

MAIN PROJECT - 2

CLOUD COMPUTING - AZURE

PROJECT - 2:

OBJECTIVE OF THE PROJECT:

Have to create a web application which is highly available in multiple regions, secure from web attacks, load balanced across regions using application gateway.

Architecture overview:

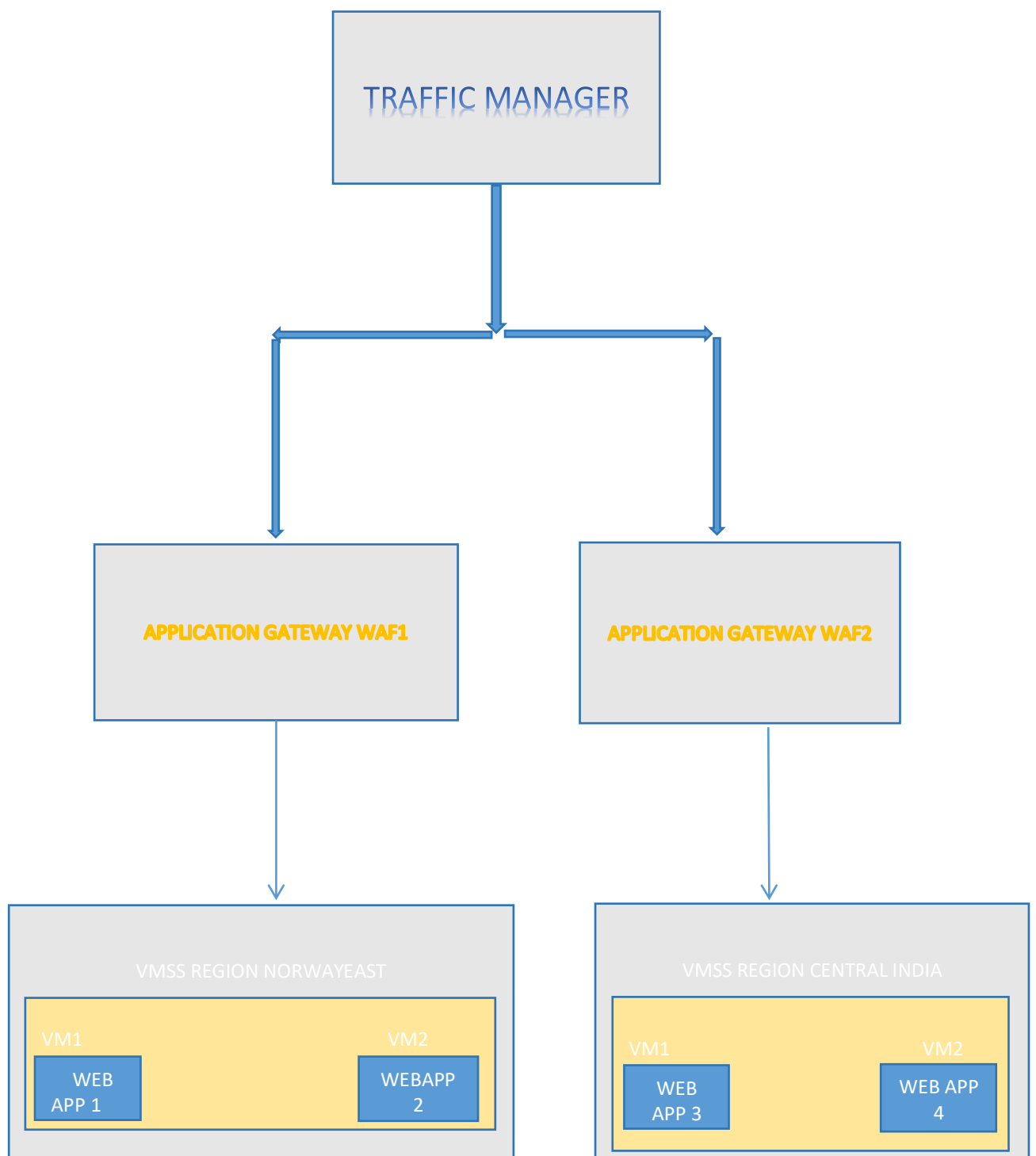
1. To achieve the first step of availability of web application in multiple regions we have to create two virtual machines in different region.
2. I have created a virtual machine 1 in Norway east location and created a virtual machine 2 in central India location with same resource group.
3. After deploying the VMs, I installed Web app IIS (Internet Information Services) on both the VMs to serve web applications
4. I have edited the code regarding to the vm and its executed.
5. I have created a Application Gateway 1 in norway east and connected it to VM1, allowing it to manage incoming traffic and provide load balancing. ☐
6. I also created Application Gateway 2 in central India and connected it to VM2, ensuring proper traffic management for this region.
7. After configuring the application gateways, I performed a health check on both VMs to ensure they were operational and that the application gateways were routing traffic correctly.
8. Then I created a Traffic Manager to enable global load balancing across multiple regions.
9. I linked the IP addresses of Application Gateway 1 and Application Gateway 2 as endpoints in the Traffic Manager.
10. Before linking the endpoints, I configured a DNS to associate with the IP addresses of the application gateways, ensuring that user requests are correctly routed.

