

Total Cost of Ownership (TCO)

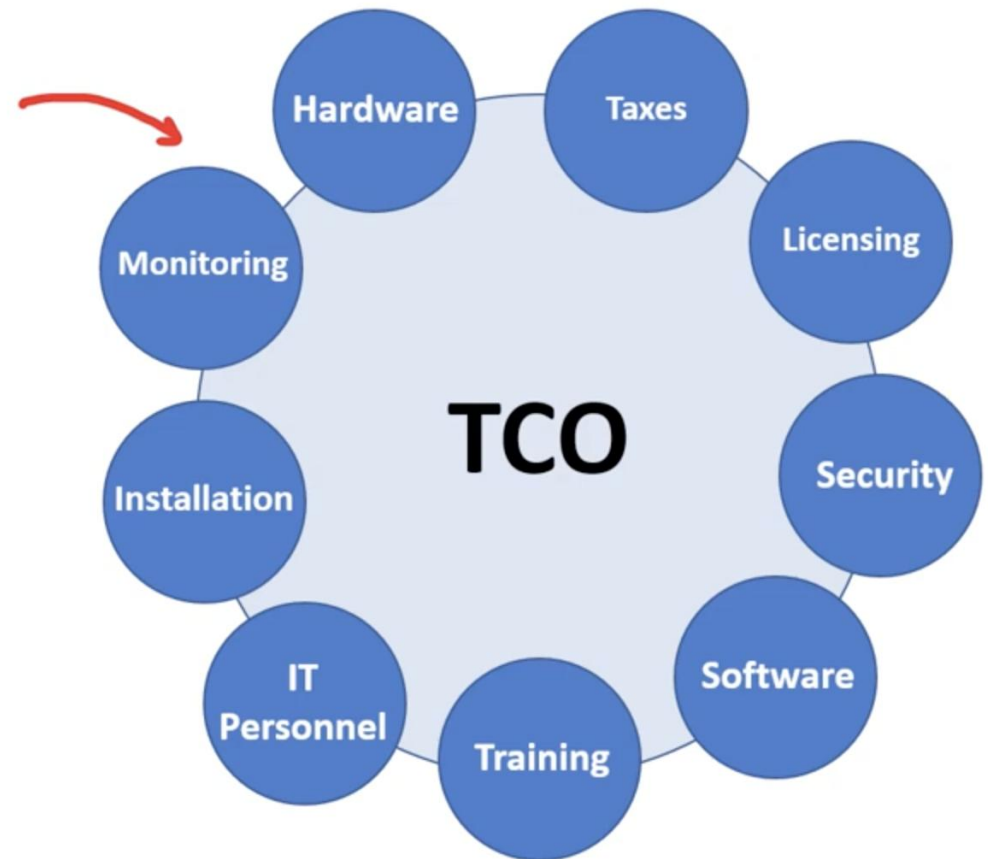
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What is the Total Cost of Ownership? (TCO)?

TCO is a **financial estimate** intended to help buyers and owners determine the direct and indirect costs of a product or service.

Creating a TCO report is useful when your company **is looking to migrate from on-premise to cloud.**



