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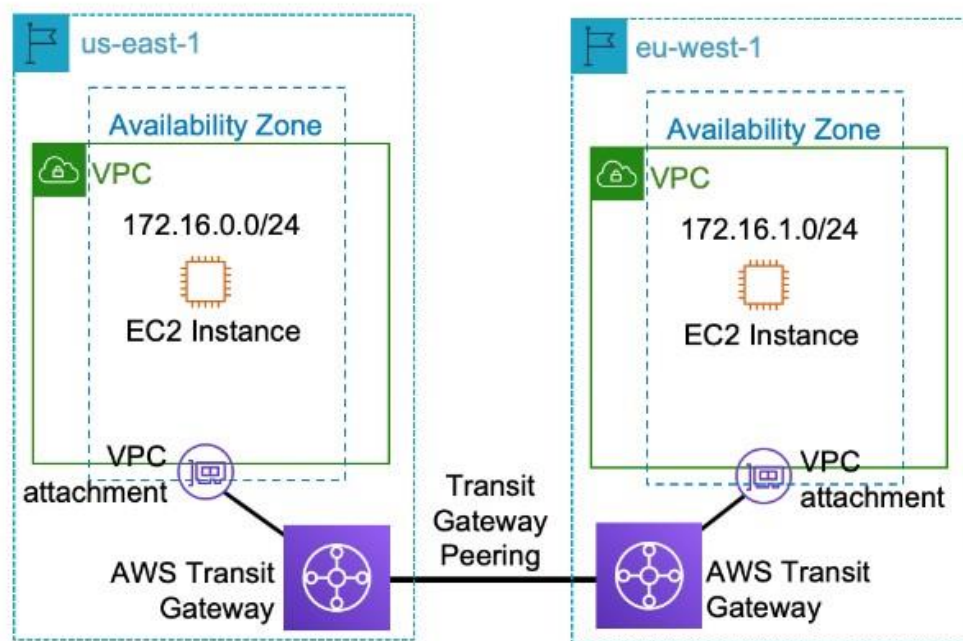
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BATCH:119

Transit gateway in multiple regions

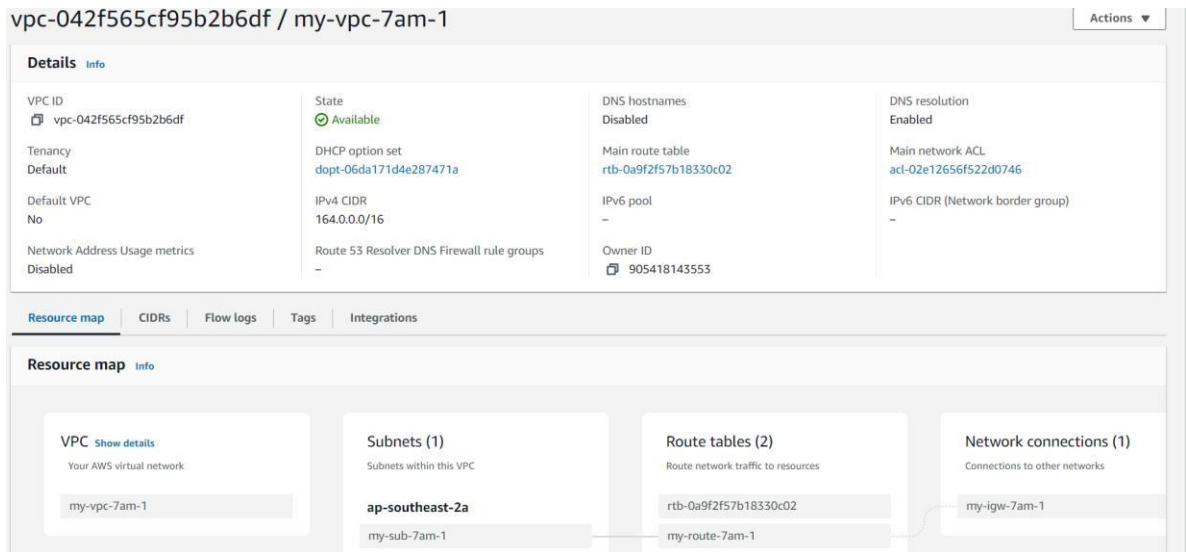
Transit gateway

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.

