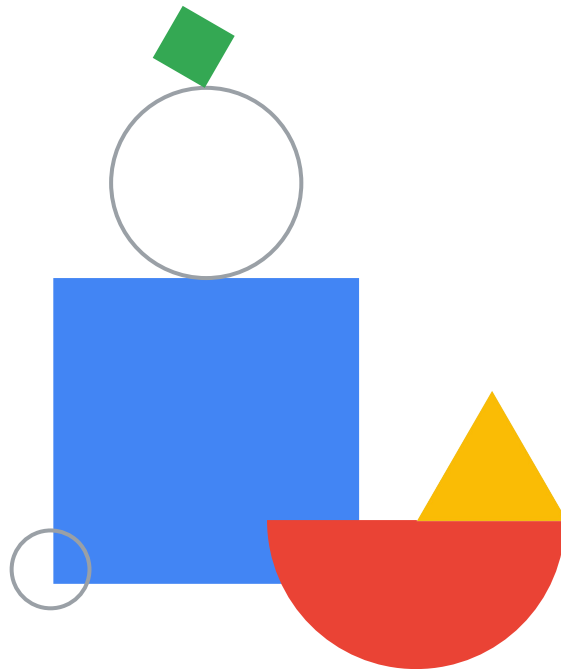# Preparing for Your Associate Cloud Engineer Journey

Module 1: Setting Up a Cloud Solution Environment
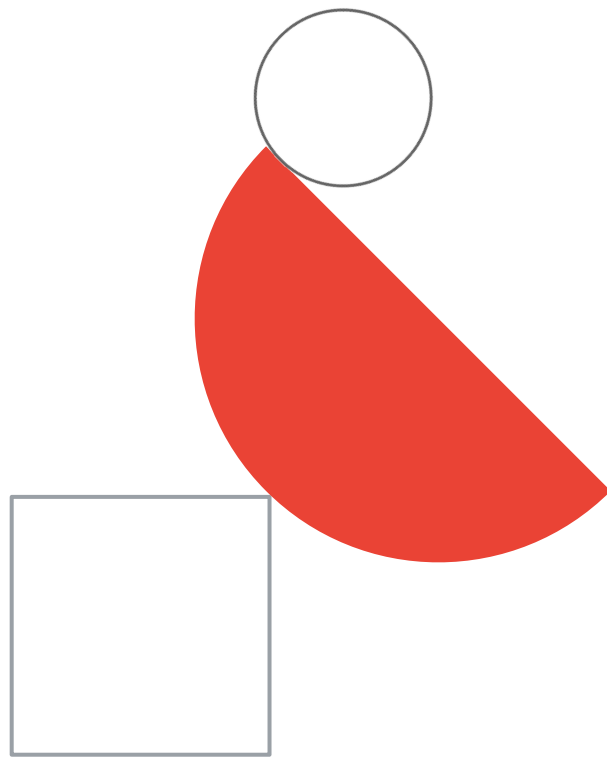
Module
agenda

