**Task10**

**How can a VPC be part of 2 diff set of VPC groups using transit GW?**

In a typical AWS environment, a Virtual Private Cloud (VPC) can be associated with only one VPC Transit Gateway (TGW) at a time. However, it is possible to use multiple TGWs to connect multiple VPCs, each with their own set of VPC groups.

To connect a VPC to multiple sets of VPC groups using a Transit Gateway, you can use a technique called Transit Gateway Peering. With Transit Gateway Peering, you can connect two Transit Gateways to create a peering relationship that allows traffic to flow between the VPCs attached to each of them.

In this scenario, you can create two or more Transit Gateways, and associate each of them with different sets of VPC groups. Then, you can establish a peering relationship between the Transit Gateways to allow traffic to flow between the VPCs attached to each of them.

This way, a VPC can be part of different sets of VPC groups by being attached to different Transit Gateways, which are then peered with each other. By using Transit Gateway Peering, you can create a flexible and scalable network architecture that meets the needs of your specific use case.

**More information on this topic**

Transit Gateway is a fully-managed service from AWS that allows you to connect multiple VPCs, on-premises networks, and remote networks to a central hub. With Transit Gateway, you can simplify network management, reduce operational costs, and improve network security by using a central point of control.

Transit Gateway supports VPC attachments, which allow you to connect one or more VPCs to a Transit Gateway. Each VPC attachment can belong to only one Transit Gateway at a time. However, you can create multiple Transit Gateways and use Transit Gateway Peering to connect them, allowing VPCs attached to different Transit Gateways to communicate with each other.

Transit Gateway Peering enables the transitive routing of traffic between Transit Gateways, which allows VPCs attached to different Transit Gateways to communicate with each other without the need for a full-mesh network architecture. Transit Gateway Peering also provides high availability by automatically failing over to a secondary Transit Gateway if the primary Transit Gateway becomes unavailable.

To set up Transit Gateway Peering, you need to create a peering connection between the two Transit Gateways. The peering connection is created and managed in the AWS Transit Gateway console or through the AWS CLI. Once the peering connection is established, the VPCs attached to the Transit Gateways can communicate with each other by using the peering connection.

In summary, Transit Gateway Peering allows you to connect VPCs attached to different Transit Gateways, providing a flexible and scalable network architecture that meets the needs of your specific use case.