WHAT IS CLOUD SQL

Description

- A fully-managed MySQL and PostgreSQL database service that is built on the strength and reliability of Google's infrastructure.

Good for

- Web frameworks
- Structured data
- OLTP workloads

Common Workloads

- Websites, blogs, and content management systems (CMS)
- Business Intelligence (BI) applications
- ERP, CRM, and eCommerce applications
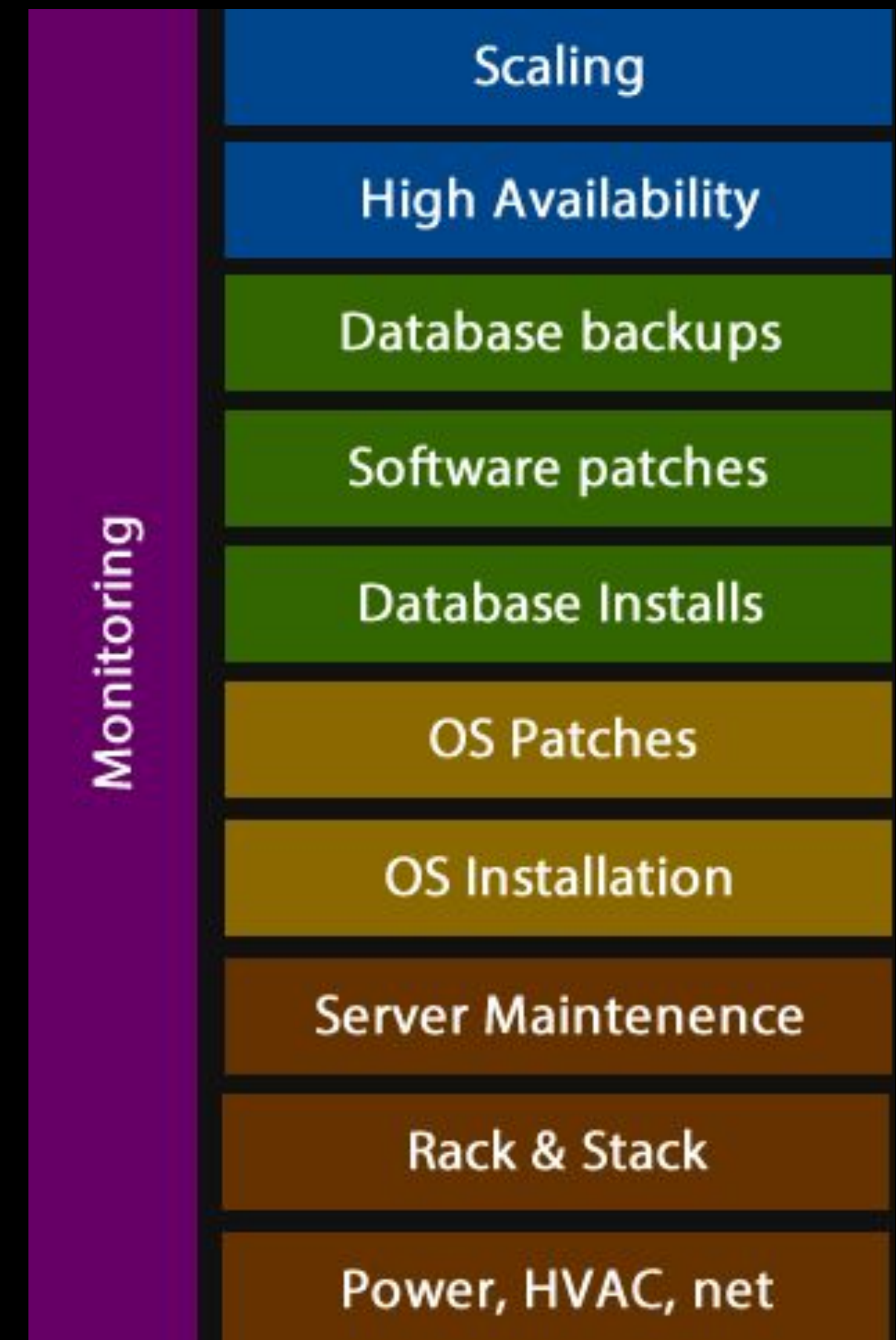- Geospatial applications

FEATURES

- Simple and fully-managed MySQL & PostgreSQL database service but not a replacement for a standalone