01 Setting up Cymbal Superstore's cloud environment

02 Diagnostic questions

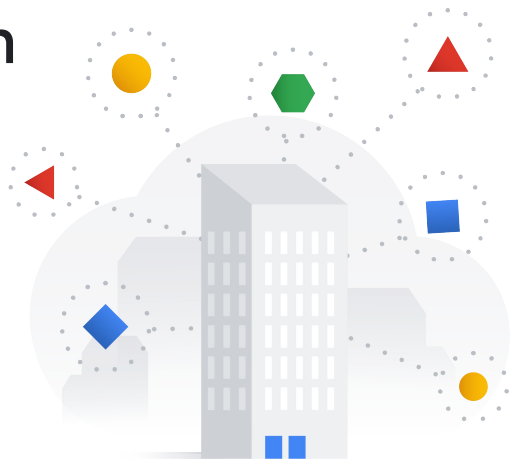**03** Review and study planning

Google Cloud

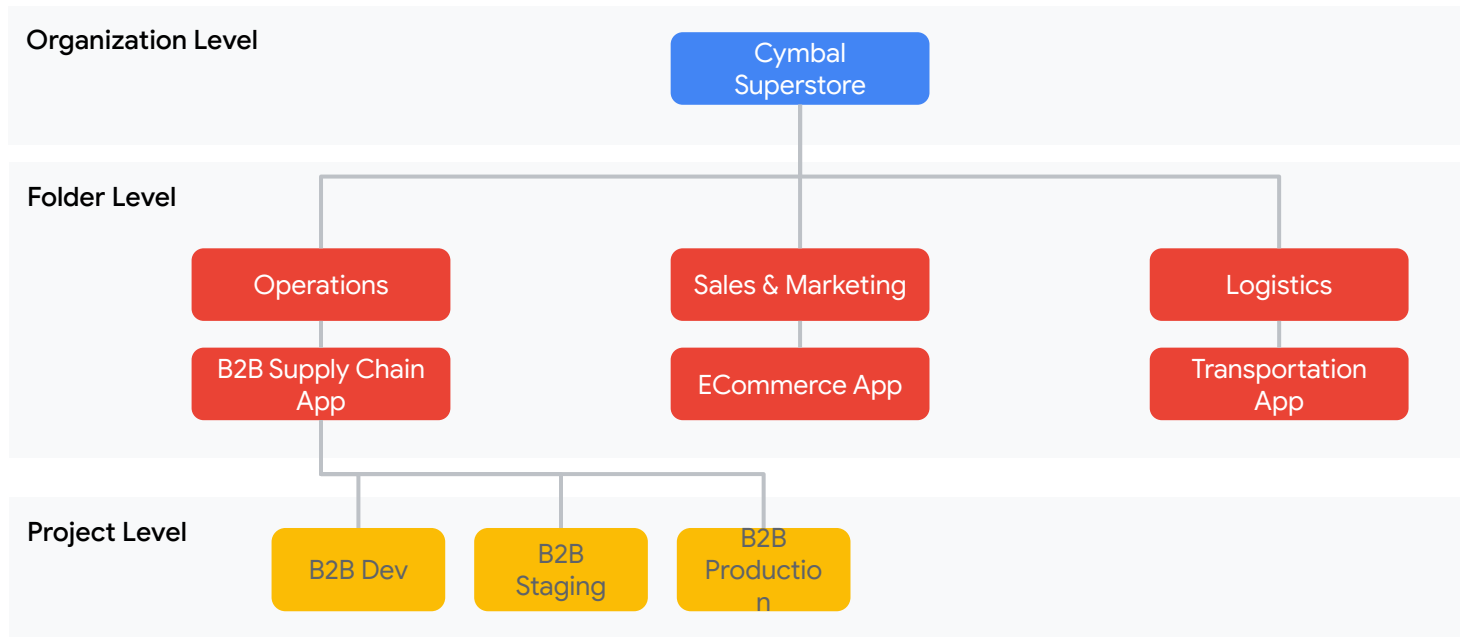# Setting up Cymbal Superstore's cloud environment

Your role in setting up Cymbal Superstore's cloud solution environment

- Setting up cloud projects and accounts
- Managing billing configuration
- Installing and configuring the CLI

