Data Solutions Cisco Center

#Cisco data solutions #Enterprise data management #Cisco data center services #IT infrastructure optimization #Secure data solutions

Explore comprehensive Cisco data solutions at our dedicated center, designed to empower enterprise data management and optimize IT infrastructure. We provide cutting-edge services to ensure your data is secure, accessible, and high-performing, leveraging the latest Cisco technology for superior data center management.

CCNA Data Center: Introducing Cisco Data Center Technologies Study Guide

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 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

Cisco Data Center Fundamentals

Get ready to configure and operate modern data centers—and move up to high-value CCNP Data Center (DC) certification Cisco Data Center Fundamentals is the complete guide for network engineers and other professionals who need a solid understanding of modern data center technologies. Especially useful for those preparing for the Cisco DCCOR exam and Cisco Certified Network Professional (CCNP) Data Center certification, it fully addresses the essentials of networking, storage, compute, and automation in today's data center environments. Authored by two long-time experts in operating Cisco data centers and developing official Learning@Cisco training for them, this guide explains each concept step by step, balancing depth and breadth, and maximizing clarity throughout. The authors go far beyond introducing relevant products, protocols, and features. They illuminate underlying technologies, identify key interdependencies, walk through configuring working solutions, and truly help

prepare you to set up and operate a modern data center. Gain a holistic, unified understanding of the data center and its core components Walk through installation and deployment of key data center technologies Explore potential applications to see what's possible in your environment Learn how Cisco switches and software implement data center networking and virtualization Discover and apply data center network design and security best practices Review Cisco data center storage technologies and concepts, including Fibre Channel, VSANs, storage virtualization, and FCoE Explore the building blocks of the Cisco UCS data center compute solution, and how UCS uses hardware abstraction and server virtualization Use automation and APIs to improve data center productivity and agility Create and customize scripts for rapid troubleshooting Understand cloud computing for the data center: services, deployment models, and the Cisco Intersight hybrid cloud operations platform

Cloud Computing

The complete guide to provisioning and managing cloud-based Infrastructure as a Service (IaaS) data center solutions Cloud computing will revolutionize the way IT resources are deployed, configured, and managed for years to come. Service providers and customers each stand to realize tremendous value from this paradigm shift--if they can take advantage of it. Cloud Computing brings together the realistic, start-to-finish guidance they need to plan, implement, and manage cloud solution architectures for tomorrow's virtualized data centers. It introduces cloud "newcomers" to essential concepts, and offers experienced operations professionals detailed guidance on delivering Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). This book's replicable solutions and fully-tested best practices will help enterprises, service providers, consultants, and Cisco partners meet the challenge of provisioning end-to-end cloud infrastructures. Drawing on extensive experience working with leading cloud vendors and integrators, the authors present detailed operations workflow examples, proven techniques for operating cloud-based network, compute, and storage infrastructure; a comprehensive management reference architecture; and a complete case study demonstrating rapid, lower-cost solutions design. Cloud Computing will be an indispensable resource for all network/IT professionals and managers involved with planning, implementing, or managing the next generation of cloud computing services. Venkata (Josh) Josyula, Ph.D., CCIE(R) No. 13518 is a Distinguished Services Engineer in Cisco Services Technology Group (CSTG) and advises Cisco customers on OSS/BSS architecture and solutions. Malcolm Orr, Solutions Architect for Cisco's Services Technology Solutions, advises telecoms and enterprise clients on architecting, building, and operating OSS/BSS and cloud management stacks. He is Cisco's lead architect for several Tier 1 public cloud projects. Greg Page has spent the last eleven years with Cisco in technical consulting roles relating to data center architecture/technology and service provider security. He is now exclusively focused on developing cloud/IaaS solutions with service providers and systems integrator partners. - Review the key concepts needed to successfully deploy clouds and cloud-based services - Transition common enterprise design patterns and use cases to the cloud - Master architectural principles and infrastructure designs for "real-time" managed IT services - Understand the Cisco approach to cloud-related technologies, systems, and services - Develop a cloud management architecture using ITIL, TMF, and ITU-TMN standards - Implement best practices for cloud service provisioning, activation, and management - Automate cloud infrastructure to simplify service delivery, monitoring, and assurance - Choose and implement the right billing/chargeback approaches for your business - Design and build IaaS services, from start to finish - Manage the unique capacity challenges associated with sporadic, real-time demand - Provide a consistent and optimal cloud user experience This book is part of the Networking Technology Series from Cisco Press(R), which offers networking professionals valuable information for constructing efficient networks, understanding new technologies, and building successful careers. Category: Cloud Computing Covers: Virtualized Data Centers

