

# Assignment-2:

**Q. Create a Transit Gateway in one region and another Transit Gateway in another region and enable communication between both the transit gateway ?**

A *transit gateway* is a network transit hub that you can use to interconnect your virtual private clouds (VPCs) and on-premises networks. As your cloud infrastructure expands globally, inter-Region peering connects transit gateways together using the AWS Global Infrastructure. All network traffic between AWS data centers is automatically encrypted at the physical layer.

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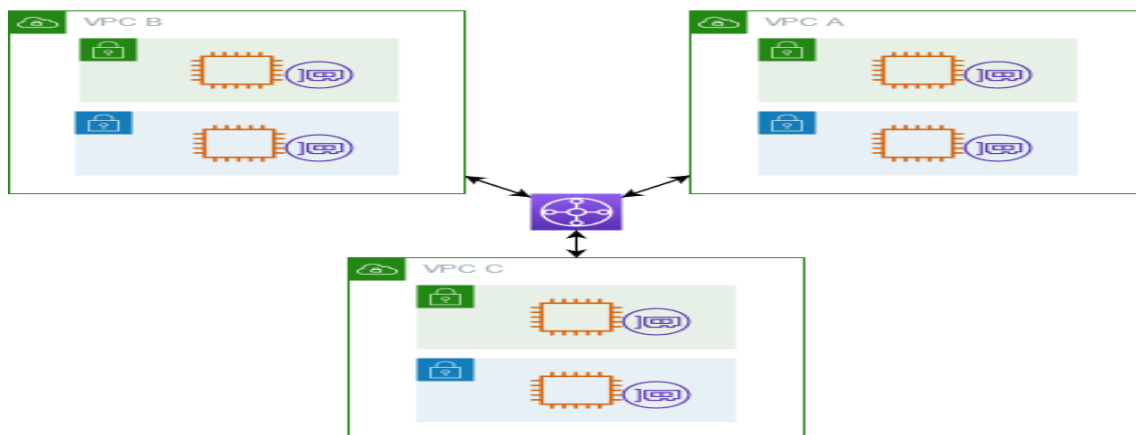
## Transit gateway concepts:

The following are the key concepts for transit gateways:

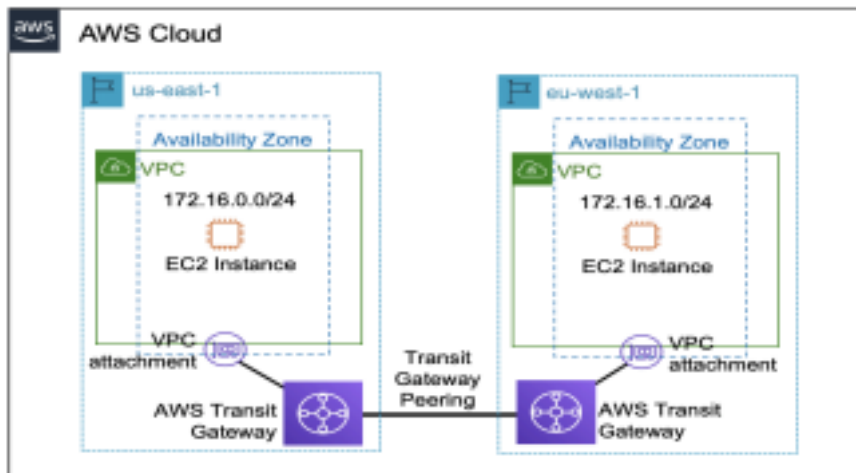
1. Attachments
2. Transit gateway Maximum Transmission Unit (MTU)
3. Transit gateway route table
4. Associations
5. Route propagation

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A *transit gateway* acts as a Regional virtual router for traffic flowing between your virtual private clouds (VPCs) and on-premises networks. A transit gateway scales elastically based on the volume of network traffic. Routing through a transit gateway operates at layer 3, where the packets are sent to a specific next-hop attachment, based on their destination IP addresses.