☐

11. Finally, I tested the entire setup by simulating traffic through the Traffic Manager to ensure that the requests were properly directed to the appropriate application gateway and Web application, confirming that the configuration was functioning as expected.

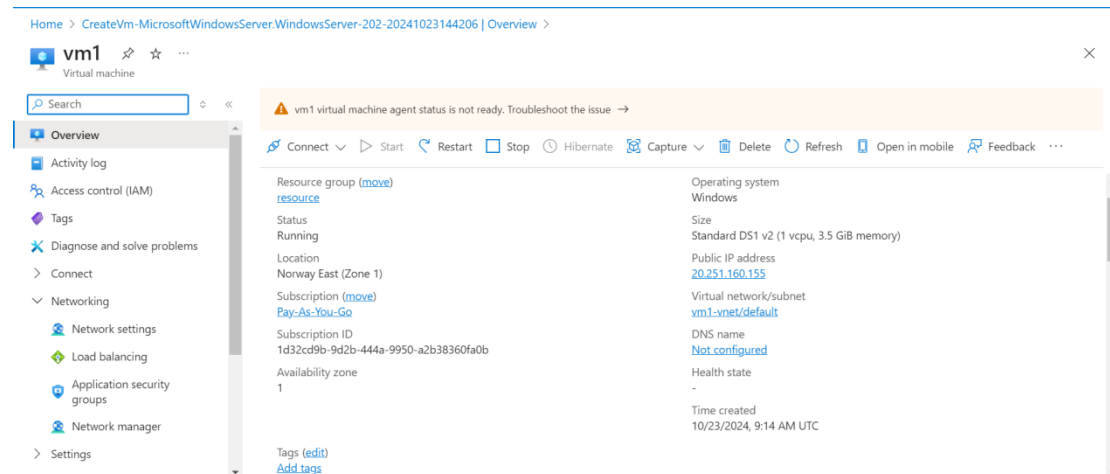
12. On priority basis, if one vm is shutdown it will auto allocate to the other VM and make the DNS to available all the time.

PROJECT ARCHITECTURE:

