

Appendix B

References

This document lists RFCs, draft RFCs, other software standards, hardware standards, and other references that provide information about the protocols and features supported by the system.

- RFCs on page 578
- Draft RFCs on page 586
- Other Software Standards on page 588
- Hardware Standards on page 590

RFCs

Table 61: E-series RFCs

Reference	Protocol or Feature
RFC 4762—Virtual Private LAN Service (VPLS) Using Label Distribution Protocol (LDP) Signaling (January 2007)	VPLS
RFC 4684—Constrained Route Distribution for Border Gateway Protocol/MultiProtocol Label Switching (BGP/MPLS) Internet Protocol (IP) Virtual Private Networks (VPNs) (2006)	BGP/MPLS VPNs
RFC 4679—DSL Forum Vendor-Specific RADIUS Attributes (September 2006)	RADIUS
RFC 4447—Pseudowire Setup and Maintenance Using the Label Distribution Protocol (LDP) (April 2006)	VPLS
RFC 4379—Detecting Multi-Protocol Label Switched (MPLS) Data Plane Failures (February 2006)	MPLS; BGP/MPLS VPNs
RFC 4243—Vendor-Specific Information Suboption for the Dynamic Host Configuration Protocol (DHCP) Relay Agent Option (December 2005)	DHCP
RFC 4090—Fast Reroute Extensions to RSVP-TE for LSP Tunnels (May 2005)	MPLS
RFC 3847—Restart Signaling for Intermediate System to Intermediate System (IS-IS) (July 2004)	IS-IS
RFC 3784—Intermediate System to Intermediate System (IS-IS) Extensions for Traffic Engineering (TE) (June 2004)	IS-IS
RFC 3748—Extensible Authentication Protocol (EAP) (June 2004)	PPP
RFC 3715—IPsec-Network Address Translation (NAT) Compatibility Requirements (March 2004)	L2TP over IPsec
RFC 3710—Multicast Listener Discovery (MLD) for IPv6 (October 1999)	IPv6 multicasting
RFC 3706—A Traffic-Based Method of Detecting Dead Internet Key Exchange (IKE) Peers (February 2004)	IPsec
RFC 3646—DNS Configuration options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6) (December 2003)	DHCP
RFC 3633—IPv6 Prefix Options for Dynamic Host Configuration Protocol (DHCP) Version 6 (December 2003)	DHCP
RFC 3630—Traffic Engineering (TE) Extensions to OSPF Version 2 (September 2003)	OSPF
RFC 3623—Graceful OSPF Restart (November 2003)	OSPF
RFC 3579—RADIUS EAP (September 2003)	PPP
RFC 3576—Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS) (July 2003)	RADIUS
RFC 3569—An Overview of Source-Specific Multicast (SSM) (July 2003)	IP multicasting
RFC 3564—Requirements for support of Differentiated Services-aware MPLS Traffic Engineering (July 2003)	MPLS
RFC 3539—Authentication, Authorization and Accounting (AAA) Transport Profile (June 2003)	RADIUS
RFC 3498—Definitions of Managed Objects for Synchronous Optical Network (SONET) Linear Automatic Protection Switching (APS) Architectures (March 2003)	SONET APS redundancy
RFC 3479—Fault Tolerance for the Label Distribution Protocol (LDP) (February 2003)	MPLS
RFC 3478—Graceful Restart Mechanism for Label Distribution Protocol (February 2003)	MPLS
RFC 3473—Generalized Multi-Protocol Label Switching (GMPLS) Signaling Resource ReserVation Protocol-Traffic Engineering (RSVP-TE) Extensions (January 2003)	MPLS
RFC 3471—Generalized Multi-Protocol Label Switching (GMPLS) Signaling Functional Description (January 2003)	MPLS

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 3447—Public-Key Cryptography Standards (PKCS) #1: RSA Cryptography Specifications Version 2.1 (February 2003)	Digital certificates
RFC 3443—Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks (January 2003)	MPLS
RFC 3419—Textual Conventions for Transport Addresses (December 2002)	IP
RFC 3418—Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) (December 2002)	SNMP
RFC 3417—Transport Mappings for the Simple Network Management Protocol (SNMP) (December 2002)	SNMP
RFC 3416—Version 2 of the Protocol Operations for the Simple Network Management Protocol (SNMP) (December 2002)	SNMP
RFC 3415—View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP) (December 2002)	SNMP
RFC 3414—User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) (December 2002)	SNMP
RFC 3413—Simple Network Management Protocol (SNMP) Applications (December 2002)	SNMP
RFC 3412—Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) (December 2002)	SNMP
RFC 3411—An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks (December 2002)	SNMP
RFC 3410—Introduction and Applicability Statements for Internet Standard Management Framework (December 2002)	SNMP
RFC 3392—Capabilities Advertisement with BGP-4 (November 2002)	BGP; BGP/MPLS VPNs
RFC 3376—Internet Group Management Protocol (October 2002)	IP multicasting
RFC 3373—Three-Way Handshake for Intermediate System to Intermediate System (IS-IS) Point-to-Point Adjacencies (September 2002)	IS-IS
RFC 3344—IP Mobility Support for IPv4 (August 2002)	Mobile IP
RFC 3318—Framework Policy Information Base (March 2003)	COPS
RFC 3315—Dynamic Host Configuration Protocol for IPv6 (DHCPv6) (July 2003)	DHCP
RFC 3293—General Switch Management Protocol (GSMP) Packet Encapsulations for Asynchronous Transfer Mode (ATM), Ethernet and Transmission Control Protocol (TCP) (June 2002)	L2C
RFC 3292—General Switch Management Protocol (GSMP) V3 (June 2002)	IP multicasting; L2C
RFC 3291—Textual Conventions for Internet Network Addresses (May 2002)	IP
RFC 3280—Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile (April 2002)	Digital certificates
RFC 3277—Intermediate System to Intermediate System (IS-IS) Transient Blackhole Avoidance (April 2002)	IS-IS
RFC 3270—Multi-Protocol Label Switching (MPLS) Support of Differentiated Services (May 2002)	MPLS
RFC 3260—New Terminology and Clarifications for Diffserv (April 2002)	QoS
RFC 3246—An Expedited Forwarding PHB (Per-Hop Behavior) (March 2002)	MPLS; QoS
RFC 3210—Applicability Statement for Extensions to RSVP for LSP-Tunnels (December 2001)	BGP/MPLS VPNs
RFC 3209—RSVP-TE: Extensions to RSVP for LSP Tunnels (December 2001)	BGP/MPLS VPNs
RFC 3198—Terminology for Policy-Based Management (November 2001)	Policy management