Data Center Virtualization Fundamentals

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 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 high-

ly-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. 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 efficiently Evolve data center virtualization toward full-fledged private clouds

Build the Best Data Center Facility for Your Business

A comprehensive guide to designing and operating reliable server environments Keep your data center cool, clean, scalable, and secure Learn the five principles of effective data center design Avoid the natural and man-made hazards that can jeopardize a data center site Learn how to lay out key infrastructure objects within the data center for greatest efficiency, from buffer zones to server rows Apply proven installation methods by studying sample illustrations of both overhead and under-floor systems Extract the best practices and design strategies for both in-room and standby electrical infrastructure Avoid accidental downtime, improve productivity, and ensure user safety Safeguard and streamline your network infrastructure with a well-organized physical hierarchy Understand the special challenges of retrofitting overburdened server environments Implement solutions from a wide array of sample illustrations and examples of essential data center signage Safeguard servers with operations standards for people working in or visiting the data center Download templates used by Cisco to design its data centers, customizable to square footage and geography Avoid excess construction costs by designing a data center that meets your needs today and for many years to come All data centers are unique, but they all share the same mission: to protect your company's valuable information. Build the Best Data Center Facility for Your Business answers your individual questions in one flexible step-by-step reference guide. Benefit from the author's concise and practical approach to data center design and management. The author distills this complex topic by sharing his first-hand and worldwide experience and expertise. Regardless of your experience level, you can fill your knowledge gaps on how to safeguard your company's valuable equipment and intellectual property. This easy-to-navigate book is divided into two parts: Part I covers data center design and physical infrastructure details, and Part II covers data center management and operations. You can also access supplementary online materials for installation instructions, which include customizable data center design templates, written cabling specifications, and sample drawings. If you need a starting point for designing your first data center, regardless of size; if you need to prepare yourself with comprehensive strategies to retrofit or improve an existing o` or if you need proven methods to manage a data center for maximum productivity--this book is your readily accessible, comprehensive resource for answers and insights. Invest in the best future for your business by learning how to build and manage robust and productive data centers now. 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.

CCNA Data Center DCICT 640-916 Official Cert Guide

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

Data Center Fundamentals

And server load balancing fundamentals are covered in detail, including session persistence and cookies, server health, modes and predictors, and multitier architectures. Putting it all together are chapters on Data Center design that also advise you on integrating security into your design and understanding performance metrics of Data Center devices. An in-depth analysis of the Data Center technology coupled with real-life scenarios make Data Center Fundamentals an ideal reference for understanding, planning, and designing scalable, highly available, and secure server farms applicable to web-hosting and e-commerce environments amongst others. Book jacket.

Administering Data Centers

"This book covers a wide spectrum of topics relevant to implementing and managing a modern data center. The chapters are comprehensive and the flow of concepts is easy to understand." -Cisco reviewer Gain a practical knowledge of data center concepts To create a well-designed data center (including storage and network architecture, VoIP implementation, and server consolidation) you must understand a variety of key concepts and technologies. This book explains those factors in a way that smoothes the path to implementation and management. Whether you need an introduction to the technologies, a refresher course for IT managers and data center personnel, or an additional resource for advanced study, you'll find these guidelines and solutions provide a solid foundation for building reliable designs and secure data center policies. * Understand the common causes and high costs of service outages * Learn how to measure high availability and achieve maximum levels * Design a data center using optimum physical, environmental, and technological elements * Explore a modular design for cabling, Points of Distribution, and WAN connections from ISPs * See what must be considered when consolidating data center resources * Expand your knowledge of best practices and security * Create a data center environment that is user- and manager-friendly * Learn how high availability, clustering, and disaster recovery solutions can be deployed to protect critical information * Find out how to use a single network infrastructure for IP data, voice, and storage