Cymbal Superstore

Cymbal Superstore's resource hierarchy

Organization Level

Cymbal Superstore

Folder Level

Operations | Sales & Marketing | Logistics

B2B Supply Chain App | ECommerce App | Transportation App

Project Level

B2B Dev | B2B Staging | B2B Production

Google Cloud

Cymbal Superstore's identity and access roles
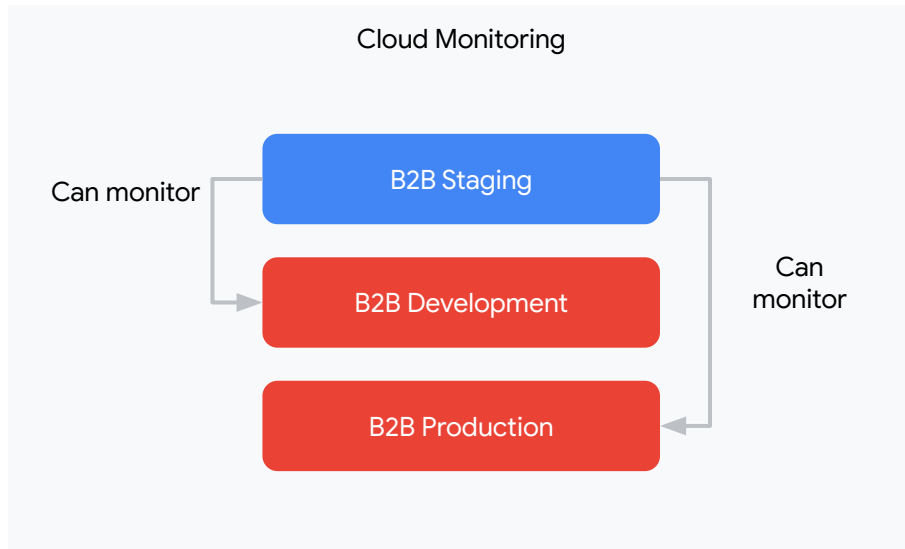
who ——————— Data analyst

can do what ——— View data and run queries

on which resource — BigQuery datasets

Google Cloud
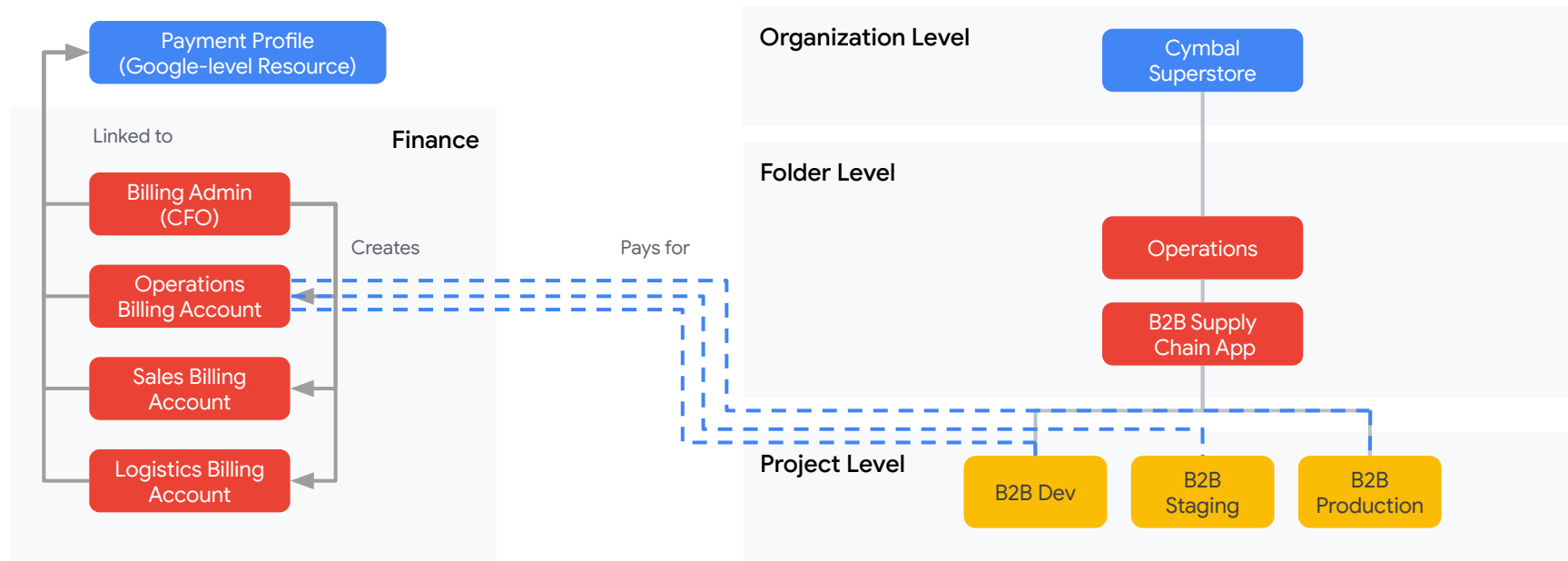
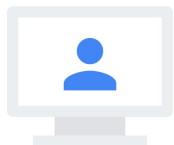# Setting up products in Google Cloud's operations suite

