

# Google

## Exam Questions Professional-Cloud-DevOps-Engineer

Google Cloud Certified - Professional Cloud DevOps Engineer Exam



**NEW QUESTION 1**

You have an application running in Google Kubernetes Engine. The application invokes multiple services per request but responds too slowly. You need to identify which downstream service or services are causing the delay. What should you do?

- A. Analyze VPC flow logs along the path of the request.
- B. Investigate the Liveness and Readiness probes for each service.
- C. Create a Dataflow pipeline to analyze service metrics in real time.
- D. Use a distributed tracing framework such as OpenTelemetry or Stackdriver Trace.

**Answer:** C

**NEW QUESTION 2**

Your application images are built using Cloud Build and pushed to Google Container Registry (GCR). You want to be able to specify a particular version of your application for deployment based on the release version tagged in source control. What should you do when you push the image?

- A. Reference the image digest in the source control tag.
- B. Supply the source control tag as a parameter within the image name.
- C. Use Cloud Build to include the release version tag in the application image.
- D. Use GCR digest versioning to match the image to the tag in source control.

**Answer:** B

**Explanation:**

<https://cloud.google.com/container-registry/docs/pushing-and-pulling>

**NEW QUESTION 3**

You support a high-traffic web application and want to ensure that the home page loads in a timely manner. As a first step, you decide to implement a Service Level Indicator (SLI) to represent home page request latency with an acceptable page load time set to 100 ms. What is the Google-recommended way of calculating this SLI?

- A. Bucketize the request latencies into ranges, and then compute the percentile at 100 ms.
- B. Bucketize the request latencies into ranges, and then compute the median and 90th percentiles.
- C. Count the number of home page requests that load in under 100 ms, and then divide by the total number of home page requests.
- D. Count the number of home page requests that load in under 100 m
- E. and then divide by the total number of all web application requests.

**Answer:** C

**Explanation:**

<https://sre.google/workbook/implementing-slos/>

In the SRE principles book, it's recommended treating the SLI as the ratio of two numbers: the number of good events divided by the total number of events. For example: Number of successful HTTP requests / total HTTP requests (success rate)

**NEW QUESTION 4**

You support an application running on App Engine. The application is used globally and accessed from various device types. You want to know the number of connections. You are using Stackdriver Monitoring for App Engine. What metric should you use?

- A. flex/connections/current
- B. tcp\_ssl\_proxy/new\_connections
- C. tcp\_ssl\_proxy/open\_connections
- D. flex/instance/connections/current

**Answer:** A

**Explanation:**

[https://cloud.google.com/monitoring/api/metrics\\_gcp#gcp-appengine](https://cloud.google.com/monitoring/api/metrics_gcp#gcp-appengine)

**NEW QUESTION 5**

You have a set of applications running on a Google Kubernetes Engine (GKE) cluster, and you are using Stackdriver Kubernetes Engine Monitoring. You are bringing a new containerized application required by your company into production. This application is written by a third party and cannot be modified or reconfigured. The application writes its log information to `/var/log/app_messages.log`, and you want to send these log entries to Stackdriver Logging. What should you do?

- A. Use the default Stackdriver Kubernetes Engine Monitoring agent configuration.
- B. Deploy a Fluentd daemonset to GK
- C. Then create a customized input and output configuration to tail the log file in the application's pods and write to Stackdriver Logging.
- D. Install Kubernetes on Google Compute Engine (GCE) and redeploy your application
- E. Then customize the built-in Stackdriver Logging configuration to tail the log file in the application's pods and write to Stackdriver Logging.
- F. Write a script to tail the log file within the pod and write entries to standard output
- G. Run the script as a sidecar container with the application's pod
- H. Configure a shared volume between the containers to allow the script to have read access to `/var/log` in the application container.

**Answer:** B

**Explanation:**

<https://cloud.google.com/architecture/customizing-stackdriver-logs-fluentd>

Besides the list of default logs that the Logging agent streams by default, you can customize the Logging agent to send additional logs to Logging or to adjust agent settings by adding input configurations. The configuration definitions in these sections apply to the fluent-plugin-google-cloud output plugin only and specify how logs are transformed and ingested into Cloud Logging. <https://cloud.google.com/logging/docs/agent/logging/configuration#configure>

**NEW QUESTION 6**

Your application runs on Google Cloud Platform (GCP). You need to implement Jenkins for deploying application releases to GCP. You want to streamline the release process, lower operational toil, and keep user data secure. What should you do?

