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"Shows readers how to create and manage virtual networks on a PC using the popular open-source platform GNS3, with tutorial-based explanations"--

While several publishers (including O'Reilly) supply excellent documentation of router features, the trick is knowing when, why, and how to use these features There are often many different ways to solve any given networking problem using Cisco devices, and some solutions are clearly more effective than others. The pressing question for a network engineer is which of the many potential solutions is the most appropriate for a particular situation. Once you have decided to use a particular feature, how should you implement it?

Unfortunately, the documentation describing a particular command or feature frequently does very little to answer either of these questions. Everybody who has worked with Cisco routers for any length of time has had to ask their friends and co-workers for example router configuration files that show how to solve a common problem. A good working configuration example can often save huge amounts of time and frustration when implementing a feature that you've never used before. The Cisco Cookbook gathers hundreds of example router configurations all in one place. As the name suggests, Cisco Cookbook is organized as a series of recipes. Each recipe begins with a problem statement that describes a common situation that you might face. After each problem statement is a brief solution that shows a sample router configuration or script that you can use to resolve this particular problem. A discussion section then describes the solution, how it works, and when you should or should not use it. The chapters are organized by the feature or protocol discussed. If you are looking for information on a particular

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feature such as NAT, NTP or SNMP, you can turn to that chapter and find a variety of related recipes. Most chapters list basic problems first, and any unusual or complicated situations last. The Cisco Cookbook will quickly become your "go to" resource for researching and solving complex router configuration issues, saving you time and making your network more efficient. It covers: Router Configuration and File Management Router Management User Access and Privilege Levels TACACS+ IP Routing RIP EIGRP OSPF BGP Frame Relay Queueing and Congestion Tunnels and VPNs Dial Backup NTP and Time DLSw Router Interfaces and Media Simple Network Management Protocol Logging Access Lists DHCP NAT Hot Standby Router Protocol IP Multicast

ABOUT THE HANDS-ON LABS The purpose of this workbook is to guide you through configuring and testing common network topologies using Cisco Virtual Internet Routing Lab (VIRL). Cisco VIRL is a software tool to build and run network simulations without the need for physical hardware. The hands-on labs in this guide work you through basic STP, Trunking, NAT, EIGRP/OSPF dynamic routing protocols to advanced ASA with multiple security zones, IPsec VPN, BGP, DMVPN, VRF and MPLS configurations. The Lab Guide helps you: Get Proficient with Cisco VIRL Practice using Real-world Scenarios Mock-up Build CCNA, CCNP and CCIE Level Labs Step-by-step and Easy-to-follow Guide The knowledge and proficiency acquired by completing the labs in this workbook will help you in preparing CCNA, CCNP and CCIE level exams, as well as in administrating and configuring real-world networking environment. Most importantly, get proficient at using Cisco VIRL as a tool to build any network topologies you like. Lab configuration is broken down into smaller tasks. Each task represents a key technology that often appears in certification exams and real-

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world networking environment. In most cases, a prior task configuration is required before configuring the next. Make sure test after each task is completed and in working state. Instead of diving into the configuration right away, we explain what the technology is about and why we proposed such solution. Key configuration and commands are highlighted for your attention and explained in depth. One of the objectives of the workbook is to get your proficient with Cisco VIRL. Whether you are a veteran engineer working in an enterprise network environment or a Cisco academy student learning about networking technologies, you need a lab. The step-by-step guide demonstrates and walks you through 9 network topologies, from easy to advanced, by using Cisco VIRL as a backend simulation engine. VIRL also has extensive ability to integrate with third-party virtual machines, appliances, VNFs and servers such as Microsoft Windows, Juniper, Palo Alto Networks, Fortinet, F5, Extreme Networks, Arista, Alcatel, Citrix and more. In some of the labs, we have introduced Linux virtual machines to run inside a routing lab. And use the Linux hosts to perform Ping and Traceroute testing. You'll learn how to build a Linux machine and assign interface IP address and a default gateway. Result validation commands and troubleshooting tips are included within each task. It is a crucial skill to have in real-life network engineering and CCIE lab takers. You'll learn what troubleshooting tools and commands to use for each scenario, and what outcomes to expect. VIRL built-in live visualization tool is often leveraged to verify traffic path of a Traceroute command. You may also shutdown specific network interfaces or any node on the network to simulate a failure condition. Subsequent traffic fail-over can be verified by examining the Ping and Traceroute results. To learn about how to get started with Cisco VIRL and how to acquire a license, prepare and build a server, refer to our in-depth guide "The VIRL BOOK: A Step-by-Step

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Guide Using Cisco Virtual Internet Routing Lab". Available on Amazon.com For more information visit:

<https://www.speaknetworks.com>

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. CCNA Data Center DCICN 200-150 Official Cert Guide from Cisco Press allows you to succeed on the exam the first time and is the only self-study resource approved by Cisco. Cisco Data Center experts Chad Hintz, Cesar Obediente, and Ozden Karakok share preparation hints and test-taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. This complete study package includes A test-preparation routine proven to help you pass the exam Do I Know This Already? quizzes, which allows you to decide how much time you need to spend on each section Chapter-ending exercises, which help you drill on key concepts you must know thoroughly The powerful Pearson IT Certification Practice Test software complete with hundreds of well-reviewed, exam-realistic questions customization options, and detailed performance reports final preparation chapter, which guides you through tools and resources to help you craft your review and test-taking strategies Study plan suggestions and templates to help you organize and optimize your study time Well-regarded for its level of detail, study plans, assessment features, challenging review questions and exercises, this official study guide helps you master the concepts and techniques that ensure your exam success. The official study guide helps you master topics on the CCNA Data Center DCICN 200-150 exam, including the following: Nexus data center infrastructure and architecture Networking models, Ethernet LANs, and IPv4/IPv6 addressing/routing Data center Nexus switching and routing fundamentals Nexus switch installation and operation VLANs,

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trunking, STP, and Ethernet switching IPv4 and IPv6
subnetting IPv4 routing concepts, protocols, configuration,
and access control Data center storage networking
technologies and configurations

The definitive guide to troubleshooting today's complex BGP networks This is today's best single source for the techniques you need to troubleshoot BGP issues in modern Cisco IOS, IOS XR, and NxOS environments. BGP has expanded from being an Internet routing protocol and provides a scalable control plane for a variety of technologies, including MPLS VPNs and VXLAN. Bringing together content previously spread across multiple sources, Troubleshooting BGP describes BGP functions in today's blended service provider and enterprise environments. Two expert authors emphasize the BGP-related issues you're most likely to encounter in real-world deployments, including problems that have caused massive network outages. They fully address convergence and scalability, as well as common concerns such as BGP slow peer, RT constraint filtering, and missing BGP routes. For each issue, key concepts are presented, along with basic configuration, detailed troubleshooting methods, and clear illustrations. Wherever appropriate, OS-specific behaviors are described and analyzed.

Troubleshooting BGP is an indispensable technical resource for all consultants, system/support engineers, and operations professionals working with BGP in even the largest, most complex environments. · Quickly review the BGP protocol, configuration, and commonly used features · Master generic troubleshooting methodologies that are relevant to BGP networks · Troubleshoot BGP peering issues, flapping peers, and dynamic BGP peering · Resolve issues related to BGP route installation, path selection, or route policies · Avoid and fix convergence problems · Address platform issues such as high CPU or memory usage · Scale BGP using route

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reflectors, diverse paths, and other advanced features · Solve problems with BGP edge architectures, multihoming, and load balancing · Secure BGP inter-domain routing with RPKI · Mitigate DDoS attacks with RTBH and BGP Flowspec · Understand common BGP problems with MPLS Layer 3 or Layer 2 VPN services · Troubleshoot IPv6 BGP for service providers, including 6PE and 6VPE · Overcome problems with VXLAN BGP EVPN data center deployments · Fully leverage BGP High Availability features, including GR, NSR, and BFD · Use new BGP enhancements for link-state distribution or tunnel setup 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.

