

A Global Company's Database Modernization with Oracle Database@AWS



A global electrical solutions company focused on connecting and protecting critical systems across a wide range of industries, the customer designs, manufactures, markets, installs, and services high performance products used in mission critical environments, including data centers, industrial automation, power utilities, renewable energy, commercial buildings, and infrastructure.

Executive Summary

Due to a business acquisition and transition, the customer's Oracle E-Business Suite (EBS) and related applications needed to be migrated from Oracle Cloud Infrastructure (OCI) to Amazon Web Services (AWS). This initial phase (Phase I), led by Apps Associates, moved the acquired environment onto Amazon EC2 instances and a combination of Amazon EBS and Amazon FSx NetApp ONTAP storage.

As part of a broader strategic IT modernization initiative (Phase II), the customer again engaged Apps Associates to support a cloud migration and modernization program. Phase II focused on modernizing the Oracle EBS environment by migrating the Oracle EBS database from Amazon EC2 to Oracle Database@AWS, Oracle's newly introduced managed database service, while upgrading the Oracle EBS application server from Oracle Enterprise Linux (OEL) 7 to OEL 8.

The customer partnered with Apps Associates to provide Project Management, Cloud Architecture, System Administration, and Oracle Database Administrator (DBA) expertise, while the customer's internal cloud team was responsible for provisioning the Oracle Exadata infrastructure on AWS. The migration strategy involved relocating the Oracle EBS database to Oracle Database@AWS while retaining the existing application infrastructure, including Oracle EBS applications, Oracle APEX, and SplashBI. The target architecture was intentionally designed to closely mirror the existing production environment, preserving the application and database server topology and configuration.

The migration was executed through a structured three-iteration approach to minimize project risk and ensure seamless production deployment. During the first iteration, the Apps Associates DBA team migrated the Oracle EBS database from

Amazon EC2 to Oracle Database@AWS and reconfigured Oracle EBS, Oracle APEX, and SplashBI to connect to the new database platform. The Apps Associates Systems team also performed an in-place upgrade of the Oracle EBS application server from OEL 7 to OEL 8. The second iteration focused on end-to-end System Integration Testing (SIT) and User Acceptance Testing (UAT), enabling business users to validate application functionality while the project team finalized the production cutover strategy. The final iteration focused on production cutover, seamlessly migrating live operations to Oracle Database@AWS.

Driving Factors

The customer's Amazon EC2-hosted environment created two significant operational challenges:

- Licensing costs were high on EC2. Oracle's licensing model on EC2 counts every vCPU, nearly doubling the license requirement compared to a right-sized environment.
- Scaling required downtime. Resizing EC2 instances meant taking the environment offline, making it difficult to respond to capacity demands without disrupting the business.

Environment

Oracle (1) production, (2) non-production, and (1) DR environment

Products: EEBS 12.2.10, Database 19.29

Servers: Database (3), EBS (3), SplashBI (3), Apex (3), and DR Database (1)

Size of the Databases: E-Business (~4TB)

High Level Steps of Migration

The migration commenced with the customer's infrastructure team provisioning two Oracle Exadata Infrastructure systems in AWS, including one for both the Production and Non-Production databases and a second for dedicated Disaster Recovery (DR) environment, each deployed with independent VM clusters.

To support ongoing projects and validate the migration approach, two new non-production environments were established. The first iteration focused on technical migration and platform validation. The Apps Associates DBA team successfully migrated the Oracle EBS database from Amazon EC2 to Oracle Database@AWS running on OEL 8, including the database server operating system upgrade, and the infrastructure team performed an in-place upgrade of the Oracle EBS application server from Oracle Enterprise Linux OEL 7 to OEL 8.

During the second iteration, project scope was expanded to implement logical hostnames across all databases and application servers to simplify Disaster Recovery (DR) operations and minimize application configuration changes during failover. Apps Associates redesigned the migration approach to incorporate this enhancement, built the DR database on the target Exadata VM cluster, and configured logical hostnames for Physical/SCAN/Virtual hostnames of the VM cluster and all application servers in collaboration with the customer's infrastructure team. In addition, the database and all applications were reconfigured to use the new logical hostnames for connectivity to the database on the new platform. The solution was validated by the business through SIT and UAT while the migration runbook was refined based on the validation results.

The final iteration focused on production readiness and cutover. Key activities included configuring the cascading standby database, applying pre-production fixes, and executing the production migration using the validated runbook and lessons learned from previous iterations. The production cutover was successfully completed within the planned maintenance window without any major issues, followed by four weeks of hypercare support to ensure a smooth transition and operational stability. The DR solution was fully configured and documented immediately after go-live to support ongoing business continuity.

Challenges

One of the key challenges encountered during the migration was maintaining DR synchronization between the primary and standby databases, as the replication process was repeatedly interrupted by corruption errors. Oracle Support, the Apps DBA team, the Apps Infrastructure team, and the customer's Security team jointly collaborated and troubleshooted the issue through a detailed end-to-end analysis. Their combined investigation ultimately identified network packet loss caused by an intermediate firewall. Once the firewall was identified, the customer's Security team made the necessary configuration adjustments, which resolved the packet loss and restored stable DR database synchronization.

As part of strengthening the security posture of the Exadata Database VM Cluster, the customer implemented controlled network access by restricting direct internet connectivity. This security enhancement impacted existing Oracle APEX functionality and required application reconfiguration to use static application endpoints instead of the dynamic configuration used in the source EC2 environment. Additionally, the email integration was updated by adopting a new mail server configuration to support secure SMTP communication without requiring public IP access.

Benefits Realized after Migration

Migration to ODB@AWS provides the following significant benefits:

Improved performance: Exadata-engineered infrastructure delivers significantly faster database and batch processing performance compared to EC2

Reduced operational overhead: Oracle manages infrastructure, patching, and maintenance, freeing the customer's team from database infrastructure management

Optimized licensing and cost: ECPU-based BYOL model with database consolidation, right-sizing the license footprint

Scalability on demand: Online ECPU scaling with zero downtime as business needs grow

Future-ready foundation: AWS latest Platform (ODB@AWS) in place for further database consolidation and modernization initiatives

Enhanced security posture: Encryption by default with Oracle-managed infrastructure hardening and compliance-ready configuration

About Apps Associates

Apps Associates is the premier middle-market OneOracle partner with a full-service business built on advisory, implementation, managed services, and AI services delivered across Oracle Cloud Infrastructure (OCI) and Oracle Cloud Applications. With more than 20 years of experience, Apps Associates services clients across all major industries, specializing in Life Sciences, Manufacturing, Financial Services, Healthcare, High Tech, Consumer Media Entertainment, and Energy and Utilities. With experience from 900+ cloud projects for 400+ customers worldwide, we deliver proven results that drive growth and innovation. With a customer retention rate consistently above 94%, Apps Associates is trusted as a long-term strategic partner, focusing on building lasting partnerships.

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