- A. Implement Jenkins on local workstations.
- B. Implement Jenkins on Kubernetes on-premises
- C. Implement Jenkins on Google Cloud Functions.
- D. Implement Jenkins on Compute Engine virtual machines.

**Answer:** D

**Explanation:**

Your application runs on Google Cloud Platform (GCP). You need to implement Jenkins for deploying application releases to GCP. You want to streamline the release process, lower operational toil, and keep user data secure. What should you do?  
<https://plugins.jenkins.io/google-compute-engine/>

**NEW QUESTION 7**

You use a multiple step Cloud Build pipeline to build and deploy your application to Google Kubernetes Engine (GKE). You want to integrate with a third-party monitoring platform by performing a HTTP POST of the build information to a webhook. You want to minimize the development effort. What should you do?

- A. Add logic to each Cloud Build step to HTTP POST the build information to a webhook.
- B. Add a new step at the end of the pipeline in Cloud Build to HTTP POST the build information to a webhook.
- C. Use Stackdriver Logging to create a logs-based metric from the Cloud Build log
- D. Create an Alert with a Webhook notification type.
- E. Create a Cloud Pub/Sub push subscription to the Cloud Build cloud-builds PubSub topic to HTTP POST the build information to a webhook.

**Answer:** D

**NEW QUESTION 8**

You support a high-traffic web application that runs on Google Cloud Platform (GCP). You need to measure application reliability from a user perspective without making any engineering changes to it. What should you do?  
Choose 2 answers

- A. Review current application metrics and add new ones as needed.
- B. Modify the code to capture additional information for user interaction.
- C. Analyze the web proxy logs only and capture response time of each request.
- D. Create new synthetic clients to simulate a user journey using the application.
- E. Use current and historic Request Logs to trace customer interaction with the application.

**Answer:** CE

**Explanation:**

<https://cloud.google.com/architecture/adopting-slos?hl=en>

**NEW QUESTION 9**

You have a CI/CD pipeline that uses Cloud Build to build new Docker images and push them to Docker Hub. You use Git for code versioning. After making a change in the Cloud Build YAML configuration, you notice that no new artifacts are being built by the pipeline. You need to resolve the issue following Site Reliability Engineering practices. What should you do?

- A. Disable the CI pipeline and revert to manually building and pushing the artifacts.
- B. Change the CI pipeline to push the artifacts to Container Registry instead of Docker Hub.
- C. Upload the configuration YAML file to Cloud Storage and use Error Reporting to identify and fix the issue.
- D. Run a Git compare between the previous and current Cloud Build Configuration files to find and fix the bug.

**Answer:** D

**Explanation:**

"After making a change in the Cloud Build YAML configuration, you notice that no new artifacts are being built by the pipeline"- means something wrong on the recent change not with the image registry.

**NEW QUESTION 10**

You support a service with a well-defined Service Level Objective (SLO). Over the previous 6 months, your service has consistently met its SLO and customer satisfaction has been consistently high. Most of your service's operations tasks are automated and few repetitive tasks occur frequently. You want to optimize the balance between reliability and deployment velocity while following site reliability engineering best practices. What should you do? (Choose two.)

- A. Make the service's SLO more strict.
- B. Increase the service's deployment velocity and/or risk.
- C. Shift engineering time to other services that need more reliability.
- D. Get the product team to prioritize reliability work over new features.
- E. Change the implementation of your Service Level Indicators (SLIs) to increase coverage.

**Answer:** BC

**Explanation:**

(<https://sre.google/workbook/implementing-slos/#slo-decision-matrix>)

**NEW QUESTION 10**

You are running an application in a virtual machine (VM) using a custom Debian image. The image has the Stackdriver Logging agent installed. The VM has the cloud-platform scope. The application is logging information via syslog. You want to use Stackdriver Logging in the Google Cloud Platform Console to visualize the logs. You notice that syslog is not showing up in the "All logs" dropdown list of the Logs Viewer. What is the first thing you should do?

- A. Look for the agent's test log entry in the Logs Viewer.
- B. Install the most recent version of the Stackdriver agent.
- C. Verify the VM service account access scope includes the monitoring.write scope.
- D. SSH to the VM and execute the following commands on your VM: `ps ax | grep fluentd`

**Answer:** D

**Explanation:**

[https://cloud.google.com/compute/docs/access/service-accounts#associating\\_a\\_service\\_account\\_to\\_an\\_instance](https://cloud.google.com/compute/docs/access/service-accounts#associating_a_service_account_to_an_instance)

**NEW QUESTION 13**

Your team is designing a new application for deployment into Google Kubernetes Engine (GKE). You need to set up monitoring to collect and aggregate various application-level metrics in a centralized location. You want to use Google Cloud Platform services while minimizing the amount of work required to set up monitoring. What should you do?

