

Data Link Layer Traffic Analysis of ARP

The screenshot displays the Cisco Packet Tracer interface with a network topology consisting of a central switch (Switch0) connected to three PCs (PC0, PC1, PC2) and a server (Server0). The network is configured with IP addresses in the 192.168.11.0/24 range. The interface shows the ARP tables for PC0 and Server0, both containing entries for 192.168.11.1. The PDU Information at Device: PC0 window shows the Outbound PDU Details, indicating the destination is Broadcast. The OSI Model window shows the packet structure, including the Ethernet II Header and the ARP packet. The Simulation Panel shows the Event List, detailing the sequence of events from 0.000 to 0.004 seconds, including the transmission of ARP requests and replies. The PC0 Command Prompt shows the execution of the 'arp -a' command, displaying the ARP table contents.

ARP Table for PC0

| IP Address | Hardware Address | Interface |
|--------------|------------------|------------|
| 192.168.11.1 | 0002.168E.54D2 | FastEth... |

ARP Table for Server0

| IP Address | Hardware Address | Interface |
|--------------|------------------|------------|
| 192.168.11.1 | 0003.E4... | FastEth... |

PDU Information at Device: PC0

OSI Model Outbound PDU Details

At Device: PC0
Source: PC0
Destination: Broadcast

In Layers: Layer7, Layer6, Layer5, Layer4, Layer3, Layer2, Layer1

Out Layers: Layer7, Layer6, Layer5, Layer4, Layer3, Layer2, Layer1

Layer 2: Ethernet II Header
0003.E406.916A >> FFFF.FFFF.FFFF ARP
Packet Src. IP: 192.168.11.1, Dest. IP: 192.168.11.4
Layer 1: Port(s): FastEthernet0

Simulation Panel

| Vis. | Time(sec) | Last Device | At Device | Type |
|------|-----------|-------------|-----------|------|
| | 0.000 | -- | PC0 | ICMP |
| | 0.000 | -- | PC0 | ARP |
| | 0.001 | PC0 | Switch0 | ARP |
| | 0.002 | Switch0 | Server0 | ARP |
| | 0.002 | Switch0 | PC1 | ARP |
| | 0.002 | Switch0 | PC2 | ARP |
| | 0.003 | Server0 | Switch0 | ARP |
| | 0.004 | Switch0 | PC0 | ARP |
| | 0.004 | -- | PC0 | ICMP |

PC0 Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>arp -a
No ARP Entries Found
C:\>ping 192.168.11.1

Pinging 192.168.11.1 with 32 bytes of data:

Reply from 192.168.11.1: bytes=32 time=5ms TTL=128
Reply from 192.168.11.1: bytes=32 time=1ms TTL=128
Reply from 192.168.11.1: bytes=32 time=2ms TTL=128
Reply from 192.168.11.1: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.11.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 5ms, Average = 3ms
C:\>
```

The screenshot displays the Cisco Packet Tracer interface with a network topology consisting of a central switch (Switch0) connected to three PCs (PC0, PC1, PC2) and a server (Server0). The network is configured with IP addresses in the 192.168.11.0/24 range. The interface shows the ARP tables for PC0 and Server0, both containing entries for 192.168.11.1. The PDU Information at Device: PC0 window shows the Outbound PDU Details, indicating the destination is Broadcast. The OSI Model window shows the packet structure, including the Ethernet II Header and the ARP packet. The Simulation Panel shows the Event List, detailing the sequence of events from 0.000 to 0.004 seconds, including the transmission of ARP requests and replies. The PC0 Command Prompt shows the execution of the 'arp -a' command, displaying the ARP table contents.

ARP Table for PC0

| IP Address | Hardware Address | Interface |
|--------------|------------------|------------|
| 192.168.11.1 | 0002.168E.54D2 | FastEth... |

ARP Table for Server0

| IP Address | Hardware Address | Interface |
|--------------|------------------|------------|
| 192.168.11.1 | 0003.E4... | FastEth... |

PDU Information at Device: PC0

OSI Model Outbound PDU Details

At Device: PC0
Source: PC0
Destination: Broadcast

In Layers: Layer7, Layer6, Layer5, Layer4, Layer3, Layer2, Layer1

Out Layers: Layer7, Layer6, Layer5, Layer4, Layer3, Layer2, Layer1

Layer 2: Ethernet II Header
0003.E406.916A >> FFFF.FFFF.FFFF ARP
Packet Src. IP: 192.168.11.1, Dest. IP: 192.168.11.4
Layer 1: Port(s): FastEthernet0

Simulation Panel

| Vis. | Time(sec) | Last Device | At Device | Type |
|------|-----------|-------------|-----------|------|
| | 0.000 | -- | PC0 | ICMP |
| | 0.000 | -- | PC0 | ARP |
| | 0.001 | PC0 | Switch0 | ARP |
| | 0.002 | Switch0 | Server0 | ARP |
| | 0.002 | Switch0 | PC1 | ARP |
| | 0.002 | Switch0 | PC2 | ARP |
| | 0.003 | Server0 | Switch0 | ARP |
| | 0.004 | Switch0 | PC0 | ARP |
| | 0.004 | -- | PC0 | ICMP |

PC0 Command Prompt

```
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C:\>arp -a
No ARP Entries Found
C:\>ping 192.168.11.1

Pinging 192.168.11.1 with 32 bytes of data:

Reply from 192.168.11.1: bytes=32 time=5ms TTL=128
Reply from 192.168.11.1: bytes=32 time=1ms TTL=128
Reply from 192.168.11.1: bytes=32 time=2ms TTL=128
Reply from 192.168.11.1: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.11.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
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C:\>
```