



Case Study

Application Workload and Database hosting & Migration to Oracle Cloud (OCI) for the Largest Hospital Network in Western India

Client Overview

The client is the largest chain of hospital networks in Western India, offering a broad range of healthcare services across multiple locations. Known for its state-of-the-art medical technology and patient care, the network's IT infrastructure needed modernization to ensure scalability, better disaster recovery (DR) solutions, and improved security.

Business Challenge

- As the hospital network expanded, their on-premises infrastructure faced limitations in capacity, performance, and manageability. Critical challenges included:
- Ageing IT infrastructure impacted performance and increasing maintenance costs.
- The lack of an efficient Disaster Recovery (DR) solution, leaving the network vulnerable to downtime and data loss.
- Increasing complexity in managing legacy databases (DB) including Oracle and ensuring 24x7 availability of patient data.
- Growing concerns over security, particularly at the OS and application levels, with mounting operational workloads for in-house IT teams.

The client sought a comprehensive solution to address these issues while ensuring high availability and reliability for healthcare operations.

Scope of Services

The scope of the engagement involved:

1. VMCloud Workload Provisioning on OCI:

- a. Provisioning cloud infrastructure on OCI to replace ageing on-premises Cloud Workloads
- b. Deploying VMs for critical workloads, ensuring high availability.

2. Cloud Workload Migration to OCI:

- a. Migrating virtual machines from the client's in-house infrastructure to OCI.
- b. Utilizing OCI's migration tools for seamless cloud workload migration with minimal downtime.

Objectives

- **Cloud workload level migration** of the existing infrastructure to Oracle Cloud Infrastructure (OCI) to improve scalability and performance.
- **Database (DB) migration** to OCI for enhanced reliability and performance.
- **Provisioning of DR services** on OCI to ensure business continuity with minimal downtime.
- **Establishing robust monitoring and management protocols** to support the migrated infrastructure on OCI.

3. DB Level Migration:

- a. Migrating database from the on-premises cloud workload to OCI.
- b. Configuring a resilient database as a service (DBaaS)
- c. Optimizing database configurations to leverage OCI's performance capabilities.

4. Provisioning of DR Services on OCI:

- a. Setting up a DR solution on OCI to protect critical applications and databases.
- b. Primary-to-DR replication configured for continuous data synchronization.

5. 24x7 Standard Monitoring and OS Management:

- a. Leveraging Pi Datacenters Global Command Center to set up 24x7 monitoring of OCI infrastructure for Compute/Network/Storage.
- b. Auto configuration of resource utilization threshold and periodic reporting to ensure 100% predictability and availability.
- c. Providing 24x7 Operating System (OS) management across different levels (L1 to L3), including patching, updates, and troubleshooting.

6. Database Management (L1 & L2):

- a. Implementing monitoring and management of database systems, focusing on availability, backups, and performance tuning.
- b. Ensuring regular patch management, security updates, and troubleshooting of database issues to maintain optimal performance and security compliance.

7. Security Management:

- a. OS & Antivirus (AV) installation for protection. Implementing firewall configurations, access control policies, and encryption protocols to safeguard sensitive patient data and ensure regulatory compliance.
- b. Continuous security monitoring, including intrusion detection and malware prevention.

Solution Implementation

1. Assessment and Planning:

- a. Conducted a thorough assessment of the client's existing infrastructure to plan for VM and DB migrations.
- b. Developed a migration strategy that minimized downtime, ensuring patient services remained unaffected.

2. Migration to OCI:

- a. Utilized OCI Migration Tools to move VMs and databases to the cloud. The migration process included lifting and shifting existing workloads with minimal refactoring.
- b. Each migrated VM was tested for performance on OCI, ensuring that it met the healthcare network's needs.

3. Disaster Recovery Setup:

- a. A DR solution was provisioned in a geographically separate OCI region to ensure data redundancy.
- b. Primary-to-DR replication was set up with near real-time data synchronization to ensure business continuity in the event of an outage.

4. Monitoring and Management:

- a. Implemented a 24x7 monitoring system to track compute, network, and storage usage in real-time.
- b. Deployed OS and DB management tools to provide proactive incident resolution at various service levels (L1 to L3 for OS and L1 & L2 for DB).
- c. Automated security protocols including regular updates and AV installation for consistent security coverage across the entire infrastructure.

Results & Benefits

1. Increased Infrastructure Scalability:

- a. By migrating to OCI, the hospital network could easily scale its infrastructure based on demand, ensuring uninterrupted service during peak patient loads.

2. Improved Performance and Reliability:

- a. The move to OCI drastically improved the performance of VMs and databases, ensuring faster processing times for critical applications.
- b. The new DR setup enhanced data availability and minimized downtime during outages or maintenance windows.

3. Enhanced Security and Compliance:

- a. The robust security protocols provided by OCI, combined with continuous monitoring of OS and antivirus systems, significantly reduced the risk of data breaches and malware attacks.
- b. Security monitoring ensured compliance with healthcare regulations, safeguarding patient information.

4. Operational Efficiency:

- a. The comprehensive monitoring and 24x7 management services allowed the in-house IT team to focus on strategic initiatives rather than routine infrastructure management.
- b. OS and DB management across multiple service levels (L1 to L3) improved system stability and response times for any incidents.

5. Cost Savings:

- a. Migrating from legacy infrastructure to OCI reduced capital expenditure on hardware and lowered operational costs through automation and cloud-native tools.

Conclusion

By migrating its Cloud Workload and databases to OCI, the largest hospital network in Western India modernized its infrastructure, enhanced performance, and bolstered its disaster recovery capabilities. The solution delivered improved scalability, security, and operational efficiency, ensuring the hospital network can continue providing exceptional patient care with the support of a resilient IT environment. This shift would also enable the client to scale its IT infrastructure at will as it grows in business and decides to add more hospital branches & services to the bouquet. Hence, this will bolster business growth and market leadership in their domain.