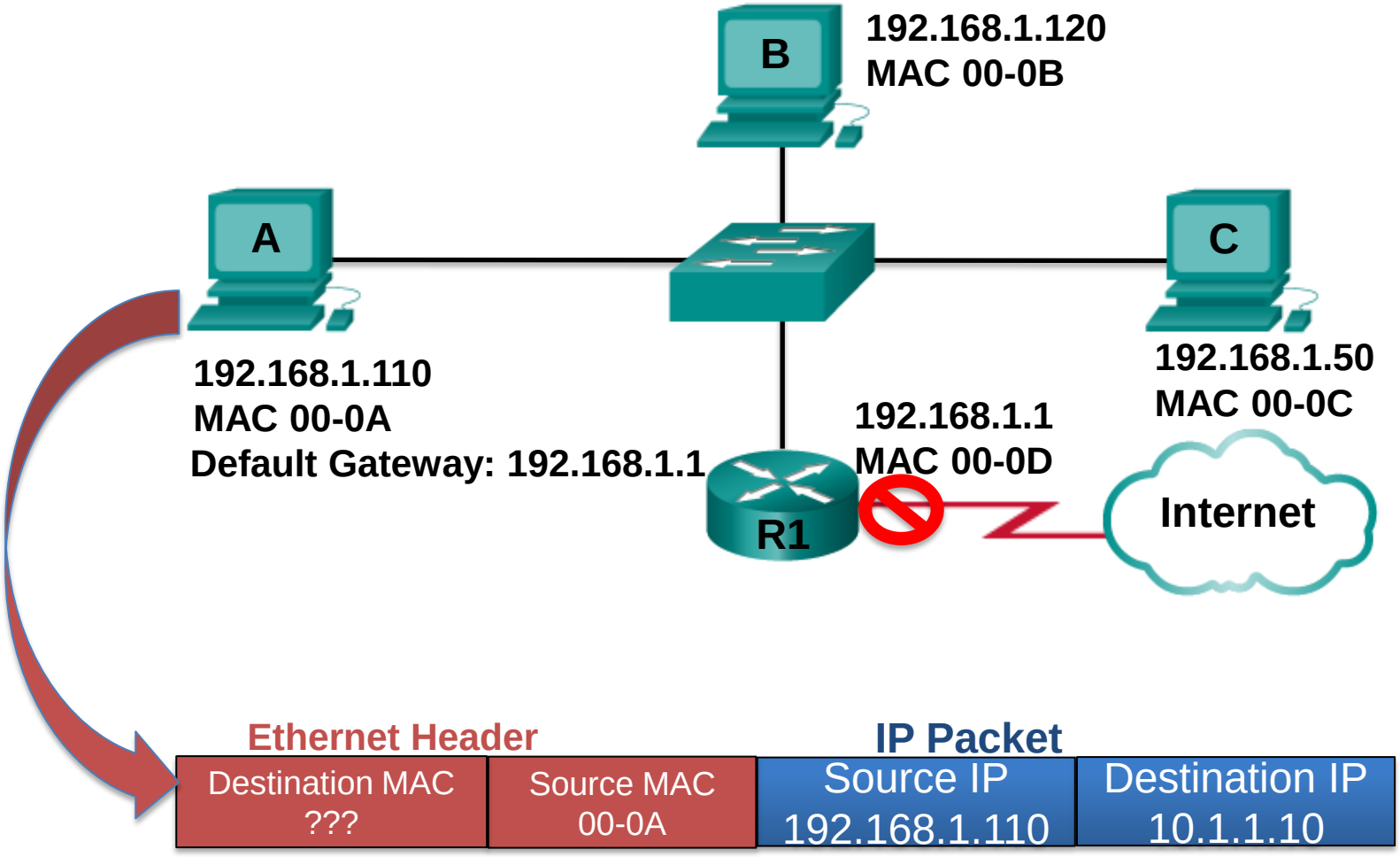
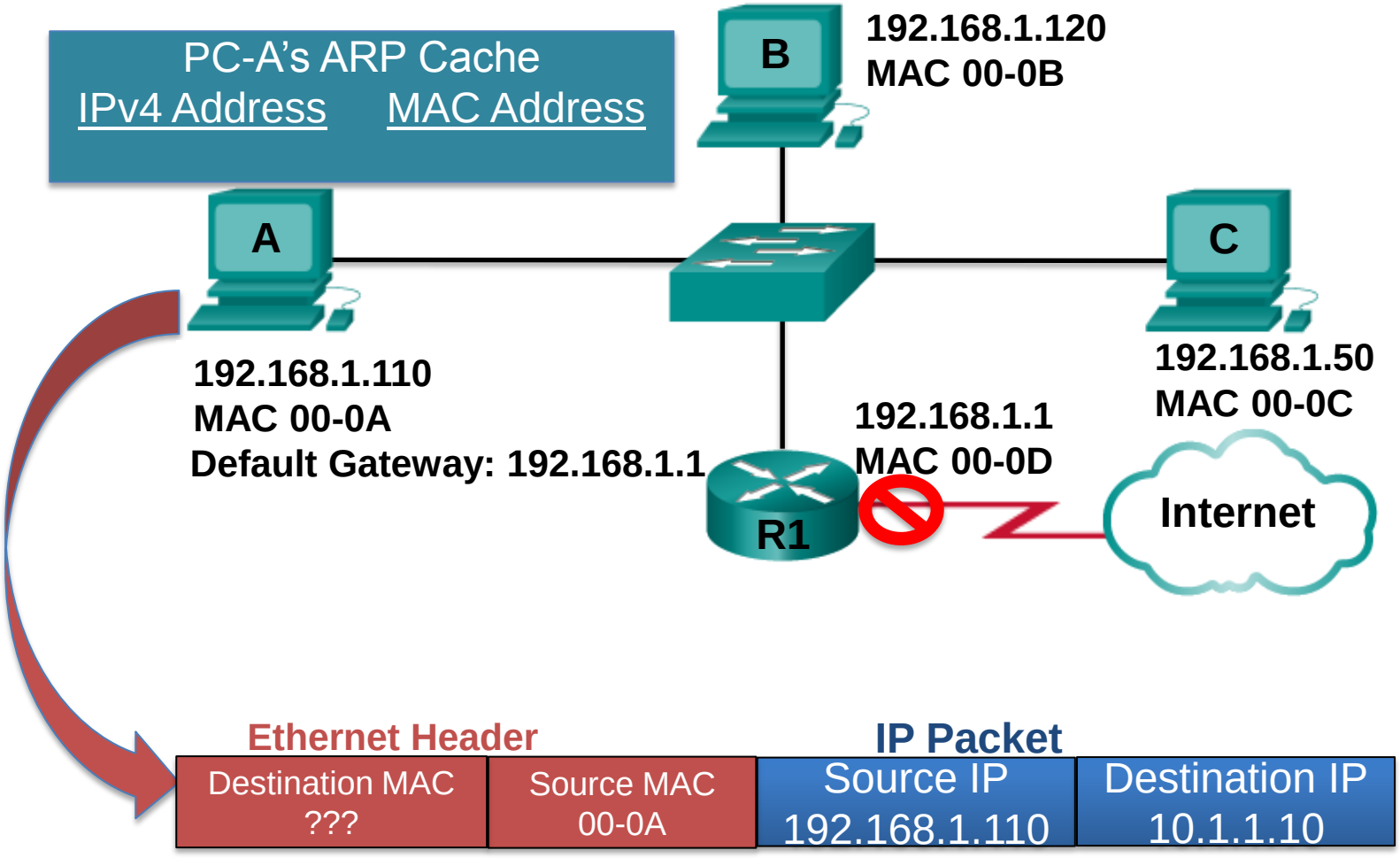
