

# Advanced AWS Workshop



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## VPC Peering

Connect multiple VPCs securely without going through the public internet.



## Transit Gateway

Simplify network architecture with a central hub for connecting VPCs and on-premises networks.



## Hybrid Connectivity

Connect your AWS environment to on-premises networks using Direct Connect and VPN solutions.



## AWS VPC Peering

A networking connection between two VPCs that enables routing using private IP addresses.

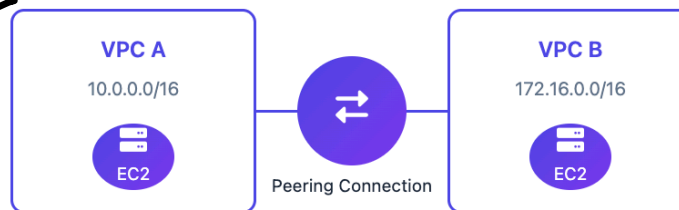
Account - 01  
Scale VPC

### What is VPC Peering?

VPC peering is a networking connection between two VPCs that enables you to route traffic between them privately. Instances in either VPC can communicate with each other as if they are within the same network.

### VPC Peering Connection

Scale VPC  
Account 01



Interview bit  
VPC  
Account - 2

10.0.0.0/16 ↔ 192.168.0.0/16

- Traffic flows directly between VPCs
- Each VPC must have non-overlapping CIDR blocks

### Key Features

- Direct network routing between VPCs
- No gateway or VPN required
- No single point of failure
- Traffic stays on AWS network

### Limitations

- No transitive peering
- Cannot have overlapping CIDR blocks
- Maximum of 125 peering connections per VPC
- Cannot edit or modify a connection after creation

VPC

Interview

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Other AWS  
Account



# AWS Transit Gateway

A central hub that connects VPCs and on-premises networks through a single gateway.

## What is Transit Gateway?

AWS Transit Gateway is a highly available and scalable service that simplifies network architecture by connecting multiple VPCs and on-premises networks through a central hub.

### Transit Gateway Architecture



- Central hub for all network connections
- Supports transitive routing between all attached networks

### ✓ Key Benefits

- Simplified network architecture
- Centralized connectivity management
- Supports transitive routing
- Regional resource with cross-region peering

### ⚙️ Components

- Transit Gateway
- Attachments (VPC, VPN, Direct Connect)
- Route Tables
- Associations and Propagations



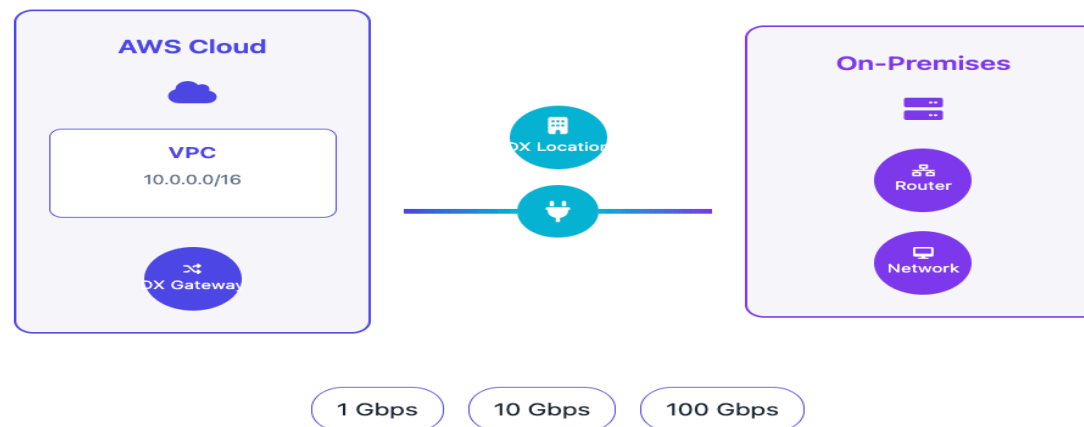
# AWS Direct Connect

Dedicated network connection from on-premises to AWS.

## What is Direct Connect?

AWS Direct Connect is a cloud service that establishes a dedicated network connection from your premises to AWS, providing consistent network performance and reducing bandwidth costs.

