

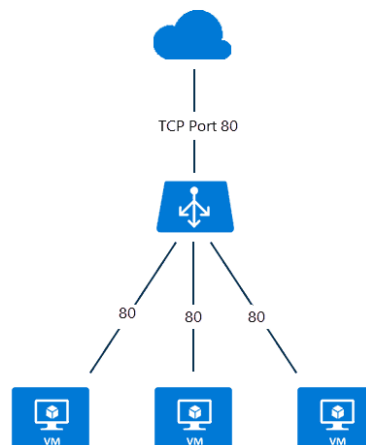
Azure Load Balancers

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CEQ-525

Introduction

Azure Load Balancer allows you to distribute traffic to your backend virtual machines. An Azure load balancer provides high availability for your application. The Azure load balancer is a fully managed service itself.



Types of Load Balancers

A **public load balancer** can provide outbound connections for virtual machines (VMs) inside your virtual network. These connections are accomplished by translating their private IP addresses to public IP addresses. Public Load Balancers are used to load balance internet traffic to your VMs.

An **internal (or private) load balancer** is used where private IPs are needed at the frontend only. Internal load balancers are used to load balance traffic inside a virtual network. A load balancer frontend can be accessed from an on-premises network in a hybrid scenario.

Why do we need it?

With Standard Load Balancer, you can scale your applications and create highly available services. Load balancer supports both inbound and outbound scenarios. A load balancer provides low latency and high throughput and scales up to millions of flows for all TCP and UDP

applications.

Some of the key scenarios that you can accomplish using Standard Load Balancer include:

- Load balance internal and external traffic to Azure virtual machines.
- Increase availability by distributing resources within and across zones.
- Use health probes to monitor load-balanced resources.
- Employ port forwarding to access virtual machines in a virtual network by public IP address and port.
- Standard Load Balancer provides multi-dimensional metrics through Azure Monitor. These metrics can be filtered, grouped, and broken out for a given dimension. They provide current and historic insights into the performance and health of your service. Resource Health is also supported.
- Load balance services on multiple ports, multiple IP addresses, or both.

Steps for making an Azure Load Balancer

1. Creating two virtual machines using Availability Set, B2s Storage, and adding RDP, HTTP and HTTPs to inbound rules.

Microsoft Azure | Upgrade | Search resources, services, and docs (5+/)

Home > Virtual machines > Create a virtual machine

⚠ Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

Subscription *

Resource group *
[Create new](#)

Instance details

Virtual machine name *

Region *

Availability options

Based on your input, you might want to consider creating this resource as a virtual machine scale set, which allows you to manage, configure and scale load balanced virtual machines. [Create as VMSS](#)

Availability set *
[Create new](#)

Security type

Image *

[Review + create](#) [< Previous](#) [Next: Disks >](#) [Give feedback](#)

32°C Hazy | Search | ENG IN | 11:57 15-03-2023

2. Two VMs are created.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, an 'Upgrade' button, a search bar, and a user profile. The main heading is 'Virtual machines' with a sub-heading 'Default Directory (naman14outlook.onmicrosoft.com)'. Below this, there are buttons for 'Create', 'Switch to classic', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', 'Delete', 'Services', and 'Maintenance'. A filter bar shows 'Subscription equals all', 'Type equals all', 'Resource group equals all', and 'Location equals all'. The table below lists two virtual machines:

