Topic: Final Review
Final Exam Details

• Set of topics included here
  – Topics to review
  – Reminder: diagram switch & router operation

• Wednesday, Dec 11th from 12:00pm-2:00pm

• Final is cumulative
  – Breakdown is *approximately* 75% new material, 25% old
Outline

• Topic #11: IP addressing
  – Class-based (for historical purposes and terminology ONLY)
  – Network masks
  – Classless Inter-Domain Routing (CIDR)
  – Translating address prefixes into address ranges
  – Splitting one prefix into multiple prefixes
  – Combining multiple prefixes into one prefix
  – Hierarchical addressing

• Topic #12: Routing
  – Difference between routing and forwarding
  – What a forwarding table looks like
  – Two techniques for dynamic routing (DV v. LS)
  – Summary of techniques, algorithms, and protocols
  – Hierarchical routing
  – Differences in intra- and inter-domain routing
Outline

• Topic #13
  – ICMP
    • Uses
    • ICMP packet structure (including what is included in transmitted packet)
  – IPv6
    • Overview, header
  – Tunneling
  – DHCP

• Topic #14
  – Types of transport layer protocols and their functions
  – TCP Header
  – Connection management (setup and teardown details)
  – Reliability (lots of material here!!)
  – Congestion control (details are in Topic #15)
Outline

• Topic #15:
  – TCP Congestion Control
    • The four windows involved in TCP congestion control
    • Basic algorithm (Tahoe)
    • TCP variants: Reno, Vegas, SACK, New Reno, BIC, Compound
  – TCP/IP over satellite links
    • Limits in the IP and TCP headers
    • Techniques for overcoming the limitations
  – UDP
Outline

• Topic #16
  – DNS
    • Functions
    • DNS organization
    • Iterative v. Recursive searching
  – HTTP
    • High level characteristics of the protocol
    • Details of protocol messages (e.g., GET and PUT)
    • Non-Persistent vs. Persistent
    • Pipelining
    • Parallelism

• Topic #17
  – NAT (in particular how a NAT device works)
  – CDNs (overview of how CDNs work)
  – P2P (general overview of how they work, including the different ways for a peer to find a particular piece of content)