Google Compute Engine

Google Cloud Platform

Google Cloud Platform

Agenda

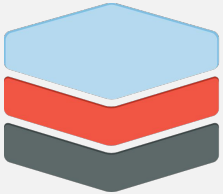
1. Google Compute Engine Overview
2. Creating and Managing Instances
3. Accessing Instances
4. Lab

Google Compute Engine

- Innovative pricing
  - **Sub-hour** billing
  - Preemptible instances Beta
- Robust networking features
- Instance **metadata** and **startup scripts**
- High CPU, high memory, standard and shared-core machine types
- HTTP and network **load balancing**
- Google Cloud Monitoring Beta
- Persistent disk **snapshots**
- Advanced **APIs** for auto-scaling and group management

"Google Compute Engine is not just fast. It's Google fast. In fact, it's a class of fast that enables new service architectures entirely."

- Sebastian Stadil, Scalr



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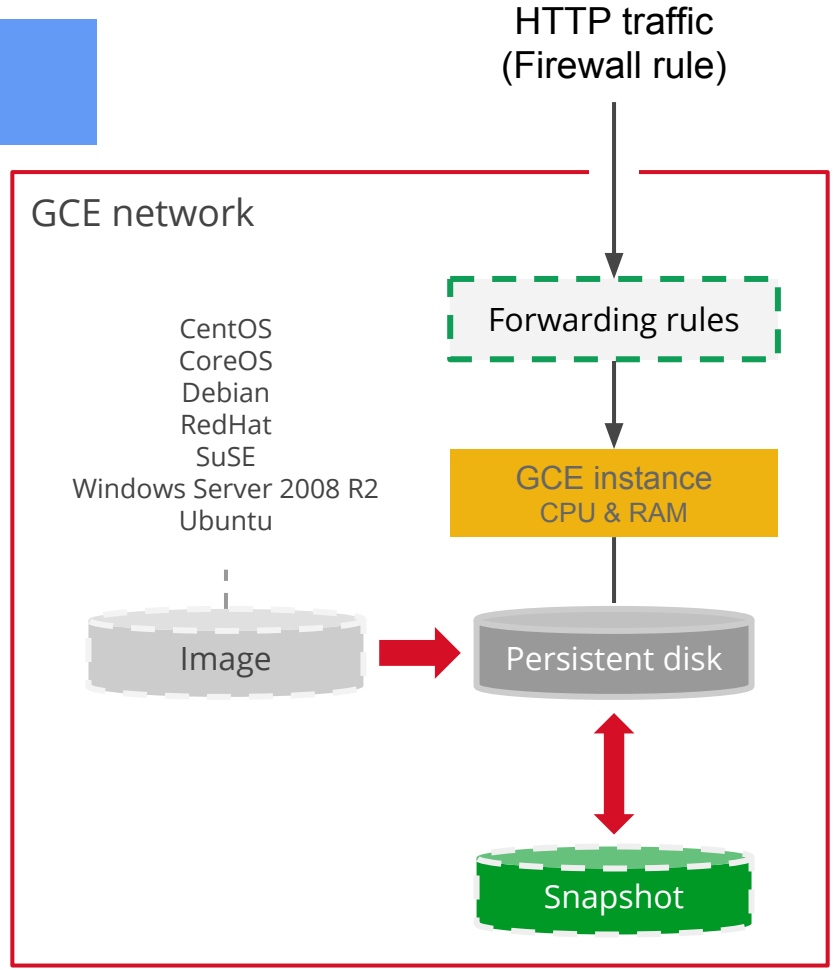
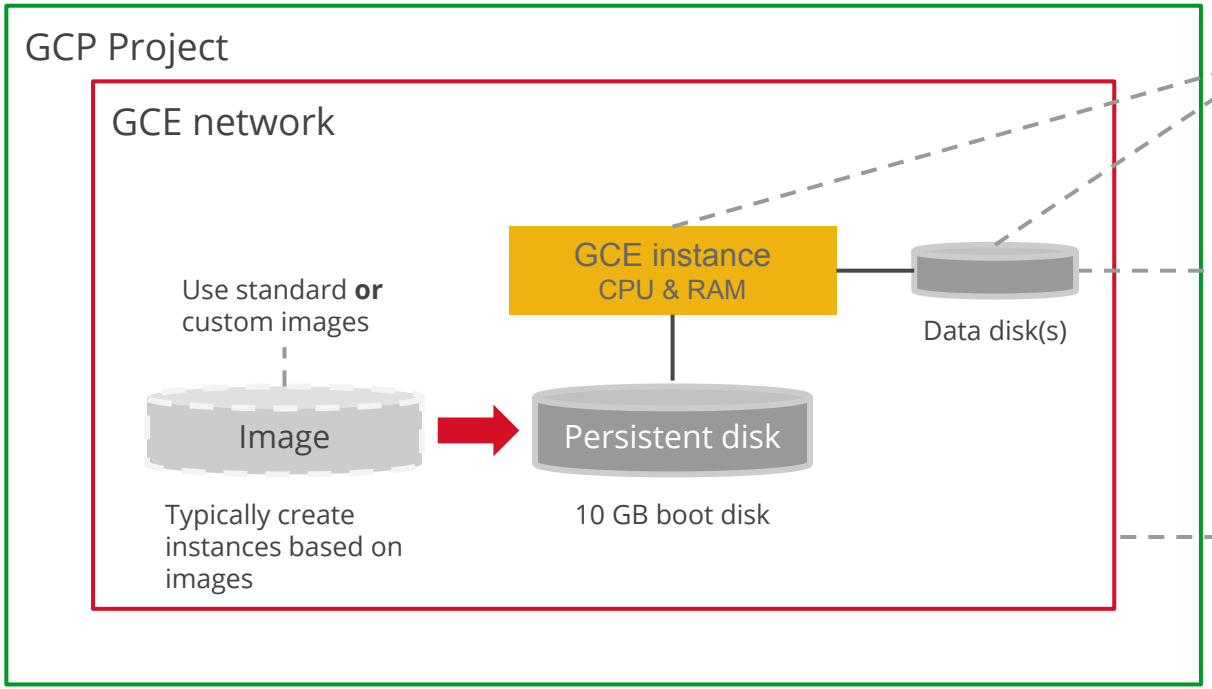
Compute Engine Resources