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 3193—Securing L2TP using IPSec (November 2001)	L2TP over IPSec
RFC 3159—Structure of Policy Provisioning Information (SPPI) (August 2001)	COPS
RFC 3145—L2TP Disconnect Cause Information (July 2001)	L2TP
RFC 3140—Per Hop Behavior Identification Codes (June 2001)	MPLS
RFC 3107—Carrying Label Information in BGP-4 (May 2001)	BGP/MPLS VPNs
RFC 3097—RSVP Cryptographic Authentication -- Updated Message Type Value (April 2001)	MPLS
RFC 3084—COPS Usage for Policy Provisioning (COPS-PR) (March 2001)	COPS
RFC 3065—Autonomous System Confederations for BGP (February 2001)	MPLS
RFC 3046—DHCP Relay Agent Information Option (January 2001)	Dynamic interfaces, RADIUS
RFC 3037—LDP Applicability (January 2001)	MPLS
RFC 3036—LDP Specification (January 2001)	MPLS, VPLS
RFC 3035—MPLS using LDP and ATM VC Switching (January 2001)	MPLS
RFC 3032—MPLS Label Stack Encoding (January 2001)	MPLS
RFC 3031—Multiprotocol Label Switching Architecture (January 2001)	MPLS
RFC 3027—Protocol Complications with the IP Network Address Translator (January 2001)	NAT
RFC 3024—Reverse Tunneling for Mobile IP, revised (January 2001)	Mobile IP
RFC 3022—Traditional IP Network Address Translator (Traditional NAT) (January 2001)	NAT
RFC 3014—Notification Log MIB (November 2000)	SNMP
RFC 2998—A Framework for Integrated Services Operation over Diffserv Networks (November 2000)	QoS
RFC 2993—Architecture Implications of NAT (November 2000)	NAT
RFC 2990—Next Steps for the IP QoS Architecture (November 2000)	QoS
RFC 2986—PKCS #10: Certification Request Syntax Specification Version 1.7 (November 2000)	Digital certificates
RFC 2981—Event MIB (October 2000)	Event Mgr
RFC 2973—IS-IS Mesh Groups (October 2000)	IS-IS
RFC 2966—Domain-wide Prefix Distribution with Two-Level IS-IS (October 2000)	IS-IS
RFC 2961—RSVP Refresh Overhead Reduction Extensions (April 2001)	MPLS
RFC 2934—Protocol Independent Multicast MIB for IPv4 (October 2000)	SNMP
RFC 2933—Internet Group Management Protocol MIB (October 2000)	SNMP
RFC 2932—IPv4 Multicast Routing MIB (October 2000)	SNMP
RFC 2925—Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (September 2000)	SNMP
RFC 2923—TCP Problems with Path MTU Discovery (September 2000)	IP
RFC 2918—Route Refresh Capability for BGP-4 (September 2000)	BGP
RFC 2917—A Core MPLS IP Architecture (September 2000)	MPLS
RFC 2890—Key and Sequence Number Extensions to GRE (September 2000)	GRE
RFC 2869—RADIUS Extensions (June 2000)	RADIUS
RFC 2868—RADIUS Attributes for Tunnel Protocol Support (June 2000)	RADIUS
RFC 2867—RADIUS Accounting Modifications for Tunnel Protocol Support (June 2000)	RADIUS

