

# CLOUD INFRASTRUCTURE SOLUTIONS FOR A BUSINESS

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# Problems faced by businesses in building cloud infrastructures

- **Migration Complexity:** Moving existing applications and data to the cloud can be time-consuming and technically challenging.
- **Unexpected Costs:** Cloud services are billed on usage, and businesses may face unexpected costs if usage isn't monitored closely.
- **Data Security Concerns:** Storing sensitive data in the cloud may raise concerns about breaches or unauthorized access.
- **Backup and Recovery:** Ensuring data redundancy, backups, and disaster recovery plans are in place can be challenging.



# Google Cloud

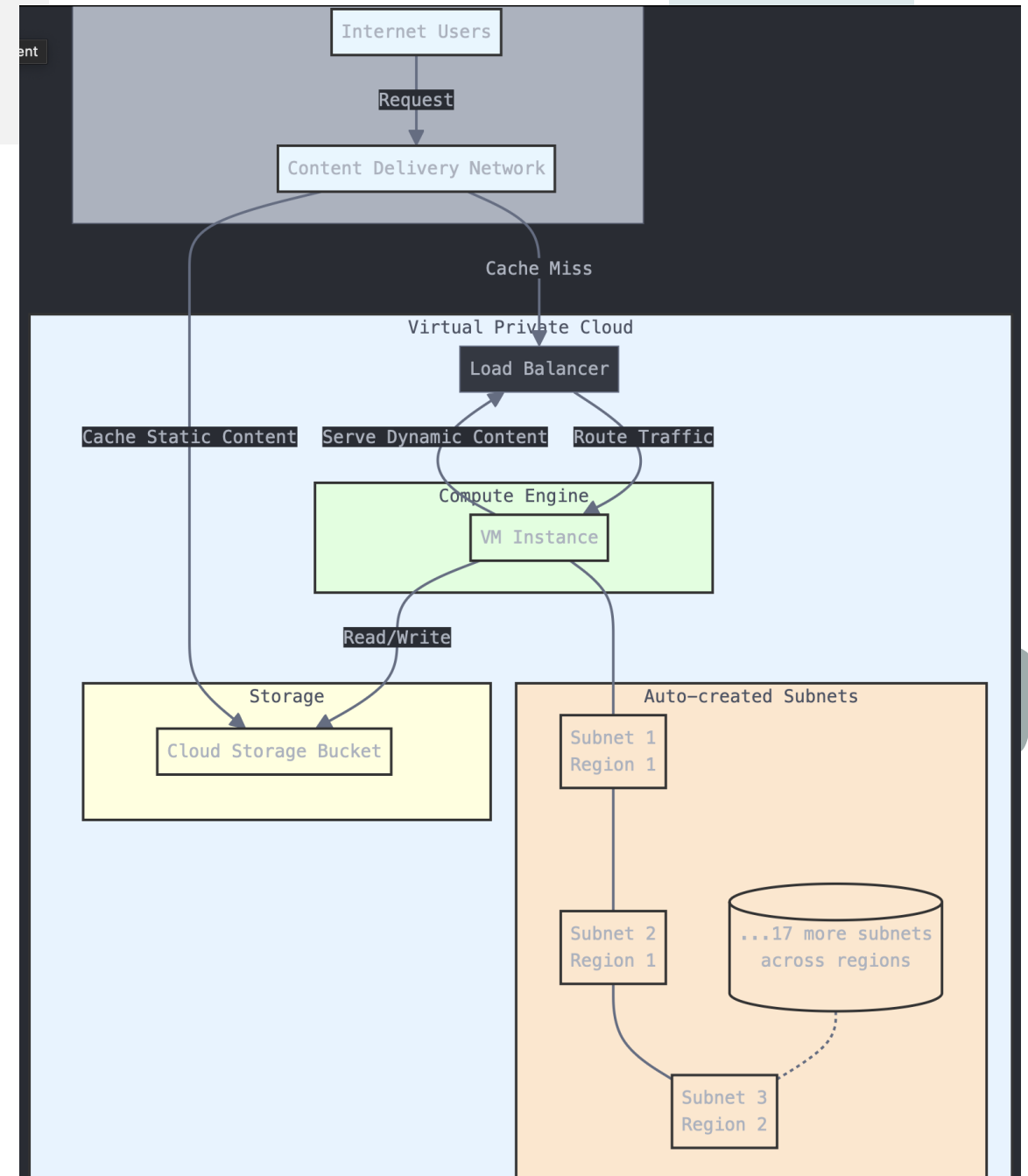
## REASONS FOR CHOOSING GCP

1. Signing up in the GCP platform was way easier and less time consuming. They had various payment options out of which I could choose the most appropriate one.
2. GCP is an excellent choice if your focus is on AI/ML workloads, big data analytics, networking performance, or if you prefer a more transparent and developer-friendly platform.
3. GCP is cost efficient and reliable with its cutting edge technology and security

# ARCHITECTURE DIAGRAM

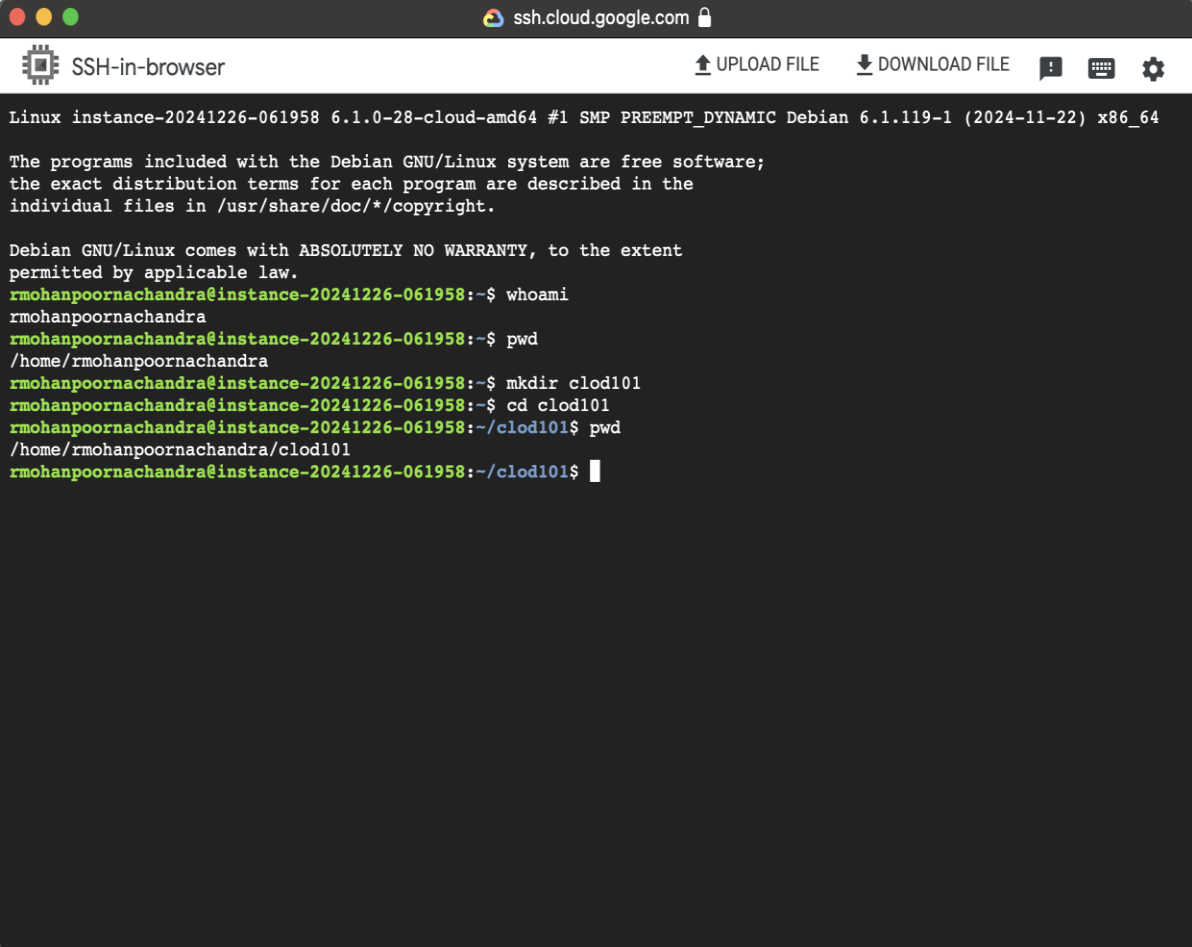
This architecture ensures:

