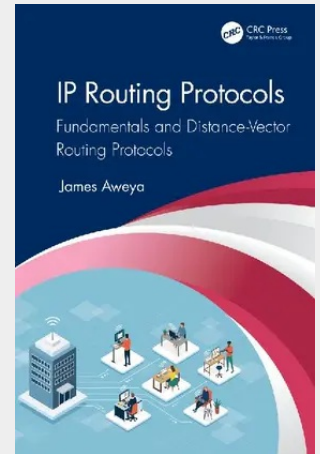


IP Routing Protocols

Link-State and Path-Vector Routing Protocols

This book discusses link-state routing protocols (OSPF and IS-IS), and the path-vector routing protocol (BGP). It covers their most identifying characteristics, operations, and the databases they maintain. Material is presented from a practicing engineer's perspective, linking theory and fundamental concepts to common practices and real-world examples. Every aspect of the book is written to reflect current best practices using real-world examples. The book begins with a detailed description of the OSPF area types and hierarchical routing, and the different types of routers used in an OSPF autonomous system. The author goes on to describe in detail the different OSPF packet types, and inbound and outbound processing of OSPF link-state advertisements (LSAs). Next, the book gives an overview of the main features of IS-IS. The author then discusses the two-level routing hierarchy for controlling the distribution of intra-domain (Level 1) and inter-domain (Level 2) routing information within an IS-IS routing domain. He then describes in detail IS-IS network address formats, IS-IS routing metrics, IS-IS packet types, IS-IS network types and adjacency formation, IS-IS LSDB and synchronization, and IS-IS authentication. The book then reviews the main concepts of path-vector routing protocols, and describes BGP packet types, BGP session states and Finite State Machine, BGP path attributes types, and BGP Autonomous System Numbers (ASNs). - Focuses solely on link-state routing protocols (OSPF and IS-IS), and the only path-vector routing protocol in use today (BGP). - Reviews the basic concepts underlying the design of IS-IS and provides a detailed description of IS-IS area types and hierarchical routing, and the different types of routers used by IS-IS. - Discusses the two-level routing hierarchy for controlling the distribution of intra-domain (Level 1) and inter-domain (Level 2) routing information within an IS-IS routing domain. - Describes in detail BGP packet types, BGP session states and Finite State Machine, BGP path attributes types, and BGP ASNs, includes a high-level view of the typical BGP router and its components, and inbound and outbound message processing. James Aweya, PhD, is a chief research scientist at the Etisalat British Telecom Innovation Center (EBTIC), Khalifa University, Abu Dhabi, UAE. He has authored four books including this book and is a senior member of the Institute of Electrical and Electronics Engineers (IEEE).

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