

Networking Fundamentals

A bit of history

- Two key steps to make the computers talk together (1961, 1965)
 - Packet-switched networks (70's - 80's)
 - Local area networks (late 80's, early 90's)
 - Routed networks vs. Broadcast & select
 - Internet
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Networking Basics

- Goals: IP/MAC addresses, subnetting, fundamental protocols, basics of routing/switching
 - Assumptions:
 - packet-switched networks
 - nodes attached to a L2 broadcast-and-select network
 - 6-byte MAC address, 4-byte IP address
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Address Resolution

- Problem: Find MAC address of a node with a given IP address
 - Solution: ARP
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Subnetting

- Problem: deciding whether an IP address is on a local L2 network
- Solution: nodes on a local network (and only those) have IP addresses with in a specific range
- IP Prefix
- Subnet Mask (netmask)