TECH mahindra

Transforming a Leading US Based Television Service Provider

5GC, IMS, and Selected RAN Network Functions Deployment on AWS Public Cloud

Overview

The customer has embarked on an ambitious initiative to deploy cloud-native O-RAN compliant 5G network and become the fourth largest tier 1 carrier in North America. The customer wishes to realize its strategic wireless vision and operational efficiency goals by adopting innovative approaches. The customer is using AWS for deploying their 5GC, IMS, and selected ORAN network functions and wanted to secure services from Tech Mahindra to support their deployments, AWS operations, cross-domain issue resolution, and automation. The TechM team is currently providing services in various AWS related areas, that include further development on the existing CI/CD pipelines (AWS code cloud), supporting CI/CD infrastructure for packet core and ORAN, testing, and validating the solution in the labs, and actively working with the overall orchestration program at the carrier. TechM is also actively involved with test automation platform that is triggered by AWS CI/CD pipeline and is a sole partner for validation/certification of 3GPP call flows on the core mobility network deployed in the AWS cloud.

Client Background and Challenges

The client is a leading next generation American television service provider. The client is leveraging AWS's public cloud infrastructure to quickly and cost-effectively scale its 5G standalone (SA) rollout. By utilizing AWS's extensive cloud capabilities, the client will connect their hardware and network management resources through the AWS cloud platform. This will enable secure and rapid scaling, fostering innovation and providing on-demand responsiveness to meet customers' wireless needs. The customer wishes to realize its strategic wireless vision and operational efficiency goals, by adopting innovative approaches.
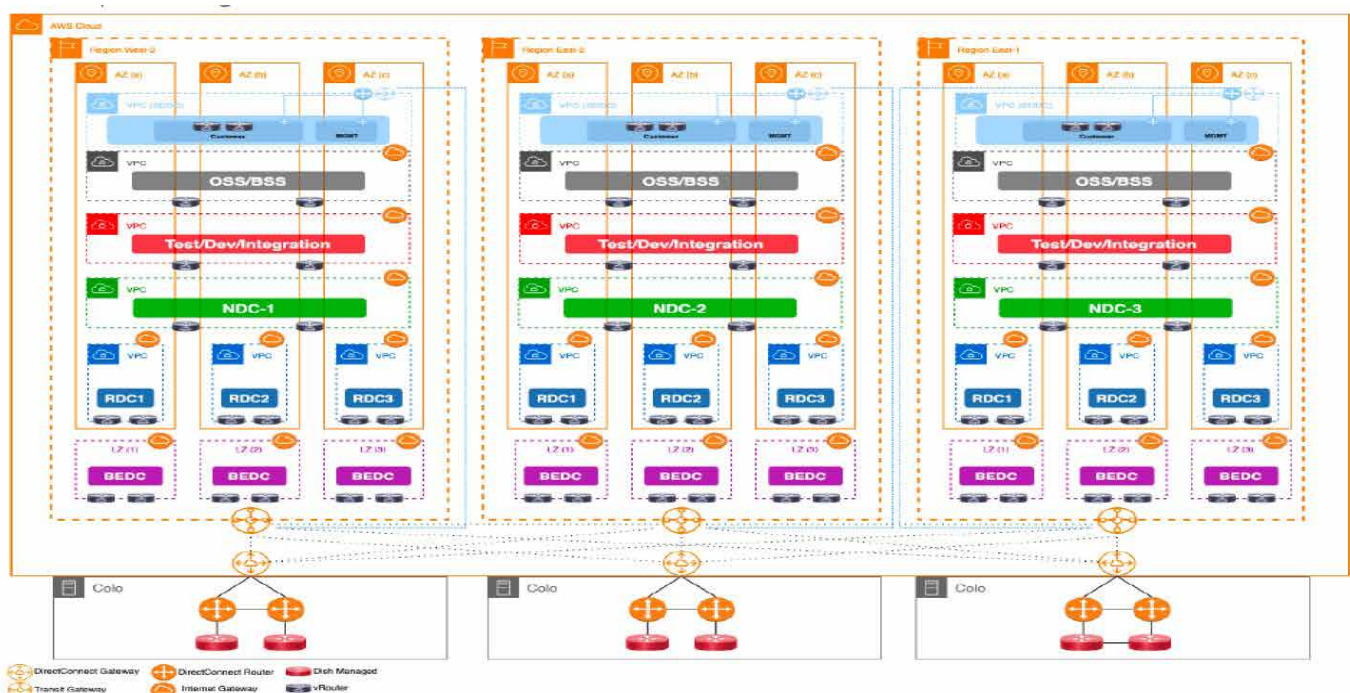
Network Architecture and Intra / Inter Network Communication

