

Enterprise Resource Planning (ERP) with SAP on AWS for a Large Public Sector Organization



About The Customer

The customer required a solution that would address the key challenges of visibility, operational excellence, and digital innovation in the existing enterprise resource planning (ERP) systems.

They wanted to have a unified solution to get real-time insights from various workstreams.

They aimed to create an automated, standard, flexible centralized capability to address the business/operational needs for executive and back office in the organization.

For their digital transformation strategy, they appointed Tech Mahindra as system integrator to implement an automated enterprise resource planning (ERP) cloud system with SAP in Amazon Web Services (AWS).

Client Background and Challenges

The customer is the central agency for execution of public works in India with professional expertise in disciplines including architecture, engineering, project management coupled with comprehensive experience in building construction and maintenance. They have been serving the nation for last 164 years and has executed priority of works in difficult and demanding geographical and climatic conditions.

The challenges were as follows

Requirement to automate multiple applications and processes to streamline the workflow across the country

Optimize project execution time.

Use nimble tool to help faster and effective decision making.

Reduction of overall TCO while improving efficiency.

Scope of the Work

- ▶ Integrated portal for internal and external stakeholders.
- ▶ Platform that meets the requirement around e-procurement.
- ▶ Enhanced user experience through user interface (UI) and mobility solutions.
- ▶ Technology platform that provides scalability and extensibility as a cloud-first strategy.
- ▶ Increased resilience with High availability and disaster recovery solution to meet RTO and RPO requirements.

