BATCH : B107 **AWS DevOps**

LESSON : **Network**

DATE : 29.12.2022

SUBJECT : **Troubleshooting**

ZOOM GİRİŞLERİNİZİ LÜTFEN **LMS** SİSTEMİ ÜZERİNDEN YAPINIZ

Previous Session

Subnetting
CIDR

NETWORK Day 7

Contents

- Troubleshooting
- Hands-on Lab

What is a Network?

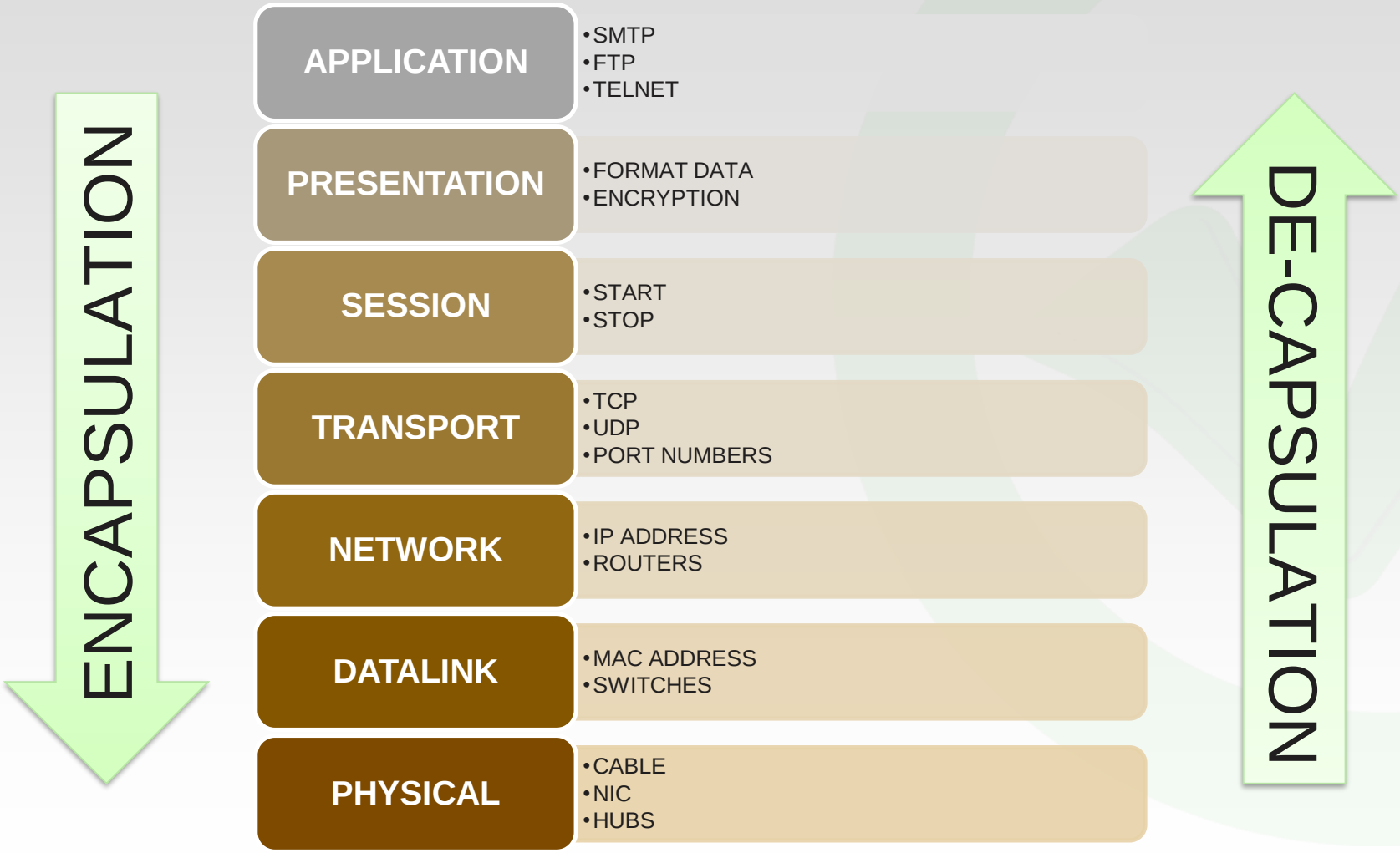
- A computer network is a group of computers that use a set of common communication protocols over digital inter-connections for the purpose of sharing resources located on or provided by the network nodes.

