



AWS Total Cost of Ownership (TCO) Calculator

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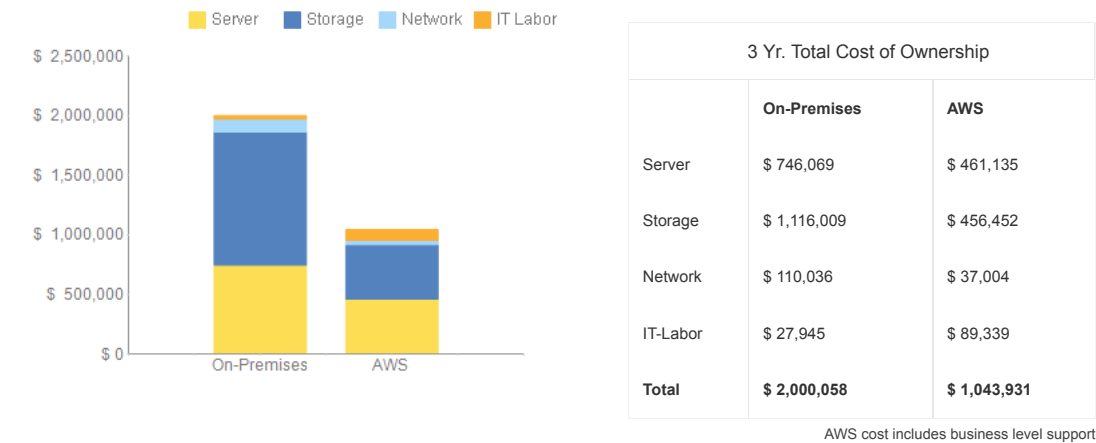
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On-Premises vs. AWS Summary

You could save **48%** a year by moving your infrastructure to AWS.
Your three year total savings would be **\$ 956,128**.

3 Years Cost Breakdown



Environment Details

Your On-Premises environment

Environment : Virtual					
# of VMs	vCPU	RAM (GB)	OS	Avg. Utilization	Optimize by
100	4	16	Linux	100%	RAM
10	16	64	Linux	100%	RAM

Storage (TB)		
SAN	NAS	Object
100	100	1,000

Your AWS environment : US East (N. Virginia)

Closest AWS Instances					
# Instances	Instance	vCPU	RAM (GiB)	Optimize by	Instance type
100	m4.xlarge	4	16	RAM	3 Yr. Partial Upfront RI
10	db.m4.4xlarge	16	64	RAM	3 Yr. Partial Upfront RI

EC2 Instance Mapping Criteria	
Optimize by	Description
CPU	Option matches by VCPU count and then finds the lowest priced EC2 instance from the available choices



Storage IO

Option matches by I/O requirements and then finds the lowest priced EC2 instance from the available choices

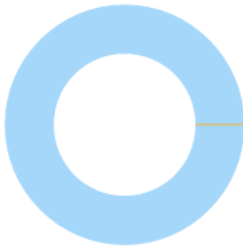
Cost Breakdown

Your On-Premises Cost Breakdown
Server



Hardware : \$ 345,073 [46%]
Software : \$ 247,708 [33%]
Overhead : \$ 153,288 [21%]

Your AWS Cost Breakdown
Compute EC2



3 Yr Partial Upfront RI : \$ 450,694 [100%]
On Demand : \$ 0 [0%]

Storage



Raw Capacity : \$ 844,800 [76%]
Backup : \$ 52,900 [5%]
Overhead : \$ 172,985 [16%]
Admin : \$ 45,325 [4%]

Storage



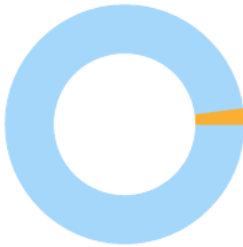
EBS : \$ 91,871 [21%]
S3 : \$ 42,467 [10%]
S3IA : \$ 92,687 [21%]
EFS : \$ 211,507 [48%]

Network



Bandwidth : \$ 60,000 [27%]
Gear : \$ 50,036 [23%]
Admin : \$ 110,036 [50%]

EBS



IOPS : \$ 0 [0%]
Snapshot : \$ 1,751 [2%]
EBS Volumes : \$ 82,944 [98%]

Calculations

Server

On-Premises - Server Costs

Server Hardware Costs

Virtual Host Sizing for Virtualized Environments

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AWS - EC2 Costs

EC2 Instance Costs (3 Yr.) – On-Demand and Reserved Instances

3 Yr. Partial Upfront Reserved Instance


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Oracle SE	10	Host 1	16	96	8	2
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Server Hardware Costs