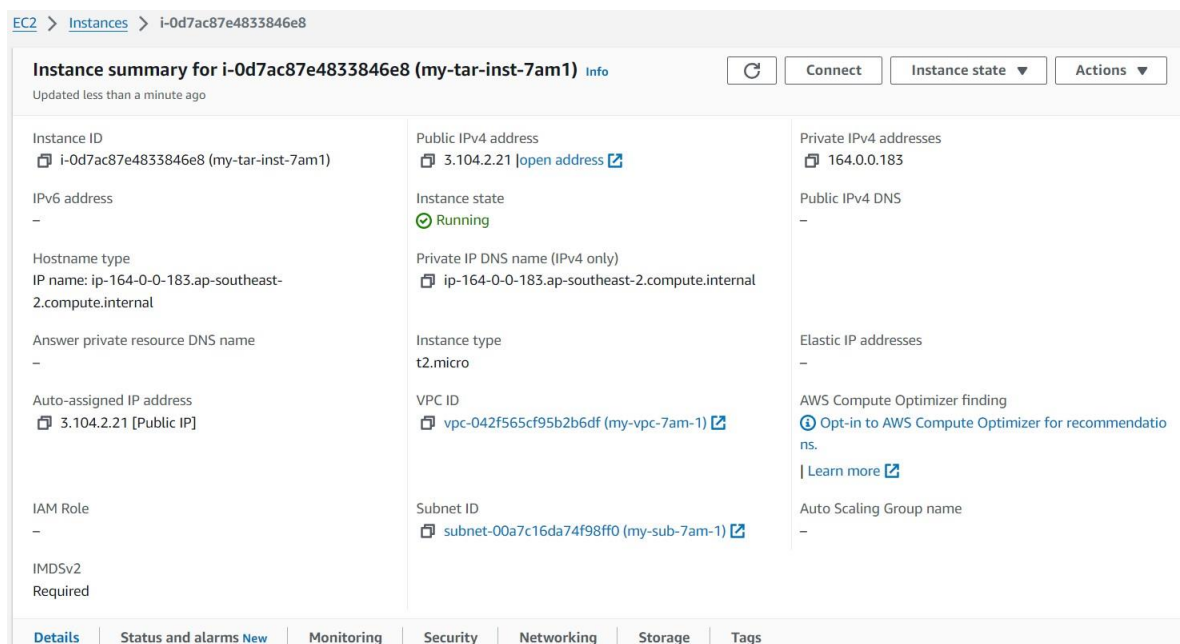


Create a vpc one region:

1. Create a VPC(my-vpc-7am-1) in the Sydney region with the following connections attached to the subnet, internet gateway, route tables.



2. Create an EC2 instance(my-tar-inst-7am1) in the same region by attaching the AMI, Key Pair and network setting.



3. Go to security and click on the security groups i.e Edit inbound rules Add rule HTTP.



4. Launch the instance(my-tar-inst-7am1) and connect to the WEB.

```
base login: Fri Feb 23 06:24:30 2024 from 13.233.138.4
[ec2-user@ip-164-0-0-183 ~]$ sudo -i
[root@ip-164-0-0-183 ~]# yum update -y
Last metadata expiration check: 8:09:20 ago on Fri Feb 23 06:14:26 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-164-0-0-183 ~]# yum install nginx -y
Last metadata expiration check: 8:09:34 ago on Fri Feb 23 06:14:26 2024.
Package nginx-1:1.24.0-1.amzn2023.0.2.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-164-0-0-183 ~]# systemctl restart nginx
[root@ip-164-0-0-183 ~]# curl 164.0.0.183:80
<!DOCTYPE html>
<html>
<head>

i-0d7ac87e4833846e8 (my-tar-inst-7am1)
PublicIPs: 3.104.2.21 PrivateIPs: 164.0.0.183
```

5. Create a transit gateway same region.

Transit gateways (1) info			
<input type="text" value="Find transit gateway by attribute or tag"/>			
<input type="checkbox"/>	Name ↗	Transit gateway ID	State
<input type="checkbox"/>	transit-7am-1	tgw-04b0e7c4e51a5e02a	Available

