

Lab 8: Estimating AWS Cloud Resource Costs Using AWS Pricing Calculator

Objectives:

1. To understand the concept of cloud cost estimation using official pricing calculators
2. To configure equivalent cloud resources on AWS and Azure for comparison
3. To estimate monthly costs for compute, storage, database, networking, and load balancing services
4. To analyze cost differences between AWS and Azure for similar infrastructure setups
5. To evaluate how service selection and configuration affect overall cloud expenditure
6. To develop practical skills in planning and budgeting cloud deployments

Tools and Platform Used

Tools and Methodology used:

1. AWS Pricing Calculator
2. Microsoft Azure Pricing Calculator
3. Estimating cloud infrastructure costs using pricing calculators
4. Comparing equivalent AWS and Azure services based on compute, storage, networking, and database requirements

Amazon Web Services (AWS):

Step 1: EC2 Instance Cost Estimation

1. Service Added: Amazon EC2
2. Configuration:
 - a. Instance Type: t4g.large
 - b. vCPU: 2
 - c. RAM: 8 GB
 - d. Operating System: Linux
 - e. Region: US East (N. Virginia)
 - f. Number of Instances: 1
 - g. Usage: 24x7 (100%)
 - h. Storage: 100 GB General Purpose SSD (EBS)

The screenshot shows the AWS Pricing Calculator interface for configuring an Amazon EC2 instance. The page is titled "Create estimate: Configure Amazon EC2". It includes a sidebar with "Step 1: Add service" and "Step 2: Configure service". The main configuration area includes fields for "Description" (AWS System), "Choose a location type" (Region), "Choose a Region" (US East (N. Virginia)), "EC2 specifications" (Tenancy: Shared Instances, Operating system: Linux, Workloads: Constant usage, Number of instances: 1), and a summary at the bottom showing "Total Upfront cost: 0.00 USD" and "Total Monthly cost: 49.06 USD".

The screenshot shows the "EC2 Instances (3)" section of the AWS Pricing Calculator. It displays the chosen instance type as t4g.large, with 2 vCPUs and 8 GiB Memory. Below this, there is a table listing three instance types: t4g.large, t4g.xlarge, and t4g.2xlarge. The table includes columns for Instance name, vCPUs, Memory, Network Performance, Storage, On-Demand Hourly Cost, CurrentGeneration, and Potential Effective Hourly Cost (Savings %).

Instance name	vCPUs	Memory	Network Performance	Storage	On-Demand Hourly Cost	CurrentGeneration	Potential Effective Hourly Cost (Savings %)
t4g.large	2	8 GiB	Up to 5 Gigabit	EBS only	0.0672	Yes	0.0253 (62%)
t4g.xlarge	4	16 GiB	Up to 5 Gigabit	EBS only	0.1344	Yes	0.0505 (62%)
t4g.2xlarge	8	32 GiB	Up to 5 Gigabit	EBS only	0.2688	Yes	0.1010 (62%)

Step 2: RDS for SQL Server Cost Estimation

1. Service Added: Amazon RDS
2. Configuration:
 - a. Database Engine: SQL Server
 - b. Instance Class: db.m5.large (or AWS equivalent)
 - c. Region: US East (N. Virginia)
 - d. Storage: 100 GB General Purpose SSD
 - e. Deployment: Managed database service

The screenshot shows the AWS Pricing Calculator interface for configuring Amazon RDS Custom for SQL Server. The breadcrumb trail is: AWS Pricing Calculator > Sandesh CSIT 28936 > Create estimate: Configure Amazon RDS Custom for SQL Server. The left sidebar shows Step 1 (Add service) and Step 2 (Configure service). The main content area is titled 'Create estimate: Configure Amazon RDS Custom for SQL Server' with an 'Info' link. It includes a 'Description' field with the placeholder 'Enter a description for your estimate'. Below this are two dropdown menus: 'Choose a location type' set to 'Region' and 'Choose a Region' set to 'US East (N. Virginia)'. A section titled 'Select RDS Custom for SQL Server instances' contains a 'Number of RDS Custom for SQL Server instances' input field set to '1', a search bar with 'db.m5.large' entered, and a 'Selected Instance' box showing 'db.m5.large', 'vCPU: 2', and 'Memory: 8 GiB'.

