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

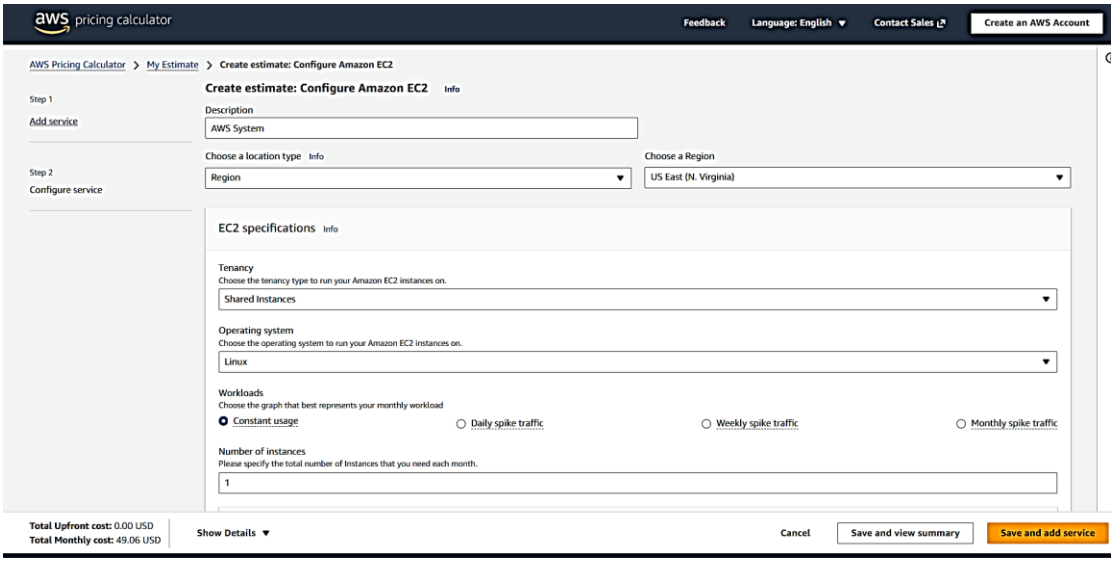
Tools and Methodology used:

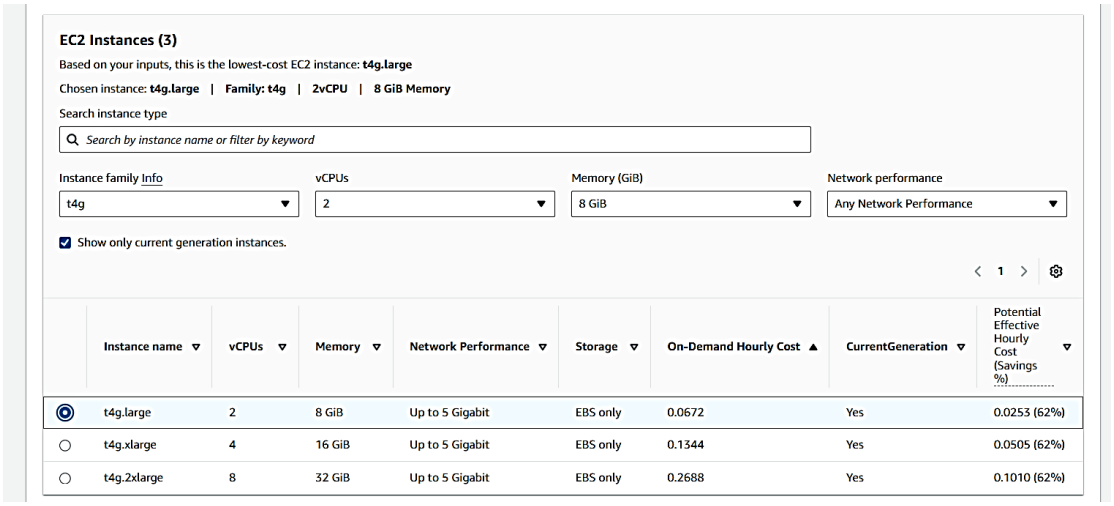
1. AWS Pricing Calculator
2. Microsoft Azure Pricing Calculator
3. Estimating cloud infrastructure costs using pricing calculators
4. Comparing equivalent AWS and Azure services based on compute, storage, networking, and database requirements

