

Introduction - why use an online diff?

In my course as a developer I find myself constantly examining the differences between two pieces of text.

Now, although pretty much every IDE (and various stand-alone products) have sophisticated diff utilities built in (like [Eclipse](#)), my favourite, I got very tired of having to create two files just to paste in fragments of code or other bits of texts just in order to perform a diff and see the differences highlighted.

This is why I made myself a quick online version that I have now decided to share with anyone else interested. (Update - Since the previous version of this tool stopped working, this current version was created by Harmen Stoppels.)

[Click here for instructions](#)

Left	Right
<p>Describe, implement, and troubleshoot congestion management and scheduling, for example, policing, shaping, and queuing</p> <p>Describe, implement, and troubleshoot congestion avoidance</p> <p>Describe Link Fragmentation (LFI), cRTP, and RTP</p> <p>Multicast</p> <p>Describe, implement, and troubleshoot IGMP and MLD</p> <p>Describe, implement, and troubleshoot PIM</p> <p>Describe, implement, and troubleshoot RP</p> <p>Describe and optimize multicast scale and performance</p> <p>High Availability and Fast Convergence</p> <p>System level HA</p> <p>Describe Multichassis/clustering HA</p> <p>Describe, implement, and troubleshoot SS0/NSF, NSR, and GR</p> <p>Describe, implement, and troubleshoot IGP-LDP Sync</p> <p>Describe, implement, and troubleshoot LDP Session Protection</p> <p>Layer 1/2/3 failure detection techniques</p>	<p>Service Provider Architecture and Services</p> <p>Service Provider architecture concepts</p> <p>Describe network architecture component and service provider network domains, for example: PE, P, CE, Metro Ethernet Core, Aggregation, RAN Backhaul, and eNodeB</p> <p>Describe Cisco IOS, Cisco IOS-XE, and Cisco IOS-XR software architecture components, for example: XR Kernel, System Manager, and Interprocess communication</p> <p>Virtualization concepts</p> <p>Describe physical router virtualization, for example: SDR, Multiple-Logical-Routers, and Satellite Network Virtualization</p> <p>Describe Network Function Virtualization architecture concepts, for example: Service Function Chaining, ESP, EPN, and NFVI</p> <p>Carrier Ethernet</p> <p>Describe, implement, and troubleshoot E-LINE, for example: VPWS</p> <p>Describe, implement, and troubleshoot E-LAN and E-TREE, for example: VPLS and H-VPLS</p>

Output

1	- Service Provider Architecture and Evolution
1	+ Service Provider Architecture and Services
2	2 Service Provider architecture concepts
3	- Describe network architecture component and Service Provider network domain, for example, PE, P, CE, Metro Ethernet Core, and Aggregation
4	- Describe platform architecture components, for example, RP, Line Cards, and Fabric Crossbar
5	- Describe Cisco IOS-XR Software architecture components, for example, System Manager and XR Kernel
3	+ Describe network architecture component and service provider network domains, for example: PE, P, CE, Metro Ethernet Core, Aggregation, RAN
4	+ Describe Cisco IOS, Cisco IOS-XE, and Cisco IOS-XR software architecture components, for example: XR Kernel, System Manager, and Interprocess
6	5
7	6 Virtualization concepts
8	- Describe basic physical router virtualization, for example, SDR and nV
9	- Describe basic network function virtualization, for example, XRv/CSR1000v
10	- Mobility concepts
11	- Describe basic Service Provider network mobility infrastructure, for example, RAN, Backhaul, and Core
7	+ Describe physical router virtualization, for example: SDR, Multiple-Logical-Routers, and Satellite Network Virtualization
8	+ Describe Network Function Virtualization architecture concepts, for example: Service Function Chaining, ESP, EPN, and NFVI
12	9
13	- Service Provider Based Services
14	10 Carrier Ethernet
15	- Describe, implement, and troubleshoot E-LINE, for example, VPWS
16	- Describe, implement, and troubleshoot E-LAN and E-TREE, for example, VPLS and H-VPLS
17	- Describe EVPN (EVPN-VPWS and PBB EVPN)
18	- Describe IEEE 802.1ad (Q-in-Q), IEEE 802.1ah (Mac-in-Mac), and ITU G.8032 (REP)
11	+ Describe, implement, and troubleshoot E-LINE, for example: VPWS
12	+ Describe, implement, and troubleshoot E-LAN and E-TREE, for example: VPLS and H-VPLS
13	+ Describe, implement, and troubleshoot EVPN
14	+ Describe IEEE 802.1ad (Q-in-Q), IEEE 802.1ah (Mac-in-Mac), and ITU G.8032 (REP)
19	15
20	16 L3VPN
21	17 Describe, implement, and troubleshoot L3VPN
22	- Describe, implement, and troubleshoot Inter-AS L3VPN
23	- Cisco Systems, Inc. This document is Cisco Public. Page 3
24	- Describe, implement, and troubleshoot Multicast VPN
25	- Describe, implement, and troubleshoot Unified MPLS and CSC
26	- Describe, implement, and troubleshoot shared services, for example, Extranet and Internet access
18	+ Describe, implement, and troubleshoot Inter-AS L3VPN
19	+ Describe, implement, and troubleshoot multicast VPN
20	+ Describe, implement, and troubleshoot unified MPLS and CSC
21	+ Describe, implement, and troubleshoot shared services, for example: Extranet and Internet access
27	22
28	23 Overlay VPN
29	24 Describe, implement, and troubleshoot L2TPv3
30	- Describe, implement, and troubleshoot LIISP
31	- Describe, implement, and troubleshoot GRE and mGRE based VPN