Step 3: Application Load Balancer (ALB) Estimation

1. Service Added: Elastic Load Balancing
2. Configuration:
 - a. Load Balancer Type: Application Load Balancer
 - b. Quantity: 1
 - c. Region: US East (N. Virginia)
 - d. Usage Parameters: Estimated traffic, processed bytes, and connections

The screenshot shows the AWS Pricing Calculator interface for configuring Elastic Load Balancing. The breadcrumb trail is: AWS Pricing Calculator > Sandesh CSIT 28936 > Create estimate: Configure Elastic Load Balancing. The left sidebar shows Step 1 (Add service) and Step 2 (Configure service). The main content area is titled 'Create estimate: Configure Elastic Load Balancing' with an 'Info' link. It includes a 'Description' field with the placeholder 'Enter a description for your estimate'. Below this are two dropdown menus: 'Choose a location type' set to 'Region' and 'Choose a Region' set to 'US East (N. Virginia)'. A section titled 'Elastic Load Balancing' with an 'Info' link contains the text 'Select Elastic Load Balancing Function Options that you want to estimate'. There are four radio button options: 'Application Load Balancer' (selected), 'Network Load Balancer', 'Gateway Load Balancer', and 'Classic Load Balancer'.

Step 4: Static Public IP (Elastic IP)

1. Service Added: Amazon VPC
2. Configuration:
 - a. Feature: Public IPv4 Address (Elastic IP)
 - b. Quantity: 1
 - c. Region: US East (N. Virginia)

Select VPC service(s) that you want to estimate

☐ VPN Connection

☐ Traffic Mirroring

☐ Data Transfer

☐ Transit Gateway

☐ Cloud WAN

☐ Network Access Analyzer

☒ Public IPv4 Address

☐ VPC Route Server

☐ AWS PrivateLink

☐ Reachability Analyzer

☐ IPAM

☐ Network Address Translation (NAT) Gateway

☐ Gateway Load Balancer

Public IPv4 Address feature

Public IPv4 Address

The calculations below exclude free tier discounts.

Number of In-use public IPv4 addresses

Step 5: Storage Configuration

EC2 storage configured using EBS (100 GB SSD).

RDS storage configured independently (100 GB SSD).

Storage costs are included within EC2 and RDS pricing components.

Final AWS Cost Estimation

aws pricing calculator

FeedbackLanguage: English ▼Contact Sales ⓘCreate an AWS Account

[AWS Pricing Calculator](#) > Sandesh CSIT 28936

Sandesh CSIT 28936Edit ⓘ

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Estimate summary ⓘ

Upfront cost

0.00 USD

Monthly cost

544.74 USD

Total 12 months cost

6,536.88 USD

Includes upfront cost

Getting Started with AWS

Get started for free

Contact Sales

Sandesh CSIT 28936

DuplicateDeleteMove toCreate groupAdd supportAdd service

< 1 > ⓘ

<input type="checkbox"/>	Service Name ▼	Status ▼	Upfron... ▼	MonthL... ▼	Descrip... ▼	Region ▼	Config Summary ▼
<input type="checkbox"/>	Amazon EC2 ⓘ	-	0.00 USD	49.06 USD	-	US East (...)	Tenancy (Shared Instances), Operating system (Linux), Workload (Consistent, Number of instances: 1, ...
<input type="checkbox"/>	Amazon RDS Custom fo... ⓘ	-	0.00 USD	461.00 USD	-	US East (...)	Storage for each RDS Custom for SQL Server instance (General Purpose SSD (gp2)), Storage amount (1...
<input type="checkbox"/>	Elastic Load Balancing ⓘ	-	0.00 USD	31.03 USD	-	US East (...)	Number of Application Load Balancers (1)
<input type="checkbox"/>	Amazon Virtual Private ... ⓘ	-	0.00 USD	3.65 USD	-	US East (...)	Number of In-use public IPv4 addresses (1)

Azure Virtual Machine:

Step 1: Virtual Machine (VM) service to estimate.

1. Selected Standard_B2ms (2 vCPU, 8 GB RAM), Linux, East US, 730 hours/month.

Sandesh's Linux

Virtual Machines: Sandesh Khatiwada ⓘ 1 B2ms (2 Cores, 8 GB RAM) x 730 Hours (Pay as you go), LI... ⓘ Monthly: \$60.74

Upfront: \$0.00

Sandesh Khatiwada Give feedback

Get \$200 credit plus free monthly amounts of popular services for 12 months—including Virtual Machines. See free amounts ×

Region: East US Operating system: Linux Type: Ubuntu Tier: Standard

Category: All Instance Series: All INSTANCE: (Need help finding the right VM?) B2ms: 2 Cores, 8 GB RAM, 16 GB Temporary storage, \$0.083/hour

1 × 730 Hours

Virtual machines

Step 2: Load Balancer service.

1. Selected Standard tier, East US, 5 rules (to align with typical setup), usage set to cover typical/required processed data.

