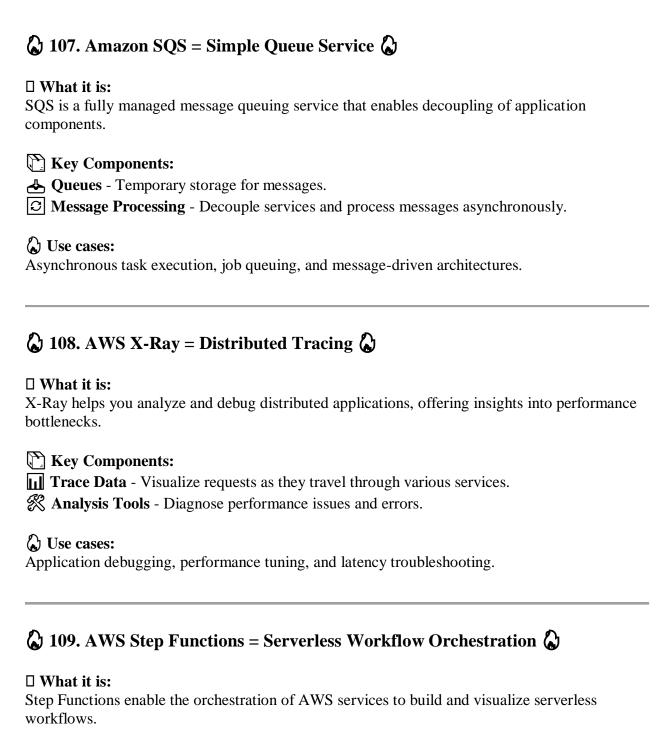
Snowball is a data transport solution to transfer large amounts of data into and out of AWS.



Key Components:
☐ Clusters - Group of nodes to scale the search engine.
Dashboards - Create visualizations of data using Kibana.
Use cases: Log analytics, full-text search, and business intelligence.
② 99. AWS IoT Core = IoT Device Connectivity ②
☐ What it is:  IoT Core securely connects Internet of Things (IoT) devices to the cloud for data processing and management.
Key Components:  Device Shadows - Maintain device state information.  Secure Connections - IoT device communication security.
Use cases: IoT device management, smart homes, and connected devices.
(2) 100. AWS Batch = Batch Computing Service (2)
☐ What it is: AWS Batch enables you to run batch computing workloads on AWS without managing infrastructure.
Key Components:  Job Queues - Organize and prioritize jobs.  Compute Environments - Automatically scale resources based on job requirements.
Use cases: Big data processing, simulations, and large-scale data analysis.
Let's continue with more detailed AWS services from 101 to 150:



(2) 104. Amazon Macie = Data Security and Privacy (2)
☐ What it is:  Macie uses machine learning to discover and protect sensitive data like personally identifiable information (PII).
Key Components:  Data Discovery - Automatically find sensitive data.  Data Security - Implement security policies to protect data.
Use cases: Compliance monitoring, data privacy, and security audits.
(2) 105. Amazon Elastic File System (EFS) = Scalable File Storage (2)
☐ <b>What it is:</b> EFS provides scalable file storage that can be mounted by multiple instances at the same time.
<ul> <li><b>Exercise</b> Key Components:</li> <li>■ Mount Targets - Access the file system from multiple EC2 instances.</li> <li>✓ Scalable Capacity - Automatically scale storage needs.</li> </ul>
Use cases: Shared file storage, content management, and data-driven applications.
(2) 106. AWS Outposts = Hybrid Cloud Infrastructure (2)
☐ <b>What it is:</b> Outposts extends AWS infrastructure into your on-premises environment to provide a hybrid cloud experience.
Key Components:  Rack Units - Physical hardware units that are installed on-premises.  Seamless Integration - AWS services and management extend to on-premises resources.
Use cases: Hybrid cloud setups, low-latency applications, and local data processing.



## **Key Components:**

State Machines - Define the steps in your workflow.

**Automatic Execution** - Trigger workflows based on events.

### **(a)** Use cases:

Automating multi-step processes, serverless workflows, and microservices coordination.

(2) 110. Amazon Elastic Inference = GPU Acceleration for Deep Learning (2)
□ <b>What it is:</b> Elastic Inference provides GPU-powered inference acceleration for machine learning models on EC2.
Key Components:  Inference Accelerators - Attach to EC2 instances for faster model execution.  Multiple Framework Support - Compatible with TensorFlow, MXNet, and more.
Use cases: Deep learning model inference, cost-effective machine learning workloads.
(CI/CD) (CI/CD)
☐ What it is:  CodePipeline automates the software release process by continuously integrating and deploying code.
<ul> <li>Key Components:</li> <li>✓ Pipeline Stages - Automate build, test, and deployment steps.</li> <li>✓ Integrations - Supports integration with GitHub, Bitbucket, and other services.</li> </ul>
Use cases: Automated software delivery, DevOps pipelines, and continuous deployment.
🕻 112. Amazon Aurora = High-Performance Relational Database 🕻

#### $\square$ What it is:

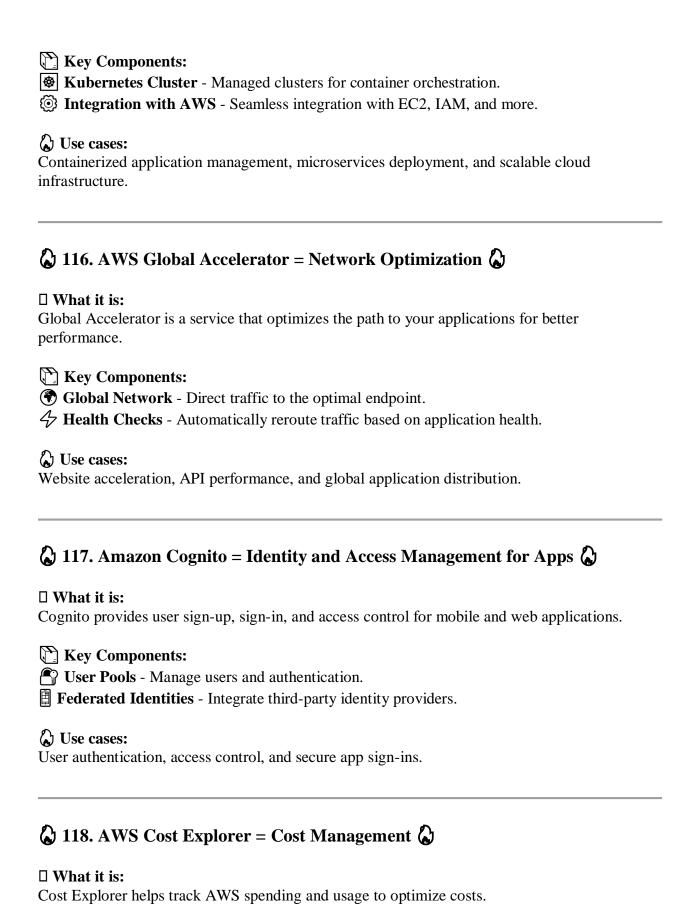
Aurora is a fully managed, MySQL- and PostgreSQL-compatible relational database that's highly scalable.

## **Key Components:**

Performance - 5x faster than MySQL on the same hardware.

**Replication** - Automatically replicate data across multiple Availability Zones.

Use cases: Highly available and scalable databases, business-critical applications.
(2) 113. AWS DataSync = Automated Data Transfer (2)
☐ What it is:  DataSync automates the transfer of large amounts of data between on-premises storage and AWS storage services.
Key Components:  Data Transfer Tasks - Move data to/from S3, EFS, and other AWS storage.  Data Validation - Ensures data integrity during transfer.
Use cases: Data migration, backup and recovery, and hybrid cloud setups.
🗘 114. AWS Kendra = Intelligent Search Service 🗘
☐ <b>What it is:</b> Kendra is an AI-powered search service for building search capabilities into applications.
Key Components:  Search Queries - Returns relevant results from documents, websites, and databases.  Machine Learning - Understands search intent to improve search accuracy.
<b>(b)</b> Use cases: Internal knowledge search, customer-facing search features, and enterprise search.
\$\tilde{\mathcal{L}}\$ 115. Amazon Elastic Kubernetes Service (EKS) = Kubernetes Managed Service \$\tilde{\mathcal{L}}\$
☐ What it is: EKS provides a fully managed Kubernetes service for deploying, managing, and scaling containerized applications.