Types of Networks

Georaphical	Network Architecture	Topological	Transferring Mediums

• NANO
• BAN
• PAN
• LAN
• CAN
• MAN
• WAN
	• Client – Server
	• P2P
		• Ring
		• Star
		• Mesh
		• Bus
		• Line
			• Cable
			• Wireless
			  • RF
			  • Laser
			  • Microwaves

OSI Reference Model



Transmission Media

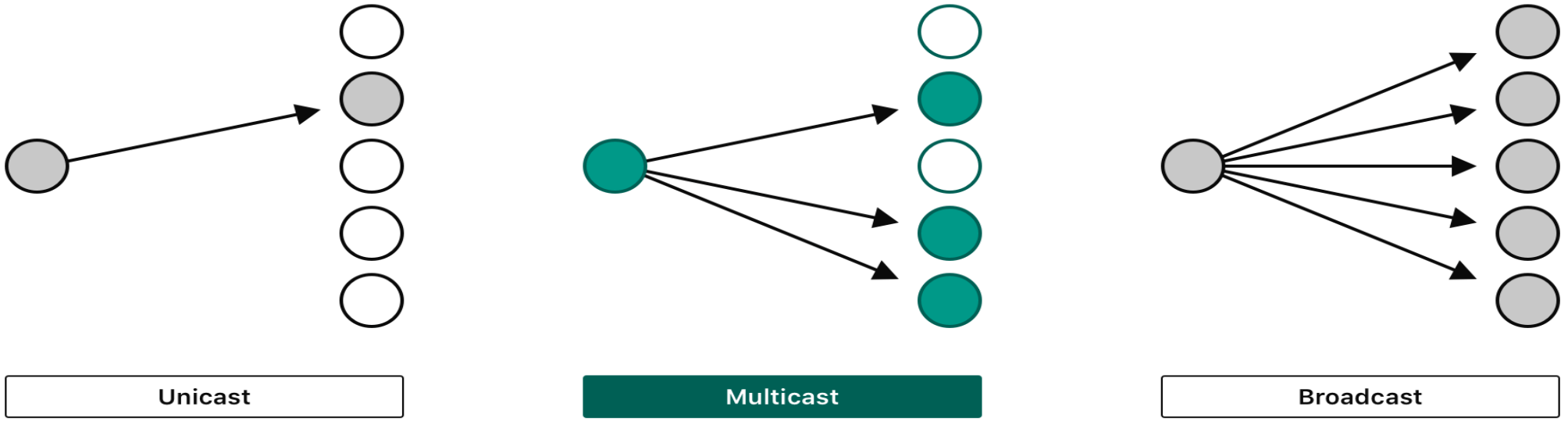
- Kablolu
  - Koaksiyel
  - Twisted pair(Burgulu Çift)
  - Fiber
- Kablosuz
  - Laser (WLAN)
  - Infrared (Bluetooth v.b)
  - Radyo Frekans (WLAN, Uydu Haberleşmesi)

Network Devices

- Network Interface Card (NIC)
- Hub
- Bridge
- Switch
- Router
- Firewall
- DNS
- DHCP
- Other specialized devices

