VPC USE CASE

Now after testing and moving a server over to Ec2, the **Level-Up Bank** is looking to move its network to the cloud to improve scalability, reliability, and security. The bank decides to use AWS for its cloud services and starts by creating a VPC with a CIDR of **10.10.0.0/16**.

Next, the bank creates three public subnets with CIDR blocks of **10.10.1.0/24, 10.10.2.0/24**, and **10.10.3.0/24**. These subnets will be used to host an autoscaling group of t2.micro instances with Apache installed on each instance.

The bank creates an autoscaling group with a minimum of 2 instances and a maximum of 5 instances. Each instance has Apache installed and is configured to produce a test page when checking a random IP address. The autoscaling group uses the three public subnets created earlier to ensure that instances are launched in different availability zones for high availability.

To distribute traffic to the autoscaling group, the bank creates an Application Load Balancer. The Load Balancer is configured to use the web server security group created next.

The bank creates a web server security group that allows inbound traffic from HTTP from the Application Load Balancer. This security group ensures that the instances in the autoscaling group can receive traffic from the Load Balancer.

Finally, the bank creates a load balancer security group that allows inbound traffic from HTTP from **0.0.0.0/0**. This security group ensures that the Load Balancer is accessible from the internet.

With this setup, The Level-Up Bank can take advantage of the scalability, reliability, and security of AWS while maintaining the ability to host its own web applications. The bank can also save costs by using pay-as-you-go pricing for its instances and load balancers.

WHY WOULD THE BANK MOVE THEIR ENTIRE ON-PREM NETWORK TO THE CLOUD?

Here's a more detailed explanation of the reasons why The Level-Up Bank might move its network to AWS:

Scalability:

- A bank's infrastructure needs can change rapidly depending on customer demand, market conditions, and other factors. By moving its network to AWS, the bank can take advantage of the cloud's scalability and easily scale up or down as needed. For example, during periods of high customer demand, the bank can quickly scale its infrastructure to handle increased traffic, and then scale back down during periods of lower demand. This means that the bank can avoid the upfront costs of purchasing and maintaining hardware and only pay for the resources it actually uses.

Reliability:

- Downtime and service disruptions can be extremely costly for a bank. AWS provides a highly reliable infrastructure with multiple availability zones and automatic failover capabilities. This means that if one availability zone goes down, the bank's services can automatically failover to another availability zone without any interruption to customers. AWS also provides monitoring and management tools that can help the bank proactively identify and address potential issues before they impact customers.

Security:

- Banks are subject to strict regulations and face significant risks related to data breaches and cyber attacks. AWS provides robust security features, including encryption, access controls, and network security, to help protect against these risks. By moving its network to AWS, the bank can take advantage of these security features and improve the security of its infrastructure and customer data.

Cost savings:

- Maintaining and upgrading on-premises hardware can be expensive and time-consuming. By using AWS, the bank can take advantage of pay-as-you-go pricing

and avoid the upfront costs of purchasing and maintaining hardware. This means that the bank can focus its resources on improving its services and offerings, rather than on managing and maintaining infrastructure.

Flexibility:

- The banking industry is constantly evolving, and banks need to be able to quickly adapt to changing market conditions and customer needs. Moving its network to AWS gives the bank the flexibility to quickly spin up new instances, test new features, and experiment with different configurations. This can help the bank innovate and respond more quickly to changing market conditions, giving it a competitive advantage.