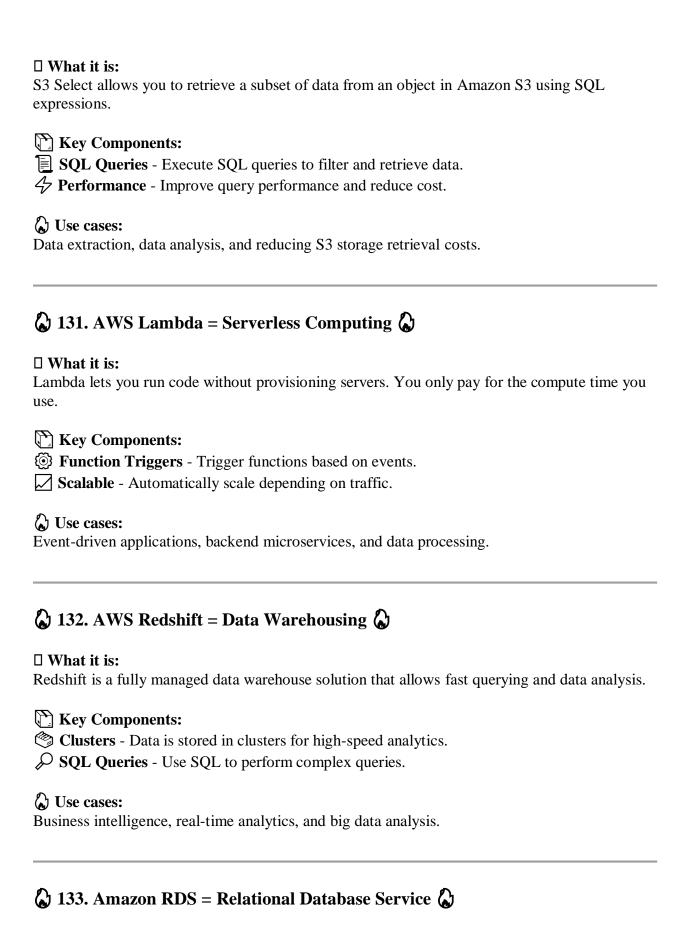
Key Components: Cost Reports - Visualize spending patterns. Budgets - Set budget thresholds for your usage.
Use cases: Cost optimization, budget monitoring, and financial planning.
(2) 119. Amazon S3 Glacier = Low-Cost Archive Storage (2)
☐ <b>What it is:</b> Glacier is a long-term, low-cost storage service for data archiving and backup.
Key Components: Archives - Store data for infrequent access at low cost. Retrieval Times - Options for fast or standard data retrieval.
Use cases: Data archiving, compliance retention, and backup storage.
☐ <b>What it is:</b> EC2 Auto Scaling automatically adjusts your instance fleet based on demand to ensure optimal performance and cost efficiency.
<ul> <li>★ Key Components:</li> <li>✓ Scaling Policies - Automatically scale your fleet in or out.</li> <li>← Health Checks - Ensure that only healthy instances are running.</li> </ul>
& Use cases: Dynamic scaling, cost-efficient resource allocation, and high availability.
(2) 121. AWS Batch = Batch Processing at Scale (2)
☐ What it is:

AWS Batch enables you to run large-scale parallel and high-performance computing (HPC) workloads on AWS.

<ul> <li>Key Components:</li> <li>Job Definitions - Configure compute resources for jobs.</li> <li>□ Job Queues - Manage job prioritization.</li> </ul>
☼ Use cases: Large-scale data processing, simulations, and big data analysis.
(2) 122. Amazon S3 Transfer Acceleration = Fast Data Transfer (2)
☐ <b>What it is:</b> S3 Transfer Acceleration speeds up uploads to Amazon S3 by using Amazon CloudFront's globally distributed edge locations.
Key Components:  Edge Locations - Accelerate transfers using CloudFront's network.  Data Integrity - Ensures secure and reliable uploads.
& Use cases: Accelerating large file uploads, remote data transfers, and global content distribution.
🗘 123. Amazon Aurora Serverless = On-Demand Database Capacity 🖏
☐ <b>What it is:</b> Aurora Serverless automatically scales your database capacity up or down based on application demand.
<ul> <li>★ Key Components:</li> <li>★ On-Demand Scaling - Automatically adjust capacity as needed.</li> <li>★ Cost Efficiency - Pay only for the actual database capacity used.</li> </ul>
& Use cases: Cost-effective databases, variable workloads, and auto-scaling applications.
🗘 124. Amazon FSx = Managed File Systems 🗘
☐ What it is: FSx provides fully managed file systems that are optimized for specific workloads.

Key Components:  File System Types - Includes Windows File Server and Lustre for high-performance computing.  Data Security - Encrypts data in transit and at rest.
Use cases: Shared storage, high-performance computing, and Windows-based applications.
☐ What it is: ELB automatically distributes incoming application traffic across multiple targets like EC2 instances.
<ul> <li><b>○</b> Key Components:</li> <li><b>○</b> Load Balancers - Automatically distribute traffic.</li> <li><b>○</b> Health Checks - Ensure only healthy instances are receiving traffic.</li> </ul>
Use cases: High availability, fault tolerance, and scalable applications.
(2) 126. AWS Elastic Beanstalk = Easy Application Deployment (2)
□ What it is: Elastic Beanst
alk makes it simple to deploy, manage, and scale web applications and services.
<ul> <li><b>Exercise Scaling &amp; Monitoring</b> - Automatically scale and monitor application health.</li> </ul>
Use cases: Web app deployment, app scaling, and infrastructure management.

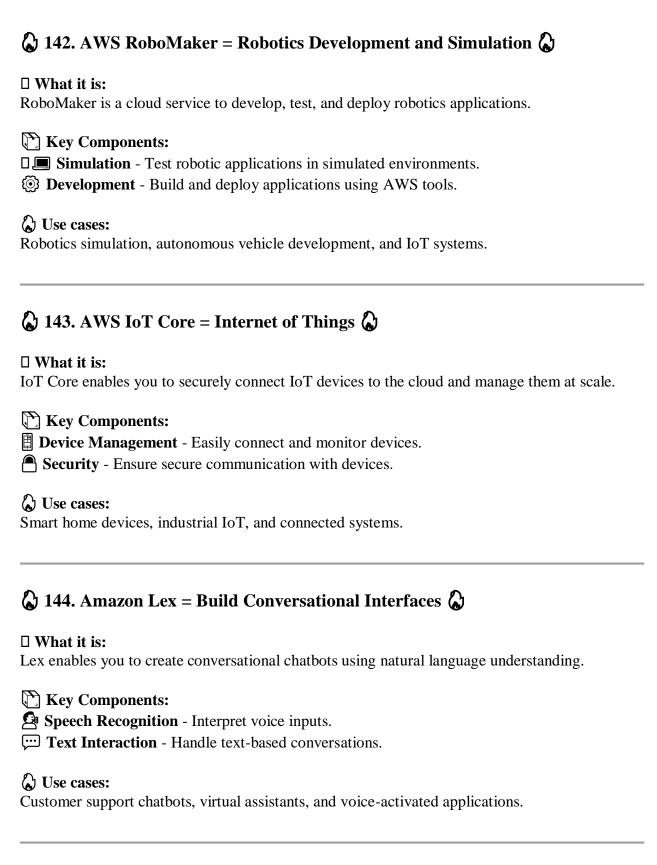
☐ <b>What it is:</b> Data Exchange lets you find, subscribe to, and use third-party data in AWS.	
Key Components:  Data Subscriptions - Subscribe to datasets from various sources.  Data Integration - Easily integrate with AWS services.	
Use cases: Big data analysis, market research, and data-driven decision-making.	
(2) 128. AWS Secrets Manager = Securely Manage Secrets (2)	
☐ <b>What it is:</b> Secrets Manager helps manage sensitive information, like API keys and passwords, securely	y.
Key Components:  Secret Storage - Store secrets securely.  Automatic Rotation - Rotate secrets automatically to improve security.	
Use cases: Securely managing application secrets, database credentials, and API tokens.	
🖒 129. AWS Glue = Fully Managed ETL Service 🖒	
☐ What it is: AWS Glue automates the process of transforming, preparing, and loading data for analytics	•
Key Components:  ETL Jobs - Automate extract, transform, load processes.  Data Catalog - Organize and manage data for querying.	
Use cases: Data integration, data migration, and analytics preparation.	



