MICROSOFT AZURE

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DEPARTMENT: B.TECH ARITIFICIAL INTELLIGENCE AND DATA SCIENCE

GITHUB:

https://github.com/AnusuyaSanjeevirajan/anusuyamicrosoftazure.git

REQUESTING A CLOUD SHELL SUCCEEDED.

CONNECTING TERMINAL...

Welcome to Azure Cloud Shell

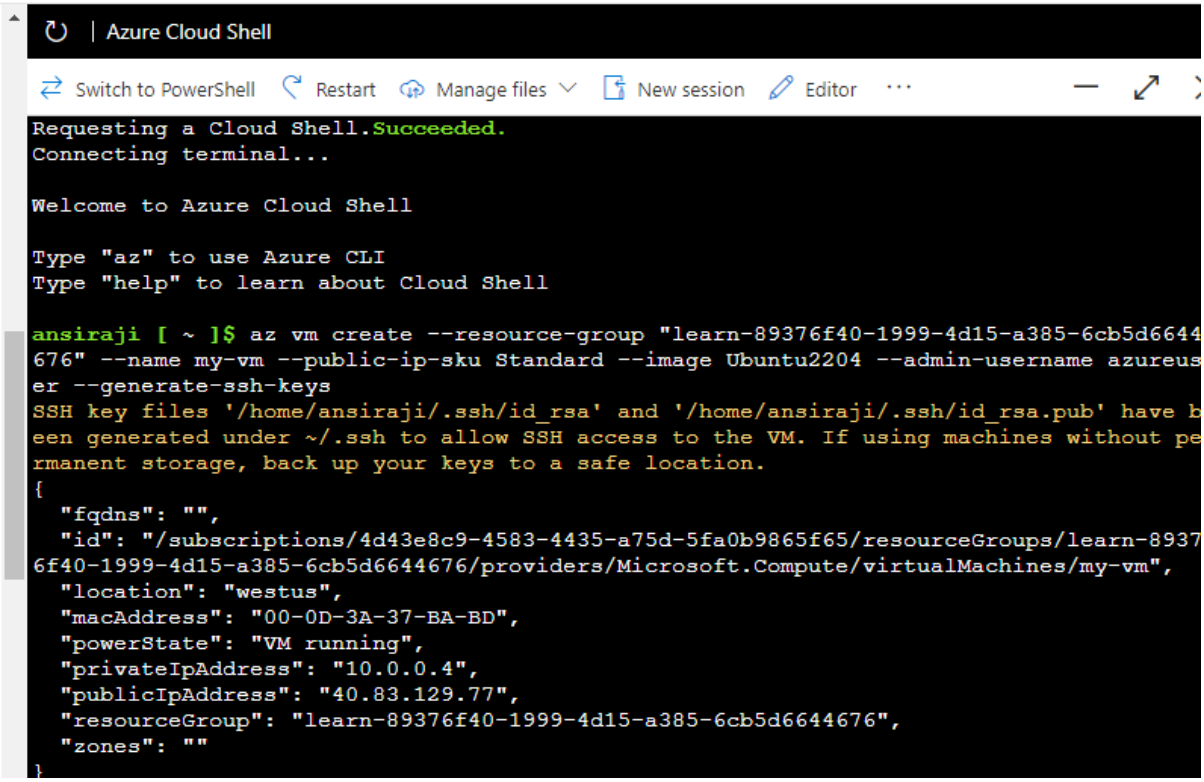
- az vm create --resource-group "learn-1dd151f8-37c6-44cc-a975-8f08e65c30c2" --name my-vm --public-ip-sku Standard --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys

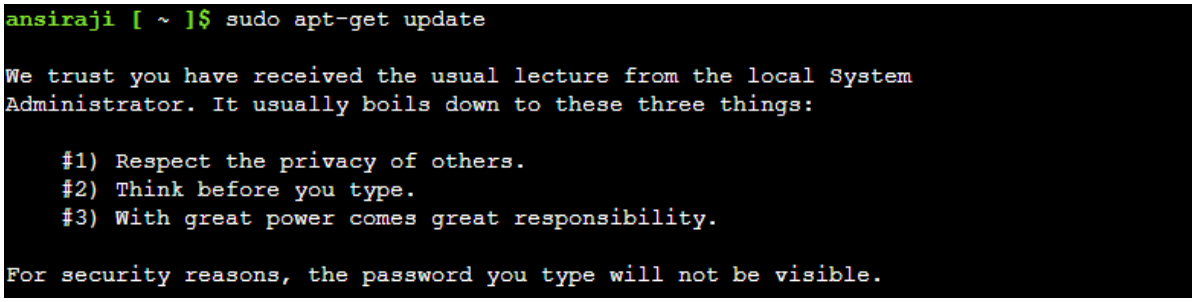
- az vm extension set --resource-group "learn-1dd151f8-37c6-44cc-a975-8f08e65c30c2" --vm-name my-vm --name customScript --publisher Microsoft.Azure.Extensions --version 2.1 --settings '{"fileUris":["https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/master/configure-nginx.sh"]}' --protected-settings '{"commandToExecute": "./configure-nginx.sh"}'

- sudo apt-get update
- ssh azureuser@ 40.83.129.77
- echo "sudo apt-get update -y

- sudo apt-get install nginx -y
- sudo systemctl start nginx
- sudo systemctl enable nginx" > setup_nginx.sh
- chmod +x setup_nginx.sh
- ./setup_nginx.sh
- echo "<html><body><h2>Welcome to Azure! My name is $(hostname).</h2></body></html>" | sudo tee -a /var/www/html/index.html
- sudo systemctl status nginx
- az vm open-port --resource-group "learn-89376140-1999-4d15-a385-6cb5d6644676" --name my-vm --port 80
- az vm list-ip-addresses --resource-group "learn-89376140-1999-4d15-a385-6cb5d6644676" --name my-vm --output table
- ssh azureuser@ 40.83.129.77
- sudo apt-get update
- gitclonehttps://github.com/AnusuyaSanjeevirajan/certificate-management.git
- sudo cp -r html/* /var/www/html/
- sudo chown -R www-data:www-data /var/www/html
- sudo chmod -R 755 /var/www/html
- sudo systemctl restart nginx

WORKING:


Azure Cloud Shell
Switch to PowerShell
Restart
Manage files
New session
Editor
Requesting a Cloud Shell.Succeeded.
Connecting terminal...
Welcome to Azure Cloud Shell
Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell
ansiraji [~]$ az vm create --resource-group "learn-89376f40-1999-4d15-a385-6cb5d6644
676" --name my-vm --public-ip-sku Standard --image Ubuntu2204 --admin-username azureus
er --generate-ssh-keys
SSH key files '/home/ansiraji/.ssh/id_rsa' and '/home/ansiraji/.ssh/id_rsa.pub' have b
een generated under ~/.ssh to allow SSH access to the VM. If using machines without pe
rmanent storage, back up your keys to a safe location.
{
"fqdns": "",
"id": "/subscriptions/4d43e8c9-4583-4435-a75d-5fa0b9865f65/resourceGroups/learn-8937
6f40-1999-4d15-a385-6cb5d6644676/providers/Microsoft.Compute/virtualMachines/my-vm",
"location": "westus",
"macAddress": "00-0D-3A-37-BA-BD",
"powerState": "VM running",
"privateIpAddress": "10.0.0.4",
"publicIpAddress": "40.83.129.77",
"resourceGroup": "learn-89376f40-1999-4d15-a385-6cb5d6644676",
"zones": ""
}


ansiraji [~]$ sudo apt-get update
We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:
#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.
For security reasons, the password you type will not be visible.

```
ansiraji [ ~ ]$ ssh azureuser@40.83.129.77
The authenticity of host '40.83.129.77 (40.83.129.77)' can't be established.
ED25519 key fingerprint is SHA256:NUu3P6EbO0ZQuM5NSudqMvG+iCUbjkxRZgoFzPuzzjg.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '40.83.129.77' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1025-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Aug  9 08:22:38 UTC 2024

  System load:  0.15              Processes:             112
  Usage of /:   6.0% of 28.89GB   Users logged in:       0
  Memory usage: 9%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

10 updates can be applied immediately.
10 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

```
azureuser@my-vm:~$ echo "sudo apt-get update -y
sudo apt-get install nginx -y
sudo systemctl start nginx
sudo systemctl enable nginx" > setup_nginx.sh
chmod +x setup_nginx.sh
./setup_nginx.sh
Hit:1 http://azure.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://azure.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://azure.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://azure.archive.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
nginx is already the newest version (1.18.0-6ubuntu14.4).
0 upgraded, 0 newly installed, 0 to remove and 13 not upgraded.
Synchronizing state of nginx.service with SysV service script with /lib/systemd/system
d-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable nginx
azureuser@my-vm:~$
```

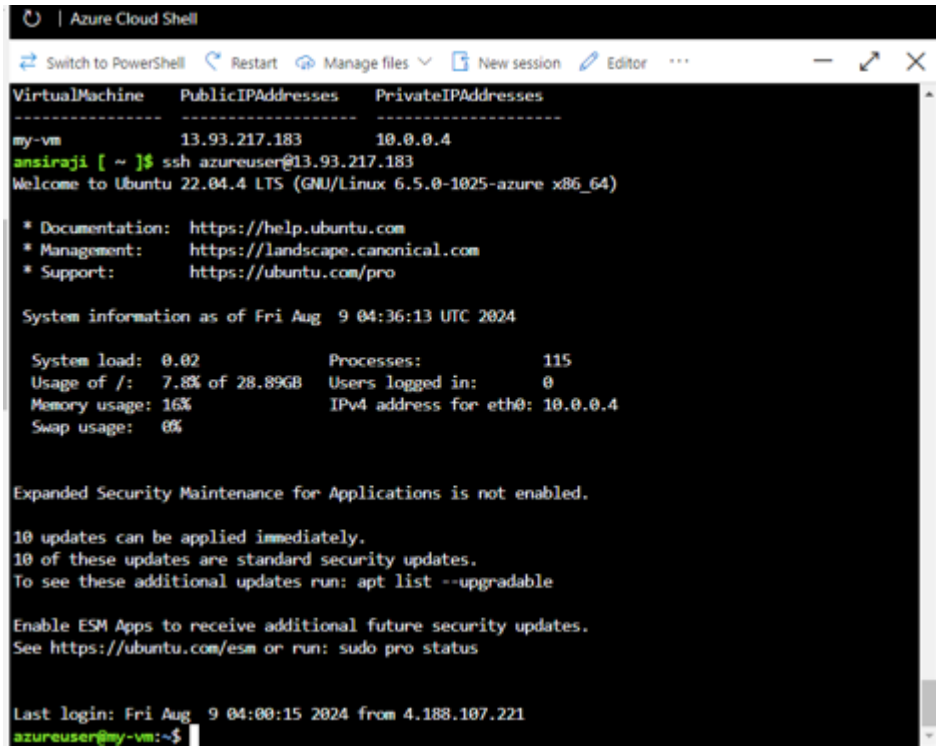
```
d-sysv-install.
Executing: /lib/systemd/systemd-sysv-install enable nginx
azureuser@my-vm:~$ echo "<html><body><h2>Welcome to Azure! My name is $(hostname).</h2
></body></html>" | sudo tee -a /var/www/html/index.html
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
azureuser@my-vm:~$
```

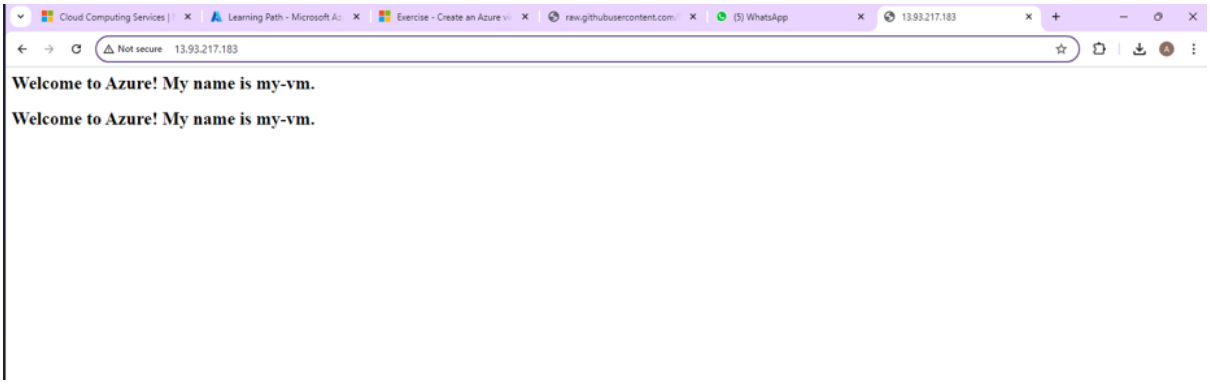
```
Executing: /lib/systemd/systemd-sysv-install enable nginx
azureuser@my-vm:~$ echo "<html><body><h2>Welcome to Azure! My name is $(hostname).</h2
></body></html>" | sudo tee -a /var/www/html/index.html
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
azureuser@my-vm:~$ sudo systemctl status nginx

● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabl>
     Active: active (running) since Fri 2024-08-09 08:19:33 UTC; 5min ago
       Docs: man:nginx(8)
   Main PID: 2383 (nginx)
      Tasks: 2 (limit: 4011)
     Memory: 4.6M
        CPU: 31ms
     CGroup: /system.slice/nginx.service
             ├─2383 "nginx: master process /usr/sbin/nginx -g daemon on; master_proce>
             └─2386 "nginx: worker process" "" "" "" "" "" "" "" "" "" "" "" "" "" ""

Aug 09 08:19:33 my-vm systemd[1]: Starting A high performance web server and a revers>
Aug 09 08:19:33 my-vm systemd[1]: Started A high performance web server and a reverse>
lines 1-14/14 (END)
```

```
azureuser@my-vm:~$ exit
logout
Connection to 40.83.129.77 closed.
ansiraji [ ~ ]$
```

```
ansiraji [ ~ ]$ az vm open-port --resource-group "learn-89376f40-1999-4d15-a385-6cb5d6
644676" --name my-vm --port 80
{
  "defaultSecurityRules": [
    {
      "access": "Allow",
      "description": "Allow inbound traffic from all VMs in VNET",
      "destinationAddressPrefix": "VirtualNetwork",
      "destinationAddressPrefixes": [],
      "destinationPortRange": "*",
      "destinationPortRanges": [],
      "direction": "Inbound",
      "etag": "W/\"b35deb2a-043d-41f0-8b2b-2ee6c0f8c402\"",
      "id": "/subscriptions/4d43e8c9-4583-4435-a75d-5fa0b9865f65/resourceGroups/learn-
89376f40-1999-4d15-a385-6cb5d6644676/providers/Microsoft.Network/networkSecurityGroups
/my-vmNSG/defaultSecurityRules/AllowVnetInBound",
      "name": "AllowVnetInBound",
      "priority": 65000,
      "protocol": "*",
      "provisioningState": "Succeeded",
      "resourceGroup": "learn-89376f40-1999-4d15-a385-6cb5d6644676",
      "sourceAddressPrefix": "VirtualNetwork",
      "sourceAddressPrefixes": [],
      "sourcePortRange": "*",
      "sourcePortRanges": [],
      "type": "Microsoft.Network/networkSecurityGroups/defaultSecurityRules"
    },
    {
```

```
}
ansiraji [ ~ ]$ az vm list-ip-addresses --resource-group "az vm list-ip-addresses --re
source-group "learn-6be6874e-0957-486f-a28f-895aa6db1625" --name my-vm --output table"
 --name my-vm --output table

ansiraji [ ~ ]$ az vm list-ip-addresses --resource-group "learn-89376f40-1999-4d15-a38
5-6cb5d6644676" --name my-vm --output table
VirtualMachine    PublicIPAddresses    PrivateIPAddresses
----------------  -------------------  --------------------
my-vm             40.83.129.77         10.0.0.4
ansiraji [ ~ ]$
```

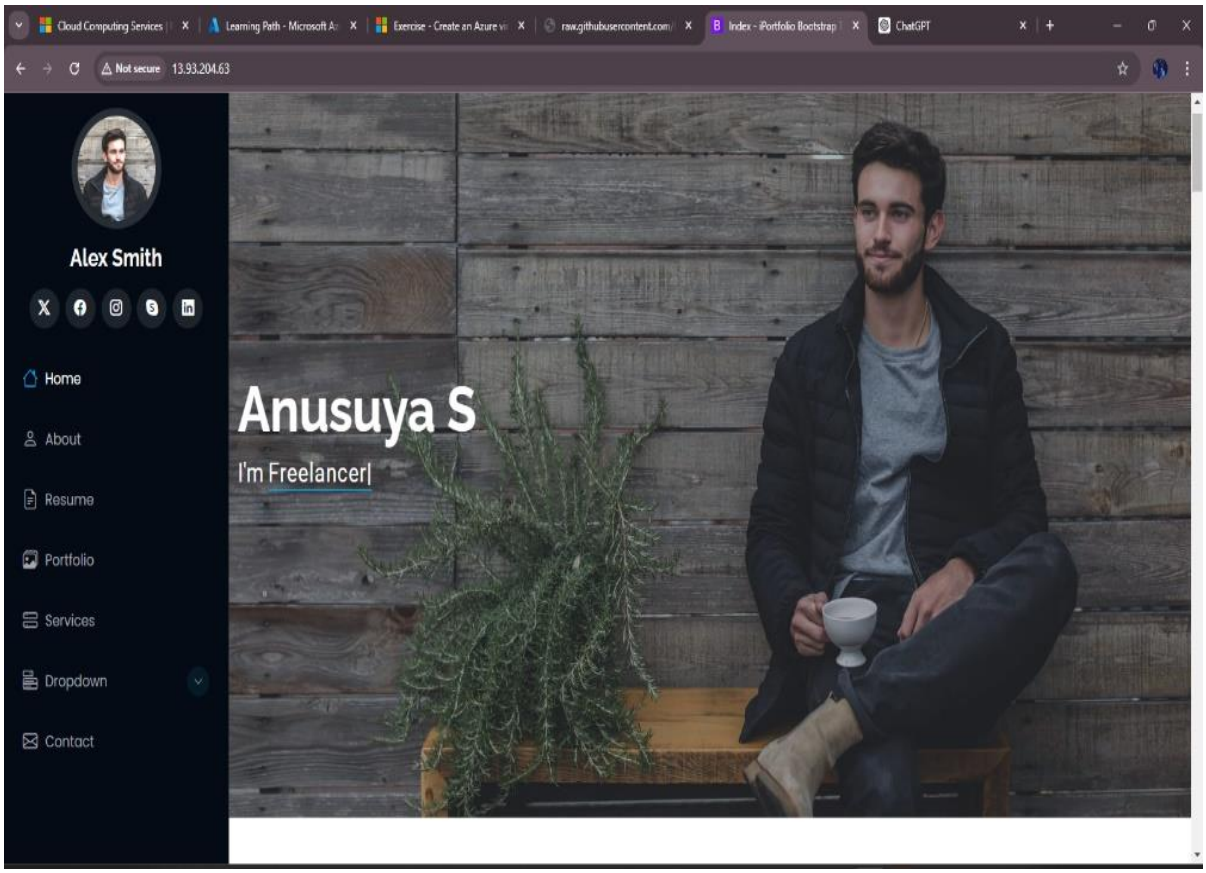




```
dharshinidivya2422 [ ~ ]$ ssh azureuser@ 13.93.204.63
ssh: Could not resolve hostname : Name or service not known
dharshinidivya2422 [ ~ ]$ ssh azureuser@13.93.204.63
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1025-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Aug  9 08:27:45 UTC 2024

  System load:  0.0               Processes:             107
  Usage of /:   6.0% of 28.89GB   Users logged in:       0
  Memory usage: 9%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%


Expanded Security Maintenance for Applications is not enabled.