Output

25 + Describe LISP
26 Internet service
32 - Describe, implement, and troubleshoot Internet Peering and Transit
33 - Describe, implement, and troubleshoot IPv6 transition mechanism, for example, NAT44, NAT64, 6RD, and DS Lite
34 + Describe, implement, and troubleshoot IPv6 transition mechanism, for example: NAT44, NAT64, 6RD, MAP, and DS Lite
35 28 Describe, implement, and troubleshoot Internet peering route and transit policy enforcement
36 29
37 30 Core Routing
38 - Interior Gateway Protocol (IGP)
39 - Describe, implement, and troubleshoot IS-IS
31 + Interior Gateway Protocol
32 + Describe, implement, and troubleshoot IS-IS
40 33 Describe, implement, and troubleshoot OSPFv2 and OSPFv3
41 34 Describe and optimize IGP scale and performance
42 -
43 - Border Gateway Protocol (BGP)
44 - Describe, implement, and troubleshoot IBGP, EBGP, and MP-BGP
35 + Border Gateway Protocol
36 + Describe, implement, and troubleshoot IBGP, EBGP, and MP-BGP
45 37 Describe, implement, and troubleshoot BGP route policy enforcement
46 38 Describe BGP path attribute
47 39 Describe and optimize BGP scale and performance
48 - Describe, implement, and troubleshoot advanced BGP features, for example, add-path and BGP LS
40 + Describe, implement, and troubleshoot advanced BGP features
41 -
49 - Multiprotocol Label Switching (MPLS)
42 + Multiprotocol Label Switching
43 Describe MPLS forwarding and control plane mechanisms
44 Describe, implement, and troubleshoot LDP
45 45 Describe and optimize LDP scale and performance
46 46
47 MPLS Traffic Engineering
48 Describe, implement, and troubleshoot RSVP
49 Describe, implement, and troubleshoot ISIS and OSPF extensions
50 Describe, implement, and troubleshoot MPLS TE policy enforcement
51 Describe MPLS TE attributes
52 Describe and optimize MPLS TE scale and performance
60 - Describe MPLS advanced features, for example, Segment Routing, G-MPLS,
61 - MPLS-TP, and MPLS-TE Inter-AS
53 + Describe, implement, and troubleshoot MPLS advanced features, for example: Segment
54 + Routing and MPLS-TE Inter-AS
63 55
64 56 Multicast
65 - Describe, implement, and troubleshoot PIM (PIM-SM, PIM-SSM, and PIM-BIDIR)
66 - Describe, implement, and troubleshoot RP (Auto-RP, BSR, Static, Anycast RP, and MSDP)
67 - Describe, implement, and troubleshoot mLDP (including mLDP profiles from 0 to 9)
68 - Describe P2MP TEA
57 + Describe, implement, and troubleshoot PIM (PIM-SM, PIM-SSM, and PIM-BIDIR)
58 + Describe, implement, and troubleshoot RP (Auto-RP, BSR, Static, Anycast RP, and MSDP)
59 + Describe, implement, and troubleshoot mVPN
60 Describe and optimize multicast scale and performance
61
71 - Quality of Service (QoS)
62 + Quality of Service
63 Describe, implement, and troubleshoot classification and marking
72 - Describe, implement, and troubleshoot congestion management and
73 - scheduling, for example, policing, shaping, and queuing
64 + Describe, implement, and troubleshoot congestion management and scheduling
75 65 Describe, implement, and troubleshoot congestion avoidance
76 - Describe, implement, and troubleshoot MPLS QoS models (MAM, RDM, Pipe, Short Pipe, and Uniform)
77 - Describe, implement, and troubleshoot MPLS TE QoS (CBTS, PBTS, and DS-TE)
66 + Describe, implement, and troubleshoot MPLS QoS models (Pipe, Short Pipe, and Uniform)
67 + Describe, implement, and troubleshoot MPLS TE QoS (MAM, RDM, CBTS, PBTS, and DS-TE)
78 68
79 69 Access and Aggregation
80 70 Transport and encapsulation technologies
81 - Describe transport technologies, for example, optical, xDSL, DOCSIS, TDM, and GPON
82 - Describe, implement, and troubleshoot Ethernet technologies
83 - Describe link aggregation techniques
71 + Describe transport technologies, for example: optical, xDSL, DOCSIS, TDM, and GPON
72 + Describe Ethernet technologies
73 + Describe, implement, and troubleshoot link aggregation techniques
84 74
85 - PE-CE connectivity
86 - Describe, implement, and troubleshoot PE-CE routing protocols, for example, static, OSPF, and BGP
75 + PE-CE connectivity
76 + Describe, implement, and troubleshoot PE-CE routing protocols, for example: static, OSPF, RIP, RIPng, EIGRP, ISIS, and BGP
87 77 Describe, implement, and troubleshoot route redistribution
88 78 Describe, implement, and troubleshoot route filtering
89 - Describe, implement, and troubleshoot loop prevention techniques in Multihomed environments
90 - Describe, implement, and troubleshoot end-to-end fast convergence
91 - Describe, implement, and troubleshoot Multi-VRF CE
92 - Describe Broadband Forum TR-101, for example, Trunk N:1 and Trunk 1:1
79 + Describe, implement, and troubleshoot loop prevention techniques in multihomed environments
80 + Describe, implement, and troubleshoot Multi-VRF CE
93 81
94 - Quality of Service (QoS)
82 + Quality of Service
95 83 Describe, implement, and troubleshoot classification and marking

