

Network Protocols

Exploration

Layering

- Why or why not?
- OSI model
- TCP/IP protocol suite
- Models versus implementations

Addressing

- Fixed size versus variable length
- Hierarchy and aggregation
- Centralized assignment versus distributed

Fragmentation

- Maximum transmission unit (MTU) discovery
- Where does fragmentation occur?

Routing

- Source-based versus network-based
- Distance vector versus link state
- Policy routing
- Mobility issues

Error control

- Detection and reporting
- Correction and recovery
- What are the cause of errors?
- Link-based or end-to-end based control?

Flow control

- Implicit versus explicit
- Windowing
- End-to-end based versus network-based
- Timers and retransmissions

Network management

- Simplicity versus complexity
- In-band versus out-of-band
- QoS/CoS
- Billing

Internetwork security

- Placement of security services
- Defense in depth and belt-and-suspenders
- Obscurity
- Walled gardens
- Trade-offs

Standards

- Access and transparency
- Vendors and competing interests
- Intellectual property concerns
- Design by committee syndrome