Amazon Web Services (AWS):

Step 1: EC2 Instance Cost Estimation

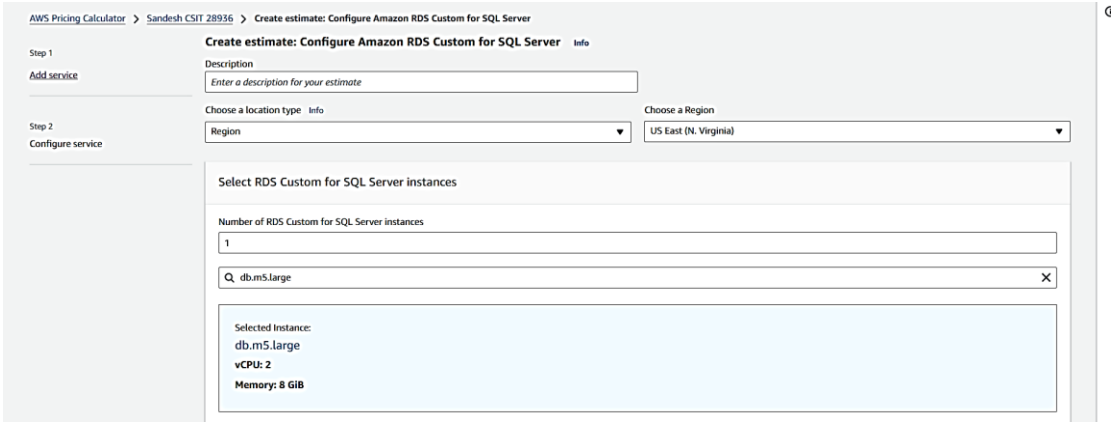
1. Service Added: Amazon EC2
2. Configuration:
    a. Instance Type: t4g.large
    b. vCPU: 2
    c. RAM: 8 GB
    d. Operating System: Linux
    e. Region: US East (N. Virginia)
    f. Number of Instances: 1
    g. Usage: 24x7 (100%)
    h. Storage: 100 GB General Purpose SSD (EBS)





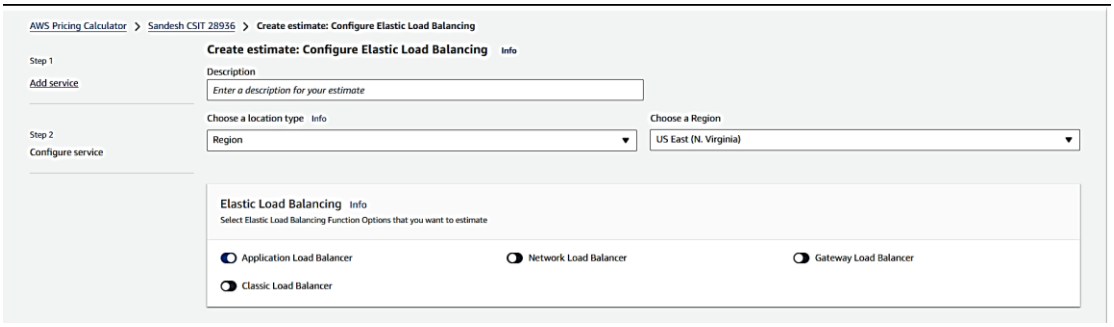
Step 2: RDS for SQL Server Cost Estimation

