Hardware

Elliot Schwartz
Student Information Processing Board

Layer 1 and 2

- Topology choices at both levels
  - Point-to-Point
  - Bus
  - Star
  - Ring

Layer 1 and 2...

- Specific technologies / combinations
  - Ethernet
    - Addressing
    - Carrier Sense Multiple Access w/Colision Detection (CSMA/CD)
    - Types
      - traditional (10base2, 10base5)
      - hub-based (10baseT, many 100Mbps formats)
      - switched
    - Interoperation with IP - ARP and RARP

Layer 1 and 2...

- FDDI - traditional and switched
- Serial Line & PPP
- Serial Line & Frame Relay/ATM
  - Frame Relay/PVC model
  - SVCs
- ATM and IP

Layer 3

- Routers
  - Typical applications
  - Marketplace
  - Technical Issues
    - Backplane Bandwidth / Forwarding Speed
    - Software Quality
    - Queueing & Packet Scheduling
      - Weighted Fair Queueing
      - Random Early Drop (RED)

What's next?

- Massively Parallel Routers
  - more ports
  - higher speeds
- Tag Switching / Label Switching / Multiprotocol Integrated Routing & Switching (MISR) / etc.
  - Layer 3 structure sets up Layer 2 configuration dynamically

References

- Tanenbaum, Andrew S. Computer Networks. - good overall reference
- RFC826 - ARP, RFC903 - RARP