

Business Case Summary

Example Corp.

Migration Evaluator

Mar 16, 2021



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Overview

Scope

- 1,220 Servers instances observed
 - 1123 virtualized servers
 - 97 bare metal servers
- 371.4 TB of attached storage

Method

- Agentless Collector

Collection Period

- Oct 15 to Oct 26, 2020

Licensing

- SQL Tagging
 - Tagging completed via auto-discovery from Migration Evaluator

Business Data

- Environment Groupings
 - 100% servers classified by Environment
- Application Groupings
 - 60% servers classified by Application/Role

Executive Summary

The **15.3%** zombie server count offers a good opportunity for savings in this assessment. **827** servers had peak CPU utilization under **20%** over the **12** days we collected, these are great candidates for right-sizing onto more efficient EC2 instances to help eliminate over-provisioning.

	On-Premises <i>(annual)</i>	AWS <i>(annual)</i>
Compute	\$1,529,586	\$1,413,747
Storage	\$727,917	\$343,357
Total	\$2,252,503	\$1,757,104
22% Savings via Migration Evaluator Right-Sizing only		

Modeling

- 3 YR Standard RI/Instance Savings; All Upfront payment
- Storage modeled to EBS
- SQL Licensing costs excluded
- Costs in USD
- US East (N. Virginia)

Potential Refinement

- Further confirmation on license mobility for SQL servers will allow for more accuracy in AWS modeling
- Using Environment tagging to target servers for On-Demand modeling (dev/test workloads)

Data Insights

Overview of the percentage of time servers were used, environment insights & licensing details.

OS INSTANCE CLASSIFICATION ...



Environment & Licensing	
Zombies	15% (305 servers removed from future state modeling)
SQL Enterprise	59
SQL Standard	21
Windows Servers	647
Linux Servers	573

- **In Use** – Estimated percentage of time the servers delivered business value by being on and having their CPU utilization above 5% or above 300 MHz for VMware VMs.
- **Idle** – Estimated percentage of time the servers were on but did not deliver business value by having their CPU utilization below 5% or below 300 MHz for VMware VMs.
- **Unclassified** – Percentage of time servers were on but had no metrics available to determine if they were idle or in use.
- **Zombie** – Percentage of servers that were expected to deliver business value, but did not. These are candidates for retiring and not migrating to AWS.
- **Expected Idle** – Percentage of servers expected to not be in use but deliver business value in different ways. Examples include templates or disaster recovery.



On-Premises Annual Cost Estimation

Included in On-Premises Cost Estimation

- Server hardware based on AWS benchmarks
- Attached storage
- Power
- Software licensing: OS (if applicable)
- MS SQL Server licensing (if applicable)

Excluded in On-Premises Cost Estimation

- Employee costs
- Migration tools
- Professional services
- Shared storage
- Software outside of OS and SQL
- Networking

ON-PREMISES INVENTORY WITH ESTIMATED COSTS		
		\$3,485,103.03 / Year
	1,220 OS Instances with complete provisioning 0 OS Instances with incomplete provisioning	\$2,757,185.85 \$0.00
	371,440 GB of Storage with complete provisioning 0 GB of Storage with incomplete provisioning	\$727,917.19 \$0.00





Currency is in USD, annually. Migration Evaluator benchmark costs were used for calculating on-premises estimations. OS and SQL licensing can be configured to customer actuals. On-premises licensed SQL cores are counted at the operating system level verses host @ \$3,300 per core; operating system @ \$300 per OS.