Google Cloud's operations suite

Cloud Monitoring

Can monitor → B2B Staging

B2B Development

B2B Production

Can monitor

● Scoping project

● Monitored projects

Google Cloud

Cymbal Superstore's billing accounts

Payment Profile
(Google-level Resource)

Linked to

Finance

Billing Admin
(CFO)

Creates

Operations
Billing Account

Pays for

Sales Billing
Account

Logistics Billing
Account

Organization Level

Cymbal
Superstore

Folder Level

Operations

B2B Supply
Chain App

Project Level

B2B Dev

B2B
Staging

B2B
Production

Google Cloud

Interacting with Google Cloud
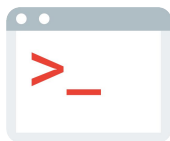
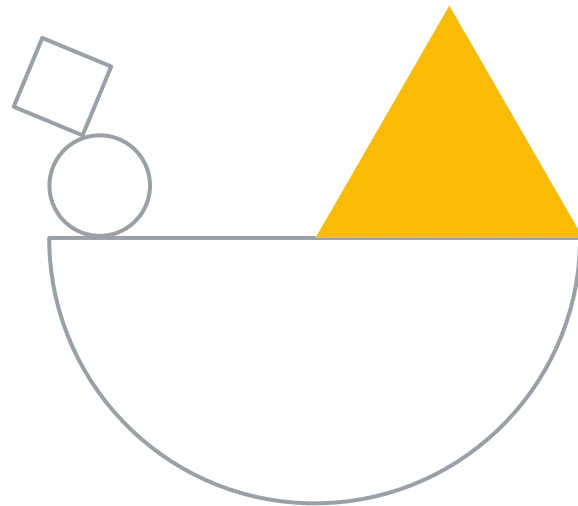| Google Cloud Console	Cloud SDK and Cloud Shell	Cloud Console Mobile App	REST-based API
Web user interface	Command-line interface	For iOS and Android	For custom applications
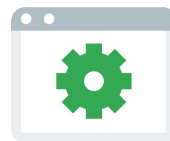
Diagnostic questions

Please complete the diagnostic questions now

- Forms are provided for you to answer the diagnostic questions

- The instructor will provide you a link to the forms

- The diagnostic questions are also available in the workbook

Review and
study planning

Google Cloud
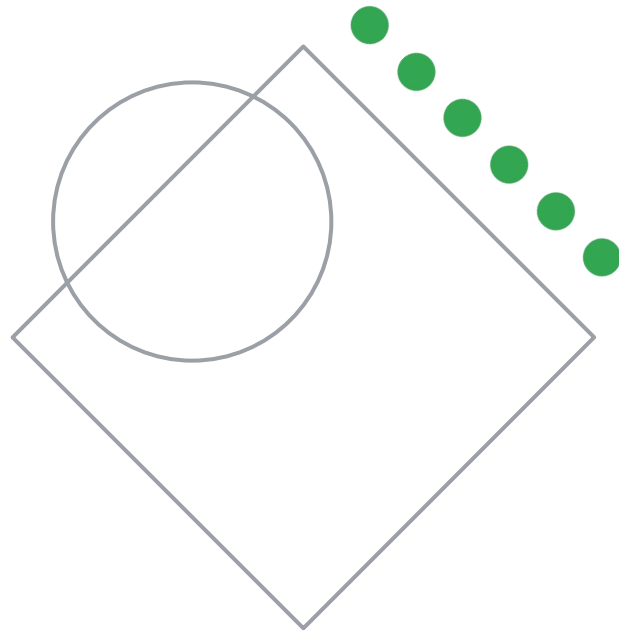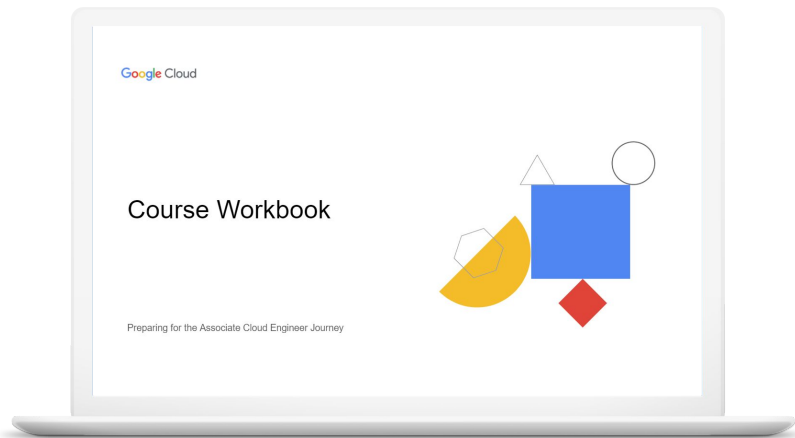
Your study plan:

