

# NETWORK FUNDAMENTALS

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BY

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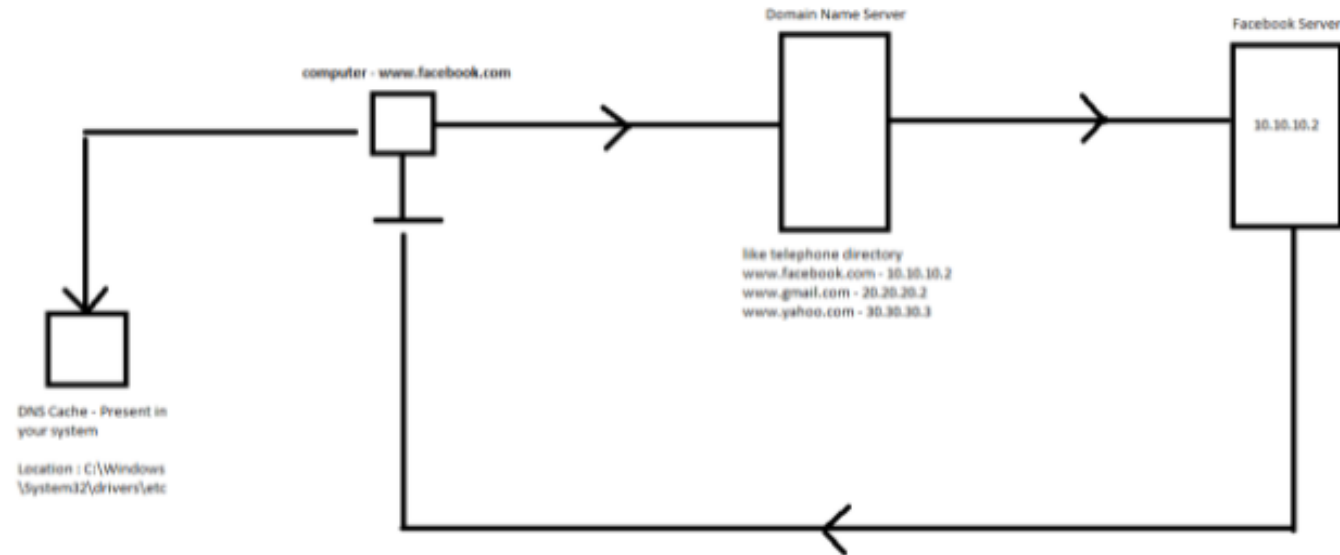
## DNS - DOMAIN NAME SERVER/SYSTEM

