

Top-Down Network Design, Third Edition

Priscilla Oppenheimer

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Published by:

Cisco Press

800 East 96th Street

Indianapolis, IN 46240 USA

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Printed in the United States of America

First Printing August 2010

Library of Congress Cataloging-in-Publication data is on file.

ISBN-13: 978-1-58720-283-4

ISBN-10: 1-58720-283-2

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Top Down Network Design 3rd Edition

Rainer Rumpel



Top Down Network Design 3rd Edition:

Top-down Network Design Priscilla Oppenheimer, 2004 A systems analysis approach to enterprise network design Master techniques for checking the health of an existing network to develop a baseline for measuring performance of a new network design Explore solutions for meeting QoS requirements including ATM traffic management IETF controlled load and guaranteed services IP multicast and advanced switching queuing and routing algorithms Develop network designs that provide the high bandwidth and low delay required for real time applications such as multimedia distance learning and videoconferencing Identify the advantages and disadvantages of various switching and routing protocols including transparent bridging Inter Switch Link ISL IEEE 802.1Q IGRP EIGRP OSPF and BGP4 Effectively incorporate new technologies into enterprise network designs including VPNs wireless networking and IP Telephony

Top Down Network Design Second Edition is a practical and comprehensive guide to designing enterprise networks that are reliable secure and manageable Using illustrations and real world examples it teaches a systematic method for network design that can be applied to campus LANs remote access networks WAN links and large scale internetworks You will learn to analyze business and technical requirements examine traffic flow and QoS requirements and select protocols and technologies based on performance goals You will also develop an understanding of network performance factors such as network utilization throughput accuracy efficiency delay and jitter Several charts and job aids will help you apply a top down approach to network design This Second Edition has been revised to include new and updated material on wireless networks virtual private networks VPNs network security network redundancy modularity in network designs dynamic addressing for IPv4 and IPv6 new network design and management tools Ethernet scalability options including 10 Gbps Ethernet Metro Ethernet and Long Reach Ethernet and networks that carry voice and data traffic

Top Down Network Design Second Edition has a companion website at <http://www.topdownbook.com> which includes updates to the book links to white papers and supplemental information about design resources This book is part of the Networking Technology Series from Cisco Press which offers networking professionals valuable information for constructing efficient networks understanding new technologies and building successful careers

Top-Down Network Design Priscilla Oppenheimer, 2010-08-24

Objectives

The purpose of **Top Down Network Design Third Edition** is to help you design networks that meet a customer'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 customer's requirements for functionality capacity performance availability scalability affordability security and manageability

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 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 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 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 can t even imagine that brilliant college students are busily creating in their dorm rooms 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 To address new demands on modern networks the third edition of Top Down Network Design also has updated material on the following topics Network redundancy Modularity in network designs The Cisco SAFE security reference architecture The Rapid Spanning Tree Protocol RSTP Internet Protocol version 6 IPv6 Ethernet scalability options including 10 Gbps Ethernet and Metro Ethernet Network design and management tools

Top-Down Network Design, Third Edition Priscilla Oppenheimer,2010 Top Down Network Design Third Edition Priscilla Oppenheimer A systems analysis approach to enterprise network design The authoritative book on designing networks that align with business goals Top Down Network Design Third Edition is a practical and comprehensive guide to designing enterprise networks that are reliable secure and scalable The book uses a top down approach to help you focus first on applications and user requirements before selecting devices cabling and other technologies to implement the network The book takes you through an explanation of how to design networks that align with business goals so that the network can keep pace with changing user requirements This new edition provides a comprehensive look at enterprise network design and the different modules of an enterprise network Using illustrations and real world examples the book covers campus network design wireless networks remote access and wide area connectivity You learn how to analyze business and technical

requirements and select topologies and technologies that are based on that analysis A major focus is on security as network users become more mobile You also develop an understanding of network performance factors and methods for building reliable networks that can scale as traffic loads increase This Third Edition includes updated and expanded material on wireless networks virtual private networks VPN network security network redundancy modularity in network designs dynamic addressing for IPv4 and IPv6 Ethernet scalability options including 10 Gbps Ethernet Metro Ethernet and Long Reach Ethernet and networks that carry voice and data traffic In addition you will learn how to build networks that can support real time video collaborative computing and social networking tools and that adhere to the Cisco SAFE Security Reference Architecture Every chapter now includes a set of essay questions and design scenarios to give you a chance to practice what you have learned The book also has a companion website at www.topdownbook.com which includes updates to the book links to white papers and supplemental information about design resources Learn a network design process that results in networks that perform well provide security and scale to meet growing demands for bandwidth Develop network designs that provide the high bandwidth and low delay required for real time applications such as multimedia distance learning videoconferencing

Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management Vincent G. Duffy, 2023-07-10 This book constitutes the refereed proceedings of the 14th Digital Human Modeling Applications in Health Safety Ergonomics Risk Management DHM Conference held as part of the 25th International Conference HCI International 2023 which was held virtually in Copenhagen Denmark in July 2023 The total of 1578 papers and 396 posters included in the HCII 2023 proceedings was carefully reviewed and selected from 7472 submissions The DHM 2023 method focuses on different areas of application and has produced works focused on human factors and ergonomics based on human models novel approaches in healthcare and the application of artificial intelligence in medicine Interesting applications will be shown in many sectors Work design and productivity robotics and intelligent systems are among this year's human machine modeling and results reporting efforts

Transforming Computing Education with Problem-Based Learning Simone C. dos Santos, 2023-10-11 Future professional competencies in the field of computing recommended by international forums and reference curricula comprise a combination of knowledge skills and attitudes These competencies can be developed through educational objectives which integrate theory and experience through teamwork intense collaboration and problem solving For this it is necessary to have an authentic learning environment and well defined pedagogical processes In this context this book argues that the educational strategy of Problem Based Learning PBL can translate educational objectives into professional competencies This book proposes a methodology to implement PBL in a manageable way It also reports teaching and learning experiences concerning several computing professional profiles providing a realistic picture of this methodology

Design and Construction of an RFID-enabled Infrastructure Nagabhushana Prabhu, 2013-11-20 Internet 2.0 previously called the Internet of Things presents a tantalizing vision of

bridging the cyber and physical worlds to forge a seamless planet wide infrastructure in which cyber resources and physical objects can interact without human intervention The technology needed to build the infrastructure already exists However more than a d

Designing for Cisco Internetwork Solutions (DESGN) Foundation Learning Guide Sean Wilkins, 2011-07-25

Designing for Cisco Internetwork Solutions DESGN Foundation Learning Guide Third Edition Sean Wilkins Foundation learning for the CCDA DESGN 640 864 exam Designing for Cisco Internetwork Solutions DESGN Foundation Learning Guide Third Edition is a Cisco authorized self paced learning tool for CCDA foundation learning This book provides you with the knowledge needed to design enterprise networks By reading this book you will gain a thorough understanding of designing routed and switched network infrastructures and services involving LAN WAN and broadband access for businesses and organizations Designing for Cisco Internetwork Solutions DESGN Foundation Learning Guide Third Edition teaches you how to gather internetworking requirements identify solutions and design the network infrastructure and services to ensure basic functionality using the principles of hierarchical network design to structure and modularize a converged enterprise network design Specific topics include understanding the design methodology structuring and modularizing the network design designing the Enterprise Campus Enterprise Data Center Enterprise Edge and remote modules as needed designing an addressing plan and selecting suitable routing protocols designing basic voice transport across the network designing a basic wireless solution and evaluating security solutions Chapter ending review questions illustrate and help solidify the concepts presented in the book Whether you are preparing for CCDA certification or simply want to gain a better understanding of network design principles you will benefit from the foundation information presented in this book Designing for Cisco Internetwork Solutions DESGN Foundation Learning Guide Third Edition is part of a recommended learning path from Cisco that includes simulation and hands on training from authorized Cisco Learning Partners and self study products from Cisco Press To find out more about instructor led training e learning and hands on instruction offered by authorized Cisco Learning Partners worldwide please visit www.cisco.com/go/authorizedtraining Understand network design methodologies and the lifecycle of a network Learn how to structure and modularize network designs within the Cisco Network Architectures for the Enterprise Design basic campus and data center networks Build designs for remote connectivity with WAN technologies Examine IPv4 and IPv6 addressing schemes Select the appropriate routing protocols for various modules in the enterprise architecture Evaluate security solutions for the network Identify voice and video networking considerations Understand design technologies and considerations when implementing a controller based wireless network This book is in the Foundation Learning Guide Series These guides are developed together with Cisco as the only authorized self paced learning tools that help networking professionals build their understanding of networking concepts and prepare for Cisco certification exams

