

KEY SERVICES OVERVIEW

AWS



AWS Key Services ➔

We're following this structure to define key services:

- What is it?
- How to use/configure?
- How much?





AWS Auto Scaling



What:

Automatically adjusts **AWS resources** to match demand and maintain performance.

How:

Configure scaling policies for supported services like **EC2, ECS, DynamoDB, and Aurora**.

How Much:

Free to use; you pay only for the **resources** provisioned.





Amazon S3 →

What:

Object storage service for storing and retrieving data with **high scalability and durability**.

How:

Create a bucket, upload objects, and set permissions or lifecycle policies **via the console, CLI, or SDK**.

How Much:

Pay for storage used, requests made, and data transferred (**e.g., \$0.023 per GB for the first 50 TB in the S3 Standard tier**).





Amazon RDS →

What:

Managed relational database service supporting
MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server.

How:

Launch a **database** instance, configure storage and compute capacity, and automate backups and updates.

How Much:

Pricing depends on database type, instance class, and storage (**e.g., db.t4g.micro starts in the free tier**).





Amazon CloudFront



What:

Content Delivery Network (CDN) that delivers content with **low latency and high transfer speeds.**

How:

Distribute content by creating a CloudFront distribution and linking it to **S3 buckets or other origins.**

How Much:

Pricing is based on data transfer and HTTP/HTTPS requests. Includes a **free tier for up to 1 TB/month of data transfer.**





AWS IAM



What:

Identity and Access Management service to securely control access to **AWS resources**.

How:

Create users, groups, roles, and policies to grant permissions based on the **principle of least privilege**.

How Much:

Free to use; no additional costs for **IAM**.





Amazon VPC →

What:

Virtual Private Cloud allows you to define an **isolated network** for your AWS resources.

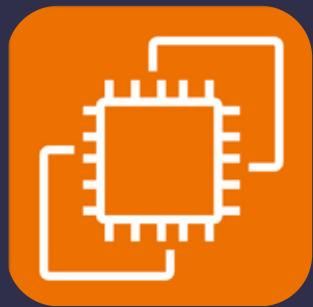
How:

Configure **subnets, route tables, internet gateways, and security groups** for networking.

How Much:

Free to use, but charges apply for **NAT gateways, VPNs, and traffic between regions**.





Amazon EC2



What:

Scalable compute capacity for running **virtual servers** in the cloud.

How:

Launch instances with **desired AMIs**, choose instance types, configure security groups, and manage scaling.

How Much:

Pay for compute hours or seconds (**depending on billing model**); options include on-demand, reserved, and spot instances.





Amazon DynamoDB →

What:

Fully managed **NoSQL database service** designed for key-value and document-based workloads.

How:

Create tables, define read/write capacity, and integrate with your application **via API or SDK**.

How Much:

Pay for **on-demand** or provisioned capacity modes, data storage, and optional features like backups and streams.





AWS Lambda



What:

Serverless **compute service** to run code in response to events without provisioning servers.

How:

Write code, deploy using the console or CLI, and configure triggers (**e.g., S3, DynamoDB, API Gateway**).

How Much:

Free tier includes **1 million requests** and **400,000 GB-seconds** of compute time; additional usage billed per request and duration.





Amazon SNS



What:

Managed service for sending notifications using **topics, SMS, email, or HTTP endpoints.**

How:

Create a topic, subscribe endpoints, and publish messages through the **console, CLI, or API.**

How Much:

Charges depend on the type of endpoint (e.g., **\$0.50 per million publish requests**).





Amazon SQS



What:

Fully managed message queuing service for **decoupling and scaling** microservices and serverless apps.

How:

Create queues (standard or FIFO), send and receive messages **via SDKs, and configure access controls**.

How Much:

Pricing is based on the number of **requests and data transfer** (free tier includes 1 million requests/month).





AWS CloudTrail



What:

Tracks and logs **API calls and account** activity for governance, compliance, and operational auditing.

How:

Enable trails, set up delivery to **S3, and analyze logs** using CloudWatch or other tools.

How Much:

Free for the last **90 days of activity**; additional charges for multi-region trails and long-term storage.