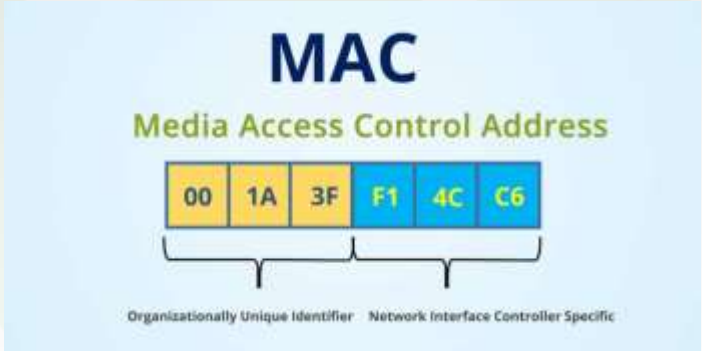
Data Transmission

Multicasting



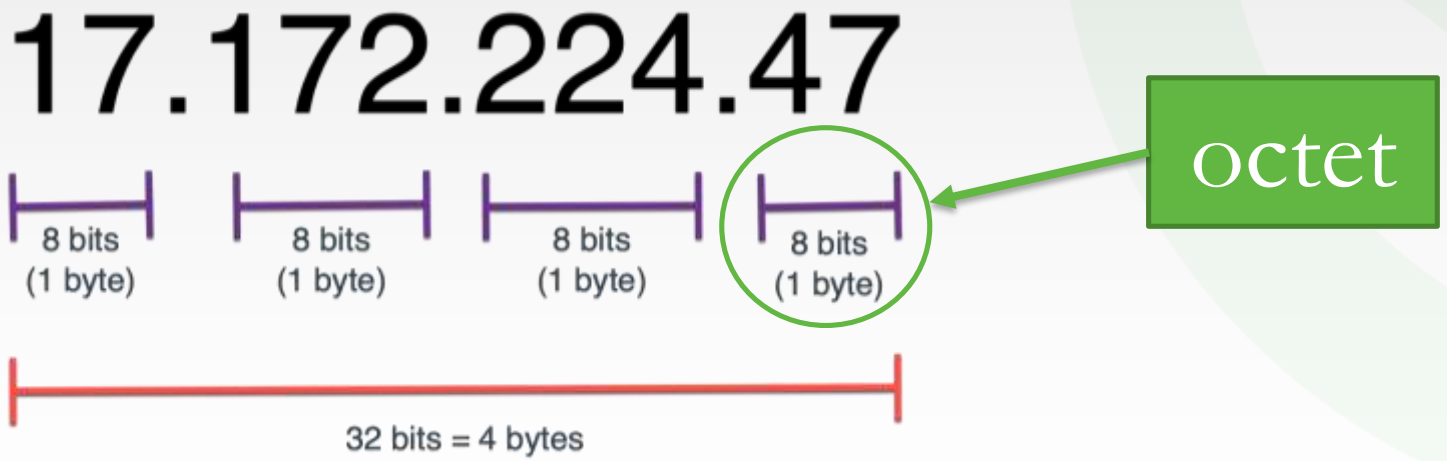
MAC Adres

- MAC adres dağıtımları **IEEE** tarafından yönetilir.
- **MAC**, 48 **bit**'lik bir **adres** olduğundan dolayı 2^{48} = 281,474,976,710,656 değişik ağ kartını tanımlamak için kullanılabilir. **MAC adresi** (Fiziksel **adres**, Donanım **adresi**), ağ donanımının tanımlanmasını sağlar. **MAC adresi**, bilgisayarın ethernet kartına üretici tarafından kodlanan bir bilgidir.
- Üreticiler **MAC** adres aralıklarını satın alırlar.
  - Aynı ağ içerisinde birbirine fiziksel olarak bağlı birimler arasında çerçeve transferinde kullanılır.



IP Adres

- IP adres:
  - Network Layer Address
  - Data Packet – Segment – Datagram
  - **32-bit** ⟶ **17.172.224.47 (IPv.4)**