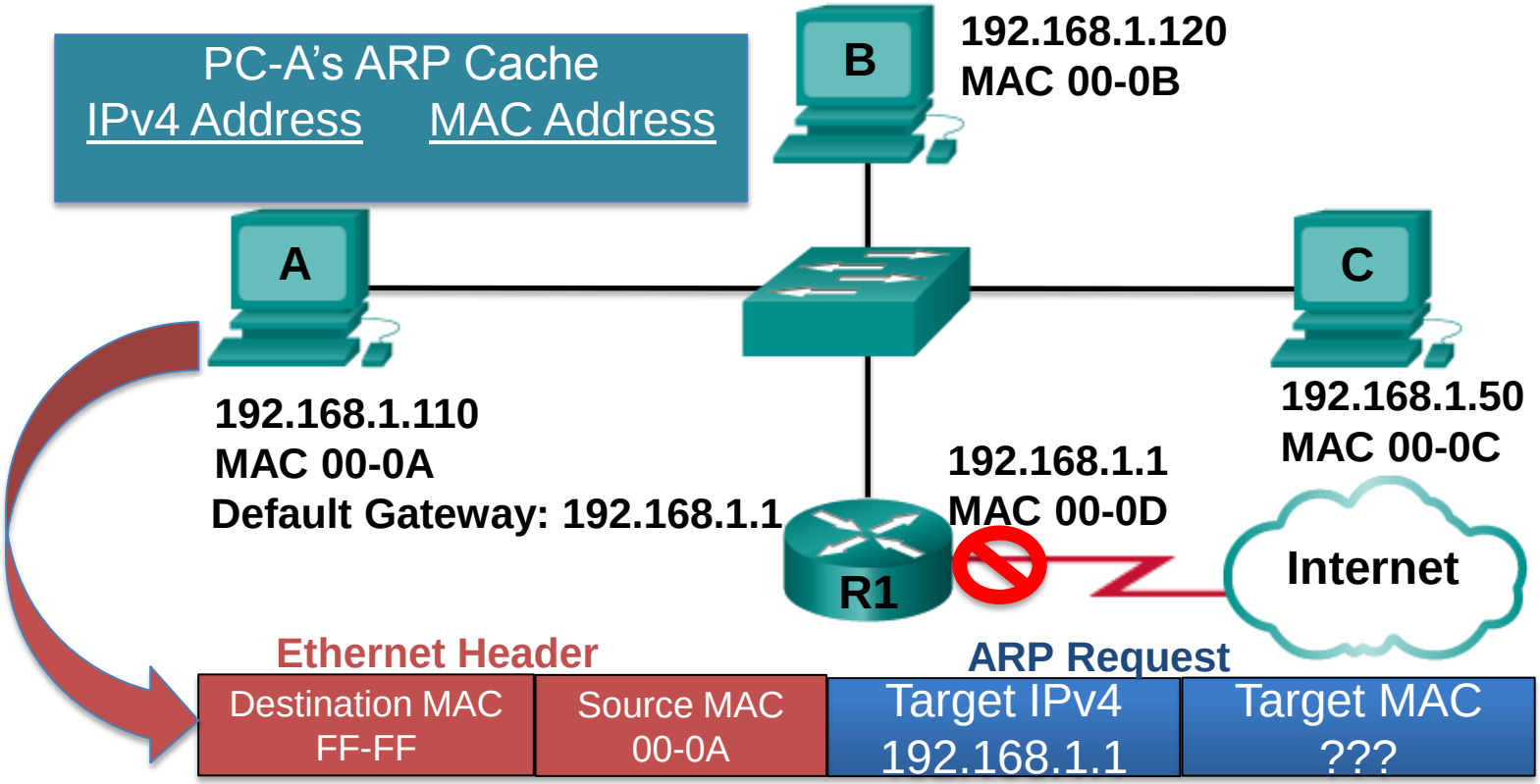
5.3.2.5 - ARP Role in Remote Communication


