

REPORT ON

MICROSOFT AZURE FUNDAMENTALS

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1)Sandbox:

Create a Linux virtual machine and install Nginx

The screenshot shows a Microsoft Learn exercise titled "Exercise - Create an Azure virtual machine". It includes a progress bar at the top right indicating "LEVEL 4" and "1700 / 5299 XP". The main content area displays the exercise title and a brief description: "In this exercise, you create an Azure virtual machine (VM) and install Nginx, a popular web server." Below this, there's a note about using the Azure CLI and a section for "Task 1: Create a Linux virtual machine and install Nginx". On the right side, there's an "Azure Cloud Shell" window showing a command-line session. The command entered is:

```
-publisher Microsoft.Azure.Extensions --version 2.1 --settings '{"fileUri": ["https://raw.githubusercontent.com/MicrosoftDocs/mslearn-welcome-to-azure/master/configure-nginx.sh"]}' --protected-settings '{"commandToExecute": "./configure-nginx.sh"}'
```

The session continues with the output of the command, showing the creation of a custom script extension named "customScript" for a VM with ID "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de". The session ends with the prompt "sriramvelmurugan_05 [~]\$".

Access your web server

The screenshot shows a Microsoft Learn exercise titled "Exercise - Configure network access". It includes a progress bar at the top right indicating "LEVEL 4" and "1700 / 5299 XP". The main content area displays the exercise title and a brief description: "In this exercise, you configure the access to the virtual machine (VM) you created earlier in this module." Below this, there's a note about verifying the VM status and a section for "Important". The "Important" section contains a note: "The Microsoft Learn sandbox should still be running. If the sandbox timed out, you'll need to redo the previous exercise (Exercise - Create an Azure virtual machine).". At the bottom left, there's a "Azure CLI" section with the command "az vm list". On the right side, there's an "Azure Cloud Shell" window showing a command-line session. The command entered is:

```
az vm list
```

The session continues with the output of the command, showing a list of VMs, including one named "my-vm" with ID "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de". The session ends with the prompt "sriramvelmurugan_05 [~]\$".

List the current network security group rules

Your web server wasn't accessible. To find out why, let's examine your current NSG rules.

1. Run the following `az network nsg list` command to list the network security groups that are associated with your VM:

```
Azure CLI
az network nsg list \
--resource-group "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de" \
--query '[].name' \
--output tsv
```

You see this output:

```
Output
my-vmNSG
```

Every VM on Azure is associated with at least one network security group. In this case, Azure created an NSG for you called *my-vmNSG*.

2. Run the following `az network nsg rule list` command to list the rules

```
az network nsg rule list --resource-group "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de" --nsg-name my-vmNSG --query '[].{Name:name, Priority:priority, Port:destinationPortRange, Access:access}' --output table
```

Name	Priority	Port	Access
default-allow-ssh	1000	22	Allow

Create the network security rule

Here, you create a network security rule that allows inbound access on port 80 (HTTP).

1. Run the following `az network nsg rule create` command to create a rule called *allow-http* that allows inbound access on port 80:

```
Azure CLI
az network nsg rule create \
--resource-group "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de" \
--nsg-name my-vmNSG \
--name allow-http \
--protocol tcp \
--priority 100 \
--destination-port-range 80 \
--access Allow
```

For learning purposes, here you set the priority to 100. In this case, the priority doesn't matter. You would need to consider the priority if you had overlapping port ranges.

2. To verify the configuration, run `az network nsg rule list` to see the updated list of rules:

```
Azure CLI
az network nsg rule list \
--resource-group "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de" \
--nsg-name my-vmNSG \
--query '[].{Name:name, Priority:priority, Port:destinationPortRange, Access:access}' --output table
```

Name	Priority	Port	Access
default-allow-ssh	1000	22	Allow
allow-http	100	80	Allow

Access your web server again

Now that you configured network access to port 80, let's try to access the web server a second time.

Note

After you update the NSG, it may take a few moments before the updated rules propagate. Retry the next step, with pauses between attempts, until you get the desired results.

