



Curso CP300A - Workshop de Qualificação Google Cloud Platform (40h)

O CP300 é um curso completo sobre o Google Cloud Platform, que destina-se a programadores web que desejam aprender sobre a plataforma de computação de nuvem do Google. O curso aborda os principais produtos, tais como Google Compute Engine, Google App Engine, Google Cloud Storage, Google BigQuery e Google Cloud SQL.

O curso utiliza uma série de lições e demonstrações para expor o conteúdo, e é repleto de laboratórios práticos que vão desde os primeiros passos até a solução de problemas reais.

Objetivos de Aprendizagem

Ao concluir este curso, você será capaz de definir e explicar

- Como são organizados os projetos no Google Cloud Platform.
- Imagens, Instâncias, VPNs, roteamento e regras de firewall no Google Compute Engine.
- Design, escalabilidade e resiliência do Google App Engine.
- Google Cloud Datastore como solução de armazenamento escalável no App Engine.
- Entidades, Chaves, Transações e Grupos de Entidades do Cloud Datastore.
- Como utilizar o Google Cloud Storage como solução escalável, segura e resiliente de armazenamento para seus projetos.
- URLs assinadas, ACLs, e opções de autenticação no Google Cloud Storage.
- Como utilizar Google Cloud SQL como solução SQL em aplicações com Compute Engine e App Engine.
- Arquitetura do BigQuery, e como realizar consultas sobre imensos volumes de dados em segundos

Ementa CP300A (*Material Oficial do Google*)

1. Introduction

- 1.1. Introducing Google Cloud Platform
 - 1.1.1. Why Google?
 - 1.1.2. Google Network Infrastructure
 - 1.1.3. Regions and Zones
- 1.2. Google Cloud Platform
 - 1.2.1. Google Cloud Platform Services
 - 1.2.2. Cloud Computing Continuum
 - 1.2.3. Pricing Philosophy
- 1.3. Examples of Using GCP
 - 1.3.1. Khan Academy

- 1.3.2. Happiness Flag
- 1.3.3. Backflip Studios
- 1.4. GCP Endpoints and Services
 - 1.4.1. Introducing GCP Endpoints and Services
 - 1.4.2. Computing Continuum
- 1.5. Interacting with GCP
 - 1.5.1. Google Developer Console
 - 1.5.2. Cloud SDK
 - 1.5.3. Google API Client Libraries
- 1.6. Support and Resources
 - 1.6.1. Partner Ecosystem
 - 1.6.2. Community Support
 - 1.6.3. Support Packages
- 2. Google Compute Engine**
 - 2.1. Introducing Compute Engine
 - 2.1.1. Overview of Compute Engine in the Cloud Continuum
 - 2.1.2. Use Cases for GCE
 - 2.1.3. Pricing
 - 2.2. Interacting with GCE
 - 2.2.1. Introducing gcloud compute
 - 2.2.2. Compute Engine API
 - 2.2.3. Monitoring
 - 2.3. Instances
 - 2.3.1. What Makes an Instance
 - 2.3.2. Instance States
 - 2.3.3. Connecting and Transferring Data
 - 2.4. Discos
 - 2.4.1. Overview of Disks and Performance
 - 2.4.2. Managing Disks
 - 2.5. Images
 - 2.5.1. Public and Private Images
 - 2.5.2. Customizing Images
 - 2.5.3. Building Images from Scratch
 - 2.6. Snapshots
 - 2.6.1. Snapshots Overview
 - 2.6.2. Snapshots Use Cases
 - 2.6.3. Creating and Restoring Snapshots
 - 2.7. Network
 - 2.7.1. Network Fundamentals
 - 2.7.2. IP Addresses
 - 2.7.3. Advanced Usage
 - 2.8. Authorization
 - 2.8.1. Authorizing Requests from GCE with Service Accounts

- 2.8.2. Authorizing Requests to GCE
- 2.9. Metadata
 - 2.9.1. Project vs. Instance Metadata
 - 2.9.2. Setting and Querying Metadata
 - 2.9.3. Metadata Use Cases
- 2.10. Startup Scripts
 - 2.10.1. Startup and Shutdown Scripts
 - 2.10.2. Interacting with Metadata
 - 2.10.3. Configuration Management
 - 2.10.4. Demo and Codelab
- 2.11. Network Load Balancing
 - 2.11.1. Load Balancer Overview
 - 2.11.2. Network Load Balancer
 - 2.11.3. HTTP Load Balancer
- 3. Google App Engine**
 - 3.1. Introducing App Engine
 - 3.1.1. Overview of App Engine
 - 3.1.2. Design for Scalability And Reliability
 - 3.1.3. Understanding How GAE Scales
 - 3.1.4. App Engine Architecture
 - 3.2. Google App Engine Fundamentals
 - 3.2.1. App Engine Architecture
 - 3.2.2. Tuning the Auto Scaler
 - 3.2.3. Getting Started: “Hello, Auto Scale”
 - 3.3. Building and Managing your Application
 - 3.3.1. How Do You Troubleshoot?
 - 3.3.2. Understanding the Quotas
 - 3.3.3. Managing App Deployment with Versions
 - 3.4. Authenticating Users
 - 3.4.1. Authentication
 - 3.4.2. Authorization
 - 3.5. Caching and State Management
 - 3.5.1. Edge Caching
 - 3.5.2. Memcache Overview
 - 3.5.3. Implementing Memcache
 - 3.5.4. Caveats and Solutions
 - 3.6. Introducing Datastore
 - 3.6.1. What Is Datastore?
 - 3.6.2. Kinds, Entity, and Keys
 - 3.6.3. Saving and Getting Entities
 - 3.7. Datastore Queries and Indexes
 - 3.7.1. Queries
 - 3.7.2. Indexes