# of Servers	# of Cores	RAM (GB)	Units (U)	Power (KW)	Unit Cost	Unit Discount	Total Cost
19	16	96	38	14.25	\$ 9,263	25%	\$ 131,998
8	16	96	16	6	\$ 9,263	25%	\$ 55,578
27			54	20.25			\$ 187,576

Total Server Hardware cost \$ 187,576

Server Hardware Maintenance cost for 3 Yrs. (@15%/Yr.) \$ 84,409

Total number of Racks required (1 Rack=42U, 28U occupied by servers, 4U by ToR switches and PDUs) 2

Total Peak power consumed (kW) 20.25

Rack Infrastructure Costs

Rack Chassis with PDU (@\$3500/rack) cost \$ 3,700

PDUs, dual 280V per rack (@\$540 each, 2/rack for HA) cost \$ 1,840

Top of Rack Switch (48-port 10/100/1G, \$5,000 each, 2/rack for high availability) \$ 20,000

Rack and Stack one-time deployment cost (\$250/server) \$ 6,750

Provision for spare servers for 3 Yrs. (@5% spare capacity/Yr.) \$ 40,798

Total Rack costs (rack infrastructure and server hardware) \$ 345,073

Virtualization Software Costs

Total number of VMware vSphere licenses required 54

VMware vSphere Enterprise Plus list price (unit per processor) \$ 3,495

VMware vSphere discounted price (unit per processor) \$ 2,621

Total VMware vSphere license costs \$ 141,548

Total VMware vSphere support(SnS) costs \$ 106,161

Total VMware vSphere license + support costs (3 Yrs.) \$ 247,708

Total virtualization license and maintenance cost (3 Yrs.) \$ 247,708

MySQL

MySQL License Cost per Server (List) \$ -

MySQL License Cost per Server (After Discount) \$ -

Number of Licenses Required 7

Total MySQL License Cost \$ -

Total 3-Year Database Software License Cost \$ -

Total Server Cost (Hardware and Software) - 3 Yr. \$ 592,781

Facilities Costs (data center space, power and cooling)) - On-Premises

Total Power consumed by servers (kW) 20.25

Metered cost per kWh \$ 0.10

Estimated power cost/month \$ 1,458.00

Monthly cost to operate a rack \$ 1,400.00

Total rack costs/month \$ 2,800.00

Total monthly Facilities costs \$ 4,258.00

Facilities costs - On-Premises (3 Yr.) \$ 153,288

Server cost break-down

db.m4.xlarge \$ 5,256 \$ 0.712 \$ 240,186

Total Cost: \$ 450,694

Total costs = (upfront cost + hourly cost*8,784 hours/yr.*3 years)* # of instances (Applied to the whole term whether or not you're using the Reserved Instance)

On-Demand

AWS Instance	Upfront	Hourly	Total Costs
m4.xlarge	\$ -	\$ 0.200	\$ 527,040
db.m4.4xlarge	\$ -	\$ 2.802	\$ 738,383
Total Cost:			\$ 1,265,423

Total costs = (hourly cost*8,784 hours*3 years*utilization)* # of instances (Hourly usage fee charged for each hour you use the instance)

Lowest Priced Instance

Instance	Cost	Type
m4.xlarge	\$ 210,508	3 Yr. Partial Upfront RI
db.m4.4xlarge	\$ 240,186	3 Yr. Partial Upfront RI
Total Cost:	\$ 450,694	

EC2 Costs (3 Yr.) \$ 450,694

EC2 Reserved Instances discounts (if Applicable)

EC2 Reserved Instances					
AWS Instance	Instance type	# Instances	Upfront fee	Hourly	Total Cost
m4.xlarge	3 Yr. Partial Upfront RI	100	\$ 1,051	\$ 0.040	\$ 210,508
db.m4.4xlarge	3 Yr. Partial Upfront RI	10	\$ 5,256	\$ 0.712	\$ 240,186

Total fee \$ 450,694

Discount Tier Applicable 5%

AWS Business Support (EC2) \$ 32,976

EC2 Costs (3 Yr.) after discount and support \$ 461,135

Server Software Costs (BYOL Only)

Total 3-Year Database Software License Cost \$ -


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Hardware	\$ 345,073	46%
Software	\$ 247,708	33%
Operating Costs (3 Yrs.)	\$ 153,288	21%
Total	\$ 746,069	100%

