TM1955VirtualMachines-028Check for Associated Load Balancers

Risk Level: Medium
Rule ID:VirtualMachines-028

Ensure that each Microsoft Azure virtual machine scale set is integrated with a load balancer in order to distribute incoming traffic among healthy virtual machine instances running within the scale set. Azure load balancer is a layer 4 load balancer that provides low latency, high throughput, and scales up to millions of flows for all TCP and UDP web applications.

Integrating Microsoft Azure virtual machine scale sets with Azure load balancers can help you provide high availability for your web applications and improve application performance through scaling.

Audit

To determine if your virtual machine scale sets are using load balancers for optimal scaling and high availability, perform the following operations:

Using Azure CLI

01 Run **account list** command (Windows/macOS/Linux) using custom query filters to list the IDs of the subscriptions available in your Azure account:

```
az account list
        --query '[*].id'
```

02 The command output should return the requested subscription identifiers (IDs):

```
[
  "abcdabcd-1234-abcd-1234-abcdabcdabcd",
  "abcd1234-abcd-1234-abcd-abcd1234abcd",
]
```

03 Run **vmss list** command (Windows/macOS/Linux) using custom query filters to list the name and the associated resource group of each virtual machine scale set available in the selected Azure subscription:

```
az vmss list
        --subscription abcdabcd-1234-abcd-1234-abcdabcdabcd
        --output table
        --query '[*].{name:name, resourceGroup:resourceGroup}'
```

04 The command output should return the requested virtual machine scale set identifiers:

```
Name                    ResourceGroup
----------------------  ------------------------------
cc-web-prod-scale-set   cloud-shell-storage-westeurope
cc-project5-scale-set   cloud-shell-storage-westeurope
```

05 Run **vmss show** command (Windows/macOS/Linux) using the name of the virtual machine scale set that you want to examine as identifier parameter, to describe the ID of the load balancer backend pool associated with the selected VM scale set:

```
az vmss show
        --name cc-web-prod-scale-set
        --resource-group cloud-shell-storage-westeurope
        --query
'virtualMachineProfile.networkProfile.networkInterfaceConfigurations[*].ipConfigur
ations[*].loadBalancerBackendAddressPools[*].id | []'
```

06 The command output should return the requested backend pool identifier:

```
[]
```

If the **vmss show** command output returns an empty array, as shown in the example above, the selected Azure virtual machine scale set is not associated with an Azure load balancer.

07 Repeat step no. 5 and 6 for each Azure virtual machine scale set deployed in the selected subscription.

08 Repeat steps no. 3 – 10 for each subscription created in your Microsoft Azure cloud account.

Azure Official Documentation

- Azure Virtual Machine Scale Sets
- What are virtual machine scale sets?
- What is Azure Load Balancer?
- Quickstart: Create a public load balancer to load balance VMs using the Azure portal
- Quickstart: Create a virtual machine scale set in the Azure portal
- Load Balancer health probes

Azure Command Line Interface (CLI) Documentation

- az account
- az vmss
- az vmss show