10 updates can be applied immediately.
```

```
azureuser@my-vm:~$ git clone https://github.com/AnusuyaSanjeevirajan/certificate-management.git
Cloning into 'certificate-management'...
remote: Enumerating objects: 135, done.
remote: Counting objects: 100% (135/135), done.
remote: Compressing objects: 100% (98/98), done.
remote: Total 135 (delta 33), reused 135 (delta 33), pack-reused 0
Receiving objects: 100% (135/135), 2.63 MiB | 12.34 MiB/s, done.
Resolving deltas: 100% (33/33), done.
azureuser@my-vm:~$ sudo cp -r certificate-management/* /var/www/html/
azureuser@my-vm:~$ sudo chown -R www-data:www-data /var/www/html
azureuser@my-vm:~$ sudo chmod -R 755 /var/www/html
azureuser@my-vm:~$ sudo systemctl restart nginx
azureuser@my-vm:~$
```

OUTPUT:


Not secure
13.93.204.63
Alex Smith
Home
About
Resume
Portfolio
Services
Dropdown
Contact
Anusuya S
I'm Freelancer|

2. DESCRIBE AZURE STORAGE SERVICES

WORK WITH BLOB STORAGE

In this section, you'll create a Blob container and upload a picture.

1. Under **Data storage**, select **Containers**.
2. Select **+ Container** and complete the information.
3. Select Create.

Note

Step 4 will need an image. If you want to upload an image you already have on your computer, continue to Step 4. Otherwise, open a new browser window and search Bing for an image of a flower. Save the image to your computer.

4. Back in the Azure portal, select the container you created, then select Upload.
5. Browse for the image file you want to upload. Select it and then select upload.

Note

You can upload as many blobs as you like in this way. New blobs will be listed within the container.

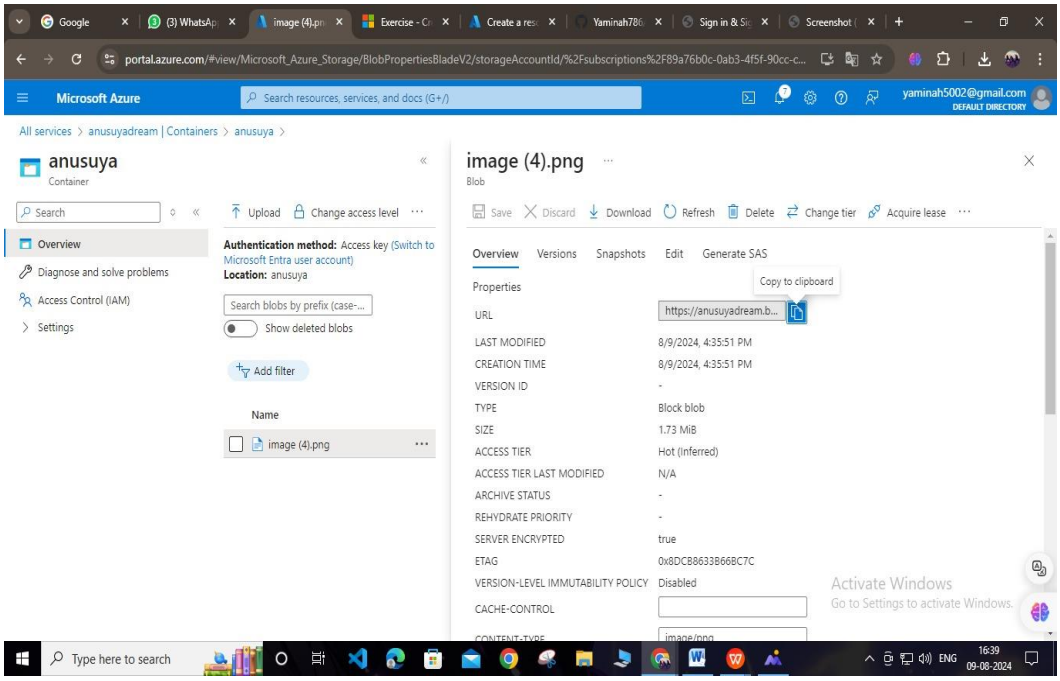
6. Select the Blob (file) you just uploaded. You should be on the properties tab.
7. Copy the URL from the URL field and paste it into a new tab.

- ### Change the access level of your blob

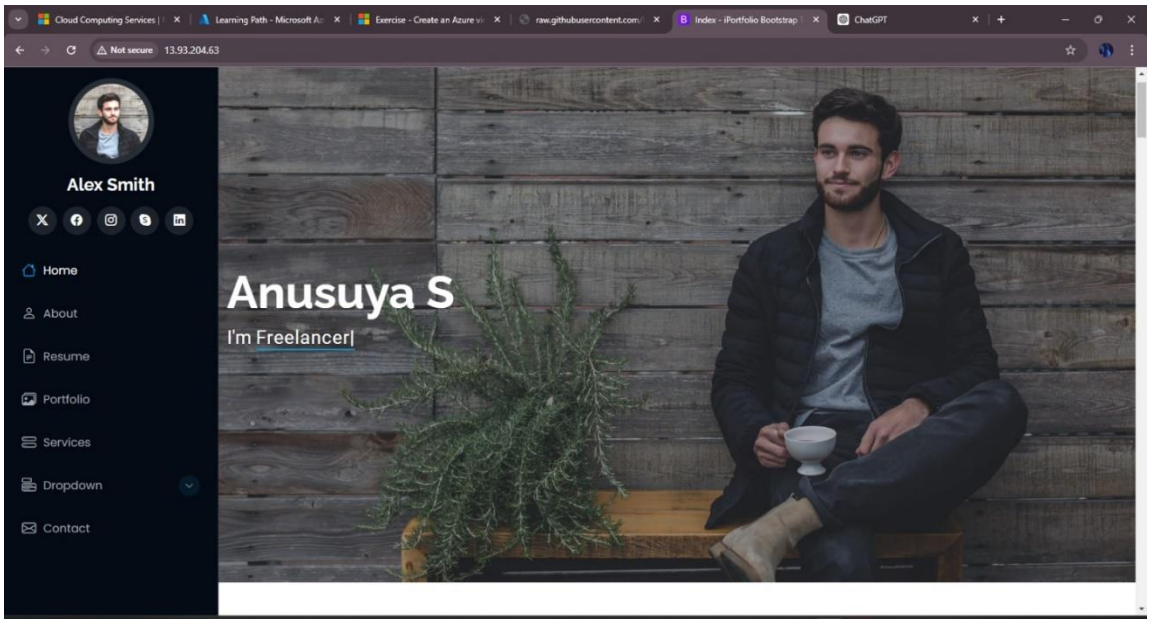
1. Go back to the Azure portal.
2. Select Change access level.

3. Set the Anonymous access level to Blob (anonymous read access for blobs only).
4. Select OK.
5. Refresh the tab where you attempted to access the file earlier.

WORKING:



OUTPUT :



3. ESTIMATE WORKLOAD COSTS BY USING THE PRICING CALCULATOR

- Explore the Pricing calculator

  1. Go to the Pricing calculator.

  2. Notice the following tabs:

     - Products This is where you choose the Azure services that you want to include in your estimate. You'll likely spend most of your time here.

     - Example scenarios Here you'll find several *reference architectures*, or common cloud-based solutions that you can use as a starting point.

     - Saved estimates Here you'll find your previously saved estimates.

  3. Estimate your solution

- Here you add each Azure service that you need to the calculator. Then you configure each service to fit your needs.
- Tip
- Make sure you have a clean calculator with nothing listed in the estimate. You can reset the estimate by selecting the trash can icon next to each item.
- Add services to the estimate

  1. On the Products tab, select the service from each of these categories:

  2. Scroll to the bottom of the page. Each service is listed with its default configuration.

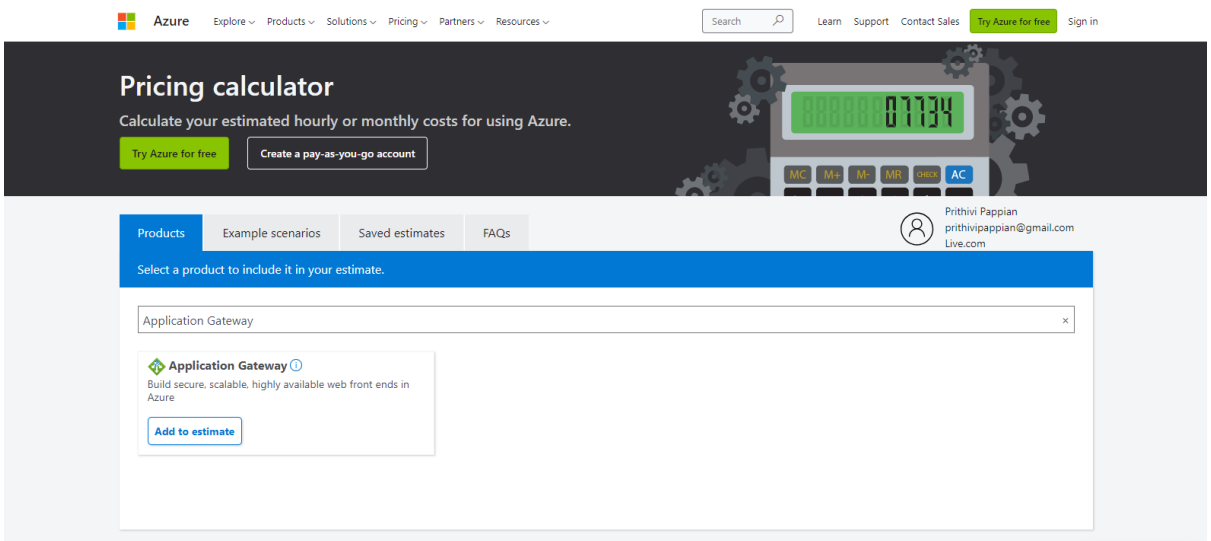
- Configure services to match your requirements:

