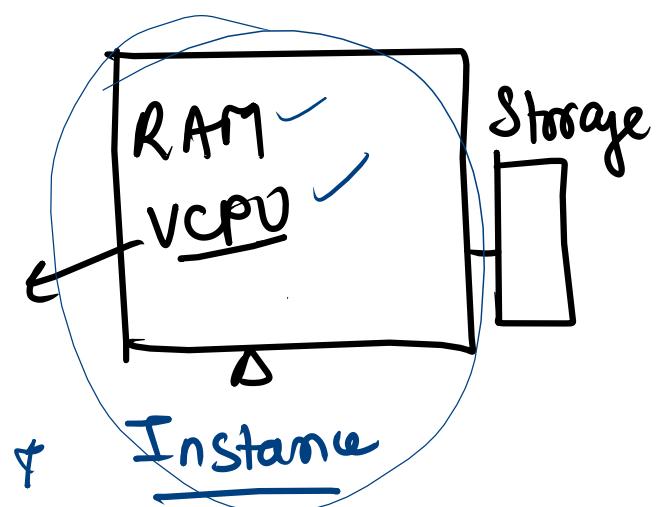


Compute engine is a customizable compute

service that lets you create and run
virtual machine on Google Infrastructure.

Google cloud compute
engine or

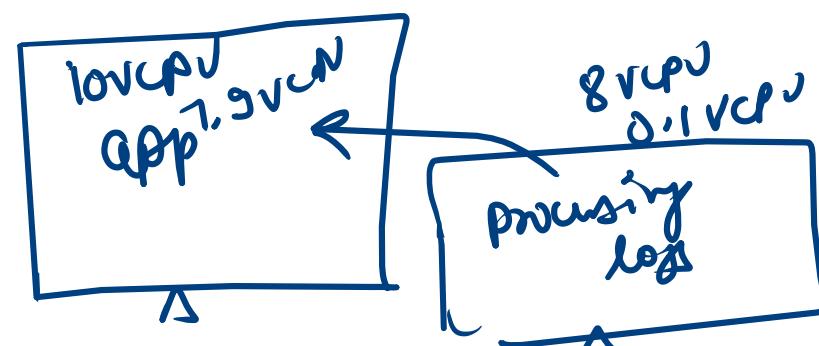
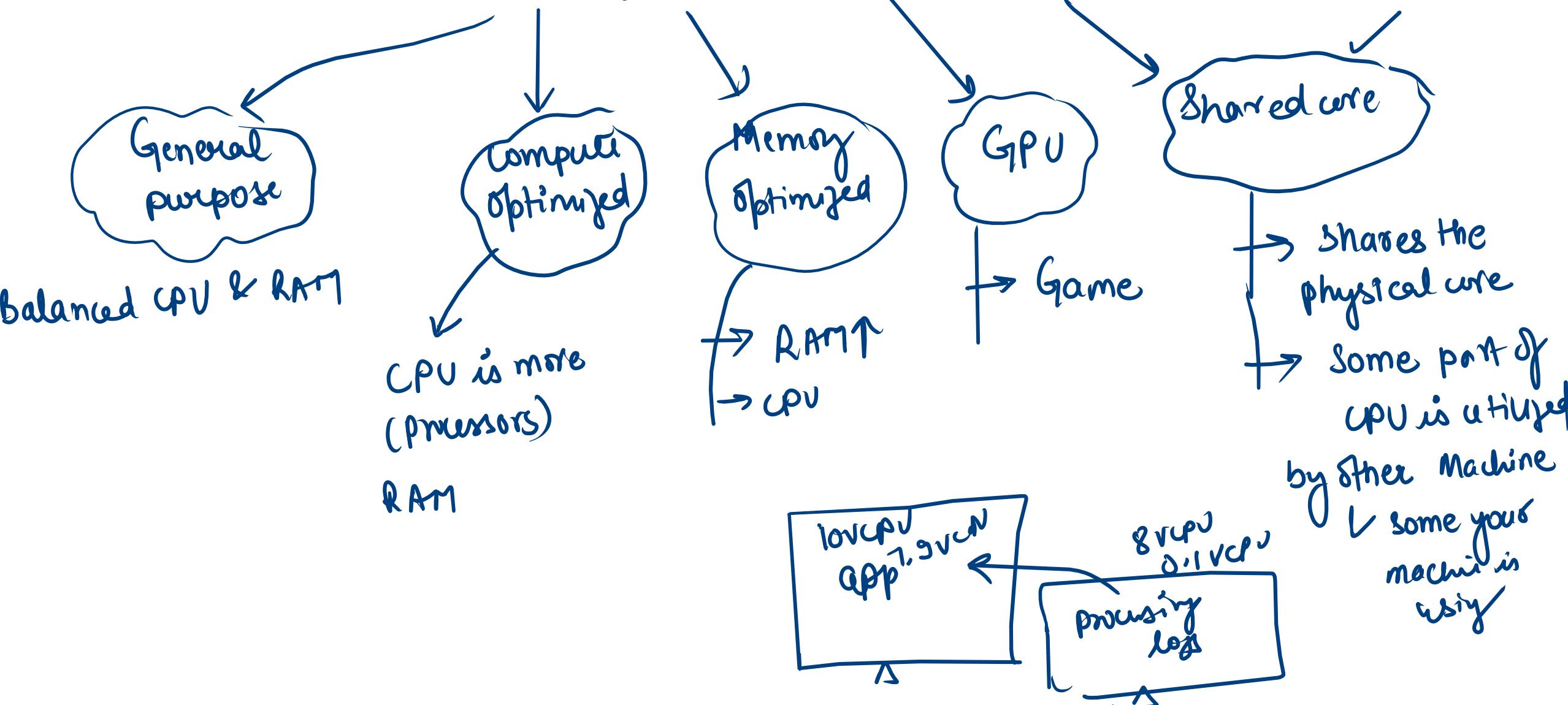
Virtual machines