Trust the best-selling Official Cert Guide series from Cisco Press to help you learn, prepare, and practice for exam success. This series is built with the objective of providing assessment, review, and practice to help ensure you are fully prepared for your certification exam. * Master Cisco CCNA Data Center DCICN 640-911 exam topics * Assess your knowledge with chapter-opening quizzes * Review key concepts with exam preparation tasks This is the eBook edition of the CCNA Data Center DCICN 640-911 Official Cert Guide. This eBook does not include the companion CD-ROM with practice exam that comes with the print edition. CCNA Data Center DCICN 640-911 Official Cert Guide from Cisco Press enables you to succeed on the exam the first time and is the only self-study resource approved by Cisco. Expert instructors and engineers Wendell Odom and Chad Hintz share preparation hints and test-taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. This complete, official study package includes * A test-preparation routine proven to help

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you pass the exam * "Do I Know This Already?" quizzes, which enable you to decide how much time you need to spend on each section * Chapter-ending and part-ending exercises, which help you drill on key concepts you must know thoroughly * A final preparation chapter that guides you through tools and resources to help you craft your review and test-taking strategies * A Nexus lab guide appendix, with advice for building hands-on Nexus labs * Study plan suggestions and templates to help you organize and optimize your study time Well regarded for its level of detail, study plans, assessment features, and challenging review questions and exercises, this official study guide helps you master the concepts and techniques that ensure your exam success. CCNA Data Center DCICN 640-911 Official Cert Guide 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. The official study guide helps you master topics on the CCNA Data Center DCICN 640-911 exam, including * Networking fundamentals * Installing, operating, and configuring Nexus switches * VLANs and trunking concepts and configuration * Spanning Tree Protocol (STP) concepts and configuration * IP addressing and subnetting * IPv6 fundamentals * Cisco Nexus IPv4 routing configuration and routing protocol implementation * IPv4 access control lists (ACL) on Nexus switches

Annotation Trust the best-selling Official Cert Guide series from Cisco Press to help you learn, prepare, and practice for exam success. This series is built with the objective of providing assessment, review, and practice to help ensure you are fully prepared for your certification exam. CCNA Data

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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. The print edition of the CCNA Data Center DCICN 640-911 Official Cert Guide contains more than 200 practice exam questions. Also available from Cisco Press is the CCNA Data Center DCICN 640-911 Official Cert Guide Premium Edition eBook and Practice Test. This digital-only certification preparation product combines an eBook with enhanced Pearson IT Certification Practice Test. This integrated learning package--Enables you to focus on individual topic areas or take complete, timed exams--Includes direct links from each question to detailed tutorials to help you understand the concepts behind the questions--Provides additional unique sets of exam-realistic practice questions--Tracks your performance and provides feedback on a module-by-module basis, laying out a complete assessment of your knowledge to help you focus your study where it is needed most. This print book includes a 70% discount offer off the list price of the CCNA Data Center DCICN 640-911 Official Cert Guide Premium Edition eBook and Practice Test to help enhance your exam preparation experience.

A must-have study guide for exam 640-911 on Cisco's Unified Data Center. The Cisco Certified Network Associate Data Center certification is Cisco's newest certification, covering the Cisco Unified Data Center technologies. Written by unparalleled author and Cisco authority Todd Lammler, and CCIE John Swartz, this comprehensive study guide is essential reading for anyone preparing to take the 640-911 exam (Introducing Cisco Data Center Networking), providing in-depth coverage of all the exam's objectives. In

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addition, it offers expanded coverage on key topics reflected on the exam. Addresses understanding basic networking and ethernet technologies Reviews the OSI and DoD model and TCP/IP Transport Layer Covers basic IP routing technologies, layer 2 switching technologies, and routing principles Provides an introduction to Nexus switch as well as how to configure it CCNA Data Center Study Guide offers you access to additional study tools, including bonus practice exams, electronic flashcards, a searchable PDF of a glossary of terms. Plus, you will be able to use the free nexus simulator to perform all the hands-on labs in the book.

This is the eBook version of the print title. Note that the eBook does not provide access to the practice test software that accompanies the print book. Access to the personal video mentoring is available through product registration at Cisco Press; or see the instructions in the back pages of your eBook. Learn, prepare, and practice for CCNP/CCIE Data Center Core DCCOR 350-601 exam success with this Cert Guide from Cisco Press, a leader in IT certification learning and the only self-study resource approved by Cisco. • Master CCNP/CCIE Data Center Core DCCOR 350-601 exam topics • Assess your knowledge with chapter-ending quizzes • Review key concepts with exam preparation tasks • Learn from more than two hours of video mentoring CCNP and CCIE Data Center Core DCCOR 350-601 Official Cert Guide is a best-of-breed exam study guide. Expert authors Somit Maloo and Firas Ahmed share preparation hints and test-taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. Material is presented in a concise manner, focusing on increasing your understanding and retention of exam topics. The book presents you with an organized test-preparation routine through the use of proven series elements and techniques. Exam topic lists make referencing easy. Chapter-

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ending Exam Preparation Tasks help you drill on key concepts you must know thoroughly. Review questions help you assess your knowledge, and a final preparation chapter guides you through tools and resources to help you craft your final study plan. The book also contains more than two hours of personal video mentoring from the Pearson IT Certification Complete Video Course. Go to the back pages of your eBook for instructions on how to access the personal video mentoring content. Well regarded for its level of detail, assessment features, and challenging review questions and exercises, this study guide helps you master the concepts and techniques that will help you succeed on the exam the first time. This official study guide helps you master all the topics on the CCNP/CCIE Data Center Core DCCOR 350-601 exam, including · Network · Compute · Storage Network · Automation · Security

NX-OS and Cisco Nexus SwitchingNext-Generation Data Center ArchitecturesCisco Press

The complete guide to building and managing next-generation data center network fabrics with VXLAN and BGP EVPN This is the only comprehensive guide and deployment reference for building flexible data center network fabrics with VXLAN and BGP EVPN technologies. Writing for experienced network professionals, three leading Cisco experts address everything from standards and protocols to functions, configurations, and operations. The authors first explain why and how data center fabrics are evolving, and introduce Cisco's fabric journey. Next, they review key switch roles, essential data center network fabric terminology, and core concepts such as network attributes, control plane details, and the associated data plane encapsulation. Building on this foundation, they provide a deep dive into fabric semantics, efficient creation and addressing of the underlay, multi-tenancy, control and data plane interaction, forwarding flows,

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external interconnectivity, and service appliance deployments. You'll find detailed tutorials, descriptions, and packet flows that can easily be adapted to accommodate customized deployments. This guide concludes with a full section on fabric management, introducing multiple opportunities to simplify, automate, and orchestrate data center network fabrics. Learn how changing data center requirements have driven the evolution to overlays, evolved control planes, and VXLAN BGP EVPN spine-leaf fabrics Discover why VXLAN BGP EVPN fabrics are so scalable, resilient, and elastic Implement enhanced unicast and multicast forwarding of tenant traffic over the VXLAN BGP EVPN fabric Build fabric underlays to efficiently transport uni- and multi-destination traffic Connect the fabric externally via Layer 3 (VRF-Lite, LISP, MPLS L3VPN) and Layer 2 (VPC) Choose your most appropriate Multi-POD, multifabric, and Data Center Interconnect (DCI) options Integrate Layer 4-7 services into the fabric, including load balancers and firewalls Manage fabrics with POAP-based day-0 provisioning, incremental day 0.5 configuration, overlay day-1 configuration, or day-2 operations Use ACI fabrics to drive unprecedented value from your data center environment With the Cisco Application Centric Infrastructure (ACI) software-defined networking platform, you can achieve dramatic improvements in data center performance, redundancy, security, visibility, efficiency, and agility. In *Deploying ACI*, three leading Cisco experts introduce this breakthrough platform, and walk network professionals through all facets of design, deployment, and operation. The authors demonstrate how ACI changes data center networking, security, and management; and offer multiple field-proven configurations. *Deploying ACI* is organized to follow the key decision points associated with implementing data center network fabrics. After a practical