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 2866—RADIUS Accounting (June 2000)	Dynamic interfaces; RADIUS
RFC 2865—Remote Authentication Dial In User Service (RADIUS) (June 2000)	Dynamic interfaces; RADIUS; Mobile IP
RFC 2864—The Inverted Stack Table Extension to the Interfaces Group MIB (June 2000)	SNMP
RFC 2863—The Interfaces Group MIB (June 2000)	Ethernet; SNMP
RFC 2858—Multiprotocol Extensions for BGP-4 (June 2000)	BGP
RFC 2842—Capabilities Advertisement with BGP-4 (May 2000)	BGP
RFC 2836—Per Hop Behavior Identification Codes (May 2000)	MPLS; Policy, Management; QoS
RFC 2796—BGP Route Reflection—An Alternative to Full Mesh IBGP (April 2000)	BGP
RFC 2794—Mobile IP Network Access Identifier Extension for IPv4 (March 2000)	Mobile IP
RFC 2790—Host Resources MIB (March 2000)	SNMP
RFC 2787—Definitions of Managed Objects for the Virtual Router Redundancy Protocol (March 2000)	VRRP
RFC 2784—Generic Routing Encapsulation (GRE) (March 2000)	IP tunnels
RFC 2763—Dynamic Hostname Exchange Mechanism for IS-IS (February 2000)	IS-IS
RFC 2748—The COPS (Common Open Policy Service) Protocol (January 2000)	COPS
RFC 2747—RSVP Cryptographic Authentication (January 2000)	MPLS
RFC 2740—OSPF for IPv6	OSPF
RFC 2737—Entity MIB (Version 2) (December 1999)	SNMP
RFC 2716—PPP EAP TLS Authentication Protocol (October 1999)	PPP
RFC 2702—Requirements for Traffic Engineering over MPLS (September 1999)	MPLS
RFC 2698—A Two Rate Three Color Marker (September 1999)	Policy management; QoS
RFC 2697—A Single Rate Three Color Marker (September 1999)	Policy management
RFC 2694—DNS extensions to Network Address Translators (DNS_ALG) (September 1999)	NAT
RFC 2685—Virtual Private Networks Identifier (September 1999)	MPLS
RFC 2684—Multiprotocol Encapsulation over ATM Adaptation Layer 5 (September 1999)	ATM
RFC 2668—Definitions of Managed Objects for IEEE 802.3 Medium Attachment Units (MAUs) (August 1999)	Ethernet; SNMP
RFC 2667—IP Tunnel MIB (August 1999)	SNMP; IP tunnels
RFC 2665—Definitions of Managed Objects for the Ethernet-like Interface Types (August 1998)	Ethernet; SNMP
RFC 2663—IP Network Address Translator (NAT) Terminology and Considerations (August 1999)	NAT
RFC 2661—Layer Two Tunneling Protocol “L2TP” (August 1999)	L2TP
RFC 2616—Hypertext Transfer Protocol – HTTP/1.1 (June 1989)	HTTP
RFC 2615—PPP over SONET/SDH (June 1999)	POS
RFC 2598—An Expedited Forwarding PHB (June 1999)	QoS
RFC 2597—Assured Forwarding PHB Group (June 1999)	MPLS; Policy management; QoS
RFC 2580—Conformance Statements for SMIv2 (April 1999)	SNMP

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 2579—Textual Conventions for SMIV2 (April 1999)	SNMP
RFC 2578—Structure of Management Information Version 2 (SMIV2) (April 1999)	SNMP
RFC 2576—Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework (March 2000)	SNMP
RFC 2558—Definitions of Managed Objects for the SONET/SDH Interface Type (March 1999)	SNMP; cOCx/STMx and OCx/STMx interfaces
RFC 2547—BGP/MPLS VPNs (March 1999)	BGP/MPLS VPNs
RFC 2545—Use of BGP-4 Multiprotocol Extensions for IPv6 Inter-Domain Routing (March 1999)	BGP
RFC 2519—A Framework for Inter-Domain Route Aggregation (February 1999)	BGP
RFC 2516—Method for Transmitting PPP over Ethernet (PPPoE) (February 1998)	PPPoE
RFC 2515—Definitions of Managed Objects for ATM Management (February 1999)	ATM; SNMP
RFC 2514—Definitions of Textual Conventions and OBJECT-IDENTITIES for ATM Management (February 1999)	SNMP
RFC 2513—Managed Objects for Controlling the Collection and Storage of Accounting Information for Connection-Oriented Networks (February 1999)	SNMP
RFC 2496—Definitions of Managed Objects for the DS3/E3 Interface Types (January 1999)	SNMP; cOCx/STMx, CT3, E3, and T3 interfaces
RFC 2495—Definitions of Managed Objects for the DS1, E1, DS2 and E2 Interface Types (January 1999)	SNMP; CE1, CT1, and CT3 interfaces
RFC 2493—Textual Conventions for MIB Modules Using Performance History Based on 15 Minute Intervals (January 1999)	SNMP
RFC 2486—The Network Access Identifier (January 1999)	Mobile IP
RFC 2475—An Architecture for Differentiated Services (December 1998)	MPLS; Policy, Management; QoS
RFC 2474—Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers (December 1998)	MPLS; Policy management; QoS
RFC 2466—Management Information Base for IP Version 6: ICMPv6 Group (December 1998)	IPv6; Neighbor Discovery
RFC 2465—Management Information Base for IP Version 6: Textual Conventions and General Group (December 1998)	IPv6
RFC 2464—Transmission of IPv6 Packets over Ethernet Networks (December 1998)	IPv6; Neighbor Discovery
RFC 2463—Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification (December 1998)	IPv6
RFC 2462—IPv6 Stateless Address Autoconfiguration (December 1998)	IPv6; Neighbor Discovery
RFC 2461—Neighbor Discovery for IP Version 6 (IPv6) (December 1998)	IPv6; Neighbor Discovery
RFC 2460—Internet Protocol, Version 6 (IPv6) (December 1998)	IPv6
RFC 2459—Internet X.509 Public Key Infrastructure Certificate and CRL Profile (January 1999)	Digital certificates
RFC 2453—RIP Version 2 (November 1998)	RIP
RFC 2439—BGP Route Flap Damping (November 1998)	BGP

