Managing Azure Subscriptions and Resources

Lab: Exploring Monitoring Capabilities in Azure

Scenario

Adatum Corporation wants to explore monitoring capabilities in Azure

Objectives

After completing this lab, you will be able to:

- Deploy Azure VM scale sets
- Implement monitoring and alerting by using Azure Monitor

Lab Setup

Estimated Time: 45 minutes

User Name: **Student**

Password: **Pa55w.rd**

Exercise 1: Deploy Azure VM scale sets

The main tasks for this exercise are as follows:

1. Deploy an Azure VM scale set by using an Azure QuickStart template
2. Review autoscaling settings of the Azure VM scale set

Task 1: Deploy an Azure VM scale set by using an Azure QuickStart template

1. From the lab virtual machine, start Microsoft Edge and browse to the Azure QuickStart template that deploys autoscale demo app on Ubuntu 16.04 at **https://github.com/Azure/azure-quickstart-templates/tree/master/201-vmss-bottle-autoscale**.
2. Click **Deploy to Azure** and, when prompted, sign in by using the Microsoft account that has the Owner role in the target Azure subscription.
3. In the Azure Portal, on the **Deploy VM Scale Set with Python Bottle server & AutoScale** blade, specify the following settings and initiate the deployment:
   - Subscription: the name of the target Azure subscription
   - Resource group: the name of a new resource group **az3000101-LabRG**
   - Location: the name of the Azure region that is available in your subscription and which is closest to the lab location
   - Vm Sku: **Standard_D1_v2**
   - Vmss Name: **az01-vmss**

- Instance count: **1**
- Admin Username: **student**
- Admin Password: **Pa55w.rd1234**

4. Wait for the deployment to complete. This will take about 5 minutes.

Task 2: Review autoscaling settings of the Azure VM scale set

1. In Azure Portal, navigate to the **az01-vmss** blade, representing the newly deployed Azure VM scale set.
2. From the **az01-vmss** blade, navigate to the **az01-vmss - Scaling**.
3. Note that the Azure VM scale set is configured to scale dynamically based on a metric using the following criteria:
   - Scale out: increase instance count by 1 when average percentage of CPU > 60
   - Scale in: decrease instance count by 1 when average percentage of CPU < 30
   - Minimum number of instances: 1
   - Maximum number of instances: 10
4. Modify the maximum number of instances to 3.

Result: After you completed this exercise, you have deployed an Azure VM scale set and reviewed its autoscaling settings.

Exercise 2: Implementing monitoring and alerting by using Azure Monitor

The main tasks for this exercise are as follows:

1. Create Azure VM scale set metrics-based alerts
2. Configure Azure VM scale set autoscaling-based notifications
3. Test Azure VM scale set monitoring and alerting.

Task 1: Create Azure VM scale set metrics-based alerts

1. In the Azure portal, navigate to the **Monitor** blade and, from there, switch to the **Monitor - Metrics** blade.
2. On the **Monitor - Metrics** blade, use the filter to display **Avg Percentage CPU** metric of the **az01-vmss** VM scale set resource.
3. Review the resulting chart and note the average percentage CPU within the last few minutes.
4. Navigate to the **Monitor - Alerts** blade.
5. From the **Monitor - Alerts** blade, create a new alert rule with the following settings:

- Alert target: **az01-vmss**
- Condition (Alert logic): **Greater than**
- Time Aggregation (Alert logic): **Average**
- Threshold (Alert logic): **60**
- Period (grain): **Over the last 1 minutes**
- Frequency: **Every 1 minute**
- Alert rule name: **Percentage CPU of az01-vmss is greater than 60 percent**
- Description: **Percentage CPU of az01-vmss is greater than 60 percent**
- Severity: **Sev 3**
- Enable rule upon creation: **Yes**
- Action group name: **az30001 action group**
- Short name: **az30001**
- Subscription: the name of the Azure subscription you used in the previous exercise
- Resource group: **Default-ActivityLogAlerts (to be created)**
- Action name: **az30001-email**
- Action type: **Email/SMS/Push/Voice**
- Email/SMS/Push/Voice: an email address, a mobile phone number, or a phone number that you want to use to receive alerts generated by this rule

Note: It can take up to 10 minutes for a metric alert rule to become active

Task 2: Configure Azure VM scale set autoscaling-based notifications

1. In the Azure portal, navigate to the **Monitor - Autoscale** blade.
2. In the list of resources capable of autoscaling, click **az01-vmss**.
3. On the **Autoscale setting** blade, click the **Notify** tab heading, configure the following settings, and save your changes:
   - Email administrators: enabled
   - Email co-administrators: disabled
   - Additional administrator emails(s): add an email address that you want to use to receive notifications about autoscaling events

Task 3: Test Azure VM scale set monitoring and alerting.

1. In the Azure portal, navigate to the **az01-vmss** blade, representing the Azure VM scale set you deployed in the previous exercise of this lab.
2. From the **az01-vmss** blade, identify the value of the **Public IP address** assigned to the front end of the load balancer associated with the VM scale set.
3. From the lab computer, start Microsoft Edge and browse to **http://*Public IP address*:9000** (where ***Public IP address*** is the IP address you identified in the previous step)
4. On the **Worker interface on az01-vmss000000** page, click the **Start work** link.
5. Use the **CPU (average)** chart on the **az01-vmss** blade to monitor changes to the CPU utilization.

   Note: Alternatively, you can navigate back to the **Monitor - Metrics** blade and use the filter to display **Avg Percentage CPU** metric of the **az01-vmss** VM scale set resource.

   Note: You should receive an alert regarding increased CPU utilization within a couple of minutes
6. Switch to the **az01-vmss - Instances** blade in order to identify the number of instances in the **az01-vmss** VM scale set.

   Note: Alternatively, you can navigate back to the **Monitor - Autoscale** blade, in the list of resources capable of autoscaling, click **az01-vmss**, on the **Autoscale settings** blade, click **Run history**, and then review the list of autoscale events.

   Note: Autoscaling should be triggered within a couple of minutes.
7. Switch to the Microsoft Edge window displaying **Worker interface on az01-vmss000000** page and click the **Stop work** link.
8. Monitor decrease in CPU utilization and scaling in events using the same methods that you used when scaling out the VM scale set.

Result: After you completed this exercise, you have implemented and tested monitoring and alerting by using Azure Monitor.