



RDS SQL Server Migration & Cost Management Best Practices

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Agenda

- SQL Server Options on AWS
- Migration Approach
 - Discovery
 - Assessment
 - Optimization
 - Business Case
- Resources
- Summary
- Call to action
- Q&A

SQL Server Options on AWS

| | Amazon RDS for SQL Server | Amazon RDS Custom for SQL Server | SQL Server on Amazon EC2 |
|-------------------------------------|---|---|---|
| Versions Supported: | 2012, 2014, 2016, 2017, 2019 | 2019 | All* |
| Editions Supported: | Express, Web, Standard, Enterprise | Web, Standard, Enterprise | All** |
| High Availability: | AWS-managed | Self-managed; AlwaysOn; Mirroring, Log Shipping | Self-managed; AlwaysOn, Mirroring, Log Shipping |
| Encryption: | Encrypted Storage using AWS KMS (all editions); TDE Support | | |
| Authentication: | Windows & SQL authentication | | |
| Backups: | Managed automated backups | Managed automated backups / Maintenance plans & 3rd party tools | Maintenance plans & 3rd party tools |
| Maintenance: | Automatic software patching | Automatic software patching / Self-managed | Self-managed |
| Access to underlying OS/File System | Not Supported | Supported | Supported |



Amazon RDS Custom

Amazon RDS Custom is a managed database service for legacy, custom, and packaged applications that require access to the underlying operating system and database environment.



Amazon RDS Custom - Use Cases



Granular Control

Install custom drivers, enable features or applications that require elevated privileges

Example: Extended stored procedures, CLR, Resource governor, Linked server (various DB engines)



Lift and Shift Business Apps

Third-party or packaged applications with minimal changes

Example: Microsoft SharePoint, Microsoft Dynamics



Disaster Recovery

Setup DR from a self-managed environment

Example: SQL Server Always On Availability Groups, Replication

Migration Framework



Migration Approach

| | 1 Discovery | 2 Assessment | 3 Optimization | 4 Business Case | 5 Present |
|-------------------|--|---|---|--|--|
| Objectives | <ul style="list-style-type: none">Understand requirementsValidate RDS SQL Server can address customer needs | <ul style="list-style-type: none">Understand current footprint and MSFT licensing termsExecute assessment tools | <ul style="list-style-type: none">Right-size & consolidateMap SQL Server workload to RDS | <ul style="list-style-type: none">Develop migration business caseApply relevant credits based on workload eligibility | <ul style="list-style-type: none">Present business case to customer |
| Processes & Tools | <ul style="list-style-type: none">Discovery Guide Template<u>Immersion Day</u> | <ul style="list-style-type: none">Customer monitoring systems data collectionPerformance Monitor data collectionOLA ToolsAWS DMS Fleet Advisor | <ul style="list-style-type: none">AWS Database Springboard ProgramApply rightsizing and consolidation best practices | <ul style="list-style-type: none">AWS Database Springboard ProgramAWS incentive and credit programs | <ul style="list-style-type: none">Case Studies |

Discovery



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Discovery Process

Key Actions:

- Understand which data and applications workloads are suited for migrating to RDS SQL Server
- Identify underutilized servers that can be consolidated
- Identify overutilized servers that are stressing the on-premises environment
- Obtain details on SQL Server licensing, state of Enterprise Agreement (EA) , including renewal cycle
- Re-Host, Re-Platform, Re-Factor, or all of the above
- A proposed solution could include RDS, EC2, or a hybrid approach

Why consider migrating to RDS SQL Server?

- Upgrade from legacy SQL Server software versions
- Opportunity to downgrade from Enterprise to Standard and reduce costs
- Scalable size and capacity of databases
- IOPS requirement and throughput of the databases
- Target state architecture, auditing, and compliance needs
- Isolation and security
- Need for simple HA/DR Solution based on application criticality
- RTO, RPO, and SLA requirements for existing database workloads
- Simplifying operational overhead
- Easier to integrate with other cloud-native service for real-time performance monitoring (removes dependency on 3rd party services)

Discovery Resources

- Discovery questionnaire
- Immersion day



Amazon RDS for SQL Server Immersion Day

An Amazon RDS for SQL Server Immersion Day provides our customers with a deep dive into the Amazon RDS for SQL Server service and features through hands-on labs and PowerPoint lectures. It is specifically designed to help us accelerate a customer opportunity.