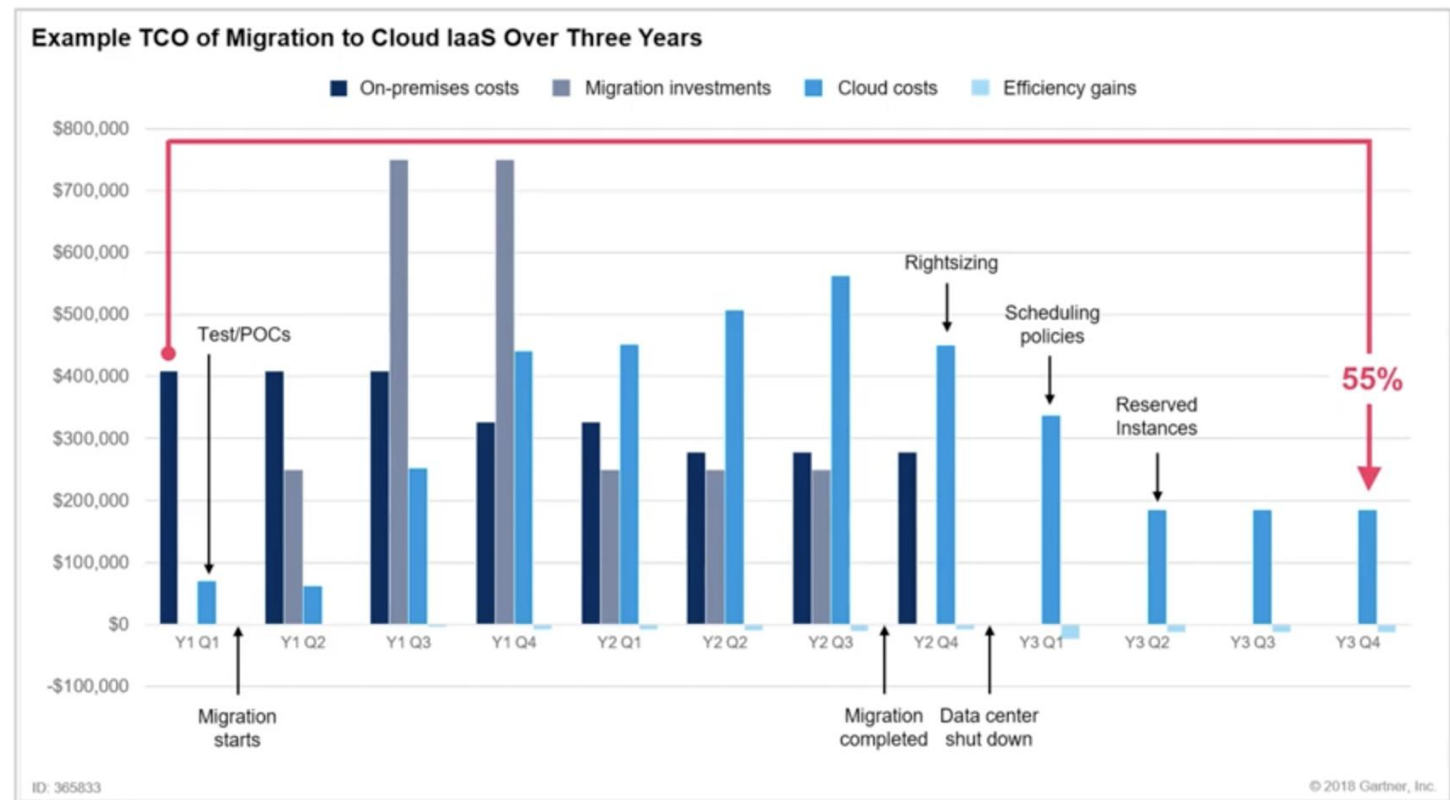
Total Cost of Ownership (TCO)

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According to research stated by Garter:

“cloud services can initially be more expensive than running on-premises data centers. [However, it also proves that] cloud services can become cost-effective over time if organizations learn to use and operate them more efficiently”

Example of a 2,500
Virtual Machines (VMs)
moved to Amazon EC2



Total Cost of Ownership (TCO)

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CAPEX

On-Premise

Software license Fees

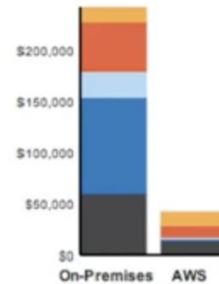
- Implementation
- Configuration
- Training
- Physical Security
- Hardware
- IT Personal
- Maintenance

OPEX

AWS

Subscription Fees

- Implementation
- Configuration
- Training



75% Savings



Capital vs Operational Expenditure

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Capital Expenditure (CAPEX)

Spending money upfront on **physical infrastructure**
Deducting that expense from your tax bill over time.

- Server Costs (computers)
- Storage Costs (hard drives)
- Network Costs (Routers, Cables, Switches)
- Backup and Archive Costs
- Disaster Recovery Costs
- Datacenter Costs (Rent, Cooling, Physical Security)
- Technical Personal

With Capital Expenses **you have to guess upfront** what you plan to spend

Operational Expenditure (OPEX)

The costs associated with an on-premises datacenter that has shifted the cost to the service provider. The customer only has to be concerned with **non-physical costs**.

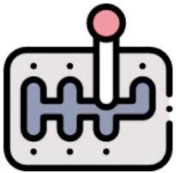
- Leasing Software and Customizing features
- Training Employees in Cloud Services
- Paying for Cloud Support
- Billing based on cloud metrics eg.
 - compute usage
 - storage usage

With Operation Expenses you can try a product or service **without investing in equipment**

Does Cloud Make IT Personnel Redundant?

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A company is considering migrating their workloads from on-premise to the cloud to take advantage of the savings. There is a concern among the staff that there will be mass layoffs. Does cloud make IT Personnel redundant?



