

# ARP프로토콜

---

김평안

---

---

---

---

# 목차

- ARP 프로토콜
- ARP 프로토콜 통신 과정

# ARP 프로토콜

---

---

# ARP 프로토콜

- **Address Resolution Protocol**

**OSI 7 Layer > Layer 3 (Network Layer)**

**같은 네트워크에서 통신을 하기 위한 MAC 주소를 IP주소를 이용해 알아오는 프로토콜**

# ARP 프로토콜

- ARP 프로토콜의 구조

0		1		2		3		4	
Hardware type				Protocol type					
Hardware Address Length		Protocol Address Length		Opcode					
Source Hardware Address (Continued)									
Source Hardware Address				Source Protocol Address (Continued)					
Source Protocol Address				Destination Hardware Address (Continued)					
Destination Hardware Address									
Destination Protocol Address									

# ARP 프로토콜

- ARP 프로토콜의 구조

0		1	2	3	4
Hardware type			Protocol type		
Hardware Address Length		Protocol Address Length		Opcode	
Source Hardware Address (Continued)					
Source Hardware Address			Source Protocol Address (Continued)		
Source Protocol Address			Destination Hardware Address (Continued)		
Destination Hardware Address					
Destination Protocol Address					

# ARP 프로토콜

- ARP 프로토콜의 구조

0		1	2	3	4
Hardware type			Protocol type		
Hardware Address Length		Protocol Address Length		Opcode	
Source Hardware Address (Continued)					
Source Hardware Address			Source Protocol Address (Continued)		
Source Protocol Address			Destination Hardware Address (Continued)		
Destination Hardware Address					
Destination Protocol Address					

# ARP 프로토콜

- ARP 프로토콜의 구조

0x0001		
Hardware type		Protocol type
Hardware Address Length	Protocol Address Length	Opcode
Source Hardware Address (Continued)		
Source Hardware Address		Source Protocol Address (Continued)
Source Protocol Address		Destination Hardware Address (Continued)
Destination Hardware Address		
Destination Protocol Address		



# ARP 프로토콜

- ARP 프로토콜의 구조

0		1		2		3		4	
Hardware type				Protocol type 0x0800					
Hardware Address Length		Protocol Address Length		Opcode					
Source Hardware Address (Continued)									
Source Hardware Address					Source Protocol Address (Continued)				
Source Protocol Address					Destination Hardware Address (Continued)				
Destination Hardware Address									
Destination Protocol Address									

# ARP 프로토콜

- ARP 프로토콜의 구조

0	1	2	3	4
Hardware type		Protocol type		
0x06	Hardware Address Length	Protocol Address Length	Opcode	
Source Hardware Address (Continued)				
Source Hardware Address		Source Protocol Address (Continued)		
Source Protocol Address		Destination Hardware Address (Continued)		
Destination Hardware Address				
Destination Protocol Address				

# ARP 프로토콜

- ARP 프로토콜의 구조

0		1		2		3		4	
Hardware type					Protocol type				
Hardware Address Length		Protocol Address Length			Opcode				
Source Hardware Address (Continued)									
Source Hardware Address					Source Protocol Address (Continued)				
Source Protocol Address					Destination Hardware Address (Continued)				
Destination Hardware Address									
Destination Protocol Address									