  1. Under Virtual Machines, set values.

2. Under Azure SQL Database, set values.
3. Under Application Gateway, set values.

- Review, share, and save your estimate
- At the bottom of the page, you see the total estimated cost of running the solution. You can change the currency type if you want.
- At this point, you have a few options:
  - Select Export to save your estimate as an Excel document.
  - Select Save or Save as to save your estimate to the Saved Estimates tab for later.
  - Select Share to generate a URL so you can share the estimate with your team.

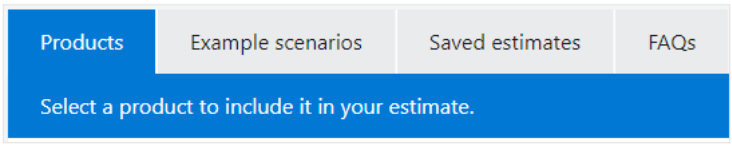
WORKING :



Explore the Pricing calculator

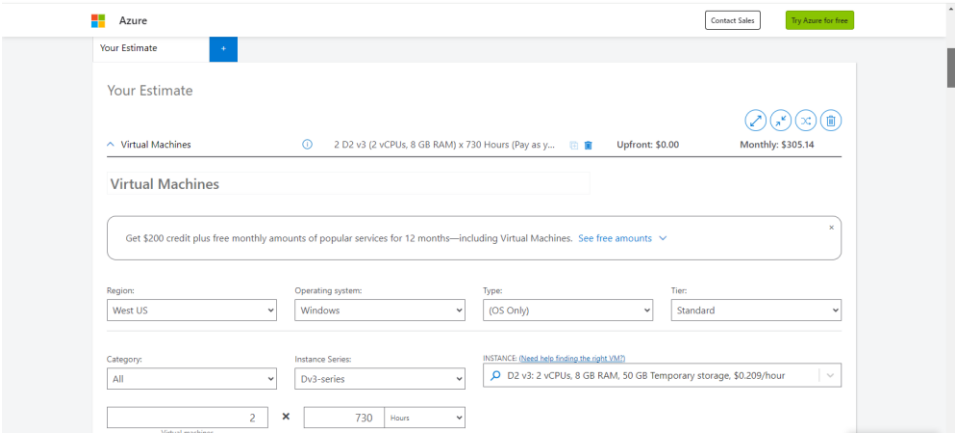
Let's start with a quick tour of the Pricing calculator.

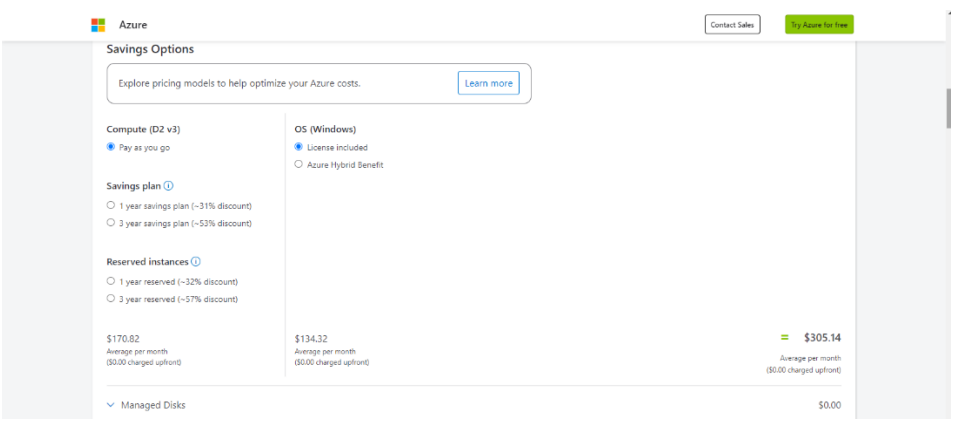
1. Go to the Pricing calculator.
2. Notice the following tabs:

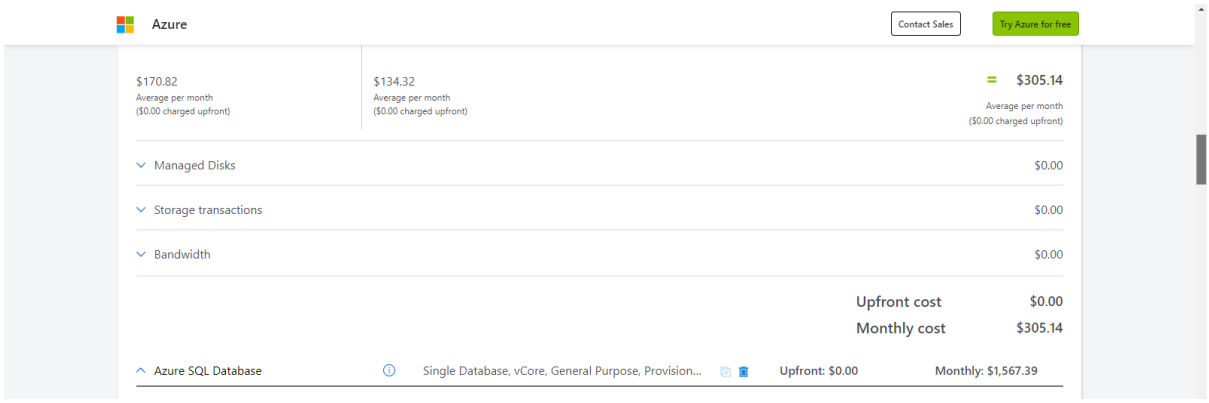


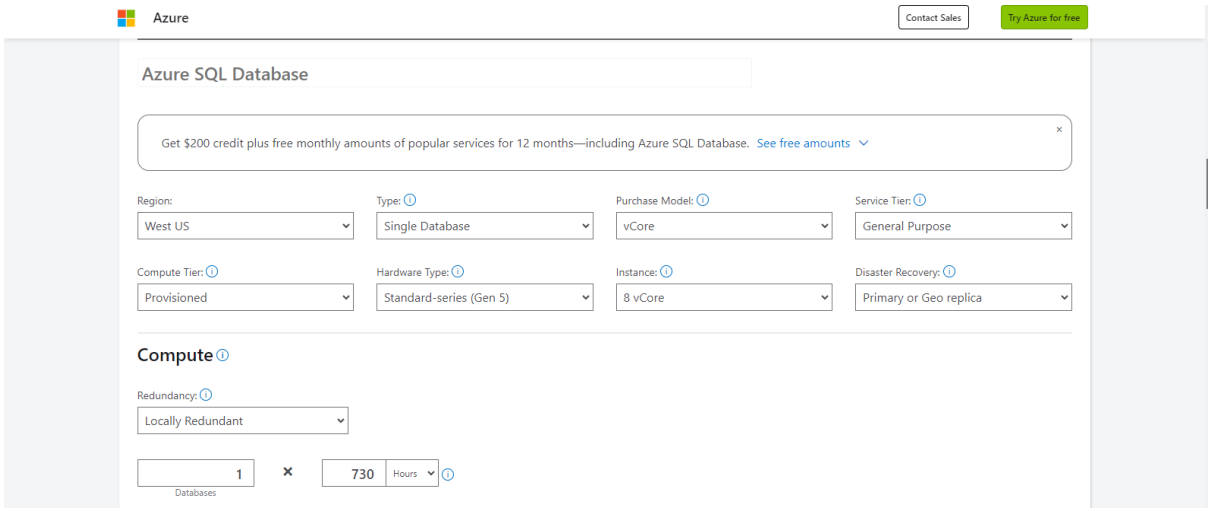
- **Products** This is where you choose the Azure services that you want to include in your estimate. You'll likely spend most of your time here.
- **Example scenarios** Here you'll find several *reference architectures*, or common cloud-based solutions that you can use as a starting point.
- **Saved estimates** Here you'll find your previously saved estimates.
- **FAQs** Here you'll discover answers to frequently asked questions about the Pricing calculator.

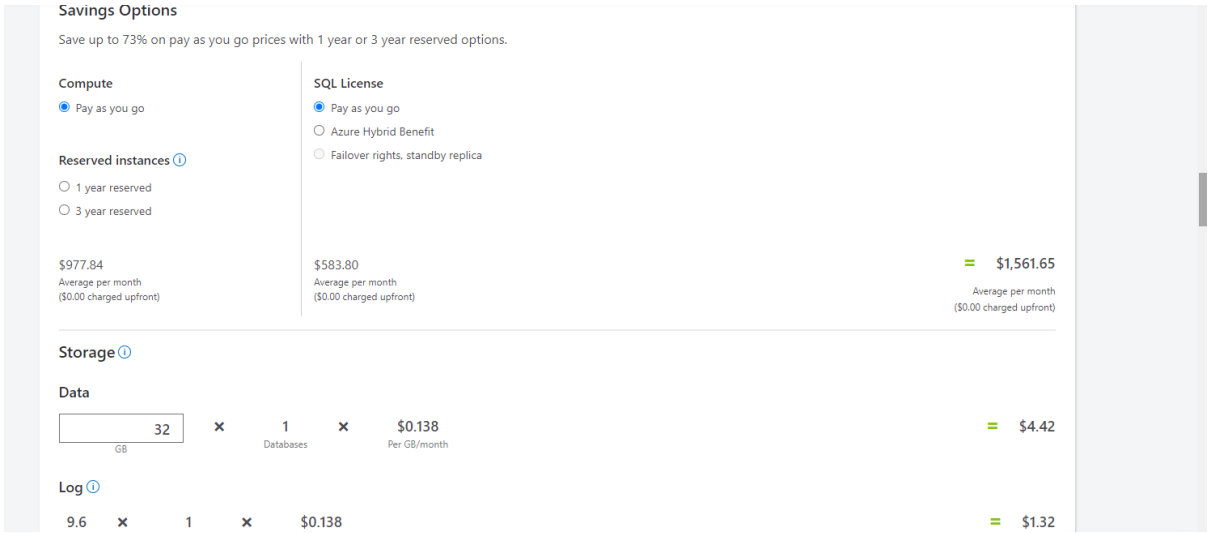
ADD SEVICES TO THE ESTIMATE:

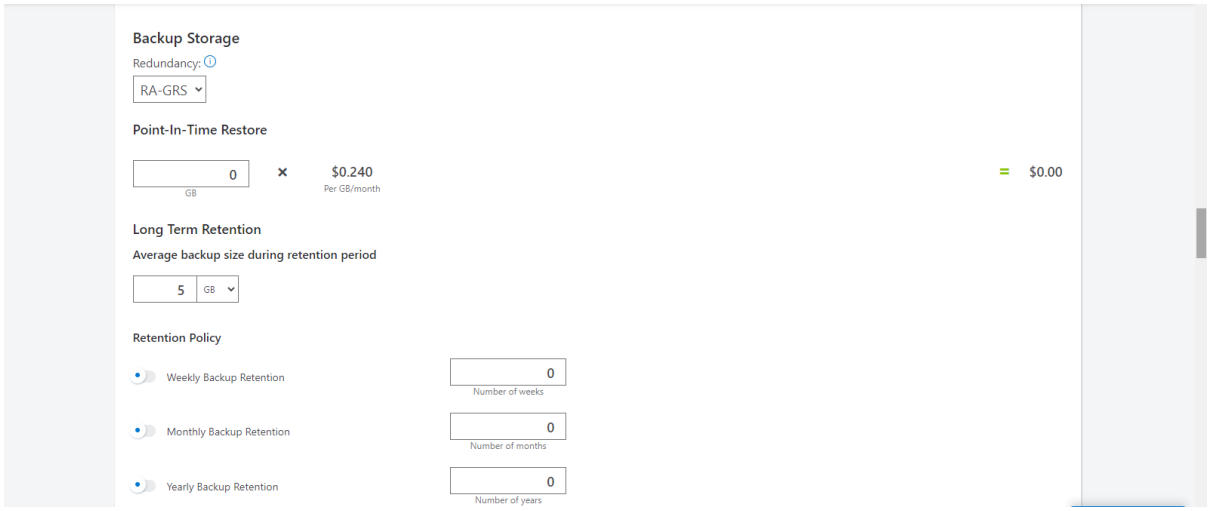


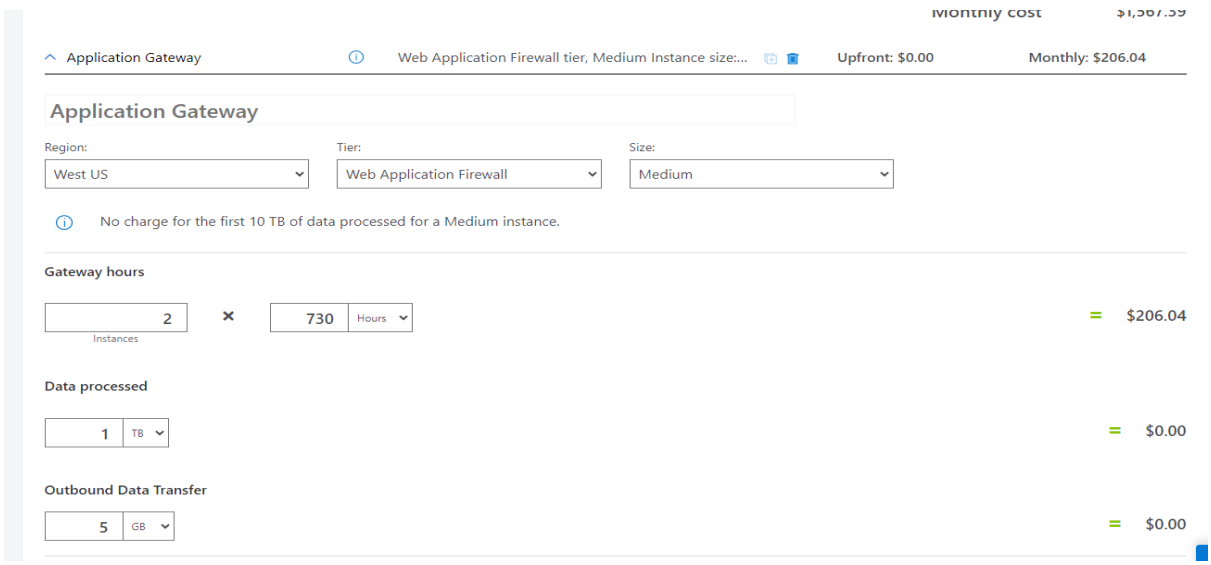


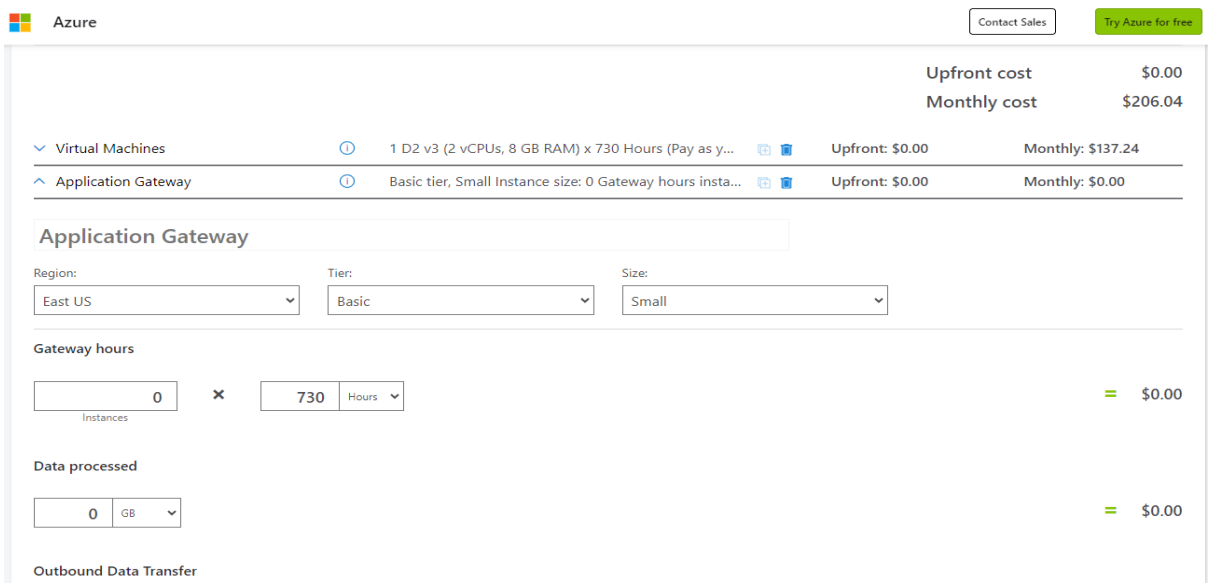

Azure
Contact Sales
Try Azure for free
$170.82
Average per month
($0.00 charged upfront)
$134.32
Average per month
($0.00 charged upfront)
= $305.14
Average per month
($0.00 charged upfront)
Managed Disks $0.00
Storage transactions $0.00
Bandwidth $0.00
Upfront cost $0.00
Monthly cost $305.14
Azure SQL Database
Single Database, vCore, General Purpose, Provision...
Upfront: $0.00
Monthly: $1,567.39

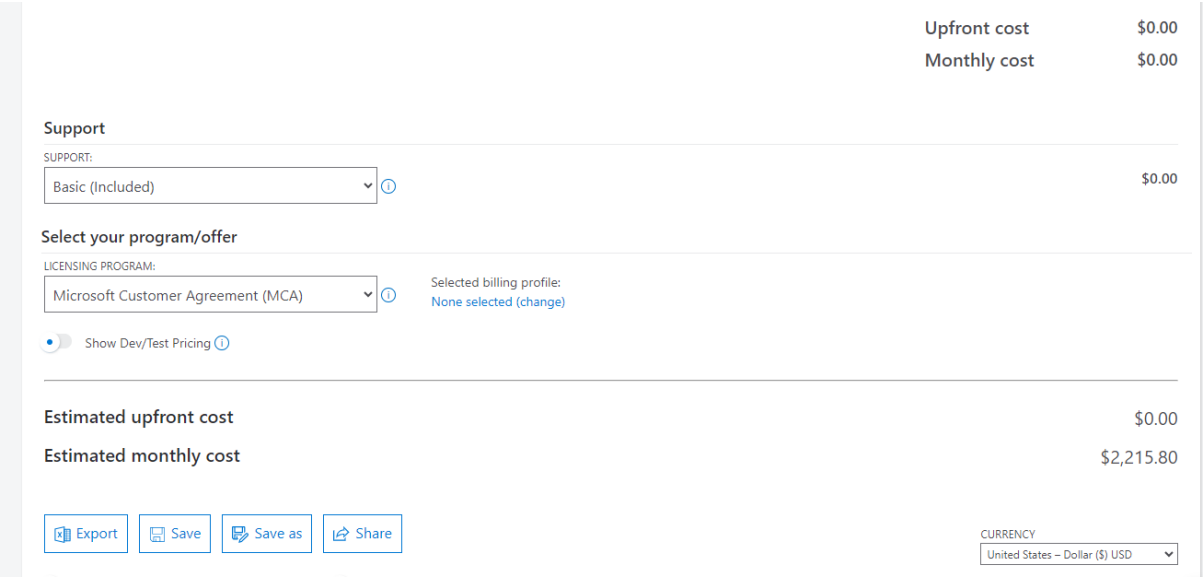

Azure
Contact Sales
Try Azure for free
Azure SQL Database
Get $200 credit plus free monthly amounts of popular services for 12 months—including Azure SQL Database. See free amounts
Region: West US
Type: Single Database
Purchase Model: vCore
Service Tier: General Purpose
Compute Tier: Provisioned
Hardware Type: Standard-series (Gen 5)
Instance: 8 vCore
Disaster Recovery: Primary or Geo replica
Compute
Redundancy: Locally Redundant
1 Databases
× 730 Hours

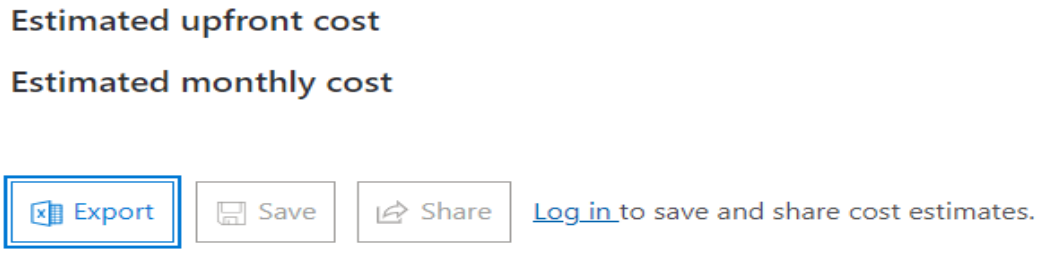

Savings Options
Save up to 73% on pay as you go prices with 1 year or 3 year reserved options.
Compute
Pay as you go
Reserved instances
1 year reserved
3 year reserved
SQL License
Pay as you go
Azure Hybrid Benefit
Failover rights, standby replica
$977.84
Average per month
($0.00 charged upfront)
$583.80
Average per month
($0.00 charged upfront)
= $1,561.65
Average per month
($0.00 charged upfront)
Storage
Data
32 GB × 1 Databases × $0.138 Per GB/month = $4.42
Log
9.6 × 1 × $0.138 = $1.32

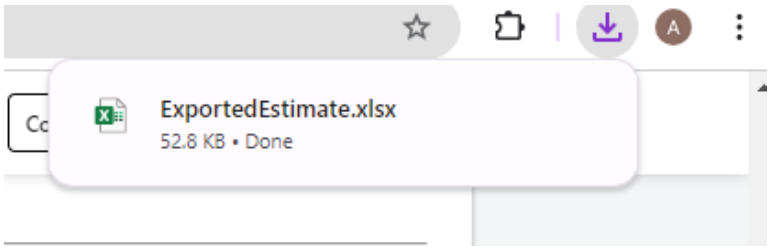

Backup Storage
Redundancy:
RA-GRS
Point-In-Time Restore
0
GB
×
$0.240
Per GB/month
= $0.00
Long Term Retention
Average backup size during retention period
5
GB
Retention Policy
Weekly Backup Retention
0
Number of weeks