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 2427—Multiprotocol Interconnect over Frame Relay (September 1998)	Frame Relay
RFC 2410—The NULL Encryption Algorithm and Its Use With IPSec (November 1998)	IPSec
RFC 2409—The Internet Key Exchange (IKE) (November 1998)	IPSec
RFC 2408—Internet Security Association and Key Management Protocol (ISAKMP) (November 1998)	IPSec
RFC 2407—The Internet IP Security Domain of Interpretation for ISAKMP (November 1998)	IPSec
RFC 2406—IP Encapsulating Security Payload (ESP) (November 1998)	IPSec
RFC 2405—The ESP DES-CBC Cipher Algorithm With Explicit IV (November 1998)	IPSec
RFC 2404—The Use of HMAC-SHA-1-96 within ESP and AH (November 1998)	IPSec
RFC 2403—The Use of HMAC-MD5-96 within ESP and AH (November 1998)	IPSec
RFC 2402—IP Authentication Header (November 1998)	IPSec
RFC 2401—Security Architecture for the Internet Protocol (November 1998)	IPSec
RFC 2390—Inverse Address Resolution Protocol (September 1998)	ATM
RFC 2385—Protection of BGP Sessions via the TCP MD5 Signature Option (August 1998)	BGP
RFC 2373—IP Version 6 Addressing Architecture (July 1998)	IPv6
RFC 2370—The OSPF Opaque LSA Option (July 1998)	OSPF
RFC 2364—PPP over AAL5 (July 1998)	E3 and T3 interfaces
RFC 2362—Protocol Independent Multicast-Sparse Mode (PIM-SM): Protocol Specification (June 1998)	IP multicasting; SNMP
RFC 2338—Virtual Router Redundancy Protocol (April 1998)	VRRP
RFC 2328—OSPF Version 2 (April 1998)	OSPF
RFC 2308—Negative Caching of DNS Queries (DNS NCACHE) (March 1998)	System management
RFC 2284—PPP Extensible Authentication Protocol (EAP) (March 1998)	RADIUS
RFC 2270—Using a Dedicated AS for Sites Homed to a Single Provider (January 1998)	BGP
RFC 2246—The TLS Protocol Version 1.0 (January 1999)	PPP
RFC 2236—Internet Group Management Protocol, Version 2 (November 1997)	IP multicasting
RFC 2233—The Interfaces Group MIB using SMIPv2 (November 1997)	Frame Relay
RFC 2211—Specification of the Controlled-Load Network Element Service (September 1997)	MPLS
RFC 2210—The Use of RSVP with IETF Integrated Services (September 1997)	MPLS
RFC 2209—Resource ReSerVation Protocol (RSVP) -- Version 1, Message Processing Rules (September 1997)	MPLS
RFC 2205—Resource ReSerVation Protocol (RSVP) -- Version 1, Functional Specification (September 1997)	MPLS
RFC 2153—PPP Vendor Extensions (May 1997)	PPP
RFC 2132—DHCP Options and BOOTP Vendor Extensions (March 1997)	DHCP
RFC 2131—Dynamic Host Configuration Protocol (March 1997)	DHCP
RFC 2115—Management Information Base for Frame Relay DTEs Using SMIPv2 (September 1997)	Frame Relay; SNMP
RFC 2104—HMAC: Keyed-Hashing for Message Authentication (February 1997)	MPLS
RFC 2096—IP Forwarding Table MIB (January 1997)	SNMP
RFC 2030—Simple Network Time Protocol (SNTP) (Version 4) for IPv4, IPv6, and OSI (October 1996)	NTP

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 2013—SNMPv2 Management Information Base for the User Datagram Protocol using SMIPv2 (November 1996)	SNMP
RFC 2012—SNMPv2 Management Information Base for the Transmission Control Protocol using SMIPv2 (November 1996)	SNMP
RFC 2011—SNMPv2 Management Information Base for the Internet Protocol using SMIPv2 (November 1996)	SNMP
RFC 2006—The Definitions of Managed Objects for IP Mobility Support using SMIPv2 (October 1996)	Mobile IP
RFC 2003—IP Encapsulation within IP (October 1996)	IP tunnels
RFC 1998—An Application of the BGP Community Attribute in Multi-home Routing (August 1996)	BGP
RFC 1997—BGP Communities Attribute (August 1996)	BGP
RFC 1994—PPP Challenge Handshake Authentication Protocol (CHAP) (August 1996)	MLPPP; PPP
RFC 1990—The PPP Multilink Protocol (MP) (August 1996)	MLPPP
RFC 1966—BGP Route Reflection An alternative to full mesh IBGP (June 1996)	BGP
RFC 1965—Autonomous System Confederations for BGP (June 1996)	BGP
RFC 1930—Guidelines for creation, selection, and registration of an Autonomous System (AS) (March 1996)	BGP
RFC 1901—Introduction to Community-based SNMPv2 (January 1996)	SNMP
RFC 1877—PPP Internet Protocol Control Protocol Extensions for Name Server Addresses (December 1995)	PPP
RFC 1863—A BGP/IDRP Route Server alternative to a full mesh routing (October 1995)	BGP
RFC 1850—OSPF Version 2 Management Information Base (November 1995)	OSPF
RFC 1812—Requirements for IP Version 4 Routers (June 1995)	IP
RFC 1774—BGP-4 Protocol Analysis (March 1995)	BGP
RFC 1773—Experience with the BGP-4 protocol (March 1995)	BGP
RFC 1772—Application of the Border Gateway Protocol in the Internet (March 1995)	BGP
RFC 1771—A Border Gateway Protocol 4 (BGP-4) (March 1995)	BGP
RFC 1745—BGP4/IDRP for IP—OSPF Interaction (December 1994)	BGP
RFC 1724—RIP Version 2 MIB Extension (November 1994)	RIP
RFC 1702—Generic Routing Encapsulation over IPv4 Networks (October 1994)	IP tunnels
RFC 1701—Generic Routing Encapsulation (October 1994)	IP tunnels
RFC 1700—Assigned Numbers (October 1994)	IP tunnels
RFC 1662—PPP in HDLC-like Framing (July 1994)	POS
RFC 1661—The Point-to-Point Protocol (PPP) (July 1994)	PPP; MLPPP; cOCx/STMx, channelized E1, channelized T1, channelized T3, E3, and T3 interfaces
RFC 1657—Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIPv2 (July 1997)	BGP; SNMP
RFC 1587—The OSPF NSSA Option (March 1994)	OSPF
RFC 1493—Definitions of Managed Objects for Bridges (July 1993)	Transparent bridging