[View Details →](#)

| | Question | Answer |
|----|---|--------|
| 1 | Where is the current SQL Server workload running on, OnPrem, EC2, or another Cloud? | |
| 2 | Do you currently own any SQL Server licenses that you could bring to the Cloud? | |
| 3 | If the answer to #2 is yes, are you using perpetual license and paying software assurance? | |
| 4 | If the answer to #2 is yes, are you using subscription license and paying subscription cost? | |
| 5 | If the answer to #2 is yes, will you be open to consider using a managed service with License Included, assuming we could make the economics work? | |
| 6 | Do you see value of having AWS manage your SQL databases? | |
| 7 | If the answer to #6 is yes, then what are the primary motivations (e.g. cost saving, staff productivity, operational resilience, business agility)? | |
| 8 | What is the timeline for SQL Server migration to the Cloud? (Please input an estimated target date) | |
| 9 | What are the current SQL Server versions you are running? (Multiple choices) | |
| | Earlier than 2012 | |
| | 2012 | |
| | 2014 | |
| | 2016 | |
| | 2017 | |
| | 2019 | |
| 10 | What are the current SQL Server edition you are running? (Multiple choices) | |
| | Express | |
| | Developer | |
| | Web | |
| | Standard | |
| | Enterprise | |
| 11 | How many SQL Server instances are you currently running? (Please input an estimated number) | |
| 12 | How many SQL Server instances are you considering as part of this migration? (Please input an estimated number) | |
| | | |
| | L200 | |
| 1 | Do you need root-level access to the OS, or sysadmin access to the DB? | |
| 2 | If the answer to Question 1 is yes, why? (Please input the reason) | |
| 3 | Are your SQL Server instances leveraging any of the following? | |
| | Data compression (requires enterprise edition) | |
| | Online indexing (requires enterprise edition) | |
| | SQL Server Replication (not yet supported, but on the roadmap for RDS SQL Server) | |
| | Heterogeneous linked server (not yet supported, but on the roadmap for RDS SQL Server) | |
| | Database Log Shipping (not supported RDS SQL Server) | |
| | Extended stored procedure (not supported by RDS SQL Server) | |
| | FILESTREAM (not supported by RDS SQL Server) | |
| | Resource Governor (not supported by RDS SQL Server) | |
| | Service Broker endpoints (not supported by RDS SQL Server) | |

Assessment



Optimization & Licensing Assessment (OLA) Framework

Customer Challenges

Know the Baseline

- What do I have deployed?
- How much is being fully utilized?

Understand Costs

- We're midway in our Microsoft contract and cannot migrate
- We've already invested in Microsoft licenses

Build a Plan

- Which workload do I move first?
- Do we have the skill set to execute the plan?

OLA Customer Benefits

Gather Data

- Monitor utilization and collect data from on premises and 3rd party cloud providers
- We provide access to world class data collection and analytics tools

Create TCO

- Infrastructure Optimization : Recommendations built on actual utilization – “right size”
- Licensing Optimization: Based on go forward infrastructure
- Average potential **licensing cost reductions ~ 30-40%**

Accelerate Migrations

- Identify application dependencies
- Prioritize migrations based on results
- Qualify and secure AWS migration funding



Customer Example – Assessment (Source Instances)

| Tech Stack | VM Name | Allocated | | | Utilized | | |
|------------|-----------------|------------|------|--------|------------|------|--------|
| | | Storage-TB | vCPU | RAM GB | Storage-TB | vCPU | RAM GB |
| SQL Server | SQL Instance 1 | 0.02 | 2 | 4 | 0.02 | 2 | 2.4 |
| SQL Server | SQL Instance 2 | 0.03 | 4 | 32 | 0.02 | 3 | 19.2 |
| SQL Server | SQL Instance 3 | 0.03 | 4 | 32 | 0.02 | 3 | 19.2 |
| SQL Server | SQL Instance 4 | 0.03 | 4 | 16 | 0.02 | 3 | 9.6 |
| SQL Server | SQL Instance 5 | 0.05 | 4 | 16 | 0.03 | 3 | 9.6 |
| SQL Server | SQL Instance 6 | 0.05 | 4 | 16 | 0.04 | 3 | 9.6 |
| SQL Server | SQL Instance 7 | 0.09 | 2 | 8 | 0.06 | 2 | 4.8 |
| SQL Server | SQL Instance 8 | 0.13 | 8 | 24 | 0.09 | 5 | 14.4 |
| SQL Server | SQL Instance 9 | 0.46 | 4 | 16 | 0.32 | 3 | 9.6 |
| SQL Server | SQL Instance 10 | 0.49 | 4 | 16 | 0.34 | 3 | 9.6 |
| SQL Server | SQL Instance 11 | 0.89 | 4 | 16 | 0.62 | 3 | 9.6 |
| SQL Server | SQL Instance 12 | 0.89 | 4 | 16 | 0.62 | 3 | 9.6 |
| SQL Server | SQL Instance 13 | 1.58 | 2 | 16 | 1.11 | 2 | 9.6 |
| SQL Server | SQL Instance 14 | 1.94 | 4 | 8 | 1.36 | 3 | 4.8 |
| SQL Server | SQL Instance 15 | 1.98 | 8 | 36 | 1.39 | 5 | 21.6 |