Amazon CloudWatch



What:

Monitoring service for AWS resources and custom metrics with **alarms and automated actions**.

How:

Collect logs, set up alarms, and create dashboards to **visualize metrics via the console or CLI**.

How Much:

Pricing depends on custom metrics, dashboards, alarms, and log storage/ingestion (**free tier available**).





AWS Elastic Beanstalk



What:

Simplifies deploying and managing applications in the cloud using **familiar platforms**.

How:

Upload your application code, select a platform (**e.g., Node.js, Java**), and let Beanstalk handle provisioning and scaling.

How Much:

No additional charges; you pay only for underlying resources (**e.g., EC2, RDS**).



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AWS Systems Manager



What:

Unified interface to manage AWS resources and automate **operational tasks**.

How:

Use features like Run Command, Patch Manager, and Parameter Store to **streamline management**.

How Much:

Free for many core features; charges apply for **advanced configurations and automation steps**.





Amazon Route 53 ➔

What:

Scalable DNS and domain registration service for **managing traffic routing**.

How:

Register domains, configure routing policies (**e.g., weighted, failover**), and connect to hosted zones.

How Much:

Pricing includes hosted zone management (**\$0.50 per zone/month**) and **query requests**.



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AWS CodePipeline ➔

What:

Continuous integration and delivery (CI/CD) service to **automate code change deployment**.

How:

Create pipelines with stages, integrate with source control (**e.g., GitHub**), and set deployment targets.

How Much:

\$1 per active pipeline/month, excluding charges for **integrated AWS services**.





AWS Glue →

What:

Serverless **data integration service** for preparing, transforming, and moving data.

How:

Create jobs, define ETL scripts, and use the **Data Catalog** to manage metadata.

How Much:

Charges based on **data processing units (DPUs)** used per second; includes free tier options.





AWS Fargate →

What:

Serverless compute engine for containers, supporting **Amazon ECS and EKS**.

How:

Define tasks and services in **ECS/EKS**, then run containers without provisioning servers.

How Much:

Pay per **vCPU and memory** used by the task or pod.





Amazon EKS →

What:

Managed Kubernetes service for running **containerized applications**.

How:

Create a cluster, configure nodes or use Fargate, and deploy workloads using **Kubernetes APIs**.

How Much:

\$0.10 per hour per cluster, plus charges for resources used by **workloads**.



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Amazon ElastiCache →

What:

Fully managed in-memory data store for caching and real-time analytics (**Redis or Memcached**).

How:

Create clusters, configure replication, and connect your application **via APIs**.

How Much:

Charges based on **instance** types, clusters, and data transfer.





AWS AppSync →

What:

Managed **GraphQL service** for building APIs with real-time and offline capabilities.

How:

Define a schema, connect data sources, and deploy resolvers using the **console or CLI**.

How Much:

Pay per query execution, connection hours for **subscriptions, and data transfer**.



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Amazon RDS

What:

Managed relational database service supporting multiple database engines **like MySQL, PostgreSQL, and Oracle.**

How:

Choose a database engine, configure instance settings, and connect to **applications**.

How Much:

Pricing depends on instance size, storage, and **optional features** like multi-AZ deployments.





AWS KMS



What:

Managed service for creating and controlling **cryptographic keys**.

How:

Create keys, define usage policies, and integrate with **other AWS services for encryption**.

How Much:

\$1 per key/month for customer-managed keys; additional costs for API requests.



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Amazon QuickSight



What:

Business intelligence service for creating interactive **dashboards** and **visualizing data**.

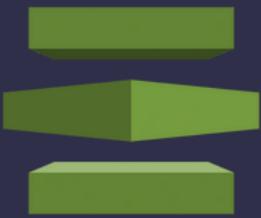
How:

Connect data sources, build analyses, and publish dashboards for **team use**.

How Much:

Charges depend on user type (**reader, author**) and session or SPICE usage.





AWS Secrets Manager →

What:

Securely manage and rotate secrets like API keys and **database credentials**.

How:

Store secrets, configure rotation policies, and retrieve them **programmatically**.

