# **MICROSOFT AZURE**

**NAME:** NAVYA N J

**DEPARTMENT:** B.Tech AI&DS

GitHub:https://github.com/NavyaNelson/NAVYA-N-J-MICROSOFT-

**AZURE.git** 

# REQUESTING A CLOUD SHELL SUCCEEDED.

#### Welcome to Azure Cloud Shell

- az vm create --resource-group "learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825" --name my-vm --public-ip-sku Standard --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys
- az vm extension set --resource-group " learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825" --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@13.88.18.50
- 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 systemetl status nginx
- az vm open-port --resource-group " learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825" --name my-vm --port 80
- az vm list-ip-addresses --resource-group " learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825" --name my-vm --output table
- ssh azureuser@13.88.18.50
- sudo apt-get update
- git clone <a href="https://github.com/NavyaNelson/webpages-1.git">https://github.com/NavyaNelson/webpages-1.git</a>
- 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 systemetl restart nginx

```
Type "az" to use Azure Cloud Shell

Type "help" to learn about Cloud Shell

navyanj3 [ ~ ]$

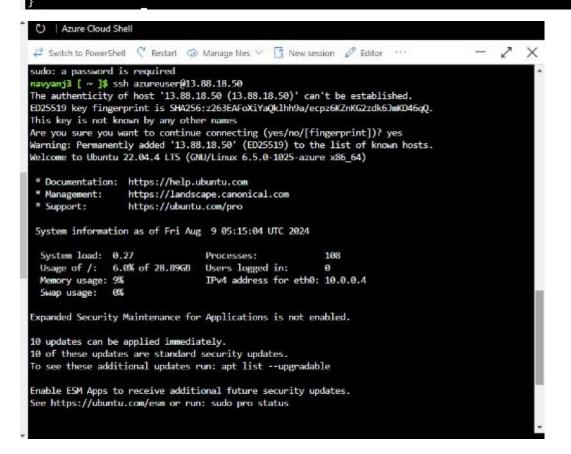
New session  
New se
```

```
- ∠ ×

    Z Switch to PowerShell
    ☐ Restart
    ♠ Manage files
    ✓
    ☐ New session
    Ø
    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
mavyanj3 [ ~ ]$ az vm create --resource-group "learn-2d93bf97-95ea-4227-9670-a79e5e568ab9" --name
my-vm --public-ip-sku Standard --image Ubuntu2204 --admin-username azureuser --generate-ssh-keys SSH key files '/home/navyanj3/.ssh/id_rsa' and '/home/navyanj3/.ssh/id_rsa.pub' have been generat ed under ~/.ssh to allow SSH access to the VM. If using machines without permanent storage, back
up your keys to a safe location.
   "fqdns": "",
   "id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-2d93bf97-95ea-4
227-9670-a79e5e568ab9/providers/Microsoft.Compute/virtualMachines/my-vm",
  "location": "westus",
"macAddress": "00-0D-3A-5A-2F-89",
"powerState": "VM running",
"privateIpAddress": "10.0.0.4",
"publicIpAddress": "40.112.223.219",
   "resourceGroup": "learn-2d93bf97-95ea-4227-9670-a79e5e568ab9",
   "zones": ""
navyanj3 [ ~ ]$
```

```
( Azure Cloud Shell
 🔁 Switch to PowerShell 🧳 Restart 🕠 Manage files 🗸 🔓 New session 🖉 Editor
ttings '{"fileUris":["https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/ma
ster/configure-nginx.sh"]}' --protected-settings '{"commandToExecute": "./configure-nginx.sh"}'
  "autoUpgradeMinorVersion": true,
  "enableAutomaticUpgrade": null,
  "forceUpdateTag": null,
  "id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-fca7825e-cccd-4
ef5-8496-8e296ebac1de/providers/Microsoft.Compute/virtualMachines/my-vm/extensions/customScript",
  "instanceView": null,
  "location": "westus"
  "name": "customScript
  "protectedSettings": null,
  "protectedSettingsFromKeyVault": null,
  "provisionAfterExtensions": null,
  "provisioningState": "Succeeded",
  "publisher": "Microsoft.Azure.Extensions",
  "resourceGroup": "learn-fca7825e-cccd-4ef5-8496-8e296ebac1de",
  "settings": {
     'fileUris": [
      "https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/master/configure-
nginx.sh"
  "suppressFailures": null,
  "tags": null,
  "type": "Microsoft.Compute/virtualMachines/extensions",
  "typeHandlerVersion": "2.1",
  "typePropertiesType": "customScript"
```



```
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 10 not upgraded.
Synchronizing state of nginx.service with SysV service script with /lib/systemd/systemd-sysv-inst
all.
Executing: /lib/systemd/systemd-sysv-install enable nginx
azureuser@my-vm:~$
```

```
azureuser@my-vm:~$ echo "<html><body><h2>Welcome to Azure! My name is $(hostname).</h2></body></h
tml>" | sudo tee -a /var/www/html/index.html
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
azureuser@my-vm:~$ 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: enabled)
     Active: active (running) since Fri 2024-08-09 05:13:28 UTC; 5min ago
       Docs: man:nginx(8)
   Main PID: 2352 (nginx)
      Tasks: 2 (limit: 4011)
     Memory: 4.6M
        CPU: 32ms
     CGroup: /system.slice/nginx.service
               -2352 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
              _2355 "nginx: worker process" "" ""
Aug 09 05:13:28 my-vm systemd[1]: Starting A high performance web server and a reverse proxy ser
Aug 09 05:13:28 my-vm systemd[1]: Started A high performance web server and a reverse proxy servines 1-14/14 (END)
```

```
lines 1-14/14 (END)

nzureuser@my-vm:~$ exit

logout

Connection ' ^2 00 10 50 losed.

navyanj3 [ HP Support Assistant
```

```
avyanj3 [ ~ ]$ az vm open-port --resource-group "learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825"
ame my-vm --port 80
  "defaultSecurityRules": [
      "access": "Allow",
       "description": "Allow inbound traffic from all WMs in VNET",
       "destinationAddressPrefix": "VirtualNetwork", "destinationAddressPrefixes": [],
       "destinationPortRange": "*",
"destinationPortRanges": [],
       "direction": "Inbound",
       "etag": "W/\"b4b54faf-eeb6-474c-b318-acc8a85be208\"",
"id": "/subscriptions/e6b1a91a-7af1-4025-8a99-f717210b4a91/resourceGroups/learn-4cdfa701-
c5-4ed5-925e-65fb5e1b0825/providers/Microsoft.Network/networkSecurityGroups/my-vmN5G/defaultSec
ityRules/AllowVnetInBound",
       "name": "AllowVnetInBound",
       "priority": 65000,
"protocol": "*",
       "provisioningState": "Succeeded",
       "resourceGroup": "learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0825",
       "sourceAddressPrefix": "VirtualNetwork",
       "sourceAddressPrefixes": [],
       "sourcePortRange": "*",
"sourcePortRanges": [],
       "type": "Microsoft.Network/networkSecurityGroups/defaultSecurityRules"
       "access": "Allow",
```

```
navyanj3 [ ~ ]$ az vm list-ip-addresses --resource-group "learn-4cdfa701-d9c5-4ed5-925e-65fb5e1b0 825" --name my-vm --output table
VirtualMachine PublicIPAddresses PrivateIPAddresses
my-vm 13.88.18.50 10.0.0.4
navyanj3 [ ~ ]$
```