* Custom machines → you can take vCPU
and memory as per your needs,
create your own customized machine

* Predefined machines → predefined machine type
are prebuilt and ready to go configuration
of VMs with specific amount of vCPUs
memory to start
running app quickly

Types of predefined VM / Machine families



dab

Create project ✓

← → G o console.cloud.google.com/welcome?invt=Abt6PA&c

Google Cloud St1-project Search (/) for resources

Pop up

NEW PROJECT

Select a project

Search projects and folders

RECENT STARRED ALL

Name	ID
St1-project	st1-project
learning	learning-423309
septemberproject	septemberproject-435007
k8scluster	k8scluster-379107
ETCS	etcs-384714
My First Project	just-terminus-362810

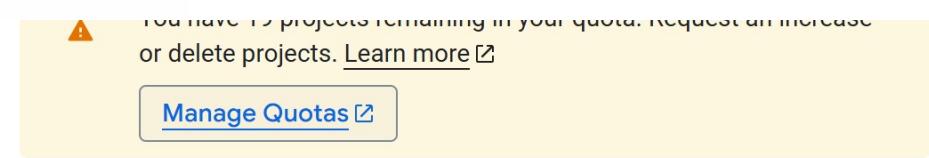
Project name * My Project 94213 → any name

Project ID: charming-script-455903-p4. It cannot be changed later. Edit

Location * No organisation Browse

Parent organisation or folder

Create Cancel



Project name * My Project 94213 → any name

Project ID: charming-script-455903-p4. It cannot be changed later. Edit

Location * No organisation Browse

Parent organisation or folder

Create Cancel

dab2 Create virtual machine in GCP.

Click on \equiv on left side \rightarrow Compute engine \rightarrow VM \rightarrow

Google Cloud | St1-project
To avoid losing access to Google Cloud services, an administrator must verify this account.
Product details
Compute Engine API
Google Enterprise API
Compute Engine API
ENABLE TRY THIS API