1. Run the same `curl` command that you ran earlier:

```
Bash
curl --connect-timeout 5 http://$IPADDRESS
```

You see this response:

```
HTML
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
```

2. As an optional step, refresh your browser tab that points to your web server. You see the home page:

```
2059104.76
```

Azure Cloud Shell session output:

```
{ "access": "Allow", "destinationAddressPrefix": "*", "destinationAddressPrefixes": [], "destinationPortRange": "80", "destinationPortRanges": [], "direction": "Inbound", "etag": "W/"f07d0f91-af87-4b92-9600-01bb8cd3bef2\"", "id": "/subscriptions/66934742-a2f4-4f94-ad7b-07a47d83d2bc/resourceGroups/learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de/providers/Microsoft.Network/networkSecurityGroups/my-vmNSG/securityRules/allow-http", "name": "allow-http", "priority": 100, "protocol": "Tcp", "provisioningState": "Succeeded", "resourceGroup": "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de", "sourceAddressPrefix": "*", "sourceAddressPrefixes": [], "sourcePortRange": "*", "sourcePortRanges": [], "type": "Microsoft.Network/networkSecurityGroups/securityRules" }
sriramvelmurugan_05 [ ~ ]$ az network nsg rule list --resource-group "learn-07afb3e8-961c-42e4-a1c6-20d82e43b7de" --nsg-name my-vmNSG --query "[].{Name:name, Priority:priority, Port:destinationPortRange, Access:access}"
--output table
Name          Priority    Port      Access
-----        -----      -----    -----
default-allow-ssh 1000       22      Allow
allow-http       100        80      Allow
sriramvelmurugan_05 [ ~ ]$ curl --connect-timeout 5 http://$IPADDRESS
<html><body><h2>Welcome to Azure! My name is my-vm.</h2></body></html>
sriramvelmurugan_05 [ ~ ]$
```

Final output:

Welcome to Azure! My name is my-vm.

2) Azure Academic Services: Azure for Students

Microsoft Academic Verification Process

The screenshot shows a browser window for 'Microsoft Academic Verification' at verify.microsoft.com. The page displays a progress bar with four steps: 'Profile information' (checked), 'Security Check' (checked), 'Additional information' (unchecked), and 'Verifying' (checked). Below the progress bar, a green banner says 'Congratulations!' and states 'Your academic status has been successfully verified.' A blue 'Continue' button is visible.

Creation of resource groups

The screenshot shows the Microsoft Azure portal at portal.azure.com. The user is viewing the 'Resource groups' blade. The table lists six resource groups:

Name	Subscription	Location
NetworkWatcherRG	Azure for Students	Central India
RG	Azure for Students	Central India
RG1	Azure for Students	Central India
RG2	Azure for Students	Central India
RG3	Azure for Students	Central India
sriportfolio_group	Azure for Students	Central India

At the bottom, it says 'Showing 1 - 6 of 6. Display count: auto' and 'Give feedback'.

Creation of Virtual Machine

The screenshot shows the Microsoft Azure portal interface. At the top, there are several tabs: 'Virtual machines - Microsoft', 'Exercise - Configure network', 'sriramv05/sriportfolio', 'Steller Landing page | Free', and '13.93.218.86'. The main navigation bar has 'Microsoft Azure' on the left and a search bar 'Search resources, services, and docs (G+)'. On the right, there are icons for settings, help, and a user profile.

The main content area is titled 'Virtual machines' with a subtitle 'Default Directory (sriramvelmurugan05outlook.onmicrosoft.com)'. Below this, there are filter options: 'Subscription equals all', 'Type equals all', 'Resource group equals all', 'Location equals all', and 'Add filter'. A table lists one record:

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disk
sriportfolio	Azure for Students	sriportfolio_group	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	20.244.98.1	1

At the bottom of the table, there are buttons for '< Previous', 'Page 1 of 1', and 'Next >'. To the right, there is a 'Give feedback' link.

The bottom section of the screenshot shows a terminal window titled 'Requesting a Cloud Shell. Succeeded.' It displays the message 'Connecting terminal...', 'Welcome to Azure Cloud Shell', and instructions to type 'az' or 'help'. It also notes that the session is ephemeral. The command 'ssh sri@20.244.98.1' is shown at the end.

Hosting my portfolio using Azure Cloud Services

The screenshot shows a portfolio website. At the top, there is a header with a logo, navigation links for 'Home', 'About', 'Service', 'Portfolio', 'Testimonial', 'Blog', 'Contact', and a red 'Hire me!' button. The URL in the address bar is '20.244.98.1/?contact-message=ug#'. The main content features a large cartoon illustration of a man with blue hair and a beard, waving his hand. To the left of the illustration, the text 'hello, I'm' appears above the name 'Sriram V'. Below the name is the text 'Student at Dr.N.G.P.Institute of Technology'. There are four social media icons: Facebook, Google+, LinkedIn, and Twitter.