Customer Scenario:

- 57 SQL Server Instances
- 572 vCPUs in Total
- Prod and non-prod instances using SQL Enterprise Edition
- Mix of SQL Server 2012 and 2016 Enterprise Edition

Optimization



Right-Sizing and Consolidation Considerations

Select optimal RDS instance type based on:

- vCPUs / Memory / Storage
- Version
- Optimal storage choices for GP2, GP3 (coming soon) vs. PIOPS
- TempDB considerations
- Database collation

Critical cost drivers:

- Enterprise vs. Standard
- SAZ vs. MAZ
- High Availability and Disaster Recovery requirements (RTO/RPO)
- Cross-region Automated Backups & PiTR
- Offload read workload through Read Replica

Right-Sizing and Consolidation Considerations

Best Practice Guidelines:

- Group Multiple Instances
- Group Similar Workload
- Leverage Memory Optimized Instances
- Target RDS Instance CPU utilization up to 65-70% (95th percentile)
- Leverage consolidation rationales and strategies
- Group SQL workloads by environment, security, features, and requirements

Mapping to optimal RDS instances based on vCPUs / Memory

| vCPU | Memory | RDS SQL Instance Type |
|------|--------|-----------------------|
| 2 | 8 | db.t3.large |
| 2 | 8 | db.r5.large |
| 2 | 8 | db.r5d.large |
| 2 | 16 | db.z1d.large |

| vCPU | Memory | RDS SQL Instance Type |
|------|--------|-----------------------|
| 8 | 64 | db.r5d.2xlarge |
| 8 | 64 | db.r5b.2xlarge |
| 8 | 64 | db.z1d.2xlarge |
| 8 | 244 | db.x1e.2xlarge |

| vCPU | Memory | RDS SQL Instance Type |
|------|--------|-----------------------|
| 16 | 128 | db.r5.4xlarge |
| 16 | 128 | db.r5b.4xlarge |
| 16 | 128 | db.r5d.4xlarge |
| 16 | 488 | db.x1e.4xlarge |

| vCPU | Memory | RDS SQL Instance Type |
|------|--------|-----------------------|
| 32 | 256 | db.r5.8xlarge |
| 32 | 256 | db.r5b.8xlarge |
| 32 | 256 | db.r5d.8xlarge |
| 32 | 976 | db.x1e.8xlarge |

Customer Example – Right-Sizing / Consolidation

Source Instances

| Tech Stack | VM Name | Allocated | | | Utilized | | |
|------------|-----------------|------------|------|--------|------------|------|--------|
| | | Storage-TB | vCPU | RAM GB | Storage-TB | vCPU | RAM GB |
| SQL Server | SQL Instance 1 | 0.02 | 2 | 4 | 0.02 | 2 | 2.4 |
| SQL Server | SQL Instance 2 | 0.03 | 4 | 32 | 0.02 | 3 | 19.2 |
| SQL Server | SQL Instance 3 | 0.03 | 4 | 32 | 0.02 | 3 | 19.2 |
| SQL Server | SQL Instance 4 | 0.03 | 4 | 16 | 0.02 | 3 | 9.6 |
| SQL Server | SQL Instance 5 | 0.05 | 4 | 16 | 0.03 | 3 | 9.6 |
| SQL Server | SQL Instance 6 | 0.05 | 4 | 16 | 0.04 | 3 | 9.6 |
| SQL Server | SQL Instance 7 | 0.09 | 2 | 8 | 0.06 | 2 | 4.8 |
| SQL Server | SQL Instance 8 | 0.13 | 8 | 24 | 0.09 | 5 | 14.4 |
| SQL Server | SQL Instance 9 | 0.46 | 4 | 16 | 0.32 | 3 | 9.6 |
| SQL Server | SQL Instance 10 | 0.49 | 4 | 16 | 0.34 | 3 | 9.6 |
| SQL Server | SQL Instance 11 | 0.89 | 4 | 16 | 0.62 | 3 | 9.6 |
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| SQL Server | SQL Instance 13 | 1.58 | 2 | 16 | 1.11 | 2 | 9.6 |
| SQL Server | SQL Instance 14 | 1.94 | 4 | 8 | 1.36 | 3 | 4.8 |
| SQL Server | SQL Instance 15 | 1.98 | 8 | 36 | 1.39 | 5 | 21.6 |

| Target RDS Specs | | | |
|------------------|-----|-------------|----------------|
| vCPU | RAM | Storage(TB) | Instance Types |
| 8 | 64 | 3 | db.r5.2xlarge |
| 8 | 64 | 4 | db.r5.2xlarge |
| 8 | 64 | 2 | db.r5.2xlarge |
| 8 | 64 | 3 | db.r5.2xlarge |

