

What is a launch template

Launch Templates is **a new capability that enables a new way to templatize your launch requests.**

Launch Templates streamline and simplify the launch process for Auto Scaling, Spot Fleet, Spot, and On-Demand instances.

What is VPC

- VPC stands for Virtual Private Cloud.
- Amazon Virtual Private Cloud (Amazon VPC) provides a logically isolated area of the AWS cloud where you can launch AWS resources in a virtual network that you define.
- You have complete control over your virtual networking environment, including a selection of your IP address range, the creation of subnets, and configuration of route tables and network gateways.
- You can easily customize the network configuration for your Amazon Virtual Private Cloud. For example, you can create a public-facing subnet for web servers that can access to the internet and can also place your backend system such as databases or application servers to a private-facing subnet.
- You can provide multiple layers of security, including security groups and network access control lists, to help control access to Amazon EC2 instances in each subnet.

What is subnet

Subnet masks are also expressed in dot-decimal notation like an IP address.

For example, the prefix **198.51.100.0/24** would have the subnet mask **255.255.255.0**. Traffic is exchanged between subnetworks through routers when the routing prefixes of the source address and the destination address differ.

What is internet gateway

Component that allows communication between your VPC and the internet

What is router

- The router is a physical or virtual internetworking device that is designed to receive, analyze, and forward data packets between computer networks.
- There are some popular companies that develop routers; such are **Cisco**, **3Com**, **HP**, **Juniper**, **D-Link**, **Nortel**, etc. Some important points of routers are given below
- A router is used in **LAN** (Local Area Network) and **WAN** (Wide Area Network) environments. For example, it is used in **offices** for connectivity, and you can also establish the connection between distant networks such as from **Bhopal** to
- It shares information with other routers in networking.
- It uses the routing protocol to transfer the data across a network.
- Furthermore, it is more **expensive** than other networking devices like switches and hubs.

What is Peering Connection

VPC Peering is a **networking connection that allows you to connect one VPC with another VPC through a direct network route using private IP addresses.**

Instances behave as if they were on the same private network. You can peer VPC's with other AWS accounts as well as other VPCs in the same account.

What is VPC endpoint

- A VPC endpoint allows you to privately connect your VPC to supported AWS services and VPC endpoint services powered by **PrivateLink** without requiring an internet gateway, NAT device, VPN Connection, or AWS Direct Connect connection.
- Instances in your VPC do not require public addresses to communicate with the resources in the service. Traffic between your VPC and the other service does not leave the Amazon network.
- VPC endpoints are virtual devices.
- VPC Endpoints are horizontally scaled, redundant and highly available VPC components that allow communication between instances in your VPC and services without imposing availability risks or bandwidth constraints on your network traffic

NAT instance

A NAT (Network Address Translation) instance is, like a bastion host, **an EC2 instance that lives in your public subnet.**

A NAT instance, however, allows your private instances outgoing connectivity to the internet while at the same time blocking inbound traffic from the internet.

NAT gateway

- NAT stands for **Network Address Translation.**
- If you want your EC2 instance in a private subnet can access the internet, this can be achieved only when it can communicate to the internet.
- However, we do not want to make a subnet public as we want to maintain the degree of control. To overcome the problem, we need to create either NAT Gateways or NAT Instances.
- In real time, NAT Gateways are highly used than NAT instances as NAT instances are an individual EC2 instances, and NAT Gateways are highly available across multiple availability zones, and they are not on a single EC2 instance

Virtual Private Gate way

Internet Gateway and Virtual Private Gateway are **the ways of connecting to the VPC**.

Both these connections go to the router in a VPC and then router directs the traffic to the route table.

Route table will then direct the traffic to Network ACL.

Network ACL is the firewall or much like security groups

Customer Gateway

A customer gateway is a resource that you create in AWS that represents the customer gateway device in your on-premises network.

When you create a customer gateway, you **provide information about your device to AWS**.

For more information, see Customer gateway options for your Site-to-Site VPN connection.

AWS direct connect

AWS Direct Connect is **a network service that provides an alternative to using the Internet to utilize AWS cloud services.**

AWS Direct Connect enables customers to have low latency, secure and private connections to AWS for workloads which require higher speed or lower latency than the internet

Security Group

- A security group is a virtual firewall which is controlling the traffic to your EC2 instances.
- When you first launch an EC2 instance, you can associate it with one or more security groups.
- A Security group is the first defence against hackers

Network ACL

- NACL stands for Network Access Control Lists.
- It is a security layer for your VPC that controls the traffic in and out of one or more subnets.
- It is an optional layer for your VPC.
- You can set up a Network ACL similar to the security group that adds an additional layer of security to your VPC