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



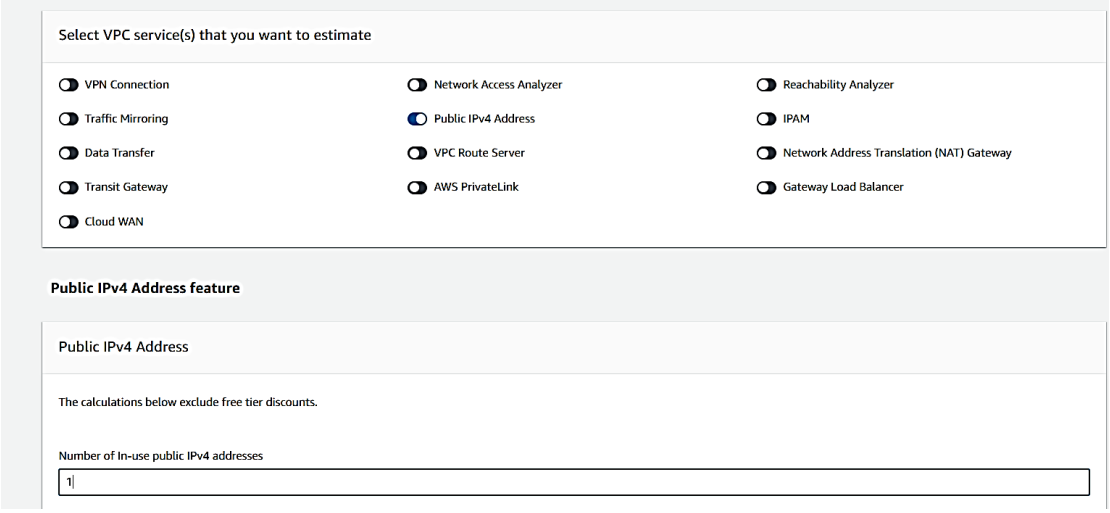
Step 3: Application Load Balancer (ALB) Estimation

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



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)



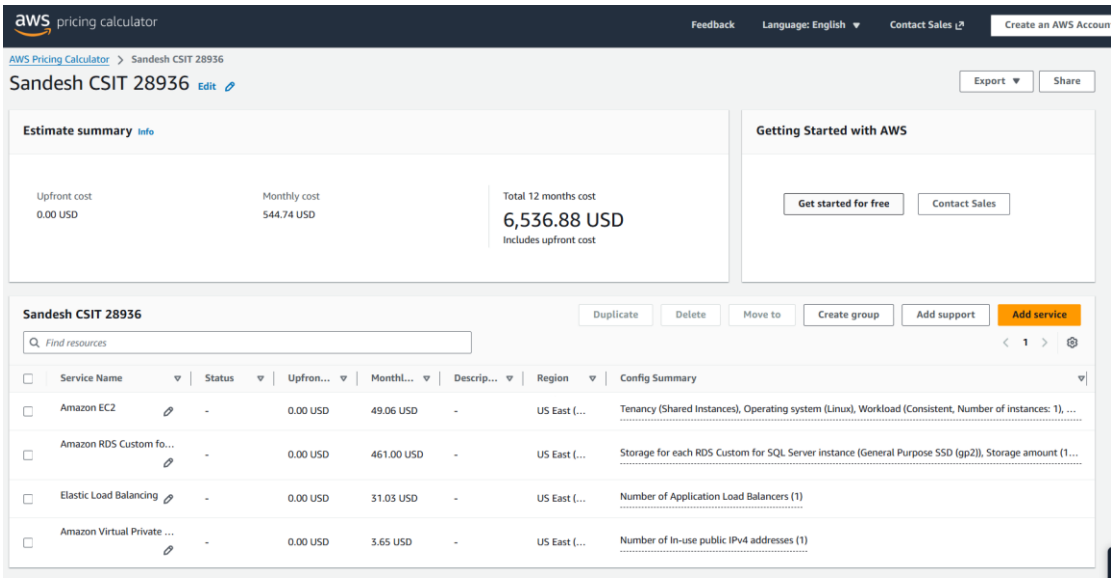
Step 5: Storage Configuration

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.