**Practical:**



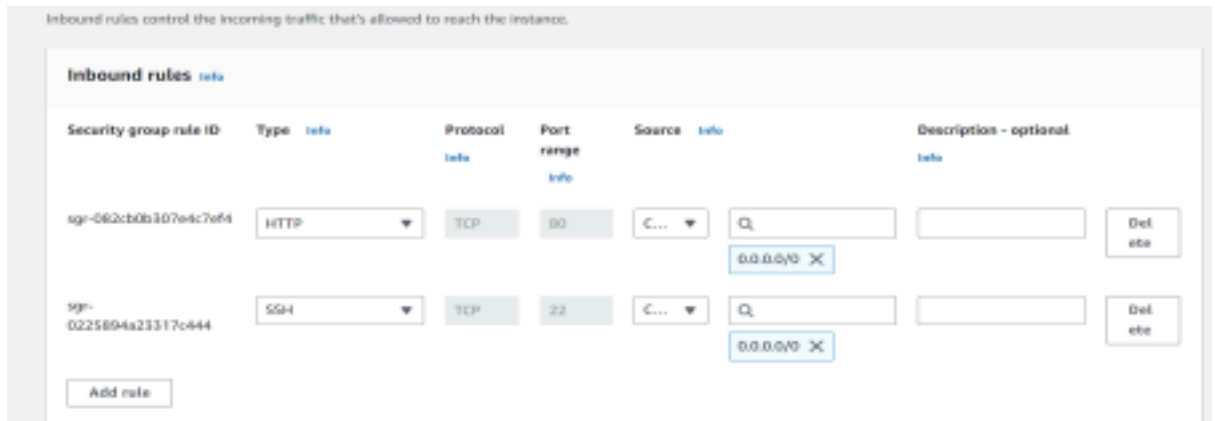
- Create a VPC(my-Transit-Gateway-Vpc01) in the Ohio region with the following connections attached to it i.e., public subnet, internet gateway, route tables.



- Create an EC2 instance in the same region by attaching the AMI, Key Pair, and network setting.

This screenshot shows the 'Instance summary' for the EC2 instance 'i-01ec2caf51e96d6fd (Web-01)'. The instance is in the 'Running' state. Key details include: Instance ID: i-01ec2caf51e96d6fd (Web-01); Public IPv4 address: 3.138.141.20; Private IPv4 addresses: 172.0.0.28; Instance type: t2.micro; VPC ID: vpc-061b5f628a7d89fdf (my-Transit-Gateway-Vpc01). The console also shows the instance's IP address, hostname type, and auto-assigned IP address.

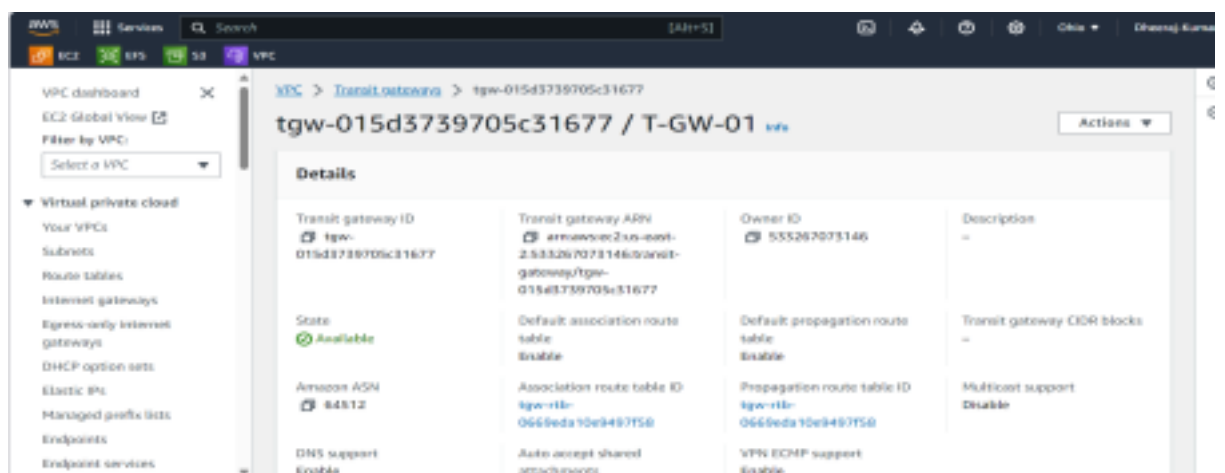
- Add the Http in the inbound rules to the security groups