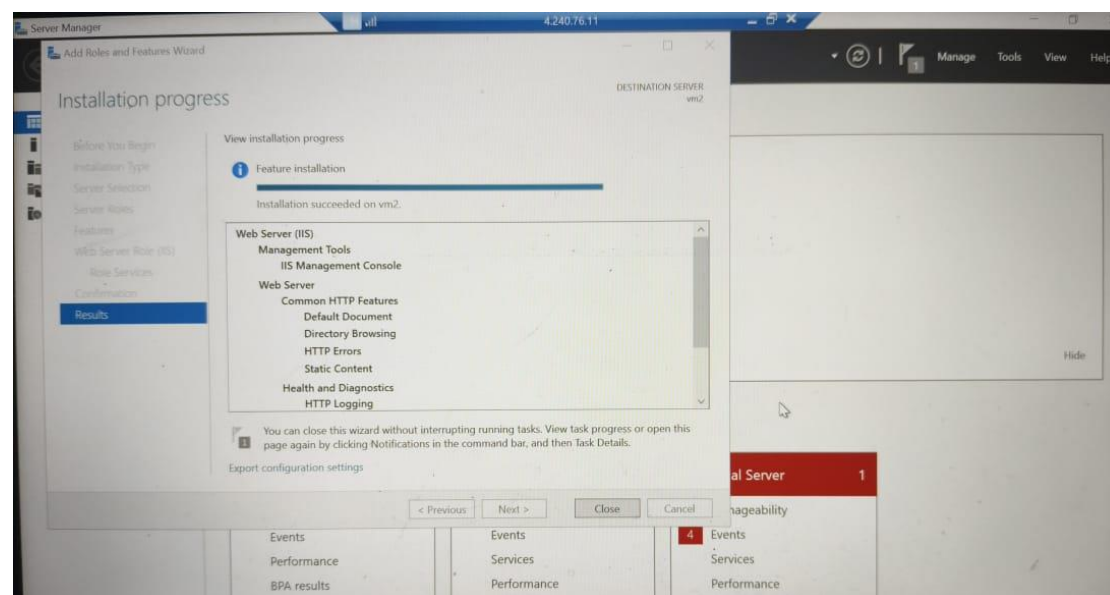


STEPS:

1. Created a VM in two different locations (norway east, central india).

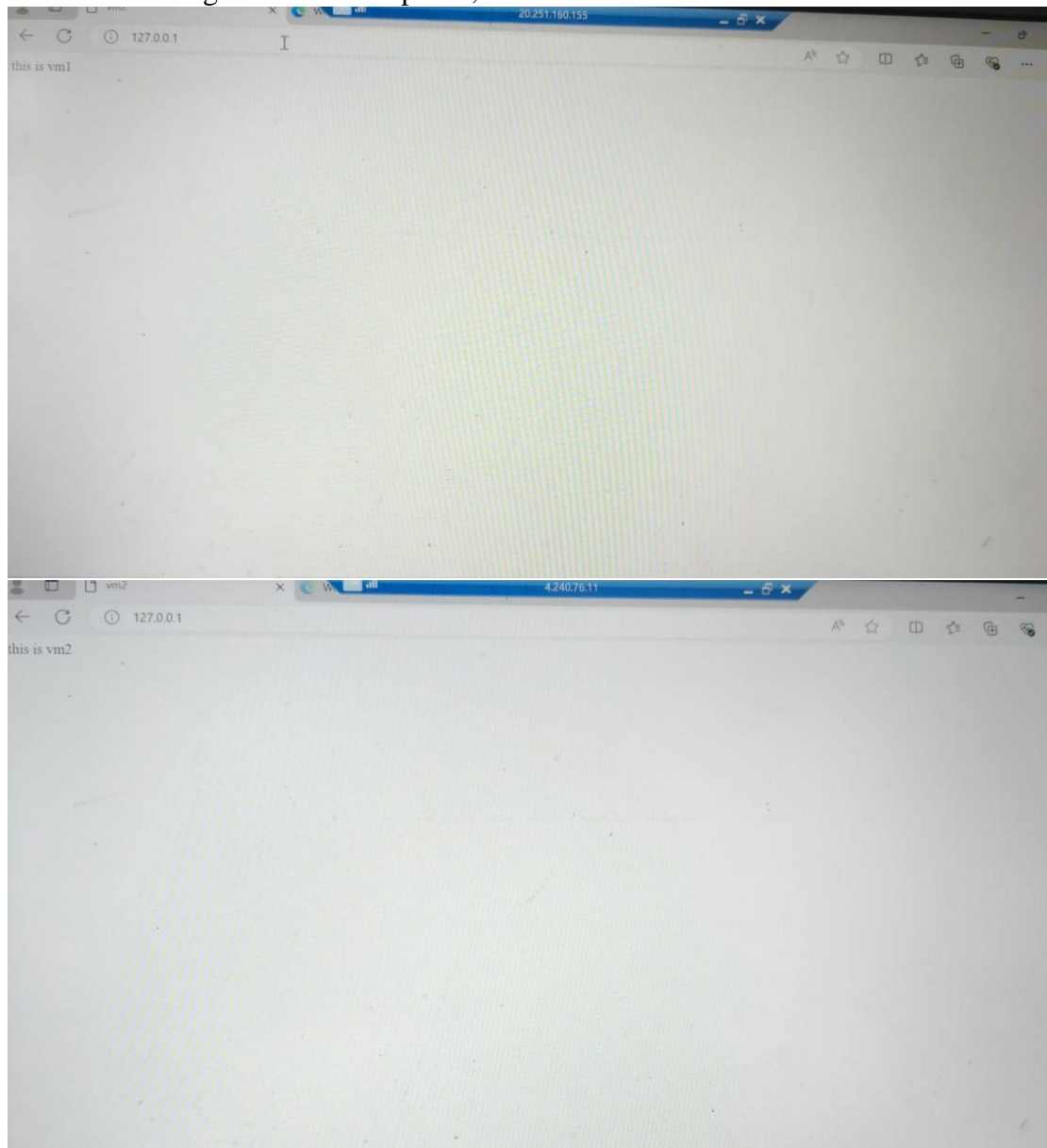


2. Installing iis in both the VMS.



3. Web app output:

Here these images are taken as photo, besides screenshot



4.Created application gateway for separate vms in different location.

[Home](#) > [resource](#) > [Marketplace](#) >

Create application gateway ...

✓ Validation passed

✓ Basics ✓ Frontends ✓ Backends ✓ Configuration ✓ Tags **4 Review + create**

Basics

Subscription	Pay-As-You-Go
Resource group	resource
Name	appgw1
Region	Norway East
Tier	WAF_v2
Enable autoscaling	Enabled
Minimum instance count	0
Maximum instance count	5
WAF status	Enabled

Create

Previous

Next

[Download a template for automation](#)

[Home](#) > [resource](#) > [Marketplace](#) >

Create application gateway ...

✓ Validation passed

✓ Basics ✓ Frontends ✓ Backends ✓ Configuration ✓ Tags **4 Review + create**

Basics

Subscription	Pay-As-You-Go
Resource group	resource
Name	appgw2
Region	Central India
Tier	WAF_v2
Enable autoscaling	Enabled
Minimum instance count	0
Maximum instance count	5
WAF status	Enabled
WAF mode	Detection

Create

Previous

Next

[Download a template for automation](#)

5. Along with the application gateway WAF policy also created separately.

Home > resource >

appgw1 ☆ ☆ ...

Application Gateway WAF policy

Search

Disable Switch to prevention mode Delete Refresh

Overview

Activity log

Access control (IAM)

Tags

Settings

Monitoring

Automation

Help

Essentials

Resource group (move) resource

Location Norway East

Subscription (move) Pay-As-You-Go

Subscription ID 1d32cd9b-9d2b-444a-9950-a2b38360fa0b

Tags (edit) Add tags

Policy state Enabled

Policy mode Detection

Associated application gateways 1

Policy settings

Configure multiple settings that apply to all rules within the policy.

Managed rules

Configure Azure managed rule sets that protect your web application from common threats.

Associated application gateways

Custom rules

Home > resource >

appgw2 ☆ ☆ ...

Application Gateway WAF policy

Search

Disable Switch to prevention mode Delete Refresh

Overview

Activity log

Access control (IAM)

Tags

Settings

Monitoring

Automation

Help

Essentials

Resource group (move) resource

Location Central India

Subscription (move) Pay-As-You-Go

Subscription ID 1d32cd9b-9d2b-444a-9950-a2b38360fa0b

Tags (edit) Add tags

Policy state Enabled

Policy mode Detection

Associated application gateways 1

Policy settings

Configure multiple settings that apply to all rules within the policy.

Managed rules

Configure Azure managed rule sets that protect your web application from common threats.

Associated application gateways

Custom rules

6. Health probe is added to ensure the status of the application gateway is worked properly.

The screenshot displays two instances of the Azure portal interface, each showing the 'Health probes' configuration for an application gateway. The top instance is for 'appgw1' and the bottom for 'appgw2'. Both show a single health probe configured with the following details:

Name	Protocol	BackendSettings	Host	Path	Timeout (seconds)
health1	Http	> 1	20.251.160.155	/	30

For appgw2, the probe is named 'health2' and the host is '4.240.76.11'. The interface includes a left-hand navigation menu with options like SSL settings, Listeners, Rules, Rewrites, Health probes, Properties, Locks, Monitoring, Alerts, Metrics, Diagnostic settings, Logs, and Insights. At the top of each page, there are action buttons: Add, Refresh, Delete, and Feedback.