- 3.7.3. Restrictions and Workarounds for Queries
 - 3.7.4. Cost of Indexing
 - 3.8. Datastore Entity Groups and Transactions
 - 3.8.1. Consistency Model
 - 3.8.2. Ancestor Queries & Entity Groups
 - 3.8.3. Transactions
 - 3.9. Decoupling Work Using Queues & Scheduled Tasks
 - 3.9.1. Task Queue Overview
 - 3.9.2. Push Queue
 - 3.9.3. Pull Queue
 - 3.9.4. Cron or Scheduled Tasks
- 4. Google Cloud Storage**
 - 4.1. Introducing Google Cloud Storage
 - 4.1.1. Overview of Cloud Storage
 - 4.1.2. Use Cases for Cloud Storage
 - 4.1.3. Basic Components
 - 4.2. Google Cloud Storage Components
 - 4.2.1. Overview of Cloud Storage Characteristics
 - 4.2.2. Bucket Classes
 - 4.2.3. Objects in Depth
 - 4.3. Interacting with GCS
 - 4.3.1. JSON and XML APIs
 - 4.3.2. Tools
 - 4.3.3. Additional Features
 - 4.4. Access Control Lists
 - 4.4.1. Introduction to Access Control Lists
 - 4.4.2. Project-level Security
 - 4.4.3. Bucket and Object ACLs
 - 4.5. Signed URL
 - 4.5.1. Example Signed URL
 - 4.5.2. Public Key Infrastructure for Signing
 - 4.5.3. Data Uploads Using Signed URLs
 - 4.6. Website Hosting
 - 4.6.1. Configuring a Bucket as a Web Site
 - 4.6.2. Access Logs
 - 4.6.3. Cross Origin Resource Sharing (CORS)
 - 4.7. Object Change Notification
 - 4.7.1. Overview of Notifications
 - 4.7.2. Registering and Removing a Notification Channel
 - 4.7.3. Types of Object Change Notification Messages
- 5. Google Cloud SQL**
 - 5.1. Introducing Cloud SQL
 - 5.1.1. Introducing Google Cloud SQL

- 5.1.2. Cloud SQL vs. MySQL
 - 5.1.3. Billing and Pricing Options
 - 5.2. Database Administration
 - 5.2.1. Basic Administrative Tasks
 - 5.2.2. Advanced Administration
 - 5.2.3. Security
 - 5.3. Interacting with Cloud SQL
 - 5.3.1. Interacting with Cloud SQL
 - 5.3.2. Administration
 - 5.3.3. Client/Server
 - 5.4. Using Your Instances from Google App Engine
 - 5.4.1. Using CloudSQL with App Engine
 - 5.4.2. Connect from App Engine
 - 5.4.3. Performance Tuning and Best Practices
 - 5.5. Using Your Instances from Google Compute Engine and MySQL Client
 - 5.5.1. Access Cloud SQL from Compute Engine
 - 5.5.2. Associates Zones
- 6. Google BigQuery**
 - 6.1. Introducing Google BigQuery
 - 6.1.1. What Is BigQuery?
 - 6.1.2. The Challenges of Big Data
 - 6.1.3. Use Cases
 - 6.2. BigQuery Fundamentals
 - 6.2.1. BigQuery Organization
 - 6.2.2. BigQuery Processing Architecture
 - 6.2.3. Public Data and Sample Queries
 - 6.3. Interacting with BigQuery
 - 6.3.1. BigQuery Browser Tool
 - 6.3.2. Using Command Line Tools
 - 6.3.3. BigQuery Client Libraries / REST API
 - 6.3.4. 3rd Party Tools
 - 6.4. Preparing and Loading Data
 - 6.4.1. Prepare for BigQuery Data Ingestion
 - 6.4.2. Staging Data
 - 6.4.3. Loading (Big) Data
 - 6.5. Query Clauses and Functions
 - 6.5.1. BigQuery SQL
 - 6.5.2. SELECT FROM
 - 6.5.3. REGEXP Functions for String Matching, Extraction, Replacement
 - 6.5.4. URL Functions
 - 6.5.5. IP Functions
 - 6.5.6. Window Functions
 - 6.5.7. Resources

- 6.6. Working with Large Datasets
 - 6.6.1. Challenges of Large Datasets
 - 6.6.2. JOIN EACH and GROUP EACH BY
 - 6.6.3. Table Decorators
- 6.7. Nested and Repeated Fields
 - 6.7.1. Nested Field
 - 6.7.2. Repeated Field
 - 6.7.3. Repeated Nested Field
- 6.8. Exporting Data
 - 6.8.1. Access Control & Options
 - 6.8.2. Configuration Options
 - 6.8.3. Exporting Data
- 6.9. Performance Tips
 - 6.9.1. BigQuery Architecture
 - 6.9.2. Quota Management
 - 6.9.3. BigData Processing
 - 6.9.4. Optional integration Exercise