B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
Destination MAC
???
Source MAC
00-0A
IP Packet
Source IP
192.168.1.110
Destination IP
10.1.1.10


PC-A's ARP Cache
IPv4 Address
MAC Address
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
IP Packet
Destination MAC
???
Source MAC
00-0A
Source IP
192.168.1.110
Destination IP
10.1.1.10



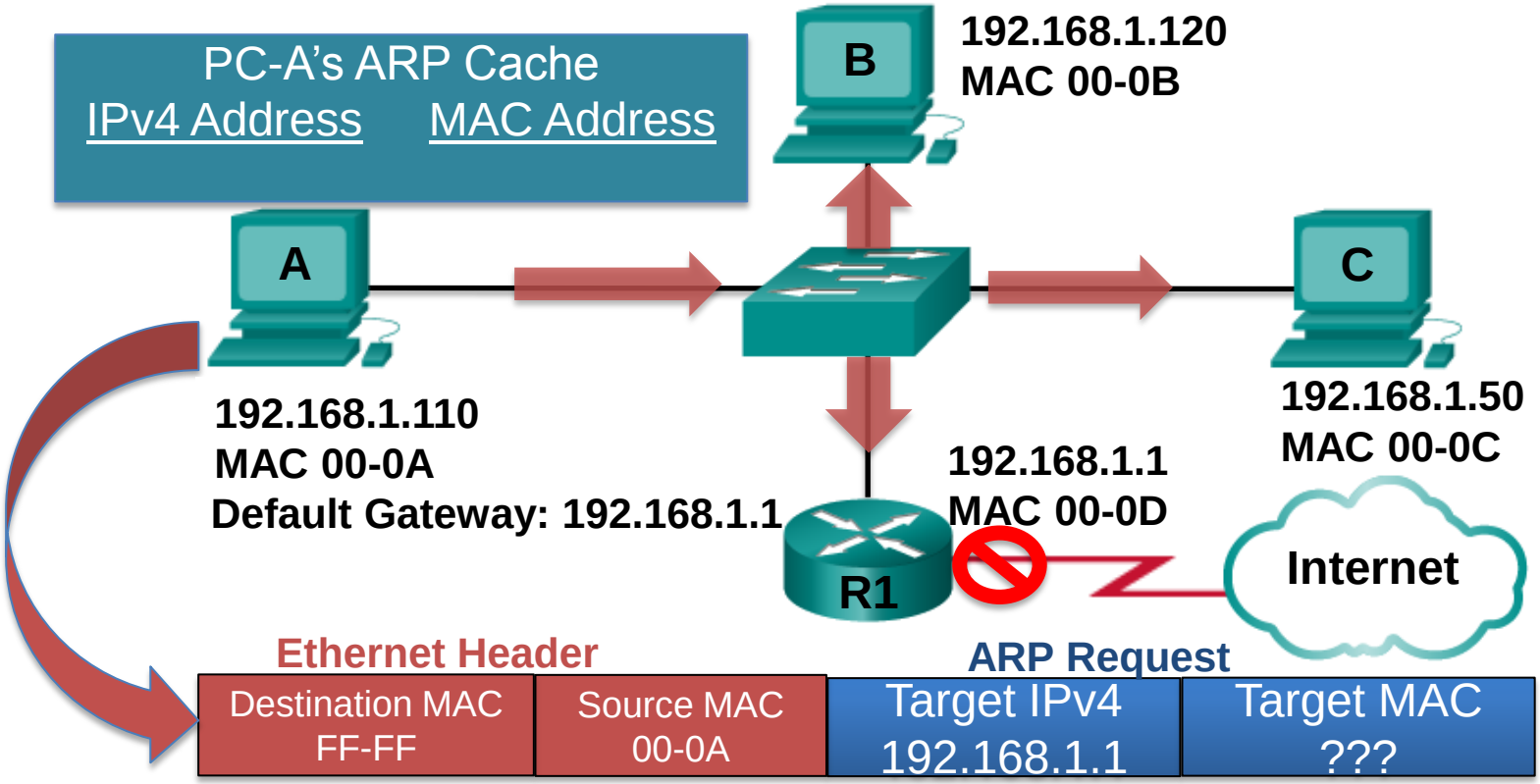
On Hold

Ethernet Header

Destination MAC	Source MAC
???	00-0A

IP Packet

Source IP	Destination IP
192.168.1.110	10.1.1.10



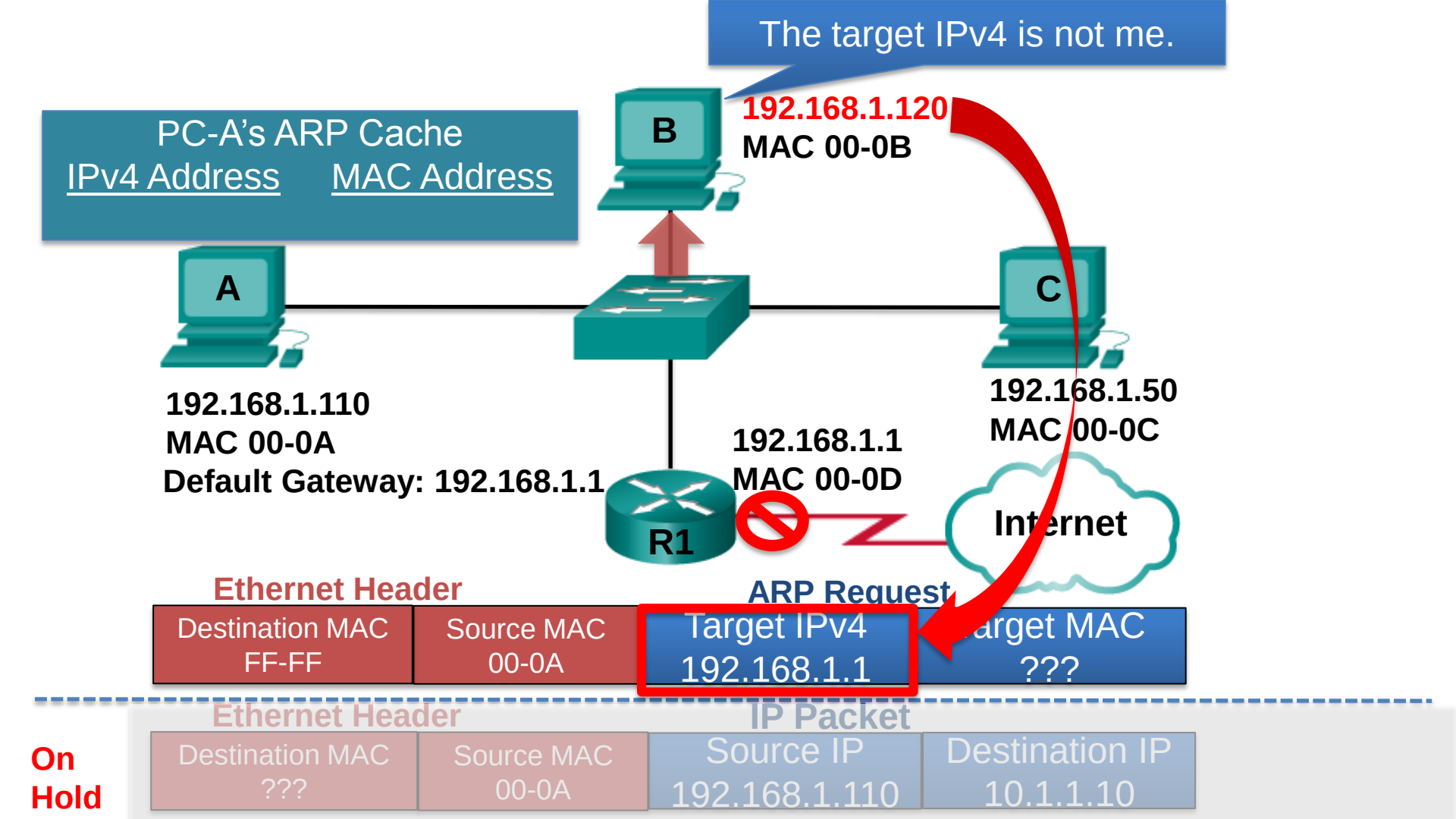
On Hold

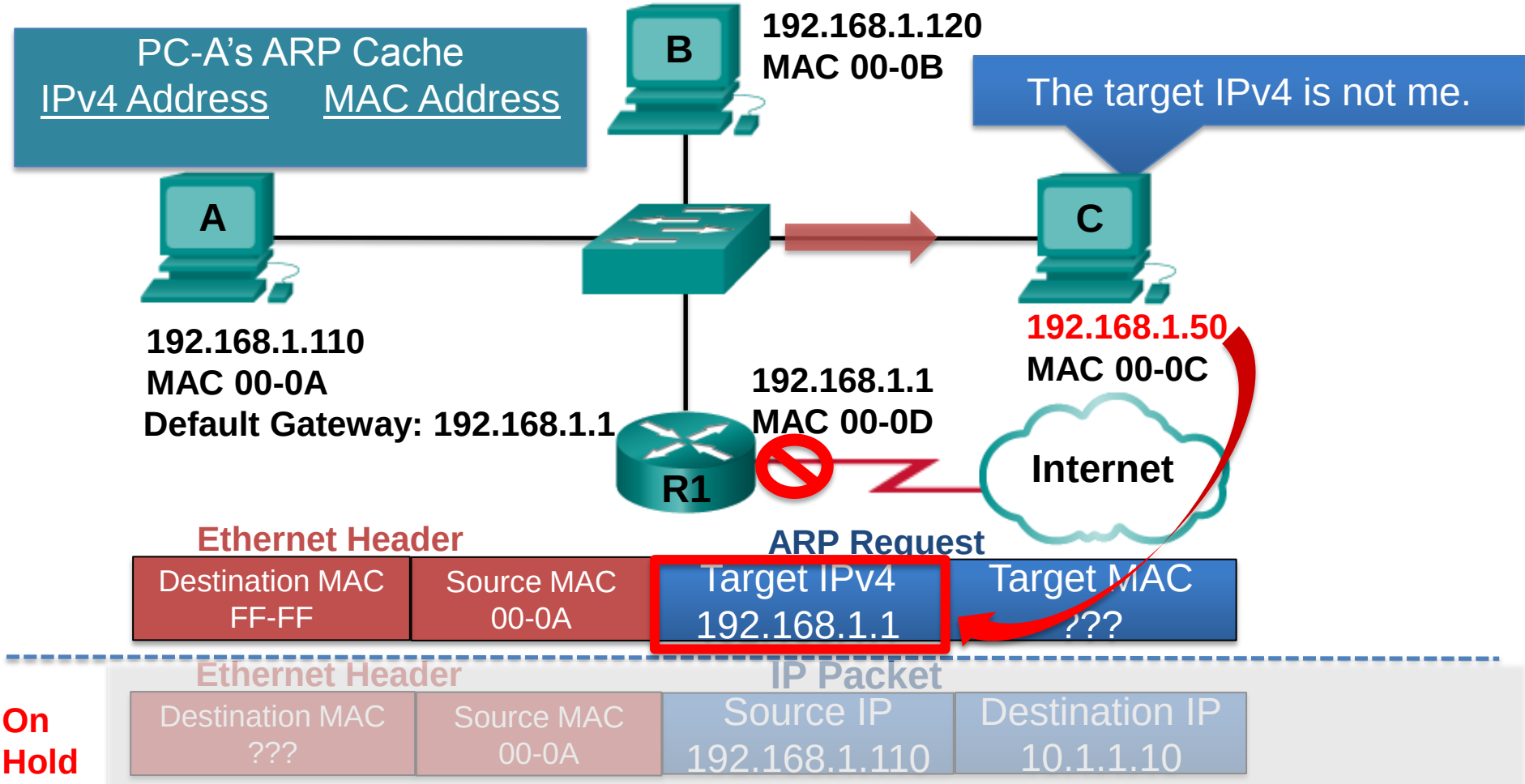
Ethernet Header