Machine configuration

Name * *anyname*

Region * *changing region will affect cost*

Zone * *Zone is permanent* *changing zone will not impact cost*

Region is permanent

General purpose Compute-optimised Memory-optimised Storage optimised GPUs

Machine types for common workloads, optimised for cost and flexibility

Series	Description	vCPUs	Memory	CPU Platform
<input type="radio"/> C4	Consistently high performance	2 - 192	4 - 1,488 GB	Intel Emerald
<input type="radio"/> C4A	Arm-based consistently high performance	1 - 72	2 - 576 GB	Google Axion
<input type="radio"/> N4	Flexible and cost-optimised	2 - 80	4 - 640 GB	Intel Emerald
<input type="radio"/> C3	Consistently high performance	4 - 192	8 - 1,536 GB	Intel Sapphire
<input type="radio"/> C3D	Consistently high performance	4 - 360	8 - 2,880 GB	AMD Genoa
<input checked="" type="radio"/> E2	Low-cost day-to-day computing	0.25 - 32	1 - 128 GB	Intel Broadwell
<input type="radio"/> N2	Balanced price and performance	2 - 128	2 - 864 GB	Intel Cascade

Google Cloud | St1-project | Search (/) for resources, docs, products and more
VM instances **Create instance** Import VM Refresh
Instances Observability Instance schedules
VM instances
Filter Enter property name or value
Status Name ↑ Zone Recommendations In use by Internal IP External IP Connect

<input type="radio"/> T2D	Scale-out workloads	1 - 60	4 - 240 GB	AMD Milan
<input checked="" type="radio"/> N1	Balanced price and performance	0.25 - 96	0.6 - 624 GB	Intel Haswell

Machine type
Choose a machine type with preset amounts of vCPUs and memory that suit most workloads. Or, you can create a custom machine for your workload's particular needs. [Learn more](#)

Preset Custom

Creating a custom machine incurs additional costs

Cores
1

96
1 vCPU

Memory
1

6.5
1 GB



Create an instance

[Create VM from...](#)

- Machine configuration
custom-1-1024, asia-south1-c

OS and storage
Debian GNU/Linux 12 (bookworm)

- Data protection
Snapshot schedules
- Networking
1 network interface
- Observability

Operating system and storage

Name thecareerbeer-app-production-server
Type New standard persistent disk
Size 10 GB
Snapshot schedule default-schedule-1
Licence type Free
Image Debian GNU/Linux 12 (bookworm)

[Change](#)

Additional disks

[+ Add new disk](#) [+ Attach existing disk](#) [+ Add local SSD](#)

↓
Select Ubuntu

Select

Google Cloud St1-project Search (/) for resources, docs, products and more

[Create an instance](#) [Create VM from...](#)

- Machine configuration
custom-1-1024, asia-south1-c
- OS and storage**
Ubuntu 20.04 LTS

Operating system and storage

Name thecareerbeer-app-production-server
Type New standard persistent disk
Size 10 GB
Snapshot schedule default-schedule-1
Licence type Free
Image Ubuntu 20.04 LTS

[Change](#)