- A. Publish various metrics from the application directly to the Stackdriver Monitoring API, and then observe these custom metrics in Stackdriver.
- B. Install the Cloud Pub/Sub client libraries, push various metrics from the application to various topics, and then observe the aggregated metrics in Stackdriver.
- C. Install the OpenTelemetry client libraries in the application, configure Stackdriver as the export destination for the metrics, and then observe the application's metrics in Stackdriver.
- D. Emit all metrics in the form of application-specific log messages, pass these messages from the containers to the Stackdriver logging collector, and then observe metrics in Stackdriver.

**Answer:** A

**Explanation:**

[https://cloud.google.com/kubernetes-engine/docs/concepts/custom-and-external-metrics#custom\\_metrics](https://cloud.google.com/kubernetes-engine/docs/concepts/custom-and-external-metrics#custom_metrics) <https://github.com/GoogleCloudPlatform/k8s-stackdriver/blob/master/custom-metrics-stackdriver-adapter/REA> Your application can report a custom metric to Cloud Monitoring. You can configure Kubernetes to respond to these metrics and scale your workload automatically. For example, you can scale your application based on metrics such as queries per second, writes per second, network performance, latency when communicating with a different application, or other metrics that make sense for your workload.  
<https://cloud.google.com/kubernetes-engine/docs/concepts/custom-and-external-metrics>

**NEW QUESTION 15**

Your team uses Cloud Build for all CI/CO pipelines. You want to use the kubectl builder for Cloud Build to deploy new images to Google Kubernetes Engine (GKE). You need to authenticate to GKE while minimizing development effort. What should you do?

- A. Assign the Container Developer role to the Cloud Build service account.
- B. Specify the Container Developer role for Cloud Build in the cloudbuild.yaml file.
- C. Create a new service account with the Container Developer role and use it to run Cloud Build.
- D. Create a separate step in Cloud Build to retrieve service account credentials and pass these to kubectl.

**Answer:** A

**Explanation:**

<https://cloud.google.com/build/docs/deploying-builds/deploy-gke> <https://cloud.google.com/build/docs/securing-builds/configure-user-specified-service-accounts>

**NEW QUESTION 19**

You support a Node.js application running on Google Kubernetes Engine (GKE) in production. The application makes several HTTP requests to dependent applications. You want to anticipate which dependent applications might cause performance issues. What should you do?

- A. Instrument all applications with Stackdriver Profiler.
- B. Instrument all applications with Stackdriver Trace and review inter-service HTTP requests.
- C. Use Stackdriver Debugger to review the execution of logic within each application to instrument all applications.
- D. Modify the Node.js application to log HTTP request and response times to dependent application
- E. Use Stackdriver Logging to find dependent applications that are performing poorly.

**Answer:** B

**NEW QUESTION 23**

Your company follows Site Reliability Engineering practices. You are the Incident Commander for a new, customer-impacting incident. You need to immediately assign two incident management roles to assist you in an effective incident response. What roles should you assign?  
Choose 2 answers

- A. Operations Lead
- B. Engineering Lead
- C. Communications Lead
- D. Customer Impact Assessor
- E. External Customer Communications Lead

**Answer:** AC

**Explanation:**

<https://sre.google/workbook/incident-response/>

"The main roles in incident response are the Incident Commander (IC), Communications Lead (CL), and Operations or Ops Lead (OL)."

#### NEW QUESTION 26

Your company experiences bugs, outages, and slowness in its production systems. Developers use the production environment for new feature development and bug fixes. Configuration and experiments are done in the production environment, causing outages for users. Testers use the production environment for load testing, which often slows the production systems. You need to redesign the environment to reduce the number of bugs and outages in production and to enable testers to load test new features. What should you do?

- A. Create an automated testing script in production to detect failures as soon as they occur.
- B. Create a development environment with smaller server capacity and give access only to developers and testers.
- C. Secure the production environment to ensure that developers can't change it and set up one controlled update per year.
- D. Create a development environment for writing code and a test environment for configurations, experiments, and load testing.