Setting up a cloud solution environment

1.1 | Setting up cloud projects and accounts

1.2 | Managing billing configuration

1.3 | Installing and configuring the command line interface (CLI), specifically the Cloud SDK (e.g., setting the default project)

Google Cloud

Course Workbook

Preparing for the Associate Cloud Engineer Journey

Google Cloud

1.1 | Setting up cloud projects and accounts

Activities include:

- Creating a resource hierarchy

- Applying organizational policies to the resource hierarchy

- Granting members IAM roles within a project

- Managing users and groups in Cloud Identity (manually and automated)

- Enabling APIs within projects

- Provisioning and setting up products in Google Cloud's operations suite

Google Cloud

1.1 | Diagnostic Question 01 Discussion

Stella is a new member of a team in your company who has been put in charge of monitoring VM instances in the organization. Stella will need the required permissions to perform this role.

How should you grant her those permissions?

A. Assign Stella a roles/compute.viewer role.

B. Assign Stella compute.instances.get permissions on all of the projects she needs to monitor.

C. Add Stella to a Google Group in your organization. Bind that group to roles/compute.viewer.

D. Assign the "viewer" policy to Stella.

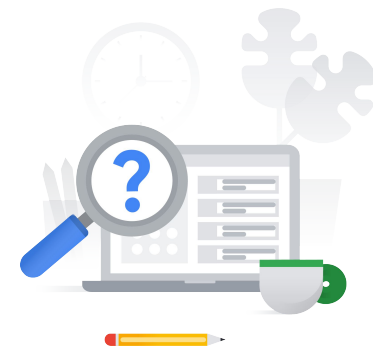Google Cloud

Cloud Identity and
Access Management

who

can do what

on which resource

Diagnostic Question 02 Discussion

How are resource hierarchies organized in Google Cloud?