Data Analytics for IT Networks

Use data analytics to drive innovation and value throughout your network infrastructure Network and IT professionals capture immense amounts of data from their networks. Buried in this data are multiple opportunities to solve and avoid problems, strengthen security, and improve network performance. To achieve these goals, IT networking experts need a solid understanding of data science, and data

scientists need a firm grasp of modern networking concepts. Data Analytics for IT Networks fills these knowledge gaps, allowing both groups to drive unprecedented value from telemetry, event analytics, network infrastructure metadata, and other network data sources. Drawing on his pioneering experience applying data science to large-scale Cisco networks, John Garrett introduces the specific data science methodologies and algorithms network and IT professionals need, and helps data scientists understand contemporary network technologies, applications, and data sources. After establishing this shared understanding, Garrett shows how to uncover innovative use cases that integrate data science algorithms with network data. He concludes with several hands-on, Python-based case studies reflecting Cisco Customer Experience (CX) engineers' supporting its largest customers. These are designed to serve as templates for developing custom solutions ranging from advanced troubleshooting to service assurance. Understand the data analytics landscape and its opportunities in Networking See how elements of an analytics solution come together in the practical use cases Explore and access network data sources, and choose the right data for your problem Innovate more successfully by understanding mental models and cognitive biases Walk through common analytics use cases from many industries, and adapt them to your environment Uncover new data science use cases for optimizing large networks Master proven algorithms, models, and methodologies for solving network problems Adapt use cases built with traditional statistical methods Use data science to improve network infrastructure analysisAnalyze control and data planes with greater sophistication Fully leverage your existing Cisco tools to collect, analyze, and visualize data

Implementing Cisco UCS Solutions

Discover how to simplify your data center architecture, reduces costs, and improve speed and agility with Cisco UCS at your side About This Book Learn how to reduce equipment and operating costs, consolidate resources, and automate data center processes Eliminate manual, time-consuming tasks that were traditionally required to connect servers in data centers A practical hands-on guide that will help you to deploy servers and application stacks with ease Who This Book Is For This book is for system, network, and storage administrators who are responsible for Cisco UCS deployments. You need to have basic knowledge of server architecture, network, and storage technologies. What You Will Learn Set up your Lab using Cisco UCS Emulator Configure Cisco UCS, LAN, and SAN connectivity Create and manage Service profiles Perform various tasks using UCS Backup and restore Cisco UCS configuration Test various Cisco UCS scenarios Manage and automate multiple domains In Detail Cisco Unified Computer System (UCS) is a powerful solution for modern data centers and is responsible for increasing efficiency and reducing costs. This hands-on guide will take you through deployment in Cisco UCS. Using real-world examples of configuring and deploying Cisco UCS components, we'll prepare you for the practical deployments of Cisco UCS data center solutions. If you want to develop and enhance your hands-on skills with Cisco UCS solutions, this book is certainly for you. We start by showing you the Cisco UCS equipment options then introduce Cisco UCS Emulator so you can learn and practice deploying Cisco UCS components. We'll also introduce you to all the areas of UCS solutions through practical configuration examples. Moving on, you'll explore the Cisco UCS Manager, which is the centralized management interface for Cisco UCS. Once you get to know UCS Manager, you'll dive deeper into configuring LAN, SAN, identity pools, resource pools, and service profiles for the servers. You'll also get hands-on with administration topics including backup, restore, user's roles, and high availability cluster configuration. Finally, you will learn about virtualized networking, third-party integration tools, and testing failure scenarios. By the end of this book, you'll know everything you need to know to rapidly grow Cisco UCS deployments in the real world. Style and approach This hands-on book takes a tutorial-based approach to help you understand the practical methodologies and deployment of Cisco UCS components.

IBM and Cisco: Together for a World Class Data Center

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 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.