At the bottom, there are three callout boxes with statistics:

- Completed Projects: 5
- Completed Internship: 4
- Completed Courses: 12

Pricing calculator

The screenshot shows a Microsoft Excel spreadsheet titled "Microsoft Azure Estimate". The top menu bar includes "Home", "Insert", "Draw", "Page Layout", "Formulas", "Data", "Review", "View", and "Automate". The ribbon tabs show "General" under "Format" and "Conditional Formatting". The status bar at the bottom indicates "Ready" and "Accessibility: Investigate".

Microsoft Azure Estimate

Service category	Service type	Custom name	Region	Description	Estimated monthly cost	Estimated upfront cost
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 - \$4; Inter Region transfer type, 5 GB outbound data transfer from East US to East Asia	\$137.24	\$0.00
Support			Support		\$0.00	\$0.00
			Licensing Program	Microsoft Customer Agreement (MCA)		
			Billing Account			
			Billing Profile			
			Total		\$137.24	\$0.00

Disclaimer
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/>
This estimate was created at 8/9/2024 4:04:33 AM UTC.

Total Cost of Ownership (TCO) Calculator

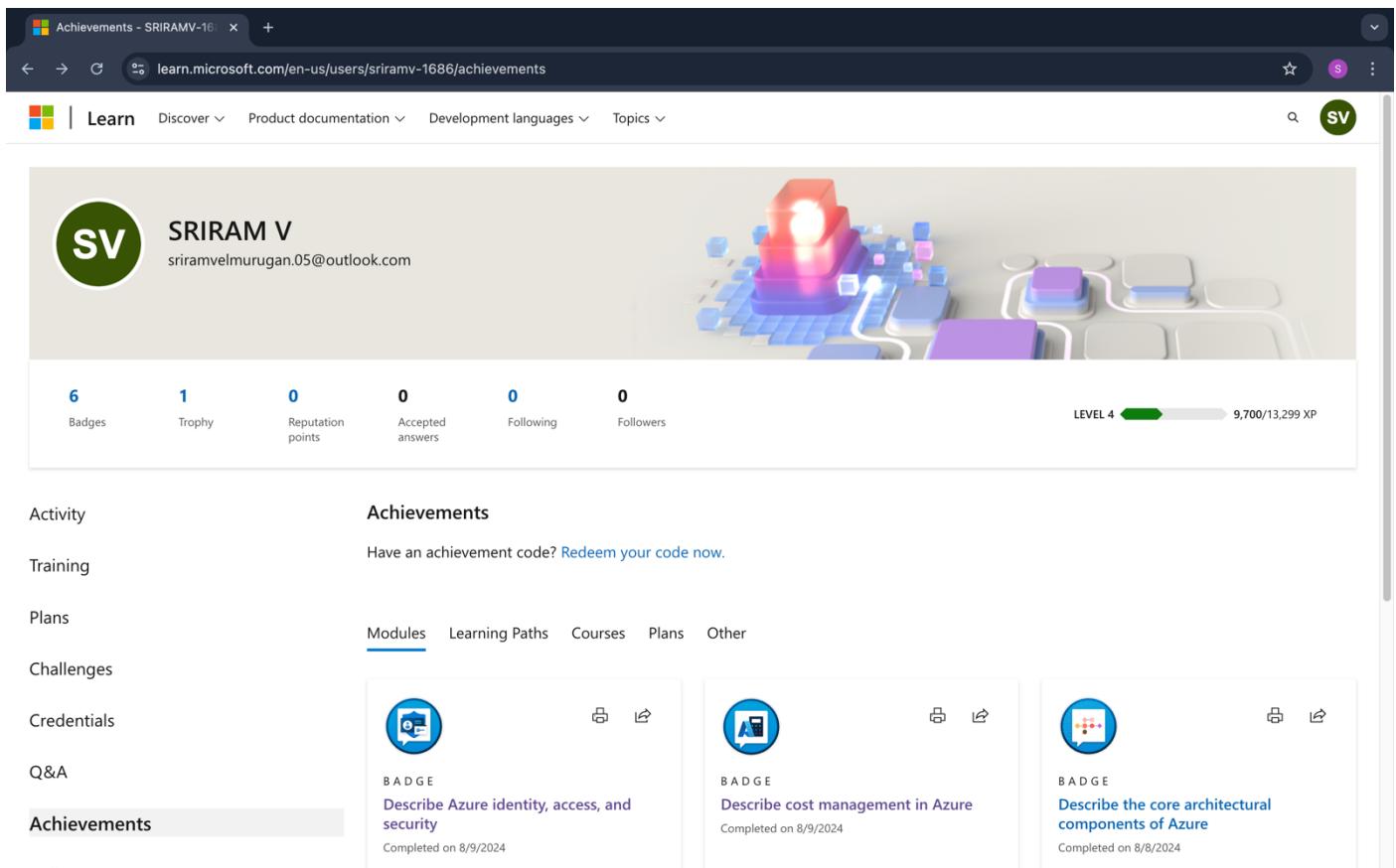
The screenshot shows a PDF document titled "tco azure.pdf" with "Page 1 of 12". The document is a "Total Cost of Ownership (TCO) Calculator" from Microsoft Azure. It features a graph showing projected cost savings over 5 years, a pie chart comparing on-premises vs. Azure costs, and a section on total cost over time.