A. Organization, Project, Resource, Folder.

B. Organization, Folder, Project, Resource.

C. Project, Organization, Folder, Resource.

D. Resource, Folder, Organization, Project.

Google Cloud

On which resource: Users get roles on specific items in the hierarchy

Organization

Project

Resources

Policy Inheritance

example.com

bookshelf static-assets stream-ingest

Compute Engine App Engine Cloud Storage Cloud Storage Pub/Sub BigQuery

instance_a queue_a bucket_a bucket_b topic_a dataset_a

who
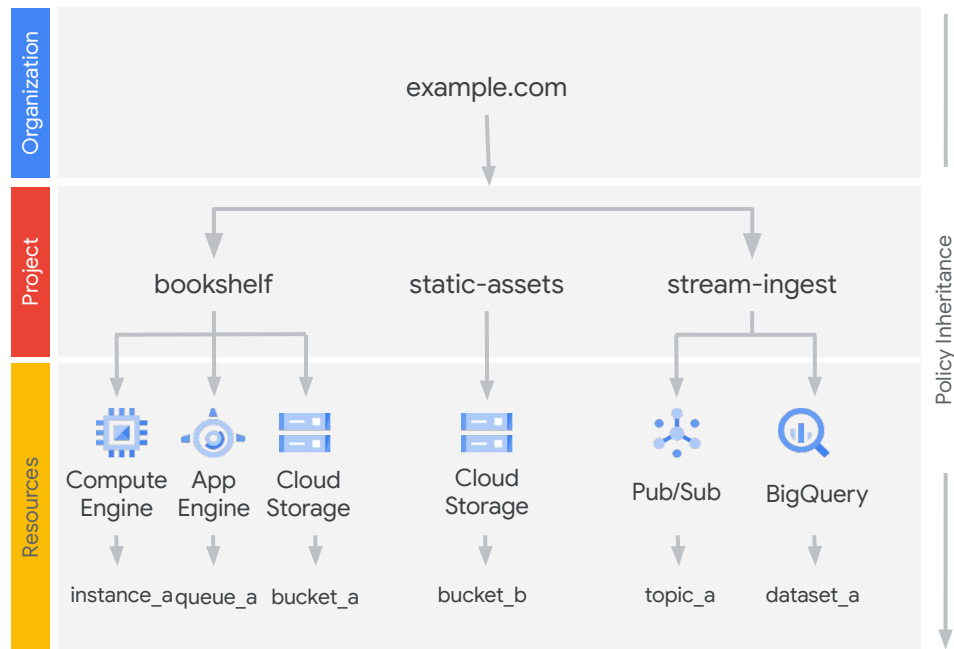
can do what

on which resource

Google Cloud

1.1 | Diagnostic Question 03 Discussion
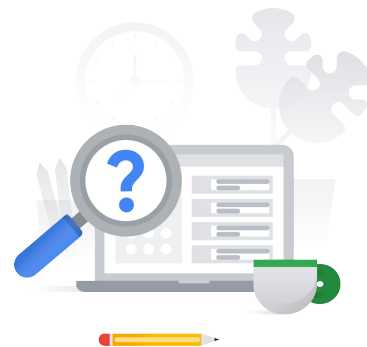
What Google Cloud project attributes can be changed?

A. The Project ID.

B. The Project Name.

C. The Project Number.

D. The Project Category.

Diagnostic Question 04 Discussion

Jane will manage objects in Cloud Storage for the Cymbal Superstore. She needs to have access to the proper permissions for every project across the organization.
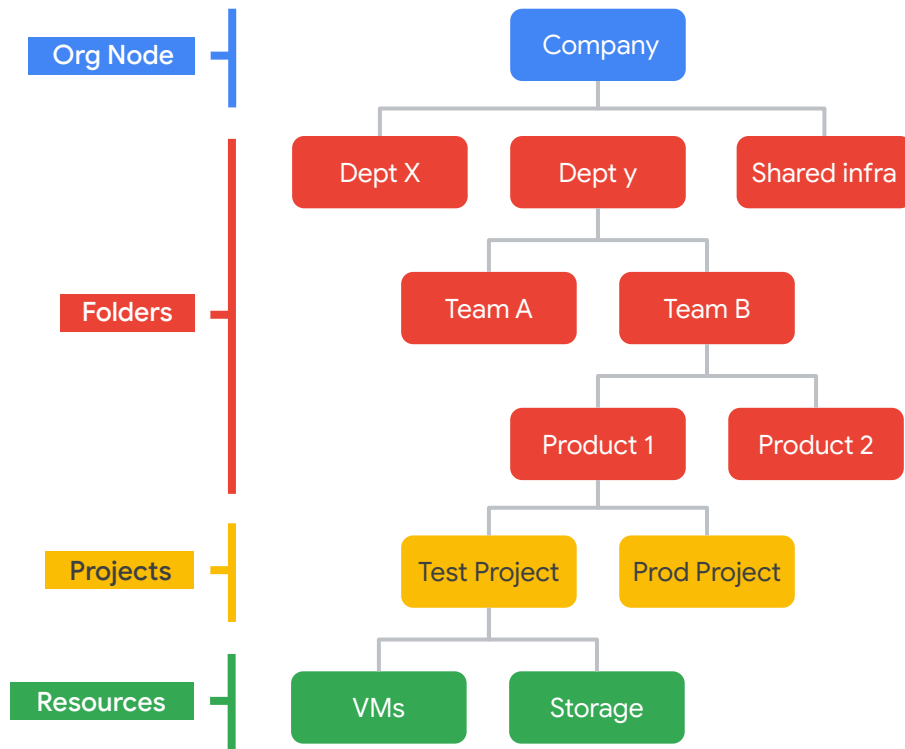
What should you do?