- Accessible from any application, anywhere

- Affordable, no commitment pricing for any size applications

- Vanilla community versions – not just compatibility

- Structured, relational with horizontal scalability

RUNNING A DATABASE

- **Every layer of the stack requires maintenance**

- **Hardware, OS, Database**

- **Scaling**

- **Monitoring**

- **Disaster recovery**

Scaling

High Availability

Database backups

Software patches

Database Installs

OS Patches

OS Installation

Server Maintenence
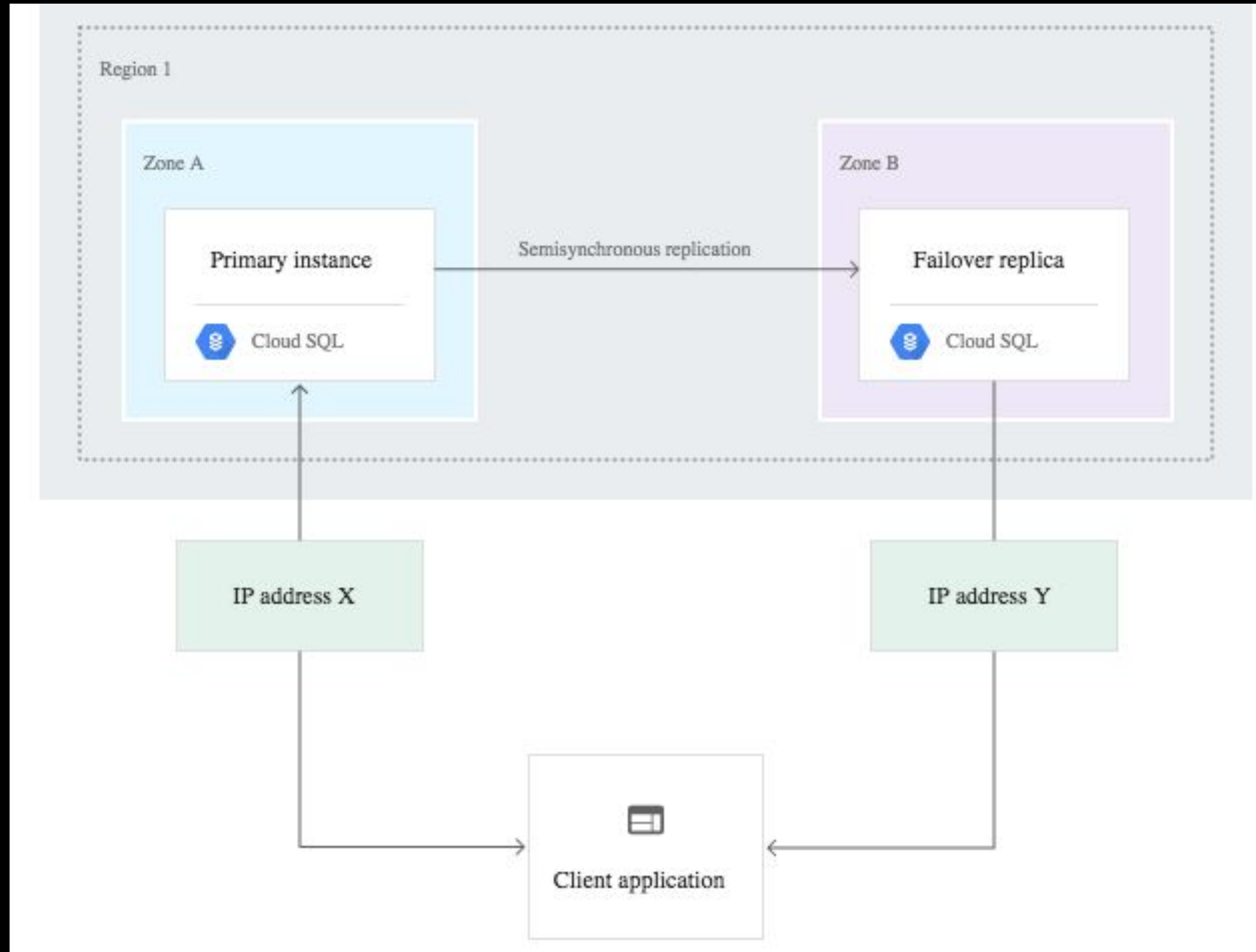
Rack & Stack

Power, HVAC, net

Monitoring

HIGH AVAILABILITY

- The High Availability cluster provides data redundancy

- The configuration is made up of a *primary instance* (master) in the primary zone and a *failover replica* in the secondary zone – both have to be in the same region

- Data is kept in sync between the instances via semisynchronous replication

- The failover is initiated if the primary instance is unresponsive for approximately 60 seconds or the primary zone experiences an outage

- If replication lag is over 10 minutes, Cloud SQL will not initiate failover for an unhealthy instance

HIGH AVAILABILITY

Region 1

Zone A

Primary instance

Cloud SQL

Semisynchronous replication

Zone B

Failover replica

Cloud SQL

IP address X

IP address Y

Client application

BACKUPS

- Daily automatic backups can be setup using a backup window

- Backups are snapshots at block level instead of data dumps – very little performance overhead