Network Design for IP Convergence Yezid Donoso, 2009-02-23 The emergence of quality of service QoS mechanisms continues to propel the development of real time multimedia services such as VoIP and videoconferencing

However many challenges remain in achieving optimized standardization convergence Network Design for IP Convergence is a comprehensive global guide to recent advances in IP network implementation Providing an introduction to basic LAN WAN MAN network design the author covers the latest equipment and architecture addressing QoS policies and integration of services among other topics The book explains how to integrate the different layers of reference models and various technological platforms to mirror the harmonization that occurs in the real world of carrier networks It furnishes appropriate designs for traditional and critical services in the LAN and carrier networks both MAN and WAN and it clarifies how a specific layer or technology can cause those services to malfunction This book lays a foundation for understanding with concepts and applicability of QoS parameters under the multilayer scheme and a solid explanation of service infrastructure It goes on to describe integration in both real time and not real time elaborating on how both processes can co exist within the same IP network and concluding with the designs and configurations of service connections Learn How to Overcome Obstacles to Improve Technology This sweeping analysis of the implementation of IP convergence and QoS mechanisms helps designers and operators get past key obstacles such as integrating platform layers and technologies and implementing various associated QoS concepts to improve technology and standards

A Top-Down, Constraint-Driven Design

Methodology for Analog Integrated Circuits Henry Chang,Edoardo Charbon,Umakanta Choudhury,Alper Demir,Eric Felt,Edward Liu,Enrico Malavasi,Alberto Sangiovanni-Vincentelli,Iasson Vassiliou,2011-06-28 Analog circuit design is often the bottleneck when designing mixed analog digital systems A Top Down Constraint Driven Design Methodology for Analog Integrated Circuits presents a new methodology based on a top down constraint driven design paradigm that provides a solution to this problem This methodology has two principal advantages 1 it provides a high probability for the first silicon which meets all specifications and 2 it shortens the design cycle A Top Down Constraint Driven Design Methodology for Analog Integrated Circuits is part of an ongoing research effort at the University of California at Berkeley in the Electrical Engineering and Computer Sciences Department Many faculty and students past and present are working on this design methodology and its supporting tools The principal goals are 1 developing the design methodology 2 developing and applying new tools and 3 proving the methodology by undertaking industrial strength design examples The work presented here is neither a beginning nor an end in the development of a complete top down constraint driven design methodology but rather a step in its development This work is divided into three parts Chapter 2 presents the design methodology along with foundation material Chapters 3 8 describe supporting concepts for the methodology from behavioral simulation and modeling to circuit module generators Finally Chapters 9 11 illustrate the methodology in detail by presenting the entire design cycle through three large scale examples These include the design of a current source D A converter a Sigma Delta A D converter and a video driver system Chapter 12 presents conclusions and current research topics A Top Down Constraint Driven Design Methodology for Analog Integrated Circuits will be of interest to analog and mixed signal designers as well as CAD