- Now create a transit gateway attachment to vpc.

tgw-attach-0e42c18a09a37ebe8 / transit-at-7am-1 info			
Actions ▼			
Details			
Transit gateway attachment ID tgw-attach-0e42c18a09a37ebe8	Transit gateway ID tgw-04b0e7c4e51a5e02a	Transit gateway owner ID 905418143553	Subnet IDs subnet-00a7c16da74f98ff0
State Available	Resource owner ID 905418143553	DNS support Enable	Resource type VPC
Resource ID vpc-042f565cf95b2b6df	IPv6 support Disable	Association state Associated	Association route table ID tgw-rtb-09cbf006ff2352897
Appliance Mode support Disable			

6. The following steps are must do after creation of another vpc region.

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

Edit routes

Destination	Target	Status	Propagated	
164.0.0.0/16	local	Active	No	
<input type="text" value="165.0.0.0/16"/>	Transit Gateway	Active	No	<button>Remove</button>
<input type="text" value="0.0.0.0/0"/>	Internet Gateway	Active	No	<button>Remove</button>

- Go to Ec2 instance security and click on the security groups i.e Edit inbound rules.

Edit inbound rules

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules

Security group rule ID	Type	Protocol	Port range	Source	Description - optional	
sgr-0619c0f61756f755c	HTTP	TCP	80	Custom	<input type="text" value="165.0.0.0/16"/>	<button>Delete</button>
sgr-070a2f197d1345bb5	SSH	TCP	22	Custom	<input type="text" value="0.0.0.0/0"/>	<button>Delete</button>

Create a VPC in another region:

1.Create a VPC(my-vpc-7am-2) in the mumbai region with the following connections attached to subnet, internet gateway, route tables.

vpc-0ac002ebb22fccfad / my-vpc-7am-2

Details

VPC ID vpc-0ac002ebb22fccfad	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-05a2f457257a86511	Main route table rtb-0ed4a85c1f6272669	Main network ACL acl-06be356f0bbe7836f
Default VPC No	IPv4 CIDR 165.0.0.0/16	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 905418143553	

[Resource map](#) | [CIDRs](#) | [Flow logs](#) | [Tags](#) | [Integrations](#)

Resource map

VPC
Your AWS virtual network
my-vpc-7am-2

Subnets (1)
Subnets within this VPC
ap-south-1b
my-sub-7am-2

Route tables (2)
Route network traffic to resources
my-route-7am-2
rtb-0ed4a85c1f6272669

Network connections (1)
Connections to other networks
my-igw-7am-2

2. Create an EC2 instance (my-tr-inst-7am2) in the same region by attaching the AMI, Key Pair, and network setting.

Instance summary for i-0a8a6f25c9594d432 (my-tr-inst-7am2) [info](#)

Updated 1 minute ago

Instance ID i-0a8a6f25c9594d432 (my-tr-inst-7am2)	Public IPv4 address 13.200.229.66 open address	Private IPv4 addresses 165.0.0.201
IPv6 address -	Instance state Running	Public IPv4 DNS -
Hostname type IP name: ip-165-0-0-201.ap-south-1.compute.internal	Private IP DNS name (IPv4 only) ip-165-0-0-201.ap-south-1.compute.internal	Elastic IP addresses -
Answer private resource DNS name -	Instance type t2.micro	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations. Learn more
Auto-assigned IP address 13.200.229.66 [Public IP]	VPC ID vpc-0ac002ebb22fccfad (my-vpc-7am-2)	Auto Scaling Group name -
IAM Role -	Subnet ID subnet-0ffae4d04a5317849 (my-sub-7am-2)	
IMDSv2 Disabled		

3. Go to security and click on the security groups i.e Edit inbound rules Add rule HTTP.

sgr-070a2f197d1345bb5	SSH	TCP	22	Custom	0.0.0.0/0	Delete
sgr-0777bbee1ef744f9	HTTP	TCP	80	Anyw...	0.0.0.0/0	Delete

4. Create a transit gateway in same region.

Transit gateways (1) [info](#)

