

16 AWS Services every Backend Developer should know!

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Foundational Services

Services that underpin most AWS architectures and are almost always involved in one form or another

01. AWS VPC (Virtual Private Cloud)



What does it do?

Lets you provision a private, isolated section of AWS.

Why It's Essential?

- Control over the virtual networking environment (IP address ranges, subnets).
- Configuration of route tables, network gateways, and security groups.
- Foundation for secure and compliant deployments.

02. AWS IAM (Identity and Access Management)



What does it do?

Manages access to AWS services and resources securely.

Why It's Essential?

- Granular control over user and service permissions.
- Central to AWS security best practices.
- Ensures least-privilege access across the organization.

03. Amazon S3 (Simple Storage Service)



What does it do?

Object storage service for storing and retrieving any amount of data.

Why It's Essential?

- Highly durable (11 nines of durability).
- Scalable solution for static file hosting, backups, and data lakes.
- Integrates with almost all other AWS services.

04. Amazon CloudWatch



What does it do?

Monitoring and observability service for logs, metrics, and alarms across AWS resources.

Why It's Essential?

- Collects logs, metrics, and event data
- Allows for setting alarms and automated responses.
- Provides custom dashboards and integration with AWS services (e.g., AWS Lambda for automated remediation).

05. AWS Secrets Manager



What does it do?

Securely store and retrieve secrets (API keys, passwords)

Why It's Essential?

- Eliminates hard-coding credentials in code.
- Integrates with AWS IAM for fine-grained access control.
- Automates secret rotation, ensuring better security posture.

06. Amazon Route 53



What does it do?

Fully managed Scalable DNS and domain name registration service.

Why It's Essential?

- Controls domain routing for your applications.
- Integrates with load balancers and global traffic management.
- Health checks and multi-region failover routing.

Traditional Services

Services that reflect a more conventional, server-centric or relational-database-centric approach

07. Amazon EC2 (Elastic Compute Cloud)



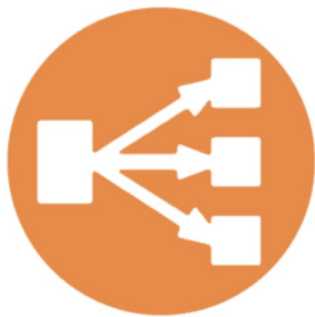
What does it do?

Resizable Virtual servers in the cloud; you choose and manage the OS and underlying infrastructure.

Why It's Essential?

- Core building block for deploying applications.
- Allows you to choose CPU, memory, networking, and storage capacity.
- Offers various pricing models (On-Demand, Reserved, Spot Instances).

08. AWS Elastic Load Balancing (ELB)



What does it do?

Distributes incoming application traffic across multiple targets (EC2, ECS, Lambda, IP addresses)

Why It's Essential?

- Improves fault tolerance and availability of your applications.
- Offers Application Load Balancer (Layer 7), Network Load Balancer (Layer 4), and Gateway Load Balancer.
- Works in conjunction with Auto Scaling to handle fluctuating traffic.

09. Amazon RDS (Relational Database Service)



What does it do?

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

Why It's Essential?

- Handles routine database tasks: updates, backups, patching
- Scale compute and storage with minimal downtime.
- Integrates with other AWS services (e.g., IAM for access management).

Container-Based Services

Services that manage and orchestrate containerized applications

10. AWS ECS (Elastic Container Service) & AWS EKS (Elastic Kubernetes Service)



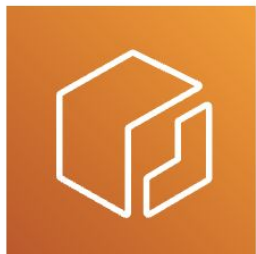
What does it do?

Container orchestration services for running Docker containers at scale.

Why They're Essential?

- ECS: Natively integrates with AWS services (e.g., Fargate) for serverless container hosting.
- EKS: Managed Kubernetes service for organizations already using Kubernetes.
- Simplifies deploying, scaling, and managing containerized applications.

11. AWS Elastic Container Registry



What does it do?

Fully managed container registry service that securely stores and manages container images for your applications.

Why They're Essential?

- Eliminates the need to operate your own container registry infrastructure.
- Provides secure, scalable storage for container images with encryption and access control.
- Integrates seamlessly with AWS services like Elastic Container Service (ECS) and Elastic Kubernetes Service (EKS).

Serverless Services

Services where you don't manage any underlying servers;
compute and scaling are handled automatically

12. AWS Lambda



What does it do?

Serverless compute service that runs code in response to events.

Why It's Essential?

- No need to manage servers; pay only for the compute time used.
- Easy integration with various event sources (S3, API Gateway, DynamoDB, etc.).
- Rapid scaling for asynchronous workloads and microservices.

13. Amazon API Gateway & AWS WAF



What does it do?

Fully managed service for creating, publishing, and managing APIs.

Why It's Essential?

- Acts as a “front door” for applications to access data or functionality.
- Integrates seamlessly with AWS Lambda, ELB, or other backends.
- Offers authorization, monitoring, filtering and throttling features out of the box.

14. Amazon DynamoDB



What does it do?

Fully managed NoSQL database with auto-scaling and high availability; no server provisioning.

Why It's Essential?

- Fully managed key-value and document database.
- Auto-scaling, global tables, and built-in high availability.
- Ideal for session management, caching, or event-driven architectures.

15. Amazon SQS (Simple Queue Service) and Amazon SNS (Simple Notification Service)



What does it do?

SQS: Fully managed message queuing service.

SNS: Fully managed pub/sub messaging with push-based delivery.

Why It's Essential?

- Decouple microservices and distribute workloads.
- SQS ensures reliable queue-based communication between components.
- SNS sends notifications or triggers to various endpoints (Lambda, email, HTTP(S)).

16. Amazon CloudFront



What does it do?

Content Delivery Network (CDN) for distributing content with low latency and high transfer speeds (fully managed edge network, no servers to maintain).

Why It's Essential?

- Caches content at edge locations to improve performance.
- Integrates with S3, EC2, and custom origins.
- Security features like AWS Shield Standard for DDoS protection.

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Thank You!