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introduction to ACI concepts and design, the authors show how to bring your fabric online, integrate virtualization and external connections, and efficiently manage your ACI network. You'll master new techniques for improving visibility, control, and availability; managing multitenancy; and seamlessly inserting service devices into application data flows. The authors conclude with expert advice for troubleshooting and automation, helping you deliver data center services with unprecedented efficiency. Understand the problems ACI solves, and how it solves them Design your ACI fabric, build it, and interface with devices to bring it to life Integrate virtualization technologies with your ACI fabric Perform networking within an ACI fabric (and understand how ACI changes data center networking) Connect external networks and devices at Layer 2/Layer 3 levels Coherently manage unified ACI networks with tenants and application policies Migrate to granular policies based on applications and their functions Establish multitenancy, and evolve networking, security, and services to support it Integrate L4–7 services: device types, design scenarios, and implementation Use multisite designs to meet rigorous requirements for redundancy and business continuity Troubleshoot and monitor ACI fabrics Improve operational efficiency through automation and programmability

ABOUT THE BOOK Cisco Virtual Internet Routing Lab (VIRL) is a software tool to build and run network simulations without the need for physical hardware. The VIRL Book guides you through installing, configuring and using VIRL on Windows, Mac OSX, VMware ESXi and Cloud environments. The book is written for students who are studying for CCNA, CCNP and CCIE certification exams, training and learning about network technologies. This book is also for IT networking professionals who want to mock up production network, test network changes, and test new features without risking

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downtime. **FOR NETWORK ENGINEERS** The real-world network topology examples in this book show users step-by-step the key techniques when working in VIRL building best practice configuration of each network device. Observe how the network and servers work together in a practical manner. Study the behavior and apply the knowledge to setting up real-world network infrastructure. Download free sample network topology projects on www.virlbook.com and get started today!

FOR INSTRUCTORS AND STUDENTS The certification-oriented network examples guide students through building, configuring and troubleshooting a network often appears in the exams. The book also helps Cisco Networking Academy instructors to teach, and students to learn and build successful IT careers. Students will gain good understanding and knowledge building network simulations to practice while pursuing IT networking certifications. **SAMPLE NETWORK TOPOLOGIES** Topology 1: VLAN, Trunking, STP and Ether-Channel (CCNA) Topology 2: Configuring EIGRP IPv4 and IPv6 (CCNA) Topology 3: Configuring OSPF IPv4 and IPv6 (CCNA) Topology 4: Configuring IOS NAT/PAT (CCNA) Topology 5: Configuring ASA With Multiple DMZ Networks (Security) Topology 6: Configuring L2TP Over IPsec VPN on Cisco ASA (Security) Topology 7: Configuring Automatic ISP Failover (WAN, BGP) Topology 8: Configuring DMVPN With IPsec and EIGRP Overlay (CCIE) Topology 9: Configuring MPLS VPN, VRF, OSPF and BGP (CCIE) Download at virlbook.com

Provides an in-depth, objective guide to Arista's lineup of hardware, and explains why its network switches and Extensible Operating System (EOS) are so effective. Thoroughly revised and expanded, this second edition adds sections on MPLS, Security, IPv6, and IP Mobility and presents solutions to the most common configuration problems.

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IPv6 for Enterprise Networks The practical guide to deploying IPv6 in campus, WAN/branch, data center, and virtualized environments Shannon McFarland, CCIE® No. 5245 Muninder Sambi, CCIE No. 13915 Nikhil Sharma, CCIE No. 21273 Sanjay Hooda, CCIE No. 11737 IPv6 for Enterprise Networks brings together all the information you need to successfully deploy IPv6 in any campus, WAN/branch, data center, or virtualized environment. Four leading Cisco IPv6 experts present a practical approach to organizing and executing your large-scale IPv6 implementation. They show how IPv6 affects existing network designs, describe common IPv4/IPv6 coexistence mechanisms, guide you in planning, and present validated configuration examples for building labs, pilots, and production networks. The authors first review some of the drivers behind the acceleration of IPv6 deployment in the enterprise. Next, they introduce powerful new IPv6 services for routing, QoS, multicast, and management, comparing them with familiar IPv4 features and behavior. Finally, they translate IPv6 concepts into usable configurations. Up-to-date and practical, IPv6 for Enterprise Networks is an indispensable resource for every network engineer, architect, manager, and consultant who must evaluate, plan, migrate to, or manage IPv6 networks. Shannon McFarland, CCIE No. 5245, is a Corporate Consulting Engineer for Cisco serving as a technical consultant for enterprise IPv6 deployment and data center design with a focus on application deployment and virtual desktop infrastructure. For more than 16 years, he has worked on large-scale enterprise campus, WAN/branch, and data center network design and optimization. For more than a decade, he has spoken at IPv6 events worldwide, including Cisco Live. Muninder Sambi, CCIE No. 13915, is a Product Line Manager for Cisco Catalyst 4500/4900 series platform, is a core member of the Cisco IPv6 development council, and a

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key participant in IETF's IPv6 areas of focus. Nikhil Sharma, CCIE No. 21273, is a Technical Marketing Engineer at Cisco Systems where he is responsible for defining new features for both hardware and software for the Catalyst 4500 product line. Sanjay Hooda, CCIE No. 11737, a Technical Leader at Cisco, works with embedded systems, and helps to define new product architectures. His current areas of focus include high availability and messaging in large-scale distributed switching systems.

- Identify how IPv6 affects enterprises
- Understand IPv6 services and the IPv6 features that make them possible
- Review the most common transition mechanisms including dual-stack (IPv4/IPv6) networks, IPv6 over IPv4 tunnels, and IPv6 over MPLS
- Create IPv6 network designs that reflect proven principles of modularity, hierarchy, and resiliency
- Select the best implementation options for your organization
- Build IPv6 lab environments
- Configure IPv6 step-by-step in campus, WAN/branch, and data center networks
- Integrate production-quality IPv6 services into IPv4 networks
- Implement virtualized IPv6 networks
- Deploy IPv6 for remote access
- Manage IPv6 networks efficiently and cost-effectively

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.

Cisco® Nexus switches and the new NX-OS operating system are rapidly becoming the new de facto standards for data center distribution/aggregation layer networking. NX-OS builds on Cisco IOS to provide advanced features that will be increasingly crucial to efficient data center operations. NX-OS and Cisco Nexus

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Switching is the definitive guide to utilizing these powerful new capabilities in enterprise environments. In this book, three Cisco consultants cover every facet of deploying, configuring, operating, and troubleshooting NX-OS in the data center. They review the key NX-OS enhancements for high availability, virtualization, In-Service Software Upgrades (ISSU), and security. In this book, you will discover support and configuration best practices for working with Layer 2 and Layer 3 protocols and networks, implementing multicasting, maximizing serviceability, providing consistent network and storage services, and much more. The authors present multiple command-line interface (CLI) commands, screen captures, realistic configurations, and troubleshooting tips—all based on their extensive experience working with customers who have successfully deployed Nexus switches in their data centers. Learn how Cisco NX-OS builds on and differs from IOS Work with NX-OS user modes, management interfaces, and system files Configure Layer 2 networking: VLANs/private VLANs, STP, virtual port channels, and unidirectional link detection Configure Layer 3 EIGRP, OSPF, BGP, and First Hop Redundancy Protocols (FHRPs) Set up IP multicasting with PIM, IGMP, and MSDP Secure NX-OS with SSH, Cisco TrustSec, ACLs, port security, DHCP snooping, Dynamic ARP inspection, IP Source Guard, keychains, Traffic Storm Control, and

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more Build high availability networks using process modularity and restart, stateful switchover, nonstop forwarding, and in-service software upgrades Utilize NX-OS embedded serviceability, including Switched Port Analyzer (SPAN), Smart Call Home, Configuration Checkpoint/Rollback, and NetFlow Use the NX-OS Unified Fabric to simplify infrastructure and provide ubiquitous network and storage services Run NX-OS on Nexus 1000V server-based software switches 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.