- **Performance:** By using CDNs and load balancing.
- **Scalability:** Through auto-created subnets and distributed VM instances.
- **Redundancy:** With multi-region availability.
- **Cost Efficiency:** By caching static content and offloading storage needs to a cloud bucket.



# Implementation and observations

- Created a compute engine with which all the compute needs can be fulfilled.
- Created a cloud bucket and stored all the code needed to host the company website.
- With load balancing and CDN, the website in the bucket can be hosted in the internet so that everyone can access. The link is :  
<http://34.110.141.90/index.html>
- Created a VPC with 20 subnets for a secure network for the business



```
ssh.cloud.google.com
SSH-in-browser
UPLOAD FILE DOWNLOAD FILE
Linux instance-20241226-061958 6.1.0-28-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.119-1 (2024-11-22) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
rmohanpoornachandra@instance-20241226-061958:~$ whoami
rmohanpoornachandra
rmohanpoornachandra@instance-20241226-061958:~$ pwd
/home/rmohanpoornachandra
rmohanpoornachandra@instance-20241226-061958:~$ mkdir clod101
rmohanpoornachandra@instance-20241226-061958:~$ cd clod101
rmohanpoornachandra@instance-20241226-061958:~/clod101$ pwd
/home/rmohanpoornachandra/clod101
rmohanpoornachandra@instance-20241226-061958:~/clod101$
```

# Implementation and observations



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We provide cutting-edge AI solutions to transform your business processes and maximize efficiency.

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At ABC Company, we specialize in Artificial Intelligence-driven solutions to help businesses innovate and stay ahead in a competitive market. From machine learning to natural language processing, we offer comprehensive AI services tailored to your needs.

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### Machine Learning Solutions

Customized ML models to enhance data-driven decision-making.

### Natural Language Processing

Chatbots, sentiment analysis, and more with advanced NLP techniques.

### Computer Vision

Object detection, facial recognition, and visual analytics.

## Our Team



A live hosted website in the internet

A screenshot of the Google Cloud console showing the 'VPC network details' page for a network named 'clod101'. The page is divided into several tabs: 'OVERVIEW', 'SUBNETS', 'STATIC INTERNAL IP ADDRESSES', 'FIREWALLS', and 'FIREWALL'. The 'SUBNETS' tab is currently selected. On the left, there is a sidebar with a list of VPC network features: IP addresses, Internal ranges, Bring your own IP, Firewall, Routes, VPC network peering, Shared VPC, Serverless VPC access, Packet mirroring, and VPC flow logs. The main content area displays a table of subnets for the 'clod101' network. The table has columns for Name, Region, Stack type, Primary IPv4 range, and Secondary IP. There are 20 subnets listed, each with a unique name (e.g., clod101, clod101, clod101) and a primary IPv4 range (e.g., 10.218.0.0/20, 10.140.0.0/20, 10.170.0.0/20). To the right of the table, there is a 'Select a subnet' panel with a message: 'Please select at least one resource.'

20 different subnets created around the globe

# Challenges faced and solutions

The main challenge faced was that the website was not getting hosted due to some access issues in the bucket. But later with some studies and help from ChatGPT, I was able to solve the issue and the website is hosted fine.

I granted public access to individual files in the bucket so that the website can be hosted.

This XML file does not appear to have any style information associated with it. The document tree is shown below.

---

```
▼<Error>  
  <Code>AccessDenied</Code>  
  <Message>Access denied.</Message>  
</Error>
```

# Learnings and Takeaways

- Was able to understand the working and basic things needed to set up a cloud environment for a business.
- Able to understand and draw architecture diagrams and infer information from them
- Learnt how to troubleshoot issues and find solutions.





THANK  
YOU

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