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 1490—Multiprotocol Interconnect over Frame Relay (July 1993)	Frame Relay
RFC 1483—Multiprotocol Encapsulation over ATM Adaptation Layer 5 (July 1993)	ATM; E3 and T3 interfaces
RFC 1473—The Definitions of Managed Objects for the IP Network Control Protocol of the Point-to-Point Protocol (June 1993)	SNMP
RFC 1472—The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol (June 1993)	SNMP
RFC 1471—The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol (June 1993)	SNMP
RFC 1407—Definitions of Managed Objects for the DS3/E3 Interface Types (January 1993)	SNMP; cOCx/STMx, channelized T3, E3, and T3 interfaces
RFC 1406—Definitions of Managed Objects for the DS1 and E1 Interface Types (January 1993)	SNMP; channelized E1, channelized T1, and channelized T3 interfaces
RFC 1350—Trivial File Transfer Protocol (TFTP) (Revision 2) (July 1992)	TFTP; System management
RFC 1332—The PPP Internet Protocol Control Protocol (IPCP) (May 1992)	PPP
RFC 1305—Network Time Protocol (version 3) Specification, Implementation and Analysis (March 1992)	NTP
RFC 1215—A Convention for Defining Traps for use with the SNMP (March 1991)	SNMP
RFC 1213—Management Information Base for Network Management of TCP/IP-based Internets: MIB-II (March 1991)	SNMP
RFC 1212—Concise MIB Definitions (March 1991)	SNMP
RFC 1195—Use of OSI IS-IS for Routing in TCP/IP and Dual Environments (December 1990)	IS-IS
RFC 1158—Management Information Base for Network Management of TCP/IP-based internets: MIB-II (May 1990)	TCP/IP
RFC 1157—A Simple Network Management Protocol (SNMP) (May 1990)	SNMP
RFC 1155—Structure and Identification of Management Information for TCP/IP-based Internets (May 1990)	SNMP
RFC 1122—Requirements for Internet Hosts—Communication Layers (October 1989)	IP
RFC 1112—Host Extensions for IP Multicasting (August 1989)	Ethernet; IP
RFC 1094—Network File System Protocol Specification (March 1989)	NFS
RFC 1058—Routing Information Protocol (June 1988)	RIP
RFC 1057—Remote Procedure Call Protocol Specification (June 1988)	RPC
RFC 1042—A Standard for the Transmission of IP Datagrams over IEEE 802 Networks (February 1988)	Ethernet
RFC 1035—Domain Names – Implementation and Specification (November 1987)	System management
RFC 959—File Transfer Protocol (FTP) (October 1985)	FTP; System management
RFC 950—Internet Standard Subnetting Procedure (August 1985)	IP
RFC 922—Broadcasting Internet Datagrams in the Presence of Subnets (October 1984)	IP
RFC 919—Broadcasting Internet Datagrams (October 1984)	IP

Table 61: E-series RFCs (continued)

Reference	Protocol or Feature
RFC 894—A Standard for the Transmission of IP Datagrams over Ethernet Networks (April 1984)	Ethernet
RFC 854—Telnet Protocol Specification (May 1983)	IP
RFC 826—An Ethernet Address Resolution Protocol (November 1982)	Ethernet
RFC 793—Transmission Control Protocol (September 1981)	IP
RFC 792—Internet Control Message Protocol (September 1981)	IP
RFC 791—Internet Protocol DARPA Internet Program Protocol Specification (September 1981)	IP
RFC 768—User Datagram Protocol (August 1980)	IP

Draft RFCs



NOTE: IETF drafts are valid for only 6 months from the date of issuance. They must be considered as works in progress. Please refer to the IETF Web site at <http://www.ietf.org> for the latest drafts.