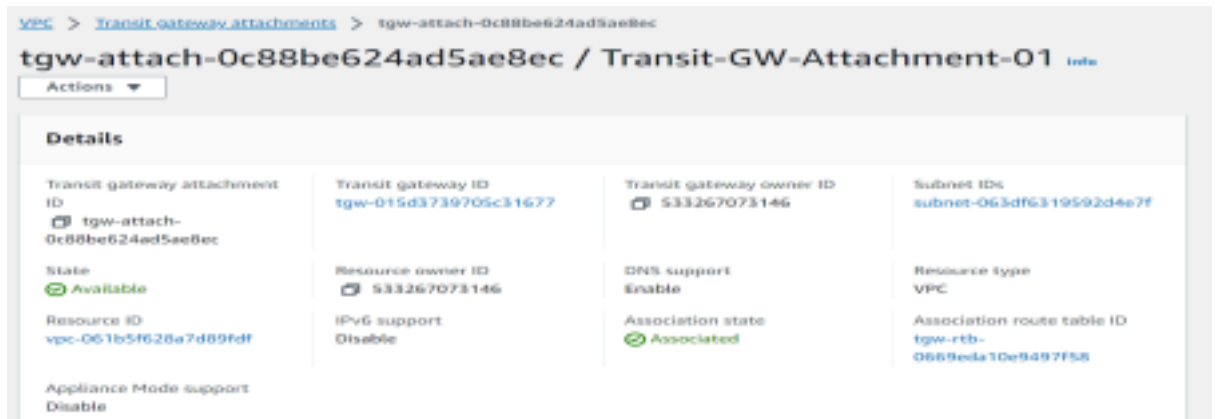
- Launch the instance in the web and do the following task
  - 1) Sudo -i to connect to the root user,
  - 2) Yum update -y to update application packages,
  - 3) Yum install nginx -y to install the nginx (proxy server) in amazon linux distribution,
  - 4) Then remove index.html by moving into the default directory cd /usr/share/nginx/html and create a html file by index.html with a certain data,
  - 5) Systemctl status nginx to check the nginx is active or dead,
  - 6) Curl private IP:80 to see the content of respective IP.

```
[ec2-user@ip-172-0-0-28 ~]$ sudo -i
[root@ip-172-0-0-28 ~]# ls
[root@ip-172-0-0-28 ~]# cd /usr/share/nginx/html
[root@ip-172-0-0-28 html]# ls
404.html  50x.html  icons  index.html  nginx-logo.png  poweredby.png
[root@ip-172-0-0-28 html]# curl 172.0.0.28:80
curl: (7) Failed to connect to 172.0.0.28 port 80 after 0 ms: Couldn't connect to server
[root@ip-172-0-0-28 html]# system start nginx
-bash: system: command not found
[root@ip-172-0-0-28 html]# systemctl start nginx
[root@ip-172-0-0-28 html]# curl 172.0.0.28:80
Hi hello guy
```

- Now create a transit gateway



- Attach the transit gateway with the VPC in the given region



- Now goto the route tables in the VPC and click on edit route add the Transit gateway and click on save changes.



- Create a VPC(My-transit-gw-VPC-02) in the N.California region with the following connections attached to it i.e., public subnet, internet gateway, route tables.



- Create an EC2 instance in the same region by attaching the AMI, Key Pair, and network setting.



