

# documentation

1. initialized a basic networking setup

PC (fast ethernet) - router fastgigabit0/0

server (fast ethernet) - router fastgigabit0/1

2. open router cli and type

```
enable
configure terminal

interface gigabitEthernet0/0
no shutdown
exit

interface gigabitEthernet0/1
no shutdown
exit
```

3. assigned ip addresses to each end device

4. performed communication between the 2

```
C:\>ping 192.168.1.2

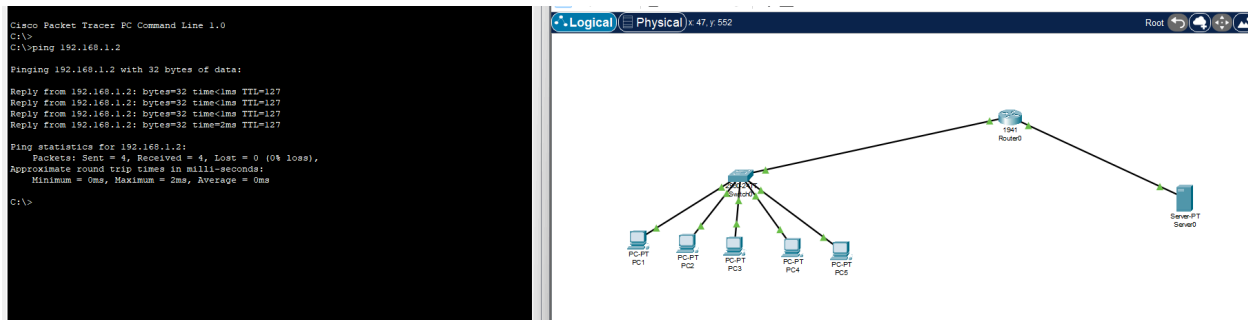
Pinging 192.168.1.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time=1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127

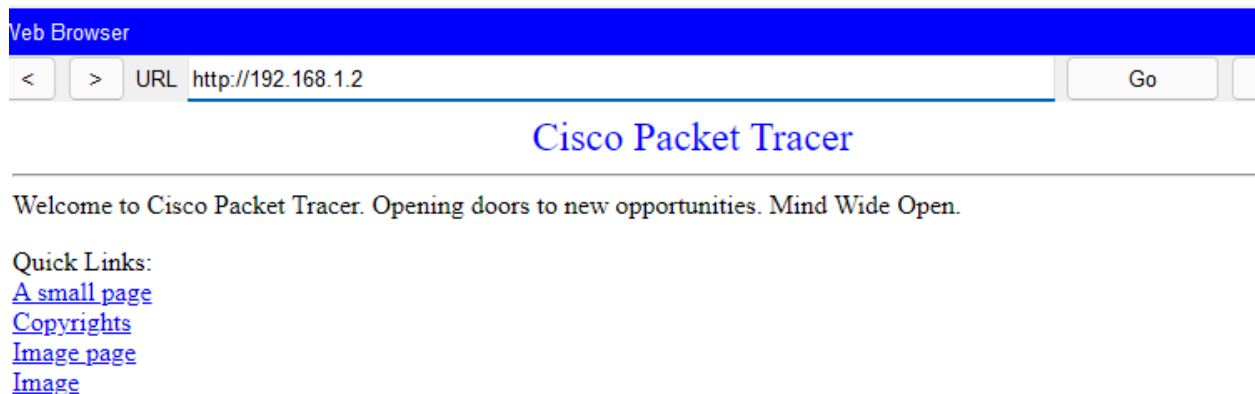
Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>|
```

- multiple end devices were connected to simulate an access network  
switch - aggregates the user traffic  
central router - msc  
successful end-to-end delivery



- I enabled http service the server and opened the web browser of pc3 and searched up the dns  
`http://192.168.1.2` and this was the result



- normal traffic is generated

- very few PCs (1)
- single http request
- no congestion
- no packet drops
- low delay

checkpoint:

- ping : network layer connectivity works
- http: transport layer and application layer connectivity works

8. started making the dataset

9. dataset structure

- scenario\_id
- active\_pcs
- traffic\_type
- traffic\_intensity
- avg\_delay
- packet\_loss
- throughput
- label

10. the dataset is created by observing packet behavior in simulation mode

Example- this is the simulation for the 1st scenario (pc3 - http - server)

Simulation Panel

Event List

Vis.	Time(sec)	Last Device
	150.073	--
	150.074	PC3
	150.075	Switch0
	150.076	Router0
	150.077	Server0
	150.078	Router0
	150.079	Switch0
	150.079	--

Reset Simulation ☒ Constant Delay Captured to: 150.079 s

Play Controls

Event List Filters - Visible Events  
HTTP, ICMP, ICMPv6, TCP

Edit Filters Show All/None

- there hasn't been any packet loss since the data goes from pc3-router- server and server-router-pcs
- and due to the constant time we can also see that there is no delay