Monitor a Compute Engine Virtual Machine: Qwik Start | Google Cloud Skills Boost

Qwiklabs: 7-9 minutes

GSP1108



Overview

In this lab you use Cloud Monitoring to generate traffic and view metrics on the predefined Apache dashboard in the Google Cloud console.

Objectives

In this lab, you learn how to perform the following tasks:

- Create a Compute Engine VM instance.
- Install an Apache Web Server.
- Install and configure the Ops Agent for the Apache Web Server.
- Generate traffic and view metrics on the predefined Apache dashboard.
- Create an alerting policy.

Task 1. Create a Compute Engine VM instance

- 1. In the Google Cloud console, select Navigation menu > Compute Engine > VM Instances.
- 2. To create a VM instance, click **Create instance**.
- 3. Fill in the fields for your instance as follows:
 - In the Name field, enter quickstart-vm.
 - In the Machine type field, select e2-small.
 - Ensure the Boot disk is configured for Debian GNU/Linux 11 (bullseye).
 - In the Firewall field, select both Allow HTTP traffic and Allow HTTPS traffic.

Leave the rest of the fields at their default values.

4. Click **Create**. When your VM is ready, it appears in the list of instances in the Instances tab.

Click **Check my progress** to verify the objective.

Task 2. Install an Apache Web Server

To deploy an Apache Web Server on your Compute Engine VM instance, do the following:

- 1. To open a terminal to your instance, in the Connect column, click SSH.
- 2. To update the package lists on your instance, run the following command:

sudo apt-get update

3. To install an Apache2 HTTP Server, run the following command:

sudo apt-get install apache2 php7.0 **Note**: If the previous command fails, then use sudo apt-get install apache2 php. If asked to continue the installation, enter Y.

4. Open your browser and connect to your Apache2 HTTP server by using the URL http://EXTERNAL_IP, where EXTERNAL_IP is the external IP address of your VM. You can find this address in the External IP column of your VM instance.



Apache2 Debian Default Page

debian

It works!

This is the default welcome page used to test the correct operation of the Apache2 server after installation on Debian systems. If you can read this page, it means that the Apache HTTP server installed at this site is working properly. You should **replace this file** (located at /var/www/html/index.html) before continuing to operate your HTTP server.

If you are a normal user of this web site and don't know what this page is about, this probably means that the site is currently unavailable due to maintenance. If the problem persists, please contact the site's administrator.

Click **Check my progress** to verify the objective.

Install an Apache Web Server

Task 3. Install and configure the Ops Agent

To collect logs and metrics from your Apache Web Server, install the Ops Agent by using the terminal:

- 1. To open a terminal to your VM instance, in the **Connect** column, click **SSH**.
- 2. To install the Ops Agent, run the following command:



curl -sSO https://dl.google.com/cloudagents/add-google-cloud-ops-agent-repo.sh sudo bash add-google-cloud-ops-agent-repo.sh --also-install

You should notice the google-cloud-ops-agent installation succeeded.

3. Copy the following command, then paste it into the terminal:

Configures Ops Agent to collect telemetry from the app and restart Ops Agent. set -e # Create a back up of the existing file so existing configurations are not lost. sudo cp /etc/google-cloud-ops-agent/config.yaml /etc/google-cloud-ops-agent/config.yaml.bak # Configure the Ops Agent. sudo tee /etc/google-cloud-ops-agent/config.yaml > /dev/null << EOF metrics: receivers: apache: type: apache service: pipelines: apache: receivers: - apache logging: receivers: apache_access: type: apache_access apache_error: type: apache_error service: pipelines: apache: receivers: - apache_access - apache_error EOF sudo service google-cloud-ops-agent restart sleep 60

The previous command creates the configuration to collect and ingest logs and metrics from the Apache Web Server. For more information about ingesting logs from the Apache Web Server, see Configure the Ops Agent for Apache Web Server.

Click **Check my progress** to verify the objective.

Install the Ops Agent

Task 4. Generate traffic and view metrics

Monitoring dashboards let you view and analyze metrics related to your services. In this quickstart, you generate metrics on your Apache Web Server and view metric data on the automatically created **Apache GCE Overview** dashboard.