Output

96 - Describe, implement, and troubleshoot congestion management and
97 - scheduling, for example, policing, shaping, and queuing
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85 + example: policing, shaping, and queuing
98 Describe, implement, and troubleshoot congestion avoidance
99 - Describe Link Fragmentation (LFI), cRTP, and RTP
100 87
101 88
102 89 Describe, implement, and troubleshoot IGMP and MLD
103 90 Describe, implement, and troubleshoot PIM
104 91 Describe, implement, and troubleshoot RP
105 92 Describe and optimize multicast scale and performance
106 93
107 94 High Availability and Fast Convergence
108 95 System level HA
109 96 Describe Multichassis/clustering HA
110 97 Describe, implement, and troubleshoot SS0/NSF, NSR, and GR
111 - Describe, implement, and troubleshoot IGP-LDP Sync
98 + Describe, implement, and troubleshoot IGP-LDP Sync
112 99 Describe, implement, and troubleshoot LDP Session Protection
113 100
114 101 Layer 1/2/3 failure detection techniques
115 102 Describe Layer 1 failure detection
116 103 Describe, implement, and troubleshoot Layer 2 failure detection
117 104 Describe, implement, and troubleshoot Layer 3 failure detection
118 105 Routing/fast convergence
119 106 Describe, implement, and optimize IGP convergence
120 107 Describe, implement, and optimize BGP convergence
121 - Describe, implement, and optimize IP FRR and TE FRR
108 + Describe, implement, and optimize IP FRR and MPLS TE FRR
109 + Service Provider Security, Operation, and Management
122 110
123 - Service Provider Security, Service Provider Operation and Management
124 111 Control plane security
125 - Describe, implement, and troubleshoot control plane protection techniques
126 - (LPTS and CoPP)
127 - Describe, implement, and troubleshoot routing protocol security, for example,
128 - BGP-TTL security and protocol authentication
112 + Describe, implement, and troubleshoot control plane protection techniques, for example: LPTS and CoPP
113 + Describe, implement, and troubleshoot routing protocol security, for example: BGP-TTL
114 + security and protocol authentication
129 115 Describe, implement, and troubleshoot BGP prefix suppression
130 - Describe, implement, and troubleshoot LDP security, for example,
131 - authentication and label allocation filtering
116 + Describe, implement, and troubleshoot LDP security, for example: authentication and
117 + label allocation filtering
132 118 Describe, implement, and troubleshoot BGP prefix based filtering
133 - Describe BGPsec
119 + Describe, implement, and troubleshoot BGPsec
134 120
135 121 Management plane security
136 - Describe, implement, and troubleshoot device management, for example, MPP,
137 - SSH, and VTY
122 + Describe, implement, and troubleshoot device management, for example: MPP, SSH, VTY
138 123 Describe, implement, and troubleshoot logging and SNMP security
139 124 Describe backscatter Traceback
140 125
141 126 Infrastructure security
142 127 Describe, implement, and troubleshoot uRPF
