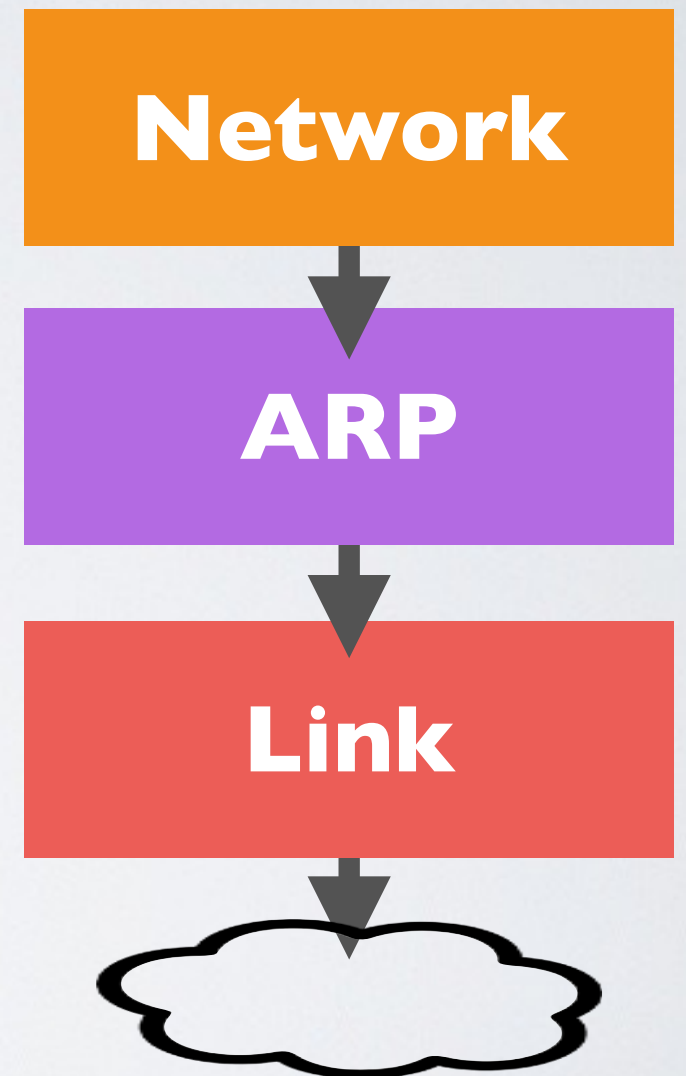


ARP - Address Resolution Protocol

Each host has an ARP table that contains mapping between MAC and IP addresses

- ➡ Host broadcasts their own IP address and MAC address to others to build their ARP table



ARP - Address Resolution Protocol

```
30 5.018678 02:42:e7:08:96:52 02:42:0a:00:00:02 ARP 42 Who has 10.0.0.2? Tell 10.0.0.1
31 5.018686 02:42:0a:00:00:02 02:42:e7:08:96:52 ARP 42 10.0.0.2 is at 02:42:0a:00:00:02

4
> Frame 31: 42 bytes on wire (336 bits), 42 bytes captured (336 bits)
> Ethernet II, Src: 02:42:0a:00:00:02 (02:42:0a:00:00:02), Dst: 02:42:e7:08:96:52 (02:42:e7:08:96:52)
- Address Resolution Protocol (reply)
  Hardware type: Ethernet (1)
  Protocol type: IPv4 (0x0800)
  Hardware size: 6
  Protocol size: 4
  Opcode: reply (2)
  Sender MAC address: 02:42:0a:00:00:02 (02:42:0a:00:00:02)
  Sender IP address: 10.0.0.2
  Target MAC address: 02:42:e7:08:96:52 (02:42:e7:08:96:52)
  Target IP address: 10.0.0.1

> Frame 82: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface ens33, id 0
> Ethernet II, Src: VMware_30:da:bf (00:0c:29:30:da:bf), Dst: VMware_e7:52:23 (00:50:56:e7:52:23)
- Address Resolution Protocol (request)
  Hardware type: Ethernet (1)
  Protocol type: IPv4 (0x0800)
  Hardware size: 6
  Protocol size: 4
  Opcode: request (1)
  Sender MAC address: VMware_30:da:bf (00:0c:29:30:da:bf)
  Sender IP address: 192.168.23.128
  Target MAC address: 00:00:00:00:00:00 (00:00:00:00:00:00)
  Target IP address: 192.168.23.2

0010 08 00 06 04 00 01 00 0c 29 30 da bf c0 a8 17 80 ..... }0.....
Sender IP address (arp.src.proto_ipv4), 4 bytes
Packets: 299 - Displayed: 299 (100.0%) Profile: Default

student@d27-vm:~/labs-review/packet-sniffing-starter$ ip --brief address show
lo UNKNOWN 127.0.0.1/8 ::1/128
ens33 UP 192.168.23.128/24 fe80::7fc8:9a37:c4e:c01b/64
docker0 DOWN 172.17.0.1/16
student@d27-vm:~/labs-review/packet-sniffing-starter$ arp -l ens33
Address HWtype HWaddress Flags Mask Iface
169.254.169.254 (incomplete) ens33
192.168.23.254 ether 00:50:56:e5:4f:6c C ens33
_gateway ether 00:50:56:e7:52:23 C ens33
192.168.23.1 ether 00:50:56:c0:00:08 C ens33
student@d27-vm:~/labs-review/packet-sniffing-starter$ ip neigh show
169.254.169.254 dev ens33 FAILED
192.168.23.254 dev ens33 lladdr 00:50:56:e5:4f:6c STALE
192.168.23.2 dev ens33 lladdr 00:50:56:e7:52:23 REACHABLE
192.168.23.1 dev ens33 lladdr 00:50:56:c0:00:08 REACHABLE
student@d27-vm:~/labs-review/packet-sniffing-starter$
```

Network

ARP

Link