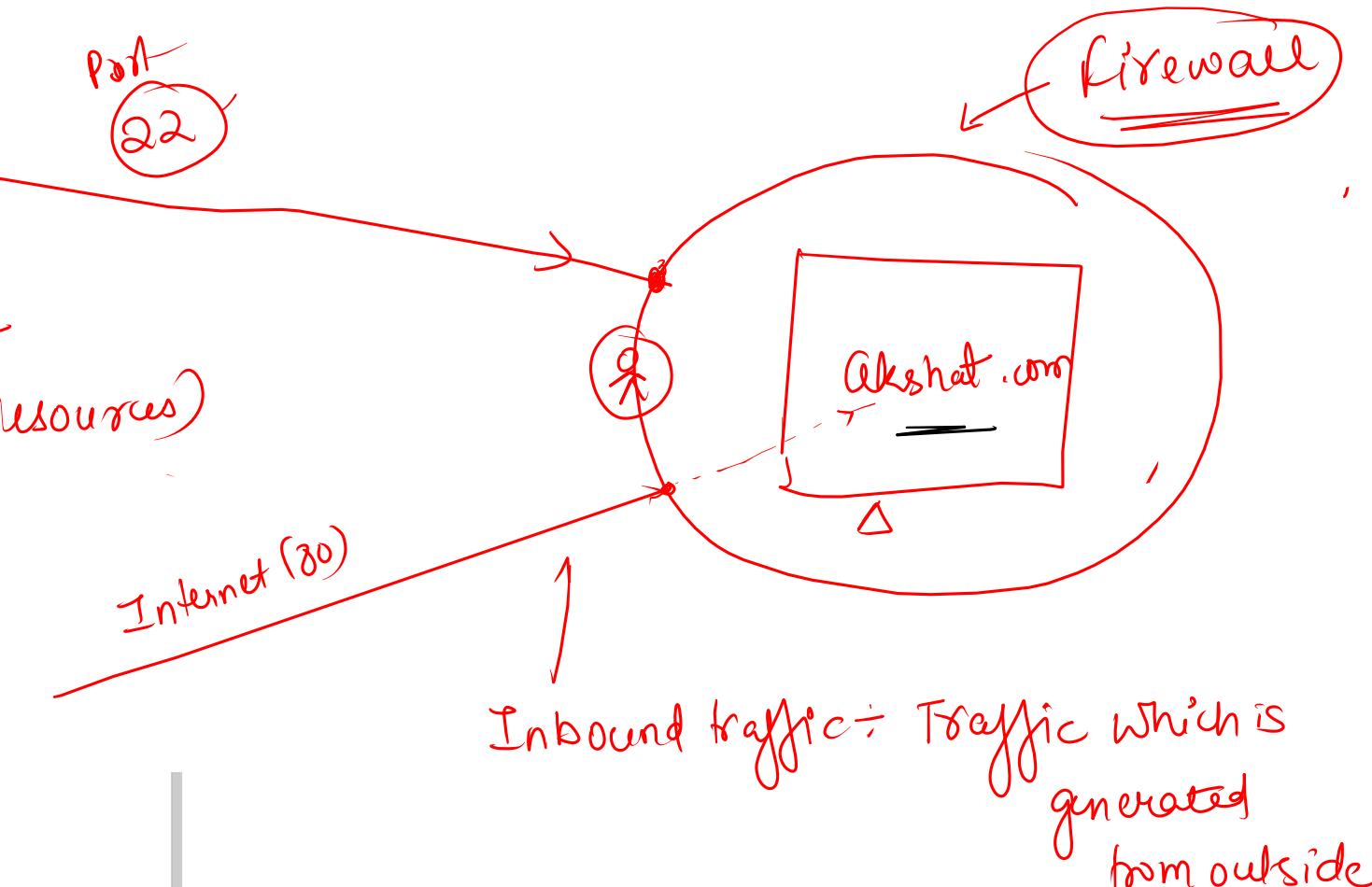
Additional disks

[+ Add new disk](#) [+ Attach existing disk](#) [+ Add local SSD](#)

Container

No changes
↓
Click on networking

Firewall is like a security gate that controls incoming & outgoing traffic to and from your VM Instances (or resources) based on rules you define.



Machine configuration
n1-standard-1, us-central1

OS and storage
Ubuntu 20.04 LTS

Data protection
Snapshot schedules

Networking
1 firewall rule, 1 network interface

Observability
Install Ops Agent

Networking

Firewall ?
Add tags and firewall rules to allow specific network traffic from the Internet

Allow HTTP traffic

Allow HTTPS traffic

Allow load balancer health checks

Network tags ?

Hostname ?
Set a custom hostname for this instance or leave it default. Choice is permanent