To generate metrics on your Apache Web Server, do the following:

- 1. In Google Cloud console, select **Navigation menu > Compute Engine**.
- 2. In the **Connect** column, click **SSH** to open a terminal to your VM instance.
- 3. To generate traffic on your Apache Web Server, run the following command:

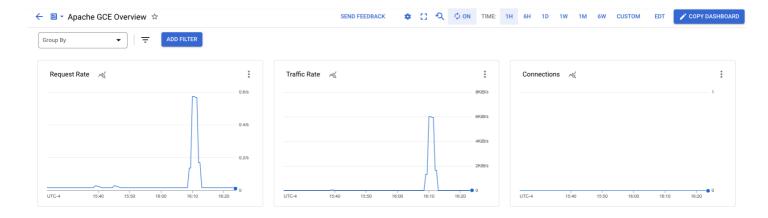
timeout 120 bash -c -- 'while true; do curl localhost; sleep \$((RANDOM % 4)); done'

The previous command generates traffic by making a request to the Apache Web Server every four seconds.

To view the **Apache Overview** dashboard, do the following:

- 1. In the Google Cloud console, search for **Monitoring** in the top search bar and navigate to the **Monitoring** service.
- 2. In the navigation pane, select **Dashboards**.
- 3. In All Dashboards, select the Apache GCE Overview dashboard. The dashboard opens.

In the dashboard, there are several charts that contain information about your Apache and Compute Engine integration:



Task 5. Create an alerting policy

- 1. To set up an email notification channel, do the following:
 - In Google Cloud console, select Navigation menu > Monitoring select Alerting and then click
 Edit notification channels.
 - Scroll down the page and click on Add new for Email.
 - Name the Email Channel: An email address you have access to
 - Enter the Display name.

Note: If you enter your own email address, you might get alerts until all the resources in the project have been deleted.

To create an alerting policy that monitors a metric and sends an email notification when the traffic rate on your Apache Web Server exceeds 4 KiB/s, do the following:

- 2. In Google Cloud console, select Navigation menu > Monitoring > Alerting and then click Create policy.
- 3. Select the time series to be monitored:
 - Click Select a metric and enter VM instance into the filter bar.
 - In the Active metric categories list, select Apache.
 - In the Active metrics list, select workload/apache.traffic.

The chart for Apache traffic is shown.

- 4. In the **Transform data** section, select the following values:
 - Rolling window: 1 min
 - Rolling window function: rate
- 5. In the Configure alert trigger section, select the following values and click Next:
 - Alert trigger: Any time series violates
 - Threshold position: Above threshold
 - o Threshold value: 4000
- 6. In the Configure notifications and finalize alert section, select the following values:

- Notification channels: Select the Display name you have created earlier.
- o Incident autoclose duration: 30 min
- Name the alert policy: Apache traffic above threshold
- 7. Click **Create policy**. Your alerting policy is now active.

Click Check my progress to verify the objective.

Create an alerting policy

Task 6. Test the alerting policy

To test the alerting policy you just created, do the following:

- 1. In Google Cloud console, select **Navigation menu > Compute Engine**.
- 2. In the **Connect** column, click **SSH** to open a terminal to your VM instance.
- 3. In the terminal, enter the following command:

timeout 120 bash -c -- 'while true; do curl localhost; sleep \$((RANDOM % 4)); done'

The previous command generates traffic in your Apache Web Server.

After the traffic rate threshold value of 4 KiB/s is exceeded in your Apache Web Server, an email notification is sent. It might take several minutes for this process to complete.

The email notification you receive looks similar to the following:





Alert firing

VM Instance - workload/apache.traffic

workload/apache.traffic for test-project instance-1 with metric labels (server_name=localhost) is above the threshold of 4000.000 with a value of 5593.930.

Summary

Start time

Aug 2, 2022 at 9:02PM UTC (less than 1 sec ago)

Project

test-project

Policy

Apache traffic above threshold

Condition

VM Instance - workload/apache.traffic

Metric

workload.googleapis.com/apache.traffic

Threshold

above 4000

Observed

5593.930

Metric labels

server_name: localhost

Resource labels

instance_id: 4127277104317695128

project_id: test-project zone: us-central1-a

VIEW INCIDENT

Congratulations!

In this lab, you learned how to install Ops Agent on a VM and use it to set an alerting policy to notify a recipient of potential issues with the instance.

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