- Projects provide access to a variety of powerful resources including:
  - **Instances** to provide CPU & RAM
  - Standard, SSD and local SSD persistent **disks**
  - **Images** for Linux, UNIX and Windows Server
  - **Networks** with firewall rules
  - Forwarding rules for **load balancing**
  - Support for disk **snapshots**



Managing Compute Engine Resources



Instances & Persistent Disks are **zone** based resources

Can attach additional disks (up to 10 TB capacity)

Projects include a **default** network, easy to create additional networks

Billing

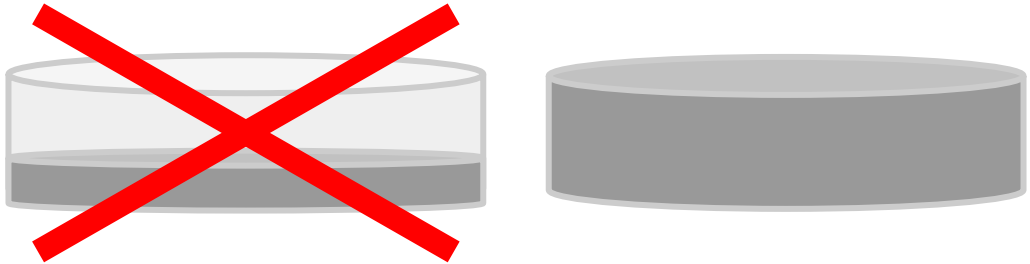
Instances

Always charged while running

Instances can be switched off

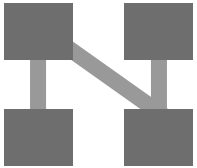
Disk

Charged allocated amount, not amount in use



Network

Charged allocated amount for certain operations



Compute Engine pricing is broken down by region

Command-line Utility: gcloud compute

The Cloud SDK includes `gcloud compute`, a utility for managing GCE resources

```
gcloud compute instances create <instance_name> --zone <zone> --project <id>
```

command group

command

Useful `gcloud compute` command groups:

```
disks          # manage GCE disks
addresses      # manage IP addresses
images         # list, create & delete
snapshots      # list, describe & delete
networks       # list, create & delete
routes         # manage routing
operations     # read GCE operations
```