Monthly Backup Retention
0
Number of months
Yearly Backup Retention
0
Number of years

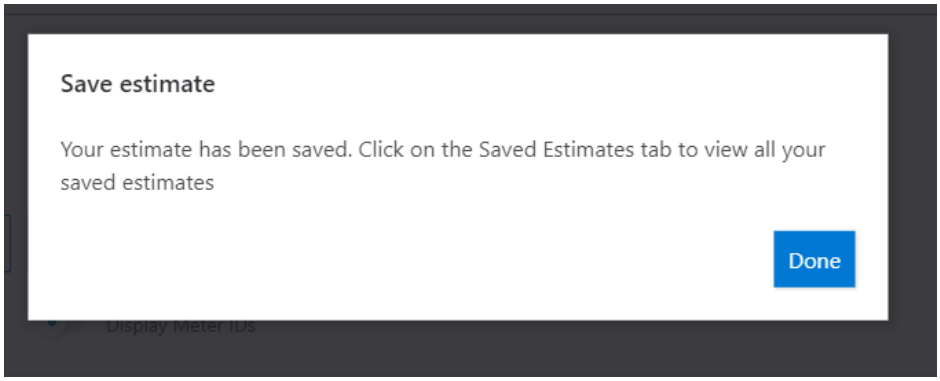

Monthly cost
Application Gateway
Web Application Firewall tier, Medium Instance size:...
Upfront: $0.00
Monthly: $206.04
Application Gateway
Region:
West US
Tier:
Web Application Firewall
Size:
Medium
No charge for the first 10 TB of data processed for a Medium instance.
Gateway hours
2
Instances
×
730
Hours
= $206.04
Data processed
1
TB
= $0.00
Outbound Data Transfer
5
GB
= $0.00


Azure
Contact Sales
Try Azure for free
Upfront cost $0.00
Monthly cost $206.04
Virtual Machines
1 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as y...
Upfront: $0.00
Monthly: $137.24
Application Gateway
Basic tier, Small Instance size: 0 Gateway hours insta...
Upfront: $0.00
Monthly: $0.00
Application Gateway
Region:
East US
Tier:
Basic
Size:
Small
Gateway hours
0
Instances
×
730
Hours
= $0.00
Data processed
0
GB
= $0.00
Outbound Data Transfer

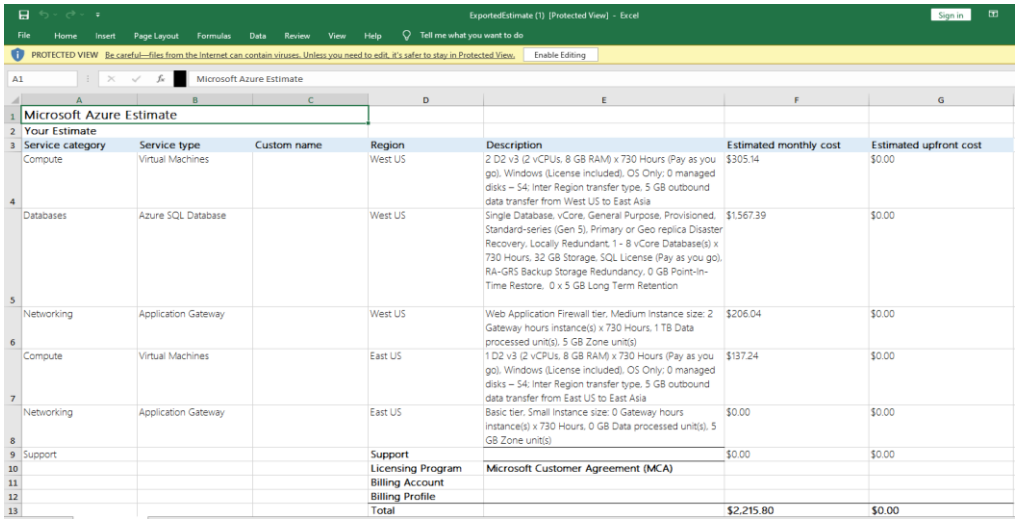

Upfront cost
$0.00
Monthly cost
$0.00
Support
SUPPORT:
Basic (Included)
$0.00
Select your program/offer
LICENSING PROGRAM:
Microsoft Customer Agreement (MCA)
Selected billing profile:
None selected (change)
Show Dev/Test Pricing
Estimated upfront cost
$0.00
Estimated monthly cost
$2,215.80
Export
Save
Save as
Share
CURRENCY
United States – Dollar ($) USD


Estimated upfront cost
Estimated monthly cost
Export
Save
Share
Log in to save and share cost estimates.


ExportedEstimate.xlsx
52.8 KB • Done


Save estimate
Your estimate has been saved. Click on the Saved Estimates tab to view all your saved estimates
Done

OUTPUT :

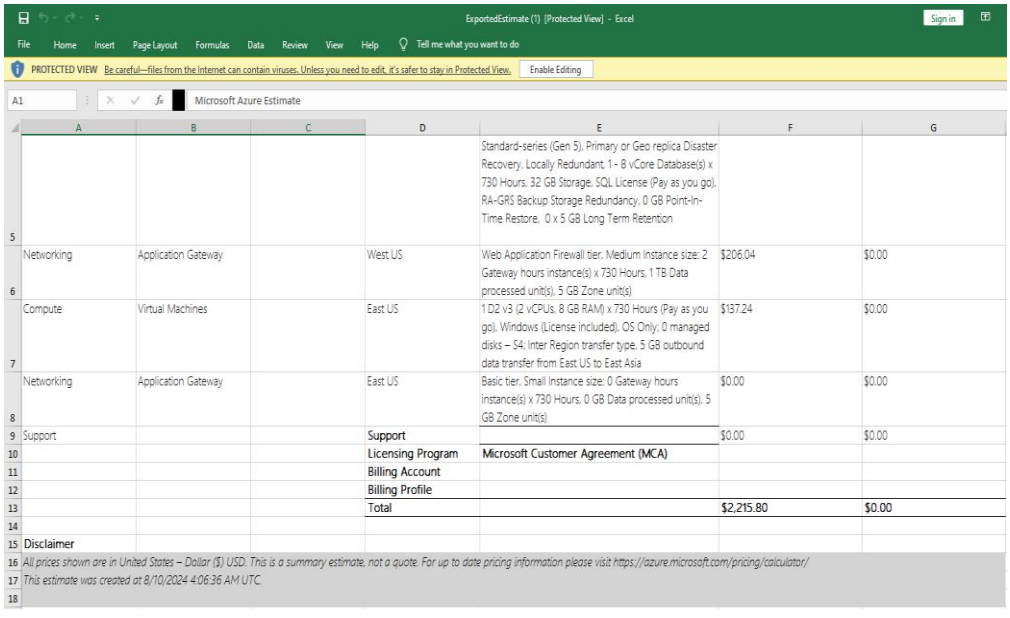


ExportedEstimate (1) [Protected View] - Excel

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

A1: Microsoft Azure Estimate

	A	B	C	D	E	F	G
1	Microsoft Azure Estimate						
2	Your Estimate						
3	Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
4	Compute	Virtual Machines		West US	2 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – S4; Inter Region transfer type, 5 GB outbound data transfer from West US to East Asia	$305.14	$0.00
5	Databases	Azure SQL Database		West US	Single Database, vCore, General Purpose, Provisioned, Standard-series (Gen 5), Primary or Geo replica Disaster Recovery, Locally Redundant, 1 - 8 vCore Database(s) x 730 Hours, 32 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	$1,567.39	$0.00
6	Networking	Application Gateway		West US	Web Application Firewall tier, Medium Instance size: 2 Gateway hours instance(s) x 730 Hours, 1 TB Data processed unit(s), 5 GB Zone unit(s)	$206.04	$0.00
7	Compute	Virtual Machines		East US	1 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – S4; Inter Region transfer type, 5 GB outbound data transfer from East US to East Asia	$137.24	$0.00
8	Networking	Application Gateway		East US	Basic tier, Small Instance size: 0 Gateway hours instance(s) x 730 Hours, 0 GB Data processed unit(s), 5 GB Zone unit(s)	$0.00	$0.00
9	Support			Support		$0.00	$0.00
10				Licensing Program	Microsoft Customer Agreement (MCA)		
11				Billing Account			
12				Billing Profile			
13				Total		$2,215.80	$0.00



ExportedEstimate (1) [Protected View] - Excel

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

A1: Microsoft Azure Estimate