- Reduced vCPUs from 572 to 314 in production
- Right-Sizing developer instances from Enterprise to Standard
- Reduced production workload from 15 to 4 instances

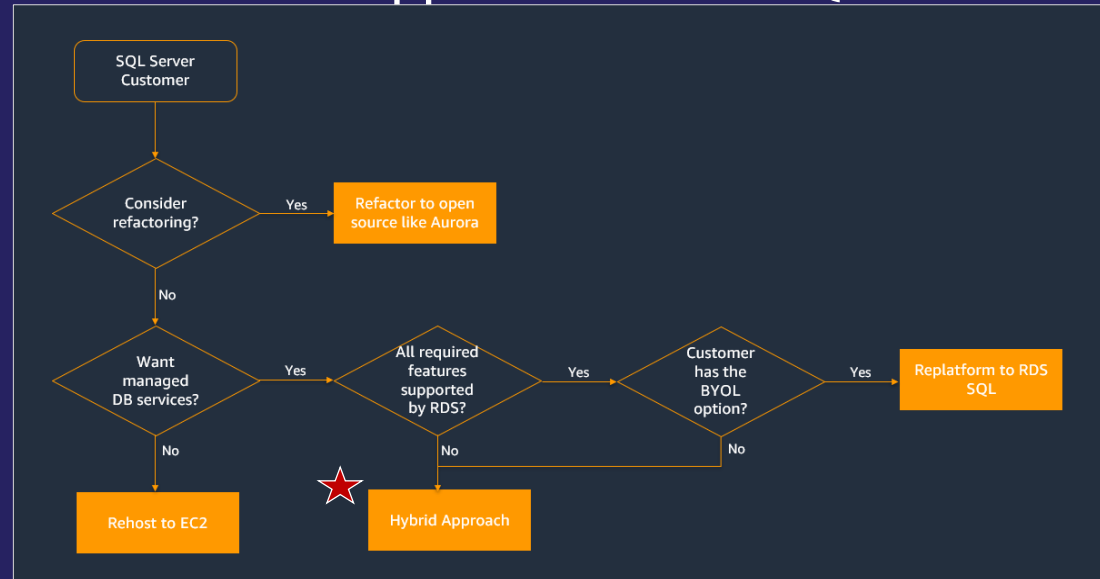
Optimization Scenario 1: EC2 or On-Premises to RDS



Hybrid (RDS and EC2) Approach: Critical for Large Migration

Consider hybrid approach to migrate mission critical databases to RDS when:

- You have a Large Migration from on-Premises or other cloud provider
- RDS SQL Server does not support part of the workload (COTS)
- You have a Tiered approach that requires customer to move out of data center
- Legacy applications require older SQL Server versions
- Developer Edition licenses are not supported in RDS SQL Server