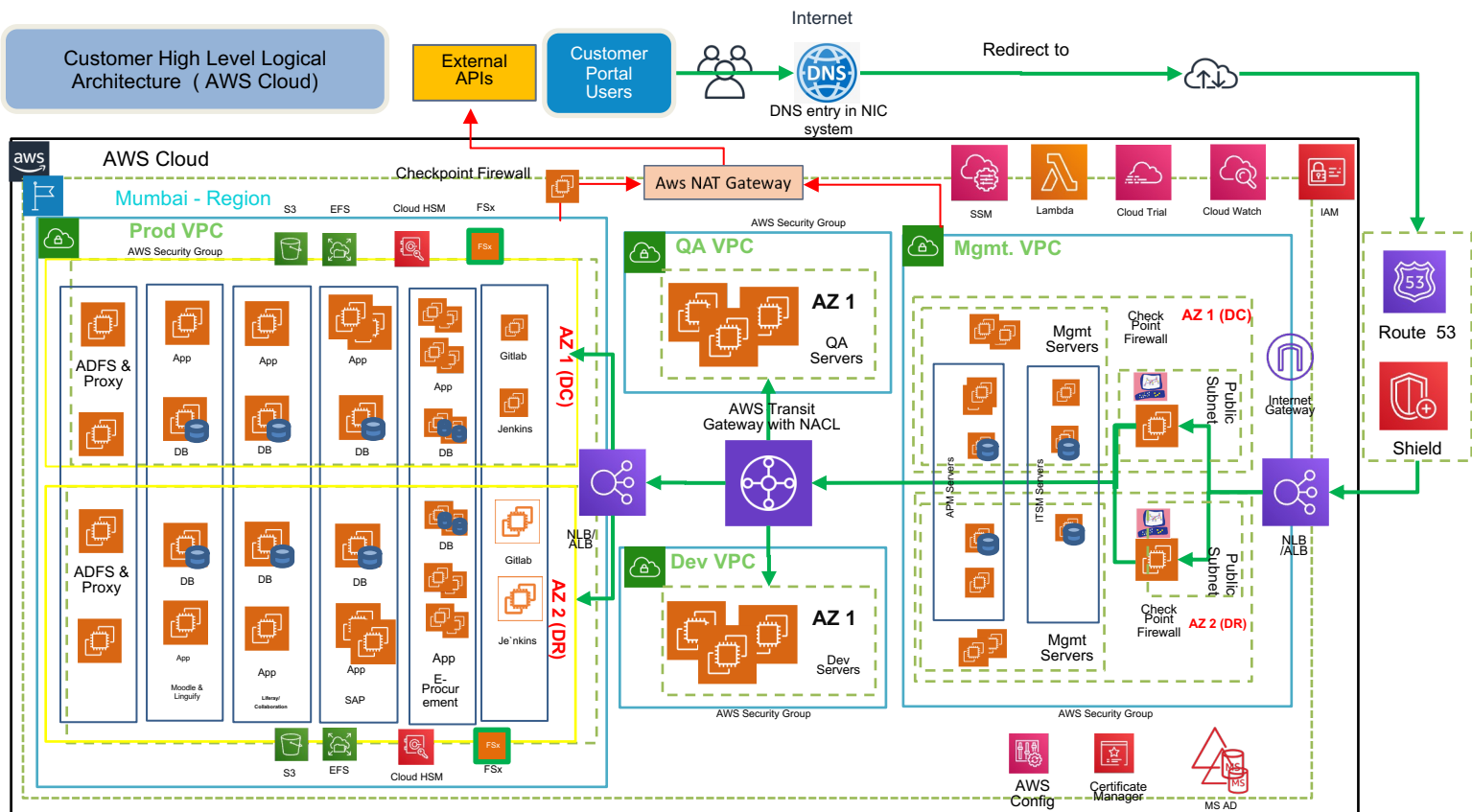
Our Approach and Solution

- ▶ Implemented digital ERP platform based on SAP technology, Java, Moodle, Liferay. The core SAP products are SAP Fiori stack on HANA and BW.
- ▶ Designed AWS infrastructure with well architected framework and incorporated third party products (Checkpoint and MacAfee) for enhanced security.
- ▶ All the applications and database are made highly available by using 2 AZs.
- ▶ For SAP high availability clustering solution with SUSE Pacemaker has been used. Overlay IP is used to perform network routing.
- ▶ For SAP HANA database (DB) HANA System Replication (HSR) is used for high availability (HA) and disaster recovery (DR). For HA SUSE Pacemaker with overlay IP is used to automate fail-over.
-Please expand the abbreviations
- ▶ Optimized cost and performance with right sizing compute and storage.
- ▶ Integration of ERP application and services with active directory federation services (ADFS) using security assertion markup language (SAML) and AWS managed Active Directory (AD). -please expand the abbreviations
- ▶ Optimized and automated monitoring with Amazon CloudWatch and backup process with AWS backup service. Alerting has been enabled with Amazon SNS.
- ▶ AWS Systems Manager is used for Operating System Patch management. Following the best practices laid down by the Tech Mahindra Managed Cloud Operations (mCOPS) process patches are applied to non-production landscape prior to production.
- ▶ Mobile application is available for all ERP applications.
- ▶ AppDynamics used for application performance monitoring.
- ▶ AWS HSM key service is used to store the private keys.

AWS Services consumed

- ▶ Amazon EC2
- ▶ AWS Config
- ▶ AWS WAF
- ▶ AWS Lambda
- ▶ AWS Transit Gateway
- ▶ AWS VPC
- ▶ Amazon S3
- ▶ AWS IAM
- ▶ Amazon EBS
- ▶ AWS CloudTrail
- ▶ AWS Shield
- ▶ AWS SMTP
- ▶ AWS ECR & ECS
- ▶ AWS Certificate Manager
- ▶ AWS SSM
- ▶ AWS Fargate
- ▶ Amazon Cloud watch
- ▶ AWS Security Hub
- ▶ AWS Internet Gateway
- ▶ AWS EFS and FSx
- ▶ AWS Workmail
- ▶ AWS Cloud HSM
- ▶ AWS MS AD
- ▶ AWS SNS

AWS Architecture



Business and Community Impact

- ▶ Applications are hosted in the Asia Pacific (Mumbai) Region, and critical components were placed across two AWS Availability Zones (AZs) to achieve high availability.
- ▶ The target landscape of SAP application consists of three environments: development, quality assurance (QA)/user acceptance testing (UAT), and production.
- ▶ Each environment has its own dedicated virtual private cloud (VPC) that allows better security controls and segregation of responsibilities. Egress and Ingress rule has been enforced for each instance.
- ▶ A dedicated management VPC designed for core network system enabled through a network load balancer and AWS Transit Gateway.

- ▶ Optimized deployment with fully automated rollout using the AWS cloud formation. This enabled deployment of 150 servers (54 SAP prod) in short time.
- ▶ Increased the security posture by securing environment with third party products (Checkpoint and MacAfee) within AWS.
- ▶ Centralized user database for 50k internal and external users on AWS MS active Directory service.
- ▶ Enhanced user experience through SAP UI and mobility solution.
- ▶ Increased scalability, extensibility, and agility in SAP Technology platform.
- ▶ Increased operational efficiency with the implementation of Amazon CloudWatch monitoring, application performance monitoring and integration with Summit tool for incident management enabling faster business turnaround for critical issues.
- ▶ Increased operational excellency with automation of Alerts, patching and backup process enhancing business continuity capabilities in case of disaster.
- ▶ Effective system to manage the enterprise-wide resources in an organized method.
- ▶ Higher resilience of ERP systems to business and end users.
- ▶ Enhanced user experience with secure and timely accessibility to mobile platform.
- ▶ Fully integrated application stacks along with ERP (including SAP) using the SSO.

About Tech Mahindra

Tech Mahindra is an AWS premier consulting partner and managed service provider. We help customers to secure their digital transformation journey by, addressing all their cloud security needs by protecting their cloud environment, providing unified visibility, and ensuring compliance.

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