

# Cloud Microservices Powering Transformation for the Largest Telecom & Network Services Provider in Africa

## Overview

Enterprises are driving cloud transformation journey by adopting cloud native services offered by different cloud providers. Microservices is one of the core components in this transformation journey. Combined with cloud native services like autoscaling, high available deployment pattern, container based microservices (running on Kubernetes) is one of the patterns for running applications on cloud that gives scalability, reliability and resource efficiency resulting in cost optimization.

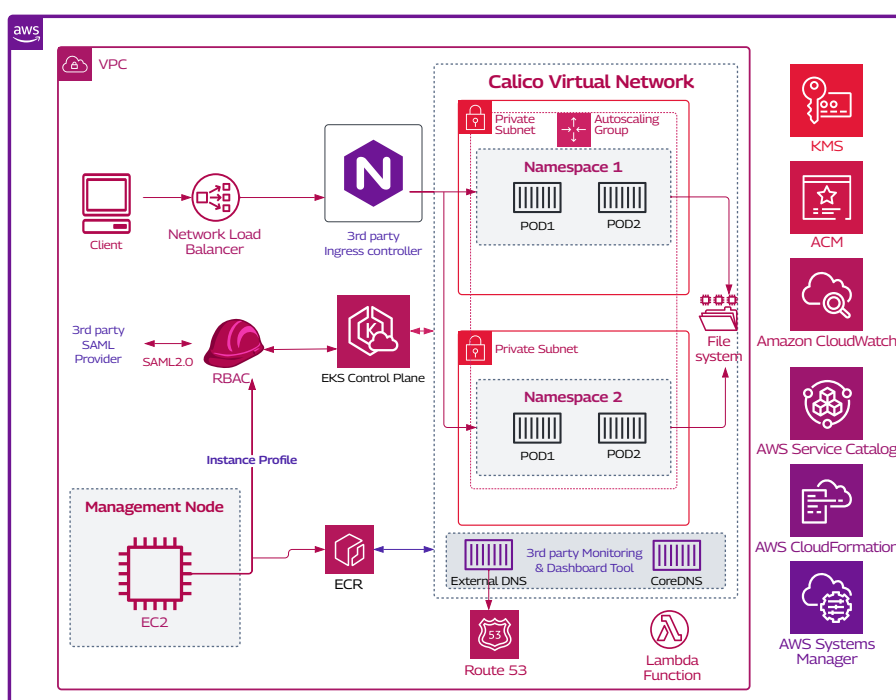
## Client Background and Challenge

One of the largest African telecommunication and network services provider that offers voice, messaging, data, and converged services to millions of users in that geography in their cloud transformation journey. The client was facing the following challenges:

- ▶ **Complex and time-consuming:** Deploying Kubernetes cluster for different BUs took several days, resulting in loss of time/business opportunity and slow innovation and adoption in the organization
- ▶ **Security:** The manual process often led to clusters not adhering to compliance and security standards resulting in security breaches
- ▶ **High Service Cost:** Non-standard cluster sizing resulted in higher cost
- ▶ **Frequent SLA Breaches:** Ad hoc sizing, process, and non-standard deployment methods resulted in frequent SLA breaches
- ▶ **Poor Productivity:** Dependency on the Infra support team to deploy clusters resulted in idle time for developers impacting the productivity of the teams working on the solution

## Solution Provided

Tech Mahindra leveraged AWS Cloud to implement this solution. This included setting up a self-service shared platform for EKS using AWS Service Catalog and AWS CloudFormation, integrated with AWS Control Tower service to provide cohesive platform that is offered as a service to internal business units. Standardized EKS solution architecture blueprint was defined based on customer requirements and AWS well architected design principles to be consumed as a service by different business units.



Amazon EKS provides ability to run Kubernetes based application in the AWS cloud. Amazon EKS helps achieve scalability and secure the EKS clusters along with patching, updating of the nodes on a need basis. The above pattern was common amongst different BUs across the customer business. Tech Mahindra implemented a strategy that enabled a self-service shared platform for EKS. This was implemented using **AWS Service Catalog** and **AWS CloudFormation**, integrated with **AWS Control Tower** to provide cohesive platform that is offered as a service to the business units.