Data Center Virtualization Fundamentals For many IT organizations, today's greatest challenge is to drive more value, efficiency, and utilization from data centers. Virtualization is the best way to meet this challenge. Data Center Virtualization Fundamentals brings together the comprehensive knowledge Cisco professionals need to apply virtualization throughout their data center environments. Leading data center expert Gustavo A. A. Santana thoroughly explores all components of an end-to-end data center virtualization solution, including networking, storage, servers, operating systems, application optimization, and security. Rather than focusing on a single product or technology, he explores product

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capabilities as interoperable design tools that can be combined and integrated with other solutions, including VMware vSphere. With the author's guidance, you'll learn how to define and implement highly-efficient architectures for new, expanded, or retrofit data center projects. By doing so, you can deliver agile application provisioning without purchasing unnecessary infrastructure, and establish a strong foundation for new cloud computing and IT-as-a-service initiatives. Throughout, Santana illuminates key theoretical concepts through realistic use cases, real-world designs, illustrative configuration examples, and verification outputs. Appendixes provide valuable reference information, including relevant Cisco data center products and CLI principles for IOS and NX-OS. With this approach, Data Center Virtualization Fundamentals will be an indispensable resource for anyone preparing for the CCNA Data Center, CCNP Data Center, or CCIE Data Center certification exams. Gustavo A. A. Santana, CCIE No. 8806, is a Cisco Technical Solutions Architect working in enterprise and service provider data center projects that require deep integration across technology areas such as networking, application optimization, storage, and servers. He has more than 15 years of data center experience, and has led and coordinated a team of specialized Cisco engineers in Brazil. He holds two CCIE certifications (Routing & Switching and

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Storage Networking), and is a VMware Certified Professional (VCP) and SNIA Certified Storage Networking Expert (SCSN-E). A frequent speaker at Cisco and data center industry events, he blogs on data center virtualization at gustavoasantana.net. Learn how virtualization can transform and improve traditional data center network topologies

Understand the key characteristics and value of each data center virtualization technology Walk through key decisions, and transform choices into architecture Smoothly migrate existing data centers toward greater virtualization Burst silos that have traditionally made data centers inefficient Master foundational technologies such as VLANs, VRF, and virtual contexts Use virtual PortChannel and FabricPath to overcome the limits of STP Optimize cabling and network management with fabric extender (FEX) virtualized chassis Extend Layer 2 domains to distant data center sites using MPLS and Overlay Transport Virtualization (OTV) Use VSANs to overcome Fibre Channel fabric challenges Improve SAN data protection, environment isolation, and scalability Consolidate I/O through Data Center Bridging and FCoE Use virtualization to radically simplify server environments Create server profiles that streamline "bare metal" server provisioning "Transcend the rack" through virtualized networking based on Nexus 1000V and VM-FEX Leverage opportunities to deploy virtual network services more

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efficiently Evolve data center virtualization toward full-fledged private clouds -Reviews - "The variety of material that Gustavo covers in this work would appeal to anyone responsible for Data Centers today. His grasp of virtualization technologies and ability to relate it in both technical and non-technical terms makes for compelling reading. This is not your ordinary tech manual. Through use of relatable visual cues, Gustavo provides information that is easily recalled on the subject of virtualization, reaching across Subject Matter Expertise domains. Whether you consider yourself well-versed or a novice on the topic, working in large or small environments, this work will provide a clear understanding of the diverse subject of virtualization." -- Bill Dufresne, CCIE 4375, Distinguished Systems Engineer, Cisco (Americas)

"..this book is an essential reference and will be valuable asset for potential candidates pursuing their Cisco Data Center certifications. I am confident that in reading this book, individuals will inevitably gain extensive knowledge and hands-on experience during their certification preparations. If you're looking for a truly comprehensive guide to virtualization, this is the one!" -- Yusuf Bhajji, Senior Manager, Expert Certifications (CCIE, CCDE, CCAr), Learning@Cisco

"When one first looks at those classic Cisco Data Center blueprints, it is very common to become distracted with the

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overwhelming number of pieces and linkages. By creating a solid theoretical foundation and providing rich sets of companion examples to illustrate each concept, Gustavo's book brings hope back to IT Professionals from different areas of expertise. Apparently complex topics are demystified and the insertion of products, mechanisms, protocols and technologies in the overall Data Center Architecture is clearly explained, thus enabling you to achieve robust designs and successful deployments. A must read... Definitely!" -- Alexandre M. S. P. Moraes, Consulting Systems Engineer -- Author of "Cisco Firewalls"

An updated guide to planning, configuring, managing, and troubleshooting NX-OS includes information on new technologies and best practices for high availability, virtualization, security, and network support.

Dynamic organizations want to accelerate growth while reducing costs. To do so, they must speed the deployment of business applications and adapt quickly to any changes in priorities. Organizations today require an IT infrastructure that is easy, efficient, and versatile. The VersaStack solution by Cisco and IBM® can help you accelerate the deployment of your data centers. It reduces costs by more efficiently managing information and resources while maintaining your ability to adapt to business change. The VersaStack solution combines the

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innovation of Cisco UCS Integrated Infrastructure with the efficiency of the IBM Storwize® storage system. The Cisco UCS Integrated Infrastructure includes the Cisco Unified Computing System (Cisco UCS), Cisco Nexus and Cisco MDS switches, and Cisco UCS Director. The IBM FlashSystem® V9000 enhances virtual environments with its Data Virtualization, IBM Real-time Compression™, and IBM Easy Tier® features. These features deliver extraordinary levels of performance and efficiency. The VersaStack solution is Cisco Application Centric Infrastructure (ACI) ready. Your IT team can build, deploy, secure, and maintain applications through a more agile framework. Cisco Intercloud Fabric capabilities help enable the creation of open and highly secure solutions for the hybrid cloud. These solutions accelerate your IT transformation while delivering dramatic improvements in operational efficiency and simplicity. Cisco and IBM are global leaders in the IT industry. The VersaStack solution gives you the opportunity to take advantage of integrated infrastructure solutions that are targeted at enterprise applications, analytics, and cloud solutions. The VersaStack solution is backed by Cisco Validated Designs (CVD) to provide faster delivery of applications, greater IT efficiency, and less risk. This IBM Redbooks® publication is aimed at experienced storage administrators who are tasked with deploying a VersaStack solution with

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Oracle Real Application Clusters (RAC) and IBM Spectrum™ Protect.

We depend on information and information technology (IT) to make many of our day-to-day tasks easier and more convenient. Computers play key roles in transportation, health care, banking, and energy. Businesses use IT for payroll and accounting, inventory and sales, and research and development. Modern military forces use weapons that are increasingly coordinated through computer-based networks. Cybersecurity is vital to protecting all of these functions. Cyberspace is vulnerable to a broad spectrum of hackers, criminals, terrorists, and state actors. Working in cyberspace, these malevolent actors can steal money, intellectual property, or classified information; impersonate law-abiding parties for their own purposes; damage important data; or deny the availability of normally accessible services. Cybersecurity issues arise because of three factors taken together - the presence of malevolent actors in cyberspace, societal reliance on IT for many important functions, and the presence of vulnerabilities in IT systems. What steps can policy makers take to protect our government, businesses, and the public from those who would take advantage of system vulnerabilities? At the Nexus of Cybersecurity and Public Policy offers a wealth of information on practical measures, technical and nontechnical challenges, and potential

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policy responses. According to this report, cybersecurity is a never-ending battle; threats will evolve as adversaries adopt new tools and techniques to compromise security. Cybersecurity is therefore an ongoing process that needs to evolve as new threats are identified. At the Nexus of Cybersecurity and Public Policy is a call for action to make cybersecurity a public safety priority. For a number of years, the cybersecurity issue has received increasing public attention; however, most policy focus has been on the short-term costs of improving systems. In its explanation of the fundamentals of cybersecurity and the discussion of potential policy responses, this book will be a resource for policy makers, cybersecurity and IT professionals, and anyone who wants to understand threats to cyberspace.