- Backups are available for seven days by default (rolling)

- You can restore to a 24 hr time slice granularity

- Binary logging allows for point-in-time and failover

1. Create/select project

2. Navigate to Cloud SQL

3. Select database type

4. Enter instance name, select cpu cores, memory, storage options, backup, mainetence windows, etc.

5. Press Create

PERFORMANCE: READ REPLICAS

- Create read replicas to offload read operations from the master db instance

  - Prevent a few applications from dominating access to reads
  - Prevent analytics to interfere with transactions
  - Good for reports, large read only queries
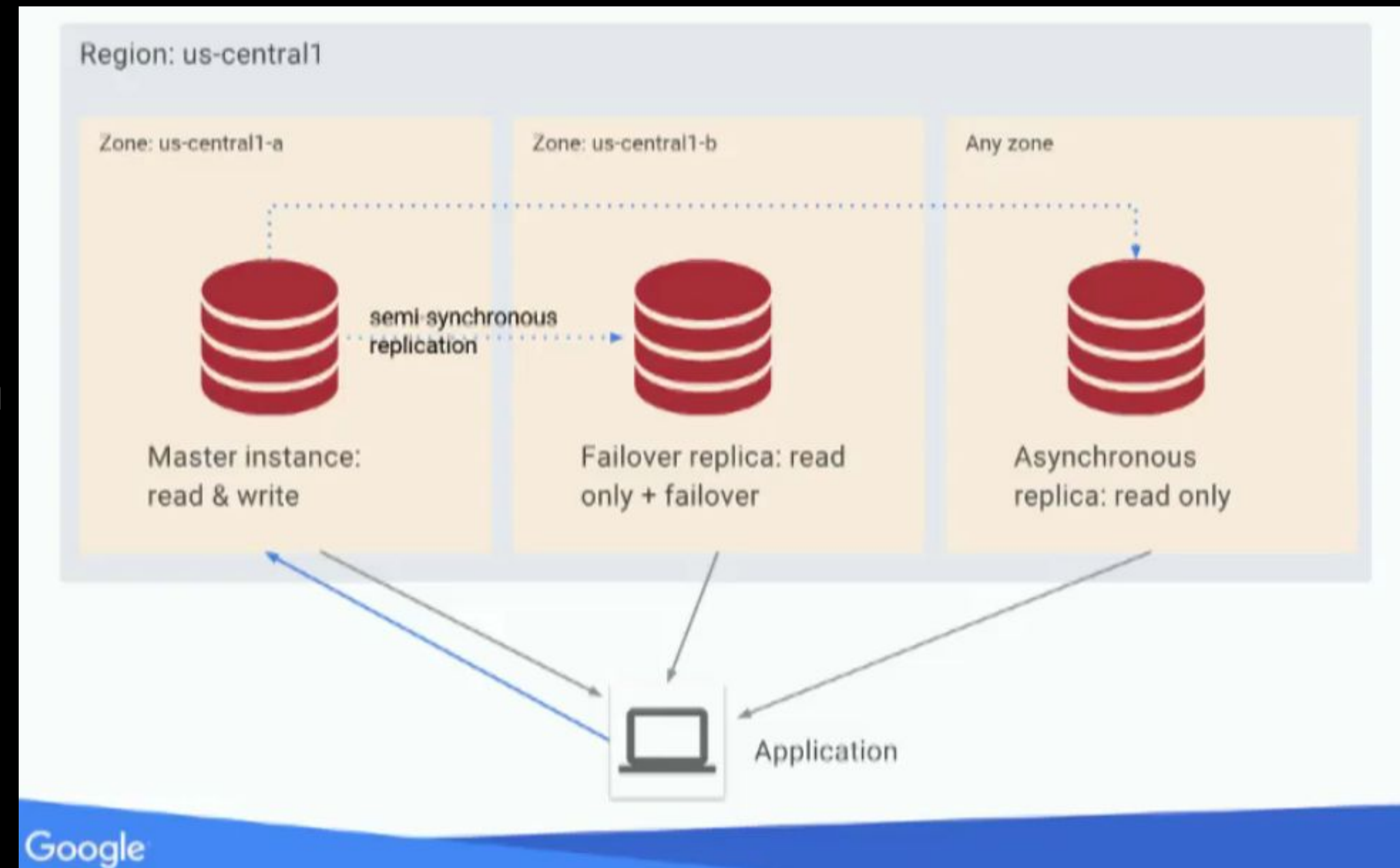
CLOUD SQL PROXY

- **Cloud SQL Proxy** provides secure access to your Cloud SQL Second Generation instances without having to whitelist IP addresses or configure SSL.

CLOUD STORAGE