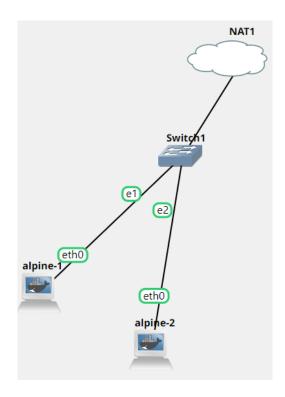
## **TUGAS 4**

## Rifki Aulia Irawan - 05111840000142

## Topologi Jaringan:



## Langkah-Langkah Pengerjaan:

Dapatkan ip dari alpine-1 yang akan digunakan sebagai server

```
GNS3 console alpine-1 × alpine-2 × - ×

Sending select for 192.168.122.197...
Sending select for 192.168.122.197...
Lease of 192.168.122.197 obtained, lease time 3600 ok
/ # ifconfig
sth0 Link encap:Ethernet HWaddr 9A:42:0B:F9:26:A1
    inet addr:192.168.122.197 Bcast:192.168.122.255 Mask:255.255.0
    UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
    RX packets:43 errors:0 dropped:0 overruns:0 frame:0
    TX packets:14 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:1000
    RX bytes:6592 (6.4 KiB) TX bytes:3460 (3.3 KiB)

10 Link encap:Local Loopback
    inet addr:127.0.0.1 Mask:255.0.0.0
    inet6 addr: ::1/128 Scope:Host
    UP LOOPBACK RUNNING MTU:65536 Metric:1
    RX packets:0 errors:0 dropped:0 overruns:0 frame:0
    TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
    collisions:0 txqueuelen:1000
    RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)
```

• Ubah ip pada file\_server.py menjadi ip alpine-1

```
GNS3 console alpine-1 X alpine-2 X — X

GNU nano 4.6 file_server.py Modified

self.my_socket.bind(self.ipinfo)
self.my_socket.listen(1)
while True:
self.connection, self.client_address = self.my_socket.accept()
logging.warning(f"connection from {self.client_address}")

clt = ProcessTheClient(self.connection, self.client_address)
clt.start()
self.the_clients.append(clt)

def main():
svr = Server(ipaddress='192.168.122.197',port=5003)
svr.start()

if __name__ == "__main__":
main()
```

 Jalankan program file\_server.py, jika berhasil maka akan mengeluarkan output seperti gambar berikut

```
GNS3 console alpine-1 × alpine-2 × - ×

/Pemrograman_Jaringan_E/progjar4a/Answer ‡ 1s
__pycache__ file_interface.py file_server.py
file_client_cli.py file_protocol.py files
/Pemrograman_Jaringan_E/progjar4a/Answer ‡ nano file_server.py
/Pemrograman_Jaringan_E/progjar4a/Answer ‡ python3 file_server.py
WARNING:root:server berjalan di ip address ('192.168.122.197', 6666)
```

• Ubah ip pada client\_server.py menjadi ip alpine-1 pada alpine-2

```
GNS3 console alpine-1 X alpine-2 X — X

GNU nano 4.6 file_client_cli.py Modified import socket import json import base64 import logging

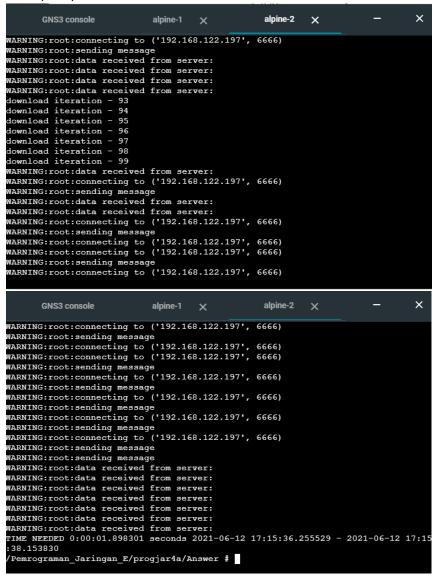
server_address=('192.168.122.197',6666)

def send_command(command_str=""):
    global server_address
    sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
    sock.connect(server_address)
```

- Buat file yang bernama multi\_process.py pada alpine-2. Program ini yang akan melakukan perulangan sebanyak 100 kali, dengan cara merubah beberapa parameter pada program, yaitu:
  - Mengimport fungsi remote\_get melalui program file\_client\_cli
  - Menambah variable Filename='pokijan.jpg'
  - Menambah batas looping menjadi 100 (range(100))
  - Merubah target multiprocessing menjadi fungsi remote\_get
  - Merubah batas looping untuk join menjadi 100 (range(100))

```
×
       GNS3 console
                                 alpine-1
                                                          alpine-2
                                        multi_process.py
 GNU nano 4.6
rom file_client_cli import remote_get
mport time
mport datetime
rom multiprocessing import Process
    texec = dict()
   catat_awal = datetime.datetime.now()
namafile = 'pokijan.jpg'
    for k in range(100):
print(f"download iteration - {k}")
         waktu = time.time()
         texec[k] = Process(target=remote_get, args=(namafile,))
         texec[k].start()
    for k in range(100):
    texec[k].join()
catat_akhir = datetime.datetime.now()
   selesai = catat_akhir - catat_awal
print(f"TIME NEEDED {selesai} seconds {catat_awal} - {catat_akhir}")
```

 Jalankan program multi\_process.py pada client (alpine-2), program akan melakukan request get sebanyak 100 kali (0-99)



 Pada server (alpine-1) akan menghasilkan operasi GET yang dilakukan berkali-kali, seperti gambar berikut

```
alpine-1
            GNS3 console
                                                                 ×
                                                                                        alpine-2
WARNING:root:connection from ('192.168.122.37', 35442)
WARNING:root:connection from ('192.168.122.37', 35444)
WARNING:root:connection from ('192.168.122.37', 35446)
WARNING:root:connection from ('192.168.122.37', 35448)
WARNING:root:connection from ('192.168.122.37', 35450)
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:connection from ('192.168.122.37', 35452)
WARNING:root:connection from ('192.168.122.37', 35454)
 WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
 WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
WARNING:root:string diproses: GET pokijan.jpg
WARNING:root:memproses request: GET
```