<input type="checkbox"/>	Name	Transit gateway ID	State
<input type="checkbox"/>	transit-7am-2	tgw-06491f0e3cd9e0037	Available

- Create a transit gateway attachment to the vpc.

tgw-attach-0b6b809e3af2b331f / transit-at-7am-2 [info](#)

[Actions](#)

Details

Transit gateway attachment ID tgw-attach-0b6b809e3af2b331f	Transit gateway ID tgw-06491f0e3cd9e0037	Transit gateway owner ID 905418143553	Subnet IDs subnet-0ffae4d04a5317849
State Available	Resource owner ID 905418143553	DNS support Enable	Resource type VPC
Resource ID vpc-0ac002ebb22fccfad	IPv6 support Disable	Association state Associated	Association route table ID tgw-rtb-0703d4c8bdf60372a
Appliance Mode support Disable			

5. Now go to the route tables in the VPC and click on edit route add the Transit gateway and click on save changes.

Edit routes

Destination	Target	Status	Propagated
165.0.0.0/16	local	Active	No
Q 164.0.0.0/16 X	Transit Gateway tgw-06491f0e3cd9e0037	Active	No
Q 0.0.0.0/0 X	Internet Gateway igw-06eb607f546ab85bd	Active	No

Add route

Cancel Preview **Save changes**

6.Go to Ec2 instance security and click on the security groups i.e Edit inbound rules.

Edit inbound rules

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules

Security group rule ID	Type	Protocol	Port range	Source	Description - optional
sgr-0c0a76fec3abc85e3	HTTP	TCP	80	Custom 164.0.0.0/16 X	Delete
sgr-0f1243e1536164fe9	SSH	TCP	22	Custom 0.0.0.0/0 X	Delete

This is the final step to create a transit gateway routetables:

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.

tgw-rtb-09cbf006ff2352897
Info
Actions ▾

Details

Transit gateway route table ID tgw-rtb-09cbf006ff2352897	Transit gateway ID tgw-04b0e7c4e51a5e02a	State ✔ Available	Default association route table Yes
Default propagation route table Yes			

Associations
Propagations
Prefix list references
Routes
Tags

Associations (2) Info

< 1 >
⚙️

Refresh
Delete association
Create association

<input type="checkbox"/>	Attachment ID ▾	Resource type ▾	Resource ID ▾	State ▾
<input type="checkbox"/>	tgw-attach-0e42c18a09a37ebe8	VPC	vpc-042f565cf95b2b6df	✔ Associated
<input type="checkbox"/>	tgw-attach-0cdff3dbef1ebeba4	Peering	tgw-06491f0e3cd9e0037	✔ Associated

Associations
Propagations
Prefix list references
Routes
Tags

▼ Filter routes by CIDR (2)

Exact CIDR
Select a valid IP4 or IPv6 CIDR.

Longest prefix match
Enter a valid IP4 or IPv6 and press enter.

Supernet of match
Select a valid IP4 or IPv6 CIDR.

Subnet of match
Select a valid IP4 or IPv6 CIDR.

0.0.0.0/0 ✕

::/0 ✕

Routes (2) Info

< 1 >
⚙️

Refresh
Actions ▾
Create static route

<input type="checkbox"/>	CIDR ▾	Attachment ID ▾	Resource ID ▾	Resource type ▾	Route type ▾	Route state ▾
<input type="checkbox"/>	164.0.0.0/16	tgw-attach-0e42c18a09a37ebe8	vpc-042f565cf95b2b6df	VPC	Propagated	✔ Active
<input type="checkbox"/>	165.0.0.0/16	tgw-attach-0cdff3dbef1ebeba4	tgw-06491f0e3cd9e0037	Peering	Static	✔ Active

7. Launch the instance(my-tar-inst-7am2) and connect to the WEB.


```

[ec2-user@ip-165-0-0-201 ~]$ sudo -i
[root@ip-165-0-0-201 ~]# curl 164.0.0.183:80
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

```

i-0a8a6f25c9594d432 (my-tr-inst-7am2)

PublicIPs: 13.200.229.66 PrivateIPs: 165.0.0.201

