Address resolution protocol

Lecture 4

Introduction

- ARP required for any shared medium type link layer

- Was first developed for Ethernet

- Translates IP address into the link layer address

Introduction

- ARP is another protocol from the perspective of Ethernet (or any link layer protocol)
  - IPv4: 0x0800
  - ARP: 0x0806

- Example: Fig. 4-1

ARP cache

- ARP entries are made
  - Either by ARP protocol
  - Or statically
- Entries made by ARP protocol is "dynamic" and has lifetime = 1200s
  - Refreshed upon use
  - Otherwise purged
- Try arp command with (-a, -d, -s)

ARP frame format

- Fig. 4-2

- Short → requires padding in Ethernet frame

- Sender/target address switched
  - Request vs. reply

ARP

- ARP can fail → incomplete entry is purged in time

- Proxy ARP is used for gateways

Gratuitous ARP and ACD

- Gratuitous ARP is sent as a request by the target itself
    - Duplicate address detection (DAD)
    - Update stale ARP entries on the link

- ARP protocol rules