Fig. 1: Amazon EKS - Managed Kubernetes Solution Architecture

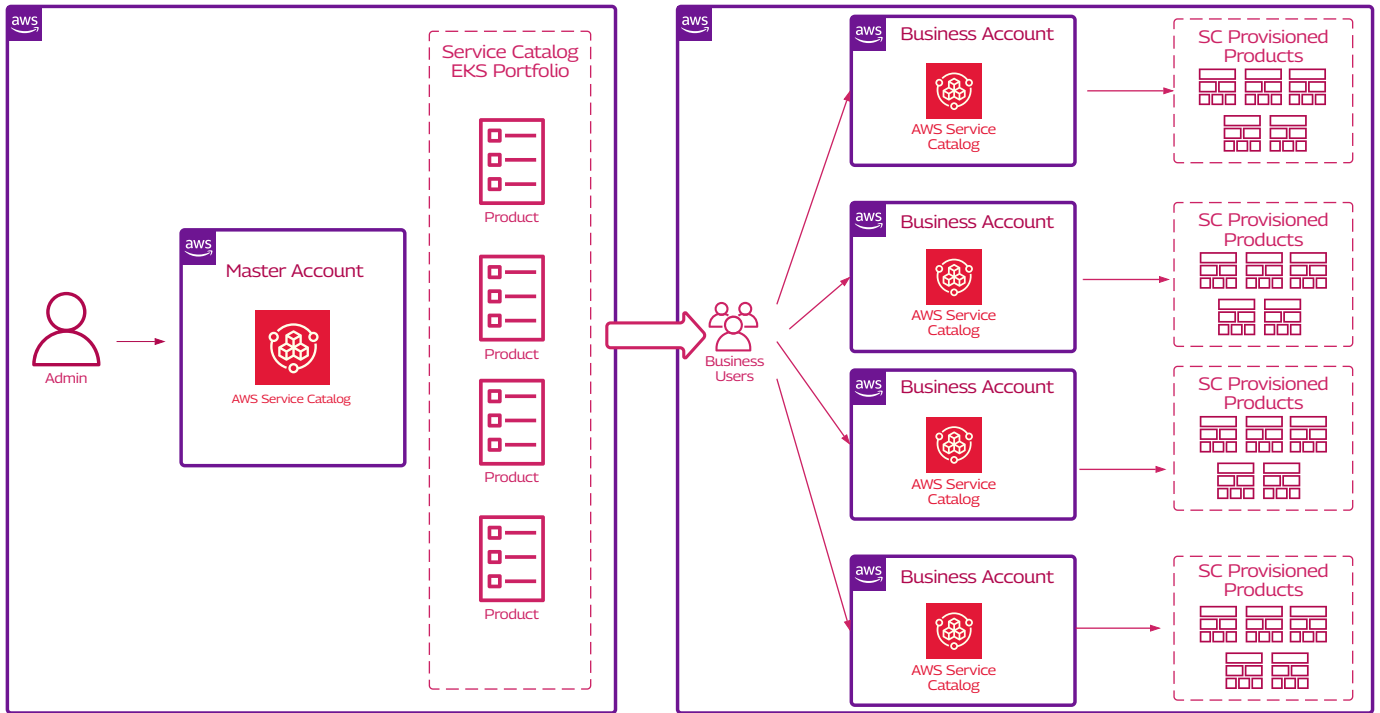


Fig. 2: AWS Service Catalog and IAC using CloudFormation

This architecture diagram depicts how **AWS Service Catalog** based hub and spoke model was implemented using AWS Control Tower. The portfolio is created in the management account and then shared to the member/linked accounts as service catalog products. AWS Service Catalog and AWS CloudFormation was integrated with AWS Control Tower to provide cohesive platform that is offered as a service to the business units

