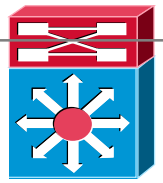
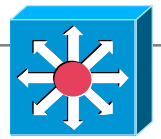
사내망 구축 모델

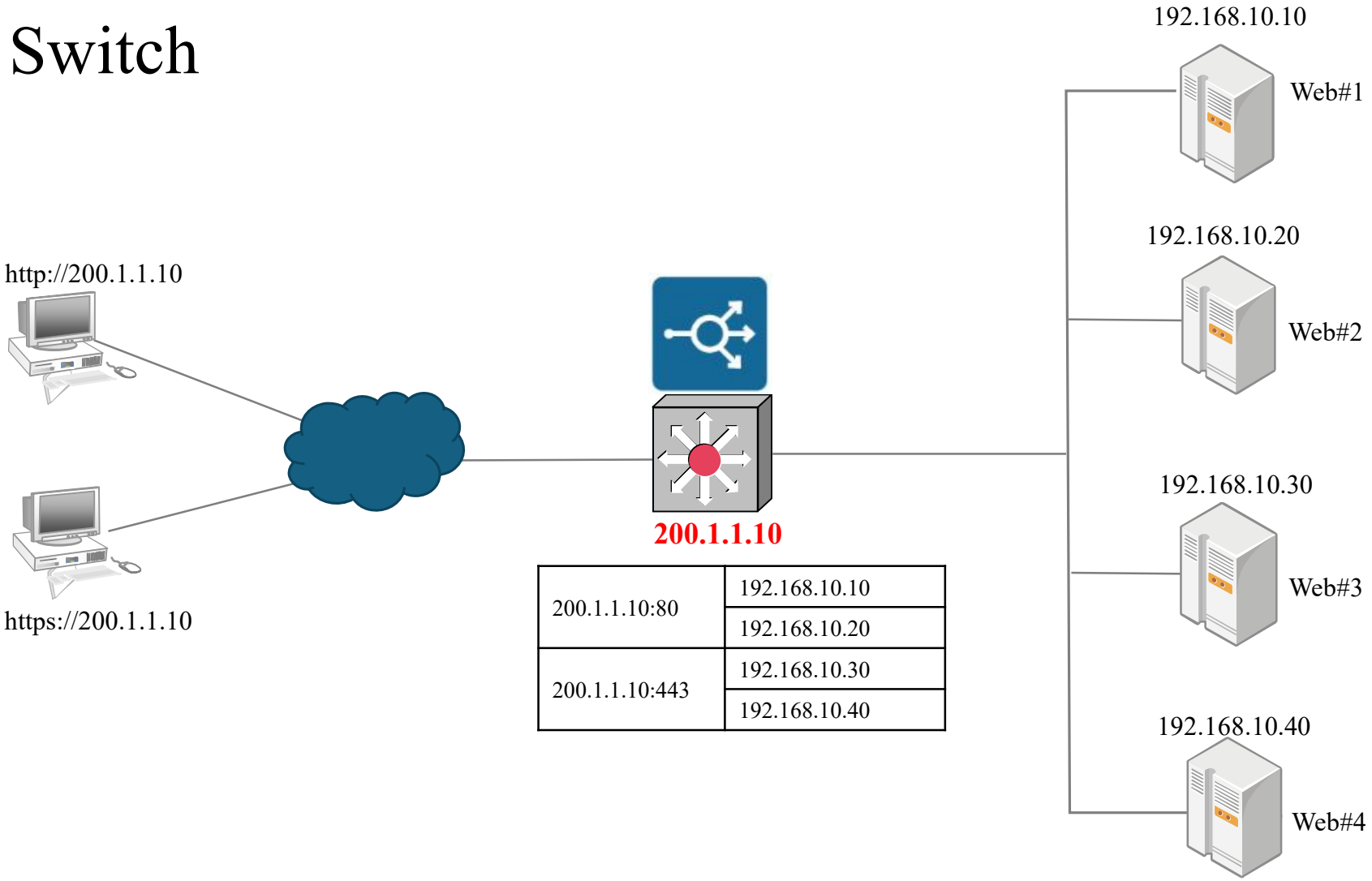
1) 다계층 스위치 (Multilayer Switch)

구분	L2 Switch	L3 Switch	L4 Switch	L7 Switch
OSI 7계층	2계층	3계층	4계층	7계층
기반주소	MAC Address	IP address	IP address Port Number	IP address Port Number Text
기능	Switching - Learning - Forwarding - Filtering	Switching Routing	L3 Switch Load Balance	L4 Switch Security
주요 용도	Frame 전송	Packet 전송	FLB SLB	FLB SLB Security



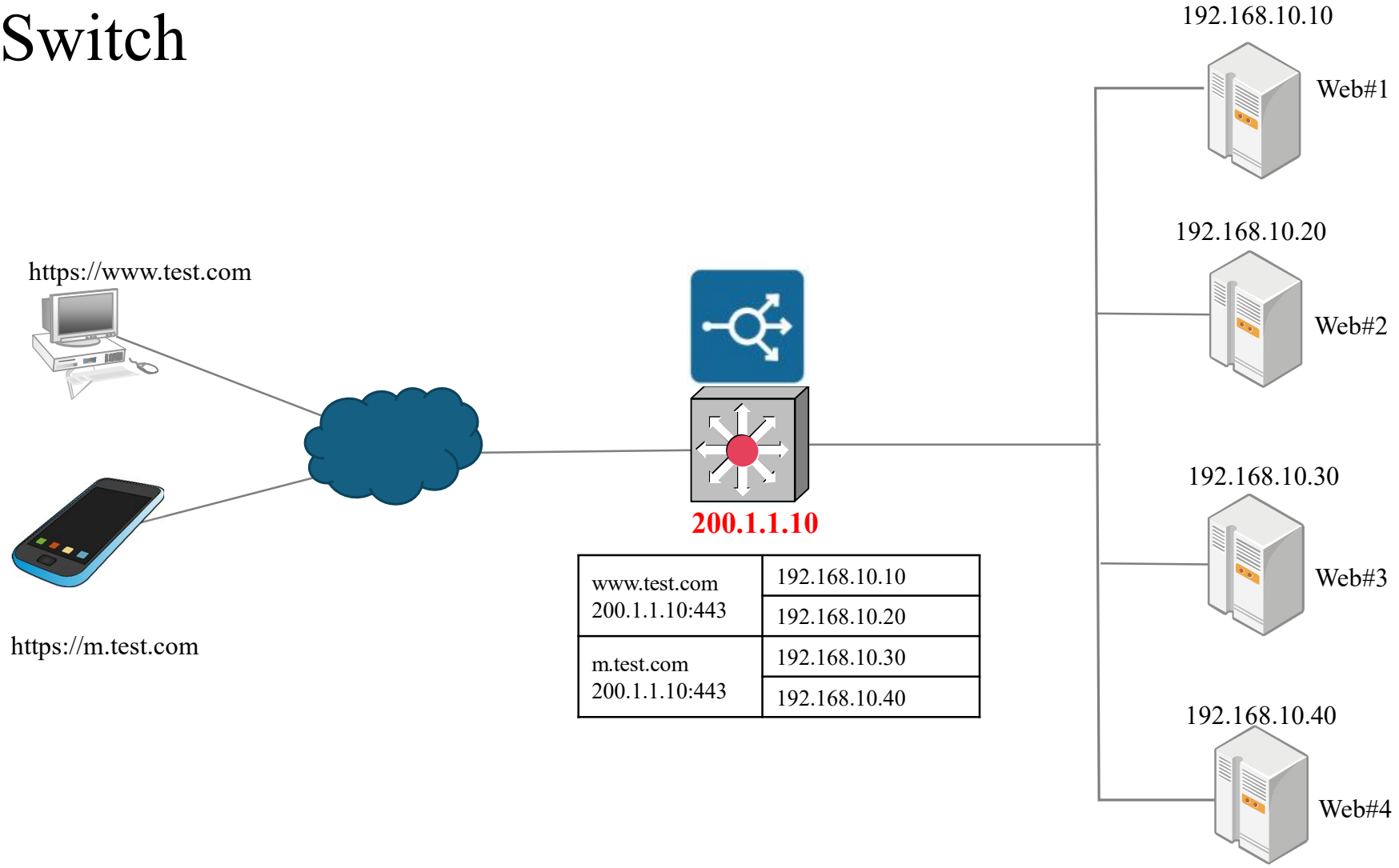


L4 Switch



200.1.1.10:80	192.168.10.10
	192.168.10.20
200.1.1.10:443	192.168.10.30
	192.168.10.40

L7 Switch


192.168.10.10
Web#1
192.168.10.20
Web#2
192.168.10.30
Web#3
192.168.10.40
Web#4
https://www.test.com
https://m.test.com
200.1.1.10
www.test.com
200.1.1.10:443
m.test.com
200.1.1.10:443
192.168.10.10
192.168.10.20
192.168.10.30
192.168.10.40