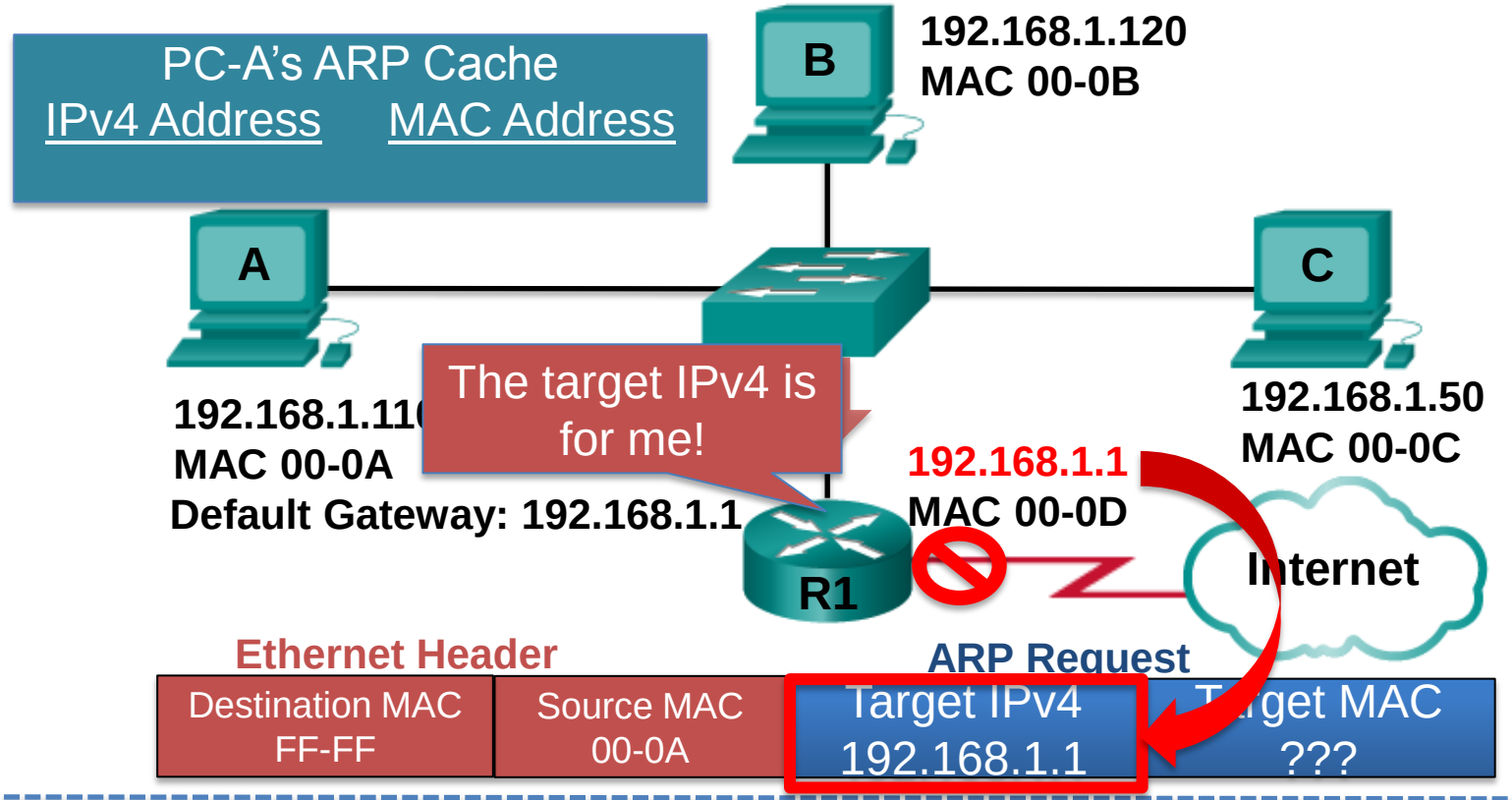
Destination MAC	Source MAC
???	00-0A

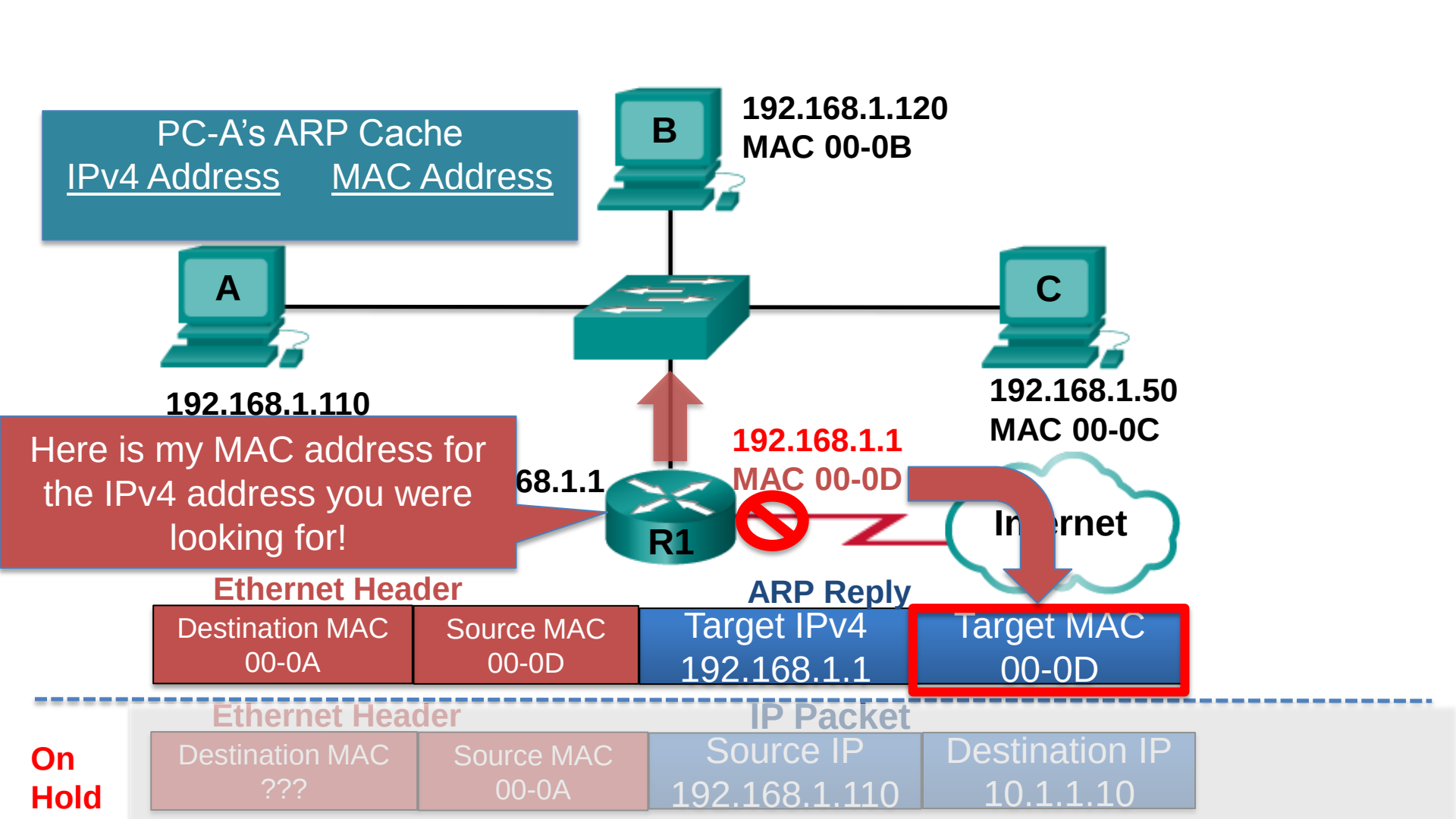
IP Packet

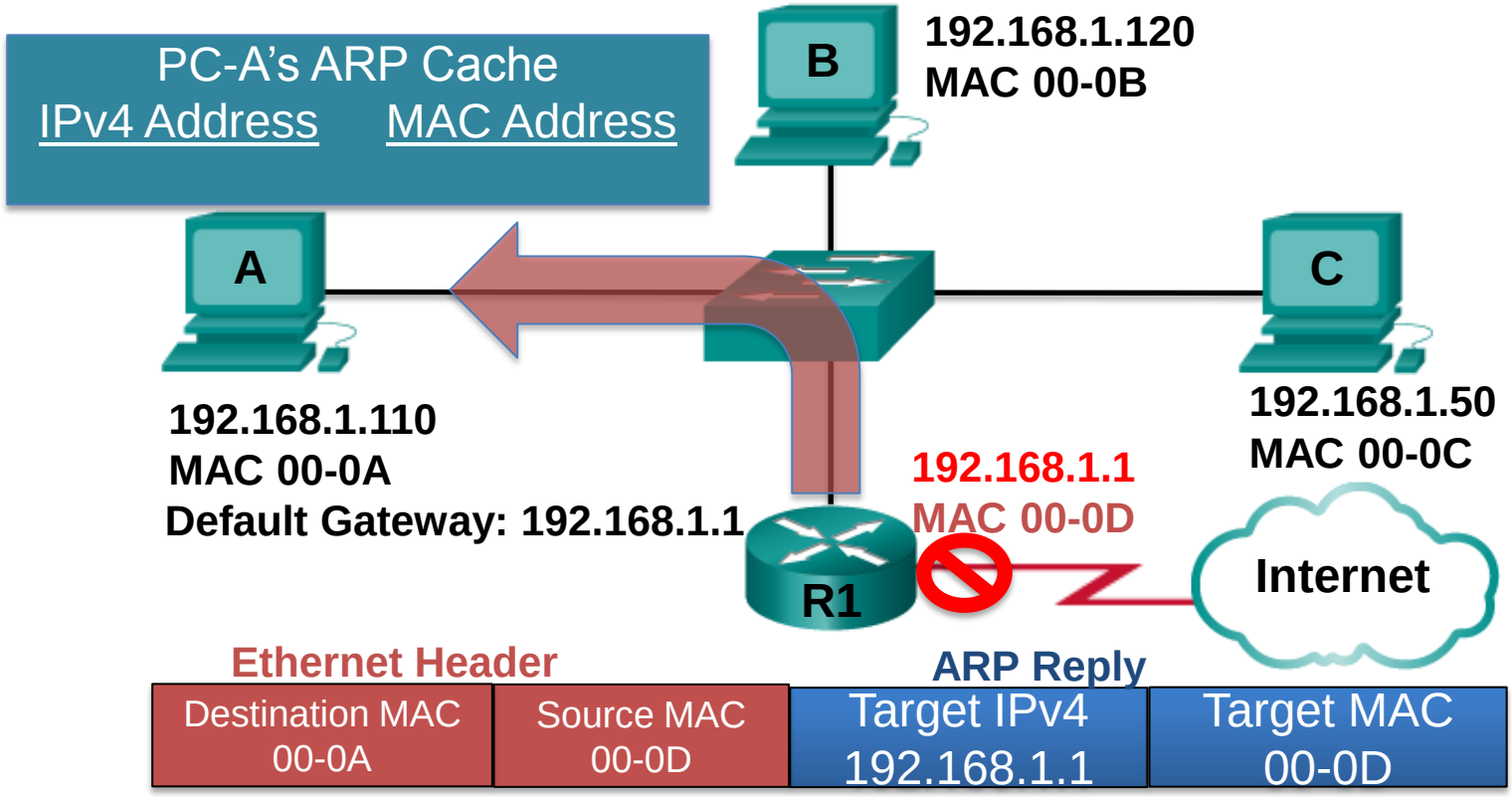
Source IP	Destination IP
192.168.1.110	10.1.1.10


The target IPv4 is not me.
PC-A's ARP Cache
IPv4 Address MAC Address
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.1
MAC 00-0D
192.168.1.50
MAC 00-0C
R1
Internet
Ethernet Header
Destination MAC FF-FF
Source MAC 00-0A
ARP Request
Target IPv4 192.168.1.1
Target MAC ???
On Hold
Ethernet Header
Destination MAC ???
Source MAC 00-0A
IP Packet
Source IP 192.168.1.110
Destination IP 10.1.1.10