tool developers A Practical Approach to Corporate Networks Engineering Antonio Nogueira, Paulo Salvador, 2022-09-01 A Practical Approach to Corporate Networks Engineering is dedicated to corporate network design and engineering covering the different levels of network design and deployment The main theoretical concepts are explained and the different functioning mechanisms are illustrated with practical experiments Using an open source network simulator that is able to emulate real network equipment and run concrete network scenarios Graphical Network Simulator the authors present several realistic network scenarios that illustrate the different network protocols and mechanisms and can be easily replicated by readers at home Readers will be able to configure the different network equipments run the scenarios and capture traffic at the different network links on their own ordinary PC acquiring a deep knowledge of the underlying network protocols and mechanisms This interactive and practical teaching approach is very motivating and effective since students can easily follow the explanations that are given throughout the book making this work a valuable addition to the existing literature Designing Cisco Network Service Architectures (ARCH) John Tiso, Keith T. Hutton, 2012 Designing Cisco Network Service Architectures ARCH Foundation Learning Guide Third Edition is a Cisco R authorized self paced learning tool for CCDP R foundation learning This book provides you with the knowledge needed to perform the conceptual intermediate and detailed design of a network infrastructure that supports desired network solutions over intelligent network services in order to achieve effective performance scalability and availability By reading this book you will gain a thorough understanding of how to apply solid Cisco network solution models and recommended design practices to provide viable stable enterprise internetworking solutions The book presents concepts and examples that are necessary to design converged enterprise networks Advanced network infrastructure technologies such as virtual private networks VPNs and other security solutions are also covered Designing Cisco Network Service Architectures ARCH Foundation Learning Guide Third Edition teaches you the latest development in network design and technologies including network infrastructure intelligent network services and converged network solutions Specific topics include campus routing addressing WAN services data center e commerce SAN security VPN and IP multicast design as well as network management Chapter ending review questions illustrate and help solidify the concepts presented in the book Whether you are preparing for CCDP certification or simply want to gain a better understanding of designing scalable and reliable network architectures you will benefit from the foundation information presented in this book Designing Cisco Network Service Architectures ARCH Foundation Learning Guide Third Edition is part of a recommended learning path from Cisco that includes simulation and hands on training from authorized Cisco Learning Partners and self study products from Cisco Press To find out more about instructor led training e learning and hands on instruction offered by authorized Cisco Learning Partners worldwide please visit www.cisco.com/go/authorizedtraining John Tiso CCIE No 5162 CCDP is a Product Manager for Cisco Systems He holds a B S Degree in Computer Science and Mathematics from Adelphi University and a Graduate Citation in Strategic Management

from Harvard University John is a published author has served as a technical editor for Cisco Press and has participated as a SME for the CCIE program Prior to Cisco he was a senior consultant and architect in the Cisco partner channel Learn about the Cisco Enterprise Architecture Create highly available campus and data center network designs Develop optimum Layer 3 designs Examine advanced WAN services design considerations Evaluate SAN design considerations Deploy effective e commerce module designs Create effective security services and IPsec and SSL VPN designs Design IP multicast networks Understand the network management capabilities within Cisco IOS Software This book is in the Foundation Learning Guide Series These guides are developed together with Cisco R as the only authorized self paced learning tools that help networking professionals build their understanding of networking concepts and prepare for Cisco certification exams Category Cisco Certification Covers CCDP ARCH 642 874 **Forthcoming Books** Rose Arny,2004 Planung und Realisierung von IT-Infrastrukturen - ein prozessbasierter Ansatz Rainer Rumpel,2012-12-04 Der Leser wird zun chst mit Definitionen wichtiger Begriffe und bestehenden Vorgehensmodellen vertraut gemacht Anschlie end erh lt er einen fundierten Einblick in die Themenfelder Prozessqualit t und Prozessorganisation zwei wesentliche Erfolgsfaktoren f r die Planung und Realisierung von IT Infrastrukturen Prozessdiagramme zur Aufbau und Ablaufstruktur veranschaulichen die Phasen Analyse Planung Realisierung und Betriebsaufnahme Der Praktiker bekommt anwendungsnahe Checklisten an die Hand Das Buch nimmt auf konkrete technische Fragestellungen und F lle Bezug setzt den Fokus aber auf die Vermittlung von Methoden zur Errichtung von IT Infrastrukturen insbesondere IT Netzwerken LDAP System Administration Gerald Carter,2003 Be more productive and make your life easier That s what LDAP System Administration is all about System administrators often spend a great deal of time managing configuration information located on many different machines usernames passwords printer configurations email client configurations and network filesystem configurations to name a few LDAPv3 provides tools for centralizing all of the configuration information and placing it under your control Rather than maintaining several administrative databases NIS Active Directory Samba and NFS configuration files you can make changes in only one place and have all your systems immediately see the updated information Practically platform independent this book uses the widely available open source OpenLDAP 2 directory server as a premise for examples showing you how to use it to help you manage your configuration information effectively and securely OpenLDAP 2 ships with most Linux distributions and Mac OS X and can be easily downloaded for most Unix based systems After introducing the workings of a directory service and the LDAP protocol all aspects of building and installing OpenLDAP plus key ancillary packages like SASL and OpenSSL this book discusses Configuration and access control Distributed directories replication and referral Using OpenLDAP to replace NIS Using OpenLDAP to manage email configurations Using LDAP for abstraction with FTP and HTTP servers Samba and Radius Interoperating with different LDAP servers including Active Directory Programming using Net LDAP If you want to be a master of your domain LDAP System Administration will help you get up and running quickly