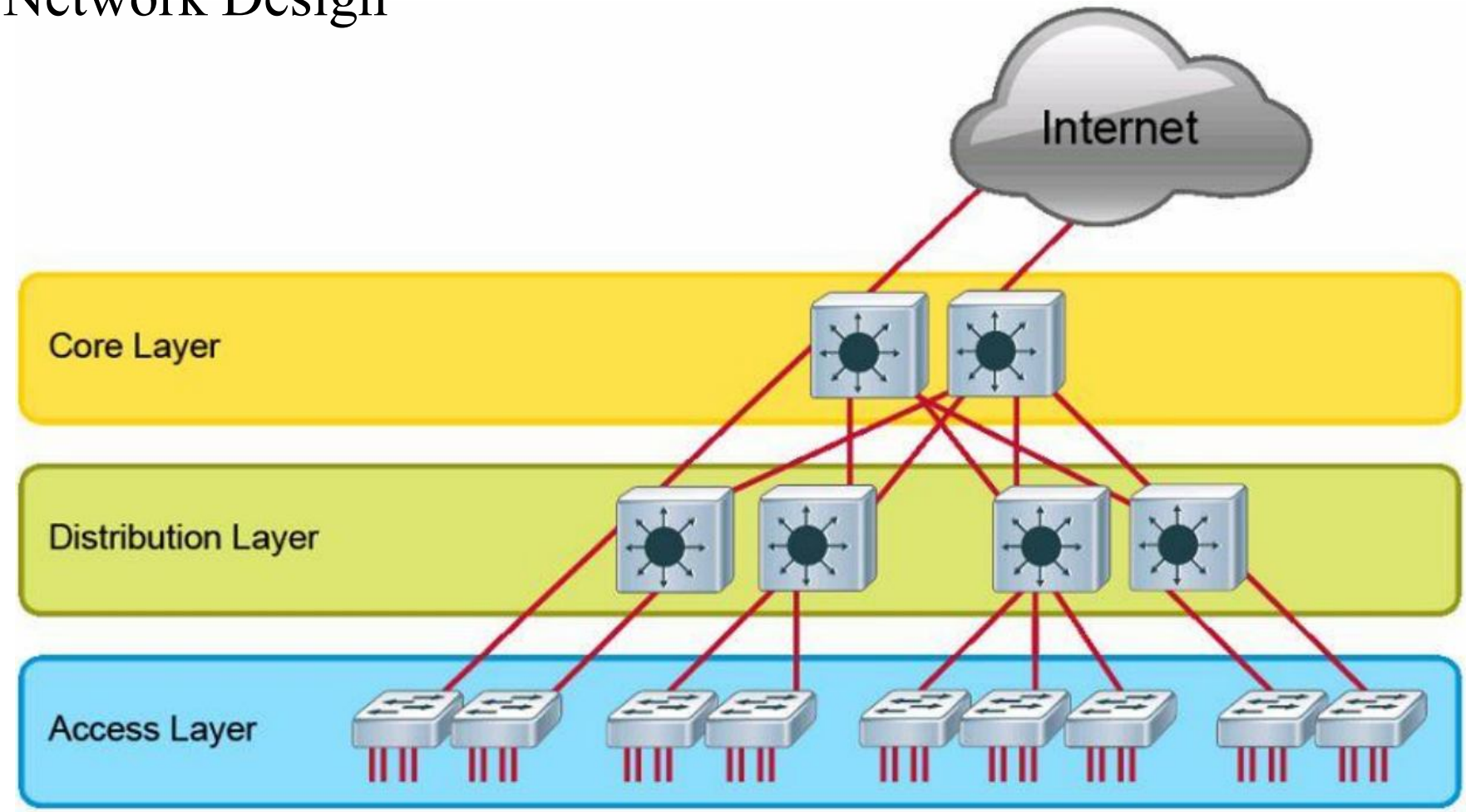
2) Network Hierarchical Diagram

- Access Layer(액세스 계층)
  - PC나 서버와 같은 ES(End System)들을 네트워크에 연결
  - 종단 사용자들의 네트워크 접속점
  - PC나 서버들은 100m 안에서 액세스 계층 장비들과 연결

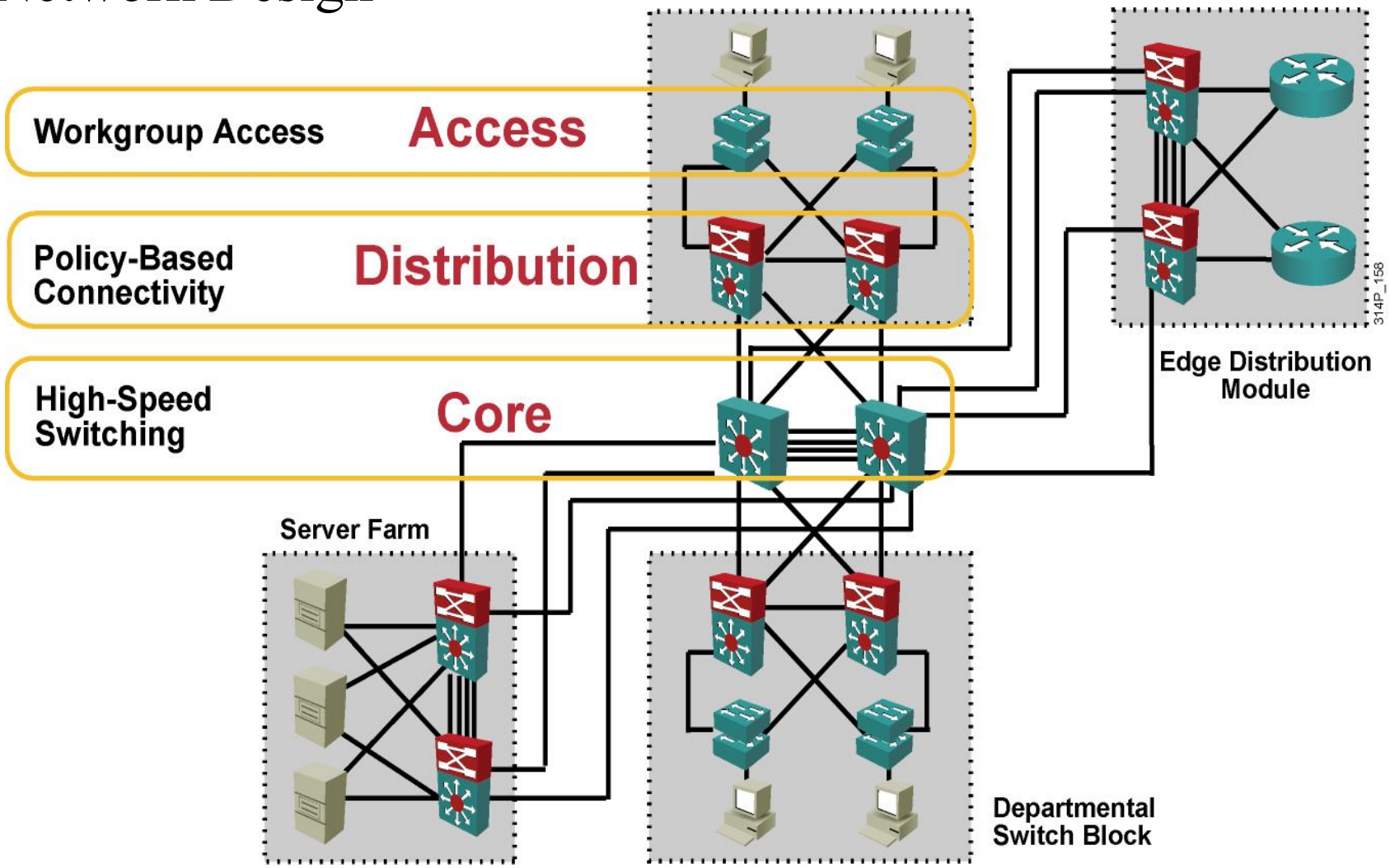
- Distribution Layer(디스트리뷰션 계층)
  - 액세스 계층의 집합점
  - 경로지정(라우팅)
  - Media Translation와 보안 적용지점

