SMBCTEX-001 - Design Document

Project Name: IX-RD-PS-Infinity-01   Migración y modernización infraestructura Infinity
Client: Infinity Gifts Souvenirs, Dominican Republic
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Date:

1. Executive Summary

Infinity Gifts Souvenirs sought to modernize its IT infrastructure to remain competitive in the evolving retail and tourism market. This project involved migrating core systems to Amazon Web Services (AWS), leveraging scalable, secure, and cost-optimized cloud services to enhance performance, reliability, and operational excellence.

2. Objectives

- Migrate key workloads (SQL Server, IIS, Active Directory) to AWS.

- Ensure high availability, data security, and compliance.

- Optimize costs through right-sizing and automation.

- Implement Infrastructure as Code (IaC) using Terraform.

- Establish monitoring, backup, and disaster recovery procedures.

3. Architecture Overview

Main Components:

- **Compute**: EC2 instances for IIS, Active Directory, and custom services.

- **Database**: Amazon RDS for Microsoft SQL Server.

- **Storage**: Amazon Elastic Block Store (EBS).

- **Backup**: AWS Backup for scheduled recovery.

- **Security**: IAM, VPC Security Groups, MFA, Certificate Manager.

- **Monitoring**: Amazon CloudWatch and AWS CloudTrail.

- **IaC Tools**: Terraform with Git integration and CI/CD pipeline.

Architecture Diagram:
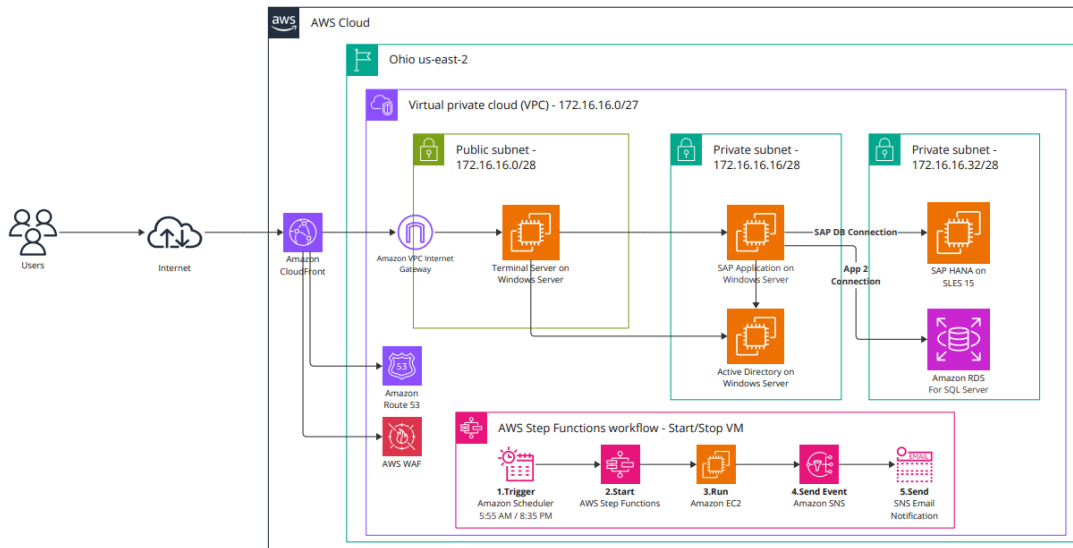
4. Key Technologies and Services

Technology	Purpose
Amazon EC2	Hosting Active Directory and IIS
Amazon RDS	Managed SQL Server databases
AWS System Manager	Patch management and operations
AWS Backup	Automated backup and recovery
Amazon CloudWatch	Resource monitoring and alerting
AWS CloudTrail	Logging user and API activity
IAM	Role-based access control
Certificate Manager	SSL/TLS certificate provisioning
Terraform	Infrastructure as Code
Git + CI/CD	Version control and automated deployment

5. Security and Access Management

- **Root User Protection**: MFA enabled, minimal use.
- **IAM Roles and Policies**: Least privilege model applied.

- **Access Controls**: Role-based with dedicated credentials for partner admins.

- **Logging and Auditing**: CloudTrail enabled.

- **Network Security**: VPC Security Groups with least access rules.

- **Encryption**:

  - **At Rest**: AWS-managed keys for EBS, RDS.

  - **In Transit**: TLS certificates via Certificate Manager.

6. Operational Excellence

- **Patch Management**: AWS Systems Manager (manual install after scan).

- **Monitoring**: CPU, memory, disk; alarms on threshold breach.

- **Log Collection**: Centralized in CloudWatch from EC2 and RDS.

- **Runbooks**: EC2 start/stop automation, customer training and documentation provided.

- **Dev/Test Environments**: Isolated QA setup for safe testing.

7. Reliability and DR

- **IaC via Terraform**: Automated, version-controlled provisioning.

- **Backup Strategy**: Daily backups with AWS Backup.

- **RTO**: 2 hours

- **RPO**: 24 hours

8. Cost Optimization

- **Initial TCO Analysis**: Conducted using AWS Pricing Calculator
  [Link:
  https://calculator.aws/#/estimate?id=78cccb0908e0a965285c91341ddab047107fc693]

- **Deployment in Single AZ**: Cost-saving measure per client request.

- **Right-Sizing Recommendations**: Based on CloudWatch metrics.

9. Governance and Compliance

- Landing Zone setup with secure VPC configuration.

- IAM compliance with client policy.

- Administrative access restricted and audited.

- Ongoing user training and handover sessions (recorded).

10. Conclusion

This solution successfully modernized Infinity Gifts Souvenirs' IT infrastructure by leveraging AWS cloud services. It met all technical and business requirements including security, scalability, cost efficiency, and operational readiness.