3 YR Standard RI/Instance Savings Plan

(Windows Server & SQL Server Included)

AWS Modeling Parameters

Location:	US East (N. Virginia)
Instances:	<ul style="list-style-type: none">• 3 Year• Standard Reserved• All Upfront payment
Modeling:	<ul style="list-style-type: none">• Right Sizing
Licensing:	<ul style="list-style-type: none">• Windows licenses included• SQL licenses included
Currency:	<ul style="list-style-type: none">• USD annually
Savings Plan Rate Estimate:	<ul style="list-style-type: none">• \$321.00 Commit / Hour








Right Sized ?	 \$3,155,326.11 / Year
	Upfront Monthly
 1,220 Matched to Compute Instances	\$8,435,906.00 \$0.00
 371,440 GB Matched	\$0.00 \$28,613.12
 376 Cores of AWS Provided MS SQL Enterprise	--
182 Cores of AWS Provided MS SQL Standard	--

3 YR Standard RI/Instance Savings Plan

(Windows Server Included, SQL Server BYOL)

AWS Modeling Parameters

Location:	US East (N. Virginia)
Instances:	<ul style="list-style-type: none">• 3 Year• Standard Reserved• All Upfront payment
Modeling:	<ul style="list-style-type: none">• Right Sizing
Licensing:	<ul style="list-style-type: none">• Windows licenses included• BYOL SQL Server @ \$3300/core (Ent) and \$1100/core (Std)
Currency:	<ul style="list-style-type: none">• USD annually
Savings Plan Rate Estimate:	<ul style="list-style-type: none">• \$161.39 Commit / Hour





Right Sized ?	 \$2,997,904.44 /Year 
	Upfront Monthly
 1,220 Matched to Compute Instances	\$4,241,241.00 \$0.00 
 371,440 GB Matched	\$0.00 \$28,613.12 
 316 Cores of BYOL MS SQL Enterprise	-- -- \$86,900.00
180 Cores of BYOL MS SQL Standard	-- -- \$16,500.00
188 Cores disabled	-- -- -- --

3 YR Dedicated Host Model

(Windows and SQL Server BYOL)

AWS Modeling Parameters

Location:	US East (N. Virginia)
Instances:	<ul style="list-style-type: none"> • 3 Year • Standard Reserved • All Upfront payment
Modeling:	<ul style="list-style-type: none"> • Right Sizing
Modeled to Dedicated Host:	<ul style="list-style-type: none"> • Windows Server 2008, 2012, 2016, 2019 • SQL Server Std & Ent
Dedicated Host Licensing:	<ul style="list-style-type: none"> • BYOL Windows Server @ \$100/core • BYOL SQL Server @ \$3300/core (Ent) and \$1100/core (Std)
Modeled to Compute Instances (EC2)	<ul style="list-style-type: none"> • Any non-Server Windows (Windows 7, 10, Vista) • Any non-Windows (Linux, RHEL)
EC2 Licensing:	<ul style="list-style-type: none"> • Windows licenses included
Currency:	<ul style="list-style-type: none"> • USD annually
Savings Plan Rate Estimate:	<ul style="list-style-type: none"> • \$112.99 Commit / Hour

Right Sized ?		\$3,171,975.77 /Year	
		Upfront	Monthly
	535 Matched to Dedicated Hosts	---	---
	685 Matched to Compute Instances	\$1,491,458.00	\$0.00
	28 Dedicated Host Servers	\$1,477,997.00	\$0.00
	280 Unallocated Virtual Cores	---	---
	371,440 GB Matched	\$0.00	\$28,613.12
	468 Cores of BYOL MS SQL Enterprise	---	\$128,700.00
	176 Cores of BYOL MS SQL Standard	---	\$16,133.33
	564 Cores of BYOL Windows Datacenter 2019	---	\$4,700.00
	444 Cores of BYOL Windows Datacenter 2016	---	\$3,700.00
	2 Servers of BYOL Windows Datacenter 2012	---	\$0.00
	3 Servers of BYOL Windows Datacenter 2008	---	\$0.00
	72 Cores disabled	---	---

While this doesn't take into account the cost of change, migration tools, and services, the intent of our software is to provide a directional business case based on your actual data.