- Core Layer(코어계층)
  - 디스트리뷰션 계층의 집합점
  - 패킷 가공 없음
  - 빠른 전송

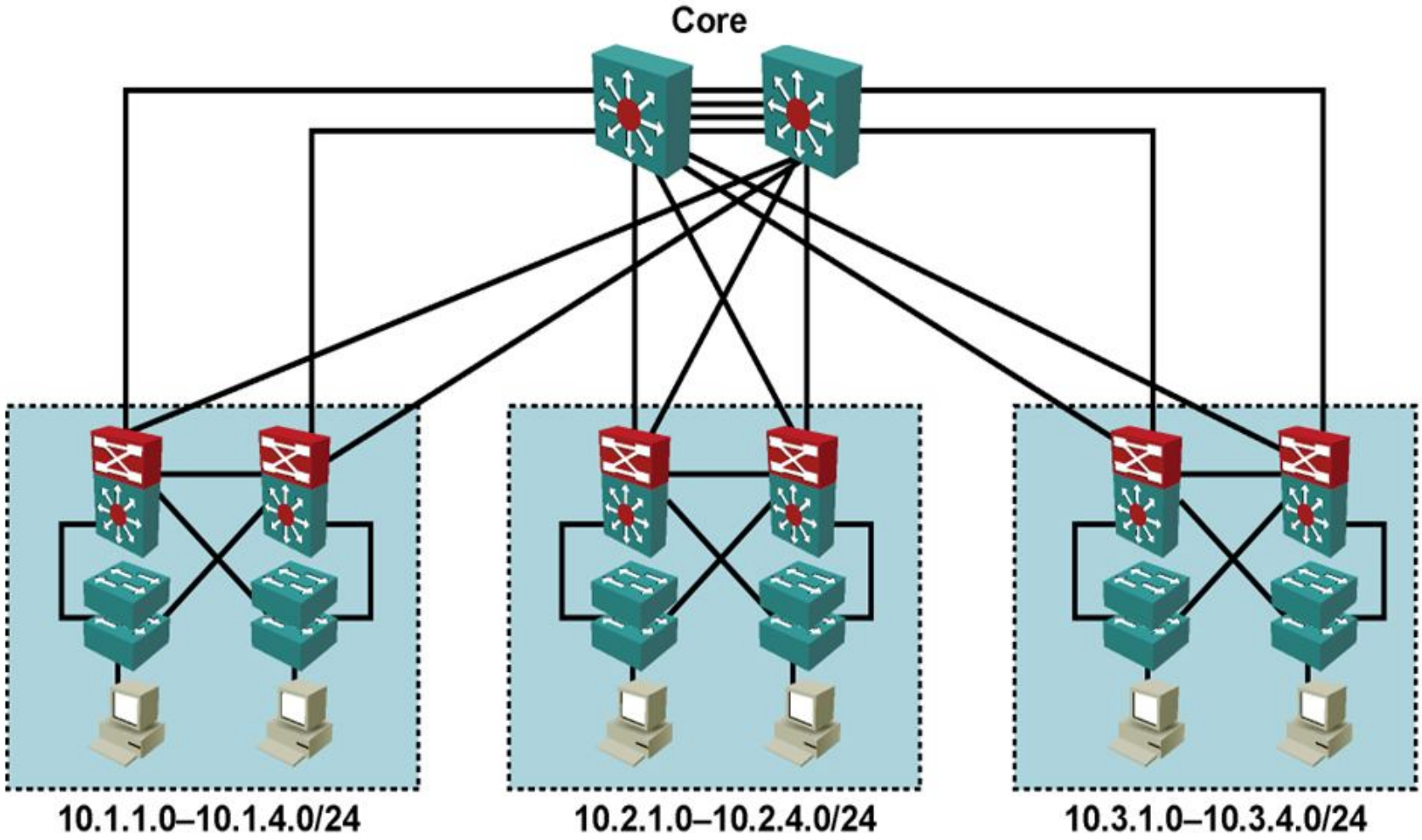
❶ Network Design



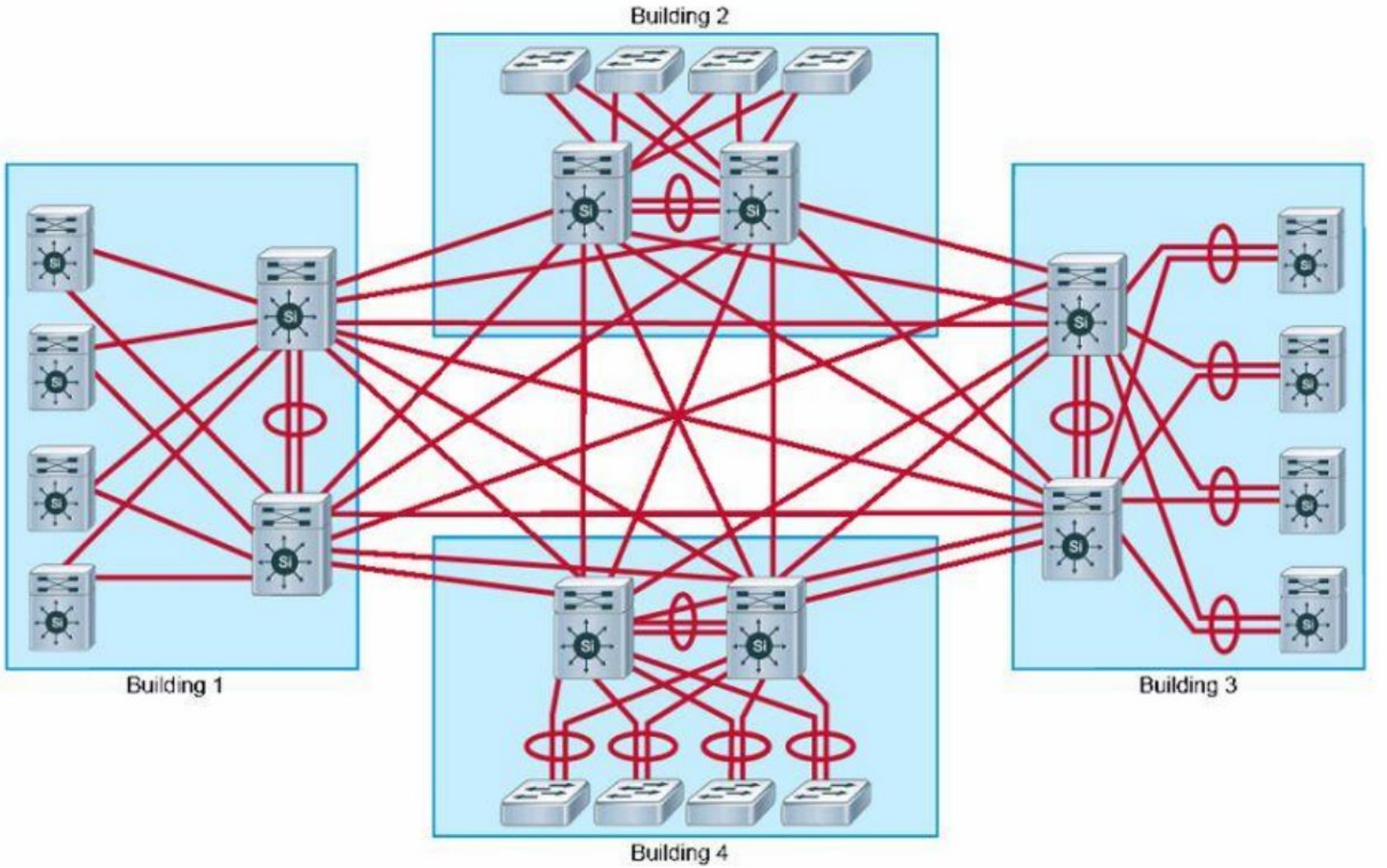
❷ Network Design



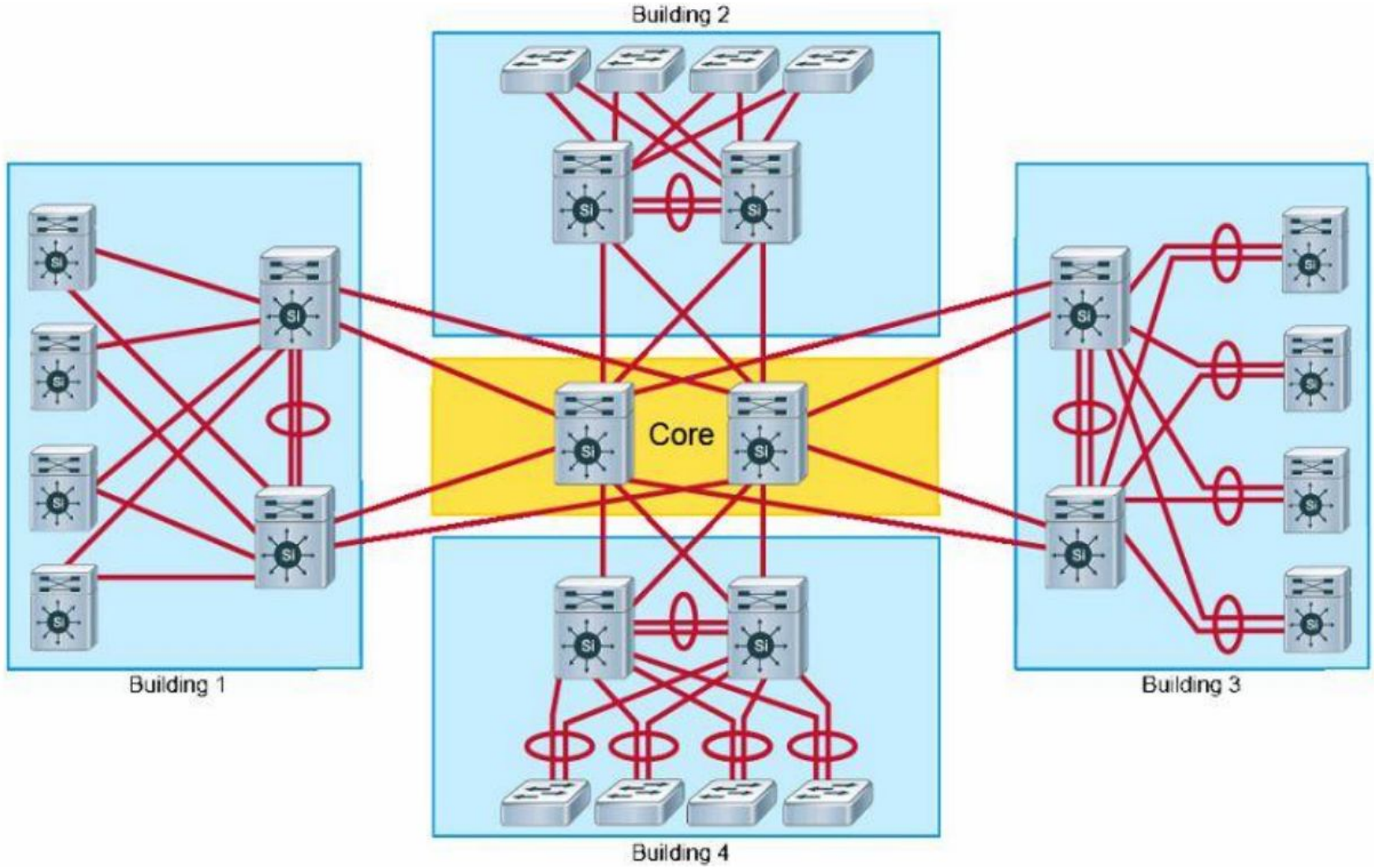
❸ Network Design



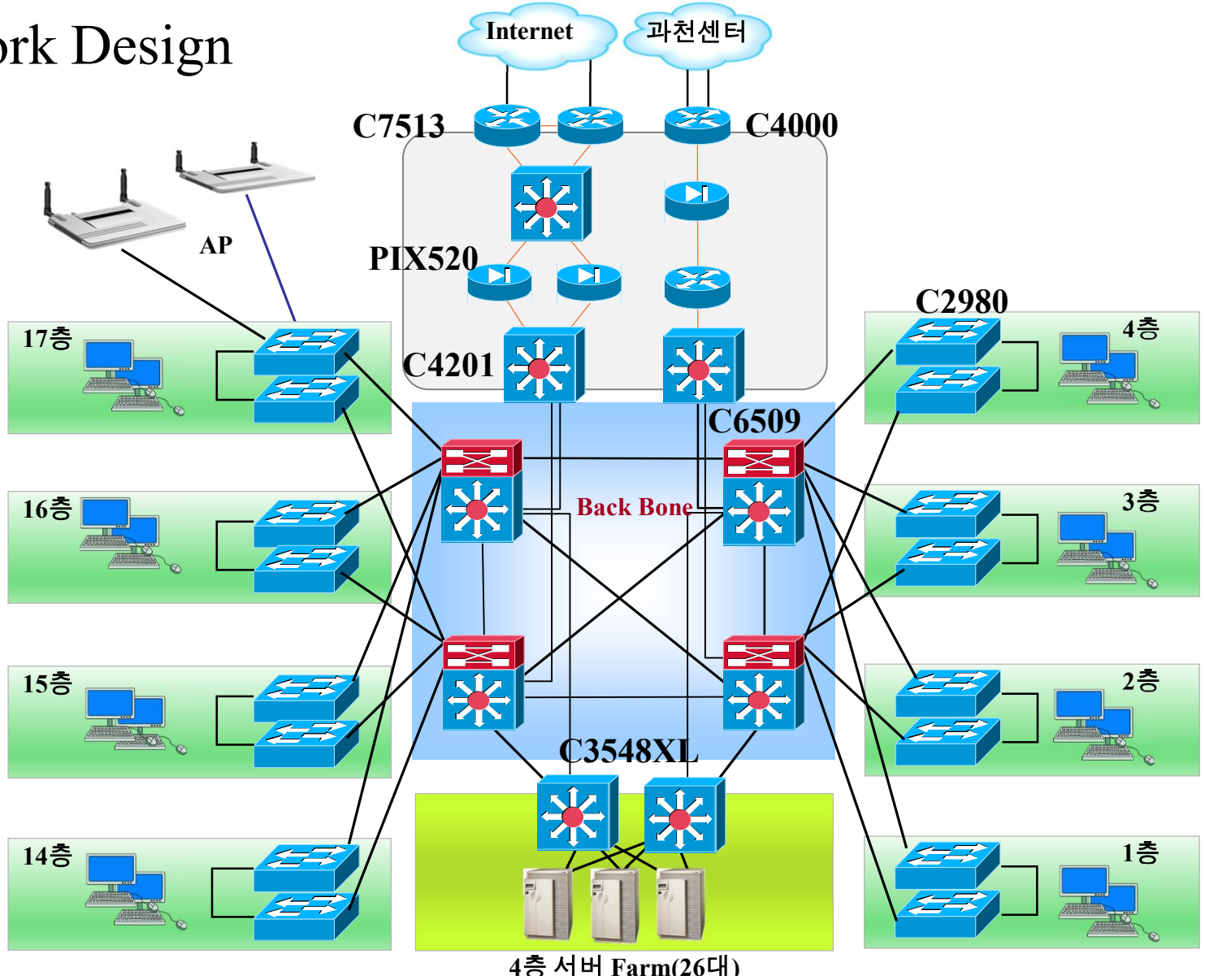