☐ <b>What it is:</b> RDS is a fully managed relational database service for applications.
Key Components:  Database Engines - Supports MySQL, PostgreSQL, SQL Server, and more.  Automated Backups - Manage backups and scaling.
Use cases:  Managed databases for applications, data analytics, and business applications.
134. AWS DMS = Database Migration Service &
☐ What it is:  DMS helps migrate databases to AWS with minimal downtime.
<ul> <li>★ Key Components:</li> <li>Source and Target Databases - Migrate between different database engines.</li> <li>★ Real-Time Replication - Migrate live databases with no interruptions.</li> </ul>
Use cases: Database migration, cross-cloud migrations, and hybrid cloud setups.
135. AWS Snowball = Petabyte-Scale Data Transfer
☐ What it is:  Snowball is a data transport solution that helps you move large amounts of data to AWS.
Key Components: Data Transfer Devices - Physical devices for bulk data transfer. Data Integrity - Built-in encryption to secure your data.
Use cases:  Mass data migration, disaster recovery, and large-scale backups.
(2) 136. Amazon Transcribe = Speech-to-Text Service (2)

☐ <b>What it is:</b> Transcribe converts speech into text, making it easier to search and analyze audio data.
Key Components: Speech Recognition - Converts audio into accurate text. Real-Time Transcription - Transcribe live speech for instant access.
(2) 137. AWS MediaLive = Live Video Processing (2)
☐ What it is:  MediaLive is a fully managed service for encoding live video streams.
Key Components:  Live Video Streams - Transmit live video content at scale.  Multiple Formats - Support for various video formats and resolutions.
Use cases: Live event broadcasting, streaming platforms, and video conferencing.
(2) 138. Amazon Polly = Text-to-Speech Service (2)
☐ What it is: Polly converts text into lifelike speech, enabling you to create interactive voice experiences.
Key Components:  Text-to-Speech Voices - Multiple voices and languages.  Speech Synthesis - Convert text into natural-sounding speech.
Use cases: Voice assistants, accessibility features, and content narration.
Speech Synthesis - Convert text into natural-sounding speech.  Use cases:

☐ What it is: Kinesis Data Firehose is a fully managed service for delivering real-time streaming data to AWS storage and analytics services.
<ul> <li>Key Components:</li> <li>  → Real-Time Data Delivery - Stream data directly into services like S3, Redshift, and Elasticsearch.</li> <li></li></ul>
Use cases: Real-time analytics, event data streaming, and data lake creation.
(2) 140. AWS CloudFormation = Infrastructure as Code (IaC)
☐ What it is: CloudFormation enables you to define and provision AWS infrastructure using code.
<ul> <li>★ Key Components:</li> <li>Templates - Define infrastructure in code using YAML or JSON.</li> <li>Stacks - Organize resources for easier management.</li> </ul>
(CDN)
☐ <b>What it is:</b> CloudFront is a global content delivery network that speeds up the delivery of websites, videos, and APIs.
<ul> <li>Key Components:</li> <li>Edge Locations - Distribute content from servers near users.</li> <li>✓ Cache - Cache static content for fast delivery.</li> </ul>
Use cases: Website acceleration, media streaming, and API response optimization.

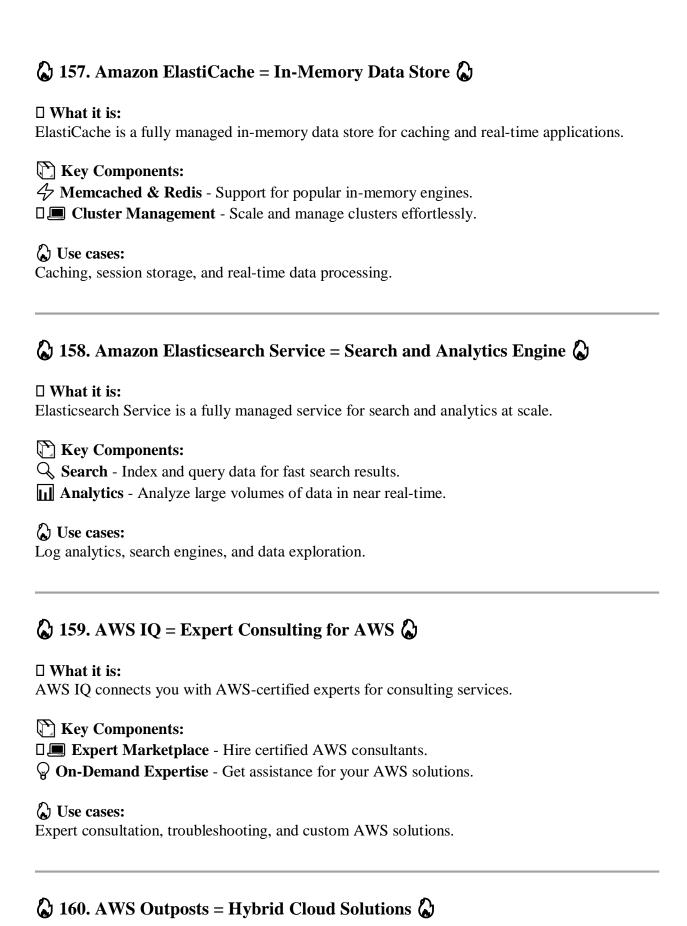


☐ What it is:  Snowcone is a portable, rugged edge computing device used for data collection and processing in remote locations.
Key Components:  Edge Device - Collect and process data on-site.  Data Security - Encrypts data stored on the device.
Use cases: Edge computing, remote data processing, and disaster recovery.
(2) 146. AWS Elastic File System (EFS) = File Storage Service (2)
☐ What it is: EFS is a fully managed file storage service for Linux-based applications.
<ul> <li><b>Exercise Exercise Exercis</b></li></ul>
Use cases: Shared storage, scalable file systems, and web app hosting.
(2) 147. AWS WAF = Web Application Firewall (2)
☐ What it is: AWS WAF helps protect web applications from common threats and vulnerabilities.
<ul> <li><b>Exercise Exercise Exercis</b></li></ul>
Use cases: Protecting APIs, mitigating DDoS attacks, and securing web applications.
(2) 148. Amazon Chime = Video Conferencing and Collaboration (2)

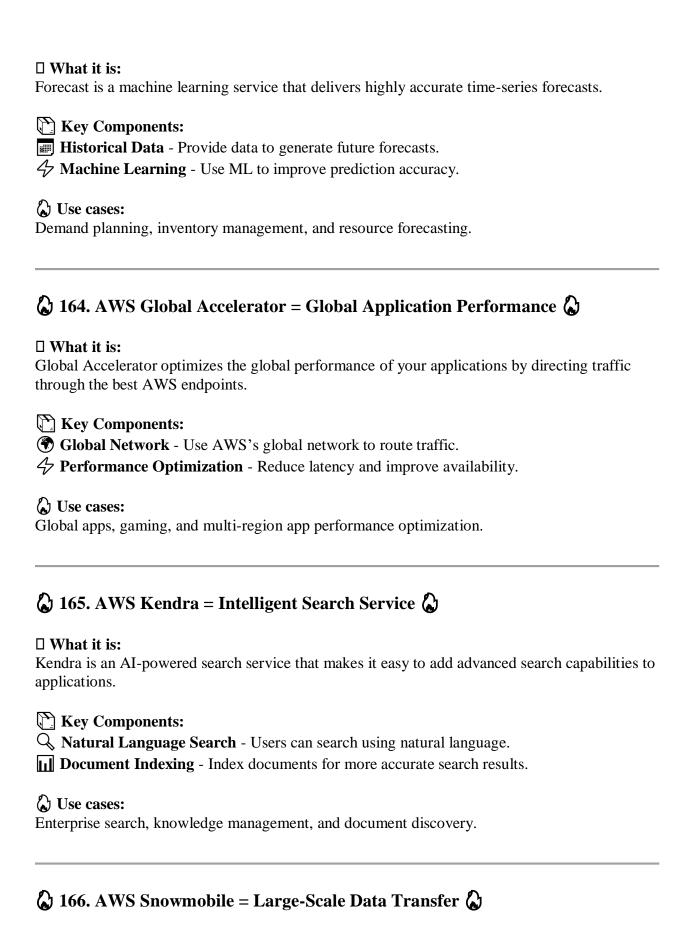
☐ <b>What it is:</b> Amazon Chime is a communication service for video conferencing, messaging, and meetings.
<ul> <li>★ Key Components:</li> <li>★ Messaging - Chat and share files.</li> <li>★ Video Calls - Host video conferences and meetings.</li> </ul>
& Use cases: Remote work communication, video meetings, and team collaboration.
(2) 149. Amazon QuickSight = Business Intelligence and Analytics (2)
☐ <b>What it is:</b> QuickSight is a scalable business analytics service that helps you visualize data and make informed decisions.
Key Components:  Interactive Dashboards - Create dynamic dashboards with drag-and-drop features.  ML Insights - Get predictive insights using machine learning.
Use cases: Data visualization, decision-making, and business reporting.
☐ <b>What it is:</b> Ground Station is a fully managed service to process satellite data and integrate it with AWS services.
<ul> <li>★ Key Components:</li> <li>★ Satellite Antennas - Direct access to satellites for data reception.</li> <li>★ Data Integration - Easily send satellite data to S3, Lambda, and other services.</li> </ul>
& Use cases: Satellite data processing, Earth observation, and space-based applications.