Table 62: E-series Draft RFCs

Reference	Protocol or Feature
Address Prefix Based Outbound Route Filter for BGP-4—draft-chen-bgp-prefix-orf-07.txt (March 2004 expiration)	BGP
A Policy Control Mechanism in IS-IS Using Administrative Tags—draft-ietf-isis-admin-tags-02.txt (January 2005 expiration)	IS-IS
A “traceroute” Facility for IP Multicast—draft-ietf-idmr-traceroute-ipm-07.txt (January 2001 expiration)	IP multicasting
BFD for IPv4 and IPv6 (Single Hop)—draft-ietf-bfd-v4v6-1hop-00.txt (January 2005 expiration)	BFD
BGP Extended Communities Attribute—draft-ietf-idr-bgp-ext-communities-07.txt (February 2004 expiration)	BGP
BGP/MPLS IP VPNs—draft-ietf-l3vpn-rfc2547bis-03.txt (April 2005 expiration)	BGP/MPLS VPNs
BGP/MPLS VPN extension for IPv6 VPN—draft-ietf-l3vpn-bgp-ipv6-03.txt (December 2004 expiration)	BGP/MPLS VPNs
BGP support for four-octet AS number space—draft-ietf-idr-as4bytes-08.txt (February 2004 expiration)	BGP
Bidirectional Forwarding Detection—draft-ietf-bfd-base-00.txt. (January 2005 expiration)	BFD
Connecting IPv6 Islands across IPv4 Clouds with BGP—draft-ietf-ngtrans-bgp-tunnel-04.txt (July 2002 expiration)	BGP
Cooperative Route Filtering Capability for BGP-4—draft-ietf-idr-route-filter-09.txt (February 2003 expiration)	BGP
Definitions of Managed Objects for SONET Linear APS Architectures—draft-ietf-atommib-sonetaps-mib-05.txt (November 2001 expiration)	SONET APS redundancy
Distance Vector Multicast Routing Protocol—draft-ietf-idmr-dvmrp-v3-11.txt (April 2004 expiration)	IP multicasting
Dynamic Capability for BGP-4—draft-ietf-idr-dynamic-cap-04.txt (February 2004 expiration)	BGP
Encapsulation Methods for Transport of ATM Over MPLS Networks—draft-ietf-pwe3-atm-encap-07.txt (April 2005 expiration)	Layer 2 services
Encapsulation Methods for Transport of Ethernet Frames Over IP/MPLS Networks—draft-ietf-pwe3-ethernet-encap-05.txt (June 2004 expiration)	Layer 2 services

Table 62: E-series Draft RFCs (continued)

Reference	Protocol or Feature
Encapsulation Methods for Transport of Layer 2 Frames Over IP and MPLS Networks—draft-martini-l2circuit-encap-mpls-08.txt (March 2005 expiration)	Layer 2 services
Encapsulation Methods for Transport of PPP/HDLC Over IP and MPLS Networks—draft-ietf-pwe3-hdlc-ppp-encap-mpls-03.txt (October 2004 expiration)	Layer 2 services
Encapsulating MPLS in IP or Generic Routing Encapsulation (GRE)—draft-ietf-mpls-in-ip-or-gre-03.txt (September 2003 expiration)	MPLS
Extended Authentication within IKE (XAUTH)—draft-beaulieu-ike-xauth-02.txt (April 2002 expiration)	Dynamic IPsec subscribers
Extended Authentication within ISAKMP/Oakley (XAUTH)—draft-ietf-ipsec-isakmp-xauth-06.txt (May 2000 expiration)	Dynamic IPsec subscribers
Extended Ethernet Frame Size Support—draft-ietf-isis-ext-eth-01.txt (November 2001 expiration)	IS-IS
Extensions to a Method for Transmitting PPP over Ethernet (PPPoE)—draft-carrel-info-pppoe-ext-00.txt (November 2000 expiration)	PPPoE
Fail Over extensions for L2TP “failover”—draft-ietf-l2tpext-failover-06.txt (April 2006 expiration)	L2TP
Framework for Pseudo Wire Emulation Edge-to-Edge (PWE3)—draft-ietf-pwe3-arch-06.txt (April 2004 expiration)	Layer 2 services
Graceful Restart Mechanism for BGP—draft-ietf-idr-restart-10.txt (March 2004 expiration)	BGP
GSMPv3 Base Specification—draft-ietf-gsmp-v3-base-spec-07.txt (March 2006 expiration)	L2C
GSMP extensions for layer2 control (L2C) Topology Discovery and Line Configuration—draft-wadhwa-gsmp-l2control-configuration-00.txt (July 2006 expiration)	L2C
IGMP-based Multicast Forwarding (“IGMP Proxying”)—draft-ietf-magma-igmp-proxy-00.txt (May 2002 expiration)	IP multicasting
IGMP/MLD-based Multicast Forwarding (“IGMP/MLD Proxying”)—draft-ietf-magma-igmp-proxy-06.txt (October 2004 expiration)	IPv6 multicasting
L2TP Proxy Authenticate Extensions for EAP—draft-ietf-l2tpext-proxy-authen-ext-eap-01.txt (December 2006 expiration)	PPP
Layer 2 VPNs over Tunnels—draft-kompella-l2vpn-l2vpn-01.txt (July 2006 expiration)	L2VPNs
LDP IGP Synchronization—draft-jork-ldp-igp-sync-01.txt (August 2005 expiration)	MPLS
Management Information Base for IS-IS—draft-ietf-isis-wg-mib-16.txt (January 2005 expiration)	IS-IS; SNMP
Multicast Group Membership Discovery MIB—draft-ietf-magma-mgmd-mib-06.txt (October 2004 expiration)	IPv6 multicasting
Multicast in MPLS/BGP VPNs—draft-rosen-vpn-mcast-06.txt (April 2004 expiration)	Multicast VPNs
Multicast in MPLS/BGP IP VPNs—draft-rosen-vpn-mcast-08.txt (June 2005 expiration)	Multicast VPNs
Negotiation of NAT-Traversal in the IKE—draft-ietf-ipsec-nat-t-ike-08.txt (July 2004 expiration)	L2TP over IPsec
Point-to-point operation over LAN in link-state routing protocols—draft-ietf-isis-igp-p2p-over-lan-05.txt (January 2005 expiration)	IS-IS
Protocol Independent Multicast MIB for IPv4—draft-ietf-idmr-pim-mib-10.txt (July 2000 expiration)	IP multicasting
Pseudowire Setup and Maintenance Using LDP—draft-ietf-pwe3-control-protocol-08.txt (January 2005 expiration)	Layer 2 services
Requirements for Pseudo-Wire Emulation Edge-to-Edge (PWE3)—draft-ietf-pwe3-requirements-08.txt (June 2004 expiration)	Layer 2 services
Routing IPv6 with IS-IS—draft-ietf-isis-ipv6-06.txt (April 2006 expiration)	IS-IS
Source-Specific Multicast for IP—draft-ietf-ssm-arch-06.txt (March 2005 expiration)	IP multicasting