NX-OS and Cisco Nexus Switching

NX-OS and Cisco Nexus Switching Next-Generation Data Center Architectures Second Edition The complete guide to planning, configuring, managing, and troubleshooting NX-OS in the enterprise–updated with new technologies and examples Using Cisco Nexus switches and the NX-OS operating system, data center professionals can build unified core networks that deliver unprecedented scalability, resilience, operational continuity, flexibility, and performance. NX-OS and Cisco Nexus Switching, Second Edition, is the definitive guide to applying these breakthrough technologies in real-world environments. This extensively updated edition contains five new chapters addressing a wide range of new technologies, including FabricPath, OTV, IPv6, QoS, VSG, Multi-Hop FCoE, LISP, MPLS, Layer 3 on Nexus 5000, and Config sync. It also presents a start-to-finish, step-by-step case study of an enterprise customer who migrated from Cisco Catalyst to a Nexus-based architecture, illuminated with insights that are applicable in virtually any enterprise data center. Drawing on decades of experience with enterprise customers, the authors cover every facet of deploying, configuring, operating, and troubleshooting NX-OS in today’s data center. You’ll find updated best practices for high availability, virtualization, security, L2/L3 protocol and network support, multicast, serviceability, provision of networking and storage services, and more. Best of all, the authors present all the proven commands, sample configurations, and tips you need to apply these best practices in your data center. Ron Fuller, CCIE No. 5851 (Routing and Switching/Storage Networking), Technical Marketing Engineer on Cisco’s Nexus 7000 team, specializes in helping customers design end-to-end data center architectures. Ron has 21 years of industry experience, including 7 at Cisco. He has spoken at Cisco Live on VDCs, NX-OS multicast, and general design. David Jansen, CCIE No. 5952 (Routing/Switching), is a Cisco Technical Solutions Architect specializing in enterprise data center architecture. He has 20 years of industry experience, 15 of them at Cisco (6 as a solution architect); and has delivered several Cisco Live presentations on NX-OS and data center solutions. Matthew McPherson, senior systems engineer and solutions architect for the Cisco Central Select Operation, specializes in data center architectures. He has 12 years of experience working with service providers and large finance and manufacturing enterprises, and possesses deep technical knowledge of routing, switching, and security. Understand the NX-OS command line, virtualization features, and file system Utilize the NX-OS comprehensive Layer 2/Layer 3 support: vPC, Spanning Tree Protocol, Cisco FabricPath, EIGRP, OSPF, BGP, HSRP, GLBP, and VRRP Configure IP multicast with PIM, Auto-RP, and MSDP Secure your network with CTS, SGTs, ACLs, CoPP, and DAI Establish a trusted set of network devices with Cisco TrustSec Maximize availability with ISSU, stateful process restart/switchover, and non-stop forwarding Improve serviceability with SPAN, ERSPAN, configuration checkpoints/rollback, packet analysis, Smart Call Home, Python, and PoAP Unify storage and Ethernet fabrics with FCoE, NPV, and NPIV Take full advantage of Nexus 1000V in a virtualized environment Achieve superior QoS with MQ CLI, queuing, and marking Extend L2 networks across L3 infrastructure with Overlay Transport Virtualization (OTV) Deliver on SLAs by integrating MPLS application components such as L3 VPNs, traffic engineering, QoS, and mVPN Support mobility via the new Locator ID Separation Protocol (LISP) Walk step-by-step through a realistic Nexus and NX-OS data center migration