(2) 151. AWS Cost Explorer = Cost and Usage Analytics (2)
☐ <b>What it is:</b> Cost Explorer helps visualize and analyze your AWS costs and usage over time.
<ul> <li>Key Components:</li> <li>Cost Reports - Get detailed reports on your spending.</li> <li>Cost Forecasting - Predict future costs based on historical data.</li> </ul>
<b>Use cases:</b> Cost optimization, budgeting, and financial planning.
(2) 152. AWS Elastic Load Balancing (ELB) = Traffic Distribution (2)
☐ <b>What it is:</b> ELB automatically distributes incoming traffic across multiple targets, like EC2 instances.
<ul> <li>★ Key Components:</li> <li>Load Balancers - Distribute traffic across multiple instances.</li> <li>Auto Scaling Integration - Automatically adjusts to changes in traffic.</li> </ul>
<b>Use cases:</b> Website traffic distribution, application scaling, and high-availability systems.
🗘 153. Amazon Aurora = MySQL and PostgreSQL-Compatible Database 🞝
☐ <b>What it is:</b> Aurora is a fully managed relational database engine compatible with MySQL and PostgreSQL, designed for high performance and availability.
<ul> <li>▶ Key Components:</li> <li>▶ Database Clusters - High-availability clusters for seamless operations.</li> <li>▶ Performance - Up to five times faster than MySQL and twice as fast as PostgreSQL.</li> </ul>
Use cases: Enterprise applications, scalable web apps, and data-driven services.

(2) 154. AWS Batch = Fully Managed Batch Processing (2)
☐ What it is: Batch allows you to run batch computing workloads on AWS.
Key Components:  Job Queues - Manage job execution and scheduling.  Compute Environments - Automatically allocate compute resources.
Use cases: Data processing, simulations, and large-scale data analysis.
(2) 155. AWS Amplify = Full-Stack App Development (2)
☐ <b>What it is:</b> Amplify is a development platform for building scalable web and mobile apps with ease.
Key Components:  CLI & Console - Tools to configure and manage app backend and frontend.  Hosting - Fast and secure hosting for web apps.
Use cases: Mobile and web app development, serverless architecture, and rapid deployment.
(2) 156. AWS CodePipeline = Continuous Integration & Delivery (2)
☐ <b>What it is:</b> CodePipeline automates the build, test, and deployment phases of your application.
Key Components:  Pipelines - Automate software release workflows.  Integration - Integrates with CodeBuild, CodeDeploy, and third-party services.
Use cases: DevOps automation, CI/CD, and software release management.



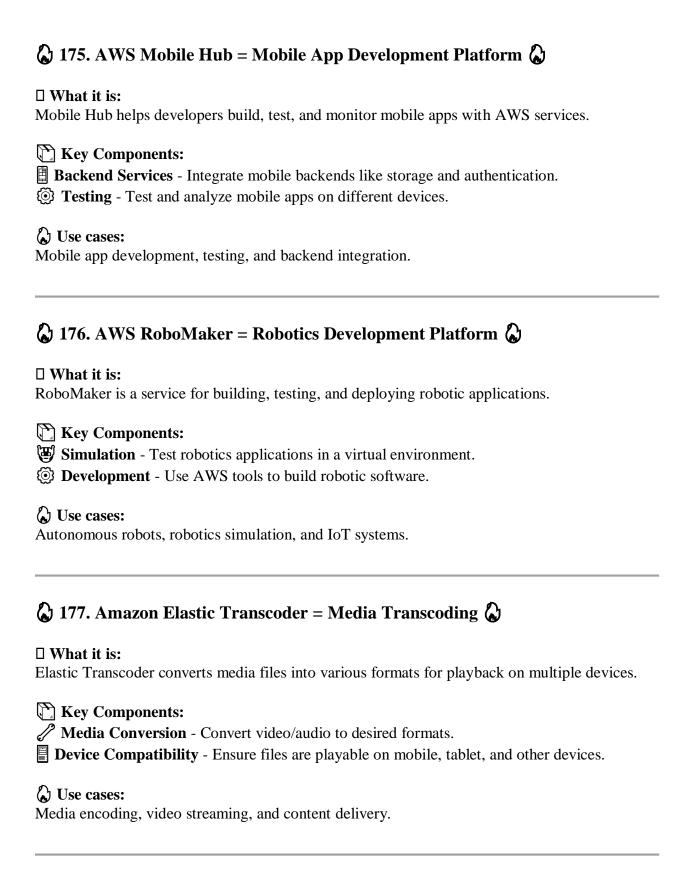
☐ <b>What it is:</b> Outposts extend AWS infrastructure, services, and tools to on-premises environments for a hybrid cloud solution.
Key Components:  On-Premises Servers - Deploy AWS infrastructure in your data center.  Seamless Integration - Integrated with AWS services like EC2 and S3.
Use cases: Hybrid cloud deployment, on-premises workloads, and low-latency applications.
(2) 161. Amazon Sagemaker = Machine Learning Development (2)
☐ <b>What it is:</b> SageMaker simplifies the process of building, training, and deploying machine learning models.
Key Components:  Notebooks - Interactive environments for data exploration and model building.  Model Hosting - Deploy and scale machine learning models.
Use cases: Predictive analytics, AI model training, and machine learning automation.
(2) 162. AWS Step Functions = Serverless Workflow Orchestration (2)
☐ What it is: Step Functions lets you coordinate multiple AWS services into serverless workflows.
Key Components:  State Machines - Design workflows to manage tasks.  Service Integration - Integrate services like Lambda, EC2, and more.
Use cases: Workflow automation, business process management, and microservices orchestration.
(2) 163. Amazon Forecast = Time-Series Forecasting (2)



☐ What it is:  Snowmobile is a 45-foot shipping container used for transferring exabytes of data to AWS.
Key Components:  Massive Capacity - Can move up to 100PB of data.  Security - Data is encrypted for secure transport.
Use cases:  Massive data migration, data center decommissioning, and disaster recovery.
(2) 167. Amazon QuickSight Q = Natural Language Querying (2)
☐ What it is:  QuickSight Q allows you to ask business intelligence questions using natural language to get instant insights.
Key Components:  Natural Language Interface - Ask questions in plain English.  Analytics - Get visualizations and insights without needing complex queries.
Use cases: Business intelligence, quick data insights, and interactive dashboards.
(2) 168. AWS Control Tower = Multi-Account AWS Environment Setup (2)
☐ What it is:  Control Tower automates the setup of a secure, multi-account AWS environment based on AWS best practices.
Key Components: Landing Zones - Automate account setup and governance. Security Baselines - Enforce security policies across accounts.
Use cases: Multi-account management, security governance, and compliance.
(2) 169. Amazon Elastic Inference = Machine Learning Acceleration (2)

