Automating the Networking Landing Zone

aws partner network

Executive Summary

Sumitomo Mitsui Banking Corporation (SMBC) was looking to establish an AWS ecosystem to support a front office-enabled AWS platform.

Key Challenge/Problem Statement

SMBC wanted to implement a premier enterprise innovation platform designed to supercharge developer productivity by letting them build on the cloud. Front-office teams required access to the platform in a secure and reliable way. The customer needed to set up and automate a secure, reliable, cost-effective network to connect the on-prem data center with their AWS VPC, where the platform is hosted. The SMBC team looked for expertise in the architecture and creation of AWS VPCs and connectivity back to SMBC's internal network in order to enable the application teams to deploy and run the platform.

Proposed Solution and Architecture

Vertical Relevance (VR) worked with SMBC's infrastructure team to set up the appropriate VPC and a VPN tunnel with the end goal being to securely isolate SMBC's AWS resources. VR developed and configured a site-to-site VPN connection with two tunnels to establish this private connectivity between AWS and SMBC's data center.

Once configured and developed, VR provided the SMBC team with AWS best practices regarding AWS accounts, IAM roles, and security controls and guardrails. VR also provided CloudFormation templates that were used to build a pipeline that automated network connectivity. The result is a self-service pipeline for administration teams to launch VPNs. The VPNs are codified and tested prior to being provided to the teams. The teams are able to work with autonomy while the necessary security and governance controls are applied. AWS CloudFormation and Jenkins were used to codify, build, and execute the network automation pipeline.

The following steps were performed to create the VPN connection:

1. Create a Customer Gateway - The customer gateway is a logical representation in AWS of each physical router located at the SMBC site.

About SMBC Group

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2. Create a Virtual Private Gateway (VGW) - The VGW is the AWS device that is connected to a VPC that allows the VPN connectivity from the customer gateway. The VGW also allows connectivity from Direct Connect connections back to the SMBC site.
3. Create a Site-to-Site VPN Connection - The VPN connection creation step is where you specify the specific CGW and VGW that are to be used to establish site-to-site connectivity. Also, for a static configuration, all of the target network address CIDRs for the internal SMBC networks that will use this connection will be specified in the setup.

Once the VPN connection is established, configurations must be done on the SMBC side. Information from the downloaded text file was added to the on-prem router. The AWS console provides necessary information in a text file that can be downloaded. Once the connection was established, a successful ICMP ping confirmed the connection.

The VR team also recommended the use of AWS CloudFormation to automate the creation of accounts and SMBC VPN stack. Manual creation of accounts, bootstrap and configure settings, and configure network connections is a time-consuming and inefficient process, especially if it is a repetitive process. VR's recommendation was to assist SMBC in managing its account creation and bootstrapping in a scalable and efficient manner. This enables new accounts to be created with a defined baseline with governance guardrails in place. Moreover, this will help SMBC implement automation to save time and resources.

Results

As a result, once the site-to-site VPN connection was established, a t2 micro EC2 instance was set up in the VPC to enable some ICMP traffic, which helped test the connectivity. After the connectivity was set up, ICMP pings with the test instance ensured that a secure connection had been established between AWS and the on-prem data center. Moreover, a failover test was done by disabling one of the tunnels to ensure that the traffic could be routed through the backup tunnel, thus ensuring reliable connectivity.

Summary

By engaging with Vertical Relevance, SMBC was able to obtain and automate a secure, reliable, cost-effective network to connect the on-prem data center with its AWS VPC. The SMBC team looked for expertise in the architecture and creation of AWS VPCs and connectivity back to SMBC's internal network in order to enable the application teams to deploy and run the platform.