

TASK – 9

VPC:

- VPC (Virtual Private Cloud) is a logically isolated virtual network within the AWS.
- It gives us complete control over our virtual networking environment, allowing us to define our own IP address ranges, create subnets, configure route tables, and set up network gateways to control traffic and connectivity to the internet.

VPC Peering:

VPC peering is nothing but, connecting two VPC's with one another.

Creating VPC peering in same region (Singapore):

Creation of two VPC:

The screenshot shows the AWS VPC dashboard with the following details:

Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
-	vpc-00aa32b792ae81dee	Available	Off	172.31.0.0/16	-
myvpc_1	vpc-034ff4fb4eadfc40	Available	Off	10.0.0.0/16	-
myvpc_2	vpc-0d8ba8ab9c2492a62	Available	Off	12.0.0.0/16	-

Below the table, there is a section titled "Select a VPC above" which lists the three VPCs.

Creation of subnets:

The screenshot shows the AWS VPC dashboard with the following details:

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
-	subnet-09cd94db8c5f77451	Available	vpc-00aa32b792ae81dee	Off	172.31.0.0/16
-	subnet-03776fe5f5968f808	Available	vpc-00aa32b792ae81dee	Off	172.31.16.0
pub_subnet_vpc1	subnet-0080a8ab6c1bcc557	Available	vpc-034ff4fb4eadfc40 myvpc_1	Off	10.0.1.0/24
pub_subnet_vpc2	subnet-0d70edd65df6c3b1	Available	vpc-0d8ba8ab9c2492a62 myvpc_2	Off	12.0.1.0/24

Below the table, there is a section titled "Select a subnet" which lists the five subnets.

Creation of Route table:

The screenshot shows the AWS VPC console with the 'Route tables' section selected. A new route table, 'pub_rt_vpc2', is being created. The table has one explicit subnet association to 'subnet-0d70eddb65df6c3b1' and no edge associations. It is associated with the VPC 'vpc-0d8ba8ab9c2492a62'. The table ID is 'rtb-0f5ca5edee27554e7'.

Name	Route table ID	Explicit subnet assoc...	Edge associations	Main	VPC
-	rtb-0b82a447c9d0a0356	-	-	Yes	vpc-00aa32b792ae81dee
-	rtb-009e63b7bac69bc4d	-	-	Yes	vpc-034ff4fb4eadfc40 m
pub_rt_vpc1	rtb-09fbe168af5442766	subnet-0080a8ab6c1bcc...	-	No	vpc-034ff4fb4eadfc40 m
pub_rt_vpc2	rtb-0f5ca5edee27554e7	subnet-0d70eddb65df6c...	-	No	vpc-0d8ba8ab9c2492a62
-	rtb-00223c94c14a446a4	-	-	Yes	vpc-0d8ba8ab9c2492a62

Creation of Internet Gateway:

The screenshot shows the AWS VPC console with the 'Internet gateways' section selected. Three internet gateways are listed: 'igw_by3bbe680f5bcb9f72', 'igw_0acd3b4fb94816165', and 'igw_04faa5fcade551211', all in an 'Attached' state. They are associated with the VPC 'vpc-00aa32b792ae81dee'.

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-by3bbe680f5bcb9f72	Attached	vpc-00aa32b792ae81dee	393827457998
igw_vpc1	igw-0acd3b4fb94816165	Attached	vpc-034ff4fb4eadfc40 myvpc_1	393827457998
igw_vpc2	igw-04faa5fcade551211	Attached	vpc-0d8ba8ab9c2492a62 myvpc_2	393827457998

Creation of Security groups:

The screenshot shows the AWS VPC console with the URL ap-southeast-1.console.aws.amazon.com/vpcconsole/home?region=ap-southeast-1#SecurityGroups. The page displays a success message: "Security group (sg-022367d5c02fd258 | pubsg_vpc2) was created successfully". Below this, a table lists 17 security groups, including the newly created one. The table columns are Name, Security group ID, Security group name, VPC ID, and Description. The newly created group is listed with the name "pubsg_vpc2".

Creation of instance:

The screenshot shows the AWS EC2 Instances page with the URL ap-southeast-1.console.aws.amazon.com/ec2/home?region=ap-southeast-1#Instances. It lists two instances: "vpc1_instance" and "vpc2_instance". Both instances are running and belong to the "t2.micro" instance type. The "vpc2_instance" has an additional status of "Initializing". The "Details" tab is selected for the "vpc2_instance", showing its public IP address (18.143.143.83), private IP address (12.0.1.82), and instance state (Running).

Creation of Peering in VPC:

The screenshot shows the AWS VPC Peering Connections console. On the left, there's a navigation sidebar with sections like 'Virtual private cloud', 'Security', and 'PrivateLink and Lattice'. The main area displays a table titled 'Peering connections (1/1) Info'. The table has columns for Name, Peering connection ID, Status, Requester VPC, and Acceptor VPC. One row is selected, showing 'peering_vpc' as the name, 'pcx-04aa1a777826feabd' as the ID, 'Active' as the status, 'vpc-034ff4fb4eadfc40 / myvpc_1' as the requester VPC, and 'vpc-0d8ba8ab9c2492a62 / myvpc_2' as the accepter VPC. Below the table, there's a detailed view for 'pcx-04aa1a777826feabd / peering_vpc' with tabs for Details, DNS, Route tables, and Tags. The 'Details' tab shows various identifiers and ARNs.