**Answer:** D

#### NEW QUESTION 29

You support an application running on GCP and want to configure SMS notifications to your team for the most critical alerts in Stackdriver Monitoring. You have already identified the alerting policies you want to configure this for. What should you do?

- A. Download and configure a third-party integration between Stackdriver Monitoring and an SMS gateway. Ensure that your team members add their SMS/phone numbers to the external tool.
- B. Select the Webhook notifications option for each alerting policy, and configure it to use a third-party integration too
- C. Ensure that your team members add their SMS/phone numbers to the external tool.
- D. Ensure that your team members set their SMS/phone numbers in their Stackdriver Profile
- E. Select the SMS notification option for each alerting policy and then select the appropriate SMS/phone numbers from the list.
- F. Configure a Slack notification for each alerting policy
- G. Set up a Slack-to-SMS integration to send SMS messages when Slack messages are received
- H. Ensure that your team members add their SMS/phone numbers to the external integration.

**Answer:** C

#### Explanation:

[https://cloud.google.com/monitoring/support/notification-options#creating\\_channels](https://cloud.google.com/monitoring/support/notification-options#creating_channels) To configure SMS notifications, do the following:

In the SMS section, click Add new and follow the instructions. Click Save. When you set up your alerting policy, select the SMS notification type and choose a verified phone number from the list.

#### NEW QUESTION 31

Your company follows Site Reliability Engineering practices. You are the person in charge of Communications for a large, ongoing incident affecting your customer-facing applications. There is still no estimated time for a resolution of the outage. You are receiving emails from internal stakeholders who want updates on the outage, as well as emails from customers who want to know what is happening. You want to efficiently provide updates to everyone affected by the outage. What should you do?

- A. Focus on responding to internal stakeholders at least every 30 minutes
- B. Commit to "next update" times.
- C. Provide periodic updates to all stakeholders in a timely manner
- D. Commit to a "next update" time in all communications.
- E. Delegate the responding to internal stakeholder emails to another member of the Incident Response Team
- F. Focus on providing responses directly to customers.
- G. Provide all internal stakeholder emails to the Incident Commander, and allow them to manage internal communication
- H. Focus on providing responses directly to customers.

**Answer:** B

#### Explanation:

When disaster strikes, the person who declares the incident typically steps into the IC role and directs the high-level state of the incident. The IC concentrates on the 3Cs and does the following: Commands and coordinates the incident response, delegating roles as needed. By default, the IC assumes all roles that have not been delegated yet. Communicates effectively. Stays in control of the incident response. Works with other responders to resolve the incident. <https://sre.google/workbook/incident-response/>

#### NEW QUESTION 32

Your organization recently adopted a container-based workflow for application development. Your team develops numerous applications that are deployed continuously through an automated build pipeline to the production environment. A recent security audit alerted your team that the code pushed to production could contain vulnerabilities and that the existing tooling around virtual machine (VM) vulnerabilities no longer applies to the containerized environment. You need to ensure the security and patch level of all code running through the pipeline. What should you do?

- A. Set up Container Analysis to scan and report Common Vulnerabilities and Exposures.
- B. Configure the containers in the build pipeline to always update themselves before release.
- C. Reconfigure the existing operating system vulnerability software to exist inside the container.
- D. Implement static code analysis tooling against the Docker files used to create the containers.

**Answer:** D

#### Explanation:

<https://cloud.google.com/binary-authorization>

Binary Authorization is a deploy-time security control that ensures only trusted container images are deployed on Google Kubernetes Engine (GKE) or Cloud Run. With Binary Authorization, you can require images to be signed by trusted authorities during the development process and then enforce signature validation when deploying. By enforcing validation, you can gain tighter control over your container environment by ensuring only verified images are integrated into the build-and-



release process.

**NEW QUESTION 36**

You are running an experiment to see whether your users like a new feature of a web application. Shortly after deploying the feature as a canary release, you receive a spike in the number of 500 errors sent to users, and your monitoring reports show increased latency. You want to quickly minimize the negative impact on users.

What should you do first?

- A. Roll back the experimental canary release.
- B. Start monitoring latency, traffic, errors, and saturation.
- C. Record data for the postmortem document of the incident.
- D. Trace the origin of 500 errors and the root cause of increased latency.

**Answer:** A

**NEW QUESTION 40**

You use Cloud Build to build and deploy your application. You want to securely incorporate database credentials and other application secrets into the build pipeline. You also want to minimize the development effort. What should you do?

