

GlobalTech Solutions Cloud Migration Strategy

Assigned Cloud Provider: Azure

Group: 16

Section: 13

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1. Company Overview

GlobalTech Solutions operates across 10 countries, with a combination of modern and legacy systems. Their current infrastructure includes:

1. 150 Virtual Machines (VMs) running Windows Server and Linux.
2. A monolithic ERP system for financial and inventory management.
3. An in-house SQL database cluster storing sensitive data.
4. A legacy mainframe system for payroll and reporting.
5. Public-facing e-commerce applications with 24/7 uptime requirements.

The company faces several challenges, including:

1. Outdated ERP and mainframe systems.
2. Increasing operational costs.
3. A need for scalability, disaster recovery, and compliance with GDPR and HIPAA.
4. Downtime for critical systems must remain under 4 hours.

2. Azure Migration Strategy

Migration Phases:

1. **Assessment:**
 - a. Use **Azure Migrate** to assess current infrastructure and dependencies, identifying the right workloads for migration.
2. **Planning:**
 - a. Migrate VMs to **Azure Virtual Machines (VMs)**.
 - b. Refactor the ERP system using **Azure Kubernetes Service (AKS)** or **Azure App Service**.
 - c. Modernize the SQL database with **Azure SQL Managed Instance**.

- d. Plan downtime mitigation strategies with **Azure Site Recovery**.
3. **Execution:**
 - a. Rehost VMs using **Azure Site Recovery**.
 - b. Refactor the ERP system into containers with **AKS**.
 - c. Migrate the SQL database using **Azure Database Migration Service**.
4. **Validation:**
 - a. Test for performance, security, compliance, and disaster recovery.

3. Modernization Approach

- **ERP System:**

Refactor into microservices using **Azure Kubernetes Service (AKS)** to scale the system efficiently or use **Azure App Service** for simpler hosting.

- **Legacy Mainframe:**

Replace legacy workloads with **Azure Functions** (serverless) or containerize them using **AKS** to optimize infrastructure costs.

4. Compliance and Security Strategy

- **Compliance Measures:**
 1. Leverage **Azure Policy** to ensure GDPR and HIPAA compliance.
 2. **Azure Security Center** for continuous monitoring and threat management.
 3. Use **Azure Key Vault** to securely store encryption keys and sensitive data.
- **Security Enhancements:**
 1. Implement **role-based access control (RBAC)** to manage user permissions.
 2. Use **Azure Active Directory (AAD)** for secure authentication and Single Sign-On (SSO).
 3. Encrypt data in transit and at rest using **TLS/SSL** and **Azure Disk Encryption**.
 4. Enable **Azure Defender** to detect vulnerabilities and secure the environment.

5. Scalability and Disaster Recovery

- **Scalability:**
 1. Use **Azure Autoscale** to dynamically adjust VM capacity for e-commerce applications.
 2. Distribute traffic globally using **Azure Front Door** for low latency and high availability.

3. Implement **Azure Cache for Redis** to improve performance by reducing database load.
- **Disaster Recovery:**
 1. Configure **Azure Site Recovery (ASR)** for automated failover and failback in case of a disaster.
 2. Ensure that downtime for critical systems stays under 4 hours by testing regular disaster recovery scenarios.
 3. Use **Geo-Redundant Storage (GRS)** to ensure critical data is replicated across multiple Azure regions.

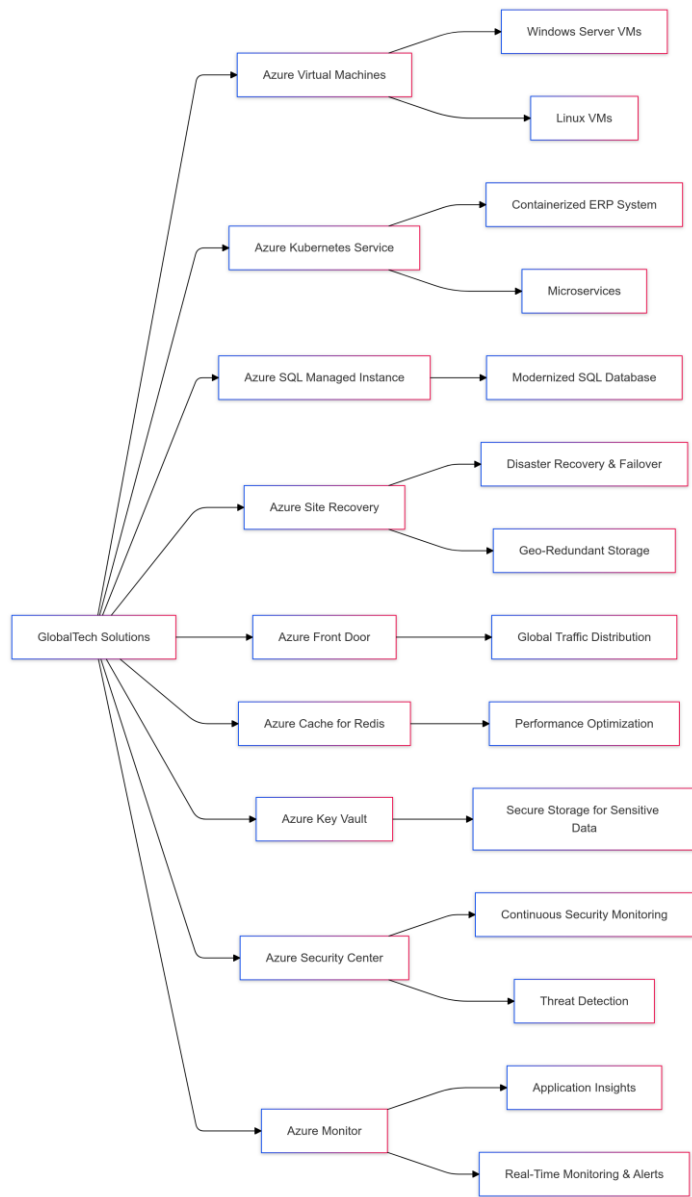
6. Cost Optimization

- **Cost Management Strategies:**
 1. Use **Azure Cost Management and Billing** to track and optimize spending.
 2. Automate VM shutdown during off-peak hours using **Azure Automation**.
 3. Implement **reserved instances** for long-term workloads to reduce costs.
 4. Optimize database usage with **Azure SQL Serverless** for intermittent workloads.
- **Cost Efficiency Recommendations:**
 1. Decommission unused or redundant resources identified during the **assessment phase**.
 2. Transition legacy systems to **serverless solutions** like **Azure Functions**, which offer lower infrastructure costs.

7. Post-Migration Monitoring and Support

- **Monitoring Tools:**
 1. Use **Azure Monitor** and **Application Insights** for real-time monitoring of application health and performance.
 2. Set up **Azure Monitor Alerts** to notify administrators of any issues.
- **Support Framework:**
 1. Establish an **Azure Support Plan** to quickly resolve issues.
 2. Conduct regular reviews with **Azure Advisor** to identify opportunities for optimization.
 3. Perform monthly audits to ensure compliance, security, and cost-effectiveness.

8. Architecture Diagram



9. Conclusion

Migrating GlobalTech Solutions to **Azure** will modernize outdated systems, enhance scalability, reduce operational costs, and ensure compliance with **GDPR** and **HIPAA** regulations. With a well-structured migration approach, the company will achieve 24/7 availability for critical applications while ensuring disaster preparedness and robust security. Azure's flexibility and advanced features provide the ideal platform to support GlobalTech's future growth.