How Much:

\$0.40 per secret/month and \$0.05 per 10,000 **API calls**.





AWS Config →

What:

Tracks configuration changes and evaluates compliance of **AWS resources**.

How:

Enable rules, track resources, and analyze compliance **via console or CLI**.

How Much:

Pay per rule evaluation and recorded configuration item.





Amazon Redshift →

What:

Managed data warehouse for analyzing **large datasets** using SQL.

How:

Create a cluster, load data, and run queries through **BI tools or Redshift console**.

How Much:

Charges based on node type, storage, and usage; **free trial available**.





Amazon CloudFront ➔

What:

Content delivery network (CDN) for **fast delivery of web content**.

How:

Set up distributions, add origins (e.g., S3, EC2), and configure **cache behaviors**.

How Much:

Pay for data transfer, requests, and additional features like **real-time logging**.





AWS Step Functions →

What:

Serverless orchestration service for building workflows **across AWS services.**

How:

Define workflows using JSON, execute them, and monitor results **via the console.**

How Much:

Pay per state transition; free tier includes **4,000 transitions/month.**





Amazon SageMaker →

What:

Managed service for building, training, and deploying **machine learning models**.

How:

Use built-in algorithms, notebooks, or custom models, and deploy **endpoints for inference**.

How Much:

Charges **vary** for notebook instances, training jobs, and model hosting.





Amazon Inspector ➔

What:

Automated security assessment service for **identifying vulnerabilities in workloads.**

How:

Set up assessments, define targets, and review findings in the **console**.

How Much:

Charges **depend** on resource coverage and assessment runs.





AWS Elastic Beanstalk →

What:

Platform-as-a-Service (PaaS) for deploying and managing applications without **managing infrastructure**.

How:

Upload code, choose a platform (e.g., Node.js, Java, .NET), and Elastic Beanstalk automatically handles **scaling and monitoring**.

How Much:

No additional cost for Elastic Beanstalk; charges apply for **AWS resources** used (e.g., EC2, S3).



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Amazon Aurora →

What:

Managed relational database with **MySQL** and **PostgreSQL** compatibility, offering high performance and availability.

How:

Launch Aurora instances and configure clusters for scaling and replication.

How Much:

Charges based on instance type, storage, I/O requests, and backup storage.





Amazon Route 53 ➔

What:

Managed DNS and domain registration service for **routing traffic to resources.**

How:

Create hosted zones, define record sets, and manage routing policies.

How Much:

Pay per hosted zone and DNS queries; additional costs for domain registration.





What:

Protects web applications from common **web exploits and bots**.

How:

Set up web ACLs, define rules for traffic filtering, and associate with **CloudFront** or Application Load Balancer.

How Much:

Charges per web ACL, rules, and the amount of **web requests processed**.



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AWS Lambda →

What:

Serverless **compute service** to run **code** without provisioning or managing servers.

How:

Upload code, set triggers (e.g., S3 events, API Gateway), and Lambda automatically scales **to handle requests**.

How Much:

Pay for the number of requests and the duration of execution (**memory allocated**).



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Amazon S3 →

What:

Scalable object storage service for storing and retrieving **any amount of data**.

How:

Upload, retrieve, and manage data **using the console, CLI, or API**.

How Much:

Pay based on storage usage, data transfer, and number of requests.





Amazon SNS →

What:

Managed service for sending messages, notifications, and alerts to distributed systems.

How:

Set up topics, subscribe endpoints (**e.g. email, SMS**), and publish messages to notify subscribers.

How Much:

Charges based on the **number** of messages published, delivery attempts, and data transfer.





AWS Systems Manager ➔

What:

Unified interface for managing and automating **infrastructure at scale**.

How:

Use runbooks, patch management, and resource configuration **to maintain systems**.

How Much:

Pay for **specific features** like Parameter Store, Session Manager, and OpsCenter.





Amazon SQS



What:

Managed **message queuing service** for decoupling and scaling microservices, distributed systems, and serverless applications.

How:

Create queues, send and receive messages **using the SQS API or SDK**.

How Much:

Charges based on the **number of** requests and the data transfer.





