

AWS Database Modernization Assessment

Fictional case: Northstar Distribution Group

ASSET TYPE	Flagship sample assessment
STATUS	Review draft Synthetic scenario Version 1.0 - August 2026

IMPORTANT DISCLOSURE This demonstration uses a fictional company, invented workloads, and illustrative calculations. It does not represent a customer engagement, customer environment, testimonial, or actual savings result.

Executive decision brief

Decision requested: Approve a six-week mobilization to validate the target architecture and execute a controlled pilot before committing the production estate to migration.

Finding	Business implication	Priority
SQL Server 2014 is out of mainstream support and runs on aging VMware hosts.	Operational and security exposure increases while recovery depends on one facility.	Critical
Seven databases have undocumented cross-database calls and linked-server dependencies.	A lift-and-shift schedule based only on server inventory would be unreliable.	High
Licensing and I/O patterns vary materially by workload.	One AWS database target is unlikely to be economical for every database.	High
Restore testing is inconsistent and RTO/RPO evidence is incomplete.	Migration cannot be declared successful without recovery validation.	High

Recommended direction

- Retain SQL Server compatibility initially for Tier 1 applications using Amazon RDS for SQL Server, subject to feature and licensing validation.
- Use AWS DMS for continuous replication where low downtime is required; use native backup/restore for appropriate lower-tier databases.
- Modernize two reporting databases to Amazon Aurora PostgreSQL only after schema conversion and application testing prove the business case.
- Treat migration, high availability, disaster recovery, performance, security, and cost as one decision package rather than separate workstreams.

Illustrative outcomes - not promises

Measure	Current illustration	Target planning range
Production change window	8-12 hours for major moves	15-60 minutes for DMS-suitable workloads
Recovery evidence	Ad hoc restore tests	Documented restore tests for every migrated workload
Availability posture	Single-site dependencies and inconsistent failover evidence	Tier-aligned HA with tested failover and documented degraded-mode operations
Performance baseline	Reactive tuning and incomplete wait-statistics history	Measured latency, throughput, concurrency, and query regression thresholds
Infrastructure ownership	Physical hosts and guest OS	Managed database service where technically justified
Run-rate visibility	Server and license totals combined	Per-workload AWS and licensing model

1. Fictional environment and assumptions

Workload	Current state	Business tier	Key dependency
OrderHub	SQL Server 2014 Enterprise, 4.2 TB	Tier 1	Always On AG, SSIS, linked server to ERP
ERP-Core	SQL Server 2016 Standard, 1.1 TB	Tier 1	SQL Agent, CLR procedure, vendor support limits
WarehouseOps	SQL Server 2017 Standard, 650 GB	Tier 2	Nightly batch, handheld devices
ReportingMart	SQL Server 2016 Enterprise, 2.8 TB	Tier 2	SSRS, cross-database queries
CustomerPortal	PostgreSQL 11, 420 GB	Tier 2	Public web application
Archive	MySQL 5.7, 3.5 TB	Tier 3	Monthly retrieval only

Assumptions and exclusions

- All sizes, transaction rates, costs, recovery objectives, dependencies, and utilization figures are fictional.
- Application source-code remediation, end-user testing, vendor contract negotiation, and production cutover execution are excluded from this assessment sample.
- Final architecture depends on discovery evidence, AWS region, licensing rights, compliance requirements, network design, and application-owner decisions.

Discovery evidence requested

Evidence	Why it matters
Database inventory, versions, editions, features	Determines target compatibility and license options
Performance counters and storage latency	Supports right-sizing and I/O design
SQL Agent, SSIS, CLR, linked servers, encryption	Exposes migration blockers and ancillary services
RTO/RPO and restore-test history	Defines resilience design and acceptance tests
Application dependency map and change windows	Shapes migration waves and rollback design

2. Target-state options

Option	Best fit	Advantages	Constraints
RDS for SQL Server	Compatibility-first migration	Managed backups, patching, Multi-AZ option	Feature limitations; licensing cost remains
SQL Server on EC2	Features requiring OS or instance control	Highest compatibility and control	Customer manages more operations and HA
Aurora PostgreSQL	Selected workloads with modernization value	Open-source economics and cloud-native scaling	Schema/code conversion and testing effort
Aurora MySQL / RDS MySQL	MySQL-compatible applications	Managed operations and familiar engine	Version and feature compatibility validation

Illustrative target recommendation

Workload	Initial target	Rationale	Required validation
OrderHub	RDS for SQL Server	Reduce infrastructure operations while preserving application compatibility	Feature assessment, DMS load test, Multi-AZ failover
ERP-Core	SQL Server on EC2	Vendor and CLR constraints require control until vendor-certified path exists	License mobility, HA design, backup/restore
ReportingMart	Aurora PostgreSQL pilot	Potential license reduction and reporting modernization value	SCT conversion report, query performance, SSRS replacement
CustomerPortal	Aurora PostgreSQL	Engine-aligned migration with managed operations	Extension compatibility and connection testing
Archive	S3 plus query layer	Low-access data may not justify always-on database cost	Retention, retrieval SLA, legal hold

Architecture guardrails

- Private subnets, least-privilege IAM, KMS encryption, Secrets Manager, centralized logs, and restricted administrative paths.
- Infrastructure as code for repeatability; separate development, test, and production controls.
- CloudWatch alarms and documented ownership for availability, replication latency, storage, and backup failures.