Below network architecture shows multiple AWS regions and their inter-communication.
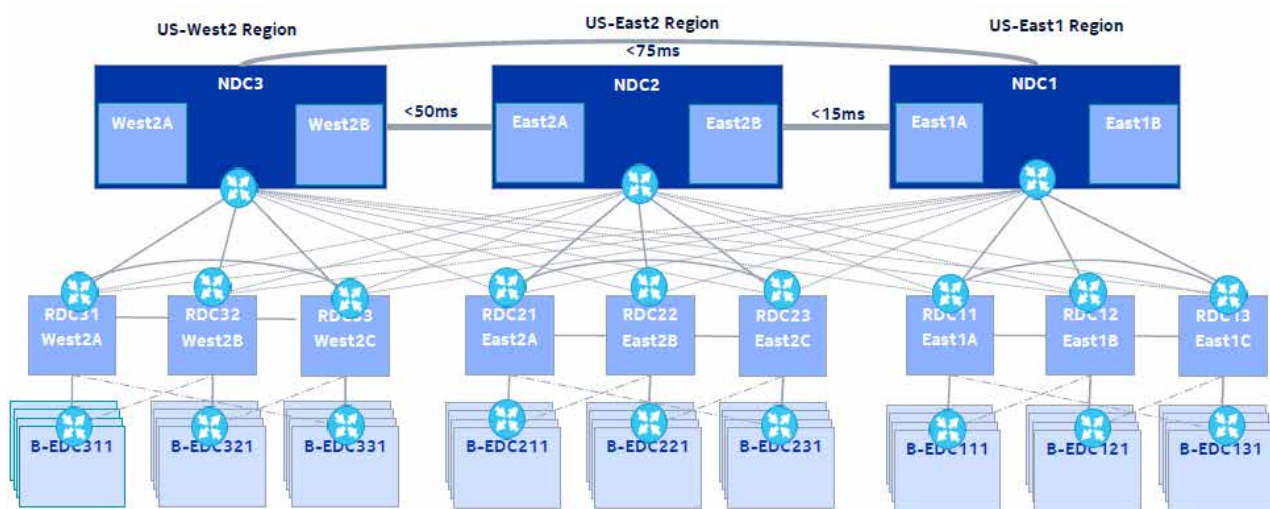
Solution Architecture

The following diagram depicts the application infrastructure in the solution architecture.

Our Approach and Solution

TechM is providing DevOps support for AWS in building their Kubernetes cluster (EKS), networking and CI/CD build, and operations for telco. The AWS services used include EKS, cloud formation, code commit, code deploy, code build, and VPC (networking).

Business and Community Impact

- TechM is delivering the project with a hybrid team (18 on-site and 17 offshore). TechM is helping the customer to evolve the multi-vendor solution on the AWS cloud to a production-grade solution with cost-effective automation capabilities.

- Centralized managing the VPN.

- Implementation of multi-AWS account and multiregional enterprise network environment that isolates the resources with total security, interconnectivity, scalability, and high availability.

- Improved security, performance, and availability of the application with low latency across various geographical locations which enhanced user experience.

- Improved operational resiliency and cost-effectiveness through automation to enable scalability, agility, and high-performing networks using AWS services.

- Created a repository of CloudFormation templates as reusable for future purposes.

- Standardized approach for monitoring to ease troubleshooting of issues.