

CASE STUDY

Seamless Transitions to Cloud-Native Solutions

About The Customer

A leading non-profit organization in the UK telecom sector sought to enhance consumer choice and simplify broadband and voice service switching. However, their legacy infrastructure struggled with scalability, security, and onboarding communication providers (CPs). Tech Mahindra partnered with the organization to develop a cloud-native messaging platform that enables seamless broadband and voice service switching across the UK telecom sector. Leveraging Comviva's Blue Marble and WSO2's API Management, the platform streamlines communication provider management and enhances consumer choice. It also improves the convenience of switching between broadband and VoIP while preserving security, scalability, and robustness.

Client Background and Challenges

The client, a key player in the UK's telecom industry, facilitates service switching for residential broadband and voice consumers. They required a secure, scalable platform to efficiently onboard and manage 3,000+ CPs. This solution was expected to:

- Deploy functional modules that deliver excellent customer management and transaction experience.
- Host infrastructure on AWS across three availability zones (AZs) using a containerized, microservices-based, and reusable cloud-native architecture.
- Provide ongoing support for the deployed infrastructure to ensure stability and performance. However, they faced certain roadblocks. The key challenges were:
- Complex planning and execution of AWS deployment architecture across three AZs.
- Onboarding 3,000+ CPs to the AWS landscape while maintaining optimal performance.

Our Approach and Solution

Tech Mahindra built a cloud-native message exchange platform hosted on AWS across three AZs, ensuring high availability, scalability, and security. Key solution highlights:

- **Key Components:** The solution's key components include WSO2 and Blue Marble applications running on Amazon Elastic Kubernetes Service (EKS), leveraging Relational Database Service (RDS) multi-AZ clusters and Elastic File System (EFS) for storage.
- **Infrastructure and Security Architecture:** The infrastructure is deployed in the London region, utilizing multiple VPCs for production and non-production environments. Security is ensured through FortiGate firewalls, ingress and egress VPCs, and an AWS Gateway Load Balancer for firewall services.
- **Storage Solutions:** Storage solutions include RDS multi-AZ clusters for databases, EFS for EKS for persistent storage of worker nodes, MySQL RDS for the Blue Marble application, and S3 for log storage, ensuring high availability and resilience.
- **Backup and DR Strategy:** Backup and disaster recovery (DR) are managed through AWS Backup service for EC2, EFS, and RDS, while Velero handles EKS backups. As the deployment follows an active-active-active model across three AZs within the London region, no explicit DR strategy is required.

Infrastructure Architecture

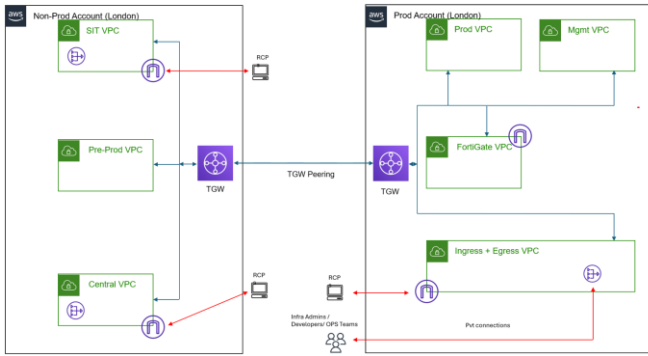


Figure 1: Multi Account, Multi VPC Structure

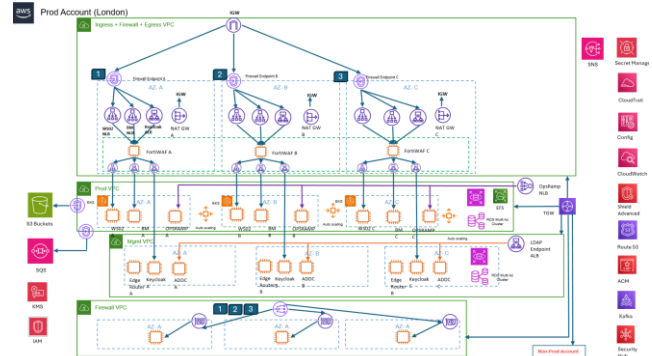


Figure 2: Infrastructure Architecture of Production Environment

Figure 1: This AWS infrastructure diagram depicts the architecture for non-production and production environments in the London region, utilizing VPCs and Transit Gateways (TGWs) for connectivity.