	A	B	C	D	E	F	G
5					Standard-series (Gen 5), Primary or Geo replica Disaster Recovery, Locally Redundant, 1 - 8 vCore Database(s) x 730 Hours, 32 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		
6	Networking	Application Gateway		West US	Web Application Firewall tier, Medium Instance size: 2 Gateway hours instance(s) x 730 Hours, 1 TB Data processed unit(s), 5 GB Zone unit(s)	$206.04	$0.00
7	Compute	Virtual Machines		East US	1 D2 v3 (2 vCPUs, 8 GB RAM) x 730 Hours (Pay as you go), Windows (License included), OS Only; 0 managed disks – S4; Inter Region transfer type, 5 GB outbound data transfer from East US to East Asia	$137.24	$0.00
8	Networking	Application Gateway		East US	Basic tier, Small Instance size: 0 Gateway hours instance(s) x 730 Hours, 0 GB Data processed unit(s), 5 GB Zone unit(s)	$0.00	$0.00
9	Support			Support		$0.00	$0.00
10				Licensing Program	Microsoft Customer Agreement (MCA)		
11				Billing Account			
12				Billing Profile			
13				Total		$2,215.80	$0.00
14							
15	Disclaimer						
16	*All prices shown are in United States – Dollar ($) USD. This is a summary estimate, not a quote. For up to date pricing information please visit https://azure.microsoft.com/pricing/calculator/*						
17	*This estimate was created at 8/10/2024 4:06:36 AM UTC.*						
18							

4. COMPARE WORKLOAD COSTS USING THE TCO CALCULATOR

- Define your workloads

Enter the specifications of your on-premises infrastructure into the TCO Calculator.

1. Go to the TCO Calculator.
2. Under **Define your workloads**, select **Add server workload** to create a row for your bank of Windows Server VMs.
3. Under **Servers**, set the value for each of these settings.
4. Select **Add server workload** to create a second row for your bank of Linux VMs. Then specify these settings.
5. Under **Storage**, select **Add storage**. Then specify these settings.
6. Under **Networking**, set **Outbound bandwidth** to **15 TB**.
7. Select **Next**.

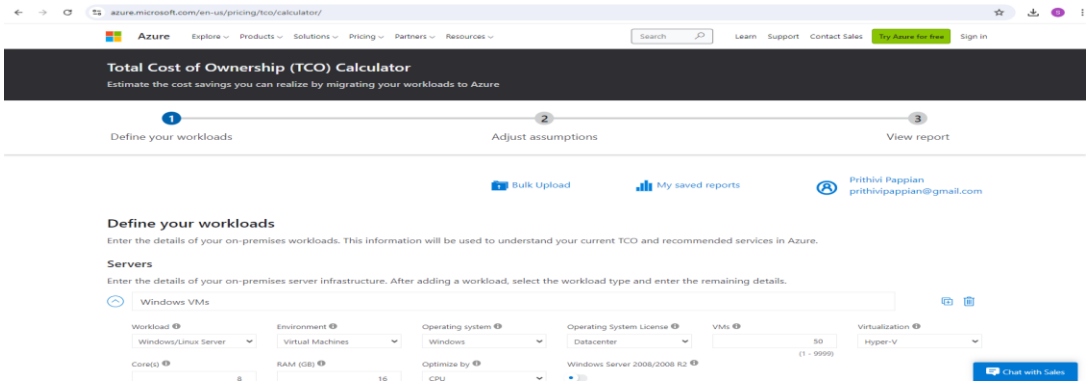
- In practice, you would adjust any cost assumptions and make any adjustments to match your current on-premises environment.
- At the top of the page, select your currency. This example uses **US Dollar ($)**.
- Select **Next**.
- **View the report**
- Take a moment to review the generated report.
- Remember, you've been tasked to investigate cost savings for your European datacenter over the next three years.

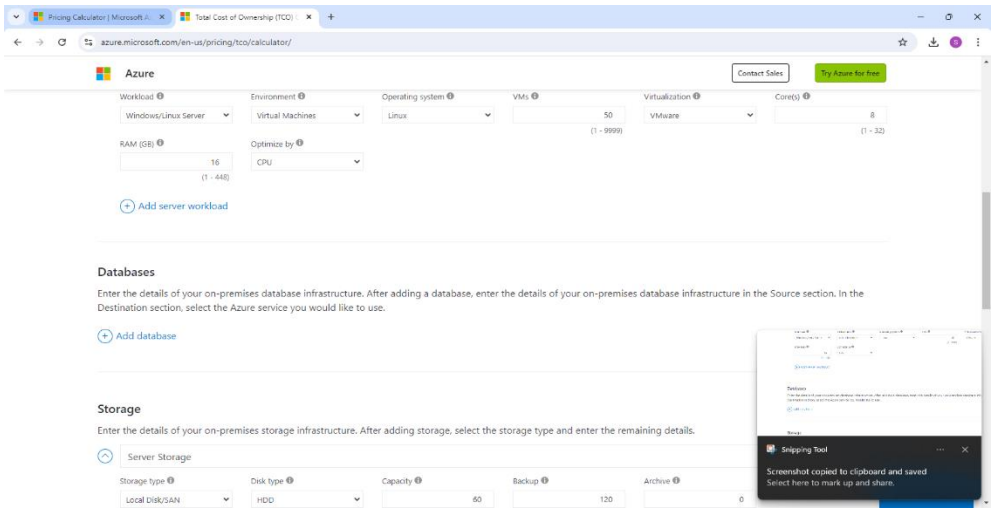
To make these adjustments:

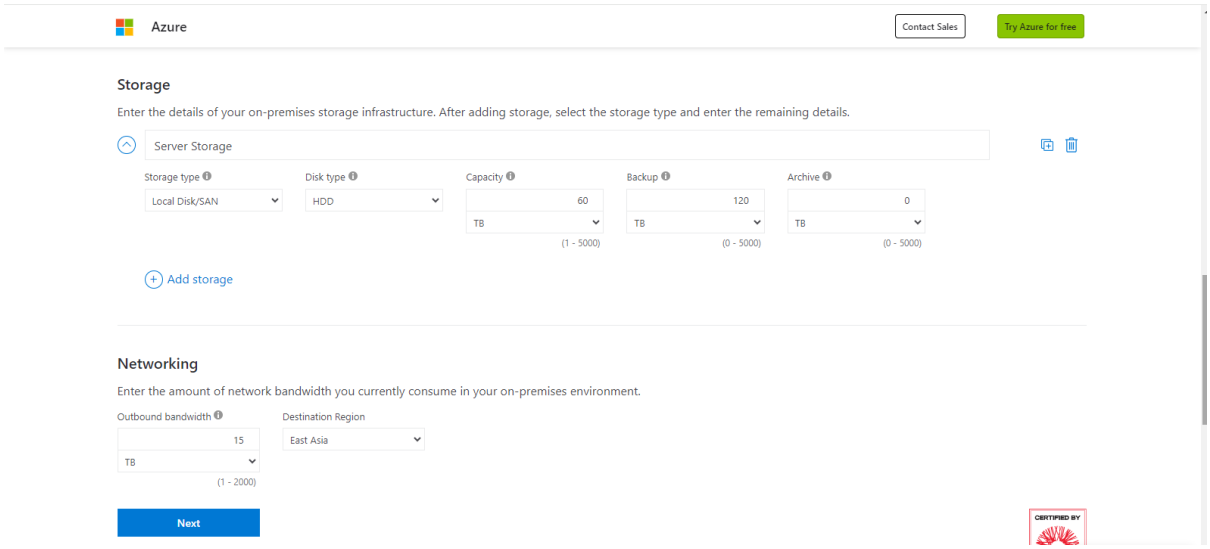
1. Set **Timeframe** to **3 Years**.
2. Set **Region** to **North Europe**.

Scroll to the summary at the bottom. You see a comparison of running your workloads in the datacenter versus on Azure.

WORKING :






Azure
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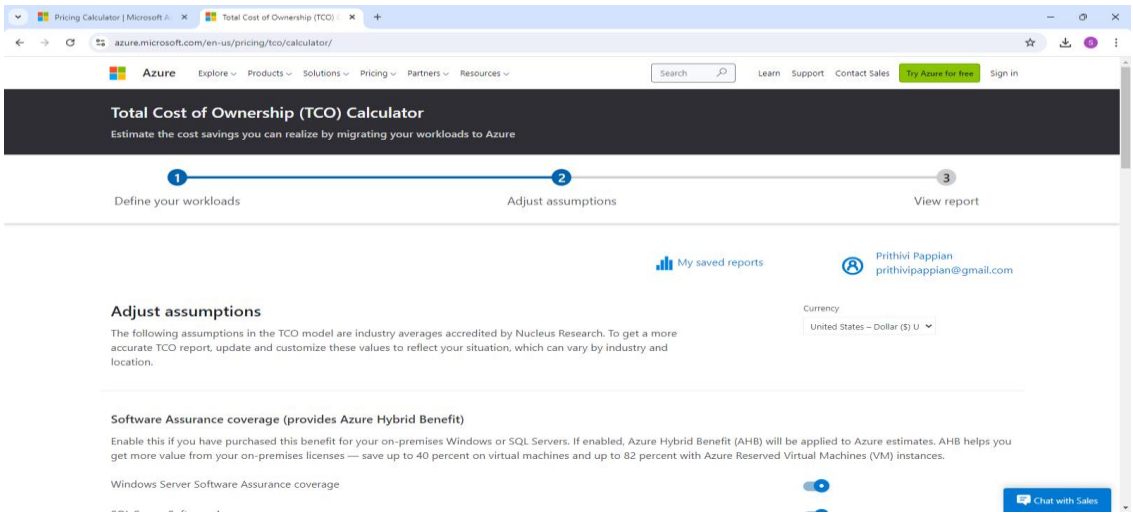
Storage
Enter the details of your on-premises storage infrastructure. After adding storage, select the storage type and enter the remaining details.
Server Storage
Storage type
Local Disk/SAN
Disk type
HDD
Capacity
60
TB
(1 - 5000)
Backup
120
TB
(0 - 5000)
Archive
0
TB
(0 - 5000)
Add storage
Networking
Enter the amount of network bandwidth you currently consume in your on-premises environment.
Outbound bandwidth
15
TB
(1 - 2000)
Destination Region
East Asia
Next