A. Assign Jane the roles/storage.objectCreator on every project.

B. Assign Jane the roles/viewer on each project and the roles/storage.objectCreator for each bucket.

C. Assign Jane the roles/editor at the organizational level.

D. Add Jane to a group that has the roles/storage.objectAdmin role assigned at the organizational level.
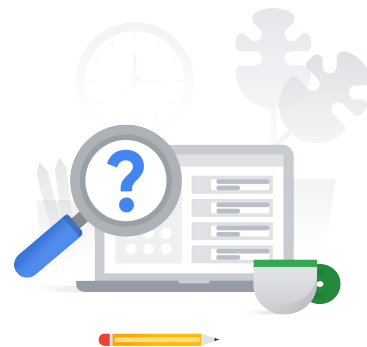
Resource hierarchy levels define trust boundaries

Group your resources according to your organization structure.

Levels of the hierarchy provide trust boundaries and resource isolation.

Org Node — Company

Folders — Dept X, Dept y, Shared infra; Team A, Team B; Product 1, Product 2

Projects — Test Project, Prod Project

Resources — VMs, Storage

Google Cloud

| **Diagnostic Question 05 Discussion**

You need to add new groups of employees in Cymbal Superstore's production environment. You need to consider Google's recommendation of using least privilege.

What should you do?

A. Grant the most restrictive basic role to most services, grant predefined or custom roles as necessary.

B. Grant predefined and custom roles that provide necessary permissions and grant basic roles only where needed.

C. Grant the least restrictive basic roles to most services and grant predefined and custom roles only when necessary.

D. Grant custom roles to individual users and implement basic roles at the resource level.

Can do what: IAM roles are collections of related permissions

Basic

Predefined

Custom

who
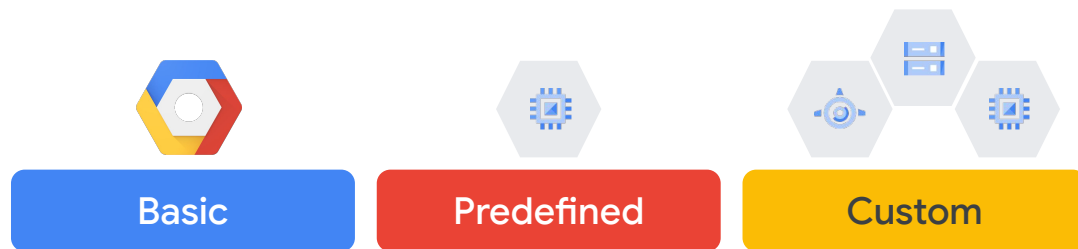
can do what

on which resource

1.1 | Diagnostic Question 06 Discussion

The Operations Department at Cymbal Superstore wants to provide managers access to information about VM usage without allowing them to make changes that would affect the state. You assign them the Compute Engine Viewer role.

A. compute.images.list

B. compute.images.get

C. compute.images.create

D. compute.images.setIAM

E. computer.images.update

Which two permissions will they receive?

Google Cloud

IAM basic roles offer fixed, coarse-grained levels of access

Owner
- Invite members
- Remove members
- Delete projects
- And...

Editor
- Deploy applications
- Modify code
- Configure services
- And...

Viewer
- Read-only access

Billing Administrator
- Manage billing
- Add and remove administrators

A project can have multiple owners, editors, viewers, and billing administrators.

1.1 Setting up cloud projects and accounts

Courses

[Google Cloud Fundamentals: Core Infrastructure](#)

- M2 Getting Starting with Google Cloud

[Architecting with Google Compute Engine](#)

- M4 Cloud IAM

=

[Essential Google Cloud Infrastructure: Core Services](#)

- M1 Cloud IAM

Skill Badges

Google Cloud

[Create and Manage Cloud Resource Quest](#)

Google Cloud

[Perform Foundational Infrastructure Tasks in Google Cloud Quest](#)

Documentation

[Overview | Cloud IAM Documentation](#)

[Resource hierarchy | Resource Manager Documentation](#)

[Understanding roles | Cloud IAM Documentation](#)

1.2 | Managing billing configuration

Activities include:

- Creating one or more billing accounts
- Linking projects to a billing account
- Establishing billing budgets and alerts
- Setting up billing exports

| **Diagnostic Question 07 Discussion**

How are billing accounts applied to projects in Google Cloud? (Pick two.)