Blended Model – RIs & On-Demand

(SQL Server BYOL)

AWS Modeling Parameters

Location:	US East (N. Virginia)
Instances:	<ul style="list-style-type: none"> • 3 Year AURI (Prod) • 3 Year AURI – DH (Prod SQL) • On-Demand (Non-Prod)
Modeling:	<ul style="list-style-type: none"> • Right Sizing
Licensing:	<ul style="list-style-type: none"> • Windows licenses included • BYOL SQL Server @ \$3300/core (Ent) and \$1100/core (Std)
Currency:	<ul style="list-style-type: none"> • USD annually

	On-Prem Estimate	On Demand 8 Hours / Day	3 Year AURI – DH / Shared
Non-Production	\$1,073,340	\$262,395	
Production	\$2,411,763		\$436,567
Total	\$3,485,103		\$698,962
80% Savings			

Seamlessly Migrate with VMware Cloud™ on AWS

Reduce migration effort from months to weeks

With **VMware Cloud on AWS**, you can seamlessly extend, migrate, and manage your VMware workloads using AWS' global infrastructure, while keeping the same VMware tools, processes, and governance across your on-premises and cloud environments. There is no new hardware to deploy, no refactoring, and no retraining or skill acquisition needed. You can leverage your existing investments and achieve better scalability, flexibility, and agility. According to a [2021 IDC study](#), VMware Cloud on AWS customers achieve a 43% reduction in total cost of operations and can expect a 479% 5-year ROI.

Parameter	VMware Cloud on AWS
Compute	19 Hosts, 2 Clusters
Storage	Included
Bring Your Own SQL Licenses	144
Annual Cost	\$692,653.00†

† Directional cost estimate based on Migration Evaluator collection. VMware Cloud on AWS can collect further data to optimize.

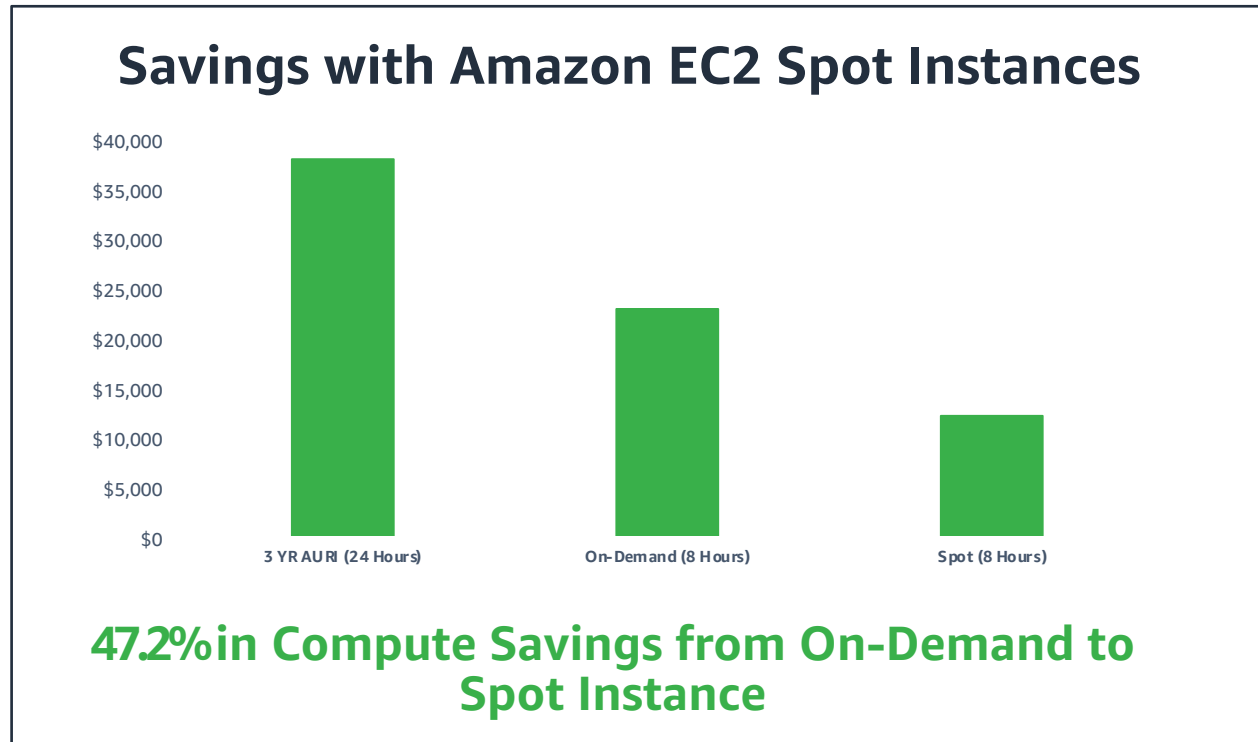
For the 1241 servers we assessed across your entire portfolio, 755 are candidates for VMware Cloud on AWS, as they were active/in-use and running on VMware on-premises. This estimate is based on right-sized compute provisioning discovered through the Migration Evaluator assessment. Storage has been modeled based on current provisioning; reducing storage, and exploring alternative storage solutions will decrease the projected spend.