The authoritative visual guide to Cisco Firepower Threat Defense (FTD) This is the definitive guide to best practices and advanced troubleshooting techniques for the Cisco flagship Firepower Threat Defense (FTD) system running on Cisco ASA platforms, Cisco Firepower security appliances, Firepower eXtensible Operating System (FXOS), and VMware virtual appliances. Senior Cisco engineer Nazmul Rajib draws on unsurpassed experience supporting and training Cisco Firepower engineers worldwide, and presenting detailed knowledge of Cisco Firepower deployment, tuning,

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and troubleshooting. Writing for cybersecurity consultants, service providers, channel partners, and enterprise or government security professionals, he shows how to deploy the Cisco Firepower next-generation security technologies to protect your network from potential cyber threats, and how to use Firepower's robust command-line tools to investigate a wide variety of technical issues. Each consistently organized chapter contains definitions of keywords, operational flowcharts, architectural diagrams, best practices, configuration steps (with detailed screenshots), verification tools, troubleshooting techniques, and FAQs drawn directly from issues raised by Cisco customers at the Global Technical Assistance Center (TAC). Covering key Firepower materials on the CCNA Security, CCNP Security, and CCIE Security exams, this guide also includes end-of-chapter quizzes to help candidates prepare.

- Understand the operational architecture of the Cisco Firepower NGFW, NGIPS, and AMP technologies
- Deploy FTD on ASA platform and Firepower appliance running FXOS
- Configure and troubleshoot Firepower Management Center (FMC)
- Plan and deploy FMC and FTD on VMware virtual appliance
- Design and implement the Firepower management network on FMC and FTD
- Understand and apply Firepower licenses, and register FTD with FMC
- Deploy FTD in Routed, Transparent, Inline, Inline Tap, and Passive Modes

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Manage traffic flow with detect-only, block, trust, and bypass operations · Implement rate limiting and analyze quality of service (QoS) · Blacklist suspicious IP addresses via Security Intelligence · Block DNS queries to the malicious domains · Filter URLs based on category, risk, and reputation · Discover a network and implement application visibility and control (AVC) · Control file transfers and block malicious files using advanced malware protection (AMP) · Halt cyber attacks using Snort-based intrusion rule · Masquerade an internal host's original IP address using Network Address Translation (NAT) · Capture traffic and obtain troubleshooting files for advanced analysis · Use command-line tools to identify status, trace packet flows, analyze logs, and debug messages

Now fully updated for the new Cisco SWITCH 300-115 exam, *Implementing Cisco IP Switched Networks (SWITCH) Foundation Learning Guide* is your Cisco® authorized learning tool for CCNP® or CCDP® preparation. Part of the Cisco Press Foundation Learning Series, it teaches you how to plan, configure, verify, secure, and maintain complex enterprise switching solutions using Cisco Catalyst® switches and Enterprise Campus Architecture. The authors show you how to build scalable multilayer switched networks, create and deploy global intranets, and perform basic troubleshooting in environments using Cisco multilayer switches for

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client hosts and services. They begin by reviewing basic switching concepts, network design, and campus network architecture. Next, they present in-depth coverage of spanning-tree, inter-VLAN routing, first-hop redundancy, network management, advanced switch features, high availability, and campus network security. Each chapter opens with a list of topics that clearly identify its focus. Each chapter ends with a summary of key concepts for quick study, as well as review questions to assess and reinforce your understanding. Throughout, configuration examples, and sample verification outputs illustrate critical issues in network operation and troubleshooting. This guide is ideal for all certification candidates who want to master all the topics covered on the SWITCH 300-115 exam.

Serves as the official textbook for version 7 of the Cisco Networking Academy CCNP SWITCH course

Covers basic switching terminology and concepts, and the unique features of Cisco Catalyst switch designs
Reviews campus network design, including network structure, roles of Cisco Catalyst switches, and differences between Layer 2 and multilayer switches
Introduces VLANs, VTP, Trunking, and port-channeling
Explains Spanning Tree Protocol configuration
Presents concepts and modern best practices for interVLAN routing
Covers first-hop redundancy protocols used by Cisco Catalyst switches
Outlines a holistic approach to network

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management and Cisco Catalyst device security with AAA, NTP, 802.1x, and SNMP Describes how to use advanced features to improve campus network resiliency and availability Shows how to establish switch physical redundancy using Stackwise, VSS, or redundant supervisors Explains advanced security features

Best-practice QoS designs for protecting voice, video, and critical data while mitigating network denial-of-service attacks Understand the service-level requirements of voice, video, and data applications Examine strategic QoS best practices, including Scavenger-class QoS tactics for DoS/worm mitigation Learn about QoS tools and the various interdependencies and caveats of these tools that can impact design considerations Learn how to protect voice, video, and data traffic using various QoS mechanisms Evaluate design

recommendations for protecting voice, video, and multiple classes of data while mitigating DoS/worm attacks for the following network infrastructure architectures: campus LAN, private WAN, MPLS VPN, and IPsec VPN Quality of Service (QoS) has already proven itself as the enabling technology for the convergence of voice, video, and data networks. As business needs evolve, so do the demands for QoS. The need to protect critical applications via QoS mechanisms in business networks has escalated over the past few years, primarily due to

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the increased frequency and sophistication of denial-of-service (DoS) and worm attacks. End-to-End QoS Network Design is a detailed handbook for planning and deploying QoS solutions to address current business needs. This book goes beyond discussing available QoS technologies and considers detailed design examples that illustrate where, when, and how to deploy various QoS features to provide validated and tested solutions for voice, video, and critical data over the LAN, WAN, and VPN. The book starts with a brief background of network infrastructure evolution and the subsequent need for QoS. It then goes on to cover the various QoS features and tools currently available and comments on their evolution and direction. The QoS requirements of voice, interactive and streaming video, and multiple classes of data applications are presented, along with an overview of the nature and effects of various types of DoS and worm attacks. QoS best-practice design principles are introduced to show how QoS mechanisms can be strategically deployed end-to-end to address application requirements while mitigating network attacks. The next section focuses on how these strategic design principles are applied to campus LAN QoS design. Considerations and detailed design recommendations specific to the access, distribution, and core layers of an enterprise campus network are presented. Private WAN QoS design is discussed in

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the following section, where WAN-specific considerations and detailed QoS designs are presented for leased-lines, Frame Relay, ATM, ATM-to-FR Service Interworking, and ISDN networks. Branch-specific designs include Cisco® SAFE recommendations for using Network-Based Application Recognition (NBAR) for known-worm identification and policing. The final section covers Layer 3 VPN QoS design-for both MPLS and IPsec VPNs. As businesses are migrating to VPNs to meet their wide-area networking needs at lower costs, considerations specific to these topologies are required to be reflected in their customer-edge QoS designs. MPLS VPN QoS design is examined from both the enterprise and service provider's perspectives. Additionally, IPsec VPN QoS designs cover site-to-site and teleworker contexts. Whether you are looking for an introduction to QoS principles and practices or a QoS planning and deployment guide, this book provides you with the expert advice you need to design and implement comprehensive QoS solutions.