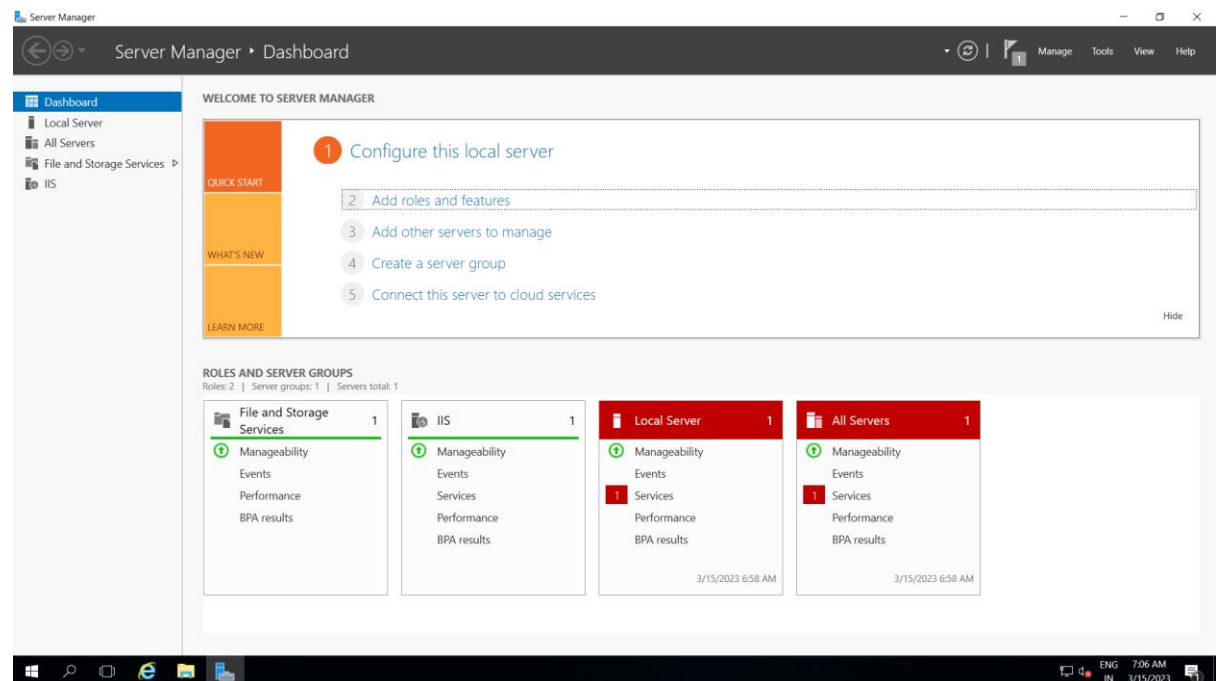
Name	Type	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
NickVM1	Virtual machine	Free Trial	NAMAN_RG_LB	East US	Running	Windows	Standard_B2s	172.173.150.50	1
NickVM2	Virtual machine	Free Trial	Naman_RG_LB	East US	Running	Windows	Standard_B2s	20.124.110.70	1

The bottom of the screenshot shows the Windows taskbar with the Start button, search bar, and various application icons. The system tray shows the date and time as 12:24 on 15-03-2023.

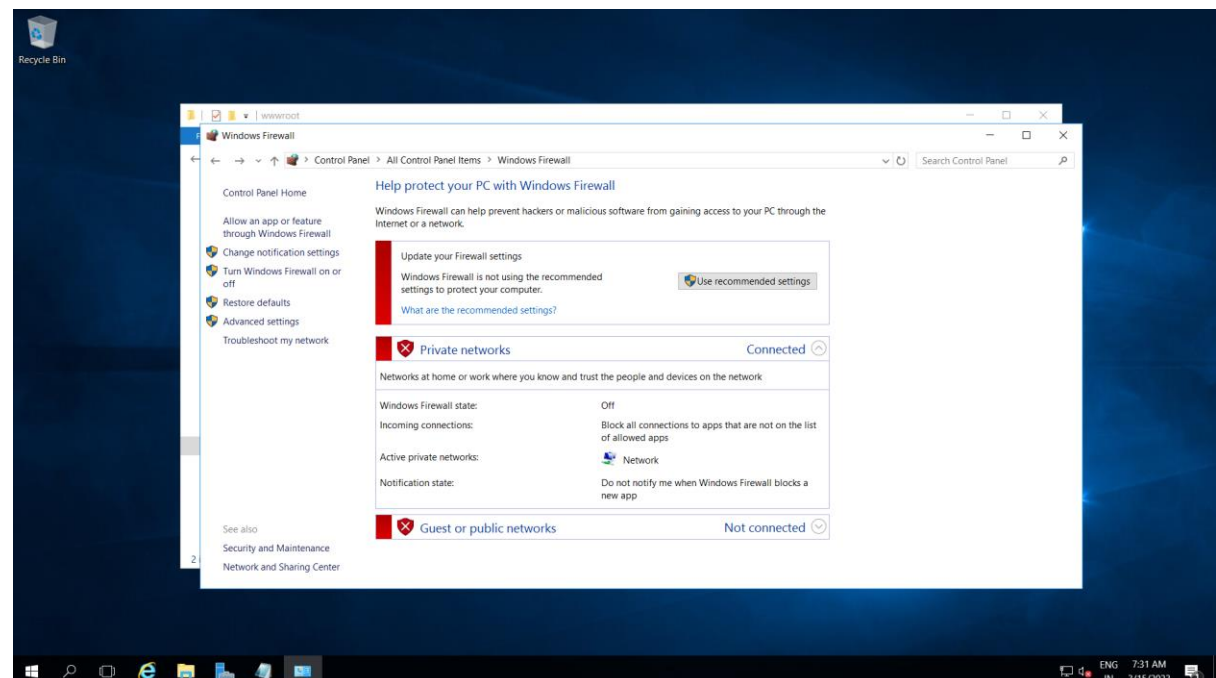
3. Configuring the Server Manager by adding roles and features and then installing IIS on it for both VMs.