Amazon CloudWatch ➔

What:

Monitoring and observability service for **AWS resources and applications**.

How:

Set up metrics, logs, alarms, and dashboards to monitor **resources and applications**.

How Much:

Charges for metrics, logs, custom dashboards, and alarms.



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AWS Cost Explorer →

What:

Visualize and analyze your **AWS spending** and usage over time.

How:

Use the **Cost Explorer dashboard** to filter, group, and explore cost data for insights.

How Much:

No **additional cost** for basic usage; charges for detailed billing and forecasts.





AWS Batch →

What:

Managed **batch processing service** for running large-scale parallel and high-performance computing (HPC) workloads.

How:

Define job definitions, create compute environments, and submit jobs for processing.

How Much:

Charges based on **EC2 instance usage** for job execution.





AWS Direct Connect ➔

What:

Establish dedicated network connections from **your premises to AWS.**

How:

Set up connections from on-premises to AWS Direct Connect locations, bypassing the internet **for lower latency.**

How Much:

Pricing based on connection speed, data transfer, and location.



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AWS CloudFormation ➔

What:

Service for automating the setup and management of **AWS resources using code templates.**

How:

Create **CloudFormation stacks** to define and deploy resources **like EC2 instances, S3 buckets, and more through templates.**

How Much:

No additional charge for **CloudFormation** itself; charges apply for AWS resources created through CloudFormation.





AWS CloudTrail



What:

Service for logging and monitoring AWS API calls for **compliance and auditing purposes**.

How:

Enable CloudTrail in your AWS account to log API activity **for specific regions or services**.

How Much:

Charges based on the number of **events recorded and stored**.



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AWS KMS



What:

Managed service for creating and controlling **encryption keys** used to encrypt your data.

How:

Create **customer-managed keys (CMKs)** and use them for encrypting data across AWS services.

How Much:

Charges are based on the number of **keys stored and requests** made to use them.





Amazon ECR



What:

Managed **Docker** container registry for storing and managing container images.

How:

Push and pull container images to/from ECR repositories **using Docker CLI or AWS SDKs.**

How Much:

Charges for **storage of images and data transfer** out of the registry.





Amazon RDS



What:

Managed relational database service supporting multiple database engines (**MySQL, PostgreSQL, SQL Server, etc.**).

How:

Set up and manage relational databases with **automated backups, scaling, and patching**.

How Much:

Pricing based on instance type, storage, and I/O requests.





Amazon ELB



What:

Distributes incoming application traffic across **multiple targets (e.g., EC2 instances)** for high availability.

How:

Set up **load balancers** (e.g., Application Load Balancer, Network Load Balancer) and configure target groups.

How Much:

Charges based on the number of hours the **load balancer** is running and data processed.





AWS Global Accelerator →

What:

Service to improve the **availability and performance** of applications globally by routing traffic through AWS's global network.

How:

Create **accelerators and configure listeners** to route traffic to your applications based on geographic location.

How Much:

Charges based on the **number of** accelerators, data transfer, and traffic processed.





Amazon EFS



What:

Managed file storage service that can be accessed from **multiple EC2 instances concurrently.**

How:

Mount EFS to EC2 instances or on-premises servers to **share file storage.**

How Much:

Charges based on **storage usage and data transfer.**





AWS Snowball →

What:

Data transport solution for transferring large amounts of data to and from AWS, often used for **offline migration**.

How:

Request a **Snowball device**, load your data, and ship it to an AWS data center for upload.

How Much:

Charges based on **device type** (Snowball or Snowmobile) and **data transfer volume**.





Amazon ElastiCache →

What:

Managed in-memory data store service supporting **Redis** and **Memcached** for caching application data.

How:

Create ElastiCache clusters, configure cache nodes, and integrate with **applications for faster data retrieval**.

How Much:

Charges for **cache node usage** (e.g., instance types, node size) and **data transfer**.





AWS EFS



What:

Scalable **file storage** for use with AWS cloud services and on-premises resources

How:

Create file systems, mount them on EC2 instances, and use them for **scalable file storage.**

How Much:

Pay for storage usage, with pricing based on the **amount of data stored in the file system.**



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