

642-885 ADVROUTE - Deploying Cisco Service Provider Advanced Network Routing

Topic Number	Topic Description	Source	Page/Location	Number of Pages	Comment
1.0 BGP Routing Features in a Service Provider IP NGN Environment					
1.1	Describe the BGP routing processes in IOS-XR	Cisco IOS-XR Fundamentals	Chapter 8 - all	44	
1.2	Configure the BGP timers on IOS-XR and IOS-XE	Cisco IOS-XR Fundamentals	Chapter 8 - page 296 - 293	46	
1.3	Describe the need for BGP confederations in BGP transit backbones	BGP Design and Implementation	Chapter 7 - page 294-305	14	
1.4	Design and implement BGP route reflectors to scale BGP in BGP transit backbones on IOS-XR and IOS-XE	BGP Design and Implementation	Chapter 7 - page 293-292	40	IOS-XR Details may be lacking
1.5	Implement BGP in SP IP NGN IOS-XR and IOS-XE PE routers to support multi-homed BGP Customers	BGP Design and Implementation	Chapter 6 - page 222 - 228, 240-246	14	IOS-XR Details may be lacking
1.6	Implement Remote Triggered Blackhole Filtering (RTBF) on IOS-XR and IOS-XE	BGP Design and Implementation	Chapter 9 - page 419 - 430	49	IOS-XR Details may be lacking
1.7	Implement BGP TTL security on IOS-XR and IOS-XE	BGP Support for TTL Security Check	All (8 Pages)	21	
1.8	Implement BGP maximum-prefix on IOS-XR and IOS-XE	BGP Commands on Cisco IOS XR Software	385-397	8	
1.9	Implement BGP route dampening on IOS-XR and IOS-XE	BGP Commands on Cisco IOS XR Software	All	145-147	
1.11	Troubleshoot BGP IOS-XR and IOS-XE configuration errors in service provider environments	BGP Design and Implementation	Chapter 3 - page 91-94	10	
1.11	Optimize BGP IOS-XR configurations using af-groups, session-groups, and neighbor-groups	Routing TCP/IP Volume 2	Chapter 3 - all	180	
1.12	Optimize BGP IOS-XE configurations using peer-groups	BGP Design and Implementation	Chapter 10 - all	78	IOS-XR Details may be lacking
			Chapter 8 - all	0	
			Chapter 3 - all	0	IOS-XR Details may be lacking
				TOTAL:	504
2.0 Multicast Routing in a Service Provider IP NGN Environment					
2.1	Describe Multicast Concepts (multicast distribution trees, multicast routing protocols and IGMP operations)	Routing TCP/IP Volume 2	Chapter 5 - all	134	Alternative for Multicast = Chapters 16 & 17 in CCIE R&S Exam Cert Guide
2.2	Describe Any-source multicast (ASM) versus Source Specific Multicast (SSM)	Routing TCP/IP Volume 2	Chapter 5 - all	0	
2.3	Describe Intra Domain versus Inter Domain Multicast Routing	http://www.h3c.com/portal/Products...Solutions/Technology/IP...Multicast/Introduction	all	2	Extremely limited
2.4	Describe the mapping of multicast IP addresses to MAC addresses	Routing TCP/IP Volume 2	Chapter 5 - pages 398-419	0	
2.5	Describe and illustrate how RPF check can fail if the unicast and multicast topologies are non-congruent	Routing TCP/IP Volume 2	Chapter 5 - pages 398-419	1	(URL: search "non-congruent")
2.6	Describe multiprotocol BGP functions in mroute distribution	http://www.cisco.com/en/US/tech/4828/tech_brief09186a00800a4415.html	Chapter 7 - pages 593 - 619	35	(URL: search "non-congruent")
2.7	Describe the principles and operations of PIM-SM	Routing TCP/IP Volume 2	Chapter 5 - pages 481-517	0	
2.8	Describe multicast source discovery protocol (MSDP) operations	Routing TCP/IP Volume 2	Chapter 6 - pages 542 - 576	34	
2.9	Describe methods used to secure multicast	Cisco IOS Secure Multicast	all	8	May be limited
2.1	Implement PIM-SM operations on IOS-XR and IOS-XE	Cisco IOS-XR Fundamentals	Chapter 10 - all	26	
2.11	Implement Auto-RP, PIMv2 BSR, Anycast RP on IOS-XR and IOS-XE	Routing TCP/IP Volume 2	(TCP/IPv2) Chapter 5 - pages 491-492	16	
2.12	Implement Bi-Dir PIM operations in SP IP NGN environment on IOS-XR and IOS-XE	Cisco IOS-XR Fundamentals	(TCP/IPv2) Chapter 6 - pages 551-559	8	
2.13	Implement SSM operations on IOS-XR and IOS-XE	Configuring Source Specific Multicast	(TCP/IPv2) Chapter 7 - pages 632-633	2	
2.14	Implement MSDP operations on IOS-XR and IOS-XE	Routing TCP/IP Volume 2	(TCP/IPv2) Chapter 7 - pages 602-643	42	
2.15	Troubleshoot multicast routing IOS-XR and IOS-XE configurations errors in service provider environments	Cisco IOS-XR Fundamentals	(IOS-XR) Chapter 10 - all	18	
		Routing TCP/IP Volume 2	Chapter 6 - pages 576 - 593	18	
				TOTAL:	274
3.0 IPv6 in Service Provider IP NGN Environments					
3.1	Describe DNS and DHCP operation in IPv6	CCIE Routing and Switching Exam Certification Guide 4th Edition	Chapter 20 - pages 879 - 902	24	
3.2	Describe the fields that are used in the IPv6 header to support QoS functions	Deploying IPv6 Networks	Chapter 5 - all	31	
3.3	Describe Cisco IOS/IOS-XE and IOS-XR IPv6 network management and troubleshooting tools like traceroute/ping	Deploying IPv6 Networks	Chapter 2 - pages 62-70	9	Limited
3.4	Describe dual-stack implementations	Deploying IPv6 Networks	Chapter 7 - 273-291	19	Limited
3.5	Describe IPv6 tunneling mechanisms	CCIE Routing and Switching Exam Certification Guide 4th Edition	Chapter 20 - pages 933-940	8	
3.6	Configure IPv6 multicast routing	Deploying IPv6 Networks	Chapter 6 - all	41	
3.7	Configure static IPv6-in-IPv4 tunnels on IOS-XR and IOS-XE	CCIE Routing and Switching Exam Certification Guide 4th Edition	Chapter 20 - pages 933-940	8	
3.8	Configure dynamic 6to4 tunnels on IOS-XR and IOS-XE	Configuring Tunnel Interfaces on Cisco IOS XR Software	All	0	
		CCIE Routing and Switching Exam Certification Guide 4th Edition	Chapter 20 - pages 933-940	0	
		Configuring Tunnel Interfaces on Cisco IOS XR Software	All	0	
				TOTAL:	140
4.0 Carrier Ethernet in Service Provider IP NGN Environments					
4.1	Implement NSF/NSR/Graceful Restart for BGP on IOS-XR and IOS-XE	Graceful Restart, Non Stop Routing and IGP routing protocol timer Manipulation	all	4	
4.2	Implement Bidirectional Forwarding Detection (BFD) for BGP on IOS-XR and IOS-XE	Bidirectional Forwarding Detection	all	50	
4.3	Implement high availability and optimization multicast routing features on IOS-XR and IOS-XE	http://www.cisco.com/assets/prod/ios-mxos/ios_multicast_high_availability/popup.html	watch all	0	
				TOTAL:	54
				GRAND TOTAL:	872

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