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