Total Cost of Ownership (TCO) Calculator
Estimate the cost savings you can realize by migrating your workloads to Azure

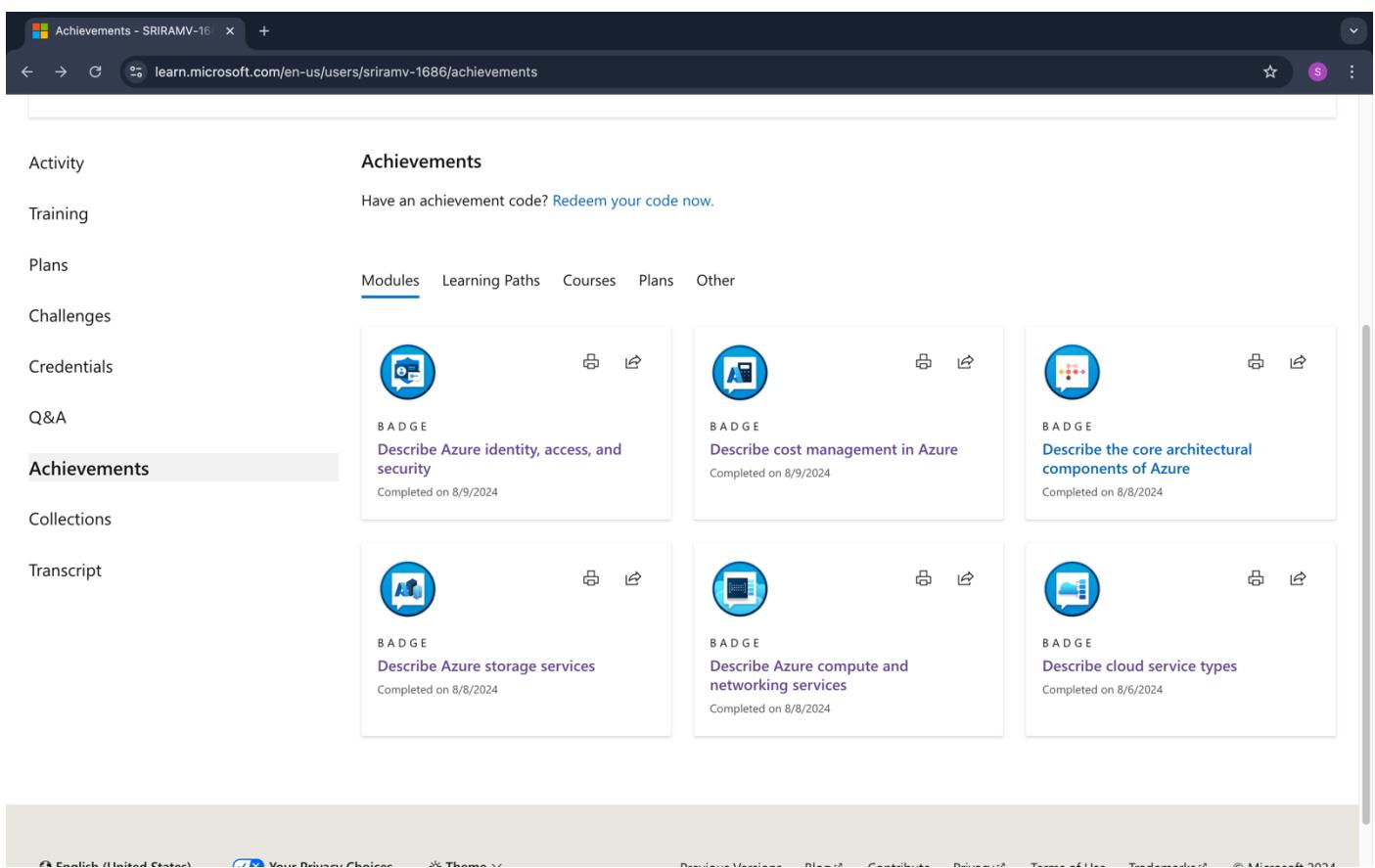
Over 5 year(s) with Microsoft Azure, your estimated cost savings could be as much as **\$158,081**

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.

