AMAZON WEB SERVICES

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INTRODUCTION:

Amazon Web Services (AWS) offers a vast array of cloud computing services, catering to various needs of businesses and developers. Here's a breakdown of some key AWS services.

VARIOUS SERVICES:

1. Compute Services
2. Storage Services
3. Database Services
4. Networking Services
5. Developer Tools
6. Security and Identity Service

Compute Services:

Compute services in AWS provide scalable computing resources for running applications and workloads in the cloud.

1. Amazon EC2 (Elastic Compute Cloud):

- Virtual servers in the cloud, offering scalability and flexibility.

- Users have complete control over computing resources and can choose from various instance types and pricing options.

2. AWS Lambda:

- Serverless compute service that executes code in response to events.
- Users upload code, and AWS Lambda handles scaling and resource management automatically.

3. Amazon ECS (Elastic Container Service):

- Managed container orchestration service for Docker containers on EC2 instances or AWS Fargate.
- Simplifies the deployment and management of containerized applications at scale.

4. AWS Batch:

- Service for running batch computing workloads in the cloud.
- Automatically scales compute resources based on workload demands, managing dependencies and scheduling.

Storage Services:

The storage service provided by the AWS are explained below

1. Amazon S3 (Simple Storage Service):

- Highly scalable object storage.
- Offers multiple storage classes for cost-effectiveness.
- Industry-leading durability and availability.

2. Amazon EBS (Elastic Block Store):

- Block-level storage volumes for EC2 instances.
- Persistent and high-performance storage.
- Replicated within Availability Zones for durability.

3. Amazon Glacier:

- Low-cost storage for long-term data archiving.
- Three retrieval options: Expedited, Standard, and Bulk.
- Suitable for compliance and regulatory requirements.

4. Amazon EFS (Elastic File System):

- Fully managed file storage for EC2 instances.
- Supports NFSv4 protocol and scales automatically.
- Ideal for shared file storage needs.

5. Amazon FSx (File System):

- Fully managed file storage for Windows File Server and Lustre file systems.
- Integrates with other AWS services like AWS Backup and AWS Directory Service.

- Suitable for Windows-based applications and high-performance computing.

Database Services:

Amazon RDS (Relational Database Service):

- Managed service for relational databases like MySQL, PostgreSQL, Oracle, SQL Server, and Amazon Aurora.
- Automates database provisioning, patching, backups, and scaling.
- Offers high availability and durability with multi-AZ deployments.

Amazon DynamoDB:

- Fully managed NoSQL database service.
- Provides seamless scalability and high availability.
- Supports key-value and document data models.

Amazon Aurora:

- High-performance, fully managed relational database compatible with MySQL and PostgreSQL.
- Offers up to five times the performance of standard databases.
- Provides automatic failover and replication across multiple AZs.

Amazon Redshift:

- Fully managed data warehousing service for analytics and BI workloads.
- Utilizes columnar storage and MPP architecture for high query performance.
- Integrates with popular BI tools for data visualization and analysis.

Networking Services:

Amazon VPC (Virtual Private Cloud):

- Allows you to create a virtual network in the AWS cloud with customizable IP address range, subnets, and routing tables.
- Provides isolation and security for your AWS resources.
- Enables connectivity between your AWS resources and your on-premises network using VPN or Direct Connect.

Amazon Route 53:

- Scalable DNS web service for domain name resolution.
- Offers routing policies for traffic management, such as weighted, latency-based, and geolocation routing.

- Integrates with other AWS services for seamless DNS management.

Amazon CloudFront:

- Content delivery network (CDN) service for fast and secure content delivery.
- Caches content at edge locations close to end-users for reduced latency.
- Supports secure delivery of content over HTTPS and integrates with AWS WAF for enhanced security.

AWS Direct Connect:

- Provides dedicated network connections between your datacenter and AWS.
- Offers private connectivity for improved security, reliability, and performance.
- Suitable for hybrid cloud deployments and large data transfers requiring low latency.

AWS VPN (Virtual Private Network):

- Establishes encrypted VPN tunnels over the internet between your on-premises network and Amazon VPC.

- Provides secure communication for remote users or entire networks.
- Supports site-to-site VPN connections and client VPN connections.

Security and Identity Services:

AWS IAM (Identity and Access Management):

- Manages access to AWS services and resources securely.
- Allows creation of users, groups, and roles with granular permissions.
- Supports multi-factor authentication (MFA) and identity federation.

Amazon GuardDuty:

- Managed threat detection service for AWS accounts.
- Continuously monitors for malicious activity and unauthorized behavior.
- Provides detailed findings and integrates with AWS CloudWatch and Lambda.

AWS WAF (Web Application Firewall):

- Protects web applications from common exploits and vulnerabilities.

- Allows creation of custom rules to filter and monitor HTTP/HTTPS requests.
- Integrates with CloudFront, ALB, and API Gateway for edge or cloud-based protection.

Developer Tools:

AWS CodeDeploy:

- Automates code deployments to EC2 instances, Lambda functions, and on-premises servers.
- Allows you to deploy applications from GitHub, Bitbucket, or Amazon S3.
- Supports blue/green deployments for zero-downtime updates.

AWS CodeCommit:

- Fully managed source control service that hosts secure Git repositories.
- Provides collaboration features like pull requests, code reviews, and integrations with CI/CD pipelines.

AWS CodePipeline:

- Continuous integration and continuous delivery (CI/CD) service for automating software release pipelines.

- Integrates with CodeCommit, CodeBuild, CodeDeploy, and third-party tools.
- Allows you to create custom workflows with manual approval steps and parallel execution.