Table 62: E-series Draft RFCs (continued)

Reference	Protocol or Feature
Source-Specific Protocol Independent Multicast in 232/8—draft-ietf-mboned-ssm232-08.txt (September 2004 expiration)	IP multicasting
Subcodes for BGP Cease Notification Message—draft-ietf-idr-cease-subcode-05.txt (March 2004 expiration)	BGP
The ISAKMP Configuration Method—draft-dukes-ike-mode-cfg-02.txt (March 2002 expiration)	Dynamic IPsec subscribers
The TACACS+ Protocol, Version 1.78—draft-grant-tacacs-02.txt (January 1997 expiration)	TACACS+
Transport of Layer 2 Frames Over MPLS—draft-martini-l2circuit-trans-mpls-11.txt (October 2003 expiration)	Layer 2 services
UDP Encapsulation of IPsec ESP Packets—draft-ietf-ipsec-udp-encaps-09.txt (November 2004 expiration)	L2TP over IPsec
Virtual Private LAN Service—draft-ietf-l2vpn-vpls-bgp-05.txt (October 2005 expiration)	VPLS

Other Software Standards

Table 63: E-series Non-RFC Software Standards

Reference	Protocol or Feature
ANSI T1.107a-1990 Standard for Telecommunications—Digital Hierarchy – Supplement to Formats Specification (August 1990)	MDL (T3 interfaces)
ANSI T1.403-1989 Standard for Telecommunications—Network and Customer Installation Interfaces – DS1 Metallic Interface – Robbed-bit Signaling State Definitions (1989)	FDL (T1 interfaces)
ANSI T1.404-1994 Standard for Telecommunications—Network-to-Customer – DS3 Metallic Interface Specification (1994)	Remote loopback (T3 interfaces)
ANSI T1.617 Annex D	Frame Relay
AT&T Technical Reference 54016—Requirements for Interfacing Digital Terminal Equipment to Services Employing the Extended Superframe Format (September 1989)	FDL (T1 interfaces)
ATM Forum—ATM User-Network Interface Specification, Version 3.0 (September 1993)	ATM
ATM Forum—ATM User-Network Interface Specification, Version 3.1 (September 1994)	ATM
ATM Forum—Integrated Local Management Interface (ILMI) Specifications, Versions 3.0, 3.1, and 4.0 (September 1996)	ATM
ATM Forum—Traffic Management Specification, Version 4.0 (April 1996)	ATM
ATM Forum—User-Network Interface (UNI) versions 3.0, 3.1, 4.0	ATM
Draft Standard P802.1Q/D9 IEEE Standards for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks	Ethernet; VLANs; Transparent bridging
DSL Forum Technical Report (TR)-059—DSL Evolution - Architecture Requirements for the Support of QoS-Enabled IP Services	QoS; DSL
DSL Forum Technical Report (TR)-101—Migration to Ethernet-Based DSL Aggregation (April 2006)	Dynamic VLANs; PPPoE; DHCP
ERX system Cisco HDLC is compatible with Cisco Systems HDLC protocol	Cisco HDLC
Frame Relay Forum—Frame Relay Fragmentation Implementation Agreement, FRF.12 (December 1997)	Frame Relay
Frame Relay Forum—User-to-Network Implementation Agreement (UNI), FRF 1.1 (January 1996)	Frame Relay
IEEE 802.1D—Media access control (MAC) bridges	Transparent bridging

Table 63: E-series Non-RFC Software Standards (continued)