Badges



The screenshot shows the Microsoft Learn user profile for SRIRAM V. At the top, there's a green circular icon with 'SV' and the user's name 'SRIRAM V' along with their email 'sriramvelmurugan.05@outlook.com'. Below this, a progress bar indicates 'LEVEL 4' with 9,700/13,299 XP. On the left, a sidebar lists 'Activity' (Training, Plans, Challenges, Credentials, Q&A), 'Achievements' (selected), and 'Collections'. The main area is titled 'Achievements' and shows three completed badges: 'Describe Azure identity, access, and security' (Completed on 8/9/2024), 'Describe cost management in Azure' (Completed on 8/9/2024), and 'Describe the core architectural components of Azure' (Completed on 8/8/2024).



The second screenshot shows the same user profile but with a different set of achievements. The 'Achievements' section now displays six completed badges: 'Describe Azure identity, access, and security' (Completed on 8/9/2024), 'Describe cost management in Azure' (Completed on 8/9/2024), 'Describe the core architectural components of Azure' (Completed on 8/8/2024), 'Describe Azure storage services' (Completed on 8/8/2024), 'Describe Azure compute and networking services' (Completed on 8/8/2024), and 'Describe cloud service types' (Completed on 8/6/2024). The rest of the interface remains consistent with the first screenshot.

Creation of container

The screenshot shows the Microsoft Azure Storage accounts blade for the storage account 'cloudshell488080706'. The left sidebar lists various options like Overview, Activity log, Tags, and Data storage. Under Data storage, the 'Containers' option is selected. A table on the right lists one container:

Name	Last modified	Anonymous access lev...	Lease state
sricontainer	10/08/2024, 11:31:58	Private	Available

The screenshot shows the Microsoft Azure Container blade for the container 'container1'. The left sidebar lists Overview, Diagnose and solve problems, Access Control (IAM), and Settings. The Overview tab is selected. A table on the right lists blobs:

Name	Modified	Access tier	Archive status	Blob type	Size
Screenshot 2024-08-07 at 4.28.40 PM.png	8/8/2024, 2:25:38 PM	Hot (Inferred)		Block blob	182

<https://portal.azure.com/#>

Screenshot 2024-08-07 at 10.48.02 AM.png

sricontainer

Container

Search Upload Change access level ...

Overview Authentication method: Access key (Switch to Microsoft Entra user account) Location: sricontainer

Diagnose and solve problems Access Control (IAM) Settings

Search blobs by prefix (case...) Show deleted blobs

Name Screenshot 2024-08-07 at 10.4...

Properties

URL	https://cloudshell48...
LAST MODIFIED	10/08/2024, 11:34:48 am
CREATION TIME	10/08/2024, 11:34:48 am
VERSION ID	-
TYPE	Block blob
SIZE	10.62 MiB
ACCESS TIER	N/A
ACCESS TIER LAST MODIFIED	N/A
ARCHIVE STATUS	-
REHYDRATE PRIORITY	-
SERVER ENCRYPTED	true
ETAG	0x8DCB902573113D
VERSION-LEVEL IMMUTABILITY POLICY	Disabled
CACHE-CONTROL	[redacted]
CONTENT-TYPE	image/png
CONTENT-MDS	o9kQ+274pcyn106hv8H...
CONTENT-ENCODING	[redacted]
CONTENT-LANGUAGE	[redacted]
CONTENT-DISPOSITION	[redacted]

Virtual machines - Microsoft

Exercise - Configure network | sriamv05/sriportfolio | Stellar Landing page | Free B... | 13.93.218.86

portal.azure.com/?feature.tokencaching=true&feature.internalgraphapiversion=true#browse/Microsoft.Compute%2FVirtualMachines

Microsoft Azure

Home > Virtual machines

Virtual machines

Default Directory

+ Create Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start Restart Stop Delete Services ...

Filter for any field... Subscription equals all Type equals all Resource group equals all Location equals all Add filter

No grouping List view

Showing 1 to 3 of 3 records.

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disk
sriportfolio	Azure for Students	sriportfolio_group	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	20.244.98.1	1
sss	Azure for Students	RG1	Central India	Stopped (deallocated)	Linux	Standard_D2s_v3	20.40.55.246	1
xeno	Azure for Students	RG1	Central India	Stopped (deallocated)	Linux	Standard_E2s_v3	4.240.74.160	1

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Give feedback