❹ Network Design



❺ Network Design

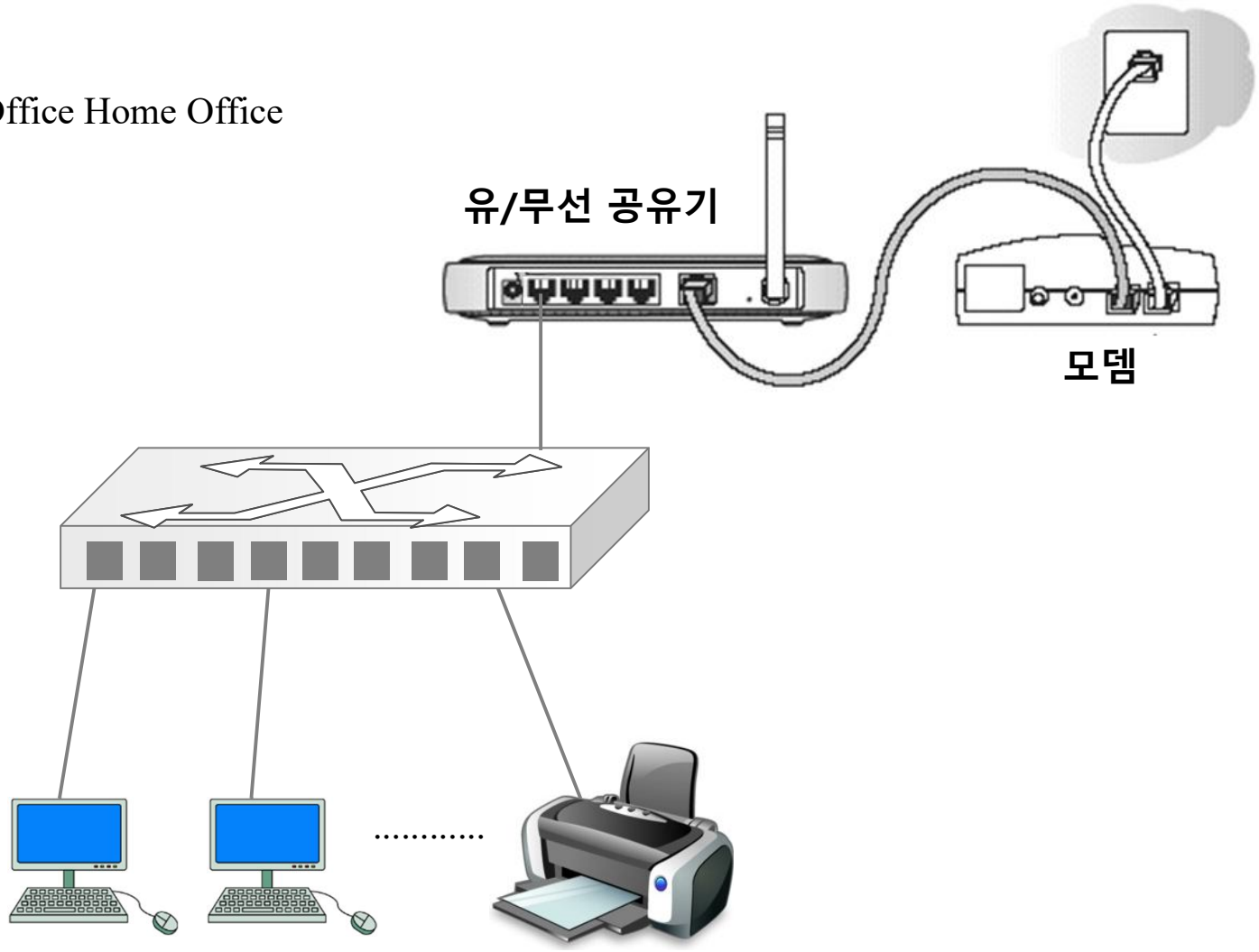


❻ Network Design

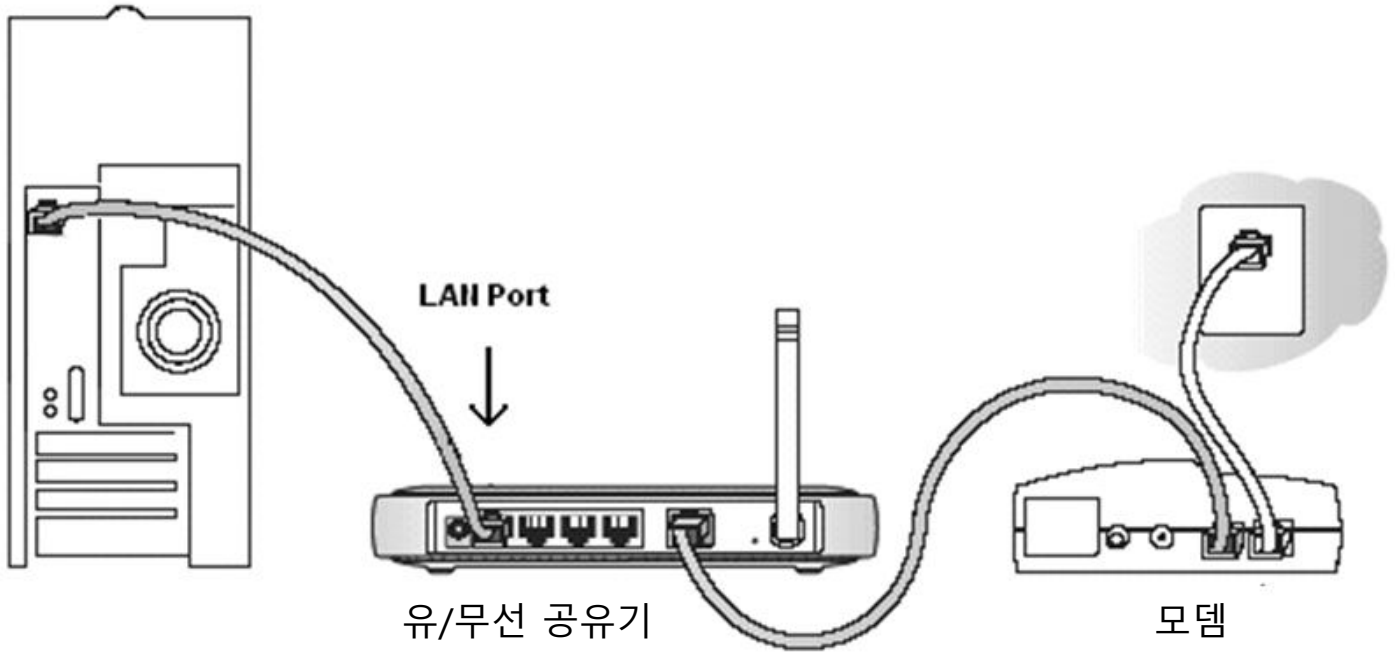


❼ Network Design

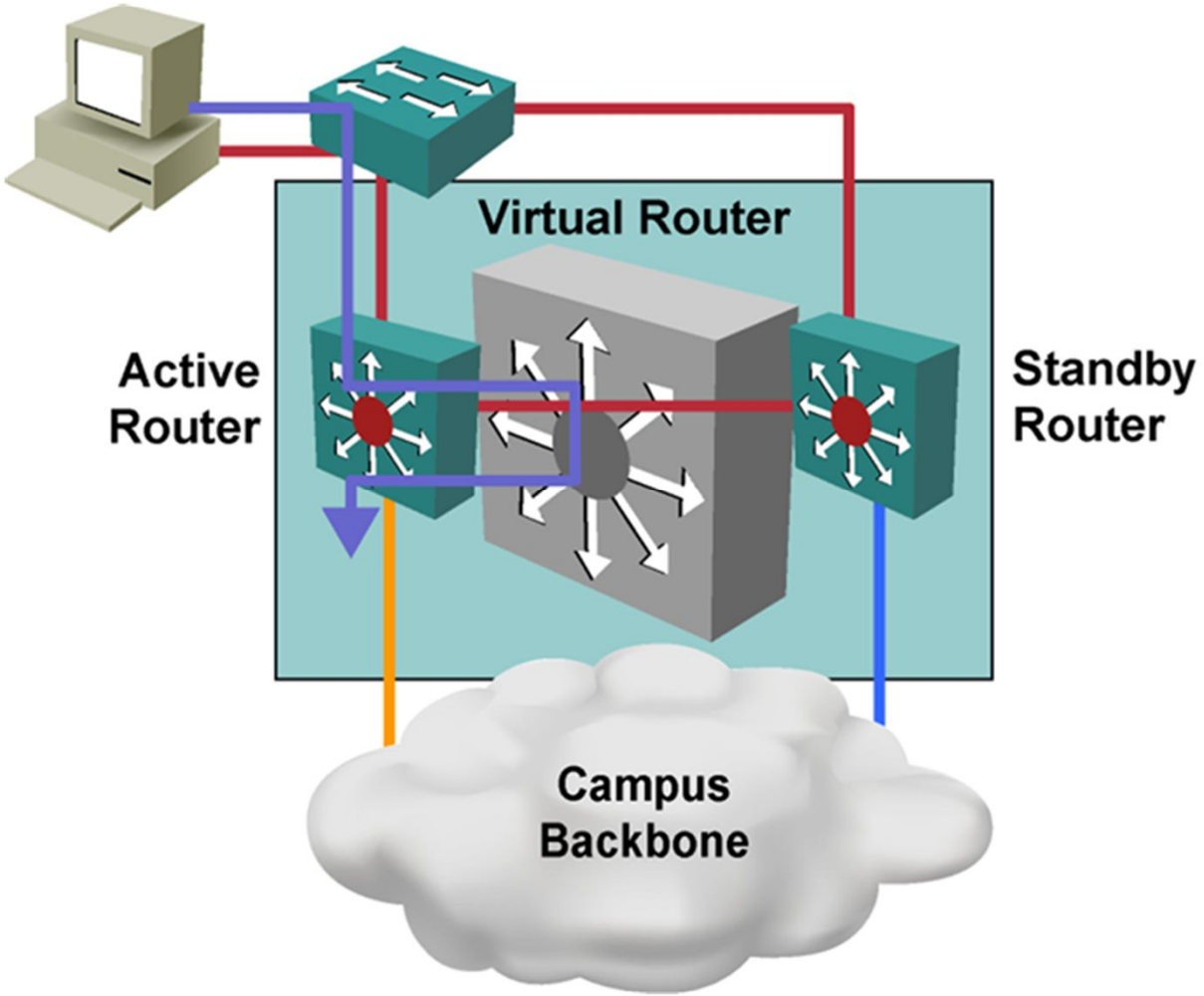
* Small Office Home Office



