Please go through this document before proceeding with the configuration of CDN project. This project is part of the Computer Network COSC 6377 course.

We have considered to include two cloud environment for the purpose of demo, one Google Cloud Ubuntu machine and other of Amazon Ubuntu machine. As client we are using UH Program.cs server.

- Download the source files from the below Git location:
  https://github.com/cosc6377/project-milestone-2-pushpendra42
  Download all the below files. The last three columns indicate if the file has to copied on that server which will be used in further steps.

File name	Microsoft	Google	Amazon	UH Program
server.py	•	•	•	
serverhttps.py	•	•	•	
priceinfo.py		•		
priceinfoclient.py		•		
proxypingme.py	•	•	•	
publishfile.py	•	•	•	
serverclient.py				•
proxy.py				•
proxyclient.py				•
severlist.db	•	•	•	
cosc.getcertificate.crt	•	•	•	•
fileclass.proto	•	•	•	•
fileclass_pb2.py	•	•	•	•
fileclass_pb2.pyc	•	•	•	•
recheartbeat.py	•	•	•	
sendheartbeat.py	•	•	•	

- Create a folder and rename it to “CDN” and all the three environment under the root directory and copy the files according to the above mentioned table.
- Create a folder named “downloaded” on Google and Amazon environment inside CDN folder.
- The application uses SqlLite for the purpose of storing the server list and metadata related to them.
- Below are the details of files which needs to be placed on each of the server and the commands which has to be executed.
- **Please do not change the Port number used in these commands are they are dependent on each other. The IP of these servers are dynamic so the commands needs to be updated at the time of configuration.**

- Server list

Server name	OS name	Public IP or DNS
Google	Ubuntu	35.200.27.101
Amazon	Ubuntu	ec2-13-58-250-192.us-east-2.compute.amazonaws.com
UH program.cs	Not known	program.cs.uh.edu
Microsoft	Ubuntu	52.224.163.190

- **Google server:**

We have considered Google Ubuntu server to be our base CDN server. This sever will be hosting the priceinfo service and will have server list database "serverlist.db". The application uses SqlLite for the purpose of storing the server list and metadata related to them. Although the application is capable enough to use any other server for this purpose, we are considering Google server for it.

FileName	Command
priceinfo.py	python priceinfo.py 22115
server.py	python server.py 35.200.27.101 22110 /home/pushpendra42/CDN/downloaded 0 Parameter Desc: sourceIP portNo FileStorageLoc isSSL
priceinfoclient.py	python priceinfoclient.py http://35.200.27.101:22115/list
priceinfoclient.py	python priceinfoclient.py http:// 35.200.27.101: 22115/create
priceinfoclient.py	python priceinfoclient.py http:// 35.200.27.101: 22115/update
priceinfoclient.py	python priceinfoclient.py http:// 35.200.27.101: 22115/delete
proxypingme.py	python proxypingme.py
publishfile.py	python publishfile.py 22130 /home/pushpendra42/CDN/downloaded
recheartbeat.py	python recheartbeat.py
sendheartbeat.py	python sendheartbeat.py
serverhttps.py	python server.py 35.200.27.101:22115 22110 /home /Network/Server/CDN Parameter Desc: sourceIP portNo FileStorageLoc

- **Amazon server**

```
ssh -i "pushpendra42.pem" ubuntu@ec2-13-58-250-192.us-east-2.compute.amazonaws.com
Public domain: ec2-13-58-250-192.us-east-2.compute.amazonaws.com

This connection information is for demo purpose.
```

FileName	Command
server.py	python server.py ec2-18-216-51-140.us-east-2.compute.amazonaws.com 22110 /home/ubuntu/CDN/downloaded 0 Parameter Desc: sourceIP portNo FileStorageLoc isSSL
proxypingme.py	python proxypingme.py
publishfile.py	python publishfile.py 22130 /home/ubuntu/CDN/downloaded
recheartbeat.py	python recheartbeat.py
sendheartbeat.py	python sendheartbeat.py
serverhttps.py	python server.py 35.200.27.101:22115 22110 /home /Network/Server/CDN Parameter Desc: sourceIP portNo FileStorageLoc

- **Microsoft server**

```
Connect to server using ssh:
ssh samaya@52.170.3.213
```

FileName	Command
server.py	python server.py 22110 /home/ubuntu/CDN/downloaded
proxypingme.py	python proxypingme.py
publishfile.py	python publishfile.py 22130 /home/ubuntu/CDN/downloaded
recheartbeat.py	python recheartbeat.py
sendheartbeat.py	python sendheartbeat.py
serverhttps.py	python server.py 35.200.27.101:22115 22110 /home /Network/Server/CDN Parameter Desc: sourceIP portNo FileStorageLoc

- **CS program server : This is the University provided server.**
  ssh ppushpendra@program.cs.uh.edu

FileName	Command
serverclient.py	python serverclient.py localhost 22110 1 test1.pdf Parameter Desc: destinationIP portno Protobuf=0/Json=1 fileuploadpath
proxy.py	python proxy.py 22120 http:// 35.200.27.101:22115
proxyclient.py	python proxyclient.py http://localhost:22120/test1.pdf

Below is the database details the application is using. We have provided the db file and the below are details for it.

Create sql lite table

```
CREATE TABLE "Server" ( `Serial` INTEGER PRIMARY KEY AUTOINCREMENT, `Name` TEXT, `IP` TEXT, `Cost` INTEGER, `Port` INTEGER )
```

Below are the useful commands which can be helpful during deployment of this project. For example you might have closed the service stopping it and if you need to stop the service below are the commands which might be helpful.

- Find IP using: Ip addr show, /sbin/ifconfig eth0, /sbin/ifconfig wlan0
- Find all sockets: ss –s
- Find all tcp: ss –t
- See all the netstat : sudo netstat -ap

- LocalBox: This project can even be deployed on standalone linux machine and the commands are below for it. All other steps will remain same as applied to servers above.

FileName	Command
server.py	python server.py localhost 22110 /home/samaya/Network/Server/CDN 1 Desc: sourceIP portNo FileStorageLoc isSSL
Serverhttps.py	python server.py localhost 22110 /home/samaya/Network/Server/CDN Desc: sourceIP portNo FileStorageLoc
priceinfo.py	python priceinfo.py 22115
priceinfoclient.py	python priceinfoclient.py http://localhost:22115/list
priceinfoclient.py	python priceinfoclient.py http://localhost:22115/create
priceinfoclient.py	python priceinfoclient.py http://localhost:22115/update
priceinfoclient.py	python priceinfoclient.py http://localhost:22115/delete
proxypingme.py	python proxypingme.py
publishfile.py	python publishfile.py 22130 /home/samaya/Network/Server/CDN/downloaded
serverclient.py	python serverclient.py localhost 22110 1 test1.pdf Desc: destinationIP portno Protobuf=0/Json=1 fileuploadpath
proxy.py	python proxy.py 22120 http://localhost:22115
proxyclient.py	python proxyclient.py http://localhost:22120/11.jpg 0
recheartbeat.py	python recheartbeat.py
sendheartbeat.py	python sendheartbeat.py

Find the socket running using port number:

```
ss -lp | grep 4949
KILL a process
sudo kill -9 PID
```

Protobuf3 commands to compile the file:

```
protoc -I=. --python_out=. . fileclass.proto
```