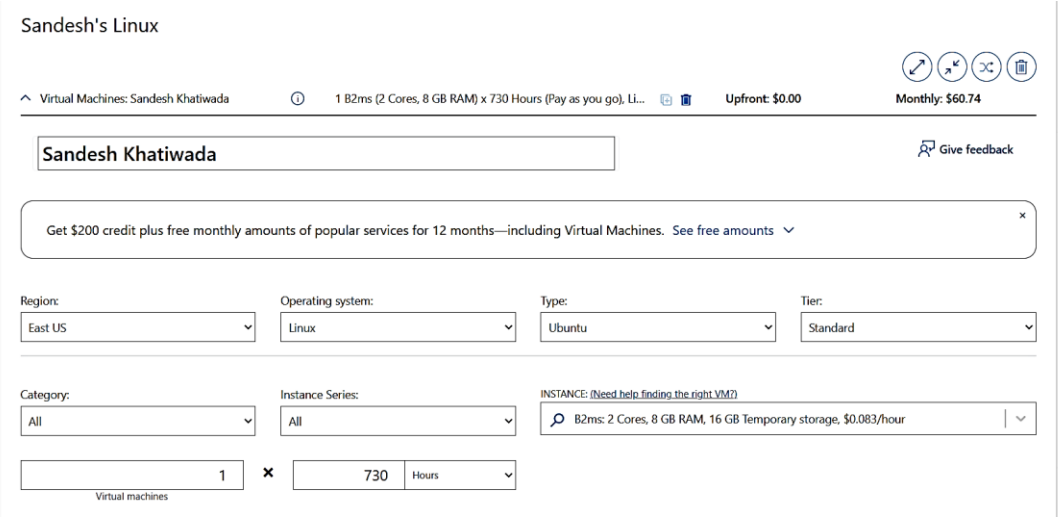
Final AWS Cost Estimation



Azure Virtual Machine:

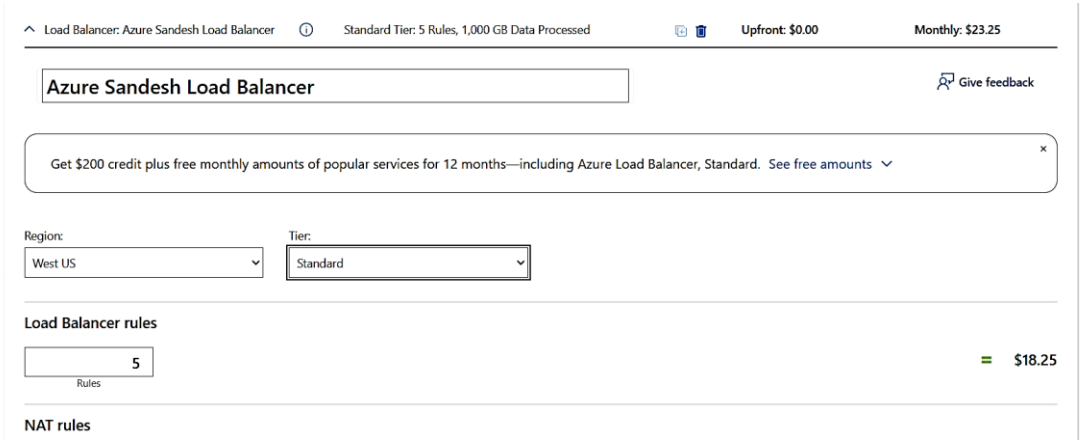
Step 1: Virtual Machine (VM) service to estimate.

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



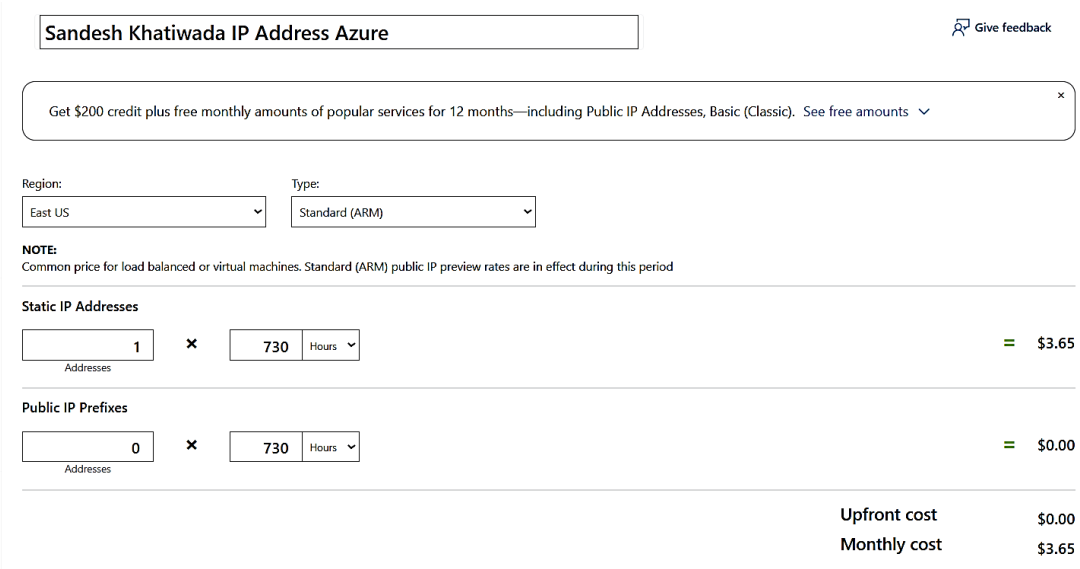
Step 2: Load Balancer service.