The screenshot shows the Windows Server Manager interface. The top navigation bar includes the 'Server Manager' title, a 'Dashboard' button, and a 'WELCOME TO SERVER MANAGER' message. The left sidebar shows a tree view with 'Local Server', 'All Servers', and 'File and Storage'. The main area displays the 'Add Roles and Features Wizard' for 'NickVM2'. The wizard is in the 'Results' step, showing the 'Web Server (IIS)' role and its features: 'Management Tools', 'IIS Management Console', 'Web Server', 'Common HTTP Features', 'Default Document', 'Directory Browsing', 'HTTP Errors', 'Static Content', 'Health and Diagnostics', and 'HTTP Logging'. A red box with the number '1' is placed over the 'Web Server (IIS)' role. The bottom of the screenshot shows the Windows taskbar with the Start button, search bar, and various application icons. The system tray shows the date and time as 7:05 AM on 3/15/2023.

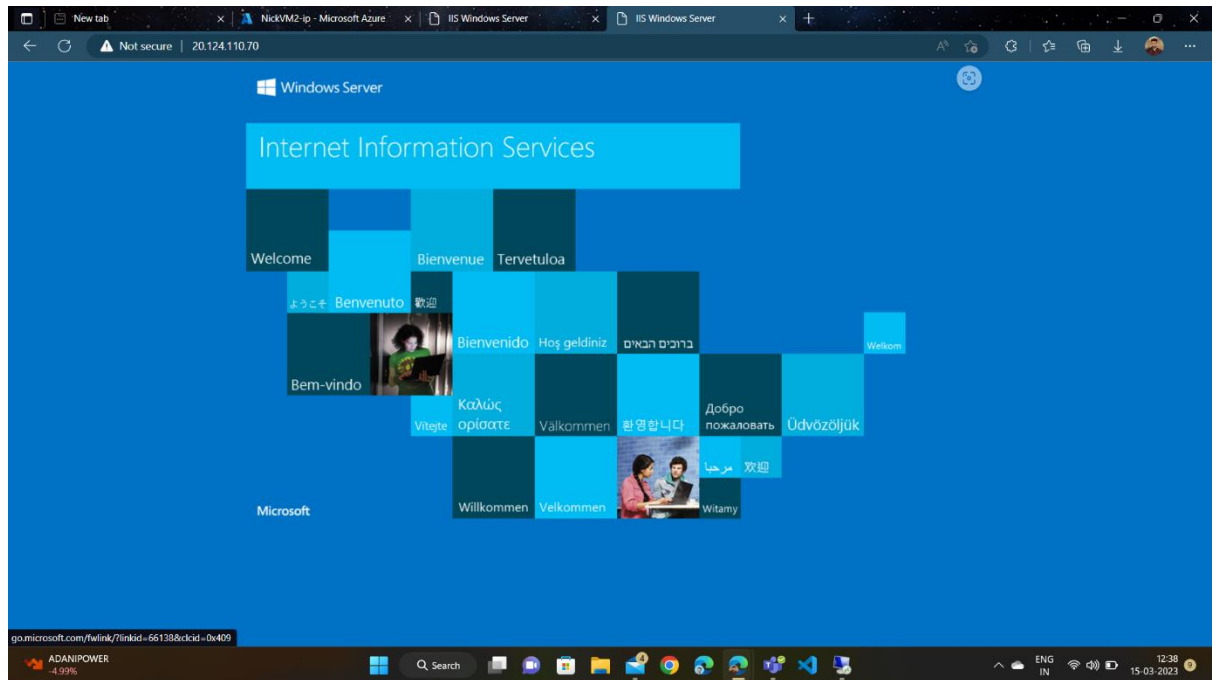
4. Configuration is done for both VMs.



