



Module 1 Part A – IP Video Ecosystem

IP Network Overview

- Why IP?
- IP Network Functions
- The IP Video Ecosystem

Part B – Protocol Stack and Layer 1 – Physical Layer

Protocol Layers

- Open Systems Interconnect (OSI)
- Attributes of Layers

Layer 1: Physical Layer

- Physical Layer
- Physical Layer Functions

Part C – Ethernet Physical Layer

Popular Ethernet Physical Layer Choices

- High-Speed Ethernet Technologies
- WiFi – 802.11

Module 1 – Key Points and Q&A

Module 2 Part A – Layer 2 – Data Link – Ethernet

Layer 2: Ethernet/Data Link Functions

- Message Delineation
- Medium Access Control
- Ethernet Addressing
- ARP – Address Resolution Protocol
- Ethernet Frame Error Checking

Part B – Ethertype and VLANs

Ethertype Field

VLANs – Virtual LANs

- VLAN Architecture
- VLAN Port Types and Tagging
- VLAN Trunk Architecture
- VLAN Tag Construction

Part C – Spanning Tree Protocol

Spanning Tree Protocol

Spanning Tree Issues

Part D – Summary and Q&A

Module 2 – Key Points and Q&A

Module 3 Part A – Layer 3 – Network - IP

Layer 3: Internet Protocol/Network

IPv4 Addresses

- Private Address Spaces
- IP Addresses vs. MAC Addresses

Part B – IPv4 + IPv6 Headers

- IPv4 Packet Header
- IPv4 and IPv6

Part C – IP Subnets and DNS

IP Subnets

- Example
- Subnet Masking
- Subnet Calculators

DNS – Domain Name Server

Part D – DHCP and NAT

DHCP – Dynamic Host Configuration Protocol

NAT – Network Address Translation

Module 3 – Key Points and Q&A

Module 4 Part A – Layer 4 – Transport Protocols

Layer 4: Transport Protocols

Three Transport Protocols for Video

- Simplified Internet Protocol Model
- Transport Protocols and Connections

Part B – TCP and UDP

TCP and UDP Ports

- Common Ports
- Port Binding and Sockets

UDP: User Datagram Protocol

- Details, Examples

TCP: Transmission Control Protocol

- Details, Examples
- Data Re-Sending
- Speed Control: AIMD

Part C – RTP

RTP: Real Time Protocol

- Packet Structure
- Features

Module 4 – Key Points and Q&A