EC2 vs RDS Core-to-Core Scenario: Over-Provisioned

| Scenario | | Estimated Monthly Cost (USD) | | Estimated Annual Cost (USD) | | EDP | | EC2 | RDS |
|---------------------------------------|--|--|--------------------------------------|-----------------------------|--------------------|-------------------|----------------------|-----|-----|
| EC2 - All Environments | | \$ | 49,939.67 | \$ | 599,275.98 | MAP credits | | 0% | 0% |
| RDS - All Environments | | \$ | 68,446.43 | \$ | 821,357.13 | Other one-time cr | | 25% | 35% |
| Estimated Savings | | \$ | (18,506.76) | \$ | (222,081.15) | | | 0% | 10% |
| | | | | | | | | | |
| Scenario | | | | | | | | | |
| EC2 - All Environments | | | | | | | | | |
| Business Use | Environment | Server Role | Instance Type | Pricing Model | Monthly Cost (USD) | Counts (USD) | Estimated Cost (USD) | | |
| (266 cores) | Staging | SQL Server Staging DE - EC2 Primary Server (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 149.65 | \$ 37.41 | \$ 112.24 | | |
| | | Storage (500 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 50.00 | \$ 12.50 | \$ 37.50 | | |
| | Production | SQL Server Production EE - EC2 Primary Server (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 149.65 | \$ 37.41 | \$ 112.24 | | |
| | | Storage (500 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 50.00 | \$ 12.50 | \$ 37.50 | | |
| | | SQL Server Production EE - EC2 Primary Server (05) | m5d.2xlarge (08 cores / 032 GB RAM) | On-Demand | \$ 2,993.00 | \$ 748.25 | \$ 2,244.75 | | |
| | | Storage (1,024 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 512.00 | \$ 128.00 | \$ 384.00 | | |
| | | SQL Server Production EE - EC2 Primary Server (02) | m5d.4xlarge (16 cores / 064 GB RAM) | On-Demand | \$ 2,394.40 | \$ 598.60 | \$ 1,795.80 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 409.60 | \$ 102.40 | \$ 307.20 | | |
| | | SQL Server Production EE - EC2 Primary Server (02) | z1d.6xlarge (24 cores / 192 GB RAM) | On-Demand | \$ 4,870.56 | \$ 1,217.64 | \$ 3,652.92 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 409.60 | \$ 102.40 | \$ 307.20 | | |
| | | SQL Server Production EE - EC2 Secondary Server (01) | z1d.12xlarge (48 cores / 384 GB RAM) | On-Demand | \$ 4,870.56 | \$ 1,217.64 | \$ 3,652.92 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 204.80 | \$ 51.20 | \$ 153.60 | | |
| | | SQL Server Production EE - EC2 Primary Server (01) | m5d.24xlarge (96 cores / 384 GB RAM) | On-Demand | \$ 7,183.20 | \$ 1,795.80 | \$ 5,387.40 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 204.80 | \$ 51.20 | \$ 153.60 | | |
| | Total EC2 Compute+Storage Costs | | | | | | \$ 18,338.87 | | |
| | SQL Server Enterprise Edition - Software Assurance (266 cores) | | | | \$ 31,600.80 | \$ - | \$ 31,600.80 | | |
| | Operational DBA tasks | | | | \$ - | \$ - | \$ - | | |
| Total EC2 - All Environments Scenario | | | | \$ 56,052.62 | \$ 6,112.96 | \$ 49,939.67 | | | |
| Scenario | | | | | | | | | |
| RDS - All Environments | | | | | | | | | |
| Business Use | Environment | Server Role | Instance Type | Pricing Model | Monthly Cost (USD) | Counts (USD) | Estimated Cost (USD) | | |
| Activation | Staging | SQL Server Staging SE - RDS Primary Single-AZ Instance (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 724.89 | \$ 326.20 | \$ 398.69 | | |
| | | Storage (500 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 57.50 | \$ 25.88 | \$ 31.63 | | |
| | Production | SQL Server Production SE - RDS Primary Single-AZ Instance (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 724.89 | \$ 326.20 | \$ 398.69 | | |
| | | Storage (500 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 57.50 | \$ 25.88 | \$ 31.63 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (05) | m5d.2xlarge (08 cores / 032 GB RAM) | On-Demand | \$ 17,428.75 | \$ 7,842.94 | \$ 9,585.81 | | |
| | | Storage (1,024 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 588.80 | \$ 264.96 | \$ 323.84 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (02) | m5d.4xlarge (16 cores / 064 GB RAM) | On-Demand | \$ 13,943.00 | \$ 6,274.35 | \$ 7,668.65 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 1,177.60 | \$ 529.92 | \$ 647.68 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (02) | z1d.6xlarge (24 cores / 192 GB RAM) | On-Demand | \$ 23,414.02 | \$ 10,536.31 | \$ 12,877.71 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 471.04 | \$ 211.97 | \$ 259.07 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (01) | z1d.12xlarge (48 cores / 384 GB RAM) | On-Demand | \$ 23,414.02 | \$ 10,536.31 | \$ 12,877.71 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 235.52 | \$ 105.98 | \$ 129.54 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (01) | m5d.24xlarge (96 cores / 384 GB RAM) | On-Demand | \$ 41,975.00 | \$ 18,888.75 | \$ 23,086.25 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 235.52 | \$ 105.98 | \$ 129.54 | | |
| | Total RDS Compute+Storage Costs | | | | | | \$ 68,446.43 | | |
| | Operational DBA tasks | | | | \$ - | \$ - | \$ - | | |
| Total RDS - All Environments Scenario | | | | \$ - | \$ - | \$ 68,446.43 | | | |
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EC2 vs RDS Right-Sizing Scenario: Optimized

