What is it?

A network which uses the Internet Protocol as a means of communication.

A group of hosts which share a common physical connection and that use IP for network layer communication

What are some defining aspects of an IP network?

All hosts on the network must be identified by an IP address

# Addresses

IP addresses

Are assigned contiguously, with no gaps

What types of addresses are there in an IP network?

host address

network address

broadcast address

What is meant by the first / last address in an IP network?

TODO

Subnet mask

Stored on each host in an IP network allowing hosts to identify hosts as either belonging to the network, or a different network.

# Translation

What types of translations are used on an IP network?

IP addresses are translated into MAC addresses

ARP

What is it?

Address resolution protocol

Resolves logical addresses into physical addresses

Why?

Allows a packet destined for a logical address (ip for example) to be delivered to a physical MAC address

ARP table?

A cache of logical to physical address mappings maintained on a network host.

Entries are aged out over time

How does the protocol work?

When a host needs to determine the physical address corresponding to an ip address, it broadcasts ARP packets asking network hosts whether they have a given ip address, and if so, what their MAC address is.

All hosts listen to ARP packets broadcast on the local network

When are ARP broadcasts unnecessary?

If the sending host already has the mapping in its ARP table.

Uses a network’s broadcast address to

protocol use

# Terms

Internet layer

Layer in which IP is defined

Network layer

Physical layer in which all data is transmitted using frames.

Packet

The main structure in an IP network.