# ARP 프로토콜

- ARP 프로토콜의 구조

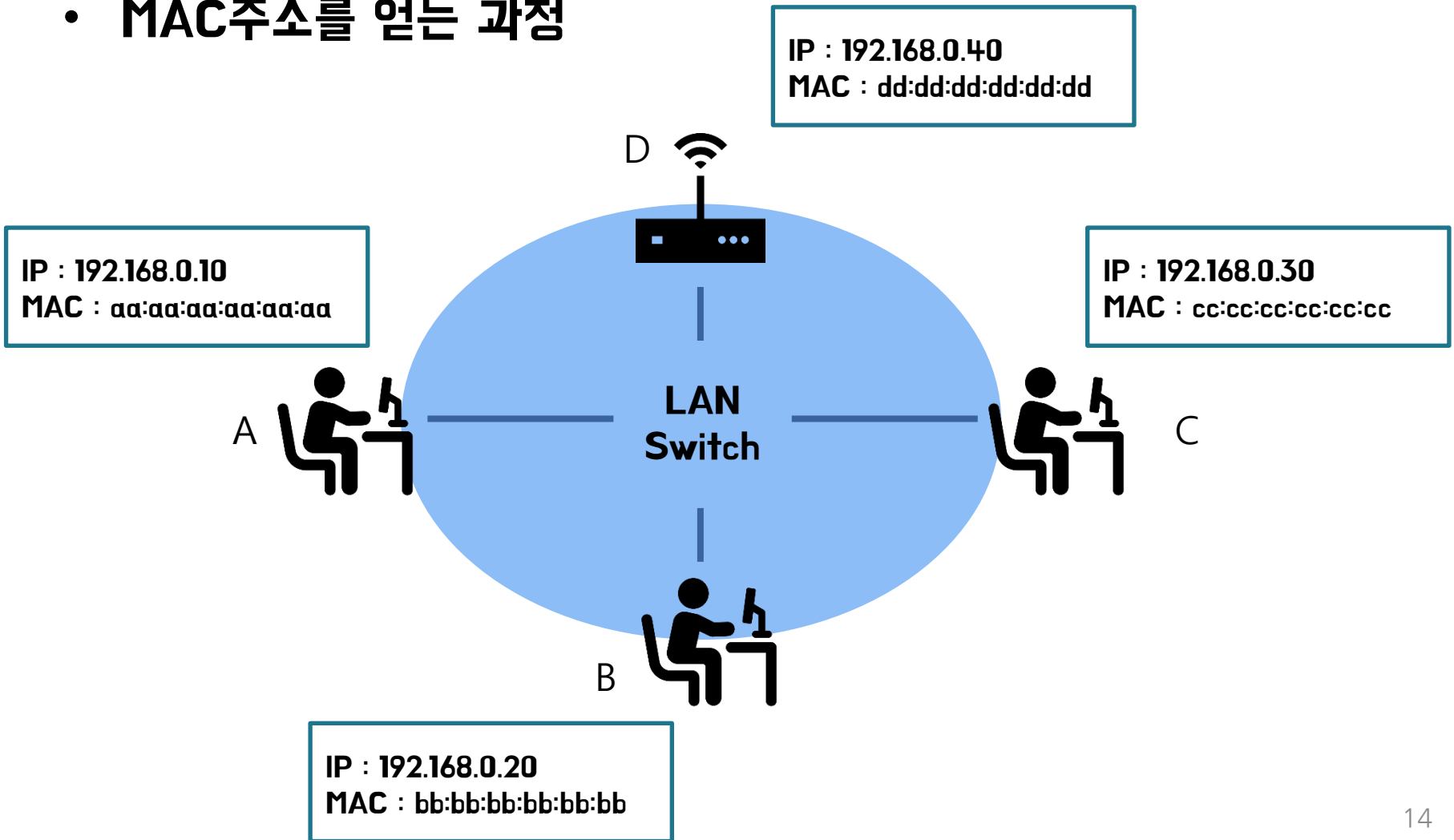
0		1		2		3		4	
Hardware type				request Protocol type reply					
Hardware Address Length		Protocol Address Length		0x0001		Opcode 0x0002			
Source Hardware Address (Continued)									
Source Hardware Address					Source Protocol Address (Continued)				
Source Protocol Address					Destination Hardware Address (Continued)				
Destination Hardware Address									
Destination Protocol Address									