SubnetMask

IP address **192.168.0.96 and** Mask **255.255.255.0**

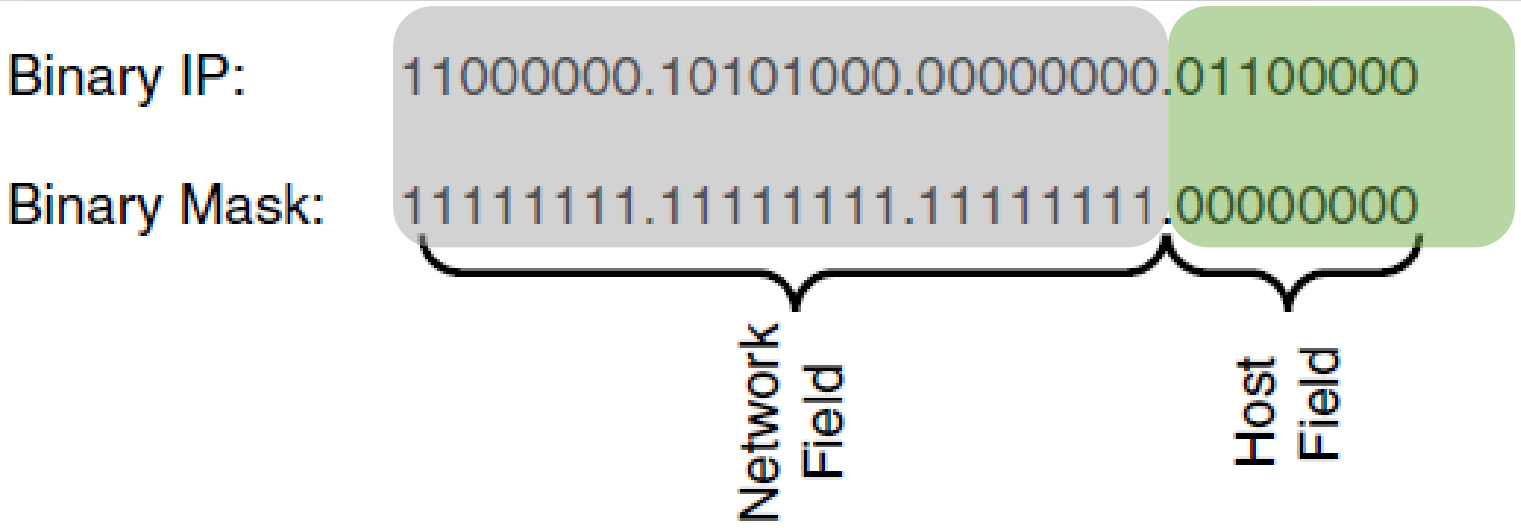
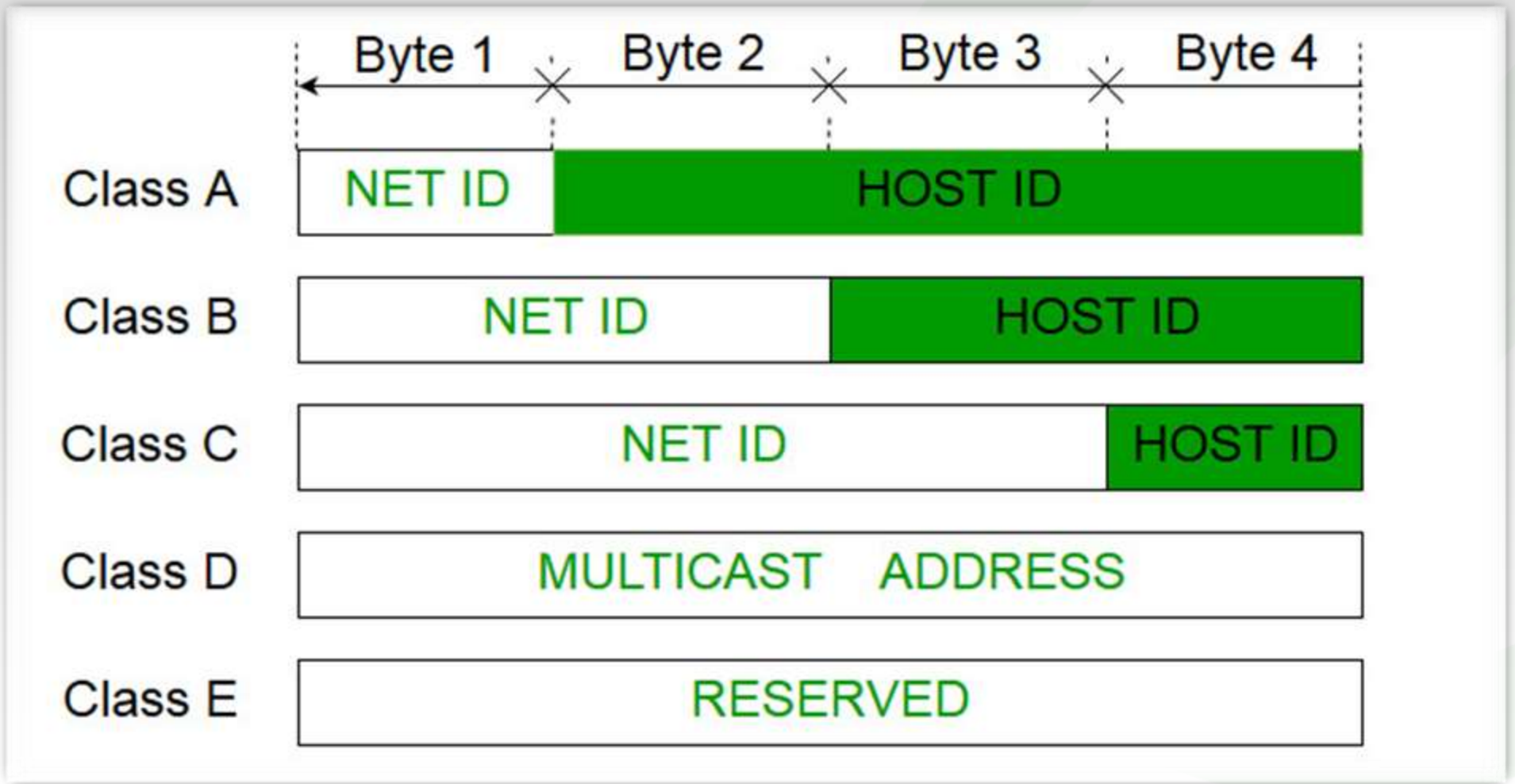