Welcome to Azure! My name is my-vm.

Welcome to Azure! My name is my-vm.

```
navyanj3 [ ~ ]$ ssh azureuser@13.88.18.50
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 05:38:06 UTC 2024
  System load: 0.24
                                 Processes:
                                                        118
 Usage of /: 7.8% of 28.89GB Users logged in:
 Memory usage: 16%
                                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
Last login: Fri Aug 9 05:15:07 2024 from 20.235.216.176
azureuser@my-vm:~$
```

```
Last login: Fri Aug 9 08:22:36 2024 from 20.24.178.0

azureuser@my-vm:~$ sudo apt-get update

sudo apt-get install git -y

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

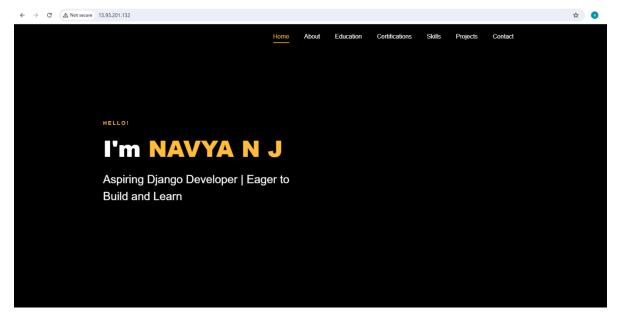
git is already the newest version (1:2.34.1-1ubuntu1.11).

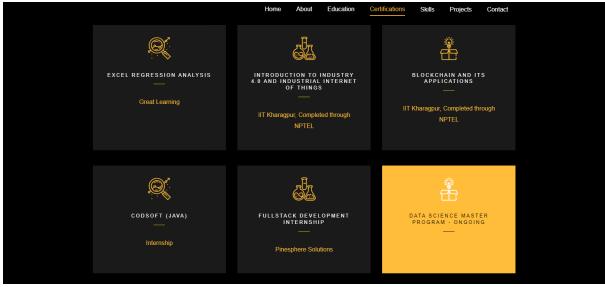
git set to manually installed.

0 upgraded, 0 newly installed, 0 to remove and 13 not upgraded.
```