Shifting your IT Team

- A company needs IT personnel during the migration phase
- A company can transition some roles to new cloud roles:
 - Networking to Cloud Networking
- A company may decide to take a Hybrid approach so they'll always need to have a traditional IT team and a Cloud IT Team
- A company can change employees activities from **Managing Infrastructure to Revenue Generating**

AWS Pricing Calculator

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The **AWS Pricing Calculator** is a **free cost estimate tool** that can be used within your **web-browser** without the need for an AWS Account to estimate the cost of a various AWS services.

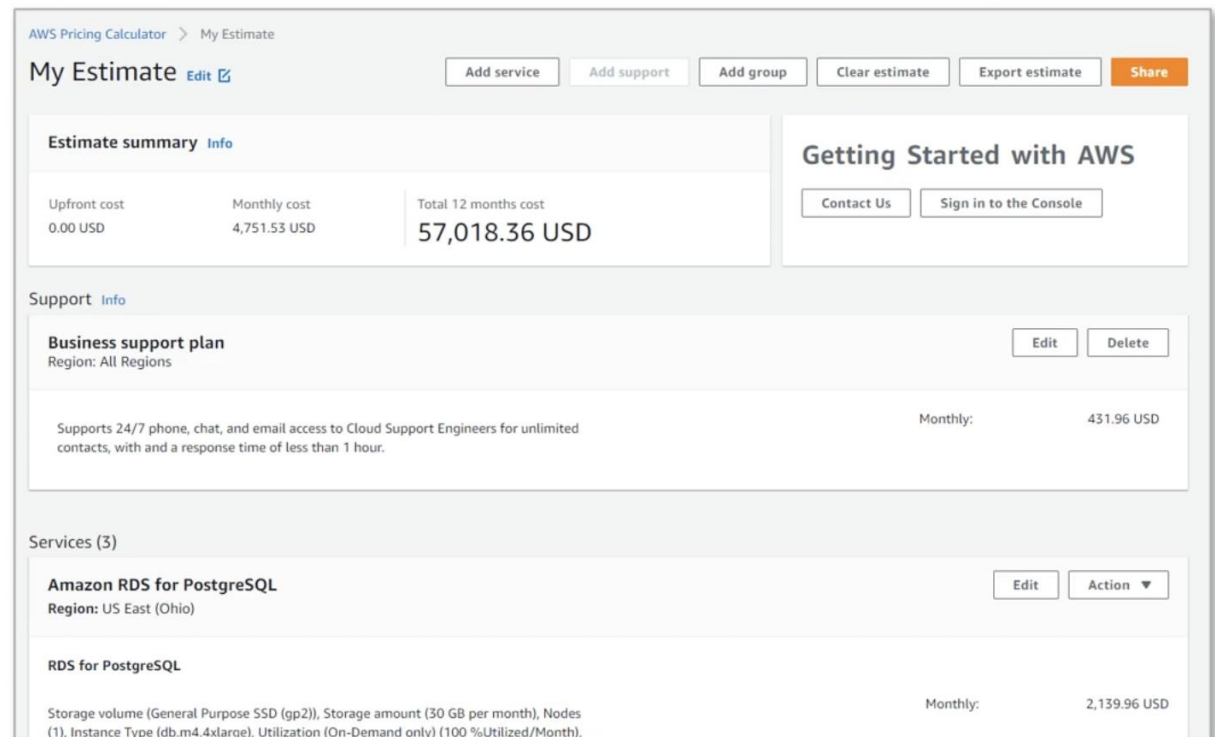
calculator.aws

The AWS Pricing Calculator contains 100+ services that you can configure for cost estimate.

To calculate Total Cost of Ownership an organization needs to compare their existing cost against the AWS costs and so the AWS Pricing Calculator can be used to determine that cost.



You can export your final estimate to a CSV.



The screenshot shows the AWS Pricing Calculator interface. At the top, there's a navigation bar with 'AWS Pricing Calculator' and 'My Estimate'. Below this, there's a 'My Estimate' section with buttons for 'Add service', 'Add support', 'Add group', 'Clear estimate', 'Export estimate', and 'Share'. The 'Estimate summary' section displays three cost metrics: Upfront cost (0.00 USD), Monthly cost (4,751.53 USD), and Total 12 months cost (57,018.36 USD). To the right, there's a 'Getting Started with AWS' section with 'Contact Us' and 'Sign in to the Console' buttons. Below the summary, there's a 'Support' section for 'Business support plan' (Region: All Regions) with 'Edit' and 'Delete' buttons. The 'Services (3)' section lists 'Amazon RDS for PostgreSQL' (Region: US East (Ohio)) with 'Edit' and 'Action' buttons. The bottom part of the screenshot shows the details for 'RDS for PostgreSQL', including storage volume, storage amount, nodes, instance type, and utilization, with a monthly cost of 2,139.96 USD.