Figure 3.1 IP address and mask in binary, showing network and host fields.

IP Classification



IP Classification

Class	Leading bits	Size of *network number* bit field	Size of *rest* bit field	Number of networks	Addresses per network	Total addresses in class	Start address	End address
Class A	0	8	24	128 (2^7)	16,777,216 (2^{24})	2,147,483,648 (2^{31})	0.0.0.0	127.255.255.255
Class B	10	16	16	16,384 (2^{14})	65,536 (2^{16})	1,073,741,824 (2^{30})	128.0.0.0	191.255.255.255
Class C	110	24	8	2,097,152 (2^{21})	256 (2^8)	536,870,912 (2^{29})	192.0.0.0	223.255.255.255
Class D (multicast)	1110	not defined	not defined	not defined	not defined	268,435,456 (2^{28})	224.0.0.0	239.255.255.255
Class E (reserved)	1111	not defined	not defined	not defined	not defined	268,435,456 (2^{28})	240.0.0.0	255.255.255.255

Private Networks

Public and Private IP Addresses

- No two machines that connect to a public network can have the same IP address because public IP addresses are global and standardized.
- However, private networks that are not connected to the Internet may use any host addresses, as long as each host within the private network is unique.
- RFC 1918 sets aside three blocks of IP addresses for private, internal use.
- Connecting a network using private addresses to the Internet requires translation of the private addresses to public addresses using Network Address Translation (NAT).

Class	RFC 1918 internal address range
A	10.0.0.0 to 10.255.255.255
B	172.16.0.0 to 172.31.255.255
C	192.168.0.0 to 192.168.255.255

Case 1

```
Switch-1# show mac address-table
Dynamic Addresses Count:                  3
Secure Addresses (User-defined) Count:    0
Static Addresses (User-defined) Count:    0
System Self Addresses Count:              41
Total Mac addresses:                      50
Non-static Address Table:
Destination Address  Address Type  VLAN  Destination Port
-------------------  ------------  ----  --------------------
0010.0de0.e289       Dynamic       1     FastEthernet0/1
0010.7b00.1540       Dynamic       2     FastEthernet0/3
0010.7b00.1545       Dynamic       2     FastEthernet0/2
```


Switch-1 needs to send data to a host with a MAC address of 00b0.d056.efa4. What will Switch-1 do with this data?