PC-A's ARP Cache
IPv4 Address MAC Address
B
192.168.1.120
MAC 00-0B
The target IPv4 is not me.
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
ARP Request
Destination MAC
FF-FF
Source MAC
00-0A
Target IPv4
192.168.1.1
Target MAC
???
On Hold
Ethernet Header
IP Packet
Destination MAC
???
Source MAC
00-0A
Source IP
192.168.1.110
Destination IP
10.1.1.10


PC-A's ARP Cache
IPv4 Address MAC Address
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.11(
MAC 00-0A
Default Gateway: 192.168.1.1
The target IPv4 is for me!
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
Destination MAC FF-FF
Source MAC 00-0A
ARP Request
Target IPv4 192.168.1.1
Target MAC ???
On Hold
Ethernet Header
Destination MAC ???
Source MAC 00-0A
IP Packet
Source IP 192.168.1.110
Destination IP 10.1.1.10


PC-A's ARP Cache
IPv4 Address MAC Address
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
192.168.1.50
MAC 00-0C
Here is my MAC address for the IPv4 address you were looking for!
68.1.1
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
Destination MAC 00-0A
Source MAC 00-0D
ARP Reply
Target IPv4 192.168.1.1
Target MAC 00-0D
On Hold
Ethernet Header
Destination MAC ???
Source MAC 00-0A
IP Packet
Source IP 192.168.1.110
Destination IP 10.1.1.10



