Virtual circuit vs. datagram

Example of virtual circuits: Tor

Input port, output port, switching fabric
What is port mirroring?

Switching fabrics: Memory, bus (Cisco 5600 series), crossbar (Cisco 12000 series)

Control plane vs. data plane

Two kinds of common routing algorithms: Link State (global) and Distance Vector (decentralized)

Link State might, for example, use Dijkstra's algorithm

Edsger W. Dijkstra (semaphores)

OSPF is an example of a Link State protocol

Distance Vector is asynchronous and distributed
Bad news travels slowly → Poisoned Reverse solves this problem

Example on page 376

RIP is an example of a Distance Vector protocol

Message complexity: LS is $O(nE)$ for $n$ nodes and $E$ edges
Speed of convergence: LS is $O(n^2)$ to compute, DV can be slow to converge
Robustness: DV can suffer from incorrect announcements, since it's distributed

BGP is a path vector algorithm, and you don't have to pass along routes or use them

Optical switching

Vocab: Autonomous System

Routes on the Internet change often, are sometimes asymmetric

IPv4 header on page 333

Network Address Translation

IPv6 header on page 357

Fragmentation, Internet Exchange Points, tunnels

man traceroute
man tcptraceroute
man tracepath