Using TRILL, FabricPath, and VXLAN

Using TRILL, FabricPath, and VXLAN Designing Massively Scalable Data Centers with Overlays TRILL, FabricPath, and VXLAN overlays help you distribute data traffic far more effectively, dramatically improving utilization in even the largest data center networks. Using TRILL, FabricPath, and VXLAN is the first practical and comprehensive guide to planning and establishing these high-efficiency overlay networks. The authors begin by reviewing today’s fast-growing data center requirements, and making

a strong case for overlays in the Massive Scale Data Center (MSDC). Next, they introduce each leading technology option, including FabricPath, TRILL, LISP, VXLAN, NVGRE, OTV, and Shortest Path Bridging (SPB). They also present a chapter-length introduction to IS-IS, focusing on details relevant to the control of FabricPath and TRILL networks. Building on this foundation, they offer in-depth coverage of FabricPath: its advantages, architecture, forwarding, configuration, verification, and benefits in Layer-2 networks. Through examples, they explain TRILL's architecture, functionality, and forwarding behavior, focusing especially on data flow. They also fully address VXLAN as a solution for realizing IP-based data center fabrics, including multi-tenant cloud applications. Using TRILL, FabricPath, and VXLAN provides detailed strategies and methodologies for FabricPath, TRILL, and VXLAN deployment and migration, as well as best practices for management and troubleshooting. It also presents three detailed implementation scenarios, each reflecting realistic data center challenges. In particular, the authors show how to integrate multiple overlay technologies into a single end-to-end solution that offers exceptional flexibility, agility, and availability. Sanjay K. Hooda is principal engineer in Catalyst switching software engineering at Cisco. He has more than 15 years of network design and implementation experience in large enterprise environments, and has participated in IETF standards activities. His interests include wireless, multicast, TRILL, FabricPath, High Availability, ISSU, and IPv6. He is co-author of IPv6 for Enterprise Networks. Shyam Kapadia, Technical Leader at Cisco's Data Center Group (DCG), was an integral part of the team that delivered the next-generation Catalyst 6500 Sup 2T (2 Terabyte) platform. Since then, he has focused on developing new solutions for data center environments. He holds a Ph.D. in computer science from USC, where his research encompassed wired, wireless, ad hoc, vehicular, and sensor networks. Padmanabhan Krishnan has more than 12 years of experience in networking and telecommunications, including 7 at Cisco. His recent experience has included providing data path solutions for TRILL in the Catalyst 6500 Sup 2T Platform using FPGA, as well as design and development of platform core infrastructure and L2 features. n Discover how overlays can address data center network problems ranging from scalability to rapid provisioning n Examine popular data center overlay examples n Learn about extensions to IS-IS for TRILL and FabricPath n Use FabricPath, TRILL, and VXLAN to simplify configuration, improve performance and availability, optimize efficiency, and limit table size n Learn about FabricPath control and data plane architecture details n Review example FabricPath configurations on Cisco Nexus 7000/6000/5000 switches n Understand TRILL concepts and architecture, including overlay header, control and data plane, and MAC address learning n Learn about VXLAN architecture details and packet forwarding n Review example VXLAN configurations on a Cisco Nexus 1000V distributed virtual switch n Implement TRILL/FabricPath networks with VXLAN to virtualized servers in an intra-data center environment n Connect multiple traditional data centers using an OTV overlay as a Layer 2 extension n Use OTV overlays to connect sites running FabricPath, TRILL, or both

Implementing Cisco Networking Solutions

Learn the art of designing, implementing, and managing Cisco's networking solutions on datacenters, wirelessly, security and mobility to set up an Enterprise network. About This Book Implement Cisco's networking solutions on datacenters and wirelessly, Cloud, Security, and Mobility Leverage Cisco IOS to manage network infrastructures. A practical guide that will show how to troubleshoot common issues on the network. Who This Book Is For This book is targeted at network designers and IT engineers who are involved in designing, configuring, and operating enterprise networks, and are in taking decisions to make the necessary network changes to meet newer business needs such as evaluating new technology choices, enterprise growth, and adding new services on the network. The reader is expected to have a general understanding of the fundamentals of networking, including the OSI stack and IP addressing. What You Will Learn Understand the network lifecycle approach Get to know what makes a good network design Design components and technology choices at various places in the network (PINS) Work on sample configurations for network devices in the LAN/ WAN/ DC, and the wireless domain Get familiar with the configurations and best practices for securing the network Explore best practices for network operations In Detail Most enterprises use Cisco networking equipment to design and implement their networks. However, some networks outperform networks in other enterprises in terms of performance and meeting new business demands, because they were designed with a visionary approach. The book starts by describing the various stages in the network lifecycle and covers the plan, build, and operate phases. It covers topics that will help network engineers capture requirements, choose the right technology, design and implement the network, and finally manage and operate the network. It divides the overall network into its constituents depending upon functionality, and describe the technologies used and the design considerations for