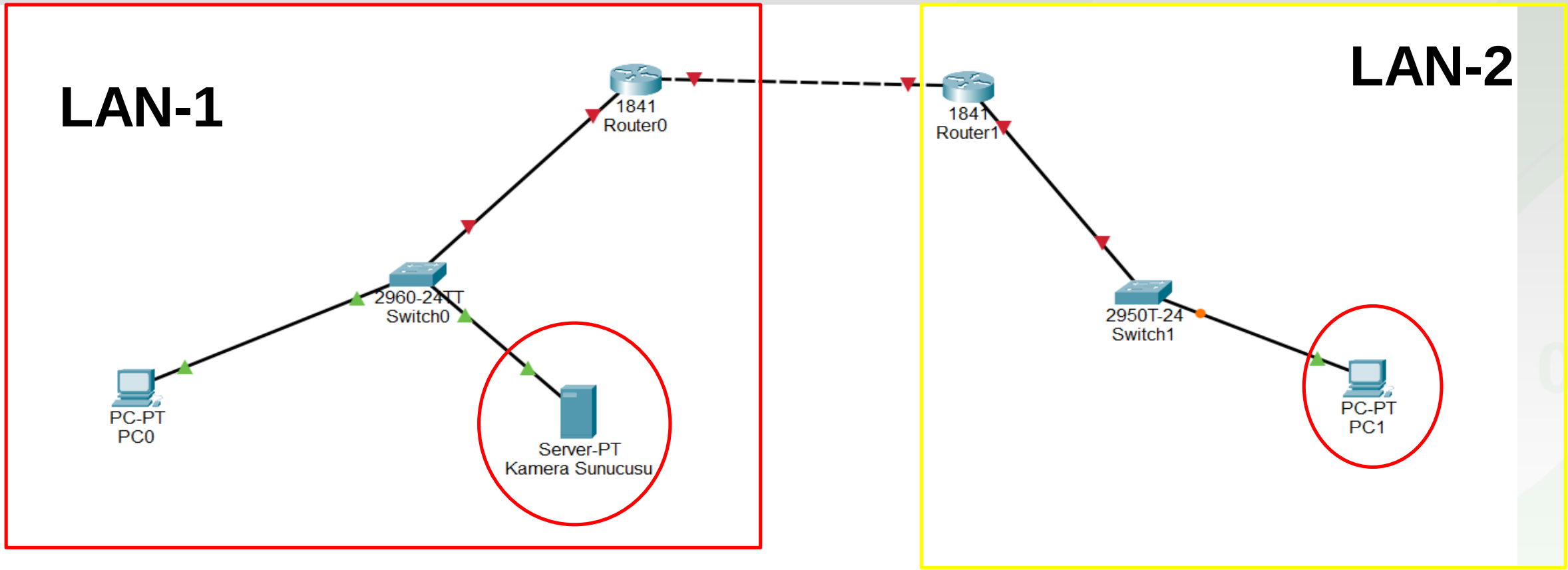
A. Switch-1 will drop the data because it does not have an entry for that MAC address.

B. Switch-1 will flood the data out all of its ports except the port from which the data originated.

C. Switch-1 will send an ARP request out all its ports except the port from which the data originated.

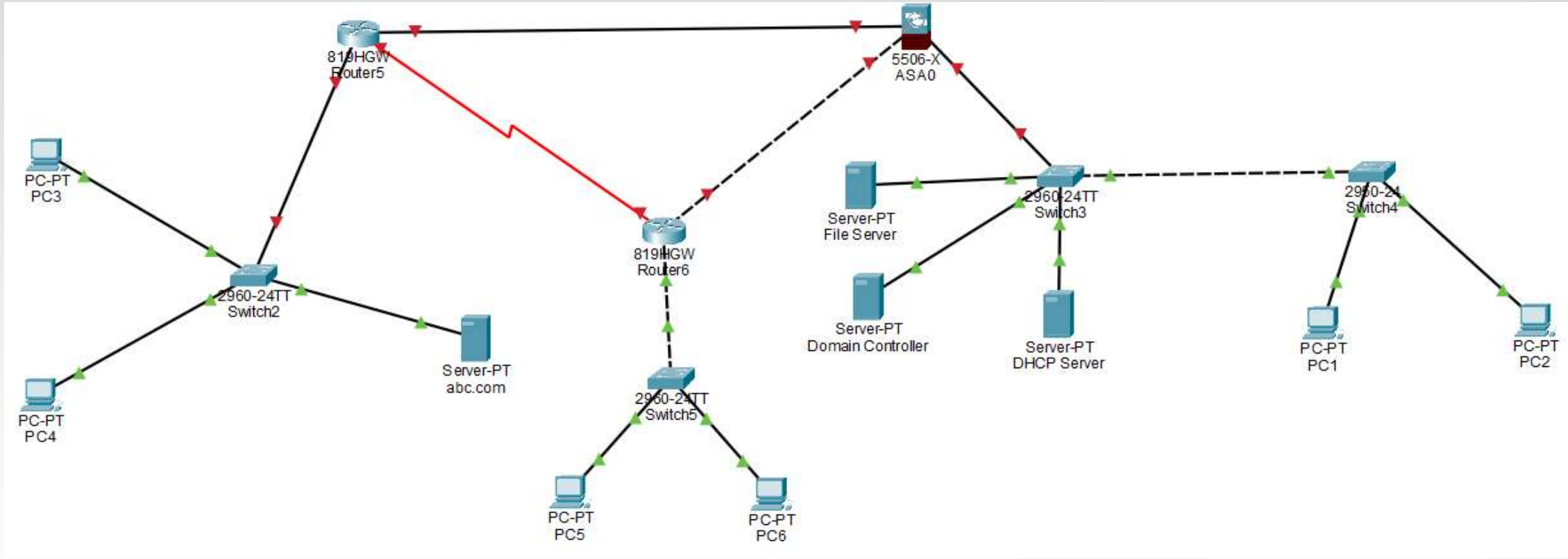
D. Switch-1 will forward the data to its default gateway.