Attaching the CIDR of VPC2 with VPC1 route table:

The screenshot shows the AWS Route Tables console. The top navigation bar includes links for 'Instances | EC2 | ap-southeast-1', 'EC2 Instance Connect | ap-southeast-1', 'EC2 Instance Connect | ap-southeast-1', and 'EC2 Instance Connect | ap-southeast-1'. The main area is titled 'Edit routes' under 'rtb-09fbe168af5442766'. It lists four routes with their destination, target, status, propagated status, and route origin. The first route targets 'local' (Status: Active, Propagated: No, Origin: CreateRouteTable). The second route targets a 'Peering Connection' (Status: Active, Propagated: No, Origin: CreateRoute). The third route targets an 'Internet Gateway' (Status: Active, Propagated: No, Origin: CreateRoute). The fourth route targets another 'Peering Connection' (Status: Active, Propagated: No, Origin: CreateRoute). At the bottom, there are buttons for 'Add route', 'Cancel', 'Preview', and 'Save changes'.

Attaching the CIDR of VPC1 with VPC2 route table:

The screenshot shows the 'Edit routes' section of the AWS VPC Route Tables page. It displays three routes:

Destination	Target	Status	Propagated	Route Origin
12.0.0.0/16	local	Active	No	CreateRouteTable
10.0.0.0/16	Peering Connection	Active	No	CreateRoute
0.0.0.0/0	Internet Gateway	Active	No	CreateRoute

Buttons at the bottom include 'Add route', 'Remove', and 'Save changes'.

Check for internet connectivity by ping command:

Ping the public and private IP address of VPC2 instance:

```
~~ \### https://aws.amazon.com/linux/amazon-linux-2023
~~ \#>
[ec2-user@ip-10-0-1-252 ~]$ ping 18.143.143.83
PING 18.143.143.83 (18.143.143.83) 56(84) bytes of data.
64 bytes from 18.143.143.83: icmp_seq=1 ttl=126 time=0.912 ms
64 bytes from 18.143.143.83: icmp_seq=2 ttl=126 time=0.112 ms
64 bytes from 18.143.143.83: icmp_seq=3 ttl=126 time=0.140 ms
64 bytes from 18.143.143.83: icmp_seq=4 ttl=126 time=0.527 ms
64 bytes from 18.143.143.83: icmp_seq=5 ttl=126 time=0.132 ms
64 bytes from 18.143.143.83: icmp_seq=6 ttl=126 time=0.529 ms
^C
[1]+  Stopped                  ping 18.143.143.83
[ec2-user@ip-10-0-1-252 ~]$ ping 12.0.1.82
PING 12.0.1.82 (12.0.1.82) 56(84) bytes of data.
64 bytes from 12.0.1.82: icmp_seq=1 ttl=127 time=9.87 ms
64 bytes from 12.0.1.82: icmp_seq=2 ttl=127 time=0.932 ms
64 bytes from 12.0.1.82: icmp_seq=3 ttl=127 time=0.951 ms
64 bytes from 12.0.1.82: icmp_seq=4 ttl=127 time=1.18 ms
64 bytes from 12.0.1.82: icmp_seq=5 ttl=127 time=0.987 ms
^C
[2]+  Stopped                  ping 12.0.1.82
[ec2-user@ip-10-0-1-252 ~]$
```

i-026e21377fc1d1ae7 (vpc1_instance)
PublicIPs: 54.255.242.20 PrivateIPs: 10.0.1.252

Ping the public and private IP address of VPC1 instance:

```
PeeringConnections | VPC Con... Instances | EC2 | ap-southeast-... EC2 Instance Connect | ap-southeast-... EC2 Instance Connect | ap-southeast-... +  
← → ⌂ https://ap-southeast-1.console.aws.amazon.com/ec2-instance-connect/ssh/home?region=ap-southeast-1&connType=standard&instanceId=i-0702f75f1d8dbfe49&osUser=ec2-user&sshPort=22&addressFami... ☆ ⓘ  
Account ID: 3938-2745-7998  
Region: Asia Pacific (Singapore) ⓘ  
Rubika VM  
aws Search [Alt+S]  
EC2 IAM VPC  
[ec2-user@ip-12-0-1-82 ~]$ ping 54.255.242.20  
PING 54.255.242.20 (54.255.242.20) 56(84) bytes of data.  
64 bytes from 54.255.242.20: icmp_seq=1 ttl=126 time=1.26 ms  
64 bytes from 54.255.242.20: icmp_seq=2 ttl=126 time=1.03 ms  
64 bytes from 54.255.242.20: icmp_seq=3 ttl=126 time=0.825 ms  
64 bytes from 54.255.242.20: icmp_seq=4 ttl=126 time=0.927 ms  
64 bytes from 54.255.242.20: icmp_seq=5 ttl=126 time=1.19 ms  
64 bytes from 54.255.242.20: icmp_seq=6 ttl=126 time=1.37 ms  
64 bytes from 54.255.242.20: icmp_seq=7 ttl=126 time=1.61 ms  
^Z  
[1]+ Stopped ping 54.255.242.20  
[ec2-user@ip-12-0-1-82 ~]$ ping 10.0.1.252  
PING 10.0.1.252 (10.0.1.252) 56(84) bytes of data.  
64 bytes from 10.0.1.252: icmp_seq=1 ttl=127 time=0.878 ms  
64 bytes from 10.0.1.252: icmp_seq=2 ttl=127 time=1.13 ms  
64 bytes from 10.0.1.252: icmp_seq=3 ttl=127 time=1.40 ms  
64 bytes from 10.0.1.252: icmp_seq=4 ttl=127 time=1.25 ms  
64 bytes from 10.0.1.252: icmp_seq=5 ttl=127 time=1.69 ms  
64 bytes from 10.0.1.252: icmp_seq=6 ttl=127 time=1.06 ms  
^Z
```