Top-Down Network Design (3rd Edition)

Synopsis

Objectives The purpose of Top-Down Network Design, Third Edition, is to help you design networks that meet a customerâ ™s business and technical goals. Whether your customer is another department within your own company or an external client, this book provides you with tested processes and tools to help you understand traffic flow, protocol behavior, and internetworking technologies. After completing this book, you will be equipped to design enterprise networks that meet a customerâ ™s requirements for functionality, capacity, performance, availability, scalability, affordability, security, and manageability. Â Audience This book is for you if you are an internetworking professional responsible for designing and maintaining medium- to large-sized enterprise networks. If you are a network engineer, architect, or technician who has a working knowledge of network protocols and technologies, this book will provide you with practical advice on applying your knowledge to internetwork design. Â This book also includes useful information for consultants, systems engineers, and sales engineers who design corporate networks for clients. In the fast-paced presales environment of many systems engineers, it often is difficult to slow down and insist on a top-down, structured systems analysis approach. Wherever possible, this book includes shortcuts and assumptions that can be made to speed up the network design process. Â Finally, this book is useful for undergraduate and graduate students in computer science and information technology disciplines. Students who have taken one or two courses in networking theory will find Top-Down Network Design, Third Edition, an approachable introduction to the engineering and business issues related to developing real-world networks that solve typical business problems. Â Changes for the Third Edition Networks have changed in many ways since the second edition was published. Many legacy technologies have disappeared and are no longer covered in the book. In addition, modern networks have become multifaceted, providing support for numerous bandwidth-hungry applications and a variety of devices, ranging from smart phones to tablet PCs to high-end servers. Modern users expect the network to be available all the time, from any device, and to let them securely collaborate with coworkers, friends, and family. Networks today support voice, video, high-definition TV, desktop sharing, virtual meetings, online training, virtual reality, and applications that we canâ ™t even imagine that brilliant college students are busily creating in their dorm rooms. Â As applications rapidly change and put more demand on networks, the need to teach a systematic approach to network design is even more important than ever. With that need in mind, the third edition has been retooled to make it an ideal textbook for college students. The third edition features review questions and design scenarios at the end of each chapter to help students learn top-down network design. Â To address new demands on modern

networks, the third edition of Top-Down Network Design also has updated material on the following topics: Â¿ Network redundancy Â¿ Modularity in network designs Â¿ The Cisco SAFE security reference architecture Â¿ The Rapid Spanning Tree Protocol (RSTP) Â¿ Internet Protocol version 6 (IPv6) Â¿ Ethernet scalability options, including 10-Gbps Ethernet and Metro Ethernet Â¿ Network design and management tools Â

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Customer Reviews

Whereas most other networking books focus on one technology or one aspect of network design, Oppenheimer really does guide the reader through designing a network in a top-down (gathering requirements to documentation) fashion. Overall, the book takes you from a 30,000 foot view to about a 2,000 foot view. Despite Oppenheimer's Cisco-focused background and being published by Cisco Press, her book admirably avoids plugging Cisco as the end-all-be-all solution. Overall, I would recommend this book for all parts of network design, and recommend others for the actual IOS/device configuration (which Top-Down Network Design avoids).As others have identified, the books is divided into four sections. The section titles are descriptive enough, so I'll just point out the highlights by chapter instead.The first chapter covers an introduction to network design, including analyzing business goals and constraints. It emphasizes the need for the network design to make "business sense," as in justify the business itself. Constraining the network design to the budgetary and staffing constraints of the customer is also important -- after all, what good is a highly-reliable, highly-complex network to a CCENT-level network engineer who can't make necessary

modifications without taking down the network?The fourth chapter relates to the network traffic of the existing network. By categorizing users into "user communities" based off job role (usage of sets of applications) and categorizing the traffic flows themselves, one can describe at a high level the network flow while still providing useful data for technical purchase decisions. The traffic flows are categorized into groups such as peer-to-peer, client/server, server-to-server, terminal/host, and distributed computing.

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