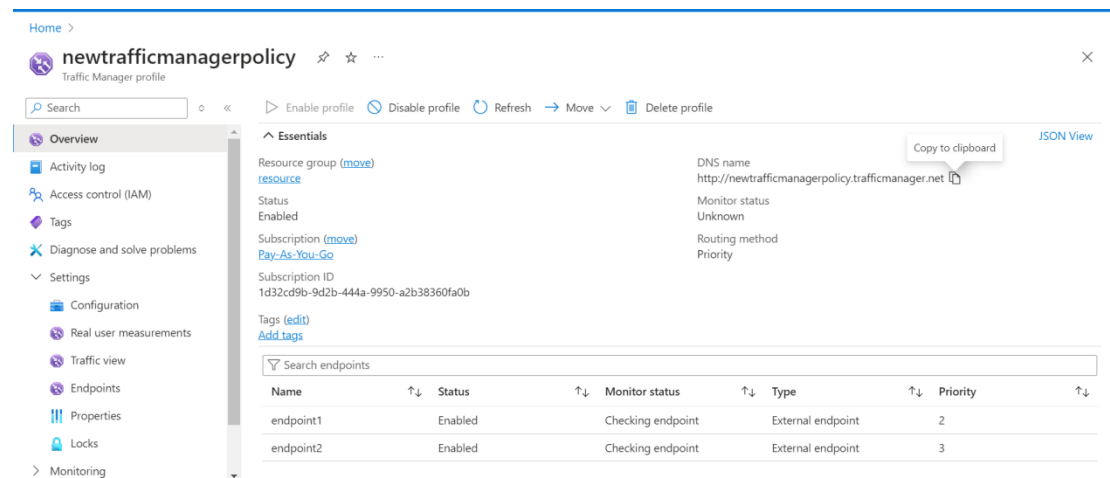
7. Traffic manager

The screenshot shows the 'newtrafficanagerpolicy' overview page in the Azure portal. The page title is 'newtrafficanagerpolicy' with a sub-header 'Traffic Manager profile'. The left navigation pane includes 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Settings', 'Configuration', 'Real user measurements', 'Traffic view', 'Endpoints', 'Properties', 'Locks', and 'Monitoring'. The main content area is divided into 'Essentials' and 'Endpoints' sections. The 'Essentials' section displays the following information:

- Resource group: [\(move\) resource](#)
- DNS name: [http://newtrafficanagerpolicy.trafficmanager.net](#)
- Status: Enabled
- Monitor status: Inactive
- Subscription: [\(move\) Pay-As-You-Go](#)
- Routing method: Priority
- Subscription ID: 1d32cd9b-9d2b-444a-9950-a2b38360fa0b
- Tags: [\(edit\)](#) [Add tags](#)

The 'Endpoints' section has a search bar and a table with columns: Name, Status, Monitor status, Type, Priority. The table currently shows 'No results.' At the top of the main content area, there are action buttons: Enable profile, Disable profile, Refresh, Move, and Delete profile. A 'JSON View' link is also present.

8. Adding endpoints with the DNS



Home > newtrafficanagerpolicy Traffic Manager profile

Search

Enable profile Disable profile Refresh Move Delete profile

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Configuration
 - Real user measurements
 - Traffic view
 - Endpoints
 - Properties
 - Locks
- Monitoring

Essentials

Resource group (move) DNS name <http://newtrafficanagerpolicy.trafficmanager.net> Copy to clipboard