Like sysadmins before them, network engineers are finding that they cannot do their work manually anymore. As the field faces new protocols, technologies, delivery models, and a pressing need for businesses to be more agile and flexible, network automation is becoming essential. This practical guide shows network engineers how to use a range of technologies and tools—including

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Linux, Python, JSON, and XML—to automate their systems through code. Network programming and automation will help you simplify tasks involved in configuring, managing, and operating network equipment, topologies, services, and connectivity. Through the course of the book, you'll learn the basic skills and tools you need to make this critical transition. This book covers: Python programming basics: data types, conditionals, loops, functions, classes, and modules Linux fundamentals to provide the foundation you need on your network automation journey Data formats and models: JSON, XML, YAML, and YANG for networking Jinja templating and its applicability for creating network device configurations The role of application programming interfaces (APIs) in network automation Source control with Git to manage code changes during the automation process How Ansible, Salt, and StackStorm open source automation tools can be used to automate network devices Key tools and technologies required for a Continuous Integration (CI) pipeline in network operations

This IBM® Redbooks® publication is an IBM and Cisco collaboration that articulates how IBM and Cisco can bring the benefits of their respective companies to the modern data center. It documents the architectures, solutions, and benefits that can be achieved by implementing a data center based on IBM server, storage, and integrated systems, with the broader Cisco network. We describe how to design a state-of-the art data center and networking infrastructure combining Cisco and IBM solutions. The objective is to provide a

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reference guide for customers looking to build an infrastructure that is optimized for virtualization, is highly available, is interoperable, and is efficient in terms of power and space consumption. It will explain the technologies used to build the infrastructure, provide use cases, and give guidance on deployments.

The superabundance of data that is created by today's businesses is making storage a strategic investment priority for companies of all sizes. As storage takes precedence, the following major initiatives emerge:

Flatten and converge your network: IBM® takes an open, standards-based approach to implement the latest advances in the flat, converged data center network designs of today. IBM Storage solutions enable clients to deploy a high-speed, low-latency Unified Fabric Architecture.

Optimize and automate virtualization: Advanced virtualization awareness reduces the cost and complexity of deploying physical and virtual data center infrastructure.

Simplify management: IBM data center networks are easy to deploy, maintain, scale, and virtualize, delivering the foundation of consolidated operations for dynamic infrastructure management.

Storage is no longer an afterthought. Too much is at stake. Companies are searching for more ways to efficiently manage expanding volumes of data, and to make that data accessible throughout the enterprise. This demand is propelling the move of storage into the network. Also, the increasing complexity of managing large numbers of storage devices and vast amounts of data is driving greater business value into software and services. With current estimates of the amount of data to

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be managed and made available increasing at 60% each year, this outlook is where a storage area network (SAN) enters the arena. SANs are the leading storage infrastructure for the global economy of today. SANs offer simplified storage management, scalability, flexibility, and availability; and improved data access, movement, and backup. Welcome to the cognitive era. The smarter data center with the improved economics of IT can be achieved by connecting servers and storage with a high-speed and intelligent network fabric. A smarter data center that hosts IBM Storage solutions can provide an environment that is smarter, faster, greener, open, and easy to manage. This IBM® Redbooks® publication provides an introduction to SAN and Ethernet networking, and how these networks help to achieve a smarter data center. This book is intended for people who are not very familiar with IT, or who are just starting out in the IT world.

By containerizing applications and network services, you can achieve unprecedented levels of network agility and efficiency. Cisco IOS-XE, IOS-XR, and NX-OS Architecture have been augmented with compute virtualization capabilities to accommodate both native and third-party container hosting, empowering organizations to containerize and instantiate any application or network service. Direct from Cisco, Containers in Cisco IOS-XE, IOS-XR, and NX-OS: Orchestration and Operation is the complete guide to deploying and operating "containerized" application and network services in Cisco platforms. The authors begin by reviewing the virtualization and containerization

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concepts network professionals need to know, and introducing today's leading orchestration tools. Next, they take a deep dive into container networking, introducing Cisco architectural support for container infrastructures. You'll find modular coverage of characteristics, configuration, and operations for each key Cisco software platform: IOS-XE, IOS-XR, and NX-OS. A full chapter on developer tools and resources shows how to build container images with Docker, and introduces Cisco's toolkits, APIs, NX-SDK or Open Access Containers (OAC), telemetry, Nexus Data Broker, management tools, Puppet, Chef, Ansible, and more. The authors conclude with multiple use cases, showing how users in diverse markets can drive value with containers.

Pick up where certification exams leave off. With this practical, in-depth guide to the entire network infrastructure, you'll learn how to deal with real Cisco networks, rather than the hypothetical situations presented on exams like the CCNA. Network Warrior takes you step by step through the world of routers, switches, firewalls, and other technologies based on the author's extensive field experience. You'll find new content for MPLS, IPv6, VoIP, and wireless in this completely revised second edition, along with examples of Cisco Nexus 5000 and 7000 switches throughout. Topics include: An in-depth view of routers and routing Switching, using Cisco Catalyst and Nexus switches as examples SOHO VoIP and SOHO wireless access point design and configuration Introduction to IPv6 with configuration examples Telecom technologies in the data-

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networking world, including T1, DS3, frame relay, and MPLS Security, firewall theory, and configuration, as well as ACL and authentication Quality of Service (QoS), with an emphasis on low-latency queuing (LLQ) IP address allocation, Network Time Protocol (NTP), and device failures

Enterprise Network Testing Testing Throughout the Network Lifecycle to Maximize Availability and Performance Andy Sholomon, CCIE® No. 15179 Tom Kunath, CCIE No. 1679 The complete guide to using testing to reduce risk and downtime in advanced enterprise networks Testing has become crucial to meeting enterprise expectations of near-zero network downtime. Enterprise Network Testing is the first comprehensive guide to all facets of enterprise network testing. Cisco enterprise consultants Andy Sholomon and Tom Kunath offer a complete blueprint and best-practice methodologies for testing any new network system, product, solution, or advanced technology. Sholomon and Kunath begin by explaining why it is important to test and how network professionals can leverage structured system testing to meet specific business goals. Then, drawing on their extensive experience with enterprise clients, they present several detailed case studies. Through real-world examples, you learn how to test architectural “proofs of concept,” specific network features, network readiness for use, migration processes, security, and more. Enterprise Network Testing contains easy-to-adapt reference test plans for branches, WANs/MANs, data centers, and campuses. The authors also offer specific guidance on

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testing many key network technologies, including MPLS/VPN, QoS, VoIP, video, IPsec VPNs, advanced routing (OSPF, EIGRP, BGP), and Data Center Fabrics.

- § Understand why, when, and how you should test your network
- § Use testing to discover critical network design flaws
- § Incorporate structured systems testing into enterprise architecture strategy
- § Utilize testing to improve decision-making throughout the network lifecycle
- § Develop an effective testing organization and lab facility
- § Choose and use test services providers
- § Scope, plan, and manage network test assignments
- § Leverage the best commercial, free, and IOS test tools
- § Successfully execute test plans, including crucial low-level details
- § Minimize the equipment required to test large-scale networks
- § Identify gaps in network readiness
- § Validate and refine device configurations
- § Certify new hardware, operating systems, and software features
- § Test data center performance and scalability
- § Leverage test labs for hands-on technology training

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.

This unique Linux networking tutorial reference provides students with a practical overview and understanding of the implementation of networking protocols in the Linux kernel. By gaining a familiarity with the Linux kernel architecture, students can modify and enhance the functionality of protocol instances. -- Provided by publisher.

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Cisco has announced big changes to its certification program. As of February 24, 2020, all current certifications will be retired, and Cisco will begin offering new certification programs. The good news is if you're working toward any current CCNA certification, keep going. You have until February 24, 2020 to complete your current CCNA. If you already have CCENT/ICND1 certification and would like to earn CCNA, you have until February 23, 2020 to complete your CCNA certification in the current program. Likewise, if you're thinking of completing the current CCENT/ICND1, ICND2, or CCNA Routing and Switching certification, you can still complete them between now and February 23, 2020.