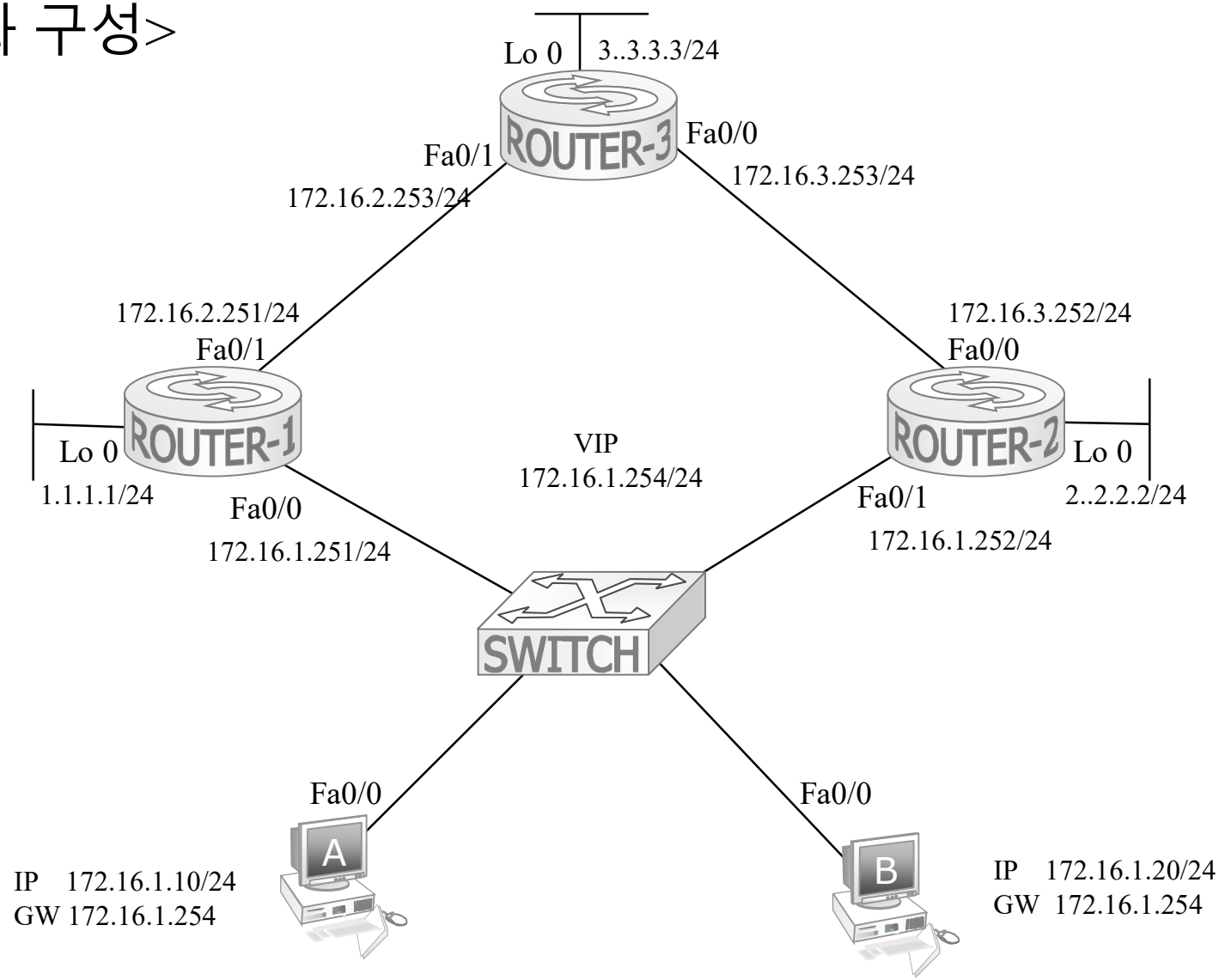
❽ Network Design



<게이트웨이 이중화 구성>


Virtual Router
Active
Router
Standby
Router
Campus
Backbone

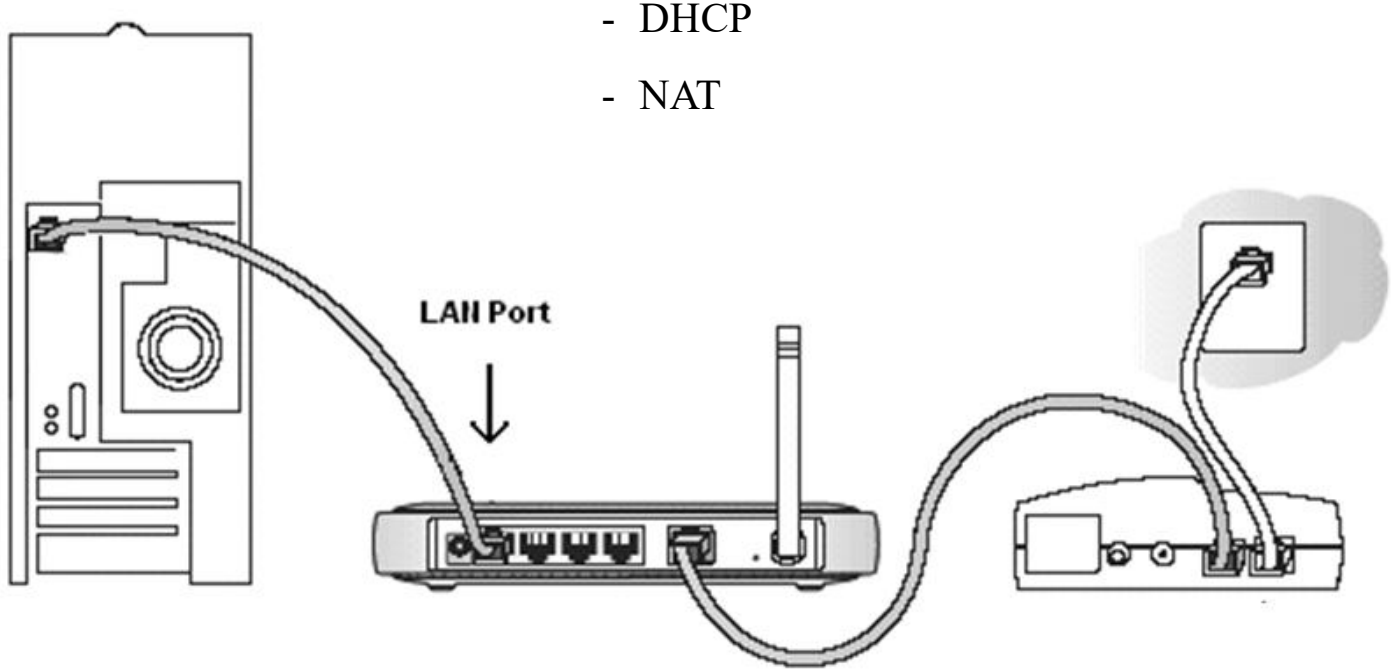
<게이트웨이 이중화 구성>


Lo 0
3..3.3.3/24
ROUTER-3
Fa0/1
172.16.2.253/24
Fa0/0
172.16.3.253/24
172.16.2.251/24
Fa0/1
ROUTER-1
Lo 0
1.1.1.1/24
Fa0/0
172.16.1.251/24
VIP
172.16.1.254/24
172.16.3.252/24
Fa0/0
ROUTER-2
Lo 0
2..2.2.2/24
Fa0/1
172.16.1.252/24
SWITCH
Fa0/0
A
IP 172.16.1.10/24
GW 172.16.1.254
Fa0/0
B
IP 172.16.1.20/24
GW 172.16.1.254

NAT(Network Address Translation)