Modeling

- Oversubscribed CPU up to 1.5x on VMC hosts
- BYOL SQL Licensing physical cores
- Scope: any active/in-use servers that are currently running on VMware on-premises
- 3-year upfront payment
- Costs in USD
- Region – us-east-1
- Host matches: i3.metal & i3en.metal

If you would like to explore this option further based on your specific use case, please contact our VMware Cloud on AWS experts [here](#) and they will follow up with you.

Reduce Costs Further with Amazon EC2 Spot Instances



For the 1220 servers we assessed across your entire portfolio, 79 are candidates for running on Amazon EC2 Spot Instances as they were:

- Non-Production
- Running RHEL or Linux
- Not running MS SQL Server Enterprise or Standard

For these 79 servers, switching to Amazon EC2 Spot Instances would save you 47.2% over running On-Demand and 68.2% over a 3 Year Reserved Instance.

Amazon EC2 Spot Instances are spare Amazon EC2 capacity available for up to a 90% discount compared to On-Demand prices. If AWS needs the capacity back, the instance will be terminated following a 2-minute warning. On average, instances are interrupted <5% of the time. Check out the [Spot Instance Advisor](#) page for interruption rates by instance type and region.

Common Amazon EC2 Spot workloads include:

- Containerized workloads (e.g. Kubernetes)
- Big data / analytics (e.g. Hadoop, Apache Spark)
- High performance computing
- Stateless applications
- Test and Development

Learn how [Skyscanner](#) utilized Amazon EC2 Spot Instances to cost effectively migrate their Kubernetes clusters out of their data centers to AWS.

If you would like to explore this option further, please let us know and we will engage you with one of our experts from our Amazon EC2 Spot Instances Team.

Please note, Spot pricing is based on averages in US East (N. Virginia) for the previous 30 day period.

Cloud-Based Disaster Recovery with CloudEndure

Achieve steadfast reliability and availability based on top-tier recovery objectives by using **CloudEndure Disaster Recovery** as a simple and flexible Disaster Recovery Service. This service continuously replicates your machines (including operating system, system state configuration, databases, applications, and files) into a low-cost staging area in your target AWS account and preferred region. By doing so, this reduces the need for duplicate infrastructure and licensing. In the case of a disaster, you can instruct CloudEndure Disaster Recovery to automatically launch thousands of your machines in their fully provisioned state in minutes.

CloudEndure Pricing	Monthly
Monthly CloudEndure DR license cost	\$18,702.60

AWS EC2/EBS estimated costs for staging area (per month)	Monthly	Amount of Data (GB)
(GP2) EBS storage	\$15,456.00	\$154,560.00
(Standard) EBS storage	\$4,765.00	\$95,300.00
(st1) EBS storage	\$1,198.08	\$26,624.00
Incremental Snapshots storage	\$15,206.62	\$304,132.40
Replication server(s) - (with RI discounts)	\$660.79	
Replication server(s) - (On Demand)	\$943.99	