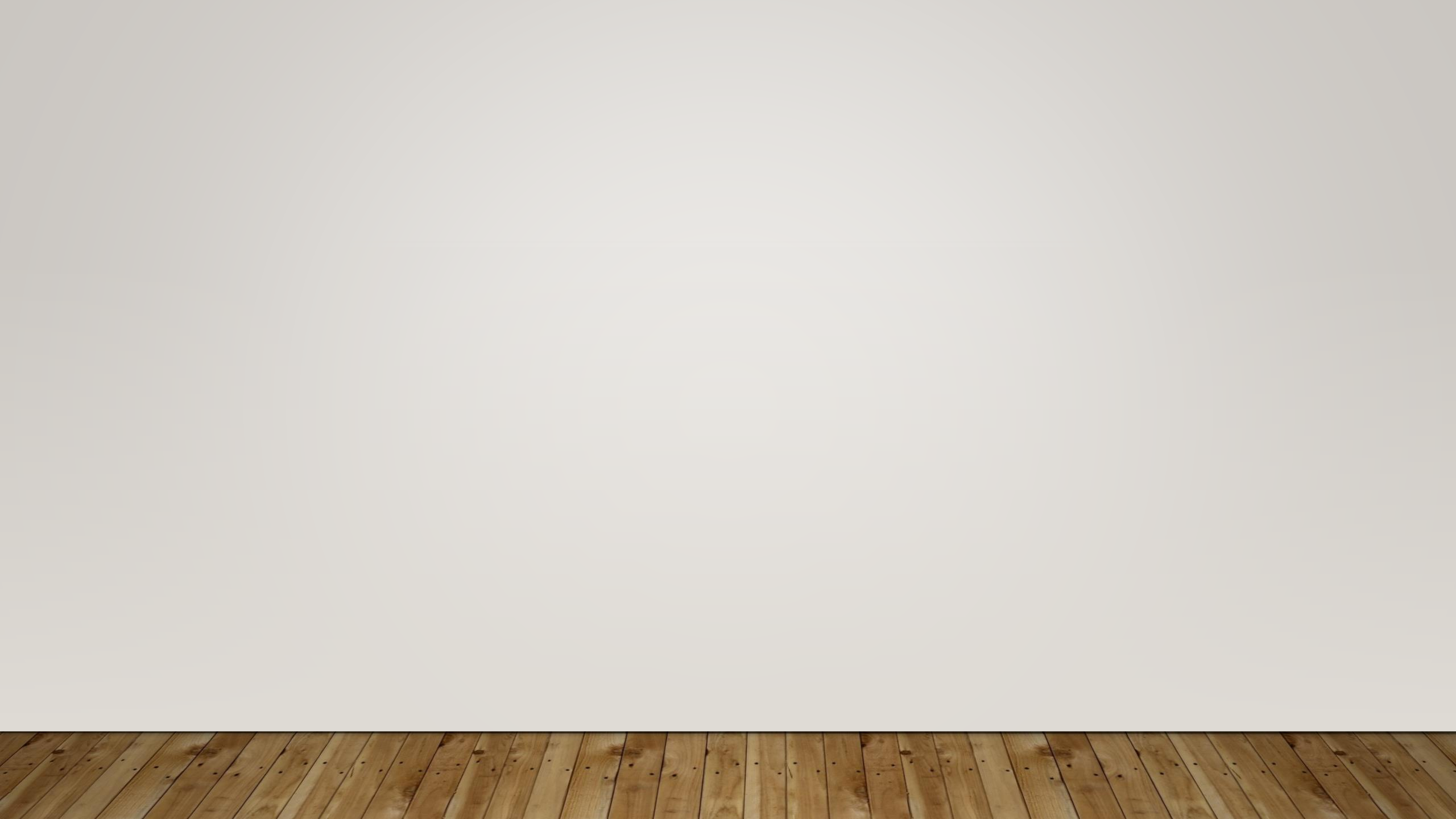
[www.facebook.com](http://www.facebook.com) - url or domain name

For every domain name there is an IP - 19.1.10.2

Do we use domain name or IP? - We use domain name. Not IP.

Function of DNS : CONverting domain name into IP Address.





## **DHCP - DYNAMIC HOST CONFIGURATION PROTOCOL**

if we need to change ip of our computer  
adapter settings - ip configuration  
Or ncpa.cpl

- A. obtain automatically - Dynamic
- B. use the below ip - Static

If we go for the first option A. and save the config and restart ur computer.  
When computer restarts and login, whether ur computer will have ip assigned or not. NO

IP will be assigned only after completion of DORA Process

How to access ur wifi modem from ur computer?  
ur computer ip is 192.168.1.2

Login to any modem and check the following

1. DHCP SERVER - on / off

dhcp scope - 192.168.1.\_\_ to 192.168.1.\_\_

dhcp lease time

dhcp reservations

Lease time is the time period for which a particular mac address is linked to an ip address. usually in minutes.

Scenario 1 - we have 50 ip in our dhcp server.our lan has 10 computers

our comp ip is 192.168.1.8, even if our lease time expires, we will have the same ip assigned

Scenario 2 - suddenly our lan has 45 computer logged in.and our comp is powered off(192.168.1.8), now when we power on our computer, even if lease time is not over, our ip will change.

incase if u want to change ip manually, use the following commmand

```
> ipconfig /release
```

```
> ipconfig /renew
```

DHCP Reservations - reserving ip for special computers or servers  
if we have 2 servers, for which we dont want the ip to change.

hence ill choose my reservation range in my dhcp server

Reservation range - 192.168.1.1 - 192.168.1.3

so the first computer wil get 192.168.1.4.