| Scenario | | Estimated Monthly Cost (USD) | | Estimated Annual Cost (USD) | | EDP | | EC2 | RDS |
|--|---------------------------------|--|--------------------------------------|-----------------------------|--------------------|------------------------|-----------------------|-----------|-----------|
| EC2 - All Environments | | \$ | 49,939.67 | \$ | 599,275.98 | MAP credits | | 0% | 0% |
| RDS - All Environments | | \$ | 44,009.13 | \$ | 528,109.56 | Other one-time credits | | 25% | 35% |
| Estimated Savings | | \$ | 5,930.53 12% | \$ | 71,166.42 12% | | | 0% | 10% |
| Scenario | | Estimated Monthly Cost (USD) | | Estimated Annual Cost (USD) | | | | EC2 | RDS |
| EC2 - All Environments | | | | | | | | | |
| Business Use | Environment | Server Role | Instance Type | Pricing Model | Monthly Cost (USD) | Discounts (USD) | Discounted Cost (USD) | | |
| (266 cores) | Staging | SQL Server Staging DE - EC2 Primary Server (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 149.65 | \$ 37.41 | \$ 112.24 | | |
| | | Storage (500 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 50.00 | \$ 12.50 | \$ 37.50 | | |
| | Production | SQL Server Production EE - EC2 Primary Server (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 149.65 | \$ 37.41 | \$ 112.24 | | |
| | | Storage (500 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 50.00 | \$ 12.50 | \$ 37.50 | | |
| | | SQL Server Production EE - EC2 Primary Server (05) | m5d.2xlarge (08 cores / 032 GB RAM) | On-Demand | \$ 2,993.00 | \$ 748.25 | \$ 2,244.75 | | |
| | | Storage (1,024 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 512.00 | \$ 128.00 | \$ 384.00 | | |
| | | SQL Server Production EE - EC2 Primary Server (02) | m5d.4xlarge (16 cores / 064 GB RAM) | On-Demand | \$ 2,394.40 | \$ 598.60 | \$ 1,795.80 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 409.60 | \$ 102.40 | \$ 307.20 | | |
| | | SQL Server Production EE - EC2 Primary Server (02) | z1d.6xlarge (24 cores / 192 GB RAM) | On-Demand | \$ 4,870.56 | \$ 1,217.64 | \$ 3,652.92 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 409.60 | \$ 102.40 | \$ 307.20 | | |
| | | SQL Server Production EE - EC2 Secondary Server (01) | z1d.12xlarge (48 cores / 384 GB RAM) | On-Demand | \$ 4,870.56 | \$ 1,217.64 | \$ 3,652.92 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 204.80 | \$ 51.20 | \$ 153.60 | | |
| | | SQL Server Production EE - EC2 Primary Server (01) | m5d.24xlarge (96 cores / 384 GB RAM) | On-Demand | \$ 7,183.20 | \$ 1,795.80 | \$ 5,387.40 | | |
| | | Storage (2,148 GB / 2 EBS Volumes) | GP2 | On-Demand | \$ 204.80 | \$ 51.20 | \$ 153.60 | | |
| | Total EC2 Compute+Storage Costs | | | | | | \$ | 18,338.87 | |
| SQL Server Enterprise Edition - Software Assurance (266 cores) | | | | | | \$ | 31,600.80 | \$ | 31,600.80 |
| Operational DBA tasks | | | | | | \$ | - | \$ | - |
| Total EC2 - All Environments Scenario | | | | | | \$ | 56,052.62 | \$ | 49,939.67 |
| Scenario | | Estimated Monthly Cost (USD) | | Estimated Annual Cost (USD) | | | | EC2 | RDS |
| RDS - All Environments | | | | | | | | | |
| Business Use | Environment | Server Role | Instance Type | Pricing Model | Monthly Cost (USD) | Discounts (USD) * | Discounted Cost (USD) | | |
| Activation | Staging | SQL Server Staging SE - RDS Primary Single-AZ Instance (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 724.89 | \$ 326.20 | \$ 398.69 | | |
| | | Storage (500 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 57.50 | \$ 25.88 | \$ 31.63 | | |
| | Production | SQL Server Production SE - RDS Primary Single-AZ Instance (01) | m5d.large (02 cores / 008 GB RAM) | On-Demand | \$ 724.89 | \$ 326.20 | \$ 398.69 | | |
| | | Storage (500 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 57.50 | \$ 25.88 | \$ 31.63 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (05) | x1e.xlarge (04 cores / 122 GB RAM) | On-Demand | \$ 11,946.45 | \$ 5,375.90 | \$ 6,570.55 | | |
| | | Storage (1,024 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 588.80 | \$ 264.96 | \$ 323.84 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (02) | x1e.2xlarge (08 cores / 244 GB RAM) | On-Demand | \$ 9,558.62 | \$ 4,301.38 | \$ 5,257.24 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 1,177.60 | \$ 529.92 | \$ 647.68 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (02) | x1e.4xlarge (16 cores / 192 GB RAM) | On-Demand | \$ 19,117.24 | \$ 8,602.76 | \$ 10,514.48 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 471.04 | \$ 211.97 | \$ 259.07 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (01) | z1d.6xlarge (24 cores / 192 GB RAM) | On-Demand | \$ 11,707.01 | \$ 5,268.15 | \$ 6,438.86 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 235.52 | \$ 105.98 | \$ 129.54 | | |
| | | SQL Server Production EE - RDS Primary Single-AZ Instance (01) | z1d.12xlarge (48 cores / 384 GB RAM) | On-Demand | \$ 23,414.02 | \$ 10,536.31 | \$ 12,877.71 | | |
| | | Storage (2,048 GB / 1 EBS Volume) | GP2 | On-Demand | \$ 235.52 | \$ 105.98 | \$ 129.54 | | |
| | Total RDS Compute+Storage Costs | | | | | | \$ | 44,009.13 | |
| Operational DBA tasks | | | | | | \$ | - | \$ | - |
| Total RDS - All Environments Scenario | | | | | | \$ | 80,000.00 | \$ | 44,009.13 |
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Customer Example Recap – Hybrid (RDS+EC2) Approach

