Training: Google Cloud
Developing APIs with the Apigee API Platform

Google Cloud

TRAINING GOALS:

This three-day course covers how to design, build, manage, deploy, and secure APIs using the Apigee API Platform. Learn to use policies and custom code to build API proxies, and discover how to package APIs for app developers.

Key topics include securing APIs against threats using OAuth, JSON Web Tokens (JWTs), federated security, threat protection, and traffic management. Gain hands-on experience validating and extracting payload data, calling external services, and transforming HTTP requests and responses.

Explore how Apigee powers AI-driven experiences by protecting apps from harmful prompts and responses, caching responses by semantic similarity, and managing token usage. Learn about advanced Apigee features for API management, security, and discovery.

A series of hands-on labs ensures practical experience building fully featured, secure APIs on Apigee.

What you'll learn:

- Describe the features of Apigee that are used to create and manage APIs throughout the API lifecycle.
- Describe the fundamentals of REST API design.
- Discuss API products and API product strategies.
- Discuss the role of user authentication and authorization and the importance of API security.
- Describe the use cases and flows for the OAuth 2 grant types.
- Discuss the Apigee platform capabilities for implementing mediation, traffic management, caching, and fault handling.
- Describe how Apigee integrates with and enhances the use of large language models in AI-based APIs and apps.
- Describe advanced Apigee features that can help with API management, security, and discovery.

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- Build APIs with the Apigee API Platform.

Audience

Developers, architects, and engineers responsible for the solutioning, design, implementation, or management of APIs, API products, or digital products that leverage APIs.

Products

- Apigee Starter
- Apigee Hybrid

CONSPECT:

- Module 1 - Apigee Overview
  - Topics:
    - Apigee overview
    - API lifecycle
    - Apigee organizations and environments
  - Objectives:
    - Describe the features of Apigee that are used to create and manage APIs throughout the API lifecycle.
  - Activities:
    - Quiz
- Module 2 - API-first and OpenAPI specifications
  - Topics:
    - REST API design: Basics
    - API-first development
    - OpenAPI specifications
  - Objectives:
    - Describe the fundamentals of REST API design.
  - Activities:
    - Quiz
- Module 3 - API Proxies
  - Topics:
    - Apigee API proxies

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        - Proxy endpoints and environment groups
        - Conditions, flows, and policies
        - Target endpoints, route rules, and target servers
    - Objectives:
        - Build APIs with the Apigee API Platform.
    - Activities:
        - Quiz
        - Lab: Generating an API Proxy Using an OpenAPI Spec
        - Lab: Target Servers
        - Lab: Route Rules and the Debug Tool
- Module 4 - API Products
    - Topics:
        - API products, developers, apps, and API keys
        - API product strategies
        - REST API design: Responses
    - Objectives:
        - Discuss API products and API product strategies.
    - Activities:
        - Quiz
        - Lab: API Products, Developers, Apps, and API Keys
- Module 5 - Authentication, Authorization, and OAuth
    - Topics:
        - API security concerns
        - Identity, authentication, and authorization
        - OAuth introduction
        - OAuth client credentials grant
        - OAuth password grant
        - OAuth authorization code grant
        - OAuth wrap-up
        - JWT, JWS, and OpenID Connect
    - Objectives:
        - Discuss the role of user authentication and authorization and the importance of API security.
        - Describe the use cases and flows for the OAuth 2 grant types.
    - Activities:
        - Quiz

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        - Lab: Using OAuth Client Credentials Grant Type
- Module 6 - Content, Transport, and Platform Security
    - Topics:
        - Protecting against content-based attacks
        - Transport security
        - Apigee platform security
    - Objectives:
        - Discuss the role of user authentication and authorization and the importance of API security.
    - Activities:
        - Quiz
        - Lab: JSON Threat Protection
        - Lab: Regex Threat Protection
        - Lab: Internal Threat Protection
        - Lab: Data Masking
- Module 7 - Mediation
    - Topics:
        - JSON, XML, and SOAP
        - Mediation and service callouts
        - Custom code
        - Shared flows
        - Fault handling
    - Objectives:
        - Discuss the Apigee platform capabilities for implementing mediation, traffic management, caching, and fault handling.
    - Activities:
        - Quiz
        - Lab: Add XML Support
        - Lab: Mashing Up Services
        - Lab: Call Services in Parallel using JavaScript
        - Lab: Shared Flows
        - Lab: Fault Handling
- Module 8 - Traffic Management
    - Topics:
        - Apigee components
        - Managing traffic spikes
        - Spike arrest algorithms

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        - Quotas
        - Caching
    - Objectives:
        - Discuss the Apigee platform capabilities for implementing mediation, traffic management, caching, and fault handling.
    - Activities:
        - Quiz
        - Lab: Traffic Management
        - Lab: Caching
- Module 9 - Apigee and AI
    - Topics:
        - LLMs, agents, and Apigee
        - Securing prompts and resources
        - Limiting token usage
        - Semantic caching
    - Objectives:
        - Describe how Apigee integrates with and enhances the use of large language models in AI-based APIs and apps.
    - Activities:
        - Quiz
        - Lab: Sanitize Gemini Prompts and Responses with Apigee
        - Lab: Manage LLM Token Usage with Apigee
        - Lab: Semantic Caching with Apigee
- Module 10 - API publishing
    - Topics:
        - REST API design: Versioning
        - Developer portals
    - Objectives:
        - Describe advanced Apigee features that can help with API management, security, and discovery.
    - Activities:
        - Quiz
        - Lab: Developer Portal
- Module 11 - Logging and analytics
    - Topics:
        - Message logging
        - Apigee API analytics

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- Objectives:
  - Describe advanced Apigee features that can help with API management, security, and discovery.
- Activities:
  - Quiz

- Module 12 - Advanced topics
  - Topics:
    - Apigee offline development and CI/CD
    - Deployment options
    - Advanced Apigee features
  - Objectives:
    - Describe advanced Apigee features that can help with API management, security, and discovery.
  - Activities:
    - Quiz

REQUIREMENTS:

Familiarity with HTTP, XML, JSON, and JavaScript is helpful.

Difficulty level

CERTIFICATE:

The participants will obtain certificates signed by Google Cloud (course completion).

TRAINER:

Authorized Google Cloud Trainer

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