CPSC 317 COMPUTER NETWORKING

Module 9: Wrapup

MODULE 1 - DESIGN

- The Internet is a network of networks
- Design goals: reliability, flexibility, decentralized management, cost effectiveness, accountability
- Protocols
- Layers
- Circuit switching & packet switching

MODULE 2 - PERFORMANCE

- Latency
- Round-Trip Time
- Bandwidth
- Throughput
- Goodput
- Jitter
- Queuing delay formula

MODULE 3 – APPLICATION LAYER

- Peer-to-peer vs. client-server
- Sockets
- HTTP
- DNS
- E-mail
- Bittorrent and Bitcoin

MODULE 4 – TRANSPORT LAYER

- Ports
- UDP
- Alternating Bit Protocol
- Sliding windows: GBN & SR
- Flow and congestion control
- TCP

MODULE 5 – NETWORK LAYER

- Autonomous Systems
- IP addresses: Classes & CIDR
- Forwarding
- Routing: Intra-domain & Inter-domain

MODULE 6 – NAT

- The abomination that is Network Address Translation

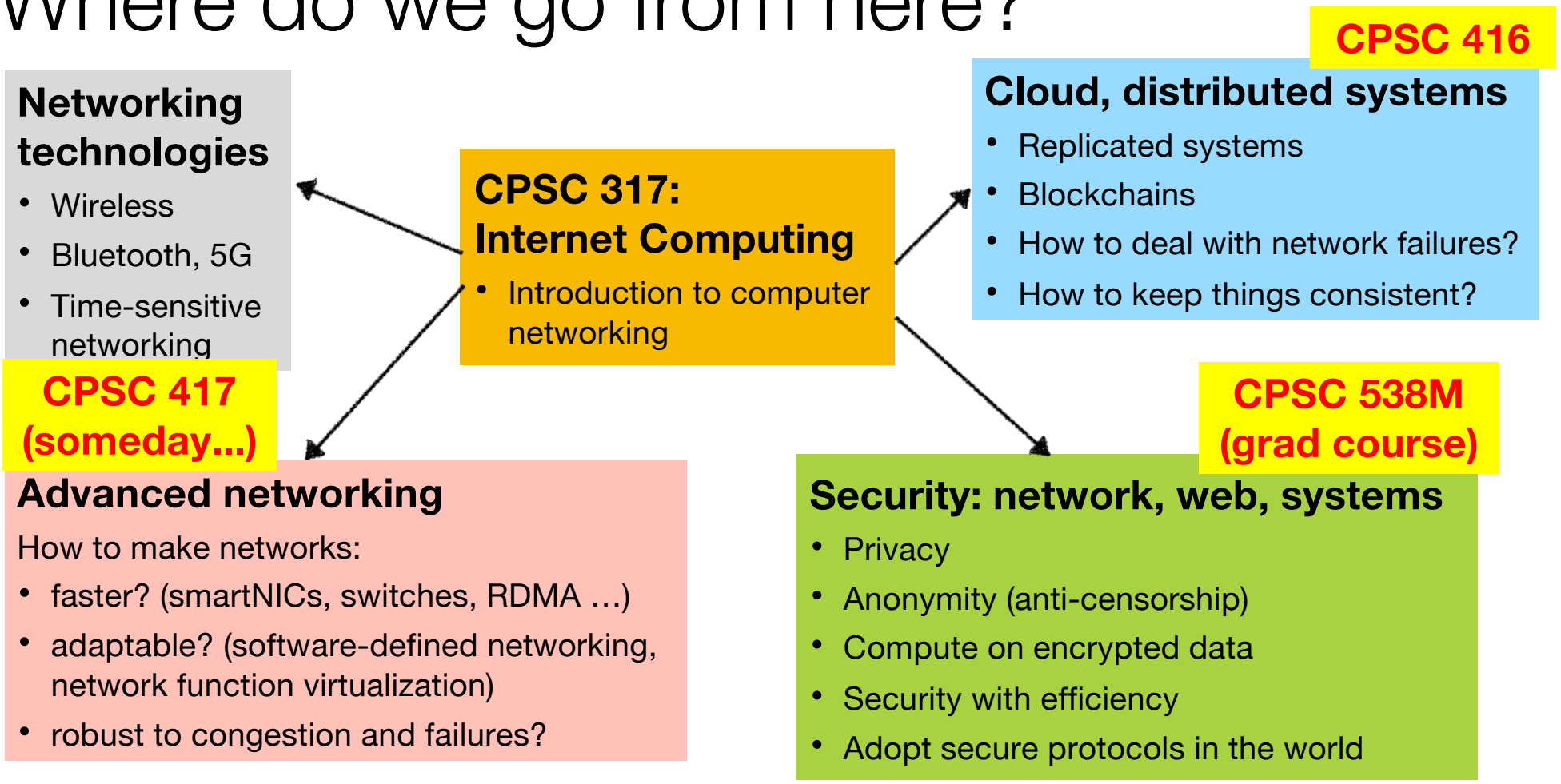
MODULE 7 – LINK LAYER

- MAC addresses
- Link layer frame format
- Error detection: parity & CRC
- Switches and forwarding
- ARP
- DHCP
- VLANs & Data center networking

MODULE 8 – SECURITY

- Principles: Confidentiality, Authentication, Integrity, Availability
- Shared & Public/Private key cryptography
- Authentication & Message Integrity
- Message Authentication Codes
- Certificates
- TLS & IPsec
- Denial of Service attacks

Where do we go from here?



QUESTIONS?