- Create a Transit gateway and attach the transit gateway to the VPC in the region

VPC > Transit gateways > tgw-069fc1b653baeec10

## tgw-069fc1b653baeec10 / T-GW-02 [info](#)

Actions ▾

### Details

Transit gateway ID tgw-069fc1b653baeec10	Transit gateway ARN arn:aws:ec2:us-west-1:533267073146:transit-gateway/tgw-069fc1b653baeec10	Owner ID 533267073146	Description -
State <span>Available</span>	Default association route table Enable	Default propagation route table Enable	Transit gateway CIDR blocks -
Amazon ASN 64512	Association route table ID tgw-rtb-0c9063fb1ff79ec4c	Propagation route table ID tgw-rtb-0c9063fb1ff79ec4c	Multicast support Disable
DNS support Enable	Auto accept shared attachments Disable	VPN ECMP support Enable	

VPC > Transit gateway attachments > tgw-attach-0760ccb8adaa122fd

## tgw-attach-0760ccb8adaa122fd / T-gw-Attachment-02 [info](#)

Actions ▾

### Details

Transit gateway attachment ID tgw-attach-0760ccb8adaa122fd	Transit gateway ID tgw-069fc1b653baeec10	Transit gateway owner ID 533267073146	Subnet IDs subnet-0b21ee8032c827fff
State <span>Available</span>	Resource owner ID 533267073146	DNS support Enable	Resource type VPC
Resource ID vpc-0ba649a3558858739	IPv6 support Disable	Association state <span>Associated</span>	Association route table ID tgw-rtb-0c9063fb1ff79ec4c
Appliance Mode support Disable			

- Now goto the route tables in the VPC and click on edit route add the Transit gateway and click on save changes.

### Route 2

Destination	Target	Status
172.0.0.0/16	Transit Gateway tgw-069fc1b653baeec10	<span>Active</span>

Propagated  
No

Remove

- Create a new attachment in the transit gateway and connect the transit gateway by using peering and there will be a request sent to another transit gateway which is located in another region where the user has to accept it to form the connection in b/w the two transit gateways.

VPC > Transit gateway attachments > tgw-attach-087014b5961ce0b00

### tgw-attach-087014b5961ce0b00 / t-gw-Attachment-02 [Info](#) [Actions](#)

**Details**

Transit gateway attachment ID tgw-attach-087014b5961ce0b00	Requester ID tgw-015d3739705c31677	Acceptor ID tgw-069fc1b653baeec10	State Available
Requester region Ohio (us-east-2)	Acceptor region N. California (us-west-1)	Resource type Peering	Requester owner ID 533267073146
Acceptor owner ID 533267073146	Association route table ID tgw-rtb-0669eda10e9497f58	Association state Associated	Dynamic routing Disabled

- Now go to the transit route table and create a static route in the both regions

VPC > Transit gateway route tables > tgw-rtb-0c9063fb1ff79ec4c > Create static route

### Create static route [Info](#)

Add a static route to your transit gateway route table.

**Details**

Transit gateway ID  
tgw-069fc1b653baeec10

Transit gateway route table ID  
tgw-rtb-0c9063fb1ff79ec4c

CIDR [Info](#)  
172.0.0.0/16

Type [Info](#)  
☒ Active  
☐ Blackhole

Choose attachment  
tgw-attach-087014b5961ce0b00

**Routes (3) [Info](#)**
[Refresh](#)
[Actions](#)
[Create static route](#)

Find route by attribute or tag

<input type="checkbox"/>	CIDR	Attachment ID	Resource ID	Resourc...	Route t...
<input type="checkbox"/>	172.0.0.0/16	tgw-attach-0c88be624ad5ae8ec	vpc-061b5f628a7d89fdf	VPC	Propagated
<input type="checkbox"/>	173.0.0.0/16	tgw-attach-087014b5961ce0b00	tgw-069fc1b653baeec10	Peering	Static

<input type="checkbox"/>	CIDR	Attachment ID	Resource ID	Resourc...	Route t...
<input type="checkbox"/>	172.0.0.0/16	tgw-attach-087014b5961ce0b00	tgw-015d3739705c31677	Peering	Static
<input type="checkbox"/>	173.0.0.0/16	tgw-attach-0760ccb8adaa122fd	vpc-0ba649a3558858739	VPC	Propagated

- After the connections were needed connect to the different ec2 instance and do the following commands.

```

_/_m/
last login: Thu Feb 22 09:50:31 2024 from 13.52.6.116
[ec2-user@ip-173-0-0-216 ~]$ sudo -i
[root@ip-173-0-0-216 ~]# curl 172.0.0.28:80
Hi hello guy
[root@ip-173-0-0-216 ~]# █
```