Case 2

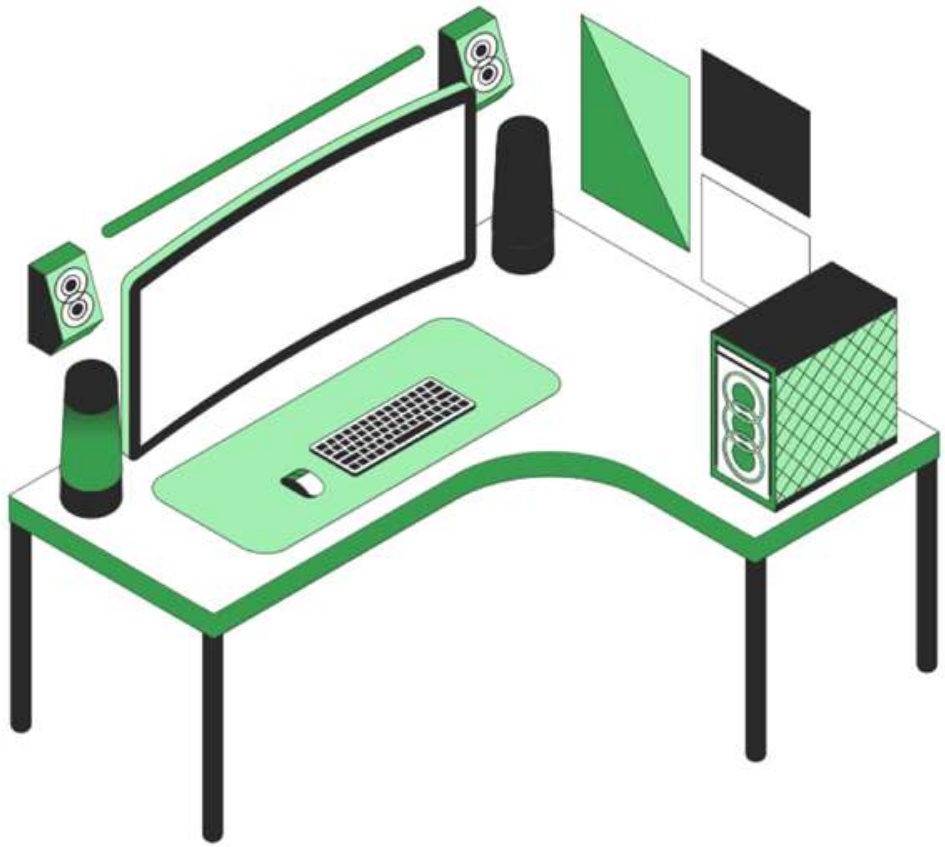


PC1 Can’t Access Camera Server. Why?

Case 3



PC3 and PC4 take APİPA IP. WHY?



Do you have any questions?

Send it to us! We hope you learned something new.