- 800 On-Premises SQL Server Databases
- Right-Sizing and grouping based on customer requirements
- 150 Databases migrated to 3 Amazon RDS SQL Server Instances
- All other SQL Server Databases migrated to EC2

Optimization Scenario 2:

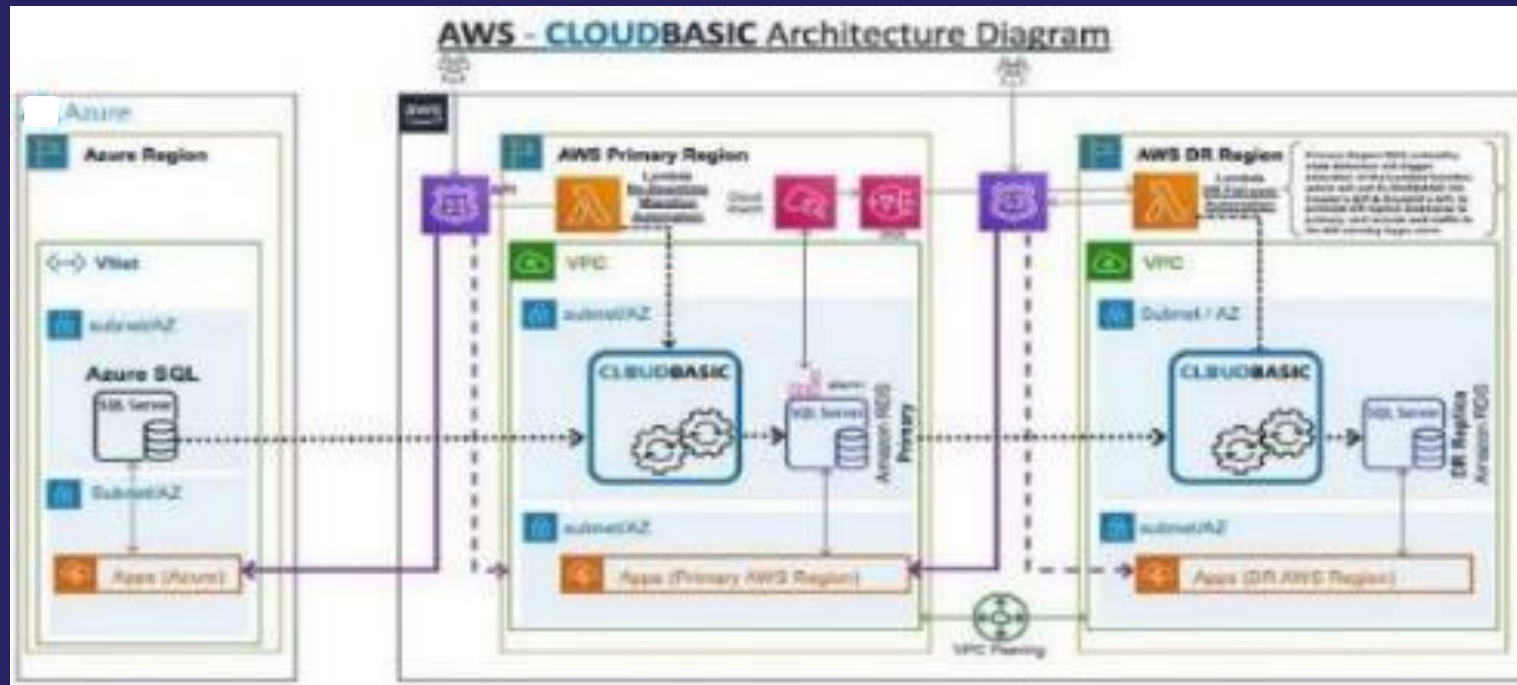
Azure to RDS



Azure SQL to RDS SQL Server Migration

Assessment will require in-depth analysis because of the complexity of Azure SQL services