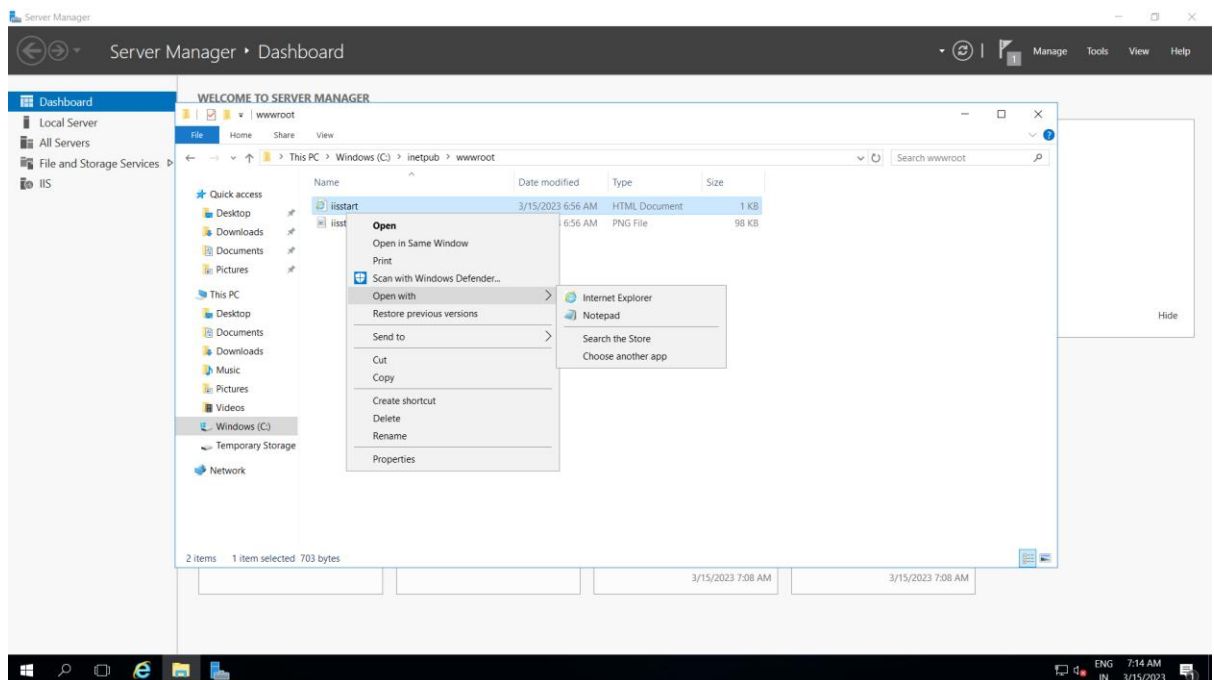
5. Disabling the firewalls for both VMs.



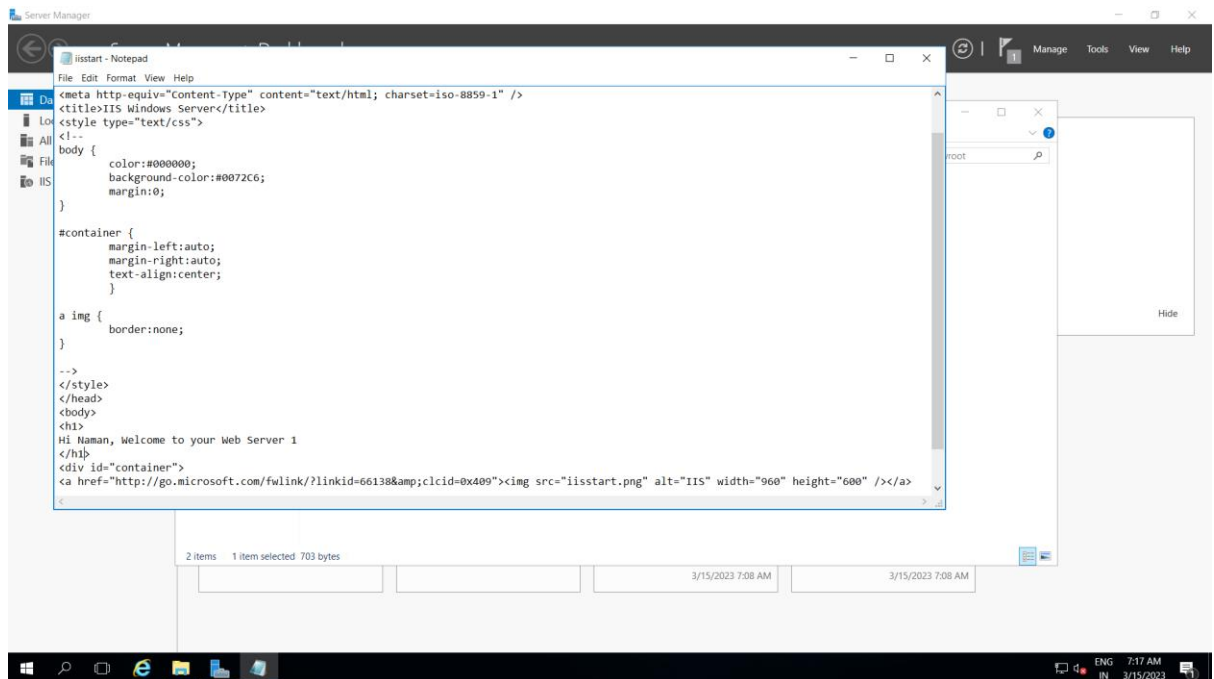
6. Accessing our VMs through public IPs.