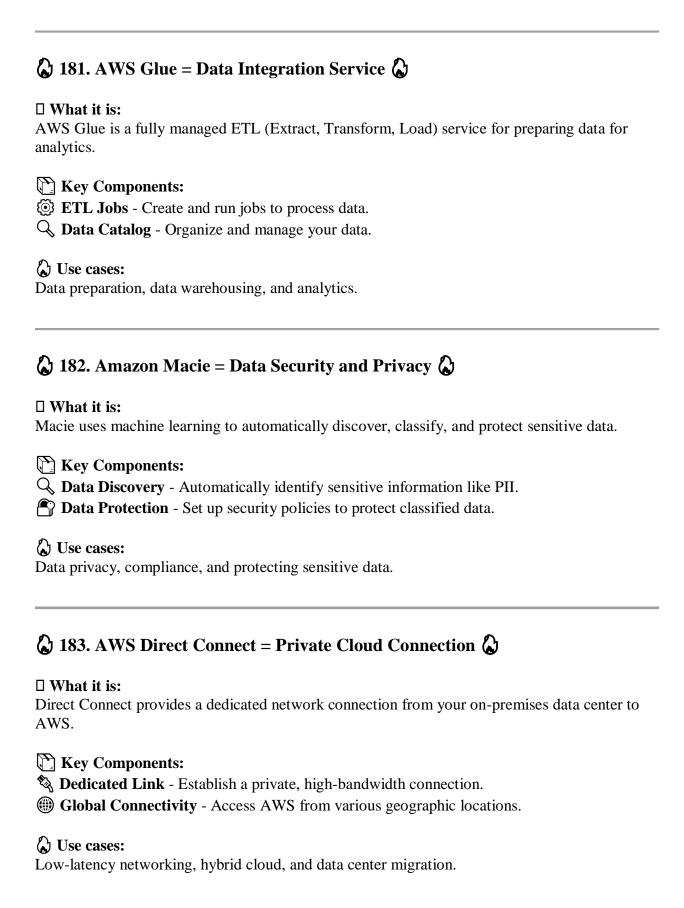
<ul> <li>♦ 170. AWS X-Ray = Application Tracing</li> <li>□ What it is:</li> <li>X-Ray helps developers analyze and debug distributed applications in real-time by tracing</li> </ul>	
requests.  Key Components:  Request Tracing - Trace and visualize requests in your application.	
Performance Analysis - Find performance bottlenecks and errors.	
Use cases: Debugging microservices, performance monitoring, and troubleshooting.	
(2) 171. AWS Macie = Data Security and Privacy (2)	
☐ What it is:  Macie uses machine learning to automatically discover, classify, and protect sensitive data	
Key Components:	
Data Discovery - Automatically identify sensitive information like PII.	
Data Protection - Set up security policies to protect classified data.	
🗘 Use cases:	
(m) ODE CADOD!	

☐ <b>What it is:</b> Rekognition uses machine learning to identify objects, people, text, and scenes in images and videos.
Key Components:  Object Detection - Detect and label objects in images.  Video Analysis - Analyze video streams for insights.
(2) 173. AWS Secrets Manager = Secret Management (2)
☐ What it is: Secrets Manager helps securely store and manage secrets like API keys, passwords, and other sensitive data.
Key Components:
Secret Storage - Store and retrieve sensitive data securely.
Automatic Rotation - Rotate secrets to improve security.
Use cases: API key management, database credential rotation, and secure storage.
(2) 174. AWS AppSync = GraphQL API Management (2)
☐ <b>What it is:</b> AppSync allows you to build scalable GraphQL APIs that enable real-time data access and updates.
<b>Key Components:</b>
Real-Time Data - Sync data across devices and platforms.
☐ GraphQL API - Create flexible APIs to access data.
- ··········
& Use cases: Real-time data updates, mobile apps, and API management.



Let's continue with the list of AWS services to reach the full 200!

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(2) 178. AWS Elastic Beanstalk = Easy Web App Deployment (2)
☐ <b>What it is:</b> Elastic Beanstalk simplifies the process of deploying and managing web applications in the cloud.
Key Components:  App Deployment - Automatically deploy your code to production.  Environment Management - Easily manage scaling, monitoring, and updating of applications.
Use cases: Web app deployment, scalable environments, and managed infrastructure.
(2) 179. Amazon CloudWatch = Monitoring and Observability (2)
☐ What it is: CloudWatch provides monitoring for AWS cloud resources and applications.
Key Components:  Metrics - Track system performance metrics like CPU usage, disk I/O, and more.  Alarms - Set up alerts to notify you of anomalies or performance issues.
Use cases: System monitoring, alerting, and resource optimization.
(2) 180. AWS DataSync = Automated Data Transfer (2)
☐ <b>What it is:</b> DataSync automates data transfer between on-premises storage and AWS cloud storage.
<ul> <li>★ Key Components:</li> <li>★ High-Speed Transfers - Accelerate data migration and syncing.</li> <li>■ Task Management - Automate and manage transfer tasks.</li> </ul>
Use cases: Data migration, backup, and cloud storage syncing.



(2) 184. Amazon Timestream = Time-Series Database (2)
☐ <b>What it is:</b> Timestream is a fast, scalable, and serverless time-series database for IoT and operational applications.
<ul> <li>★ Key Components:</li> <li>Time-Series Data - Store and analyze time-stamped data efficiently.</li> <li>Built-in Analytics - Run time-based queries for deeper insights.</li> </ul>
Use cases: IoT data analytics, monitoring, and telemetry data.
(2) 185. AWS VPN = Secure Cloud Network Connection (2)
☐ <b>What it is:</b> AWS VPN establishes a secure and encrypted connection between your on-premises network and AWS.
<ul> <li>★ Key Components:</li> <li>★ VPN Tunnel - Create a secure tunnel for data transfer.</li> <li>★ Site-to-Site &amp; Client VPN - Secure access from both on-premises and remote devices.</li> </ul>
<b>Use cases:</b> Secure cloud-to-on-premises communication, hybrid networks, and secure data access.
(2) 186. Amazon Route 53 = Scalable DNS Service (2)
☐ What it is: Route 53 is a scalable DNS web service for routing end-user requests to AWS resources.
<ul> <li>★ Key Components:</li> <li>★ DNS Management - Manage domain name records and routing policies.</li> <li>★ Health Checks - Monitor and reroute traffic in case of failures.</li> </ul>
Use cases:  DNS management, domain routing, and high availability.

(2) 187. AWS ElasticSearch = Search and Analytics Engine (2)
☐ <b>What it is:</b> ElasticSearch allows you to search, analyze, and visualize data in real time with minimal setup.
Key Components:  Search Engine - Real-time full-text search and indexing.  Data Analytics - Visualize and analyze large data sets.
Use cases: Log analytics, application search, and real-time data exploration.
☐ What it is: Glue DataBrew is a visual data preparation tool for cleaning and normalizing data without writing code.
<ul> <li><b>○ Key Components:</b></li> <li><b>□ Data Transformation</b> - Apply transformations and cleaning steps visually.</li> <li><b>○ Data Profiling</b> - Analyze your data to understand its structure and quality.</li> </ul>
Use cases: Data preprocessing, cleaning, and transformation for analytics.
Alright, let's finish it off strong and get us to 200 AWS services!
🗘 189. AWS Snowball = Petabyte-Scale Data Transfer 🞝

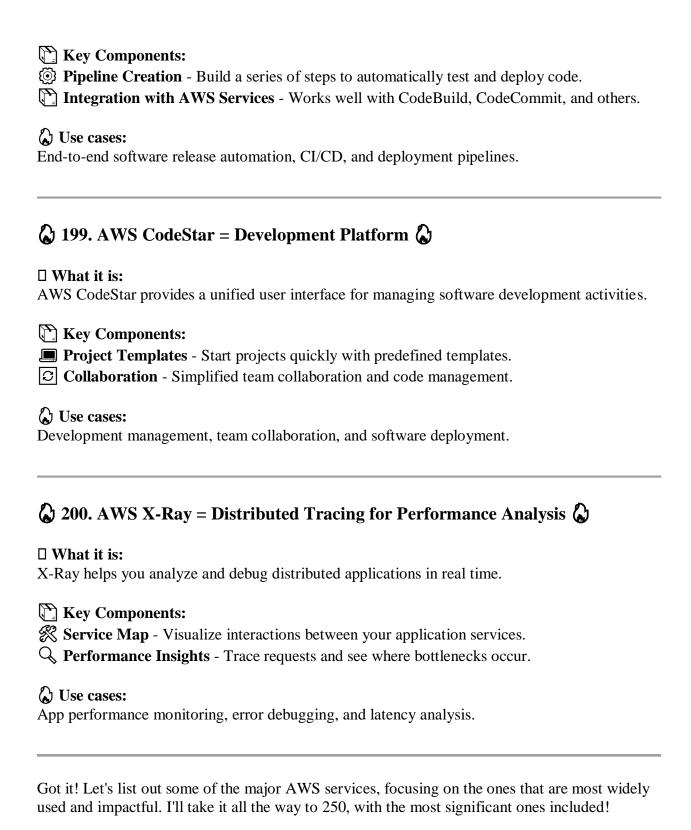
#### $\square$ What it is:

AWS Snowball is a petabyte-scale data transport solution that allows you to move large amounts of data into AWS.