Reference	Protocol or Feature
IEEE 802.1q (Virtual LANs)	Ethernet; VLANs
IEEE 802.1w (Rapid Reconfiguration of Spanning Tree)	Ethernet
IEEE 802.1x-2001—Port-Based Network Access Control	Wireless authentication
IEEE 802.3 (Fast Ethernet and Gigabit Ethernet)	Ethernet
IEEE 802.3ad (Link Aggregation)	Link Aggregation, Layer 2 over MPLS
IEEE 802.3ae (10-Gigabit Ethernet only)	10-Gigabit Ethernet
IEEE 802.3u (Fast Ethernet only)	Ethernet
IEEE 802.3z (Gigabit Ethernet only)	Ethernet
ISO International Standard 8473-1:1993—Information technology – Protocol for providing the connectionless-mode network service	IS-IS
ISO International Standard 9542:1988 (E)—Information processing systems – Telecommunications and information exchange between systems – End System-to-Intermediate System Routing Exchange Protocol for use in conjunction with the protocol for providing the connectionless-mode network service (ISO 8473)	IS-IS
ISO/IEC 10589:1992—Information technology – Telecommunications and information exchange between systems – Intermediate System-to-Intermediate System Intra-Domain Routing Exchange Protocol for use in conjunction with the protocol for providing the connectionless-mode network service (ISO 8473)	IS-IS
ITU O.151—Error performance measuring equipment operating at the primary rate and above (October 1992)	BERT Patterns
ITU O.153—Basic parameters for the measurement of error performance at bit rates below the primary rate (October 1992)	BERT Patterns
ITU-T Draft Recommendation I.363 (AAL5 support) (January 1993)	ATM
ITU-T G.783—Characteristics Of Synchronous Digital Hierarchy (SDH) Multiplexing Equipment Functional Blocks: Annex A – Multiplex Section Protection (MSP) Protocol, Commands And Operation (1990)	SDH MSP redundancy
ITU-T Q.933 Annex A	Frame Relay
ITU-T Recommendation I.610—B-ISDN Operation and Maintenance Principles and Functions (February 1999)	ATM
ITU-T Recommendation Q.922, Integrated Services Digital Network (ISDN) Data Link Layer Specification for Frame Mode Bearer Services; Annex A (February 1992)	Frame Relay
ITU-T V.35: Data transmission at 48 kbit/s using 60-108 kHz group band circuits (October 1984 - now obsolete)	V.35
ITU-T X.21: Interface between Data Terminal Equipment and Data Circuit-terminating Equipment for synchronous operation on public data networks (September 1992)	X.21
Lawfully Authorized Electronic Surveillance (LAES) for IP Network Access, American National Standard for Telecommunications, version PTSC-LAES-2006-084R6	Packet Mirroring
Multilink Frame Relay UNI/NNI Implementation Agreement, FRF.16 (April 2000)	Multilink Frame Relay
T1M1.3 Working Group—A Technical Report on Test Patterns for DS1 Circuits (November 1993)	BERT Patterns
Telcordia document GR-253—Synchronous Optical Network (SONET) Transport Systems: Common Generic Criteria, Revision 3 (September 2000)	SONET APS redundancy

Hardware Standards

Table 64: E-series Hardware Standards

Reference	Protocol or Feature
ACA TS 016-1997	Telecom
ANSI T1.102-1993 Digital Hierarchy – Electrical Interfaces (1999)	Cables
ANSI T1.646-1995 Telecommunications – Broadband ISDN—Physical Layer Specification for User-Network Interfaces Including DS1/ATM (1995)	Cables and connectors
ANSI T1.646a-1997 Telecommunications – Broadband ISDN—Physical Layer Specification for User-Network Interfaces Including DS1/ATM (1997)	Cables and connectors
AS/NZS 3260:1993, Safety of Information Technology Equipment Including Electrical Business Equipment	Safety
AS/NZS 3548:1995 (CISPR 22 Class A)	EMC
CAN/CSA C22.2, No. 60950-00, 3rd Edition, Safety of Information Technology Equipment	Safety
CTR13—Commission Decision of 9 July 1997 on a common technical regulation for attachment requirements for terminal equipment interface for connection to 2048 kbit/s digital structured ONP leased lines: 97/521/EC – OJ No. L215 Vol. 40, August 1997	Telecom
CTR24—Commission Decision of 9 September 1997 on a common technical regulation for attachment requirements for terminal equipment interface for connection to 34 Mbit/s digital unstructured and structured leased lines: 97/639/EC – OJ No. L271 Vol. 40, 3 October 1997	Telecom
EIA-310-D Cabinets, Racks, Panels, and Associated Equipment, September 1992	Mechanical
EMC Directive (89/336/EEC)	EMC
EN300 386-2:1997 EMC requirements for Telecom Network Equipment-Telco Centers	Telecom
EN55022 Class A (CISPR-22 Class A)	EMC
EN55024, Annex C for WAN Equipment Performance Criteria A, B, and C	EMC
EN60825-1, Safety of Laser Products - Part 1: Equipment Class, Requirements, and User's Guide (2001)	Safety
EN60950:2000, 3rd Edition, Safety of Information Technology Equipment	Safety
ETSI 300-386, Telecommunication Network Equipment; ElectroMagnetic Compatibility (EMC) requirements	EMC
FCC Part 15 Class A	EMC
FCC PART 68	EMC
GR-63 (LSSGR, FD-15): Network Equipment Building System (NEBS) Requirements: Physical Protection, Issue 1, October 1995	NEBS
GR-1089 (LSSGR, FD-15): Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment, Issue 2, Revision 1, February 1999	NEBS
IEC 825-1, Safety of Laser Products - Part 1	Safety
IEC 60950-1 (2001-10) Ed. 1.0 Information technology equipment - Safety - Part 1: General requirements	Safety
IECS-003 Issue 3 Class A	EMC
ITU-T G.703, Physical/electrical characteristics of hierarchical digital interfaces (November 2001)	Cables
Low Voltage Directive (73/23/EEC)	Safety
PD7024—Essential requirements for terminal equipment intended for connection to unstructured digital leased circuits of the public telecommunications network using a CCITT recommendation G.703 interface at a rate of 2048 kbit/s with a 75 ohm unbalanced presentation, 1994	Telecom

Table 64: E-series Hardware Standards (continued)

Reference	Protocol or Feature
RTTE Directive (1999/5/EEC)	Telecom
SR-3580 (FD-15): Network Equipment Building System (NEBS) Criteria Levels, Issue 1, November 1995	Safety
UL 60950, 3rd Edition, Safety of Information Technology Equipment	Safety
VCCI (Voluntary Control Council for Interference by Information Technology Equipment)	EMC