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



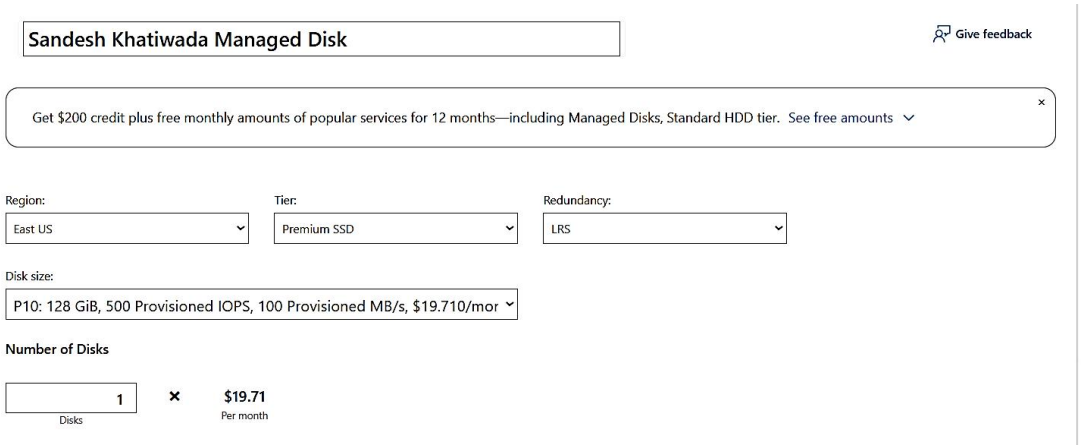
Step 3: IP Addresses service.

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



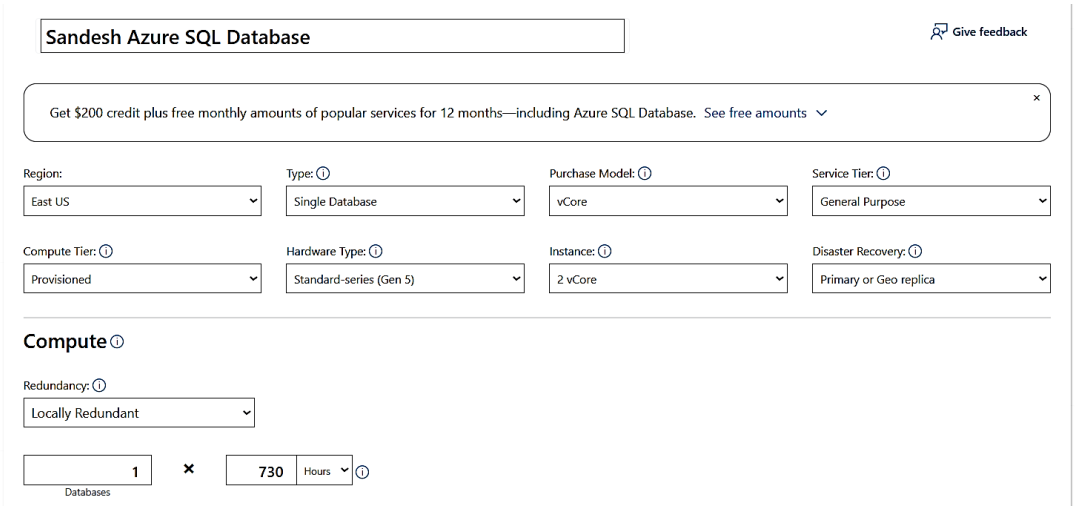
Step 4: Managed Disk service.

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



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.



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 – S4; 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.