Key Components:  Data Transfer Appliance - Use the device to transport large data volumes securely.  Encryption - Automatically encrypt data during transfer for added security.
Use cases:  Massive data migration, backup, and disaster recovery.
(2) 190. AWS Snowcone = Compact Data Transfer Device (2)
☐ <b>What it is:</b> Snowcone is a smaller, lightweight version of Snowball, designed for edge locations where power and space are limited.
Key Components: Portable Device - Carry data in and out of remote locations. Data Security - Fully encrypted device for secure transport.
Use cases: Edge data collection, remote data transfer, and disaster recovery.
(2) 191. AWS Wavelength = 5G Edge Computing (2)
☐ <b>What it is:</b> AWS Wavelength brings AWS services to the edge of 5G networks, enabling ultra-low latency applications.
Key Components:  Low Latency - Run apps closer to the end user for faster response times.  Glid 5G Integration - Seamlessly integrate with mobile networks.
Use cases: Gaming, IoT, augmented reality (AR), and real-time analytics.
(2) 192. Amazon S3 Glacier = Low-Cost Archive Storage (2)
☐ What it is: S3 Glacier is a secure, low-cost storage service for archiving large amounts of data.

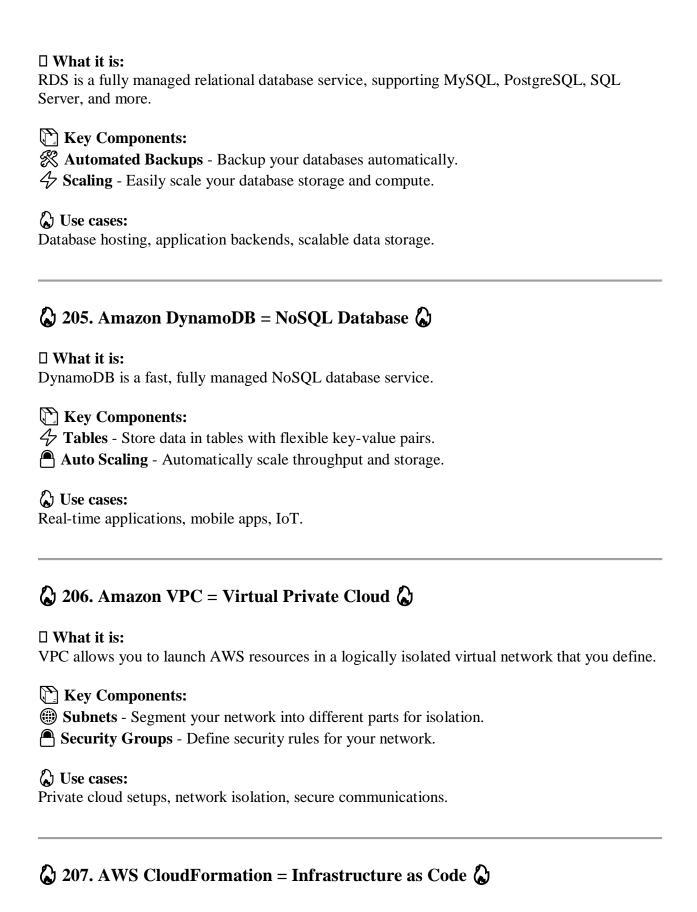
Key Components:  Long-Term Storage - Store data with long retrieval times at a low cost.  Data Protection - Secure data with encryption.
& Use cases: Backup storage, compliance archiving, and infrequently accessed data.
(2) 193. Amazon S3 Glacier Deep Archive = Deep Archive Storage (2)
☐ What it is: Glacier Deep Archive is even more cost-effective than S3 Glacier for data that needs to be archived for years.
<ul> <li>★ Key Components:</li> <li>Deep Archive - Extremely low-cost storage for long-term data.</li> <li>Delayed Retrieval - Access your data with a delay, keeping costs minimal.</li> </ul>
Use cases: Long-term archival for compliance and regulatory data.
☐ <b>What it is:</b> Secrets Manager helps you protect sensitive information like API keys, credentials, and passwords.
Key Components:  Secrets Rotation - Automatically rotate and manage secrets securely.  Access Control - Set permissions for who can access specific secrets.
& Use cases: Secure app configurations, API key management, and database credentials.
(2) 195. AWS CodeCommit = Secure Source Code Repository (2)
☐ <b>What it is:</b> CodeCommit is a fully managed source control service for hosting private Git repositories.

<b>Key Components:</b>
■ Version Control - Manage and track changes to your codebase.
Security - Secure and private repositories for code storage.
& Use cases: Source code management, collaboration, and version tracking.
(CI) Service
□ What it is:
CodeBuild automates the process of building and testing code for your applications.
<b>Key Components:</b>
Build Projects - Set up automated builds for your projects.
Scaling - Automatically scale builds based on demand.
Use cases: CI/CD pipeline, testing, and build automation.
(2) 197. AWS CodeDeploy = Automated Application Deployment (2)
☐ What it is:
CodeDeploy automates application deployments to EC2, Lambda, or on-premises servers.
Key Components:
Automatic Deployment - Deploy applications automatically with minimal downtime.
Application Rollback - Roll back deployments if something goes wrong.
Use cases:
Automated app deployment, CI/CD, and version management.
(2) 198. AWS CodePipeline = Continuous Delivery Service (2)
□ What it is:
☐ What it is: CodePipeline automates the steps in your software release process.



## **201.** AWS Lambda = Serverless Compute

☐ What it is:  Lambda allows you to run code without provisioning or managing servers. Just upload your code, and AWS handles the rest!
Key Components:  Function Execution - Run your code on-demand in response to events.  Event Sources - Integrate with AWS services like S3, DynamoDB, etc.
Use cases: Microservices, real-time data processing, API backends.
🖒 202. Amazon S3 = Scalable Object Storage 🖒
☐ <b>What it is:</b> S3 is an object storage service designed to store and retrieve any amount of data at any time.
Key Components:  Storage Buckets - Store and organize data in scalable containers.  Data Encryption - Secure your data using encryption protocols.
Use cases: Data backup, media storage, big data analytics.
203. Amazon EC2 = Virtual Servers
☐ What it is: EC2 lets you run virtual servers in the cloud, giving you scalable computing capacity.
<ul> <li><b>Exercise Service Service</b> Key Components:</li> <li>■ Instances - Launch virtual machines based on your needs.</li> <li><b>Auto Scaling</b> - Automatically scale your instances based on demand.</li> </ul>
Use cases: Web hosting, application hosting, big data processing.



☐ <b>What it is:</b> CloudFormation allows you to define and provision AWS infrastructure using code.
<ul> <li><b>Exercise</b> Templates - Define the infrastructure using YAML or JSON.</li> <li><b>Stacks</b> - Organize your resources as a single unit.</li> </ul>
☼ Use cases: Automated infrastructure provisioning, DevOps, multi-region setups.
208. Amazon CloudWatch = Monitoring and Observability &
☐ What it is: CloudWatch provides monitoring and logging for AWS resources and applications.
<ul> <li>Key Components:</li> <li>Metrics - Collect and track performance metrics.</li> <li>✓ Logs - Store, monitor, and analyze log data.</li> </ul>
Use cases: Application monitoring, infrastructure tracking, troubleshooting.
209. AWS IAM = Identity and Access Management &
☐ What it is: IAM enables you to securely control access to AWS services and resources.
Key Components:  Users and Groups - Manage identities and permissions.  Roles - Define access levels and permissions for different entities.
Use cases: Access control, user management, role-based access security.