## Wireless Options

SSID

BSSID

FREQUENCY

CHANNEL

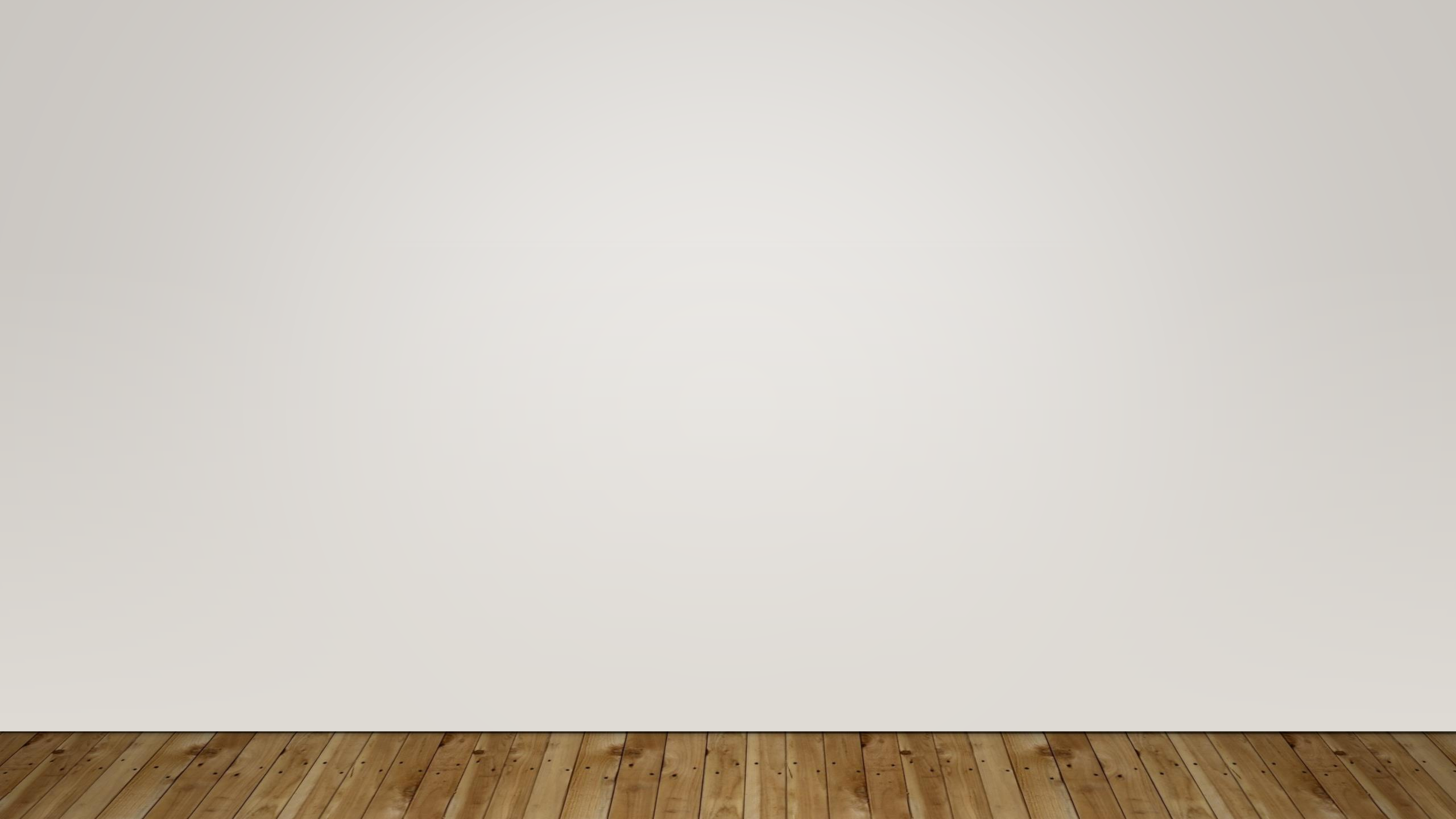
SECURITY - WEP, WPA, WPA2

AUTHENTICATION - AES, TKIP

## ADMIN / MAINTENANCE

find option to change default username and password for modem

(admin - admin, admin - password, admin - )