Total server costs, including operational cost (3 Yr.) \$ 746,069

Storage

On-Premises - Storage Costs

SSD used based on input

SAN Cost

Starting capacity/raw capacity (TB) - user provided	100
Starting capacity/raw capacity (GB)	102,400
Capacity after OS Penalty (~7%, capacity OS recognizes) (GB)	92,160
Usable capacity based on RAID (RAID 10 assumed) configuration (GB)	18,432
\$/raw GB purchase price	\$ 1.50
Discounted \$/raw purchase price (50% storage hardware discount applied)	\$ 0.75

Acquisition Cost of SAN storage \$ 76,800

SSD used based on user input

NAS Costs

Starting capacity/raw capacity (TB)	100
Starting capacity/raw capacity (GB)	102,400
Capacity after Penalty (RAID, OS, Utilization, Redundancy) (GB)	19,584
\$/raw GB purchase price	\$ 4.00
Discounted \$/raw purchase price (50% storage hardware discount applied)	\$ 2.00

Acquisition Cost of NAS storage \$ 204,800

Object Storage Cost

Starting capacity/raw capacity (TB)	1,000
Starting capacity/raw capacity (GB)	1,024,000
Capacity after OS Penalty (~7%, capacity OS recognizes) (GB)	921,600
Usable capacity based on RAID (RAID 10 assumed) configuration (GB)	184,320
\$/raw GB purchase price	\$ 1.10
Discounted \$/raw purchase price (50% storage hardware discount applied)	\$ 0.55

Acquisition cost of Object storage \$ 563,200

Total 3 Year Storage Costs \$ 640,000

Storage backup cost

Total amount of storage to be backed up (TB)	100.00
Total amount of storage to be backed up (GB)	102,400
Type of Tape Library used	LTO-6
Max uncompressed speed (MB/s) for Tape Library	160
Max uncompressed speed - TB/day	13.18
Backup Window Time(hr.)	8
TBs processed/drive for backup window	4.39
Number of Tape drives required	23

AWS - Storage Costs

EBS Storage - Only Standard EBS used with no IOPS requirements

EBS Costs - Equivalent to On-Premises SAN environment

Starting capacity (GB)	18,432.00
Equivalent EBS storage volume	General Purpose (SSD)
Number of EBS volumes required	19
EBS volumes cost/month	\$ 2,304.00
Initial snapshot cost(one-time)	\$ 1,751.04
EBS incremental snapshots cost/month	\$ -
Total EBS cost /month	\$ 2,304

EBS Costs (3 Yr) - no IOPS \$ 84,695

EBS Costs (3 Yr.) \$ 91,871

AWS Business Support (EBS) \$ 7,176

EFS Costs -Equivalent to on-premises NAS Storage

Capacity required (GB)	19,584
Price per GB Per Month	\$ 0.30
Total Cost Per Month	\$ 5,875.20

EFS Costs (3 Yr.) \$ 211,507

AWS Business Support (EFS) \$ 17,921

S3 Standard Costs -Equivalent to on-premises Object Storage

Storage (GB) 36,864

S3 Standard storage cost	
Tier	Cost
First 50 TB / month	\$ 1,087.49
Next 450 TB / month	\$ -
Over 500 TB / month	\$ -
Total Monthly S3 Standard costs	\$ 1,087.49

AWS Business Support (S3 Standard) \$ 3,317

S3 Standard Costs (3 Yr.) \$ 42,467

S3 Standard – Infrequent Access Costs -Equivalent to on-premises Object Storage


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Storage Overhead cost (data center space, power, cooling, storage administrator)

Typical TB managed by a storage admin/Yr. 1000

Storage Admin Costs (3 Yr.) \$ 45,325

Overhead

Estimated GBs inter-site networking traffic per month 121,025

Inter-site networking bandwidth Cost per month \$ 605

Inter-site networking bandwidth Costs (3 Yr.) \$ 21,785

Amount of TBs hosted by a single rack (TB) 1000

Number of racks required 3

Monthly cost to operate a rack \$ 1,400

Total data center space, power, cooling costs (3 Yr.) \$ 151,200

Storage cost break-down

Storage cost break-down		
Category	Cost	% of Total Cost
Raw Capacity (Incl. IOPS)	\$ 844,800	76%
Backup	\$ 52,900	5%
Overhead (excl. storage admin)	\$ 172,985	16%
Storage Admin	\$ 45,325	4%
Total	\$1,116,009	100%

Total Storage Costs (3 Yr.) \$ 1,116,009

Network

On-Premises - Networking Costs

Networking Hardware and Software Costs

Network overhead cost as a % of server hardware acquisition cost 10%

Network hardware and software cost \$ 34,507.26

Network hardware and software maintenance/Yr. 15%

Maintenance cost (3 Yr.) \$ 15,528.27

Total Network Hardware and Software costs (3 Yr.) \$ 50,036

Bandwidth Costs (On-Premises)