Load Balancer: Azure Sandesh Load Balancer ⓘ Standard Tier: 5 Rules, 1,000 GB Data Processed ⓘ Monthly: \$23.25

Upfront: \$0.00

Azure Sandesh Load Balancer Give feedback

Get \$200 credit plus free monthly amounts of popular services for 12 months—including Azure Load Balancer, Standard. See free amounts ×

Region: West US Tier: Standard

Load Balancer rules

5 Rules = \$18.25

NAT rules

Step 3: IP Addresses service.

1. Selected Standard (ARM) Static IP, East US, set to quantity 1, 730 hours/month.

Sandesh Khatiwada IP Address Azure

Give feedback

Get \$200 credit plus free monthly amounts of popular services for 12 months—including Public IP Addresses, Basic (Classic). See free amounts

Region:
East US

Type:
Standard (ARM)

NOTE:
Common price for load balanced or virtual machines. Standard (ARM) public IP preview rates are in effect during this period

Static IP Addresses

1

×

730

Hours

=

\$3.65

Public IP Prefixes

0

×

730

Hours

=

\$0.00

Upfront cost

\$0.00

Monthly cost

\$3.65

Step 4: Managed Disk service.

1. Selected Premium SSD, P10 (128 GiB- the closest available to 100 GB)
2. East US, LRS (Locally Redundant Storage)
3. Quantity 1.

Sandesh Khatiwada Managed Disk

Give feedback

Get \$200 credit plus free monthly amounts of popular services for 12 months—including Managed Disks, Standard HDD tier. See free amounts

Region:
East US

Tier:
Premium SSD

Redundancy:
LRS

Disk size:
P10: 128 GiB, 500 Provisioned IOPS, 100 Provisioned MB/s, \$19.710/mor

Number of Disks

1

×

\$19.71

Per month

Step 5: SQL Database service.

1. Configured as Single Database, vCore purchasing model
2. General Purpose tier, 2 vCore, Gen5 hardware, 100 GB storage
3. East US.

Sandesh Azure SQL Database

Give feedback

Get \$200 credit plus free monthly amounts of popular services for 12 months—including Azure SQL Database. See free amounts

Region:

East US

Type:

Single Database

Purchase Model:

vCore

Service Tier:

General Purpose

Compute Tier:

Provisioned

Hardware Type:

Standard-series (Gen 5)

Instance:

2 vCore

Disaster Recovery:

Primary or Geo replica

Compute

Redundancy:

Locally Redundant

1

×

730

Hours

Databases

Final Azure Cost Estimation:

	A	B	C	D	E	F	G
1	Microsoft Azure Estimate						
2	Sandesh's Linux						
3	Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
4	Compute	Virtual Machines	Sandesh Khatiwada	East US	1 B2ms (2 Cores, 8 GB RAM) x 730 Hours (Pay as you go), Linux, (Pay as you go); 0 managed disks – \$4; Inter Region transfer type, 5 GB outbound data transfer from East US to East Asia	\$60.74	\$0.00
5	Networking	Load Balancer	Azure Sandesh Load Balancer	East US	Standard Tier: 5 Rules, 1,000 GB Data Processed	\$23.25	\$0.00
6	Networking	IP Addresses	Sandesh Khatiwada IP Address Azure	East US	Standard (ARM), 1 Static IP Addresses X 730 Hours, 0 Public IP Prefixes X 730 Hours	\$3.65	\$0.00
7	Storage	Managed Disks	Sandesh Khatiwada Managed Disk	East US	Managed Disks, Premium SSD, LRS Redundancy, P10 Disk Type 1 Disks; Pay as you go	\$19.71	\$0.00
8	Databases	Azure SQL Database	Sandesh Azure SQL Database	East US	Single Database, vCore, General Purpose, Provisioned, Standard-series (Gen 5), Primary or Geo replica Disaster Recovery, Locally Redundant, 1 - 2 vCore Database(s) x 730 Hours, 100 GB Storage, SQL License (Pay as you go), RA-GRS Backup Storage Redundancy, 0 GB Point-In-Time Restore, 0 x 5 GB Long Term Retention	\$383.14	\$0.00
9	Support			Support		\$0.00	\$0.00
10				Licensing Program	Microsoft Customer Agreement (MCA)		
11				Billing Account			
12				Billing Profile			
13				Total		\$490.48	\$0.00

Conclusion

Component	AWS (Monthly)	Azure (Monthly)
VM/Compute	\$49.06	\$60.74
Load Balancer	\$31.03	\$23.25
Public IP	\$3.65	\$3.65
Storage (SSD)	included in VM line	\$19.71
Managed DB/SQL	\$461.00	\$383.14
TOTAL	\$544.74	\$490.48

Azure is cheaper than AWS for this scenario.

Azure provides an equivalent solution for about \$54 less per month for this setup. This demonstrates the importance of pricing calculators and careful resource selection when planning cloud deployments.