# ARP 프로토콜 통신 과정

---

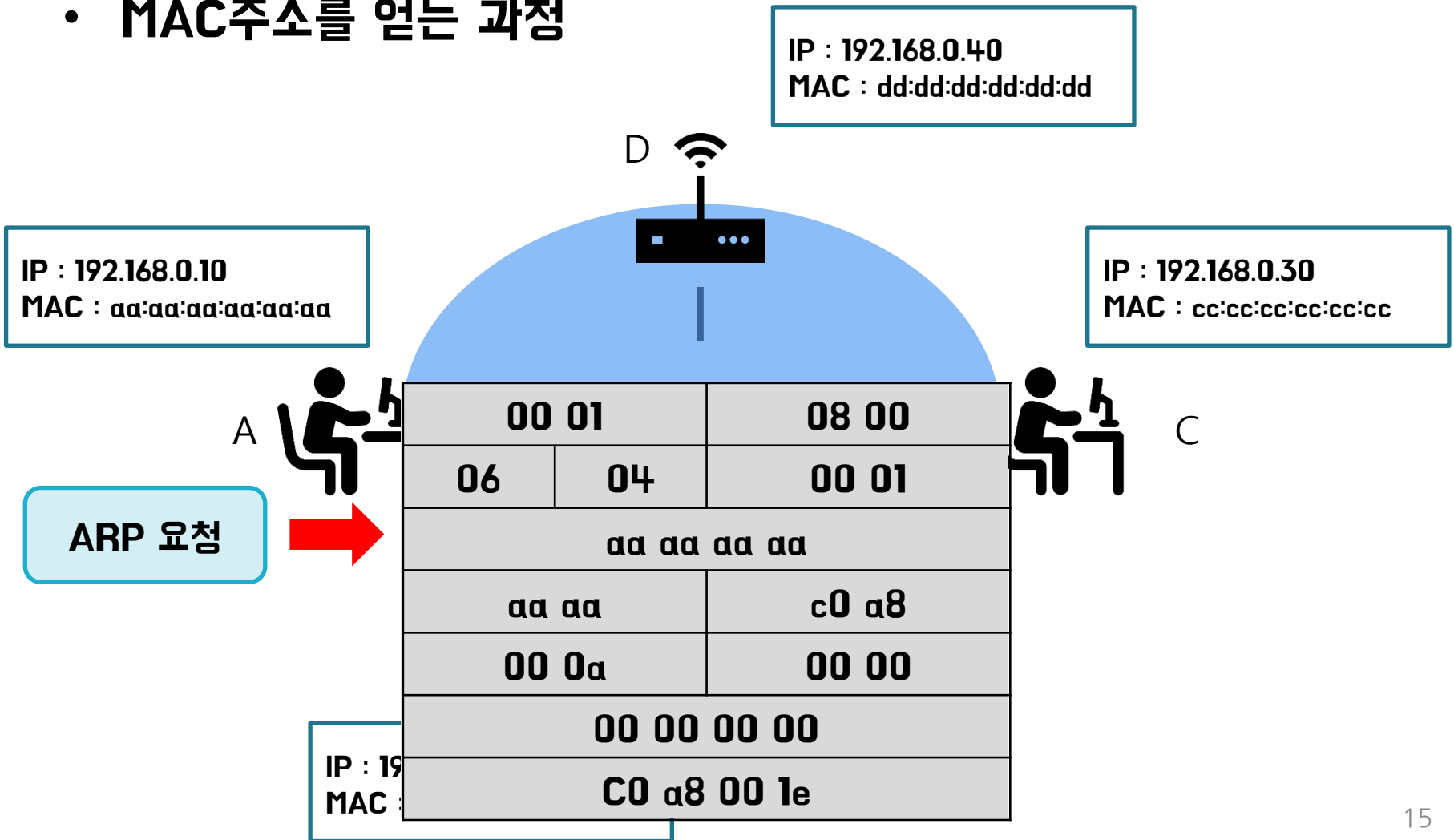
# ARP 프로토콜 통신 과정

- MAC주소를 얻는 과정



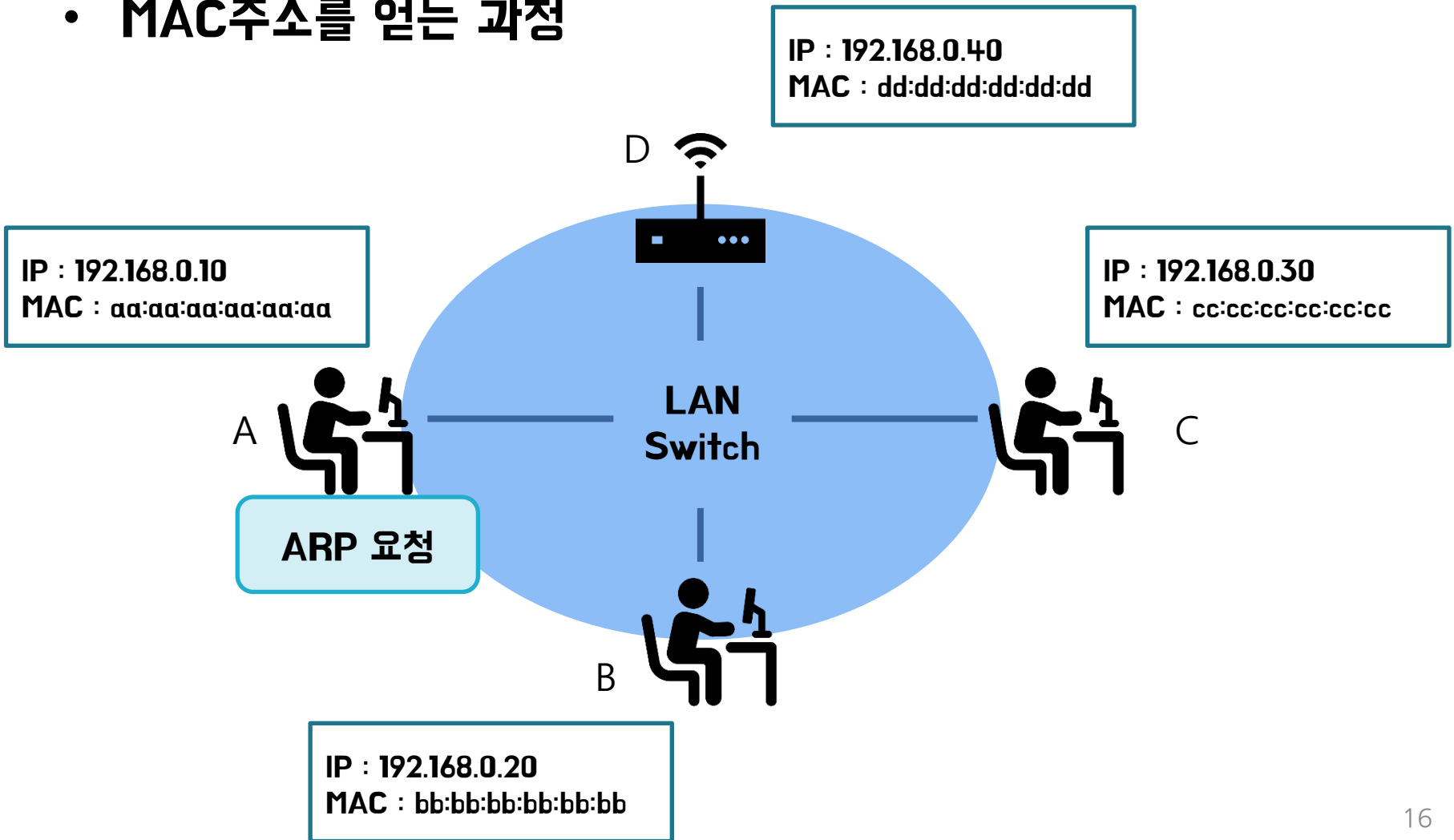
# ARP 프로토콜 통신 과정

- MAC주소를 얻는 과정



# ARP 프로토콜 통신 과정

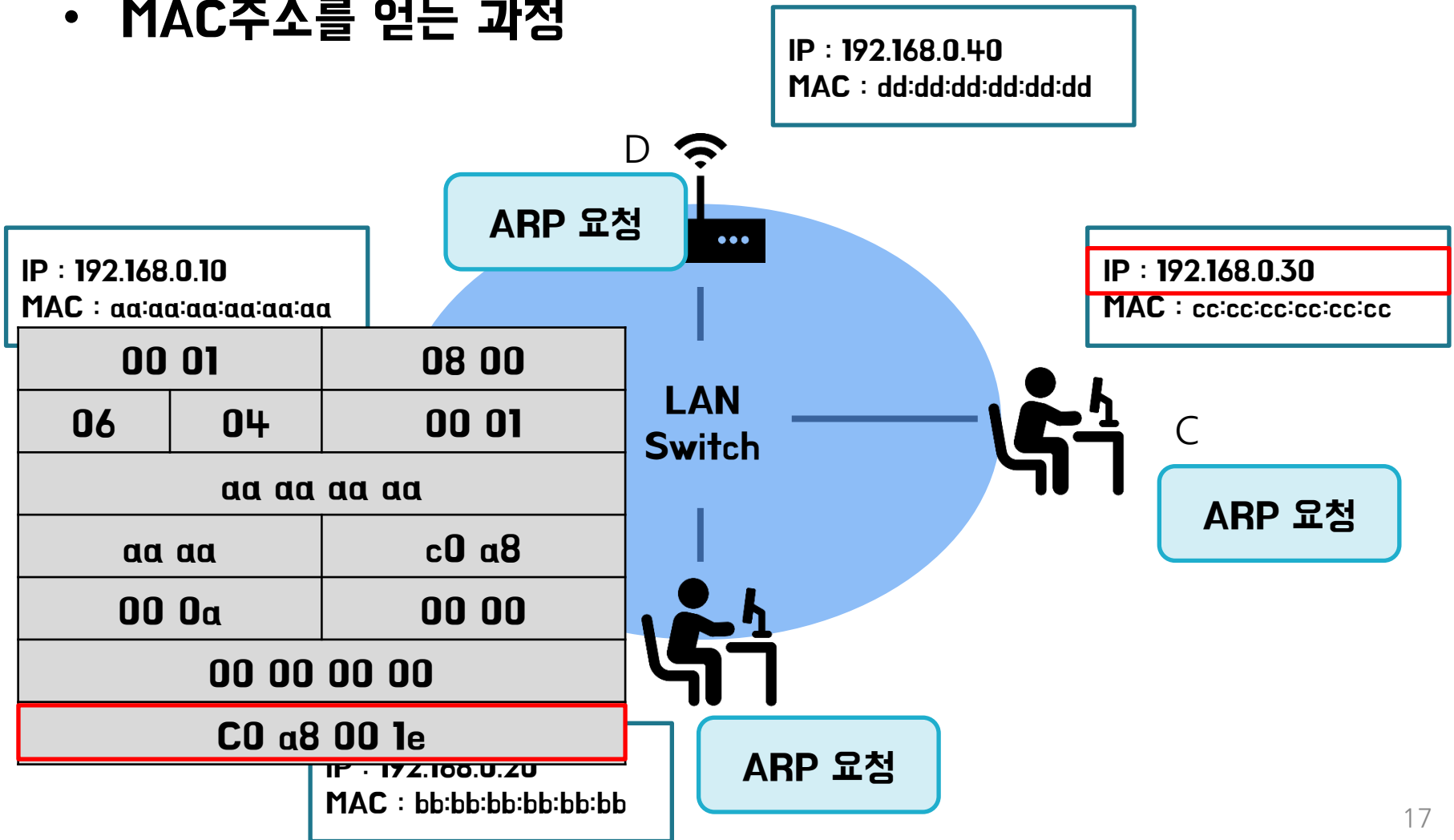
- MAC주소를 얻는 과정





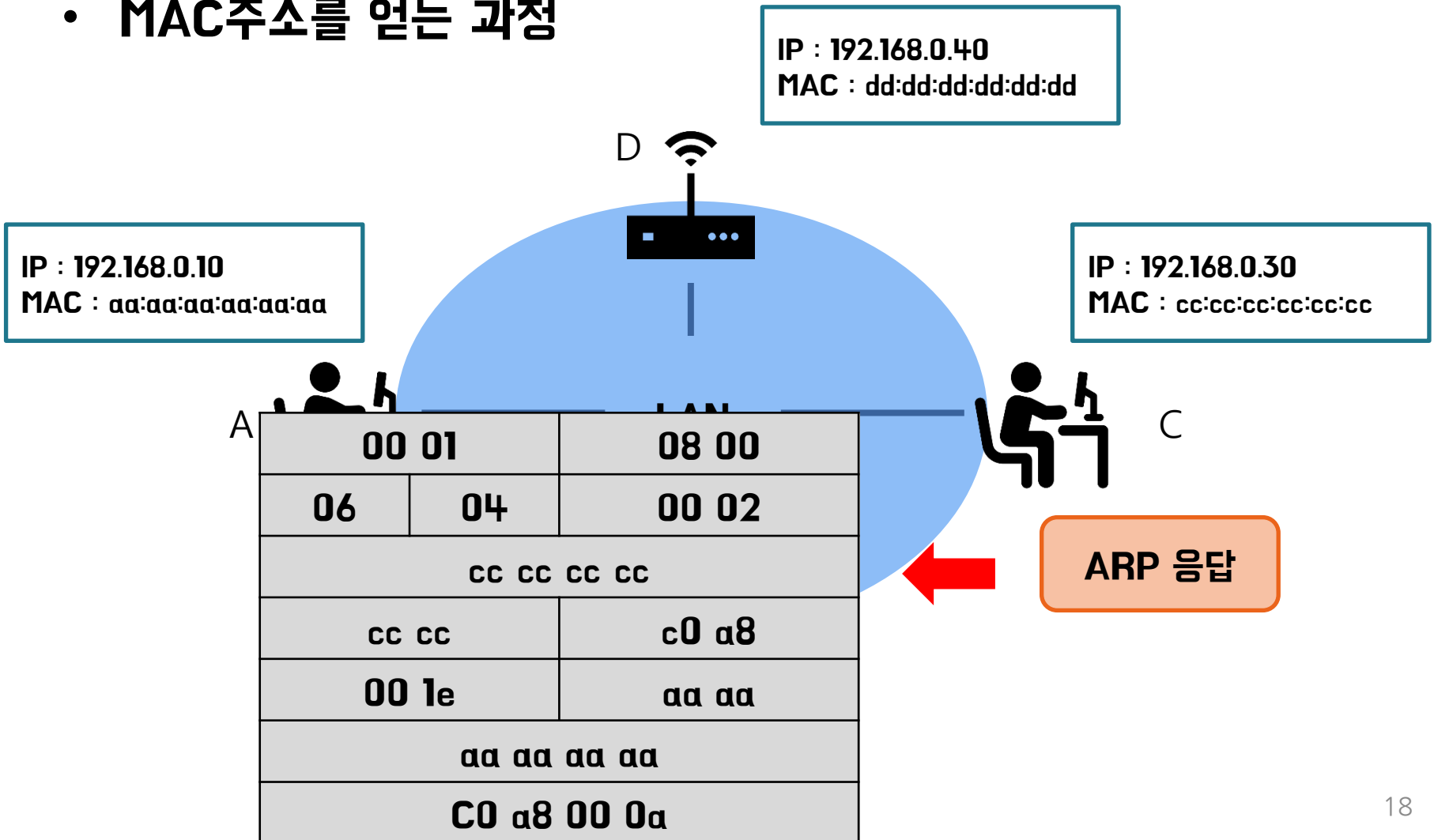
# ARP 프로토콜 통신 과정

- MAC주소를 얻는 과정



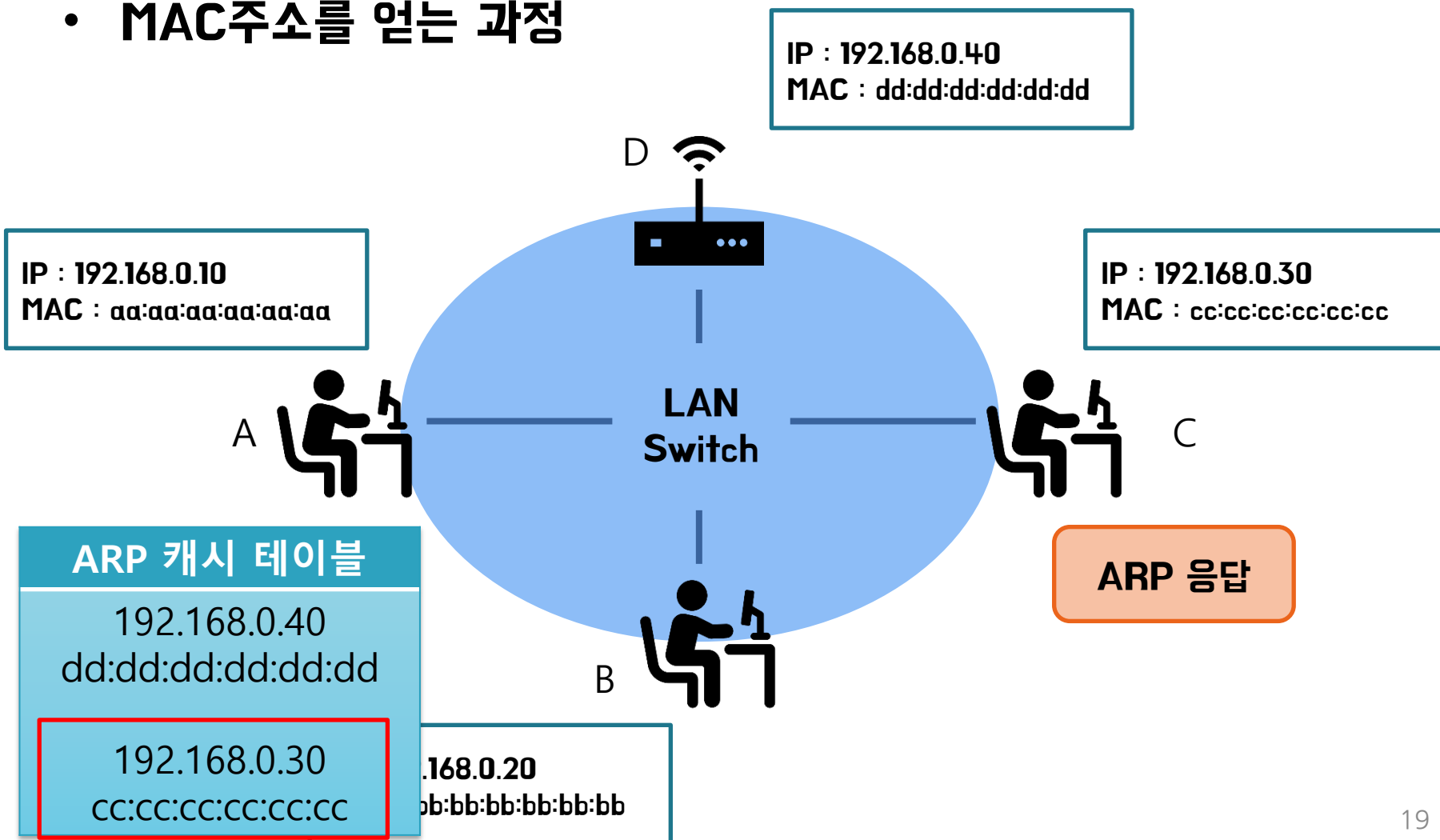
# ARP 프로토콜 통신 과정

- MAC주소를 얻는 과정



# ARP 프로토콜 통신 과정

- MAC주소를 얻는 과정



FileEditViewGoCaptureAnalyzeStatisticsTelephonyWirelessToolsHelp

arp

No.	Time	Source	Destination	Protocol	Length	Info
