

Guide to Enterprise Protocols

OSI LAYERS

TCP/IP LAYERS

7

Application Layer
 - Supports application and end-user processes
 - Offers application services
 - User identification, authentication, and privacy

6

Presentation Layer
 - Application, system, and network independent data formatting
 - Data conversion, compression, encryption, and decryption

5

Session Layer
 - Establishes, manages, and terminates application connections
 - Manages data transfer permissions and records upper layer errors

4

Transport Layer
 - End-to-end connection and connectionless data delivery management
 - Ensures reliable packet delivery caused by network congestion & errors
 - Congestion avoidance and data transmission flow control

3

Network Layer
 - Logical addressing, routing, and packet generation
 - Carries out congestion control and error handling
 - Route monitoring and message forwarding

2

Data Link Layer
 - Performs error detection and correction of the data streams
 - Manages flow and link control between the physical signaling and network
 - Constructs and synchronizes data frame packets

1

Physical Layer
 - Defines physical characteristics of cables and connectors
 - Provides the interface between network and network devices
 - Describes the electrical, light, or radio data-stream signaling

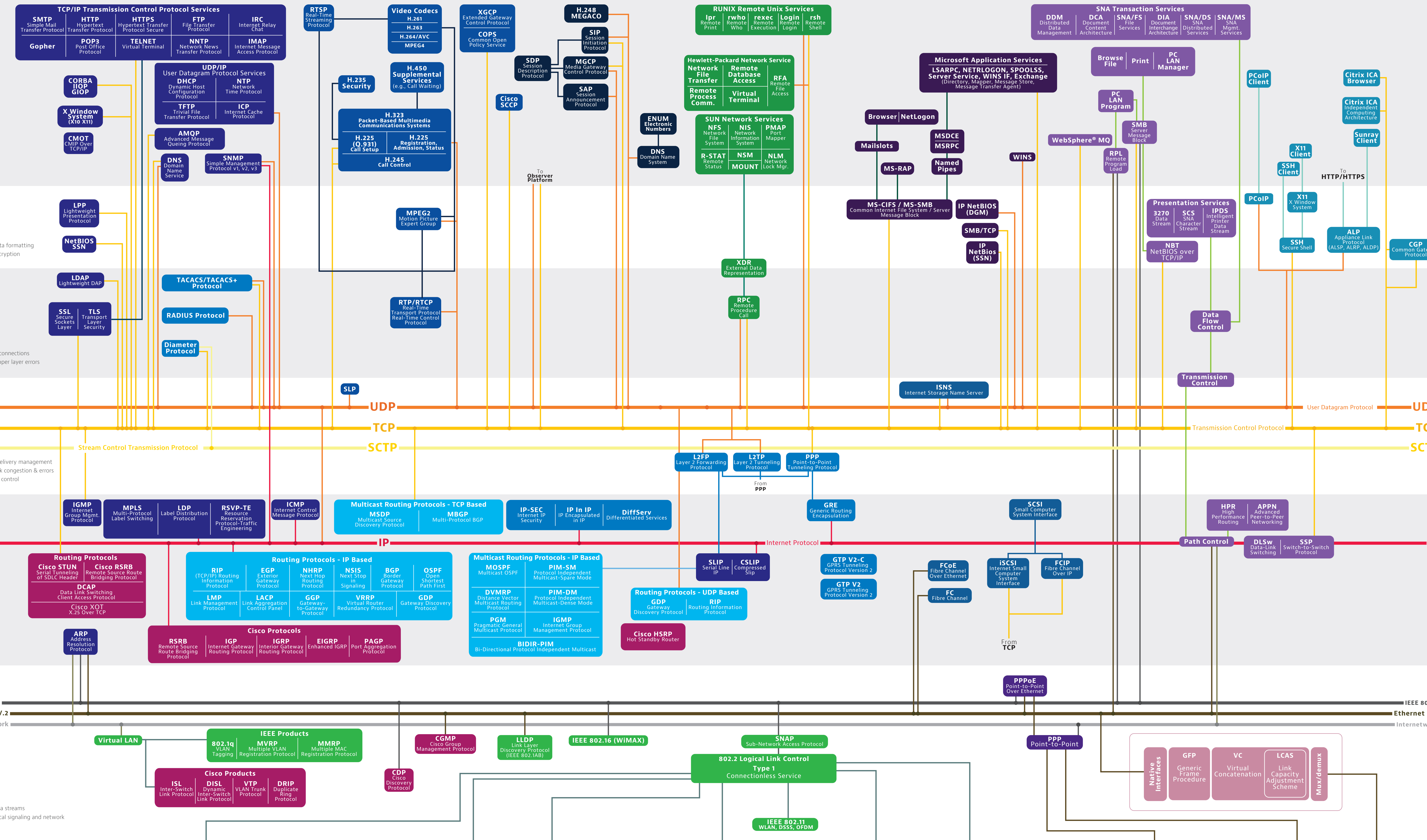
D Application Layer

C Transport Layer

B Internet Layer

A Network Access Layer

TCP/IP Routing/Switching Protocols VoIP/Video/Streaming Cisco® VPN/Tunneling UNIX/HP®/Sun® SAN Microsoft® IBM® Thin Client Protocols



Category	Protocol/Standard	Speed / Description
LAN	100BASE-TX	10GBASE-CX4
	1000BASE-T	25GBASE-T
	2.5GBASE-T	40GBASE-T
	5GBASE-T	40GBASE-CR4
	10GBASE-T	100GBASE-CR10
	1000BASE-LX	40GBASE-LR4
	1000BASE-BX10	200GBASE-FR4*
	1000BASE-LRM	100GBASE-SR2*
	10GBASE-LR	50GBASE-LR*
	10GBASE-ER	100GBASE-DR*
WAN	DOCSIS Cable Modem	DSL Modem
	DOCSIS Bridge	DSL Bridge
	DOCSIS Cable Modem Termination System (CMTS)	DSL Access Multiplexer (DSLAM)
	PDH Plesiochronous Digital Hierarchy	SONET/SDH
	DDS-64 kbps	E3-34,368 Mbps
	D51-1544 Mbps	D3-44,736 Mbps
	E1-2,048 Mbps	E4-140 Mbps
	OC-1 51,840 kbps	OC-48 2,488 Gbps
	OC-3 155.52 Mbps	OC-96 4,976 Gbps
	OC-12 622 Mbps	OC-192 9,953 Gbps

*In the process of standards approval