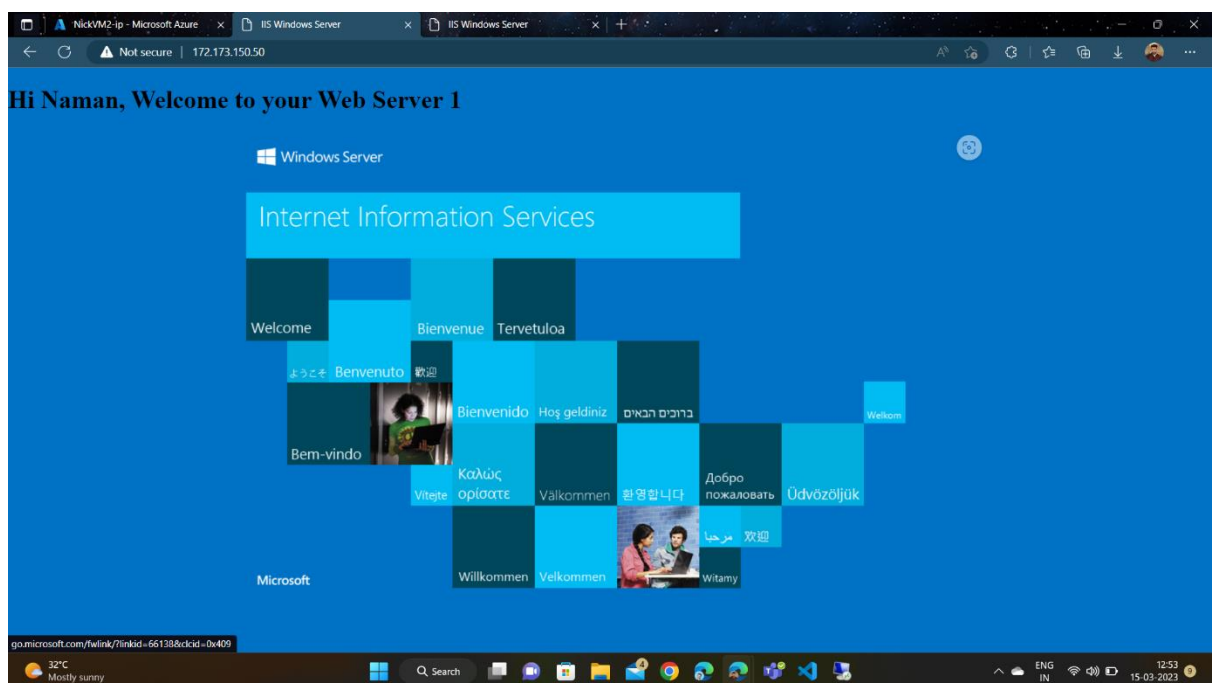
7. In order to differentiate between our VMs, we'll make changes in the HTML file of both the VMs.