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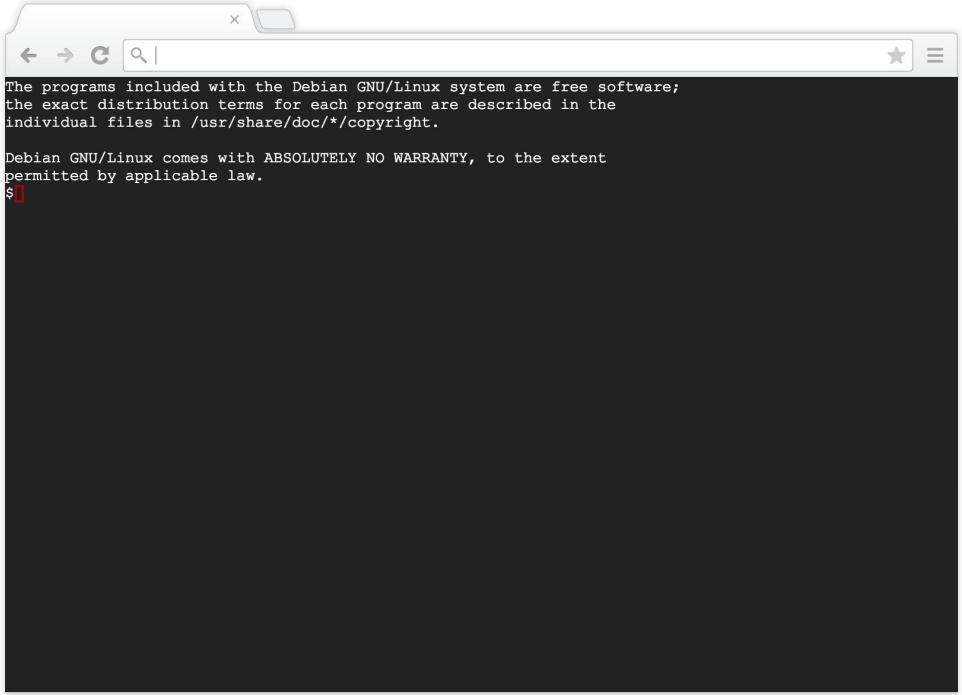
Instance Access

- Access Linux & UNIX instances over secure shell (SSH)
  - Access from the Cloud SDK

```
$ gcloud compute ssh <instance>
```

  - Over standard SSH
  - From the console using your browser
- Access Windows Server instances over Remote Desktop Protocol (RDP)