## Direct Connect Architecture



- Dedicated physical connection between AWS and your data center
- Lower latency and higher bandwidth than internet-based connections
- Available in 1, 10, and 100 Gbps capacities
- Bypasses the public internet for enhanced security and reliability

### ✓ Key Benefits

- Reduced network costs
- Increased bandwidth throughput
- Consistent network experience
- Private connectivity to AWS services

### ⚙️ Components

- Direct Connect Locations
- Connections (Dedicated or Hosted)
- Virtual Interfaces (Public, Private, Transit)
- Direct Connect Gateway



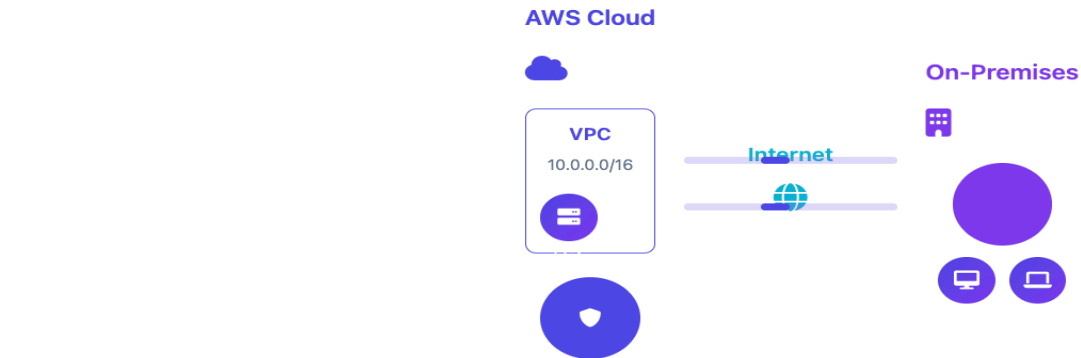
# AWS Site-to-Site VPN

Secure connection between your on-premises network and AWS VPC.

## What is Site-to-Site VPN?

AWS Site-to-Site VPN creates an encrypted tunnel between your on-premises network and your Amazon VPC, allowing secure communication between resources in both environments.

## Site-to-Site VPN Architecture



Tunnel 1

Tunnel 2

Both Tunnels

- Encrypted connection over the internet using IPsec protocol
- Two tunnels for high availability (active/standby)
- Supports static routes or dynamic routing (BGP)
- Can be connected to Virtual Private Gateway or Transit Gateway

### Key Benefits

- Secure encrypted connection
- Supports IPsec protocol
- High availability with multiple tunnels
- Integrates with Transit Gateway

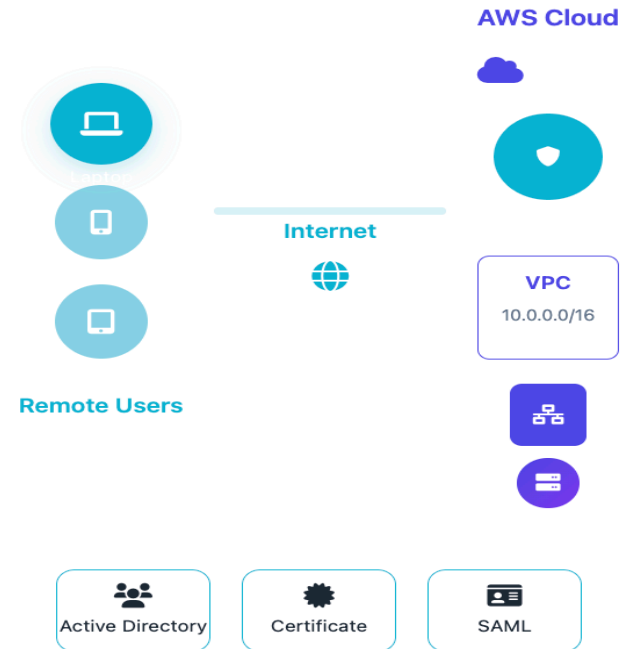
### Components

- Virtual Private Gateway or Transit Gateway
- Customer Gateway
- VPN Connection
- Route Tables

## What is Client VPN?

AWS Client VPN is a managed client-based VPN service that enables secure access to AWS resources and on-premises networks from any location using an OpenVPN client.

### Client VPN Architecture



- Secure access from any location using OpenVPN clients
- Multiple authentication options (AD, Certificate, SAML)
- Access to AWS resources and on-premises networks
- Fully managed service that scales automatically

#### ✓ Key Benefits

- Fully managed VPN solution
- Secure access from anywhere
- Scales automatically
- Multiple authentication options

#### ⚙️ Components

- Client VPN Endpoint
- Target Networks
- Authorization Rules
- Route Tables