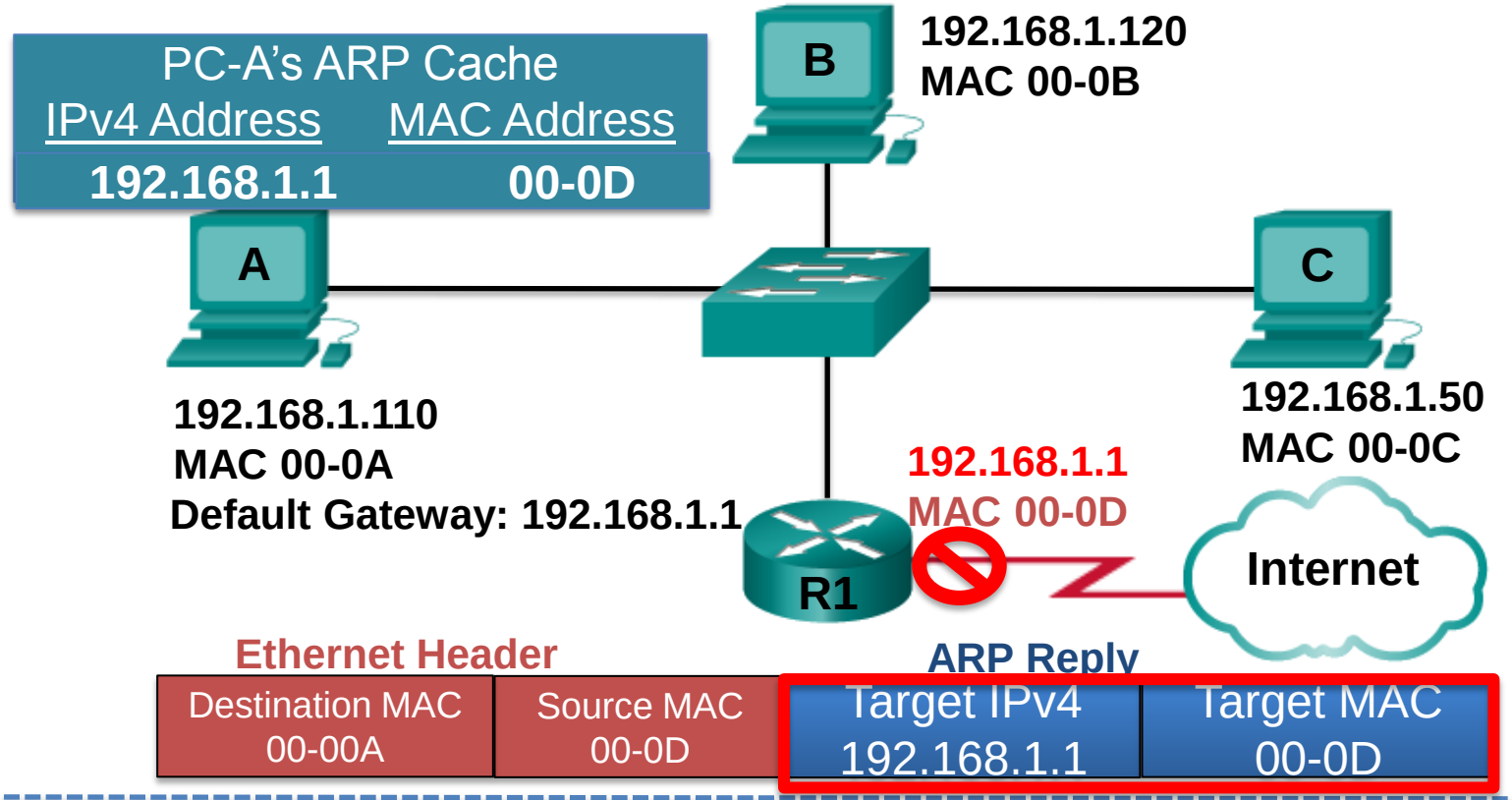
On Hold

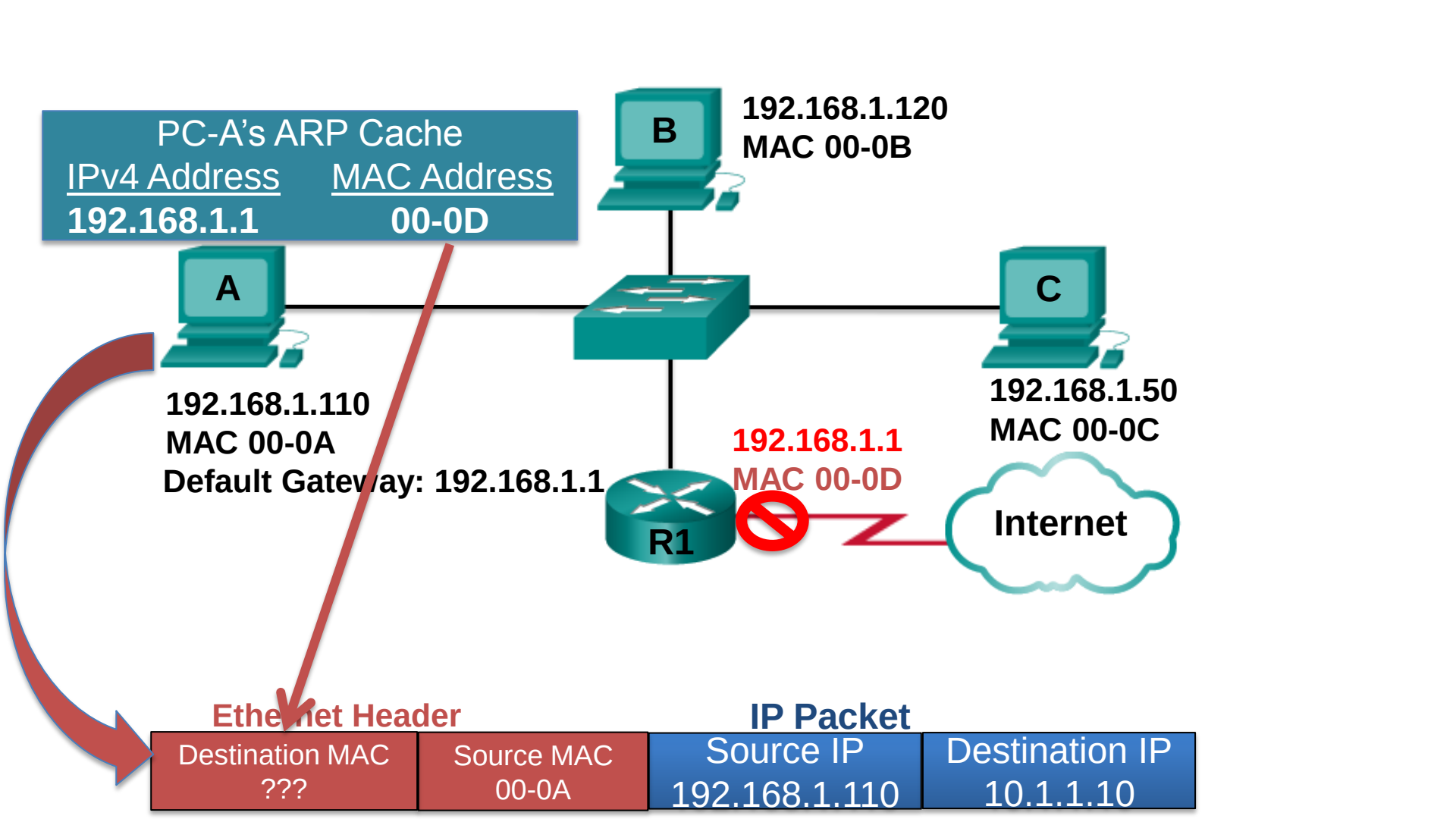
Ethernet Header

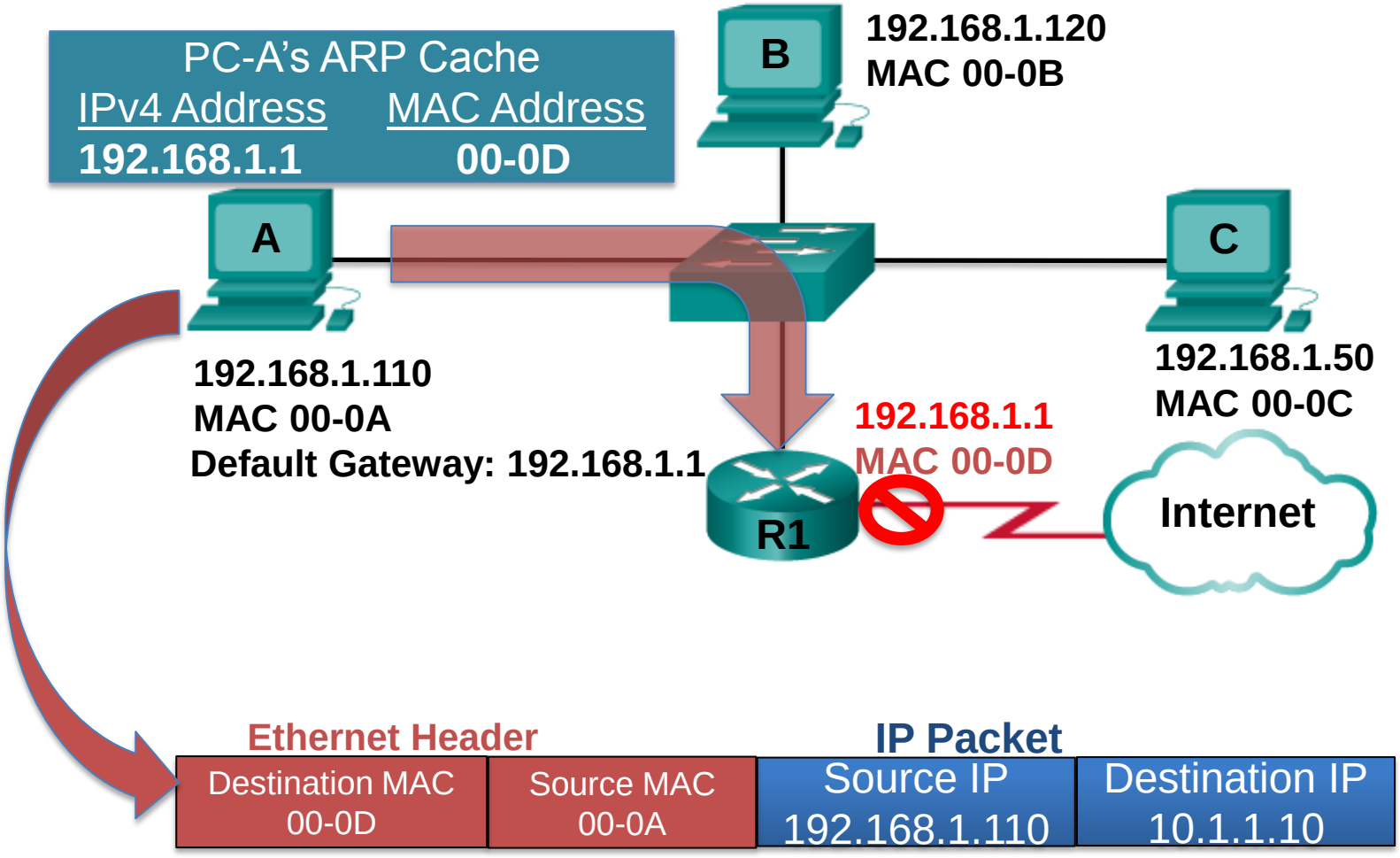
Destination MAC	Source MAC
???	00-0A

IP Packet

Source IP	Destination IP
192.168.1.110	10.1.1.10


PC-A's ARP Cache
IPv4 Address
MAC Address
192.168.1.1
00-0D
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
Destination MAC
00-00A
Source MAC
00-0D
ARP Reply
Target IPv4
192.168.1.1
Target MAC
00-0D
On Hold
Ethernet Header
Destination MAC
???
Source MAC
00-0A
IP Packet
Source IP
192.168.1.110
Destination IP
10.1.1.10


PC-A's ARP Cache
IPv4 Address
MAC Address
192.168.1.1
00-0D
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.50
MAC 00-0C
192.168.1.1
MAC 00-0D
R1
Internet
Ethernet Header
Destination MAC
???
Source MAC
00-0A
IP Packet
Source IP
192.168.1.110
Destination IP
10.1.1.10


PC-A's ARP Cache
IPv4 Address
MAC Address
192.168.1.1
00-0D
B
192.168.1.120
MAC 00-0B
A
C
192.168.1.110
MAC 00-0A
Default Gateway: 192.168.1.1
192.168.1.1
MAC 00-0D
R1
192.168.1.50
MAC 00-0C
Internet
Ethernet Header
IP Packet
Destination MAC
00-0D
Source MAC
00-0A
Source IP
192.168.1.110
Destination IP
10.1.1.10