- A. Create a Cloud Storage bucket and use the built-in encryption at rest.
- B. Store the secrets in the bucket and grant Cloud Build access to the bucket.
- C. Encrypt the secrets and store them in the application repository.
- D. Store a decryption key in a separate repository and grant Cloud Build access to the repository.
- E. Use client-side encryption to encrypt the secrets and store them in a Cloud Storage bucket.
- F. Store a decryption key in the bucket and grant Cloud Build access to the bucket.
- G. Use Cloud Key Management Service (Cloud KMS) to encrypt the secrets and include them in your Cloud Build deployment configuration.
- H. Grant Cloud Build access to the KeyRing.

**Answer:** D

**Explanation:**

<https://cloud.google.com/build/docs/securing-builds/use-encrypted-credentials>

**NEW QUESTION 43**

You support the backend of a mobile phone game that runs on a Google Kubernetes Engine (GKE) cluster. The application is serving HTTP requests from users. You need to implement a solution that will reduce the network cost. What should you do?

- A. Configure the VPC as a Shared VPC Host project.
- B. Configure your network services on the Standard Tier.
- C. Configure your Kubernetes cluster as a Private Cluster.
- D. Configure a Google Cloud HTTP Load Balancer as Ingress.

**Answer:** D

**Explanation:**

Costs associated with a load balancer are charged to the project containing the load balancer components. Because of these benefits, container-native load balancing is the recommended solution for load balancing through Ingress. When NEGs are used with GKE Ingress, the Ingress controller facilitates the creation of all aspects of the L7 load balancer. This includes creating the virtual IP address, forwarding rules, health checks, firewall rules, and more.

<https://cloud.google.com/architecture/best-practices-for-running-cost-effective-kubernetes-applications-on-gke>

**NEW QUESTION 48**

You are managing an application that exposes an HTTP endpoint without using a load balancer. The latency of the HTTP responses is important for the user experience. You want to understand what HTTP latencies all of your users are experiencing. You use Stackdriver Monitoring. What should you do?

- A. • In your application, create a metric with a metricKind set to DELTA and a valueType set to DOUBLE. • In Stackdriver's Metrics Explorer, use a Stacked Bar graph to visualize the metric.
- B. • In your application, create a metric with a metricKind set to CUMULATIVE and a valueType set to DOUBLE. • In Stackdriver's Metrics Explorer, use a Line graph to visualize the metric.
- C. • In your application, create a metric with a metricKind set to gauge and a valueType set to distribution. • In Stackdriver's Metrics Explorer, use a Heatmap graph to visualize the metric.
- D. • In your application, create a metric with a metricKind
- E. set to METRIC\_KIND\_UNSPECIFIED and a valueType set to INT64. • In Stackdriver's Metrics Explorer, use a Stacked Area graph to visualize the metric.

**Answer:** C

**Explanation:**

<https://sre.google/workbook/implementing-slos/> <https://cloud.google.com/architecture/adopting-slos/>

Latency is commonly measured as a distribution. Given a distribution, you can measure various percentiles.

For example, you might measure the number of requests that are slower than the historical 99th percentile.

**NEW QUESTION 53**

You are writing a postmortem for an incident that severely affected users. You want to prevent similar incidents in the future. Which two of the following sections should you include in the postmortem? (Choose two.)

- A. An explanation of the root cause of the incident
- B. A list of employees responsible for causing the incident
- C. A list of action items to prevent a recurrence of the incident
- D. Your opinion of the incident's severity compared to past incidents

E. Copies of the design documents for all the services impacted by the incident

**Answer:** AC

**Explanation:**

For a postmortem to be truly blameless, it must focus on identifying the contributing causes of the incident without indicting any individual or team for bad or inappropriate behavior.

**NEW QUESTION 56**

You support an e-commerce application that runs on a large Google Kubernetes Engine (GKE) cluster deployed on-premises and on Google Cloud Platform. The application consists of microservices that run in containers. You want to identify containers that are using the most CPU and memory. What should you do?

- A. Use Stackdriver Kubernetes Engine Monitoring.
- B. Use Prometheus to collect and aggregate logs per container, and then analyze the results in Grafana.
- C. Use the Stackdriver Monitoring API to create custom metrics, and then organize your containers using groups.
- D. Use Stackdriver Logging to export application logs to BigOuer
- E. aggregate logs per container, and then analyze CPU and memory consumption.

**Answer:** A

**Explanation:**

<https://cloud.google.com/anthos/clusters/docs/on-prem/1.7/concepts/logging-and-monitoring>

**NEW QUESTION 59**

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