regardless of which LDAP version you use After reading this book even with no previous LDAP experience you ll be able to integrate a directory server into essential network services such as mail DNS HTTP and SMB CIFS The Sound System Design Primer Josh Loar,2019-02-21 The Sound System Design Primer is an introduction to the many topics technologies and sub disciplines that make up contemporary sound systems design Written in clear conversational language for those who do not have an engineering background or who think more in language than in numbers The Sound System Design Primer provides a solid foundation in this expanding discipline for students early mid career system designers creative and content designers seeking a better grasp on the technical side of things and non sound professionals who want or need to be able to speak intelligently with sound system designers *DCN: Designing Cisco Networks* Thomas M. Thomas,Erik Freeland,Michael Coker,Donald A. Stoddard,2002-12-06 The demand for certified networking professionals that have experience with Cisco products and Cisco based networks has never been higher Written in conjunction with CCprep com the premier Cisco certification training Website DCN Designing Cisco Networks gives you full curriculum based coverage to help you study for the CCDA exam and succeed as a Cisco professional Comprehensive thorough and reliable this is the only book you ll need for both preparing for the CCDA exam and as a helpful on the job desk reference **Editorial Design Third Edition** Cath Caldwell,2024-11-21 Editorial Design presents designers with everything they need to know to create their own layouts connecting editorial design history with current practice to enlighten and inspire the beginner as well as the more experienced designer The third edition has been updated to reflect the latest developments in visual journalism with over one hundred new images showcasing the very best in contemporary editorial design New chapters have been added dedicated to independent magazines and the seamless integration of print with digital This generously illustrated revised edition includes case studies practical exercises and tips along with updated profiles of leading designers in the field who share their expertise and offer invaluable advice The book design has been refreshed in a larger format for easy legibility of images captions and text **Biomedical Device Technology (3rd Edition)** Anthony Y. K. Chan,2023-02-02 This book provides a comprehensive approach to studying the principles and design of biomedical devices and their applications in medicine It is written for engineers and technologists who are interested in understanding the principles design and use of medical device technology The book is also intended to be a textbook or reference for biomedical device technology courses in universities and colleges It focuses on the applications functions and principles of medical devices which are the invariant components and uses specific designs and constructions to illustrate the concepts where appropriate Indication of use as well as common problems and hazards for each device type are included This book selectively covers diagnostic and therapeutic devices that are either commonly used or whose principles and design represent typical applications of the technology For those who would like to know more a collection of published papers and book references has been added to the end of each chapter In this third edition many chapters have gone through revisions some with significant updates and additions to keep up with

new applications and advancements in medical technology A new appendix on infection prevention and control practices relating to medical devices is included Based on requests review questions are added for each chapter to help readers to assess their comprehension of the content material

Netzwerk- und IT-Sicherheitsmanagement Jochen Dinger, Hannes Hartenstein, 2014-08-13 Dieses Buch führt den Leser in die beiden Themengebiete Netzwerk und IT Sicherheitsmanagement ein Neben den technischen Aspekten sind dabei die strategischen planerischen organisatorischen und steuernden Maßnahmen des Managements von besonderer Bedeutung Zur Verdeutlichung der Inhalte werden Fallbeispiele angeführt bei denen insbesondere auf Erfahrungen und Maßnahmen des Rechenzentrums der Universität Karlsruhe TH Bezug genommen wird

Cisco Secure Virtual Private Networks Andrew G. Mason, 2002 Based on the official instructor led training course of the same name in a self study product Cisco Secure Virtual Private Networks is a comprehensive results oriented book designed to give readers the knowledge to plan administer and maintain a Virtual Private Network VPN Readers are taught to accomplish several specific tasks including identifying the features functions and benefits of Cisco Secure VPN products identifying the component technologies implemented in Cisco Secure VPN products utilizing commands required to configure and test IPSec in Cisco IOS software and PIX Firewalls installing and configuring the Cisco VPN Client to create a secure tunnel to a Cisco VPN Concentrator and PIX Firewall configuring and verifying IPSec in the Cisco VPN Concentrator Cisco router and PIX Firewall and configuring the Cisco VPN Concentrator Cisco router and PIX Firewall for interoperability

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