azureuser@my-vm:~\$ git clone https://github.com/NavyaNelson/webpages-1.git
Cloning into 'webpages-1'...
remote: Enumerating objects: 207, done.
remote: Counting objects: 100% (207/207), done.
remote: Compressing objects: 100% (184/184), done.
remote: Total 207 (delta 17), reused 207 (delta 17), pack-reused 0
Receiving objects: 100% (207/207), 8.65 MiB | 33.06 MiB/s, done.
Resolving deltas: 100% (17/17), done.
azureuser@my-vm:~\$ sudo cp -r webpages-1/\* /var/www/html/
azureuser@my-vm:~\$ sudo chown -R www-data:www-data /var/www/html
sudo chmod -R 755 /var/www/html
azureuser@my-vm:~\$ sudo systemctl restart nginx
azureuser@my-vm:~\$

## **OUTPUT:**





## 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

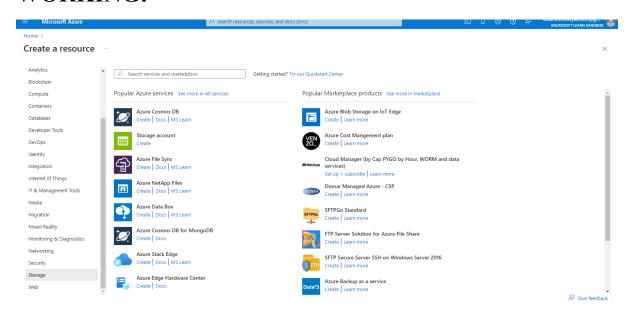
You can upload as many blobs as you like in this way. New blobs will be listed within the container.

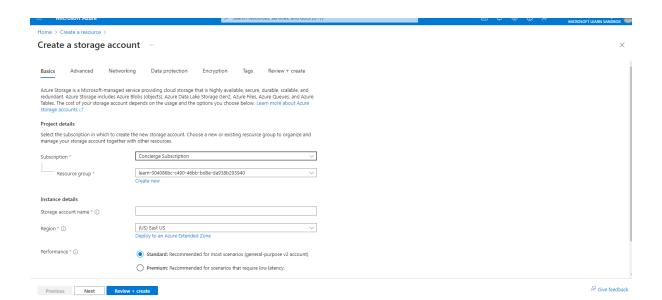
- 6. Select the Blob (file) you just uploaded. You should be on the properties tab.
- 7. Copy the URL from the URL field and paste it into a new tab.

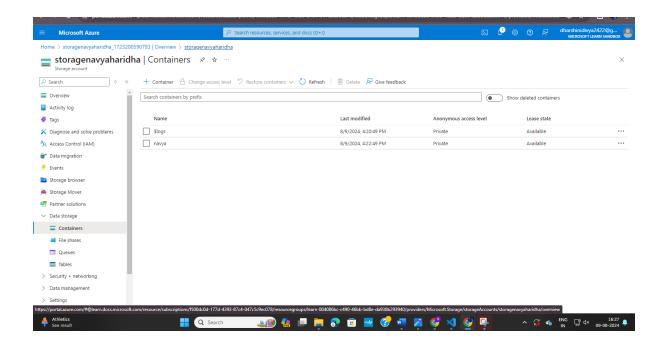
# • Change the access level of your blob

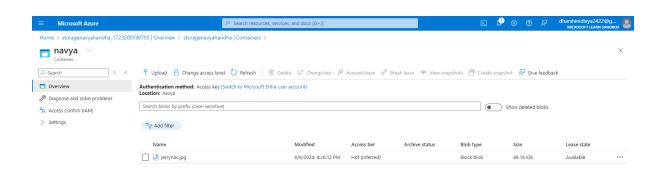
- 1. Go back to the Azure portal.
- 2. Select Change access level.