Complete theory and practice for the CCNA Data Center Technologies exam CCNA Data Center, Introducing Cisco Data Center Technologies Study Guide is your comprehensive study guide for exam 640-916. Authors Todd Lammle and Todd Montgomery, authorities on Cisco networking, guide you through 100% of all exam objectives with expanded coverage of key exam topics, and hands-on labs that help you become confident in dealing with everyday challenges. You'll get access to the free Nexus switch simulator that allows you to try your hand at what you've learned without expensive software, plus bonus study aids, such as electronic flashcards, a practice exam, and a searchable PDF glossary of terms. Coverage includes Data Center networking and virtualization, storage networking, unified fabric, Cisco UCS configuration, Data Center services, and much more, for complete exam preparation. This is your guide to study for the entire second (and final) exam

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required for certification Review networking principles, products, and technologies Understand Nexus 1000V and Data Center virtualization Learn the principles and major configurations of Cisco UCS Practice hands-on solutions you'll employ on the job Prepare for using Cisco's Unified Data Center, which unifies computing, storage, networking, and management resources Summary Learn Cisco Network Administration in a Month of Lunches is a tutorial designed for beginners who want to learn how to administer Cisco switches and routers. Just set aside one hour a day (lunchtime would be perfect) for a month, and you'll start learning practical Cisco Network administration skills faster than you ever thought possible.

Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Cisco's ultrareliable routers and switches are the backbone of millions of networks, but "set and forget" is not an acceptable attitude. Fortunately, you don't have to be an old-time administrator to set up and maintain a Cisco-based network. With a handful of techniques, a little practice, and this book, you can keep your system in top shape. About the Book Learn Cisco Network Administration in a Month of Lunches is designed for occasional and full-time network administrators using Cisco hardware. In 22 bite-sized lessons, you'll learn practical techniques for setting up a Cisco network and making sure that it

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never fails. Real-world labs start with configuring your first switch and guide you through essential commands, protocols, dynamic routing tricks, and more. What's Inside Understand your Cisco network, including the difference between routers and switches Configure VLANs and VLAN trunks Secure your network Connect and configure routers and switches Establish good maintenance habits About the Reader This book is written for readers with no previous experience with Cisco networking. About the Author Ben Piper is an IT consultant who holds numerous Cisco, Citrix, and Microsoft certifications including the Cisco CCNA and CCNP. He has created many video courses on networking, Cisco CCNP certification, Puppet, and Windows Server Administration. Table of Contents Before you begin What is a Cisco network? A crash course on Cisco's Internetwork Operating System Managing switch ports Securing ports by using the Port Security feature Managing virtual LANs (VLANs) Breaking the VLAN barrier by using switched virtual interfaces IP address assignment by using Dynamic Host Configuration Protocol Securing the network by using IP access control lists Connecting switches using trunk links Automatically configuring VLANs using the VLAN Trunking Protocol Protecting against bridging loops by using the Spanning Tree Protocol Optimizing network performance by using port channels Making the network scalable by connecting

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routers and switches together Manually directing traffic using the IP routing table A dynamic routing protocols crash course Tracking down devices Securing Cisco devices Facilitating troubleshooting using logging and debugging Recovering from disaster Performance and health checklist Next steps

CCNA Data Center DCICT 640-916 Official Cert Guide CCNA Data Center DCICT 640-916 Official Cert Guide from Cisco Press enables you to succeed on the exam the first time and is the only self-study resource approved by Cisco. A team of leading Cisco data center experts shares preparation hints and test-taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. This complete, official study package includes --A test-preparation routine proven to help you pass the exam --“Do I Know This Already?” quizzes, which enable you to decide how much time you need to spend on each section --Part-ending exercises, which help you drill on key concepts you must know thoroughly --The powerful Pearson IT Certification Practice Test software, complete with hundreds of well-reviewed, exam-realistic questions, customization options, and detailed performance reports --Study plan suggestions and templates to help you organize and optimize your study time --A final preparation chapter that guides you through tools and resources to help

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you craft your review and test-taking strategies Well regarded for its level of detail, study plans, assessment features, and challenging review questions and exercises, this official study guide helps you master the concepts and techniques that ensure your exam success. The official study guide helps you master topics on the CCNA Data Center DCICT 640-916 exam, including --Cisco data center concepts: architectures, devices, layers, modular design, vPC, FabricPath, Cisco Nexus switches, and more --Data center unified fabric: FCoE, multihop, VIFs, FEX, and setup --Storage networking: concepts, targets, verification, connectivity, zoning, setup, and configuration --Data center virtualization: servers, devices, and Nexus 1000V, including setup and operations --Cisco Unified Computing: concepts, discovery, connectivity, setup, and UCSM --Data center network services: ACE load balancing, virtual context, HA, management, global/local solutions, and WAAS The CD-ROM contains more than 450 practice questions for the exam, memory table exercises and answer keys, and a study planner tool. Includes Exclusive Offer for 70% Off Premium Edition eBook and Practice Test Pearson IT Certification Practice Test minimum system requirements: Windows XP (SP3), Windows Vista (SP2), Windows 7, or Windows 8; Microsoft .NET Framework 4.0 Client; Pentium class 1GHz processor (or equivalent); 512 MB RAM; 650 MB

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disk space plus 50 MB for each downloaded practice exam; access to the Internet to register and download exam databases

Trust the best-selling Official Cert Guide series from Cisco Press to help you learn, prepare, and practice for exam success. They are built with the objective of providing assessment, review, and practice to help ensure you are fully prepared for your certification exam. CCNP Data Center Application Centric Infrastructure DCACI 300-620 Official Cert Guide presents you with an organized test-preparation routine using proven series elements and techniques. "Do I Know This Already?" quizzes open each chapter and enable you to decide how much time you need to spend on each section. Exam topic lists make referencing easy. Chapter-ending Exam Preparation Tasks help you drill on key concepts you must know thoroughly. * Master CCNP Data Center Application Centric Infrastructure DCACI 300-620 exam topics * Assess your knowledge with chapter-opening quizzes * Review key concepts with exam preparation tasks * Practice with realistic exam questions in the practice test software CCNP Data Center Application Centric Infrastructure DCACI 300-620 Official Cert Guide from Cisco Press enables you to succeed on the exam the first time and is the only self-study resource approved by Cisco. Leading Cisco data center technology expert Ammar Ahmadi shares preparation hints and test-

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taking tips, helping you identify areas of weakness and improve both your conceptual knowledge and hands-on skills. This complete study package includes *

- * A test-preparation routine proven to help you pass the exams
- * Do I Know This Already? quizzes, which enable you to decide how much time you need to spend on each section
- * Chapter-ending exercises, which help you drill on key concepts you must know thoroughly
- * The powerful Pearson Test Prep Practice Test software, with two full exams comprised of well-reviewed, exam-realistic questions, customization options, and detailed performance reports
- * A final preparation chapter, which guides you through tools and resources to help you craft your review and test-taking strategies
- * Study plan suggestions and templates to help you organize and optimize your study time
- * Video mentoring from the author's Complete Video Course

Well regarded for its level of detail, study plans, assessment features, and challenging review questions and exercises, this official study guide helps you master the concepts and techniques that ensure your exam success. This official study guide helps you master all the topics on the CCNP Data Center Application Centric Infrastructure DCACI 300-620 exam. It tests your knowledge of Cisco switches in ACI mode, including - ACI fabric infrastructure - ACI packet forwarding - External network connectivity - Integrations - ACI

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management - ACI Anywhere Companion Website: The companion website contains two full practice exams, an interactive Flash Cards application, video mentoring from the author's Complete Video Course, and much more. Includes Exclusive Offers for Up to 80% Off Video Training, Practice Tests, and more

Pearson Test Prep online system requirements:
Browsers: Chrome version 40 and above; Firefox version 35 and above; Safari version 7; Internet Explorer 10, 11; Microsoft Edge; Opera. Devices: Desktop and laptop computers, tablets running on Android and iOS, smartphones with a minimum screen size of 4.7". Internet access required.

