583II – Advanced Network Architectures and Wireless Systems

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Textbooks and other readings

Topic	Main textbook	Further references
IPv6. IPv6 address architecture. ICMPv6.	S. Hagen. IPv6 essentials. 3/ed., O'Reilly, ©2014. [Chapters 1-4]	RFC 8200 – Internet Protocol, Version 6 (IPv6) Specification, 2017 RFC 4291 – IPv6 Addressing Architecture, 2006 RFC 4443 – Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification, 2006 RFC 4861 – Neighbor Discovery for IP version 6 (IPv6), 2007 RFC 4862 – IPv6 Stateless Address Autoconfiguration, 2007
MPLS problem statement. MPLS data plane. MPLS control plane.	I. Minei and J. Lucek, MPLS-Enabled Applications: Emerging Developments and New Technologies, 3/ed., Wiley, ©2011. [Chapter 1]	RFC 3031 – Multiprotocol Label Switching Architecture, 2001 RFC 3032 – MPLS Label Stack Encoding, 2001 RFC 5036 – LDP Specification, 2007
Traffic Engineering in core networks with MPLS. Protection and restoration (Fast Rerouting).	I. Minei and J. Lucek, MPLS-Enabled Applications: Emerging Developments and New Technologies, 3/ed., Wiley, ©2011. [Chapters 2-3]	RFC 3209 – RSVP-TE: Extensions to RSVP for LSP Tunnels, 2001 RFC 3630 – Traffic Engineering Extensions to OSPF, 2003 RFC 4090 – Fast Reroute Extensions to RSVP-TE for LSP Tunnels, 2005 RFC 4655 – A Path Computation Element (PCE)-Based Architecture, 2006

		RFC 5440 – Path Computation Element (PCE) Communication Protocol (PCEP), 2009
Interdomain routing: Border Gateway Protocol (BGP4).	D. Medhi, K. Ramasamy, **Network Routing: Algorithms, Protocols, and Architectures**, 2/ed. Morgan Kaufmann, ©2018. [Chapter 9]	RFC 4271 – A Border Gateway Protocol 4 (BGP-4), 2006 RFC 4360 – BGP Extended Communities Attribute, 2006
Internet architecture.	D. Medhi, K. Ramasamy, **Network Routing: Algorithms, Protocols, and Architectures**, 2/ed. Morgan Kaufmann, ©2018. [Chapter 10]	
L3VPN services. BGP/MPLS IP VPNs.	I. Minei and J. Lucek, **MPLS-Enabled Applications: Emerging Developments and New Technologies**, 3/ed., Wiley, ©2011. [Chapter 7]	RFC 4364 – BGP MPLS IP Virtual Private Networks (VPNs), 2006 RFC 4760 – Multiprotocol Extensions for BGP-4, 2007
L2VPN services. IP/MPLS underlay: Virtual Private Wire Services (VPWS), Virtual Private LAN Services (VPLS. IP underlay: Virtual eXtensible LAN (VXLAN). Ethernet VPN (EVPN).	I. Minei and J. Lucek, **MPLS-Enabled Applications: Emerging Developments and New Technologies**, 3/ed., Wiley, ©2011. [Chapters 12-13, *partly covered in class*] D. G. Dutt, **Cloud Native Data Center Networking**, O'Reilly, ©2020 [Chapter 6, *partly covered in class*]	RFC 4761 – Virtual Private LAN Service (VPLS) Using BGP for Auto-Discovery and Signaling RFC 7209 – Requirements for Ethernet VPN (EVPN) RFC 7348 – Virtual eXtensible Local Area Network (VXLAN): A Framework for Overlaying Virtualized Layer 2 Networks over Layer 3 Networks RFC 7432 – BGP MPLS-Based Ethernet VPN RFC 8365 – A Network Virtualization Overlay Solution Using Ethernet VPN (EVPN)
Data Center Networking. Network Virtualization Overlay.	D. G. Dutt, **Cloud Native Data Center Networking**, O'Reilly, ©2020 [Chapters 1-2] [Chapters 6,14,16, *partly covered in class*]	RFC 7938 – Use of BGP for Routing in Large-Scale Data Centers RFC 8365 – A Network Virtualization Overlay Solution Using Ethernet VPN (EVPN)