AWS Cloud Networking

Topics : [AWS](#)
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AWS Cloud Networking involves the configuration and management of network resources within the Amazon Web Services (AWS) cloud environment. Networking in AWS includes services and features that enable the creation, connection, and control of virtual networks to support the deployment of applications and services. Here are key aspects of AWS Cloud Networking:

1. **Amazon Virtual Private Cloud (VPC):**

   - **Description:** VPC is a logically isolated section of the AWS Cloud where you can launch AWS resources. It allows you to define your own virtual network, including IP address ranges, subnets, and routing tables.
   - **Key Features:**
     - Customizable network configuration.
     - Support for IPv4 and IPv6 addressing.
     - Public and private subnets.

2. **Subnets:**

   - **Description:** Subnets are subdivisions of a VPC's IP address range. They are used to organize resources within a VPC and can be public or private.
   - **Use Cases:**
     - Public subnets typically host resources with public IP addresses.
     - Private subnets are used for resources that should not be directly accessible from the internet.

3. **Route Tables:**

   - **Description:** Route tables control the traffic leaving the subnets. Each subnet in a VPC must be associated with a route table, which contains a set of rules (routes) for routing traffic.
   - **Use Cases:**
     - Internet Gateway (IGW) for public subnets.
     - Virtual Private Gateway (VGW) for private subnets.

4. **Internet Gateway (IGW):**

   - **Description:** An IGW is a horizontally scaled, redundant component that allows communication between instances in your VPC and the internet.
   - **Use Cases:**
     - Enables instances in public subnets to connect to the internet for tasks like

software updates.

5. **Elastic IP Addresses:**

   - **Description:** Elastic IP addresses (EIPs) are static IP addresses designed for dynamic cloud computing. They can be associated with instances in a VPC.
   - **Use Cases:**
     - Ensure a consistent IP address for instances that need to be publicly accessible.

6. **NAT Gateway:**

   - **Description:** Network Address Translation (NAT) Gateway allows instances in private subnets to initiate outbound traffic to the internet while preventing inbound traffic from reaching them.
   - **Use Cases:**
     - Enables instances in private subnets to access the internet for tasks like downloading updates.

7. **VPC Peering:**

   - **Description:** VPC Peering allows you to connect two VPCs, enabling communication between them using private IP addresses.
   - **Use Cases:**
     - Share resources between VPCs without the need for public IP addresses.

8. **Direct Connect:**

   - **Description:** AWS Direct Connect provides dedicated network connections from your on-premises data centers to AWS, bypassing the public internet.
   - **Use Cases:**
     - Secure and high-throughput connectivity between on-premises infrastructure and AWS.

9. **Virtual Private Network (VPN):**

   - **Description:** AWS VPN allows you to establish a secure and private connection between your on-premises network and your VPC.
   - **Use Cases:**
     - Extend on-premises data center networks into the AWS Cloud securely.

10. **Elastic Load Balancer (ELB):**

   - **Description:** ELB distributes incoming application traffic across multiple targets, such as EC2 instances, in multiple Availability Zones.
   - **Use Cases:**
     - Improves availability and fault tolerance of applications.

11. **AWS Global Accelerator:**

   - **Description:** Global Accelerator is a service that uses static IP addresses to route traffic over the AWS global network to optimal AWS endpoints.
   - **Use Cases:**
     - Improves availability and performance of applications with a global user base.

12. **Security Groups and Network ACLs:**

- **Description:** Security Groups and Network Access Control Lists (ACLs) are used to control inbound and outbound traffic to instances in a VPC.
- **Use Cases:**
  - Granular control over network traffic for security and compliance.

13. **Amazon Route 53:**

- **Description:** Route 53 is a scalable and highly available Domain Name System (DNS) web service provided by AWS.
- **Use Cases:**
  - Domain registration, DNS routing, and health checks.

14. **Transit Gateway:**

- **Description:** Transit Gateway is a service that enables you to connect multiple VPCs and on-premises networks in a hub-and-spoke model.
- **Use Cases:**
  - Simplifies network architecture when dealing with multiple VPCs and on-premises locations.

15. **AWS PrivateLink:**

- **Description:** AWS PrivateLink enables private connectivity between VPCs, AWS services, and on-premises applications.
- **Use Cases:**
  - Access AWS services without traversing the public internet.