

PROJECT REPORT

HOSTED VIRTUAL MACHINE IP : 35.246.29.33

GROUP MEMBERS:

NAMES	ROLL NUMBER	NETWORK	PUBLIC IP
D Tejashree	COE18B016	AIRTEL	103.232.131.194
Jaya Sathwika	COE18B019	ACT Fibernet	49.204.9.179
Sanjana Dara	CED18I015	JIO	157.47.124.14
V.Harini	CED18I023	JIO	157.46.114.111
K.Dheekshitha	CED18I026	AIRTEL	223.228.93.135
Kavya Vemuri	CED18I027	AIRTEL	202.62.86.30

Client Server Communication

Client server communication using TCP between the devices operates in two different network:

We have used 2 different ways for establishing connections between two systems operating in different networks.

- 1) SSH-Tunneling Method
- 2) G-cloud Hosting Method

SSH-TUNNELING METHOD:

Port forwarding via SSH (SSH tunneling) creates a secure connection between a local computer and a remote machine through which services can be relayed

NGROK: Ngrok is a cross platform tunneling software which can be used to establish secure tunnels from the internet to the local network.

Ngrok is used to expose your local web server to the internet. All we have to do is to tell Ngrok what port your local web server is listening on.

Ex: ngrok tcp 22

Terminal also shows the requests made to your local web server. The following figure shows how the terminal keeps the record of tcp requests.

SERVER: Dheekshitha - 223.228.93.135 (AIRTEL NETWORK)

```
File Edit View Search Terminal Help
ngrok by @inconshreveable

Session Status      online
Account             ced18i026@iitdm.ac.in (Plan: Free)
Version             2.3.35
Region              United States (us)
Web Interface        http://127.0.0.1:4040
Forwarding           tcp://2.tcp.ngrok.io:14710 -> localhost:22

Connections         ttl    opn    rt1    rt5    p50    p90
                   0      1      0.00   0.00   0.00   0.00
```

```
File Edit View Search Terminal Help
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$ make server
cc      server.c      -o server
server.c: In function 'main':
server.c:36:3: warning: implicit declaration of function 'gets'; did you mean 'fgets'? [-Wimplicit-declaration]
    gets(other);
    ^
server.c:36:3: note: 'fgets' was declared here
/tmp/cctvZjuU.o: In function 'main':
server.c:(.text+0x295): warning: the 'gets' function is dangerous and should not be used.
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$ ./server
Server running, presence of client online is requested!

Reply from client : hiii:)
Enter message to client : hello client!!
Reply from client : Whatsup!!
Enter message to client : I am watching software developer episode-6!!
Reply from client : yeah me too!!
Enter message to client : nyc episode bro!!
Reply from client : yeah I too liked it re..
Enter message to client : okay!! I am going to watch it again....bye client
Reply from client : ok bye!!have a goodday
Enter message to client : end
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$
```

CLIENT: Sathwika - 49.204.9.179

```
sathwika@sathwika: ~/cn/project1
sathwika@sathwika:~/cn/project1$ ssh saimynu@2.tcp.ngrok.io -p14710
The authenticity of host '[2.tcp.ngrok.io]:14710 ([3.131.123.134]:14710)' can't be established.
ECDSA key fingerprint is SHA256:uo8/30dAL7QLoUFWUYBXfjxjh5nkXIvdZocXKb6EvmI.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '[2.tcp.ngrok.io]:14710,[3.131.123.134]:14710' (ECDSA) to the list of known hosts.
saimynu@2.tcp.ngrok.io's password:
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 5.4.0-47-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

5 packages can be updated.
0 updates are security updates.

Your Hardware Enablement Stack (HWE) is supported until April 2023.
Last login: Wed Sep 16 15:05:31 2020 from 127.0.0.1
saimynu@saimynu-VirtualBox:~$ cd Downloads
saimynu@saimynu-VirtualBox:~/Downloads$ cd cn
saimynu@saimynu-VirtualBox:~/Downloads/cn$ cd project1
```

```

client.C(.text:0x123): warning: the 'gets' function is dangerous and should not be used.
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$ ./client
Hey! Client online.
Connecting people:
>>>Sathwika
>>>Harini
>>>Tejashree
>>>Kavya
>>>Dheekshitha
>>>Sanjana

Enter 'end' to exit the conversation

Enter message to server : hiii:)
Reply from server : hello client!!
Enter message to server : Whatsup!!
Reply from server : I am watching software developer episode-6!!
Enter message to server : yeah me too!!
Reply from server : nyc episode bro!!
Enter message to server : yeah I too liked it re..
Reply from server : okay!! I am going to watch it again....bye client
Enter message to server : ok bye!!have a goodday
Reply from server : okay!! I am going to watch it again....bye client
Enter message to server : end
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$ █