azure.microsoft.com/en-us/pricing/tco/calculator/
Azure
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Pricing
Partners
Resources
Search
Learn
Support
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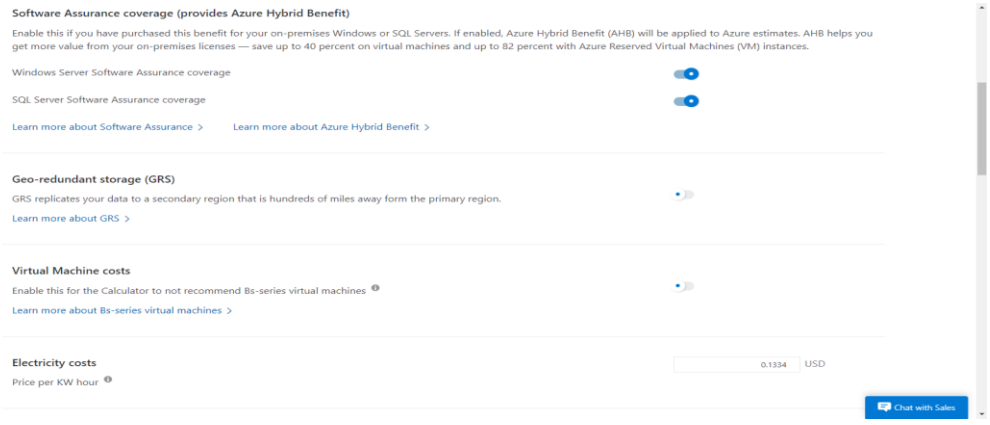
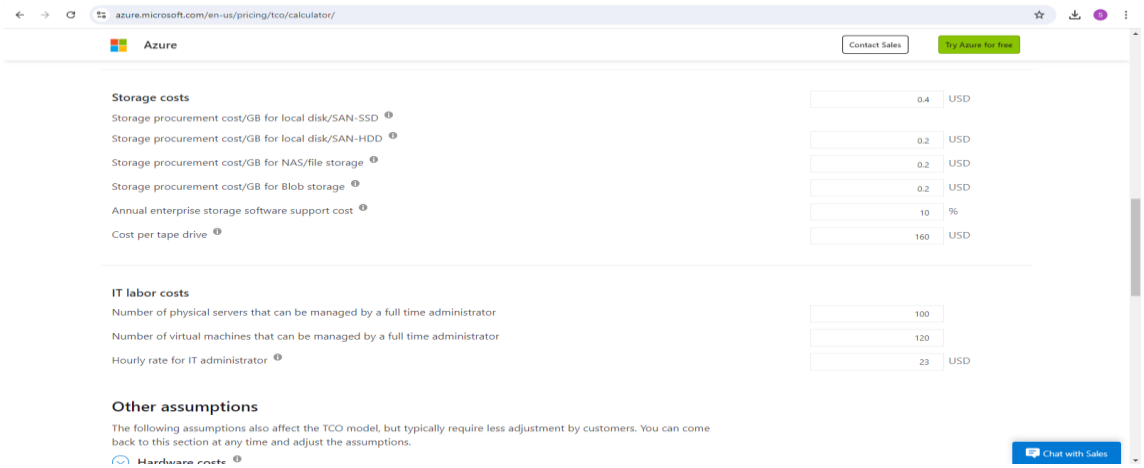
Total Cost of Ownership (TCO) Calculator
Estimate the cost savings you can realize by migrating your workloads to Azure
1
Define your workloads
2
Adjust assumptions
3
View report
My saved reports
Prithivi Pappian
prithivipappian@gmail.com
Adjust assumptions
The following assumptions in the TCO model are industry averages accredited by Nucleus Research. To get a more accurate TCO report, update and customize these values to reflect your situation, which can vary by industry and location.
Currency
United States – Dollar ($) U
Software Assurance coverage (provides Azure Hybrid Benefit)
Enable this if you have purchased this benefit for your on-premises Windows or SQL Servers. If enabled, Azure Hybrid Benefit (AHB) will be applied to Azure estimates. AHB helps you get more value from your on-premises licenses — save up to 40 percent on virtual machines and up to 82 percent with Azure Reserved Virtual Machines (VM) instances.
Windows Server Software Assurance coverage
Chat with Sales


Software Assurance coverage (provides Azure Hybrid Benefit)
Enable this if you have purchased this benefit for your on-premises Windows or SQL Servers. If enabled, Azure Hybrid Benefit (AHB) will be applied to Azure estimates. AHB helps you get more value from your on-premises licenses — save up to 40 percent on virtual machines and up to 82 percent with Azure Reserved Virtual Machines (VM) instances.
Windows Server Software Assurance coverage
SQL Server Software Assurance coverage
Learn more about Software Assurance >
Learn more about Azure Hybrid Benefit >
Geo-redundant storage (GRS)
GRS replicates your data to a secondary region that is hundreds of miles away form the primary region.
Learn more about GRS >
Virtual Machine costs
Enable this for the Calculator to not recommend Bs-series virtual machines
Learn more about Bs-series virtual machines >
Electricity costs
Price per KW hour
0.1334
USD
Chat with Sales


azure.microsoft.com/en-us/pricing/tco/calculator/
Azure
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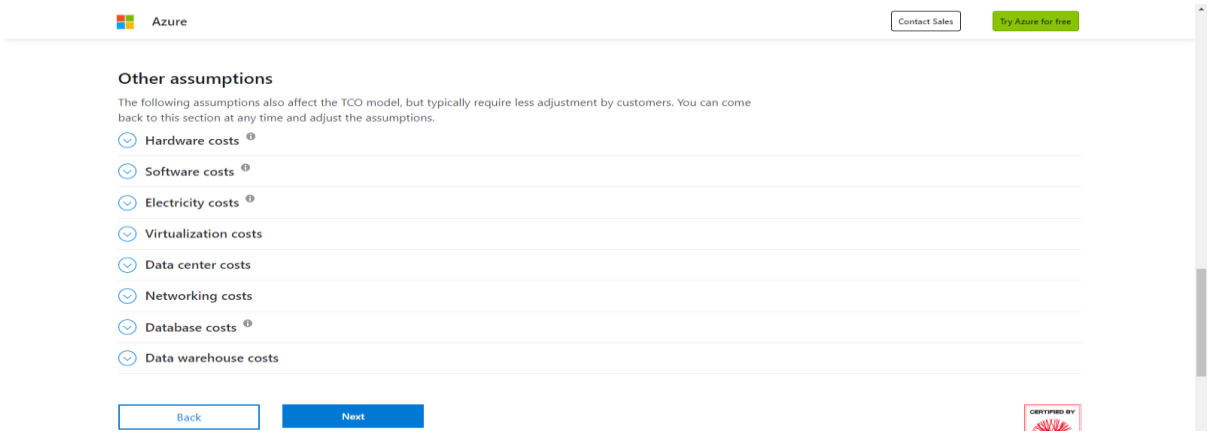
Storage costs
Storage procurement cost/GB for local disk/SAN-SSD
0.4 USD
Storage procurement cost/GB for local disk/SAN-HDD
0.2 USD
Storage procurement cost/GB for NAS/file storage
0.2 USD
Storage procurement cost/GB for Blob storage
0.2 USD
Annual enterprise storage software support cost
10 %
Cost per tape drive
160 USD
IT labor costs
Number of physical servers that can be managed by a full time administrator
100
Number of virtual machines that can be managed by a full time administrator
120
Hourly rate for IT administrator
23 USD
Other assumptions
The following assumptions also affect the TCO model, but typically require less adjustment by customers. You can come back to this section at any time and adjust the assumptions.
Chat with Sales


Azure
Contact Sales
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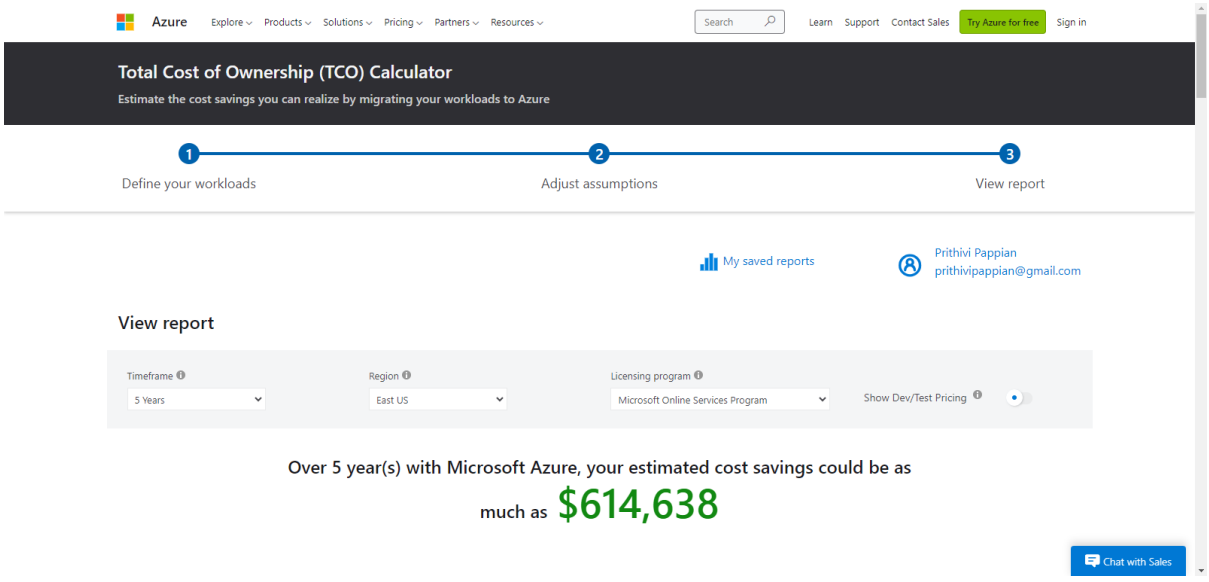
Other assumptions