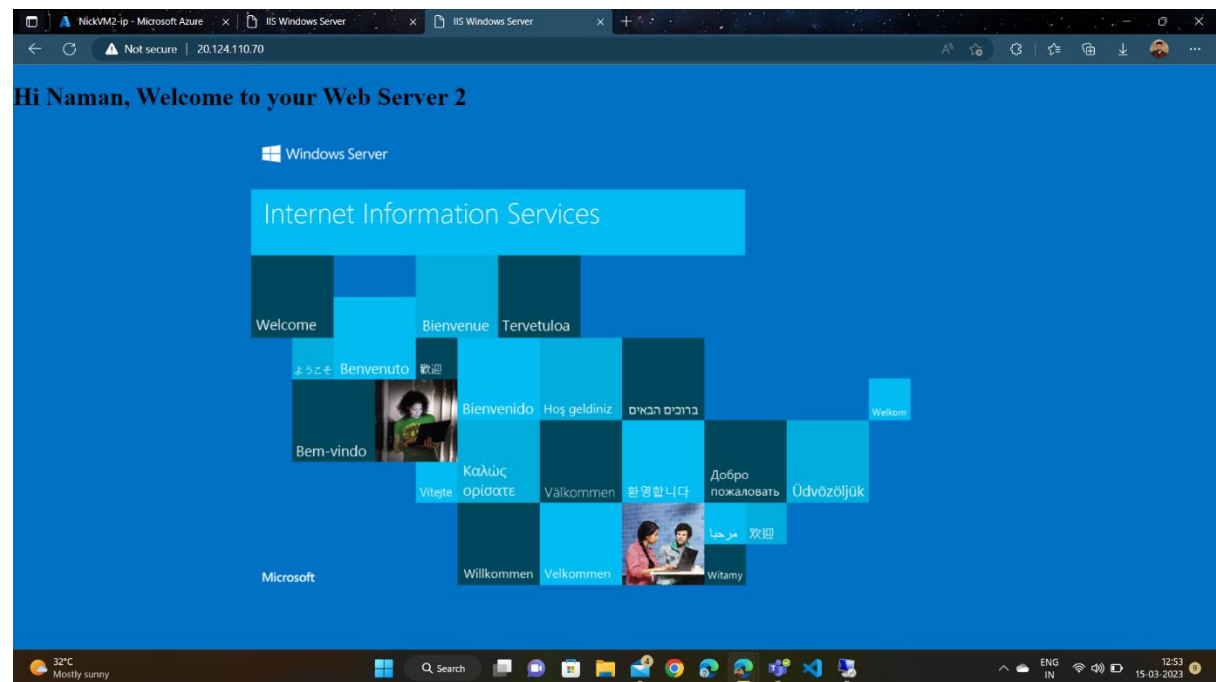
8. Adding the headers to the body in order to differentiate between two VMs as those headers will display on our VM interface.



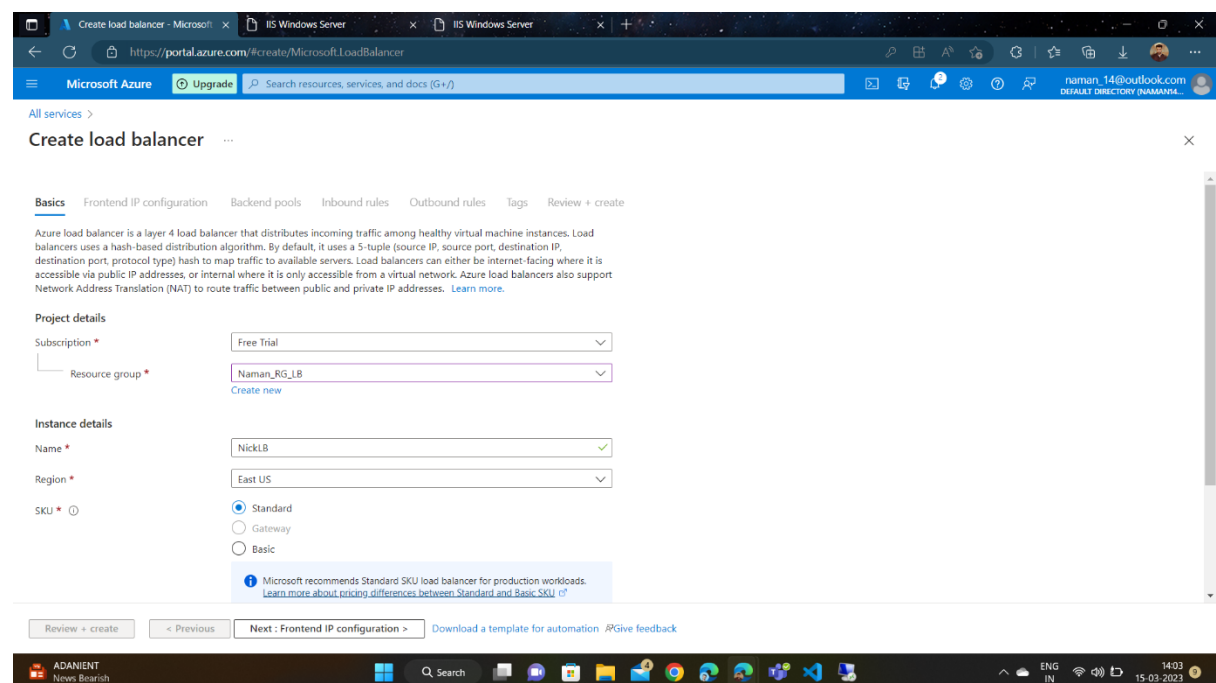
9. Here's our VM1.