560	6.903534	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 27.235.175.64? Tell 27.235.175.126
561	6.911648	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 222.100.217.78? Tell 222.100.217.254
562	6.949515	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 218.156.11.179? Tell 218.156.11.190
563	6.951553	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 220.91.103.108? Tell 220.91.103.254
564	6.953531	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 222.100.175.148? Tell 222.100.175.254
565	6.969615	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 222.100.201.30? Tell 222.100.201.62
566	6.979550	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 220.126.184.253? Tell 220.126.184.193
567	6.997581	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 220.91.103.74? Tell 220.91.103.254
568	7.005610	Ubiquoss_f0:bf:45	Broadcast	ARP	60	Who has 220.85.198.35? Tell 220.85.198.254

Address Resolution Protocol (request)  
Hardware type: Ethernet (1)  
Protocol type: IPv4 (0x0800)  
Hardware size: 6  
Protocol size: 4  
Opcode: request (1)  
Sender MAC address: Ubiquoss\_f0:bf:45 (00:07:70:f0:bf:45)  
Sender IP address: 220.85.198.254  
Target MAC address: 00:00:00\_00:00:00 (00:00:00:00:00:00)  
Target IP address: 220.85.198.35

0000ff ff ff ff ff ff 00 07 70 f0 bf 45 08 0600 01  
001008 00 06 04 00 01 00 07 70 f0 bf 45 dc 55 c6 fe  
002000 00 00 00 00 00 00 dc 55 c6 2300 00 00 00 00  
003000 00 00 00 00 00 00 00 00 00 00 00 00 00 00

..... p..E...  
..... p..E.U..  
.....U.#.....  
.....

Address Resolution Protocol (arp), 28 byte(s)

Packets: 568 · Displayed: 560 (98,6%) · Dropped: 0 (0,0%)

Profile: Default

# ARP 캐시 테이블

## ARP 캐시 테이블

192.168.0.40  
dd:dd:dd:dd:dd:dd

192.168.0.30  
CC:CC:CC:CC:CC:CC

```
C:\> 관리자: 명령 프롬프트
Microsoft Windows [Version 10.0.18363.1679]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\명안>arp -a

인터페이스: 25.17.97.140 --- 0x4
인터넷 주소      물리적 주소      유형
25.0.0.1          7a-79-19-00-00-01  동적
25.255.255.255    ff-ff-ff-ff-ff-ff  동적
224.0.0.2         01-00-5e-00-00-02  동적
224.0.0.22        01-00-5e-00-00-16  동적
224.0.0.251       01-00-5e-00-00-fb  동적
224.0.0.252       01-00-5e-00-00-fc  동적
239.255.255.250   01-00-5e-7f-ff-fa  동적
255.255.255.255   ff-ff-ff-ff-ff-ff  정적
```

ARP -a

감사합니다

---