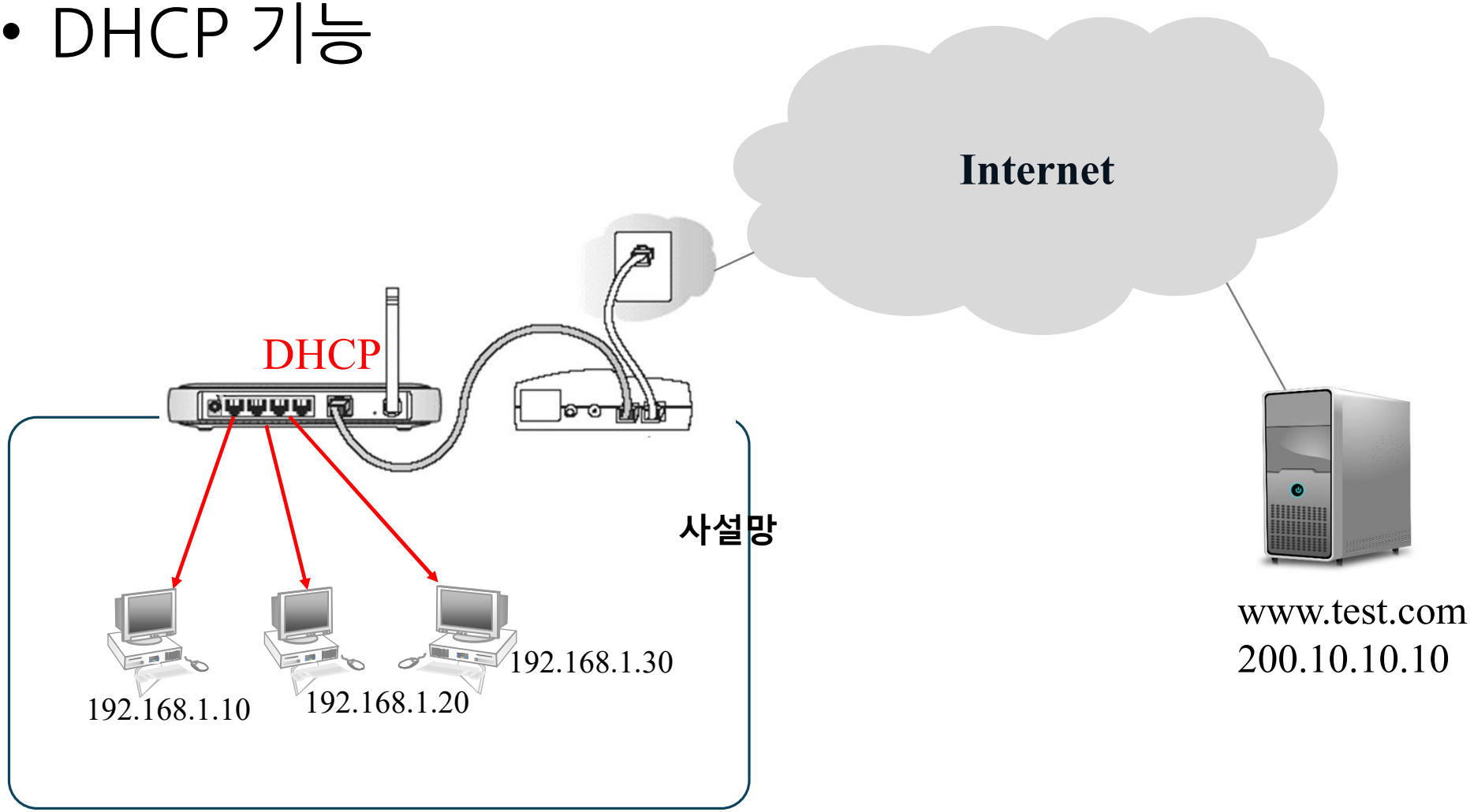
SoHo(Small office/home office) Network

- 공유기 기능
  - Routing
  - DHCP
  - NAT



❶ 컴퓨터 ❷ 유/무선 공유기 ❸ 모뎀

- DHCP 기능

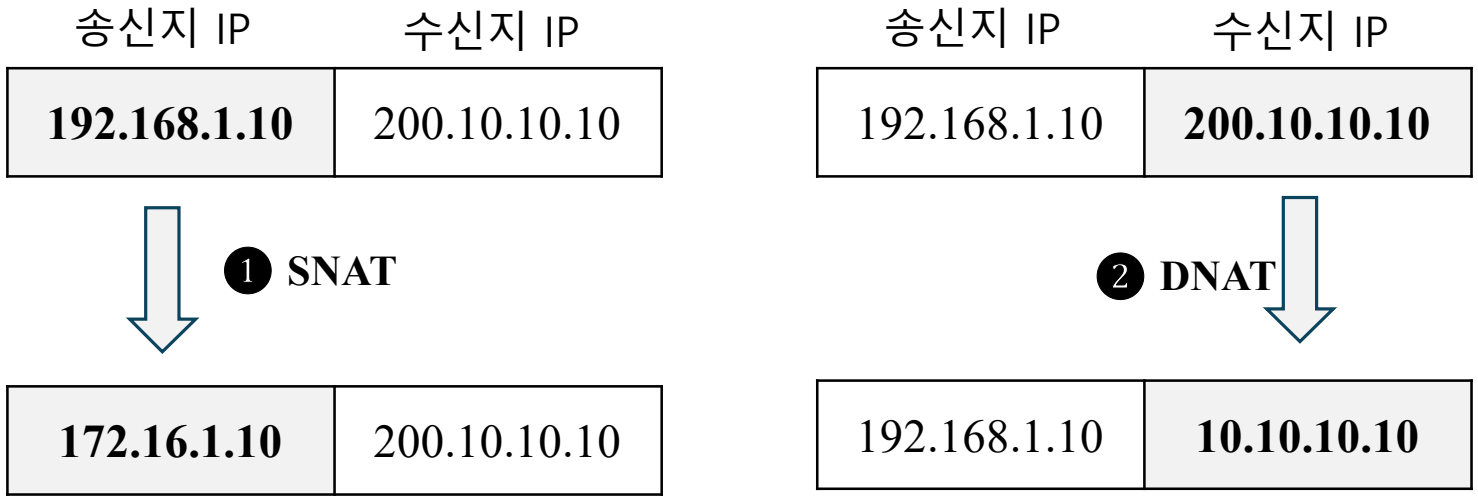

Internet
DHCP
사설망
192.168.1.10
192.168.1.20
192.168.1.30
www.test.com
200.10.10.10

- NAT 기능

  - 네트워크 주소 변환 (Network Address Translation)

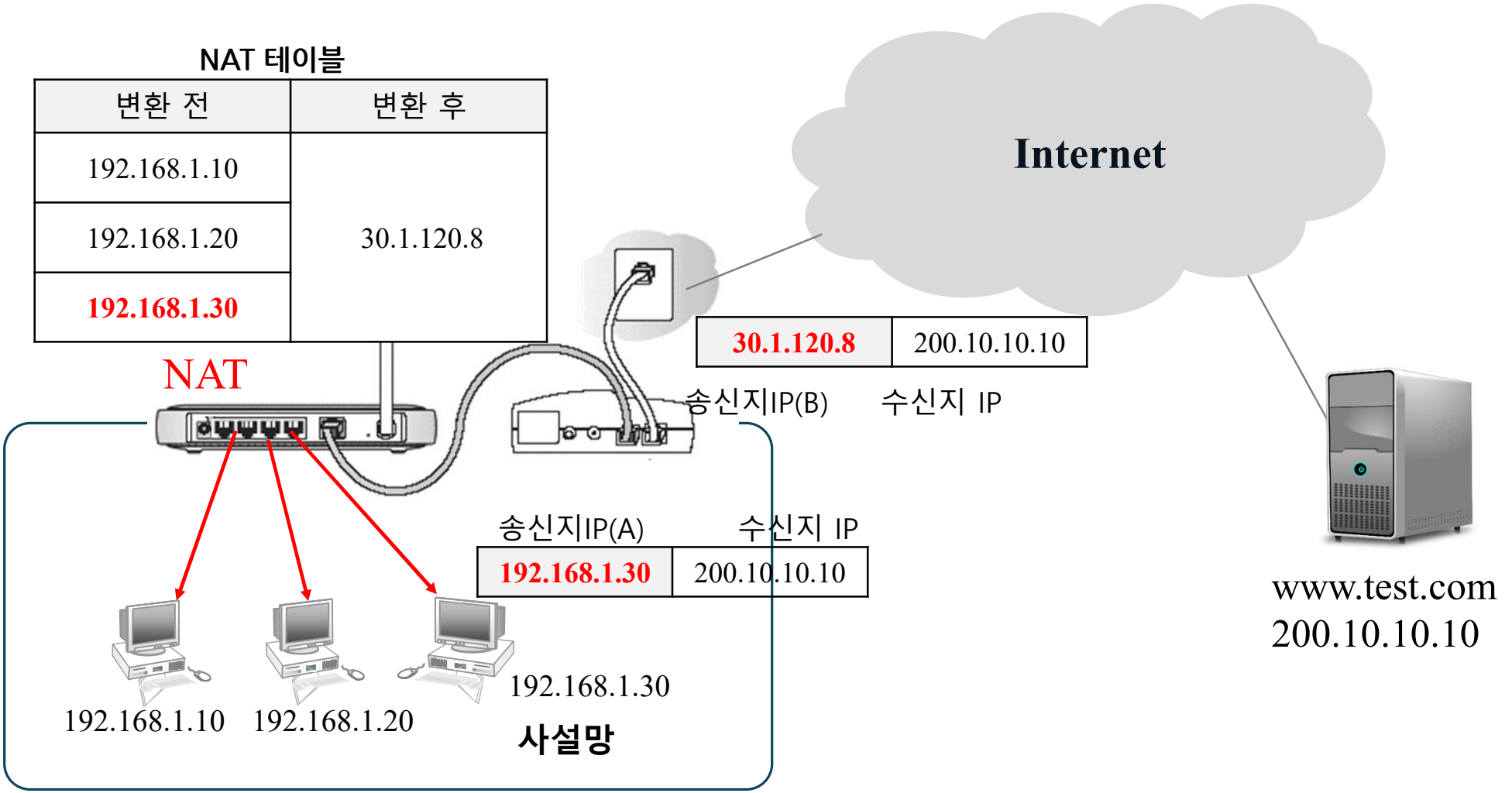
  - 송신지 또는 수신지 IP address를 다른 주소로 변환

  - Source NAT(SNAT)와 Destination NAT(DNAT)