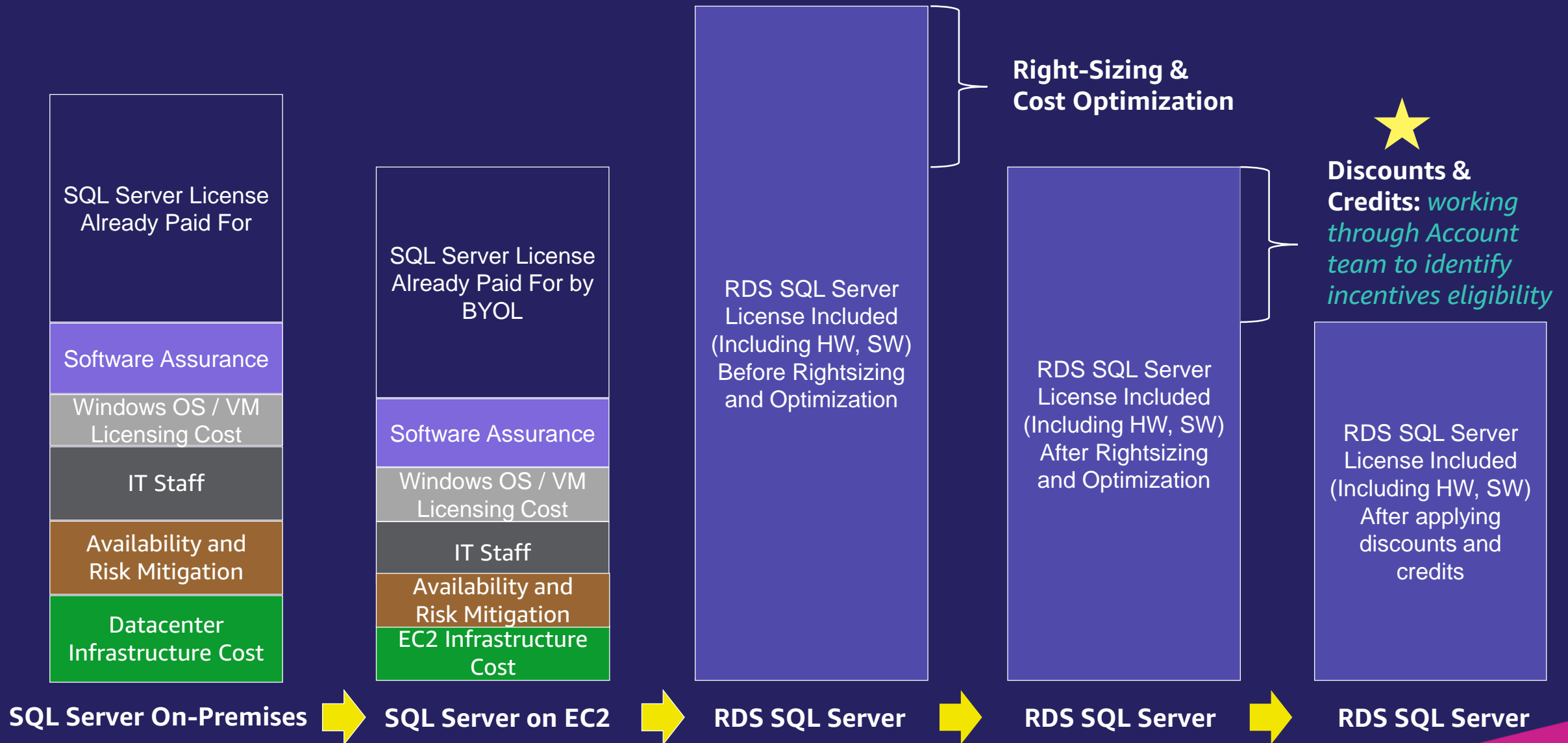
- Work with your AWS account teams to leverage AWS tools on how to map Azure SQL services (IaaS) to RDS SQL Server
- Customer could leverage CloudBasic to migrate data from Azure SQL to RDS
- Need to determine the type of **Azure managed database service offering**



Business Case



TCO Analysis



Migration Acceleration Program (MAP)

All workloads

Move to Managed DB

+10% Of incremental
ARR from
migration to
managed DB

Database Freedom

+25% Of incremental
ARR from
modernized DB

UP
TO **25%** Of incremental
ARR¹

¹ MAP benefit multiplier can be 10%, 20%, or 25%, depending on whether the incentives are committed upfront or distributed during migration

² Available if an Optimization and Licensing Assessment is completed



Resources



RDS for SQL Server Resources

- [Public Site](#)
- [Pricing](#)
- [FAQ](#)
- [User Guide](#)
- [Best Practices for Running RDS SQL Server](#)
- [Best storage practices for running production workloads on hosted databases with Amazon RDS or Amazon EC2](#)

Summary

1

Discover

Understand requirements and validate RDS SQL Server feasibility. Consider a hybrid approach (RDS + EC2).

2

Assess

Understand current footprint and Microsoft licensing terms. Leverage automated assessment tools.

3

Optimize

Right-size and consolidate. Map appropriate SQL Server workloads to RDS. Leverage Database Springboard Program and other resources.

4

Business Case

Develop a business case including applying qualifying credits and financial incentives.

Call to Action

- Reach out to your account team to conduct a workshop including a deep dive into migration best practices and workload/license assessment
- Consider a PoC to validate your use case
- Identify workloads that may be a fit for RDS SQL Server or RDS Custom for SQL Server

Q & A





Thank you!