10. Here's our VM2.



11. Creating Azure Load Balancer.



12. Adding Frontend IP Configuration by creating a new public IP.

The screenshot shows the 'Create load balancer' wizard in the Microsoft Azure portal. The current step is 'Frontend IP configuration'. The wizard explains that a frontend IP configuration is an IP address used for inbound and/or outbound communication. Below the explanation, there is a table with two columns: 'Name' and 'IP address'. The table contains one entry: 'NickFEndIP' with the IP address 'NickPIP (To be created)'. At the bottom of the wizard, there are buttons for 'Review + create', '< Previous', 'Next: Backend pools >', and a link to 'Download a template for automation / Give feedback'. The Windows taskbar at the bottom shows the date and time as 14:20 on 15-03-2023.

Name	IP address
NickFEndIP	NickPIP (To be created)

13. Adding both VMs to backend pool.

The screenshot shows the 'Add IP configurations to backend pool' dialog box in the Microsoft Azure portal. The dialog box has a title bar and a close button. Below the title bar, there is a note: 'IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.' Below the note, there is a search bar with the text 'Filter by name...'. To the right of the search bar, there are filters for 'Location: eastus' and 'Virtual network: NickVM1-vnet'. Below the search bar, there is a checkbox labeled 'Show resources that are not available for selection'. Below the checkbox, there is a table with the following columns: 'Resource Name', 'Resource group', 'Type', 'IP configuration', 'IP Address', 'Availability set', and 'Tags'. The table contains two rows of data, both of which are checked with a checkbox in the first column. The first row is for 'NickVM1' and the second row is for 'NickVM2'. At the bottom of the dialog box, there are buttons for 'Add', 'Cancel', and 'Give feedback'.

Resource Name	Resource group	Type	IP configuration	IP Address	Availability set	Tags
NickVM1	Naman_RG_LB	Virtual machine	ipconfig1	10.4.0.4	NICKAVS1	{\"Owner\":\"naman.mo\"}
NickVM2	Naman_RG_LB	Virtual machine	ipconfig1	10.4.0.5	NICKAVS1	{\"Owner\":\"naman.mo\"}

14. Adding Inbound Rules and creating Health Probe while doing it.

The screenshot shows the Microsoft Azure portal interface for creating a load balancer. The 'Add load balancing rule' dialog is open, displaying the 'Inbound rules' configuration. The rule is named 'NamanLBRule', uses IPv4, and is configured for TCP on port 80. The frontend IP is 'NickFEndIP (To be created)' and the backend pool is 'NickBEndPool'. The 'Add' button is located at the bottom right of the dialog.

15. Adding Tags.

The screenshot shows the Microsoft Azure portal interface for creating a load balancer. The 'Create load balancer' page is displayed, and the 'Tags' tab is selected. The 'Tags' section shows a table with columns 'Name' and 'Value'. The first row has 'Owner' as the name and 'naman.moolri@cloudeq.com' as the value. The 'Review + create' button is visible at the bottom left of the page.