Create

Our machine will be launched

VM instances

Filter Enter property name or value

Status Name ↑ Zone Recommendations In use by

my-machine us-central1-c

Related actions

Running Not running

machine name

Secure shell :=
secure protocol used
for remotely connect
to VM over the
network



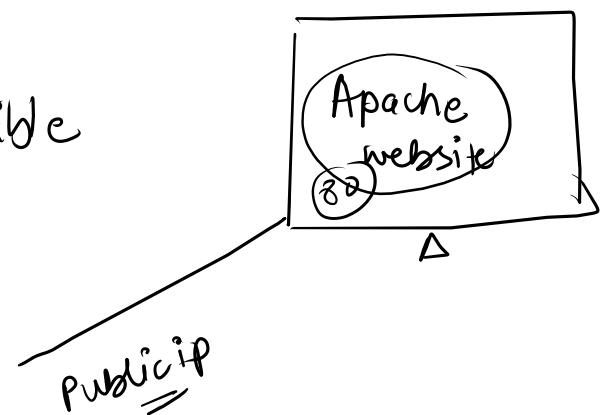
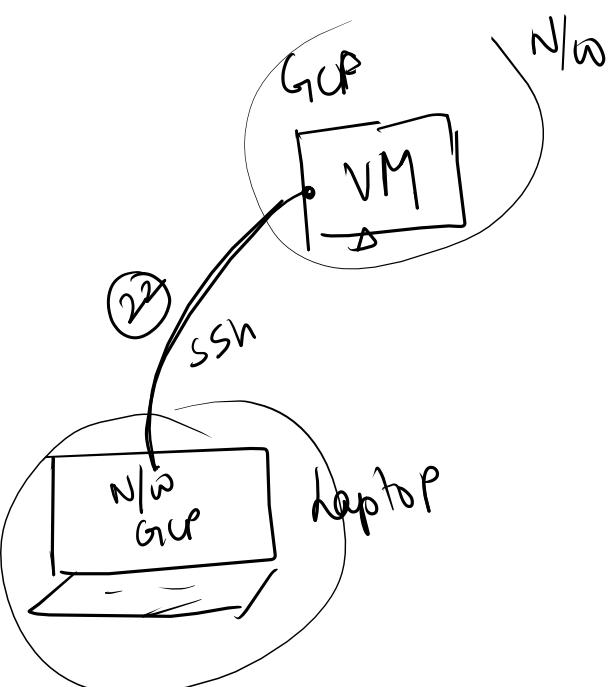
public ip

used to connect to the VM
from Internet

private ip

This ip is only accessible from within the
network.

from Internet this ip is not accessible



we will now connect to the machine & Install apache website in machine :-

Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/>	my-machine	us-central1-c			10.128.0.2 (nic0)	34.30.26.181 (nic0)	SSH

[Open in browser window](#)

ssh.cloud.google.com/v2/ssh/projects/st1-project/zones/us-central1-c/instances/my-machine?authuser=0&hl=en_GB&projectNumber=440626577952&useAdminProxy=true - Google Chrome
ssh.cloud.google.com/v2/ssh/projects/st1-project/zones/us-central1-c/instances/my-machine?authuser=0&hl=en_GB&projectNumber=440626577952&useAdminProxy

SSH-in-browser

Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1078-gcp x86_64)
* Documentation: <https://help.ubuntu.com>
* Management: <https://landscape.canonical.com>
* Support: <https://ubuntu.com/pro>

System information as of Sun Apr 6 01:52:08 UTC 2025

System load: 0.3	Processes: 98
Usage of /: 20.7% of 9.51GB	Users logged in: 0
Memory usage: 8%	IPv4 address for ens4: 10.128.0.2
Swap usage: 0%	

Expanded Security Maintenance for Applications is not enabled.
21 updates can be applied immediately.
19 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

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

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

akshu20791@my-machine:~\$

We are connected to the machine!!

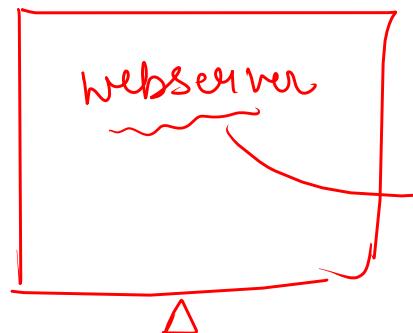
Deploy apache website on the Ubuntu machine :-

applicable law.

```
akshu20791@my-machine:~$ sudo su  
root@my-machine:/home/akshu20791#
```

switch to root user

Sudo allows you to execute commands as another user



Virtual machine

software which install in a machine to host a website inside the machine. If we want to launch html website then we will use Apache webserver.

```
root@my-machine:/home/akshu20791# apt update && apt install apache2 -y
```

yes by default

advance packaging tool

It will update all packages in Ubuntu machine

Webserver
(apache2 is package name)