High availability and disaster-recovery readiness

Control area	Design expectation	Readiness evidence
In-region HA	Multi-AZ or database-native HA for Tier 1; eliminate single-instance dependencies	Failover test, application reconnect evidence, measured recovery time
Cross-region DR	Tier-driven replica, backup-copy, or rebuild pattern; documented data-loss tolerance	DR architecture, replicated configuration, recovery runbook
Backup integrity	Encrypted, retained, monitored backups with protected copies where required	Successful automated restores and checksum/application validation
Operational readiness	Named incident roles, communication path, dependencies, and degraded-mode procedure	Tabletop exercise plus scheduled technical recovery test

Performance engineering baseline

- Capture CPU, memory, storage latency, IOPS, throughput, waits, blocking, query duration, concurrency, and growth before sizing the AWS target.
- Build a representative load test and define acceptance thresholds for critical transactions, batch windows, and reporting workloads.
- Use Query Store or engine-equivalent evidence to detect plan regressions; tune indexes, statistics, queries, configuration, and instance/storage shape in that order of evidence.

3. Migration execution plan

Phase	Duration	Activities	Exit criteria
Assess	2 weeks	Inventory, dependency analysis, performance baseline, feature compatibility, cost model	Signed discovery record and target decision
Mobilize	2 weeks	Landing-zone checks, connectivity, IAM, DMS/SCT lab, runbook draft	Pilot environment ready; security review passed
Pilot	2 weeks	Full load plus CDC, reconciliation, performance and recovery tests	Acceptance evidence and cutover decision
Waves	6-12 weeks	Tiered migrations, rollback windows, hypercare	Business and technical acceptance per wave

Cutover acceptance checks

Freeze schema changes and confirm the final synchronization window.

Verify DMS task health, replication latency, and table-level validation results.

Reconcile row counts, checksums or business totals for critical entities.

Run application smoke tests and performance thresholds approved by owners.

Execute HA failover, target backup restore, and DR runbook validation before ending rollback coverage.

Obtain explicit business approval; retain documented rollback triggers and decision owner.

Key risks and treatments

Risk	Likelihood	Impact	Treatment
Undocumented SQL dependencies	High	High	Automated discovery plus owner walkthroughs
DMS unsupported data types or LOB behavior	Medium	High	Pre-migration assessment and representative load tests
Under-sized target or query regression	Medium	High	Baseline capture, performance test, Query Store comparison, adjustable instance/storage shape
HA design exists but failover is untested	Medium	Critical	Application-aware failover exercise with measured recovery time
DR runbook cannot meet RTO/RPO	Medium	Critical	Restore/rebuild test, dependency validation, and executive exception

Risk	Likelihood	Impact	Treatment
Rollback becomes impractical after writes diverge	Medium	Critical	Time-bound rollback decision and reverse-sync design where justified
License assumptions are wrong	Medium	High	Formal licensing review before commitment

4. Illustrative cost model

The figures below demonstrate the structure of an assessment, not current AWS prices or a quotation. Real estimates require region-specific pricing, license terms, utilization data, storage growth, support plans, and architecture decisions.

Cost component	Monthly illustration	Sensitivity
RDS / EC2 database compute	\$18,000-\$31,000	Edition, instance family, Multi-AZ, uptime
Storage, IOPS, snapshots	\$4,500-\$9,500	Data volume, retention, I/O profile
Data transfer and DMS during migration	\$1,000-\$4,000	Duration, network path, change rate
Monitoring, backup and security services	\$1,500-\$3,500	Log volume and retention
Estimated steady-state range	\$24,000-\$44,000	Before support and taxes

Cost decisions to validate

- License Included versus Bring Your Own License eligibility and economics.
- Multi-AZ requirements by workload tier rather than uniformly.
- Right-sizing from measured CPU, memory, storage and I/O percentiles.
- Scheduling or archival for non-production and low-access workloads.

5. Prioritized 90-day roadmap

Window	Owner group	Deliverable	Decision
Days 0-30	Platform + DB	Evidence inventory, dependency map, RTO/RPO confirmation	Approve pilot scope and target candidates
Days 31-60	Cloud + security	Landing-zone controls, connectivity, DMS/SCT pilot	Approve migration approach and rollback design
Days 61-90	App + business	Pilot reconciliation, performance, restore test, cost update	Authorize first production wave or remediate

What a real client receives

- Evidence-backed current-state inventory and dependency register.
- Target-option decision matrix with technical, licensing, resilience, and cost tradeoffs.
- Migration-wave plan, test strategy, rollback criteria, and risk register.
- HA/DR readiness scorecard, recovery runbooks, failover test plan, and performance-baseline report.
- Executive readout and prioritized 90-day modernization roadmap.