16. Azure Load Balancer is deployed.

The screenshot shows the Azure portal interface for the deployment 'Microsoft.LoadBalancer-20230315141634'. The deployment is complete, and a notification indicates success. The deployment details show the name, subscription, resource group, start time, and correlation ID. The next steps section includes a 'Go to resource' button. The right sidebar contains links to Cost Management, Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

Deployment successful
Deployment 'Microsoft.LoadBalancer-20230315141634' to resource group 'Naman_RG_LB' was successful.
[Go to resource](#) [Pin to dashboard](#)

Your deployment is complete

Deployment name: Microsoft.LoadBalancer-20230315141634
Subscription: Free Trial
Resource group: Naman_RG_LB

Start time: 3/15/2023, 2:34:03 PM
Correlation ID: cad905e2-07fa-4cce-a5f2-8b3c5c27f25

Deployment details

Next steps

[Go to resource](#)

Give feedback

[Tell us about your experience with deployment](#)

Cost Management
Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

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Free Microsoft tutorials
Start learning today >

Work with an expert
Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

17. Accessing our Azure Load Balancer through Frontend IP.

The screenshot shows the Azure portal interface for the 'NamanLB | Frontend IP configuration'. The configuration shows a single IP address, 20.124.145.101, with one rule. The left sidebar contains links to Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Frontend IP configuration, Backend pools, Health probes, Load balancing rules, Inbound NAT rules, Outbound rules, Properties, Locks, Monitoring, Insights, and Diagnostic settings.

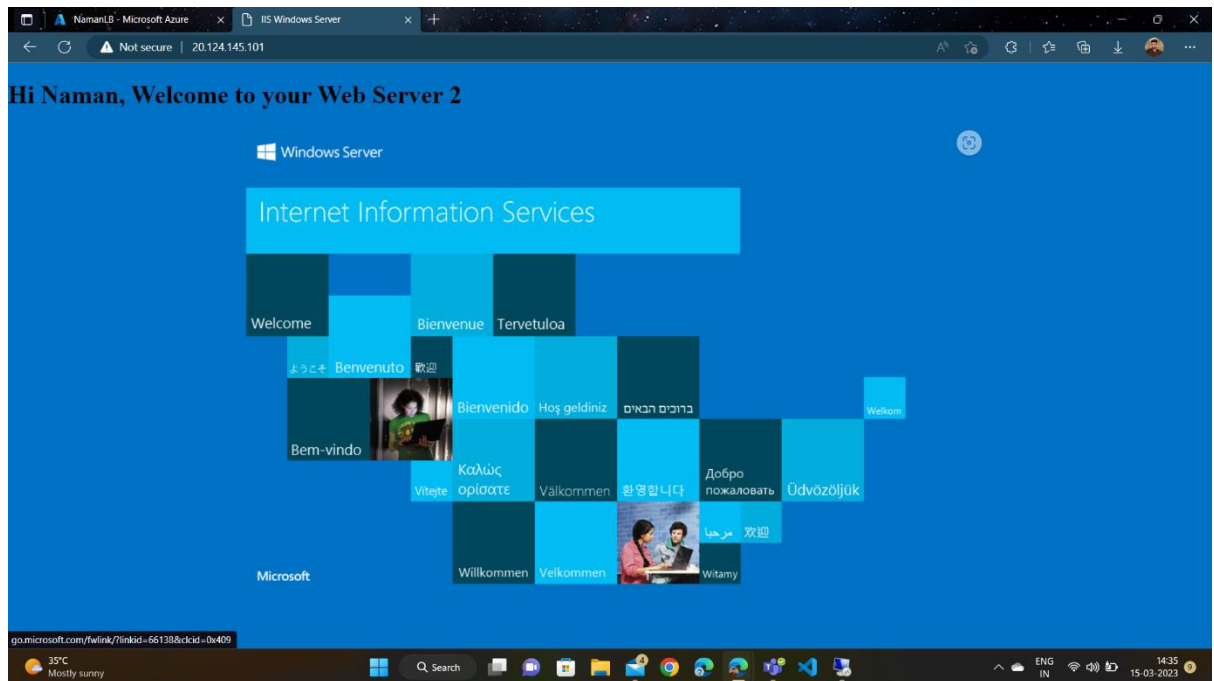
NamanLB | Frontend IP configuration

Load balancer

Filter by name...

Name ↑↓	IP address ↑↓	Rules count ↑↓
NickFendIP	20.124.145.101 (NickPIP)	1

18. Our Load Balancer directs us to our VM2.



19. Waiting for 4 minutes, and it automatically redirects to our VM1.