Pearson Test Prep offline system requirements:
Windows 10, Windows 8.1, Windows 7; Microsoft .NET Framework 4.5 Client; Pentium-class 1 GHz processor (or equivalent); 512 MB RAM; 650 MB disk space plus 50 MB for each downloaded practice exam; access to the Internet to register and download exam databases

Also available from Cisco Press for CCNP Data Center DCACI study is the CCNP Data Center Application Centric Infrastructure DCACI 300-620 Official Cert Guide Premium Edition eBook and Practice Test. This digital-only certification preparation product combines an eBook with enhanced Pearson Test Prep Practice Test. This integrated learning package: * Allows you to focus on individual topic areas or take complete, timed exams * Includes direct links from each

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question to detailed tutorials to help you understand the concepts behind the questions * Provides unique sets of exam-realistic practice questions * Tracks your performance and provides feedback on a module-by-module basis, laying out a complete assessment of your knowledge to help you focus your study where it is needed most

CCIE-level Cisco routing and switching guide for every CCNP Preparing for the CCIE Routing and Switching lab exam typically involves deep and lengthy study. But if you already possess the Cisco CCNP Routing and Switching certification, you already know much of what you'll need to succeed on CCIE's labs. This book will help you quickly bridge your remaining knowledge gaps and make the most of everything you already know. CCIE Routing and Switching v5.1 Foundations addresses every segment of the CCIE R&S Version 5 blueprint, helping you focus your study where it will do the most good: intense hands-on practice to deepen your current knowledge and thorough explanations of theoretical topics you haven't yet encountered. Based on the author's industry-recognized CCIE prep classes, it includes 40+ detailed labs for real gear and platform emulators; structured illustrations of protocol and feature operation; and topic-specific labs to drive the theory home. It includes a full lab walkthrough of a complex configuration reflective of the actual CCIE—ensuring that you thoroughly

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understand the technologies and interactions you're reading about. Discover the physical topology for any network deployment Master Spanning Tree Protocol (STP) foundations and advanced features Deploy and optimize PPP and use its full set of capabilities Implement Dynamic Multipoint VPNs (DMVPNs) from start to finish Use IP Prefix lists in prefix filtration, packet filtering, and other applications Handle any RIPv2 deployment scenario n Implement EIGRP, including classical and named operation modes and interoperation Use advanced OSPF techniques, including route filtration, LSA operation, stub configurations, and update filtering Understand what happens when you perform redistribution, and manage problematic scenarios Manage complex BGP capabilities, including Adjacency State Machine Operate IPv6 in complex network environments, including DMVPN Focus on QoS mechanisms that CCIE still covers, including traffic marking, classification, policing, and shaping Deploy IPsec VPN solutions including GRE/IPSec tunnel mode, multi-site VPN technologies, and their encryption Implement multicasting in environments requiring end-to-end IPv4 and IPv6 transport Address operational and deployment issues involving MPLS VPNv4 tunnels

A helpful guide on all things Cisco Do you wish that the complex topics of routers, switches, and networking could be presented in a simple,

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understandable presentation? With Cisco Networking All-in-One For Dummies, they are! This expansive reference is packed with all the information you need to learn to use Cisco routers and switches to develop and manage secure Cisco networks.

This straightforward-by-fun guide offers expansive coverage of Cisco and breaks down intricate subjects such as networking, virtualization, and database technologies into easily digestible pieces. Drills down complex subjects concerning Cisco networking into easy-to-understand, straightforward coverage. Shares best practices for utilizing Cisco switches and routers to implement, secure, and optimize Cisco networks. Reviews Cisco networking solutions and products, securing Cisco networks, and optimizing Cisco networks. Details how to design and implement Cisco networks. Whether you're new to Cisco networking products and services or an experienced professional looking to refresh your knowledge about Cisco, this For Dummies guide provides you with the coverage, solutions, and best practices you need.

This book is a concise one-stop desk reference and synopsis of basic knowledge and skills for Cisco certification prep. For beginning and experienced network engineers tasked with building LAN, WAN, and data center connections, this book lays out clear directions for installing, configuring, and troubleshooting networks with Cisco devices. The full

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range of certification topics is covered, including all aspects of IOS, NX-OS, and ASA software. The emphasis throughout is on solving the real-world challenges engineers face in configuring network devices, rather than on exhaustive descriptions of hardware features. This practical desk companion doubles as a comprehensive overview of the basic knowledge and skills needed by CCENT, CCNA, and CCNP exam takers. It distills a comprehensive library of cheat sheets, lab configurations, and advanced commands that the authors assembled as senior network engineers for the benefit of junior engineers they train, mentor on the job, and prepare for Cisco certification exams. Prior familiarity with Cisco routing and switching is desirable but not necessary, as Chris Carthern, Dr. Will Wilson, Noel Rivera, and Richard Bedwell start their book with a review of the basics of configuring routers and switches. All the more advanced chapters have labs and exercises to reinforce the concepts learned. This book differentiates itself from other Cisco books on the market by approaching network security from a hacker's perspective. Not only does it provide network security recommendations but it teaches you how to use black-hat tools such as oclHashcat, Loki, Burp Suite, Scapy, Metasploit, and Kali to actually test the security concepts learned. Readers of Cisco Networks will learn How to configure Cisco switches, routers, and data center devices in typical

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corporate network architectures The skills and knowledge needed to pass Cisco CCENT, CCNA, and CCNP certification exams How to set up and configure at-home labs using virtual machines and lab exercises in the book to practice advanced Cisco commands How to implement networks of Cisco devices supporting WAN, LAN, and data center configurations How to implement secure network configurations and configure the Cisco ASA firewall How to use black-hat tools and network penetration techniques to test the security of your network A tutorial-based approach which will help you understand the practical methodologies and deploying of Cisco UCS components. If you are a professional such as a system, network, or storage administrator who is responsible for Cisco UCS deployments, this is the perfect book for you. You should have some basic knowledge of the server's architecture, network, and storage technologies. Familiarity with virtualization technologies is also recommended (though not necessary) as the majority of real-world UCS deployments run virtualized loads. Knowledge of Nexus OS is not necessary as the majority of the management tasks are handled in a graphical user interface with very few exceptions using the CLI. The definitive deep-dive guide to hardware and software troubleshooting on Cisco Nexus switches The Cisco Nexus platform and NX-OS switch

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operating system combine to deliver unprecedented speed, capacity, resilience, and flexibility in today's data center networks. Troubleshooting Cisco Nexus Switches and NX-OS is your single reference for quickly identifying and solving problems with these business-critical technologies. Three expert authors draw on deep experience with large Cisco customers, emphasizing the most common issues in real-world deployments, including problems that have caused major data center outages. Their authoritative, hands-on guidance addresses both features and architecture, helping you troubleshoot both control plane forwarding and data plane/data path problems and use NX-OS APIs to automate and simplify troubleshooting. Throughout, you'll find real-world configurations, intuitive illustrations, and practical insights into key platform-specific behaviors. This is an indispensable technical resource for all Cisco network consultants, system/support engineers, network operations professionals, and CCNP/CCIE certification candidates working in the data center domain.

- Understand the NX-OS operating system and its powerful troubleshooting tools
- Solve problems with cards, hardware drops, fabrics, and CoPP policies
- Troubleshoot network packet switching and forwarding
- Properly design, implement, and troubleshoot issues related to Virtual Port Channels (VPC and VPC+)
- Optimize routing through filtering

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or path manipulation · Optimize IP/IPv6 services and FHRP protocols (including HSRP, VRRP, and Anycast HSRP) · Troubleshoot EIGRP, OSPF, and IS-IS neighbor relationships and routing paths · Identify and resolve issues with Nexus route maps · Locate problems with BGP neighbor adjacencies and enhance path selection · Troubleshoot high availability components (BFD, SSO, ISSU, and GIR) · Understand multicast protocols and troubleshooting techniques · Identify and solve problems with OTV · Use NX-OS APIs to automate troubleshooting and administrative tasks

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