# **210.** AWS SQS = Scalable Message Queuing **3**

☐ What it is: Simple Queue Service (SQS) enables you to send, store, and receive messages between distributed application components.
Key Components:  Queues - Store messages that can be processed asynchronously.  Visibility Timeout - Control when messages become available for processing.
Use cases: Decoupled applications, message processing, event-driven architecture.
211. Amazon SNS = Simple Notification Service &
☐ What it is: SNS is a fully managed messaging service for sending notifications to users or other services.
<ul> <li><b>Components:</b></li> <li><b>Compon</b></li></ul>
Use cases: Mobile notifications, system alerts, messaging between apps.
212. Amazon EKS = Managed Kubernetes &
☐ What it is: EKS simplifies running Kubernetes on AWS without managing the control plane.
Key Components:  Kubernetes Cluster - Easily deploy and manage Kubernetes clusters.  Integration with IAM - Secure cluster access and resource management.
Use cases: Containerized applications, microservices, cloud-native workloads.
213. AWS Lambda@Edge = Lambda at Global Edge Locations &

☐ <b>What it is:</b> Lambda@Edge allows you to run Lambda functions in response to CloudFront events at AWS locations globally.
<ul> <li>★ Key Components:</li> <li>★ Edge Locations - Run code closer to users for faster responses.</li> <li>□ Event Triggers - Respond to CloudFront events like request/response modifications.</li> </ul>
Use cases: Content delivery, real-time personalization, and edge computing.
🗘 214. AWS Shield = DDoS Protection ે
☐ What it is: Shield provides protection against distributed denial-of-service (DDoS) attacks on your AWS resources.
Key Components:  Standard Protection - Automatic protection for AWS services.  Advanced Protection - Enhanced detection and mitigation for complex attacks.
<b>Use cases:</b> Website security, application protection, and DDoS defense.
🗘 215. Amazon Aurora = Managed Relational Database 🞝
☐ What it is: Aurora is a fully managed, MySQL- and PostgreSQL-compatible relational database.
Key Components:  Automated Backups - Back up your database automatically.  Replication - Automatically replicate data for high availability.
Use cases: High-performance database hosting, multi-region deployments.

☐ What it is: CloudFront is a fast content delivery network that securely distributes your content globally.
<ul> <li>Key Components:</li> <li>Edge Locations - Cache content closer to users for faster delivery.</li> <li>Security Features - Secure content with encryption and access controls.</li> </ul>
& Use cases: Website acceleration, media streaming, content distribution.
217. AWS Fargate = Serverless Containers 2
☐ <b>What it is:</b> Fargate lets you run containers without managing the underlying infrastructure.
<ul> <li>★ Key Components:</li> <li>★ Task Definitions - Define how containers run and scale.</li> <li>★ Auto Scaling - Automatically adjust resources based on workload.</li> </ul>
Use cases: Containerized applications, microservices, serverless computing.
218. Amazon SageMaker = Managed ML Development
☐ <b>What it is:</b> SageMaker provides tools to build, train, and deploy machine learning models on AWS.
<ul> <li>Key Components:</li> <li>ML Models - Build, train, and deploy custom models.</li> <li>Notebook Instances - Use Jupyter notebooks for interactive development.</li> </ul>
Let's keep going! Here's the next batch of major AWS services with detailed explanations:

## **219.** AWS Glue = Managed ETL Service

#### $\square$ What it is:

AWS Glue is a fully managed ETL (Extract, Transform, Load) service that helps prepare and load your data for analytics.

### **Key Components:**

- ☐ **Crawler** Automatically discovers and catalogs your data.
- ② **Job** Define the transformation and loading processes for your data.

#### (2) Use cases:

Data integration, data pipeline management, ETL workflows.

## **220.** AWS Step Functions = Serverless Workflow Orchestration

#### $\square$ What it is:

Step Functions lets you coordinate multiple AWS services into serverless workflows, making it easier to build and maintain complex applications.

#### **Key Components:**

- State Machine Defines the states and transitions of your workflow.
- **Tasks** Execute AWS services as part of the workflow.

### **W** Use cases:

Business process automation, application orchestration, microservices.

## **221.** AWS Outposts = Hybrid Cloud Solutions

#### ☐ What it is:

AWS Outposts extends AWS infrastructure to on-premises data centers, offering a hybrid solution for workloads that require low latency.

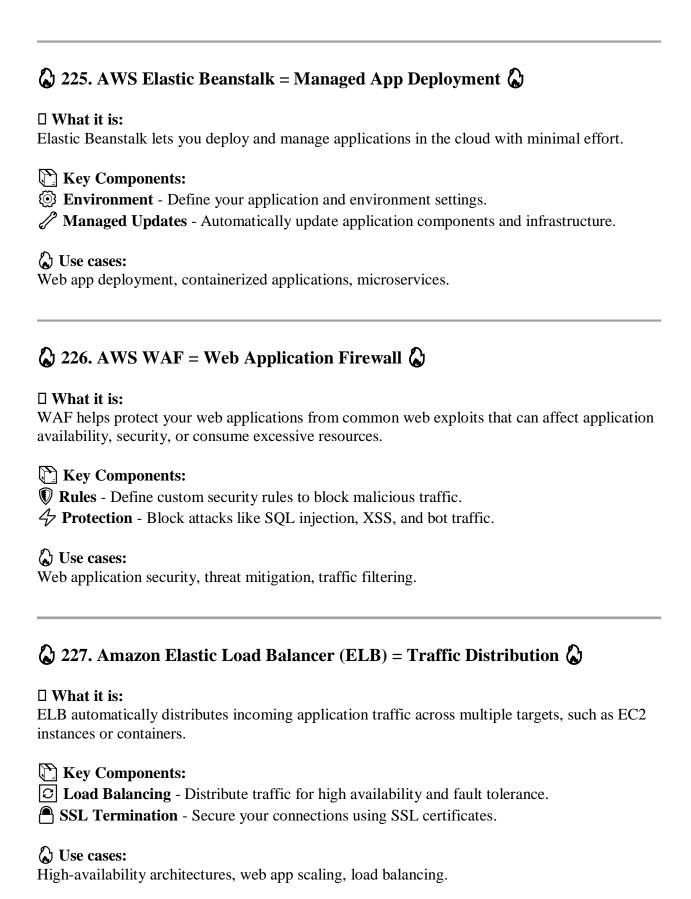
### **Key Components:**

- **Rack** Physical hardware that extends AWS services to your location.
- **©** Connectivity Securely connect your on-premises resources with AWS.

### **We cases:**

Hybrid cloud applications, low-latency workloads, disaster recovery.

222. Amazon Elastic File System (EFS) = Scalable File Storage
What it is: EFS provides scalable, managed file storage that can be shared across multiple EC2 instances.
<ul> <li>Key Components:</li> <li>File System - Store and share data across instances.</li> <li>Access Points - Control access to the file system.</li> </ul>
Use cases: hared file storage, content management, data sharing.
223. AWS KMS = Key Management Service (2)
What it is:  AWS KMS provides a secure and scalable solution for creating and managing cryptographic eys to control access to your data.
Key Components:  Customer Keys - Generate and manage encryption keys.  Access Control - Define who can access and use your keys.
Use cases: Data encryption, secure data storage, compliance management.
224. Amazon Macie = Data Privacy and Security 🗘
What it is: Macie is a security service that uses machine learning to automatically discover, classify, and rotect sensitive data in AWS.
Key Components:  Sensitive Data Discovery - Automatically identify personally identifiable information (PII).  Data Protection - Implement security measures to protect your sensitive data.
Use cases: Data compliance, data security, GDPR management.



228. AWS Global Accelerator = Performance Optimization
☐ <b>What it is:</b> Global Accelerator improves the performance of your global applications by directing traffic to the optimal AWS endpoint.
<ul> <li>★ Key Components:</li> <li>★ Global Endpoints - Route traffic to the closest AWS region for faster performance.</li> <li>★ Traffic Control - Automatically manage traffic for optimal routing.</li> </ul>
Use cases: Global apps, low-latency web applications, content distribution.
229. AWS CodeBuild = Continuous Integration and Build &
☐ <b>What it is:</b> CodeBuild is a fully managed service for compiling source code, running tests, and producing software packages.
Key Components:  Build Projects - Define the build process and testing commands.  Integration with CI/CD - Easily integrate with other AWS services.
Use cases: CI/CD pipelines, code compilation, automated testing.
230. AWS CodePipeline = Continuous Delivery Service
☐ <b>What it is:</b> CodePipeline automates the building, testing, and deployment of applications, enabling continuous integration and continuous delivery (CI/CD).

Pipeline Stages - Define various stages of your app's lifecycle (build, test, deploy).

Source Control Integration - Integrate with GitHub, CodeCommit, or other version control

**Key Components:** 

systems.

