642-887 SPCORE - Implementing Cisco Service Provider Next-Generation Core Network Services

Topic Number	Topic Description	Source	Page/Location	Comment
1.0 QOS in a Service Provider IP NGN Environment				
1.1	Describe the DiffServ and IntServ QoS models	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 2 - pages 111-129	
1.2	Describe the QoS mechanisms (classification and marking, congestion management and avoidance, traffic policing and shaping)	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 2 - pages 88-110 Chapter 4 - all (Classification and Marking) Chapter 5 - all (Congestion Management) Chapter 6 - all (Traffic Policing and Shaping) Chapter 9 - pages 525 - 546 Chapter 7 - all (Congestion Avoidance Through Drop Policies)	
1.3	Describe IPv6 Flow Label	https://www.cisco.com/en/US/technologies/tk648/tk872/technologies_white_paper0900aecd8026004d.pdf http://users.informatik.haw-hamburg.de/~schmidt/it/pres05/IPv6%20Flow%20Label%20specification.pdf	All	Details may not be sufficent
1.4	Describe trust boundaries in Enterprise and SP environments	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 9 - page 529 - 535	
1.5	Describe Cisco MQC for QoS configurations	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 3 - all (MQC, QPM, and AutoQoS) Chapter 9 - pages 535 - 538	
1.6	Describe hierarchical QoS configurations	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 6 - all (Traffic Policing and Shaping)	
1.7	Describe the Cisco NBAR feature for discovering network protocols and for packets classifications	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 4 -pages 219-223 & 195-197	
1.8	Describe the typical Edge PE routers and Core P routers QoS requirements	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 10 - pages 606-623	
1.9	Implement classification and marking in an interdomain network using QPPB on Cisco IOS-XR and IOS-XE	LIMITED http://www.cisco.com/c/en/us/td/docs/routers/10000/10008/configuration/guides/qos/qoscf/10qqppb.html#wp1007763	Entire Section	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.1	Implement class-based markings on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 4 -pages 211-228	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.11	Implement QoS pre-classify on tunnel interface on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 4 -pages 229-232	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.12	Implement CB-WFQ on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 5 - all (Congestion Management)	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.13	Implement LLQ on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 5 - all (Congestion Management)	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.14	Implement WRED on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 7 - all (Congestion Avoidance Through Drop Policies)	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.15	Implement traffic policing on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 6 - all (Traffic Policing and Shaping)	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.16	Implement traffic shaping on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007)	Chapter 6 - all (Traffic Policing and Shaping)	IOS-XR Details potentially from Cisco IOS XR Modular Quality of Service Configuration Guide
1.17	Describe LPTS and hardware rate limiters on Cisco IOS-XR routers	LIMITED!!! http://www.cisco.com/c/en/us/td/docs/routers/asr9000/software/asr9k_r4-2/addr_serv/configuration/guide/b_ipaddr_cg42a9k/b_ipaddr_cg42a9k_chapter_0111.html	Entire Section	Need IOS-XR details. Need more information.