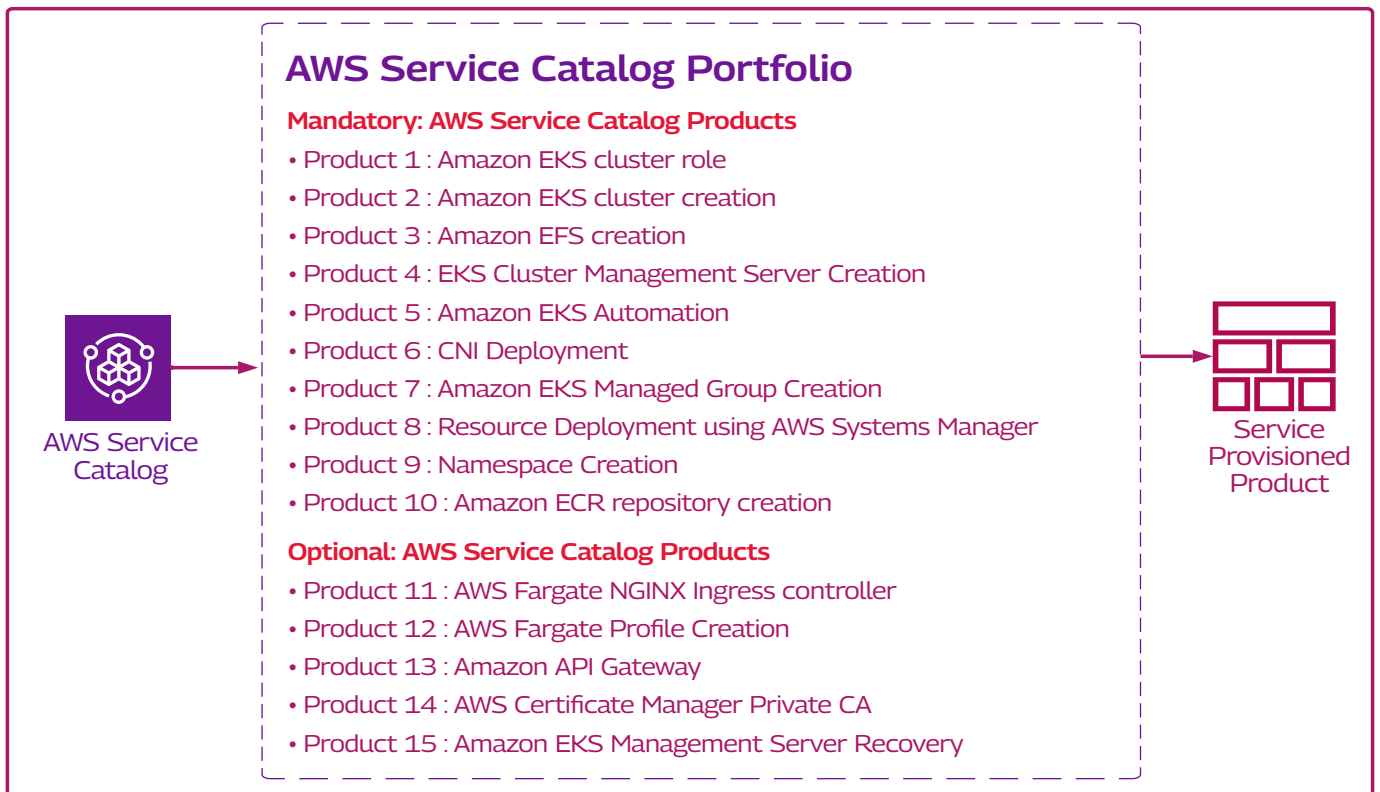


Fig. 3: AWS Service Catalog

A **self-service shared EKS** platform was made available across the organization. This enabled to manage product catalogs (one or more IT services) that adhere to organizations governance and compliance requirements in a self-service consumption model by different application teams within the organization. The list of service catalog products created under one portfolio and the function of each product as shown.

## Business Continuity and Impact

- ▶ Reduction of deployment cycle and service creation time from days to minutes
- ▶ Implement a common self-service Amazon EKS deployment pattern which is standardized across organization, incorporating best practices, and in line with compliance and security standards
- ▶ Reduction in AWS infrastructure cost
- ▶ Increased reliability and scalability as compared to on-premises datacenter
- ▶ Shared service platform to automatically include security and operational best practices into every application across Bus
- ▶ Reduced operational overhead, cost and risk associated with managing EKS control plane
- ▶ Includes a standardized approach for monitoring to ease troubleshooting of issues



- ▶ Fast, efficient, and standard development process - lead time optimization
- ▶ Increased productivity, reduced operational cost and Improved user satisfaction
- ▶ Reduced IT expense; improved bottom line
- ▶ Reduced downtime; flexible to demand load - Reduction in expense, improvement in client experience
- ▶ Standardized process catering to compliance and security requirements
- ▶ Ease in governance resulted in more focus on business opportunities
- ▶ Improved performance and user experience by minimizing downtime and service degradation with proactive incident detection

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