Monthly TCO	\$56,272.29
Annual Consumption	\$675,267.45

Modeling

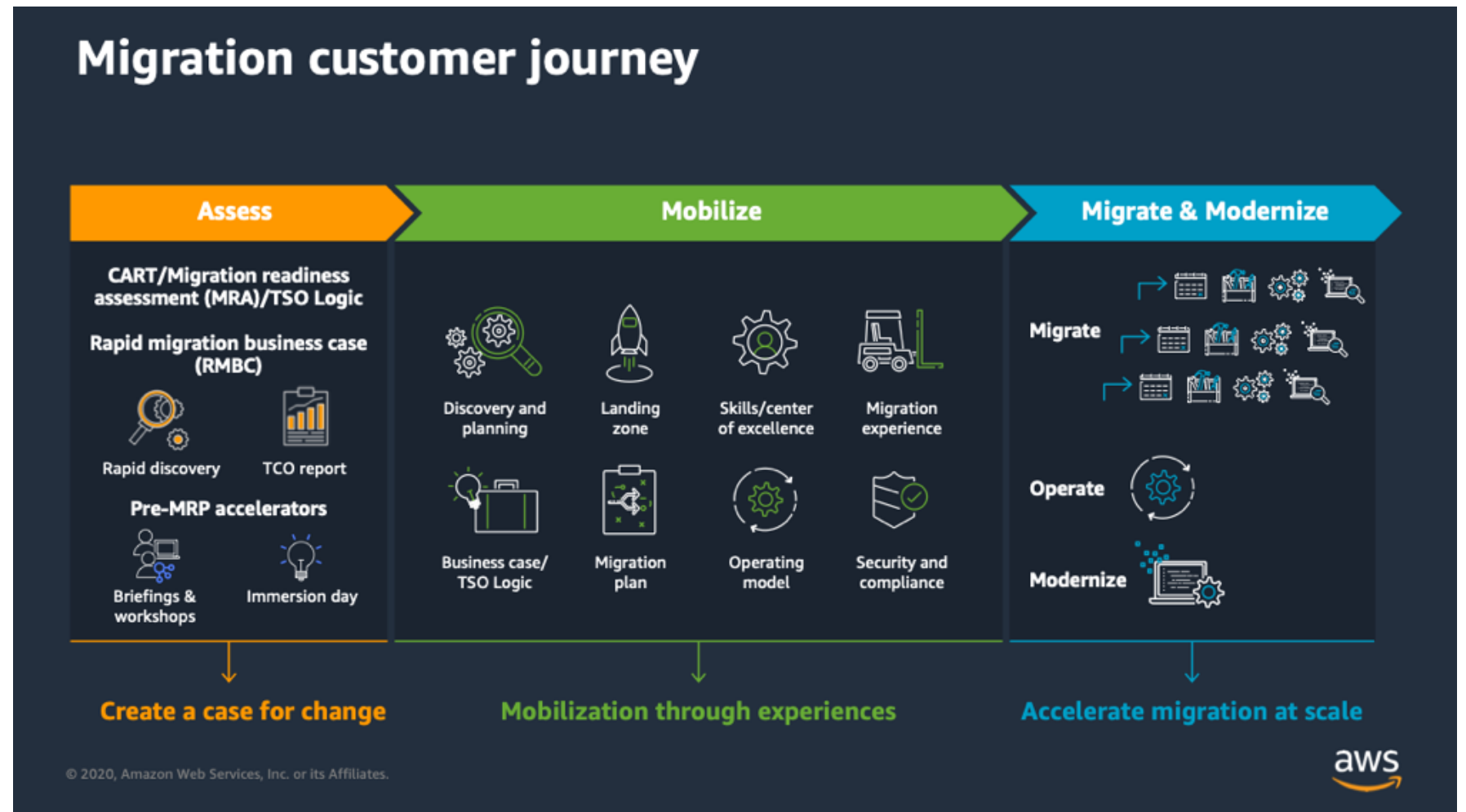
Number of replicated servers	915
Storage capacity in GB	276,632
Total number of disks	915
Estimated Replication Servers	61

- Region – us-east-1
- Candidates: All non-DR workloads
- Monthly change rate assumed is: 10%.
- Costs in USD

If you would like to explore this option further, please let us know and we will engage you with one of our experts from our CloudEndure team.

Next Steps

- Work with your AWS Account team to determine your next best step
- Learn about the other services AWS provides to accelerate your migration to the cloud:
<https://aws.amazon.com/products/migration-and-transfer/>



Thank You!