Status Monitor status

Enabled Unknown

Subscription (move) Routing method

Pay-As-You-Go Priority

Subscription ID 1d32cd9b-9d2b-444a-9950-a2b38360fa0b

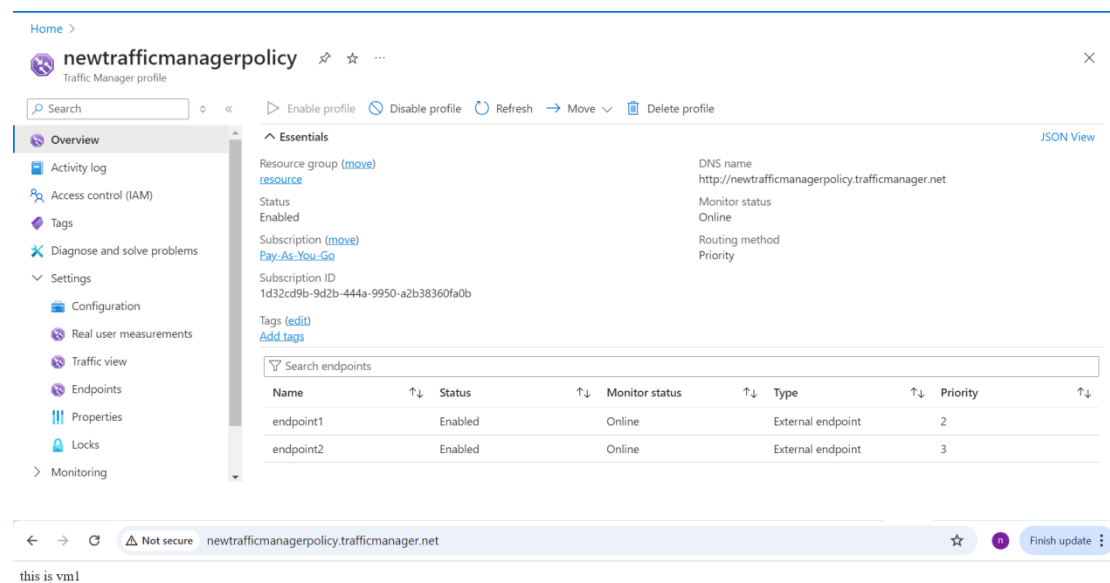
Tags (edit)

Add tags

Search endpoints

Name	↑↓	Status	↑↓	Monitor status	↑↓	Type	↑↓	Priority	↑↓
endpoint1		Enabled		Checking endpoint		External endpoint		2	
endpoint2		Enabled		Checking endpoint		External endpoint		3	

9. Checking the endpoints



Home > newtrafficanagerpolicy Traffic Manager profile

Search

Enable profile Disable profile Refresh Move Delete profile

Overview

- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Settings
 - Configuration
 - Real user measurements
 - Traffic view
 - Endpoints
 - Properties
 - Locks
- Monitoring

Essentials

Resource group (move) DNS name <http://newtrafficanagerpolicy.trafficmanager.net>

Status Monitor status

Enabled Online

Subscription (move) Routing method

Pay-As-You-Go Priority

Subscription ID 1d32cd9b-9d2b-444a-9950-a2b38360fa0b

Tags (edit)

Add tags

Search endpoints

Name	↑↓	Status	↑↓	Monitor status	↑↓	Type	↑↓	Priority	↑↓
endpoint1		Enabled		Online		External endpoint		2	
endpoint2		Enabled		Online		External endpoint		3	

← → ↻ Not secure newtrafficanagerpolicy.trafficmanager.net ☆ Finish update

this is vml

On priority basis VM1 endpoint is accessed

10. By stoping the VM1, lets run the DNS again.

Home >

newtrafficmanagerpolicy

⚙️

☆

⋮

Traffic Manager profile

×

Search

◦ ◀

▶ Enable profile

🔄 Disable profile

🔄 Refresh

➡ Move

🗑️ Delete profile

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Configuration

Real user measurements

Traffic view

Endpoints

Properties

Locks

Monitoring

Essentials

JSON View

Resource group (move)

resource

Status

Enabled

Subscription (move)

Pay-As-You-Go

Subscription ID

1d32cd9b-9d2b-444a-9950-a2b38360fa0b

Tags (edit)

Add tags

DNS name

http://newtrafficmanagerpolicy.trafficmanager.net

Monitor status

Degraded

Routing method

Priority

Search endpoints

Name	↑↓	Status	↑↓	Monitor status	↑↓	Type	↑↓	Priority	↑↓
endpoint1		Enabled		Degraded		External endpoint		2	
endpoint2		Enabled		Online		External endpoint		3	

← → 🔄

⚠️ Not secure newtrafficmanagerpolicy.trafficmanager.net

☆

🔴 0

Finish update ⋮

this is vm2

On priority basis, once the VM1 is stoped working VM2 is start worked.


11. Error URL

newtrafficmanagerpolicy.trafficmanagerrrr.net

☆

11

Finish update ⋮



This site can't be reached

Check if there is a typo in newtrafficmanagerpolicy.trafficmanagerrrr.net.

If spelling is correct, try running [Windows Network Diagnostics](#).

DNS_PROBE_FINISHED_NXDOMAIN

Reload