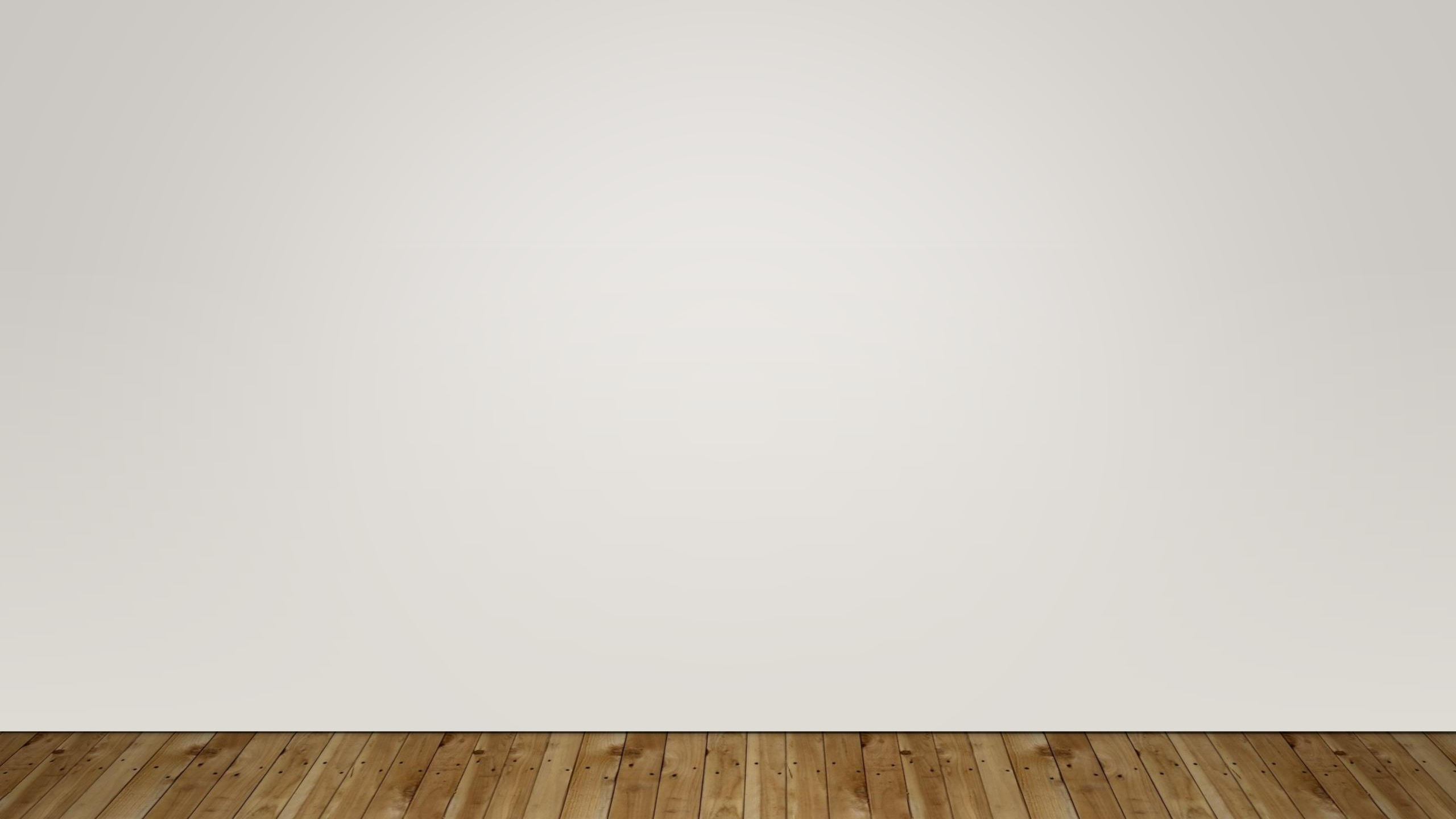




# NAT

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- NETWORK ADDRESS TRANSLATION
- Its a default occurrence in our LAN (Private ip to public ip)
- Also configured for security reasons - to mask or hide or server ip



# NAT

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- NAT is also configured for LOAD BALANCING
- load balancing is done for any company which has more number of servers. A load Balancer can split the traffic uniformly among available servers, so that server overload can be prevented
- Example of Load Balancer is F5 Load balancer
- The main objective of configuring NAT is - When someone pings our server, our server should not directly reply to them instead, a different ip address should reply.
- Ex: When we ping google.com, we get a reply from google.co.in

# NAT

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- Steps to configure NAT
- #IP NAT INSIDE SOURCE STATIC (ACTUAL IP) (CONVERTED IP)
- #INTERFACE FAST ETHERNET (NUMBER)
- #IP NAT INSIDE
- #INTERFACE SERIAL (NUMBER)
- #IP NAT OUTSIDE

# NAT

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- Config PT
- 1.Router A & B - static routing
- 2.Verify - 192.168.1.2 --> 10.0.0.2
- reply from 10.0.0.2
- 3.Configure NAT
- 4. Repeat Step 2
- Reply from 200.1.1.2