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