Cost Type	Amount
Upfront cost	0.00 USD
Monthly cost	4,751.53 USD
Total 12 months cost	57,018.36 USD

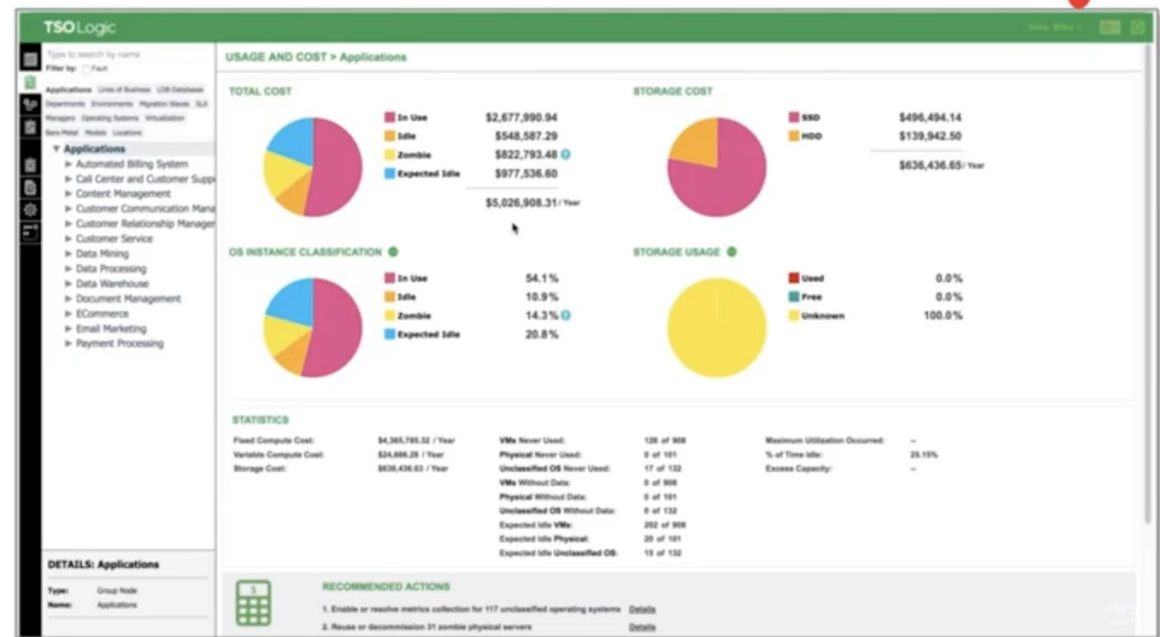
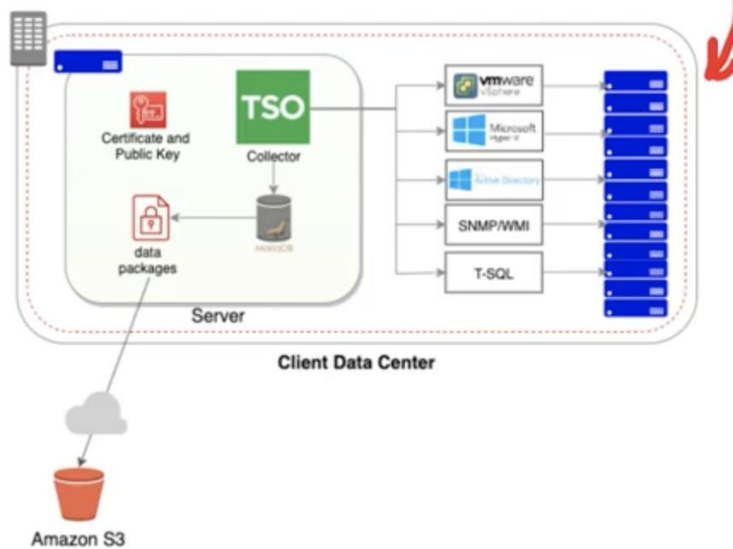
Service	Region	Monthly Cost
Business support plan	All Regions	431.96 USD
Amazon RDS for PostgreSQL	US East (Ohio)	2,139.96 USD

Migration Evaluator

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AWS Migration Evaluator (formally known as TSO Logic) is an **estimate tool** used to determine an organization existing on-premise cost so it can compare it against AWS Costs for planned cloud migration

Migration Evaluator uses an **Agentless Collector** to collect data from your on-premise infrastructure to extract your on-premise costs