```

HOSTING METHOD(G Cloud):

To connect to our server program from different networks, we used a public hosting method.

We hosted a Virtual Machine on google's infrastructure by using Compute engine API. We created a virtual instance(machine) of Ubuntu in Google cloud and transferred our server programs to the instance.

And we connected to the host/server file, with the public ip address of the virtual instance, i.e:"35.246.29.33".

SERVER:

ssh.cloud.google.com/projects/seraphic-plexus-289709/zones/europe-west2-a/instances/instance-1?useAdminProxy=true&authuser=0&hl=en_US&projectNumber=1903

Connected, host fingerprint: ssh-rsa 0 4F:5E:BD:7F:1C:42:A5:23:33:80:21:DC:C7:5D
:4F:2A:8D:EE:8B:E3:D6:F5:07:A6:D5:08:3A:F7:FA:C9:E0:8C

Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 5.4.0-1024-gcp x86_64)

* Documentation: <https://help.ubuntu.com>
* Management: <https://landscape.canonical.com>
* Support: <https://ubuntu.com/advantage>

System information as of Fri Sep 18 15:57:47 UTC 2020

System load:	0.0	Processes:	110
Usage of /:	19.4% of 9.52GB	Users logged in:	1
Memory usage:	7%	IP address for ens4:	10.154.0.2
Swap usage:	0%		

* Kubernetes 1.19 is out! Get it in one command with:

sudo snap install microk8s --channel=1.19 --classic

<https://microk8s.io/> has docs and details.

* Canonical Livepatch is available for installation.
- Reduce system reboots and improve kernel security. Activate at:
<https://ubuntu.com/livepatch>

4 packages can be updated.
0 updates are security updates.

*** System restart required ***

Last login: Fri Sep 18 15:51:49 2020 from 35.235.242.1

sanjanadara1701@instance-1:~\$./server

Server running, presence of client online is requested!

Reply from client : hi server

Enter message to client : Hello, where are you from..?

Reply from client : I am from kadapa!! and u??

Enter message to client : Server is from Vijayawada,AP

Reply from client : oh!!nyc

Enter message to client : Which network are you using..?

Reply from client : AIRTEL NETWORK...

Enter message to client : Nyc,Btw server is operating on JIO

Reply from client : okay server!! I am busy with my projects....I am leaving the meet!! bye

Enter message to client : Ok have a great day,BUbye

Reply from client : end

Enter message to client : end

sanjanadara1701@instance-1:~\$

CLIENT: Dheekshitha - 223.228.93.135 (AIRTEL NETWORK)

```
client.c(14:12:12): warning: the 'gets' function is dangerous and should not be used.
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$ ./client
Hey! Client online.
Connecting people:
>>>Sathwika
>>>Harini
>>>Tejashree
>>>Kavya
>>>Dheekshitha
>>>Sanjana

Enter 'end' to exit the conversation

Enter message to server : hi server
Reply from server : Hello, where are you from..?
Enter message to server : I am from kadapa!! and u??
Reply from server : Server is from Vijayawada,AP
Enter message to server : oh!!nyc
Reply from server : Which network are you using..?
Enter message to server : AIRTEL NETWORK...
Reply from server : Nyc,Btw server is operating on JIO
Enter message to server : okay server!! I am busy with my projects....I am leaving the meet!! bye
Reply from server : Ok have a great day,BUbye
Enter message to server : end
saimynu@saimynu-VirtualBox:~/Downloads/cn/project1$
```