1.18	Describe MPLS EXP bits	MPLS Fundamentals (2007)	Chapter 2 - all (MPLS Architecture)	
1.19	Describe MPLS QoS implementation concepts and models	MPLS Fundamentals (2007)	Chapter 12 - all (MPLS and QoS)	
1.2	Implement MPLS DiffServ Tunneling on Cisco IOS-XR and IOS-XE	QoS Exam Certification Guide - 2nd Edition (2007) QoS for IP/MPLS Networks	Chapter 2 -111-130 Chapter 4	Need IOS-XR details
1.21	Troubleshoot QoS IOS-XR and IOS-XE configuration errors	Experience Based	Experience Based	Need IOS-XR details
2.0 MPLS/LDP in a Service Provider IP NGN Environment				
2.1	Describe the CEF, FIB, LFIB and LIB tables on Cisco routers	MPLS Fundamentals (2007)	Chapter 2 - all (MPLS Architecture) Chapter 6 - all (Cisco Express Forwarding)	
2.2	Describe MPLS labels and label stack operations on Cisco routers	MPLS Fundamentals (2007)	Chapter 3 - all (Forwarding Labeled Packets)	
2.3	Describe LDP operations in Cisco routers	MPLS Fundamentals (2007)	Chapter 4 - all (Label Distribution Protocol)	
2.4	Describe MPLS OAM (MPLS LSP Ping and MPLS Traceroute)	MPLS Fundamentals (2007)	Chapter 14 - all (MPLS Operation and Maintenance)	
2.5	Describe MPLS Applications in Service provider environment	MPLS Fundamentals (2007)	Chapter 7 - all (MPLS VPN) Chapter 11 - all (Virtual Private LAN Service) Chapter 12 - all (Any Transport over MPLS)	
2.6	Implement LDP on Cisco IOS-XR and IOS-XE	MPLS Fundamentals (2007) Cisco IOS XR Fundamentals (2009)	Chapter 4 - all (Label Distribution Protocol) Chapter 9 - page 293-312 (LDP)	
2.7	Implement LDP high availability features on Cisco IOS-XR and IOS-XE	(LDP Session Protection?) - MPLS Fundamentals + http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mp_ha/configuration/xe-3s/mp-ha-xe-3s-book/mp-ldp-grace-rstrt.html	Chapter 4 - all (Label Distribution Protocol)	
2.8	Troubleshoot LDP on IOS-XR and IOS-XE configuration errors	Experience Based	Experience Based	
3.0 MPLS/LDP in a Service Provider IP NGN Environment				
3.1	Describe MPLS traffic engineering (TE) concepts	Traffic Engineering with MPLS	Chapter 1 & 3	Read Chapter 8 of MPLS Fundamentals first
3.2	Describe MPLS TE constraint-based path computations	Traffic Engineering with MPLS	Chapter 4	Read Chapter 8 of MPLS Fundamentals first
3.3	Describe the details of MPLS TE tunnels, including path setup procedures and path maintenance	Traffic Engineering with MPLS	Chapter 5	Read Chapter 8 of MPLS Fundamentals first
3.4	Describe methods of assigning traffic into MPLS TE tunnels	Traffic Engineering with MPLS	Chapter 5	Read Chapter 8 of MPLS Fundamentals first
3.5	Implement MPLS TE tunnels on Cisco IOS-XR and IOS-XE	MPLS Fundamentals (2007) IOS-XR Fundamentals	Chapter 8 - all (MPLS Traffic Engineering) Chapter 9 - all (Cisco IOS XR MPLS Architecture)	IOS-XR Details may be insufficient
3.6	Implement MPLS TE bandwidth control on Cisco IOS-XR and IOS-XE	MPLS Fundamentals (2007) IOS-XR Fundamentals	Chapter 8 - all (MPLS Traffic Engineering) Chapter 9 - all (Cisco IOS XR MPLS Architecture)	IOS-XR Details may be insufficient
3.7	Implement MPLS TE link and node protections on Cisco IOS-XR and IOS-XE	MPLS Fundamentals (2007) IOS-XR Fundamentals	Chapter 8 - page 291 -303 Chapter 9 - all (Cisco IOS XR MPLS Architecture)	IOS-XR Details may be insufficient
4.0 Transport Technologies				
4.1	Describe the SP core transition from ATM/SONET/SDH based backbone to packet based IP/MPLS backbone	http://en.wikipedia.org/wiki/Packet_over_SONET/SDH + accompanying links	All	Extremely Limited
4.2	Implement 10/40/100 Gigabit Ethernet Interfaces on Cisco IOS-XR routers	http://en.wikipedia.org/wiki/100_Gigabit_Ethernet	Extremely limited	
4.3	Describe DWDM, IPoDWDM and ROADM	https://en.wikipedia.org/wiki/Wavelength-division_multiplexing#Dense_WDM & https://www.cisco.com/en/US/solutions/ns341/ns525/ns537/benefits_of_ipodwdm_ps368_Products_Brochure.html	All	Extremely Limited
4.4	Implement IPoDWDM controller/interface on Cisco IOS-XR routers	http://www.cisco.com/c/en/us/td/docs/routers/crs/software/crs_r4-2/interfaces/configuration/guide/hc42crsbook/hc42dwdm.html or Configuring Dense Wavelength Division Multiplexing Controllers on Cisco IOS XR Software.pdf	Relevant secions	

NB. Red text indicates that this section of text is already covered in another topic