IBM American Airlines- Migration Journey

Assignment 04

Aneesha Mathew

Dhrumilkumar Panchal

Prabhnoor Kaur

**Cloud Technologies, Conestoga College**

Digital Solutions Management 1524G

Fadi Abd Ulhamid

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1. We have identified the below workloads that will be migrated by American Airlines and briefly described them.
   1. **Customer-Facing Mobile Application**: This application is a critical point of interaction for American Airlines' customers, offering various services like booking, flight updates, and check-ins. Migrating this app to the cloud was aimed at improving its performance, scalability, and overall user experience.
   2. **Airport Check-In Kiosks**: These are vital for facilitating a smooth check-in process at airports. The migration of these kiosks to the cloud was part of the effort to enhance operational efficiency and customer service at the physical touchpoints in airports.
   3. **Main Website (aa.com)**: As the primary online customer engagement platform, the aa.com website’s migration focused on boosting its reliability and responsiveness. The cloud infrastructure provides the flexibility and scalability needed to handle high traffic and dynamic customer interactions.
   4. **Cargo Customer Website**: This workload involves the digital platform used for American Airlines’ cargo services. Moving it to the cloud was intended to optimize the efficiency of cargo booking and tracking services, thereby enhancing the customer experience in this specific business area.
   5. **Application Development and Deployment Infrastructure**: This includes the broader cloud infrastructure and platforms (like IBM Cloud Virtual Servers and IBM Garage) used for developing, deploying, and managing various applications. The emphasis was on adopting a cloud-native architecture and agile methodologies to facilitate faster development and deployment of new applications and services.
2. Cloud Service Provider Comparison: Below is the detailed cloud service provider comparison based on the workload identified.

A screenshot of a computer screen

Description automatically generated

1. Migration Strategies and Migration Tools: After careful analysis of the system, we have chosen the below strategy and tool for each service provider that will support their migration journey.

A screenshot of a computer

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1. Cloud Security and Governance tools  
   The role of the IBM Cloud is crucial, in the American Airlines case study as it plays a part in their transformation journey. As businesses rely more on cloud services, ensuring security and governance becomes increasingly important. To decide it is essential to conduct an analysis and comparison of AWS, Azure, and Google Cloud.
   1. **Identity and Access Management (IAM):**
      1. **AWS:** It provides IAM services that include identity federation and granular access controls.
      2. **Azure:** It can leverage role-based access control and multifactor authentication through Azure Active Directory for identity management.
      3. **Google Cloud:** Offers Cloud Identity and Access Management, allowing resource management.
   2. **Data Encryption:** 
      1. **AWS:** Ensures the encryption of data when it is being transferred and when it is at rest utilizing the AWS Key Management Service (KMS).
      2. **Azure:** On the other hand, it relies on Azure Key Vault to securely encrypt and manage keys.
      3. **Google Cloud:** The recommended service for encryption and cryptographic key management is Google Cloud Key Management Service (KMS).
   3. **Compliance and Certification:** 
      1. **AWS:** Fulfills industry standards. It holds certifications such as SOC 2 and ISO 27001, among others.
      2. **Azure:** Possesses HIPAA and GDPR certifications and adheres to industry standards.
      3. **Google Cloud:** Ensures compliance with regulations like FedRAMP and PCI DSS.
   4. **Network Security:**
      1. **AWS:** Provides security groups for control while their Virtual Private Clouds (VPCs) enable network isolation.
      2. **Azure:** Utilizes network security groups to manage access control—Azure Virtual Network for network isolation.
      3. **Google Cloud:** Offers firewall rules for network security and virtual private clouds (VPCs) to ensure network integrity.
   5. **Security Monitoring and Compliance Reporting:**
      1. **AWS**: AWS Config is utilized to monitor compliance, while AWS CloudTrail is employed for logging.
      2. **Azure:** Azure Security Centre and Azure Monitor are utilized to monitor and report compliance.
      3. **Google Cloud:** For security insights, the Security Command Centre and Google Cloud Monitoring are utilized.
2. CSP selection criteria and recommendation

**Selection Criteria for CSP:**

To identify the CSP, regulations imposed on the aviation industry along with the ease of integration with existing technology should be considered. The CSP should be able to meet the system requirements for the airlines and be able to analyze the performance and be adaptable to meet the evolving needs. To curb expenditure the CSP should be chosen, in a way to ensure profitability and future support for technology implemented in the airlines.

**Recommendation:**

Microsoft Azure presents a compliance to American Airlines when considering the criteria for comparison and selection. Azure adheres to industry standards and offers security and governance features. Enables seamless integration. Opting for Azure would be a choice for implementing transformations in the aviation industry thanks to its impressive compliance certifications and collaborative nature.

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