Size of Network Pipe (Mbps) 1000

Peak/Avg. Ratio 3

Average Bandwidth 333.33

On-premises Bandwidth costs/Mbps \$ 5.00

Bandwidth costs/month \$ 1,666.67

Avg. data transferred per month (TB)- Inbound + Outbound 103

Avg. data transferred per month (TB)- North/South 20.6

Avg. data transferred per month (TB) - Outbound 10.3

Bandwidth costs - On-Premises (3 Yr.) \$ 60,000

Network Admin Costs

Network admin effort as % of total IT admin effort 8%

Avg. burdened salary for your Network Admin \$ 13,500

IT labor cost (1 Yr.) \$ -

AWS - Data Transfer Costs

Monthly Data Transfer Out (TB)

10.3

Data Transfer Costs			
	US East (N. Virginia)	Tier(GB)	Monthly Cost
First 1 GB per month	\$ -	1	\$ -
Up to 10 TB per Month	\$ 0.09	10240	\$ 921.60
Next 40 TB per Month	\$ 0.09	306	\$ 26.00
Next 100 TB per Month	\$ 0.07	0	\$ -
Over 350 TB per Month	\$ 0.05	0	\$ -

Total monthly data transfer costs \$ 948.00

AWS Business Support (data transfer) \$ 2,890

Data Transfer Costs (3 Yr.) including support \$ 37,004



Total Networking Costs (3 Yr.)\$110,036

IT Labor

On-Premises - IT Labor Costs			AWS - IT Labor Costs		
Number of VMs managed by an Admin			EC2 Admin Costs		
250			# of EC2 instances managed by an admin		
Avg. burdened salary for your IT Admin			\$13,500		
Number of VMs in your current environment			Avg. burdened salary for your IT Admin		
110			\$13,500		
Admin effort required for your current environment			# of EC2 instances in your environment		
44%			90		
IT labor costs (1 Yr.)			Admin effort Required for your current environment		
\$5,940			24%		
IT Labor costs (3 Yr.)			IT labor costs (1 Yr.)		
\$17,820			\$3,240		
Database Admin Costs			IT labor costs (3 Yr.)		
Number of Databases managed by an Admin			\$9,720		
40			RDS Admin Costs		
Avg. burdened salary for your IT Admin			# of RDS instances managed by an admin		
\$13,500			100		
Colo On-Call Labor Cost			Avg. burdened salary for your IT Admin		
\$0			\$13,500		
Number of Databases in your current environment			# of RDS instances in your environment		
10			20		
Admin effort required for your current environment			Admin effort required for your current environment		
25%			20%		
3-Year IT DBA Labor costs			IT Labor costs (3 Yr.)		
\$10,125			\$8,100		
Total IT Admin Costs -based on number of VMs / Servers (3 Yr.)			Total IT Admin Costs -based on number of VMs / Servers (3 Yr.)		
\$27,945			\$17,820		

AWS - Support Costs

Monthly EC2 Spend	\$7,732.84
Monthly EBS Spend	\$2,352.64
Monthly S3 Spend	\$1,087.49
Monthly S3IA Spend	\$2,373.53
Monthly Data Transfer Spend	\$947.60
Total monthly AWS Spend	\$20,369.30

Support Costs - All Services	
Business Level Support	Cost
10% of monthly AWS usage for the first \$0 – \$10K	\$1,000.00
7% of monthly AWS usage from \$10K – \$80K	\$725.85
5% of monthly AWS usage from \$80K – \$250K	\$-
3% of monthly AWS usage over \$250K	\$-

Monthly AWS Support cost for all services	\$1,726
AWS Support cost for all services (3 Yr.)	\$62,131
EC2 Reserved Instances Upfront cost after discount	\$149,777

Support Costs - Reserved Instances	
Business Level Support	Cost
10% of monthly AWS usage for the first \$0 – \$10K	\$1,000.00
7% of monthly AWS usage from \$10K – \$80K	\$4,900.00
5% of monthly AWS usage from \$80K – \$250K	\$3,488.85
3% of monthly AWS usage over \$250K	\$-

AWS Reserved Instance Support cost (One- Time)	\$9,389
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Collapse

Methodology

Assumptions

FAQ

This Calculator provides an estimate of usage charges for On-Premises/Colocation and equivalent AWS services based on the information you provide. AWS monthly charges will be based on your actual usage of AWS services, and may vary from the estimates the Calculator has provided.

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