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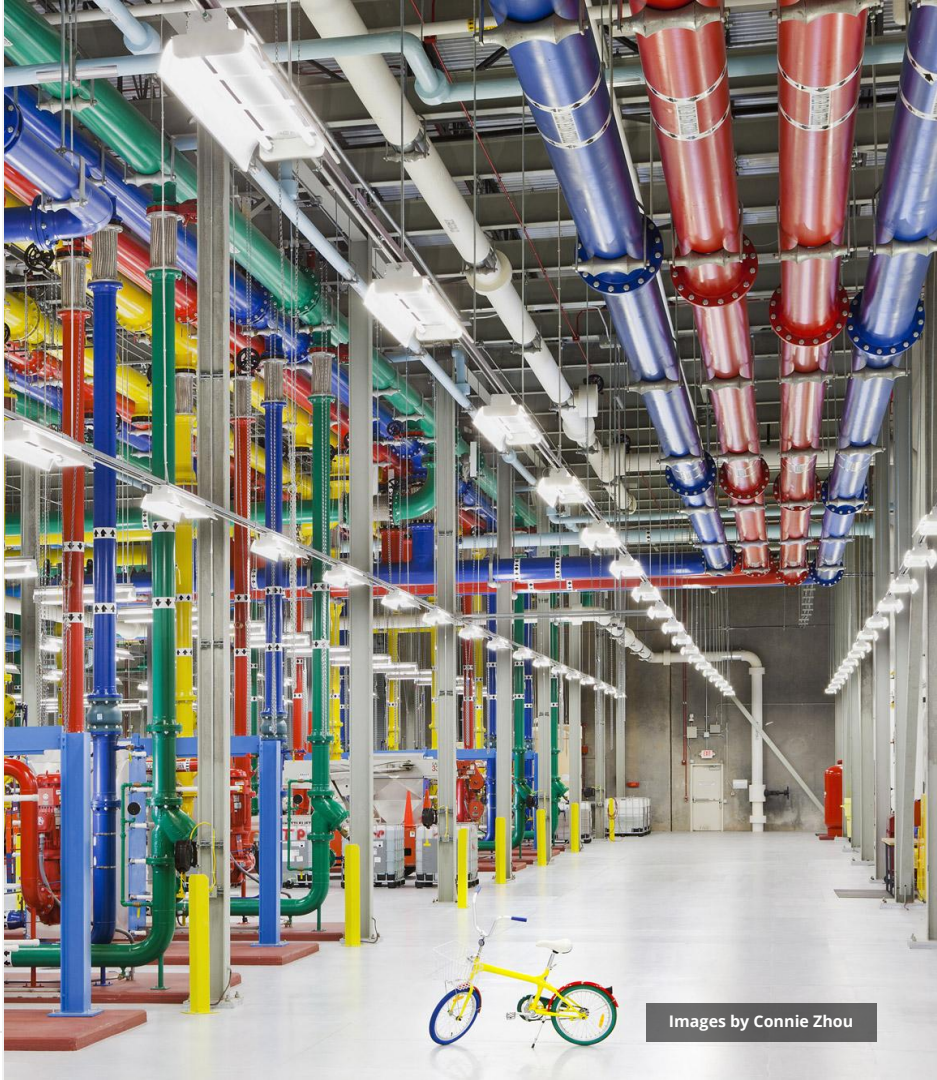
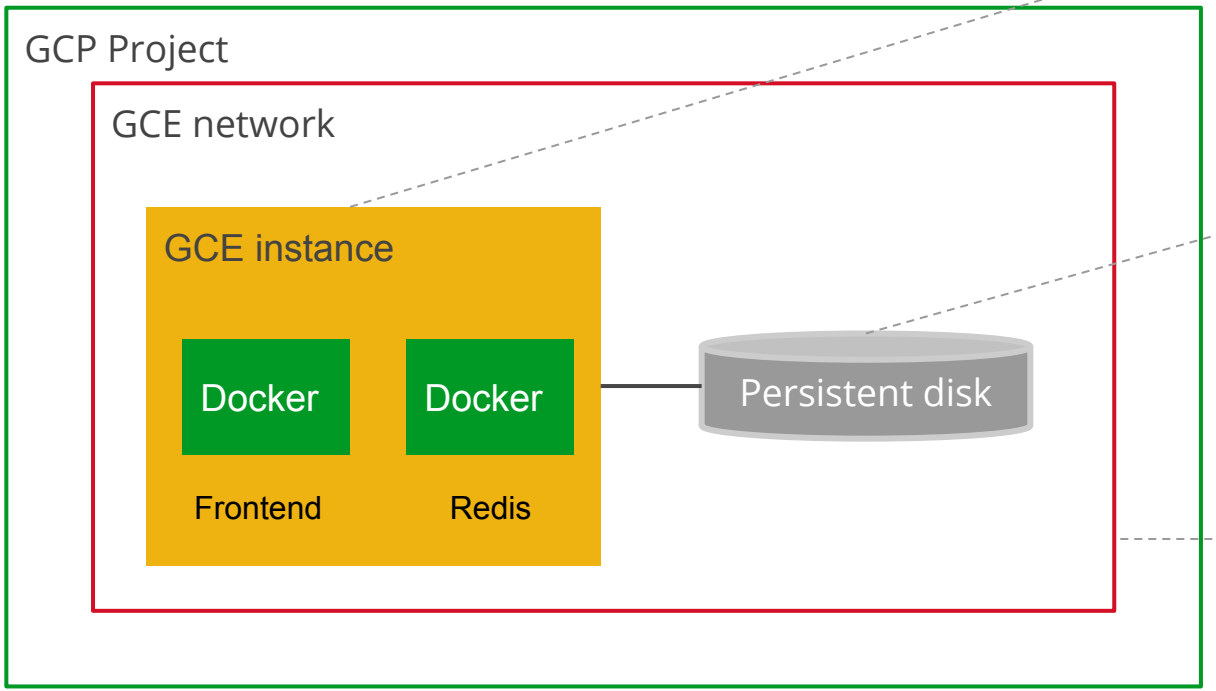
Lab (1 of 2)

Deploy the Guestbook application on Compute Engine.

1. Create a single Compute Engine instance
2. Deploy a Redis backend
3. Deploy a Python frontend
4. Expose the application to the internet by modifying the firewall rules for your project
5. Finish by deleting the instance



Lab (2 of 2)



Will create an instance based on a CoreOS (Linux) image

10 GB (boot) persistent disk

Will use the default network, need to create firewall rule to allow traffic on port 80 (HTTP)

Resources

- Compute Engine: features, Cloud Launcher, case studies pricing & documentation
  https://cloud.google.com/compute/

- DevBytes - Google Compute Engine Core Concepts
  https://www.youtube.com/watch?v=43gvHZyPRVk

- Tutorial: Hosting a website using LAMP on Google Compute Engine
  https://cloud.google.com/compute/docs/tutorials/lamp/

- Developer Console Quickstart
  https://cloud.google.com/compute/docs/quickstart-developer-console


cloud.google.com
Images by Connie Zhou