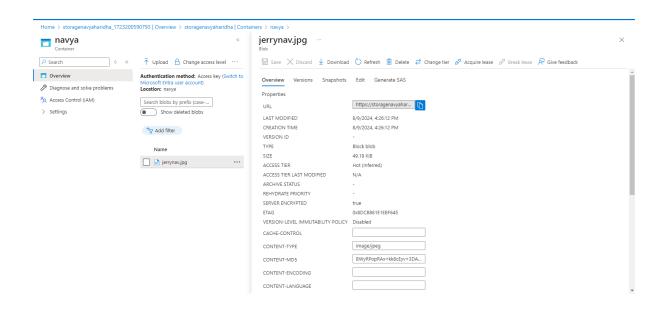
- 3. Set the Anonymous access level to Blob (anonymous read access for blobs only).
- 4. Select OK.
- 5. Refresh the tab where you attempted to access the file earlier.



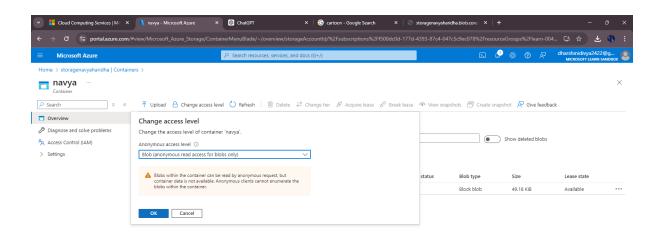


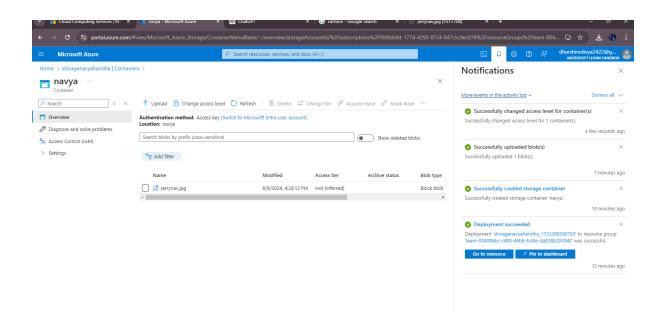












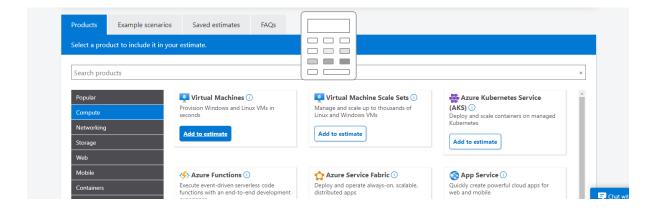
# **OUTPUT:**

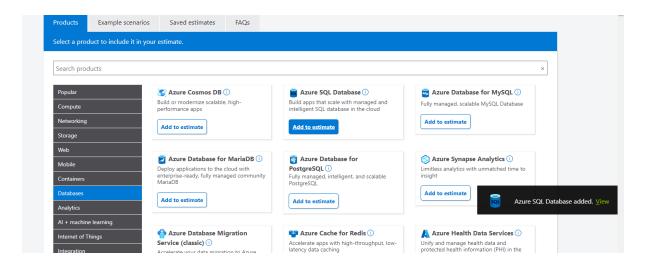


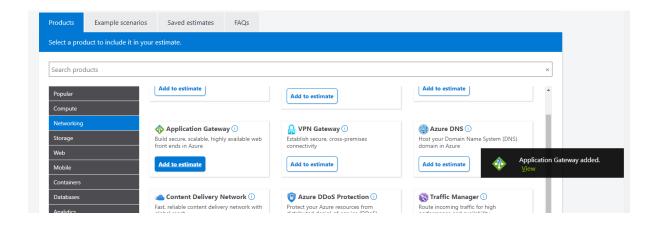
# 3. ESTIMATE WORKLOAD COSTS BY USING THE PRICING CALCULATOR

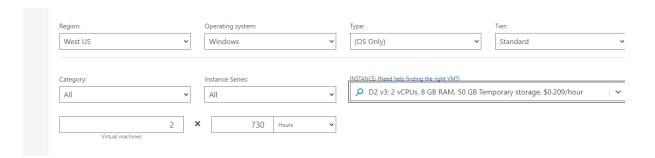
- Explore the Pricing calculator
  - 1. Go to the <u>Pricing calculator</u>.
  - 2. Notice the following tabs:
    - Products This is where you choose the Azure services that you want to include in your estimate. You'll likely spend most of your time here.