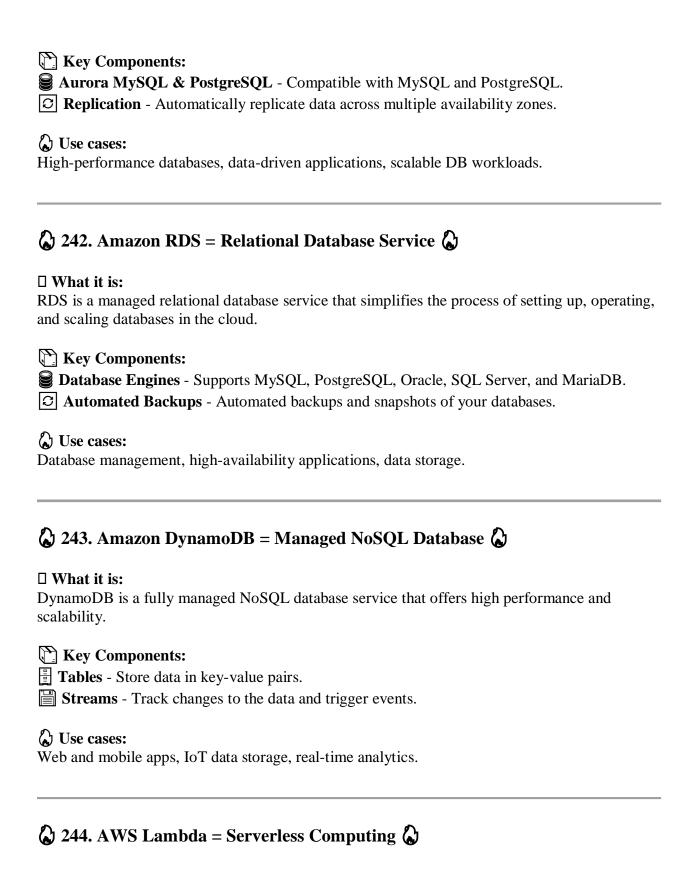
Use cases: Automated deployment, DevOps workflows, CI/CD pipelines.
231. AWS CodeDeploy = Automated Application Deployment
☐ <b>What it is:</b> CodeDeploy automates code deployments to Amazon EC2 instances, Lambda functions, and onpremises servers.
<ul> <li><b>Exercise</b> Key Components:</li> <li><b>Deployment Groups</b> - Organize your instances for staged deployments.</li> <li><b>Automated Rollbacks</b> - Automatically roll back deployments in case of failure.</li> </ul>
& Use cases: Automated app deployments, zero-downtime deployments, CI/CD.
🖒 232. Amazon QuickSight = Business Intelligence 🖒
☐ <b>What it is:</b> QuickSight is a scalable, serverless, business intelligence service that lets you visualize your data with dashboards and reports.
Key Components:  Data Sets - Connect to data sources and create visualizations.  ML Insights - Automatically generate insights using machine learning.
Use cases: Data visualization, business reporting, analytics dashboards.
233. Amazon Rekognition = Image and Video Analysis 🗘
☐ <b>What it is:</b> Rekognition uses deep learning to analyze images and videos, recognizing objects, scenes, and activities.

<ul> <li>Object Recognition - Identify objects in images and videos.</li> <li>Facial Analysis - Detect and analyze faces for attributes like emotions.</li> <li>Use cases:</li> <li>Image classification, video content moderation, security surveillance.</li> </ul>
🖒 Use cases:
234. AWS Snowball = Data Transfer Solutions
☐ What it is:
Snowball is a physical data transport solution that helps you move large amounts of data into and out of AWS securely.
<b>Example 1</b> Key Components:
Snowball Devices - Physical devices for transferring data.
■ Data Encryption - Encrypt data during transfer for security.
Use cases: Large data migrations, offline data transfer, disaster recovery.
235. Amazon Elastic Container Service (ECS) = Container Management
□ What it is:
ECS is a fully managed container orchestration service that enables you to run Docker container at scale.
<b>Example 1</b> Key Components:
☐ Clusters - Group your containerized applications together.
Task Definitions - Define the configuration of your containers.
🗘 Use cases:
Microservices, scalable containerized applications, CI/CD.

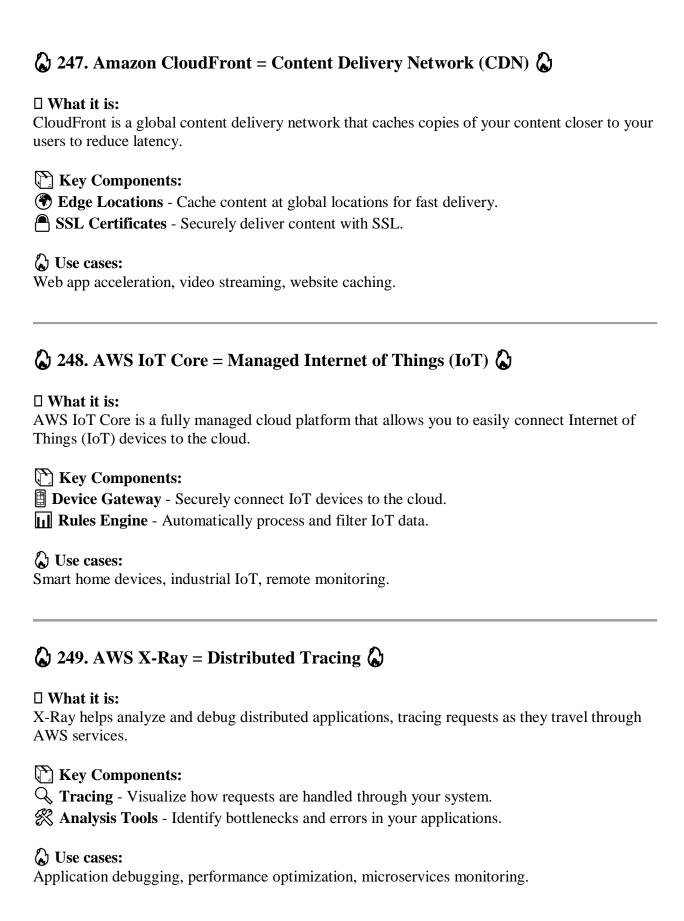
☐ <b>What it is:</b> ECR is a fully managed container image registry for storing, managing, and deploying Docker container images.
Key Components: Repositories - Store container images securely. Access Control - Manage access to your container images.
Use cases: Container image management, DevOps pipelines, microservices.
Here's the continuation of the list with more major AWS services and their details:
237. AWS Fargate = Serverless Containers
☐ <b>What it is:</b> Fargate is a serverless compute engine for containers that lets you run containers without managing the underlying servers.
<ul> <li>Key Components:</li> <li>Task Definitions - Define the configuration for your containers.</li> <li>Compute Resources - Automatically allocate resources for running containers.</li> </ul>
238. AWS CloudTrail = Security Monitoring 2
☐ What it is: CloudTrail monitors and records account activity across your AWS infrastructure, providing detailed logs for security analysis.
Key Components:  Event Logs - Capture logs of API activity within your AWS environment.  Event History - View detailed activity for security analysis.

Use cases: Security audits, compliance monitoring, forensics.
239. Amazon CloudWatch = Monitoring and Logging &
☐ What it is: CloudWatch provides monitoring for AWS resources and applications, allowing you to collect, track, and analyze log files and metrics.
Key Components:  Metrics - Collect real-time performance data.  Logs - Aggregate and monitor log data.
Use cases: Application monitoring, alerting, log management.
240. AWS Config = Resource Configuration Tracking (2)
☐ What it is: AWS Config provides a detailed inventory of your AWS resources, tracks changes, and helps you assess compliance.
<ul> <li>☼ Key Components:</li> <li>☒ Resource Inventory - Track your AWS resources and their configurations.</li> <li>※ Compliance Checks - Evaluate your configurations against best practices.</li> </ul>
Use cases: Compliance auditing, resource configuration tracking, security analysis.
241. Amazon Aurora = Managed Relational Database
☐ What it is: Aurora is a fully managed relational database service that offers high performance and

scalability.



☐ What it is: Lambda is a serverless compute service that lets you run code without provisioning or managing servers.
Key Components:  Triggers - Trigger your code in response to events from AWS services.  Functions - Run your code in response to the event.
Use cases: Event-driven computing, microservices, backend automation.
245. Amazon S3 = Scalable Object Storage
☐ What it is: S3 is an object storage service that provides highly scalable, durable, and low-latency data storage.
Key Components:  Buckets - Store objects like files and data.  Access Control - Manage who can access the data in your buckets.
Use cases: Backup storage, data archiving, content distribution.
246. AWS Elastic Beanstalk = PaaS for Application Deployment
☐ What it is: Elastic Beanstalk provides a Platform-as-a-Service (PaaS) for deploying and managing applications without worrying about the underlying infrastructure.
<ul> <li>Key Components:</li> <li>Environment - A collection of resources for running your app.</li> <li>Managed Updates - Automatically handle application and environment updates.</li> </ul>
Use cases: App deployment, scaling, continuous integration.



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