The following assumptions also affect the TCO model, but typically require less adjustment by customers. You can come back to this section at any time and adjust the assumptions.
Hardware costs
Software costs
Electricity costs
Virtualization costs
Data center costs
Networking costs
Database costs
Data warehouse costs
Back
Next


Azure
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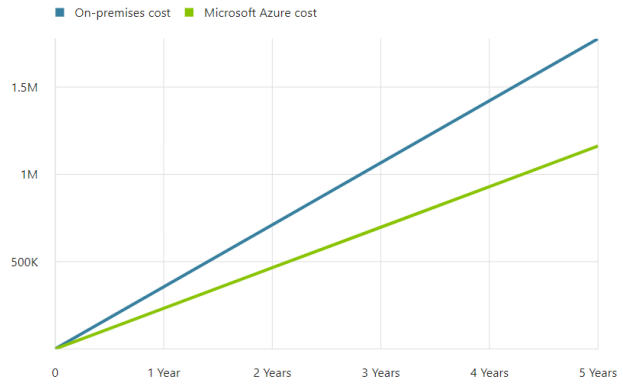
Sign in
Total Cost of Ownership (TCO) Calculator
Estimate the cost savings you can realize by migrating your workloads to Azure
1
Define your workloads
2
Adjust assumptions
3
View report
My saved reports
Prithivi Pappian
prithivipappian@gmail.com
View report
Timeframe
5 Years
Region
East US
Licensing program
Microsoft Online Services Program
Show Dev/Test Pricing
Over 5 year(s) with Microsoft Azure, your estimated cost savings could be as much as $614,638
Chat with Sales

Azure

Contact Sales | Try Azure for free

Total on-premises vs. Azure cost over time

Savings from running workloads in Azure accrue over time. The following shows how those savings add up over years.



Azure

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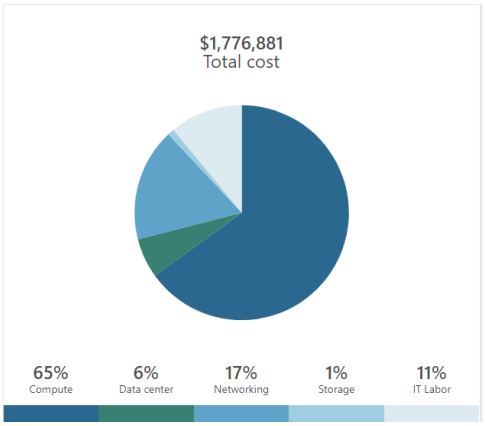
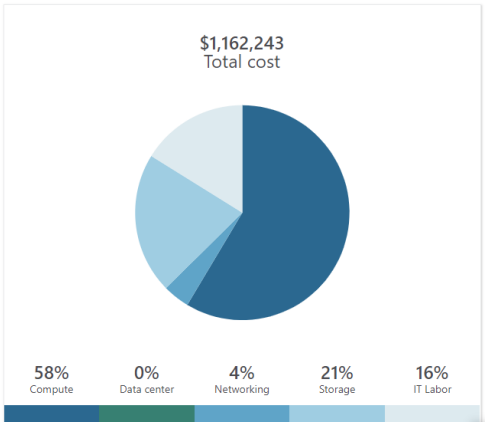
Total on-premises over 5 year(s)

TCO of on-premises environments tends to be driven by compute and data center costs.



Total Azure cost over 5 year(s)

In Azure, certain cost categories decrease or go away completely.



Azure

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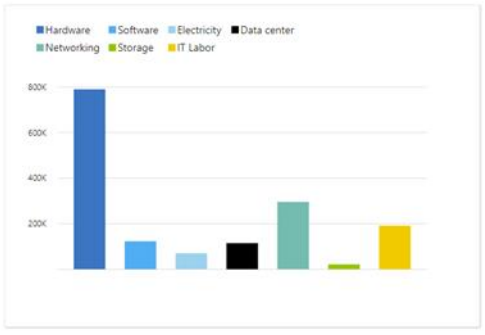
Total on-premises cost breakdown

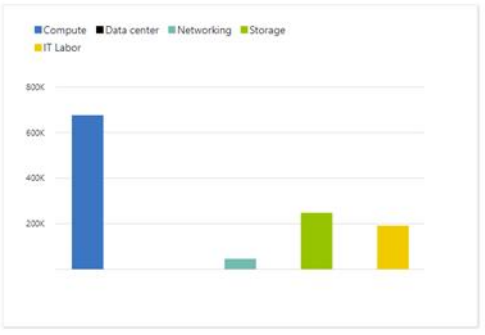
In Azure, several of the cost categories from the on-premises environment are consolidated and decrease with the efficiency that comes with the cloud.



$1,776,881
Cost over 5 year(s)

Total Azure cost breakdown

In Azure, several of the cost categories from the on-premises environment are consolidated and decrease with the efficiency that comes with the cloud.



$1,162,243
Cost over 5 year(s)

Chat with Sales

On-premises cost breakdown summary

Category	Cost
Compute	$1,152,920.80
Hardware	$790,280.00
Software	$123,100.00
Electricity	$70,276.80
Virtualization	$169,264.00
Data Center	$114,862.60
Networking	$295,798.05
Storage	$21,632.00
IT Labor	$191,667.05
Total	$1,776,881.00

Azure cost breakdown summary

Category	Cost
Compute	$676,416.00
Data Center	$0.00
Networking	$46,065.00
Storage	$248,094.72
IT Labor	$191,667.05
Total	$1,162,243.00

Estimated on-premises cost (5 year(s))

Estimated Azure cost (5 year(s))

Data center cost	Azure data center cost
Networking cost	Azure networking cost
Storage cost	Azure storage cost
IT labor cost	Azure IT labor cost

Total on-premises cost over five year(s)	**$1,776,881.00**	**Total Azure cost over five year(s)**	**$1,162,243.00**

A total **savings** of $614,638.00 with **Microsoft Azure**

Download Share Save

Total Cost of Ownership (TCO) Calculator

Estimate the cost savings you can realize by migrating your workloads to Azure

My saved reports

Prithivi Pappian
prithivipappian@gmail.com

〈 Back

My saved reports

Select one of the saved reports below to view, adjust a TCO assessment or start another assessment.

ASSESSMENT	TIMEFRAME	SAVINGS	CREATED	
Windows VMs	5 Years	$614,638	8/10/2024 9:46:13 AM	

Start Another Assessment 〉