A. Set up Cloud Billing to pay for usage costs in Google Cloud projects and Google Workspace accounts.

B. A project and its resources can be tied to more than one billing account.

C. A billing account can be linked to one or more projects.

D. A project and its resources can only be tied to one billing account.

E. If your project only uses free resources you don't need a link to an active billing account.

Google Cloud

Diagnostic Question 08 Discussion

Fiona is the billing administrator for the project associated with Cymbal Superstore's eCommerce application. Jeffrey, the marketing department lead, wants to receive emails related to budget alerts. Jeffrey should have access to no additional billing information.

What should you do?

A. Change the budget alert default threshold rules to include Jeffrey as a recipient.

B. Use Cloud Monitoring notification channels to send Jeffrey an email alert.

C. Add Jeffrey and Fiona to the budget scope custom email delivery dialog.

D. Send alerts to a Pub/Sub topic that Jeffrey is subscribed to.

1.2 | Managing billing configuration

Courses

[Google Cloud Fundamentals: Core Infrastructure](#)

- M2 Getting Starting with Google Cloud

[Architecting with Google Compute Engine](#)

- M6 Resource Management

=

[Essential Google Cloud Infrastructure: Core Services](#)

- M3 Resource Management

Documentation

[Create, modify, or close your self-serve](#)

[Cloud Billing account](#)

[Create, edit, or delete budgets and budget alerts | Cloud Billing](#)

1.3 Installing and configuring the command line interface (CLI), specifically the Cloud SDK

(e.g., setting the default project)

1.3 | Diagnostic Question 09 Discussion

Pick two choices that provide a command line interface to Google Cloud.

A. Google Cloud Console

B. Cloud Shell

C. Cloud Console Mobile App

D. Cloud SDK

Google Cloud

The Cloud SDK and Cloud Shell

- The Cloud SDK includes CLI tools for Google Cloud products and services.

- gcloud, gsutil (Cloud Storage), bq (BigQuery)

- Available as a Docker image.

- Available via Cloud Shell.

- Containerized version of the Cloud SDK running on a Compute Engine instance.

Diagnostic Question 10 Discussion

You want to use the Cloud Shell to copy files to your Cloud Storage bucket.

Which Cloud SDK command should you use?

A. gcloud

B. gsutil

C. bq

D. Cloud Storage Browser

1.3 Installing and configuring the command line interface (CLI), specifically the Cloud SDK

Courses

[Google Cloud Fundamentals: Core Infrastructure](#)

- M2 Getting Starting with Google Cloud

[Architecting with Google Compute Engine](#)

- M1 Getting Started with Google Cloud

=

[Essential Google Cloud Infrastructure: Core Services](#)

- M1 Introduction to Google Cloud

Skill Badges

Google Cloud

[Create and Manage Cloud Resource Quest](#)

Google Cloud

[Perform Foundational Infrastructure Tasks in Google Cloud Quest](#)

Documentation

[Google Cloud overview | Overview](#)

[Managing Cloud SDK components | Cloud SDK Documentation](#)

[gcloud | Cloud SDK Documentation](#)

[Using the bq command-line tool | BigQuery](#)

[gsutil tool | Cloud Storage](#)

Knowledge Check 1

Which Google Cloud interface allows for scripting actions in a set of command line executables?

    A.   Google Cloud Console

    B.   Cloud Shell

    C.   Cloud Console Mobile

    D.   REST API

Knowledge Check 1

Which Google Cloud interface allows for scripting actions in a set of command line executables?

    A.   Google Cloud Console

    B.   Cloud Shell

    C.   Cloud Console Mobile

    D.   REST API

Knowledge Check 2

Which basic permission allows you to change access permissions on resources?

A. Owner

B. Administrator

C. Viewer

D. Editor

Knowledge Check 2

What is the lowest level basic role that gives you permissions to change resource state?

A. Owner

B. Administrator

C. Viewer

D. Editor