143 - Describe Lawful-intercept
128 + Describe Lawful-intercept
144 129 Describe, implement, and troubleshoot iACL
145 130 Describe, implement, and troubleshoot RTBH
146 - Describe BGP Flowspec
131 + Describe, implement, and troubleshoot BGP Flowspec
147 132 Describe DDoS mitigation techniques
148 133
149 134 Timing and synchronization
150 - Describe, implement, and troubleshoot timing protocol, for example, NTP, v2, and SyncE
151 -
135 + Describe timing protocol, for example: NTP, 1588v2, and SyncE
152 136 Network monitoring and troubleshooting
153 137 Describe, implement, and troubleshoot syslog and logging functions
154 138 Describe, implement, and troubleshoot SNMP traps, RMON, EEM, and EPC
155 - Describe, implement, and troubleshoot port mirroring protocols, for example,
156 -
157 - SPAN, RSPAN, and ERSPAN
158 139 Describe, implement, and troubleshoot NetFlow and IPFIX
159 140 Describe, implement, and troubleshoot IP SLA
160 141 Describe, implement, and troubleshoot MPLS OAM and Ethernet OAM
161 - Describe network event and fault management
162 - Describe performance management and capacity procedures
163 142 Network configuration and change management
164 - Describe maintenance, operational procedures
165 - Describe network inventory management process
166 - Describe network change, implementation, and rollback
167 - Describe incident management process based on ITILv3 framework
143 + Describe configuration change, implementation, and rollback
168 144

Output

```
169 145 Evolving Technologies
170 146 Cloud
171 147 Compare and contrast Cloud deployment models
172 148 Infrastructure, platform, and software services (XaaS)
173 149 Performance and reliability
174 150 Security and privacy
175 151 Scalability and interoperability
176 152 Describe Cloud implementations and operations
177 153 Automation and orchestration
178 154 Workload mobility
179 155 Troubleshooting and management
180 156 OpenStack components
181 157
182 - Network programmability (SDN)
158 + Network Programmability (SDN)
183 159 Describe functional elements of network programmability (SDN) and how they interact
184 160 Controllers
185 161 APIs
186 162 Scripting
187 163 Agents
188 164 Northbound vs. Southbound protocols
189 165 Describe aspects of virtualization and automation in network environments
190 166 DevOps methodologies, tools and workflows
191 167 Network/application function virtualization (NFV, AFV)
192 168 Service function chaining
193 169 Performance, availability, and scaling considerations
194 170
195 - Internet of Things
196 - Describe architectural framework and deployment considerations for Internet of Things (IoT)
171 + Internet of Things (IoT)
172 + Describe architectural framework and deployment considerations for Internet of Things
197 173 Performance, reliability and scalability
198 174 Mobility
199 175 Security and privacy
200 176 Standards and compliance
201 177 Migration
202 178 Environmental impacts on the network
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