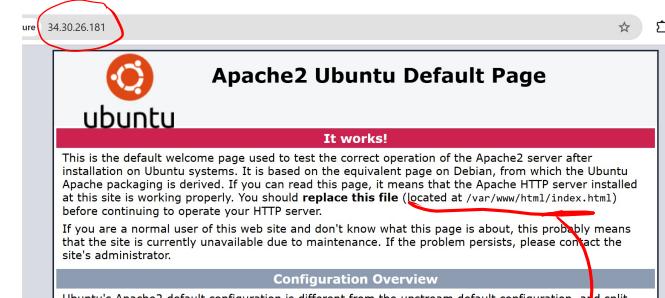
lets now host website

Filter Enter property name or value

Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP
✓	my-machine	us-central1-c			10.128.0.2 (nic0)	34.30.26.181 (nic0)

Related actions

Copy to clipboard



<https://github.com/akshu20791/apachewebsite>

remove

To host the website in this server we need to put our website code at /var/www/html/ location

↓
folder in folders

We are removing the default apache website page

```
root@my-machine:/home/akshu20791# rm /var/www/html/index.html
```

place where
the code is
saved

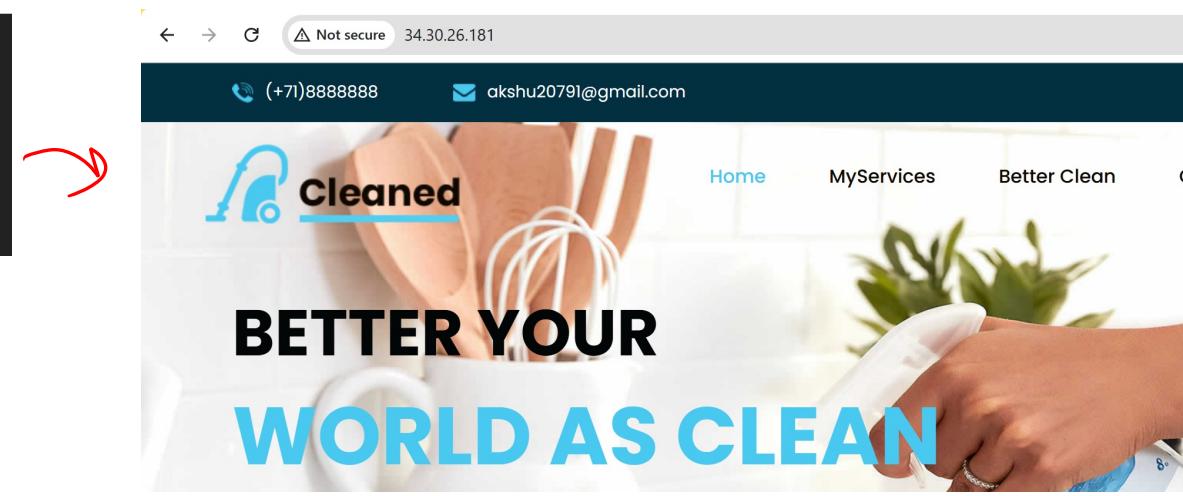
to download

location where
code is present

where the
code will be
downloaded

```
root@my-machine:/home/akshu20791# git clone https://github.com/akshu20791/apachewebsite /var/www/html/
```

```
root@my-machine:/home/akshu20791# git clone https://github.com/akshu20791/apachewebsite /var/www/html/
Cloning into '/var/www/html'...
remote: Enumerating objects: 125, done.
remote: Counting objects: 100% (48/48), done.
remote: Compressing objects: 100% (31/31), done.
remote: Total 125 (delta 45), reused 17 (delta 17), pack-reused 77 (from 1)
Receiving objects: 100% (125/125), 1.30 MiB | 9.28 MiB/s, done.
Resolving deltas: 100% (51/51), done.
root@my-machine:/home/akshu20791#
```



Commands used :-

```
sudo su
apt update && apt install apache2 -y
rm /var/www/html/index.html
git clone https://github.com/akshu20791/apachewebsite /var/www/html/
```

Compute engine pricing

Spot VM or Preemptible VM

✓ Sustained use discounts ✓
you get discount on
machines.

but discount is from 5-10%

Committed use discounts

- 1 year commitment 3 year commitment
(Huge discounts)
- Discount is upto 75%
- No upfront cost

↳ Spot Instances are available at much lower price 60-95% discount compared to standard VMs.

However, google cloud might stop these instances if it need to reclaim the compute capacity for allocation to other VMs.