EC2 VM Import/Export

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VM Import/Export allows users **to import Virtual Machine images into EC2.**

AWS has import instructions for:

- VMWare
- Citrix
- Microsoft Hyper-V
- Windows VHD from Azure
- Linux VHD from Azure



Prepare your Virtual
Image for Upload



Upload your Virtual
Image to S3



Use the AWS CLI to Import your Image
It will generate an Amazon Machine Image (AMI)

```
aws ec2 import-image \  
--disk-containers Format=ova,UserBucket="{S3Bucket=my-vm,S3Key=vm.ova}"
```


Database Migration Service (DMS)

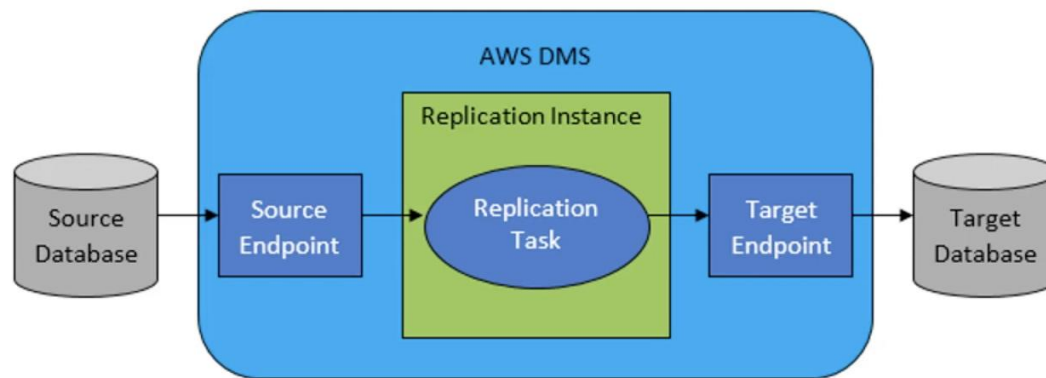
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AWS Database Migration Service (DMS) allows you to quickly and securely migrate one database to another. DMS can be used to migrate your on-premise database to AWS.

Possible Sources:

- Oracle Database
- Microsoft SQL
- MySQL
- MariaDB
- PostgreSQL
- MongoDB
- SAP ASE
- IMDB Db2
- Azure SQL Database
- Amazon RDS
- Amazon S3 (database dumps)
- Amazon Aurora
- Amazon DocumentDB



AWS Schema Conversion Tool is used in many cases to automatically convert a source database schema to a target database schema.

Each migration path requires a bit of research since not all combination of sources and targets are possible.

Possible Targets:

- Oracle Database
- Microsoft SQL
- MySQL
- MariaDB
- PostgreSQL
- Redis
- SAP ASE
- Amazon Redshift
- Amazon RDS
- Amazon DynamoDB
- Amazon S3
- Amazon Aurora
- Amazon OpenSearch Service
- Amazon ElastiCache for Redis
- Amazon DocumentDB
- Amazon Neptune
- Apache Kafka

AWS Cloud Adoption Framework (CAF)

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The AWS Cloud Adoption Framework is a whitepaper to help you plan your migration from on-premise to AWS.

At the highest level, the AWS CAF organizes guidance into **six focus areas**.



1 Business Perspective e.g. Business Managers, Finance Managers, Budget Owners, and Strategy Stakeholders.

How to update the staff skills and organizational processes to optimize business value as they move ops to the cloud

2 People Perspective e.g. Human Resources, Staffing, People Managers.

how to update the staff skills and organizational processes to optimize and maintain their workforce, and ensure competencies are in place at the appropriate time.

3 Governance Perspective e.g. CIO, Program Managers, Project Managers, Enterprise Architects, Business Analysts

how to update the staff skills and organizational processes that are necessary to ensure business governance in the cloud, and manage and measure cloud investments to evaluate their business outcomes.

4 Platform Perspective e.g. CTO, IT Managers, Solution Architects.

how to update the staff skills and organizational processes that are necessary to deliver and optimize cloud solutions and services.

5 Security Perspective e.g. CISO, IT Security Managers, IT Security Analysts.

how to update the staff skills and organizational processes that are necessary to ensure that the architecture deployed in the cloud aligns to the organization's security control requirements, resiliency, and compliance requirements.

6 Operations Perspective e.g. IT Operations Managers, IT Support Managers.

how to update the staff skills and organizational processes that are necessary to ensure system health and reliability during the move of operations to the cloud and then to operate using agile, ongoing, cloud computing best practices.