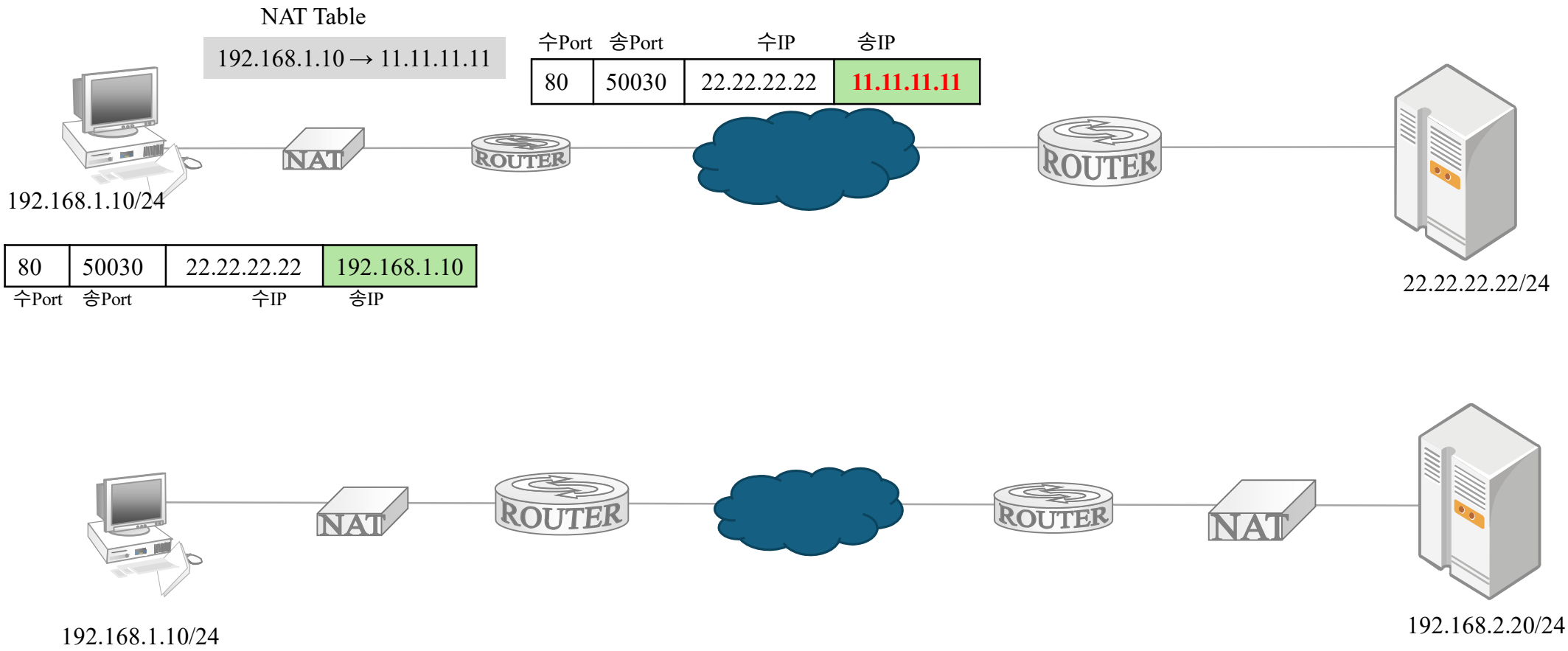


NAT 테이블

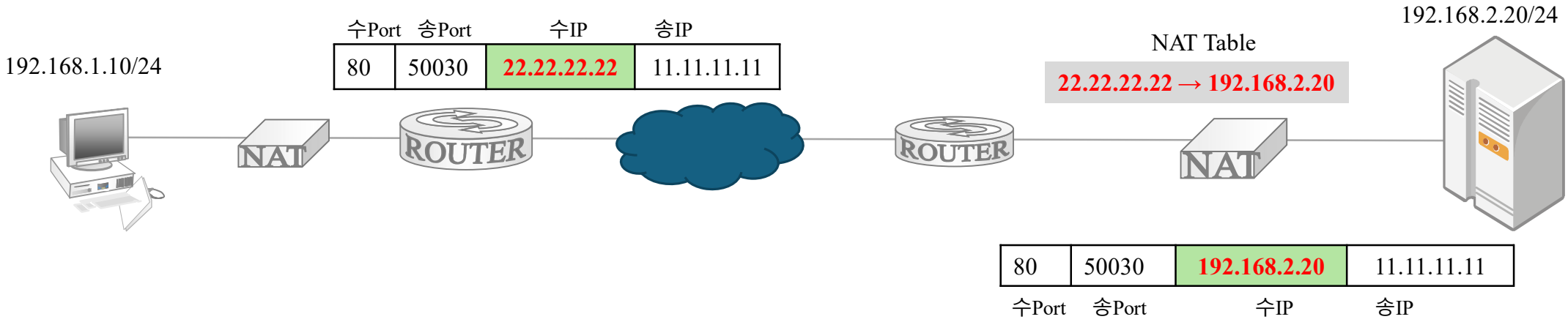
변환 전	변환 후
192.168.1.10	30.1.120.8
192.168.1.20	
192.168.1.30	



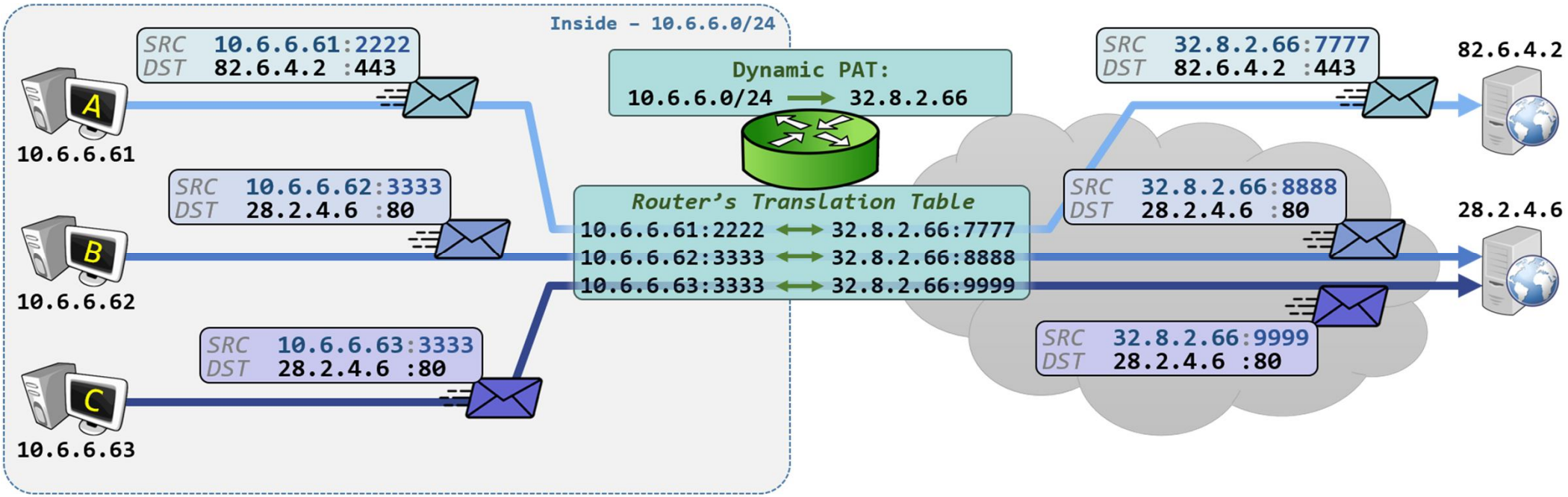
Source NAT

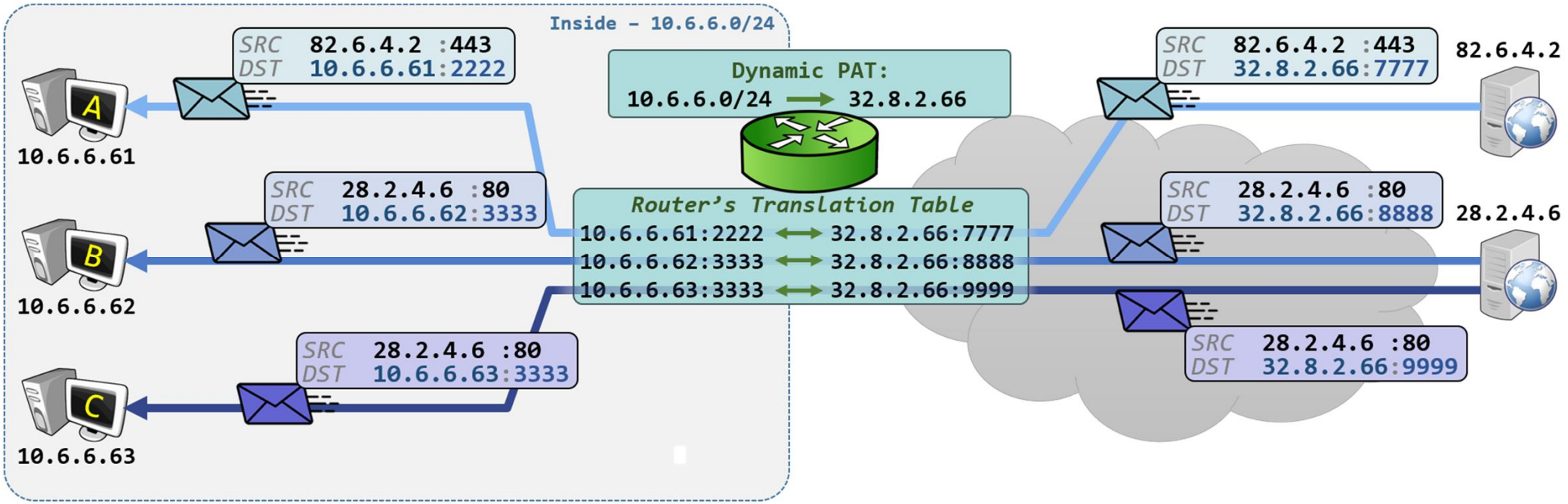

NAT Table
192.168.1.10 → 11.11.11.11
수Port 송Port 수IP 송IP
80 50030 22.22.22.22 11.11.11.11
NAT
ROUTER
ROUTER
192.168.1.10/24
22.22.22.22/24
80 50030 22.22.22.22 192.168.1.10
수Port 송Port 수IP 송IP
NAT
ROUTER
ROUTER
NAT
192.168.1.10/24
192.168.2.20/24

Destination NAT



PAT(Port Address Translation)





SPort	DPort	SIP	DIP

SPort	DPort	SIP	DIP

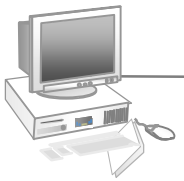
Port Mapping (Port Forwarding)

수Port	송Port	수IP	송IP
80	50010	200.1.1.10	10.10.10.10

수Port	송Port	수IP	송IP
5000	50010	192.168.1.10	10.10.10.10

HTTP
192.168.1.10:5000

http://200:1.1.10



10.10.10.10/24

<<Port Fording Table>>

외부주소	내부주소
200.1.1.10:**80**	**192.168.1.10:5000**
200.1.1.10:21	192.168.1.20:5001
200.1.1.10:3389	192.168.1.30:5002

FTP
192.168.1.20:5001

RDP
192.168.1.30:5002