    - Example scenarios Here you'll find several *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.

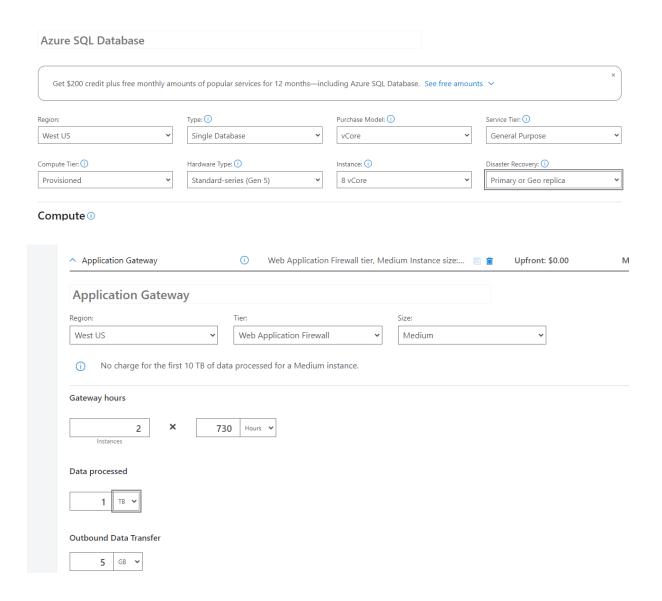
- 2. Under Azure SQL Database, set values.
- 3. Under Application Gateway, set values.
- Review, share, and save your estimate
- At the bottom of the page, you see the total estimated cost of running the solution. You can change the currency type if you want.
- At this point, you have a few options:
  - 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.

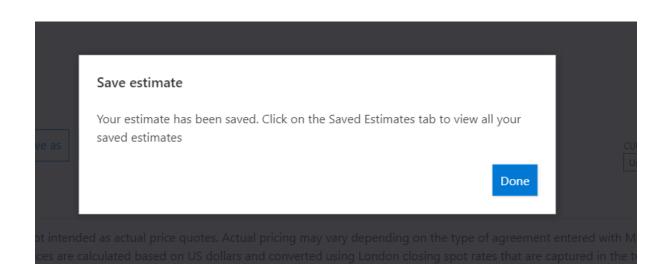


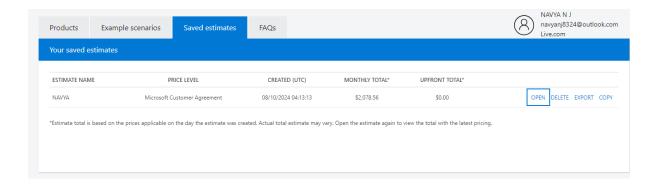




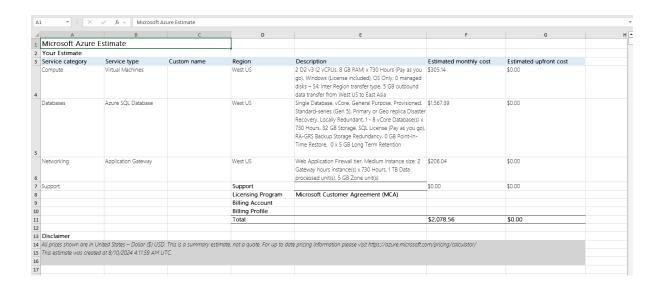








# **OUTPUT:**



 $\textbf{Link}: \underline{\text{https://azure.com/e/c87ad15763e64b16aa8c3fbf3f6b713f}}$ 

# 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.