Figure 2: The production VPC deployment using Amazon EKS in the eu-west-2 (London) region spans multiple subnets across different availability zones, ensuring high availability and redundancy.

Cloud Operations Governance

- Cost optimization activities are covered as part of governance.
- SOPs were created as part of operations and are available in SharePoint for performing regular activities.
- Jira is used as an ITSM system.
- AWS SSM is implemented to patch monthly operating systems.
- AWS Config is used to monitor configuration changes in the infrastructure.
- All logs are stored in a restricted S3 bucket, with Athena and AWS Glue used for log analysis.

Security & Access Management

- AWS Console access is restricted with AWS Identity Center and MFA; the least privileged access and permissions are enabled using IAM roles.
- NACLs and security ports are implemented to secure applications and databases.
- FortiGate firewall is used for security and traffic control.

- Fortinet WAF protects web-based applications from threats and sends the traffic to AWS ALB for further processing.
- IBM QRadar-SIEM enhances security by automating and enriching alerts, prioritizing threats, correlating incidents, and providing a unified view.
- Trend Micro Cloud One is also configured to secure cloud infrastructure.

Monitoring & Observability

- AWS Cloud watch is set up to monitor the CPU, memory, load average, etc.
- Amazon SNS is used to alert the respective teams.
- OpsRamp is used to monitor, manage, and automate IT infrastructure. It is integrated with Jira for ITSM to create alerts based on the defined threshold.

Managed Services

- Tech Mahindra's scope of work includes 24*7 infrastructure support for the services.
- Tech Mahindra provides scalable operational capacity and skills across monitoring, incident management, security, patch, backup, and cost optimization.
- Jira is integrated for incident management, enabling faster business turnaround for critical issues.
- Service levels are defined based on criticality with response and resolution times.
- Operational tasks include server patching, health and utilization monitoring, and upgrades for operating systems, databases, and service versions.
- AWS resources are continuously optimized to achieve operational excellence.
- An escalation matrix is in place with defined processes to handle major issues.

Business and Community Impact

- Delivered excellent CP engagement and transaction experience.
- Provided modern, cloud-based, highly available infrastructure.
- Enabled IT operations to deliver an exceptional customer experience with microservices-enabled, automated cloud-native architecture and a zero-trust security process.
- , improved the overall response time, reduced turnaround time, and improved availability.
- Deployed approx. 80+ EC2, including RDS and EKS in the AWS Cloud.
- Implemented the Opsramp monitoring tool, integrated with Jira for incident management for faster business turnaround for critical issues.
- Reduced total cost of ownership (TCO), enhanced security, improved the overall response time, reduced turnaround time, and improved availability.

About Tech Mahindra

Tech Mahindra (NSE: TECHM) offers technology consulting and digital solutions to global enterprises across industries, enabling transformative scale at unparalleled speed. With 150,000+ professionals across 90+ countries helping 1100+ clients, TechM provides a full spectrum of services, including consulting, information technology, enterprise applications, business process services, engineering services, network services, customer experience & design, AI & analytics, and cloud & infrastructure services. It is the first Indian company in the world to have been awarded the Sustainable Markets Initiative's Terra Carta Seal in recognition of actively leading the charge to create a climate and nature-positive future. Tech Mahindra is part of the Mahindra Group, founded in 1945, one of the largest and most admired multinational federations of companies. For more information on how TechM can partner with you to meet your scale at speed imperatives, please visit <https://www.techmahindra.com/>.

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