each functional area. The areas covered include the campus wired network, wireless access network, WAN choices, datacenter technologies, and security technologies. It also discusses the need to identify business-critical applications on the network, and how to prioritize these applications by deploying QoS on the network. Each topic provides the technology choices, and the scenario, involved in choosing each technology, and provides configuration guidelines for configuring and implementing solutions in enterprise networks. Style and approach A step-by-step practical guide that ensures you implement Cisco solutions such as enterprise networks, cloud, and data centers, on small-to-large organizations.

Cloud Native Data Center Networking

If you want to study, build, or simply validate your thinking about modern cloud native data center networks, this is your book. Whether you're pursuing a multitenant private cloud, a network for running machine learning, or an enterprise data center, author Dinesh Dutt takes you through the steps necessary to design a data center that's affordable, high capacity, easy to manage, agile, and reliable. Ideal for network architects, data center operators, and network and containerized application developers, this book mixes theory with practice to guide you through the architecture and protocols you need to create and operate a robust, scalable network infrastructure. The book offers a vendor-neutral way to look at network design. For those interested in open networking, this book is chock-full of examples using open source software, from FRR to Ansible. In the context of a cloud native data center, you'll examine: Clos topology Network disaggregation Network operating system choices Routing protocol choices Container networking Network virtualization and EVPN Network automation

Hyperconverged Infrastructure Data Centers

Improve Manageability, Flexibility, Scalability, and Control with Hyperconverged Infrastructure Hyperconverged infrastructure (HCI) combines storage, compute, and networking in one unified system, managed locally or from the cloud. With HCI, you can leverage the cloud's simplicity, flexibility, and scalability without losing control or compromising your ability to scale. In Hyperconverged Infrastructure Data Centers, best-selling author Sam Halabi demystifies HCI technology, outlines its use cases, and compares solutions from a vendor-neutral perspective. He guides you through evaluation, planning, implementation, and management, helping you decide where HCI makes sense, and how to migrate legacy data centers without disrupting production systems. The author brings together all the HCI knowledge technical professionals and IT managers need, whether their background is in storage, compute, virtualization, switching/routing, automation, or public cloud platforms. He explores leading solutions including the Cisco HyperFlex platform, VMware vSAN, Nutanix Enterprise Cloud, Cisco Application-Centric Infrastructure (ACI), VMware's NSX, the open source OpenStack and Open vSwitch (OVS) / Open Virtual Network (OVN), and Cisco CloudCenter for multicloud management. As you explore discussions of automation, policy management, and other key HCI capabilities, you'll discover powerful new opportunities to improve control, security, agility, and performance. Understand and overcome key limits of traditional data center designs Discover improvements made possible by advances in compute, bus interconnect, virtualization, and software-defined storage Simplify rollouts, management, and integration with converged infrastructure (CI) based on the Cisco Unified Computing System (UCS) Explore HCI functionality, advanced capabilities, and benefits Evaluate key HCI applications, including DevOps, virtual desktops, ROBO, edge computing, Tier 1 enterprise applications, backup, and disaster recovery Simplify application deployment and policy setting by implementing a new model for provisioning, deployment, and management Plan, integrate, deploy, provision, manage, and optimize the Cisco HyperFlex hyperconverged infrastructure platform Assess alternatives such as VMware vSAN, Nutanix, open source OpenStack, and OVS/OVN, and compare architectural differences with HyperFlex Compare Cisco ACI (Application- Centric Infrastructure) and VMware NSX approaches to network automation, policies, and security 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.

The Policy Driven Data Center with ACI

Using the policy driven data center approach, networking professionals can make their data center topologies faster to configure and more portable. They can also build cloud infrastructure faster than before. All of this can be achieved by using REST and python together with the latest Cisco technology called Application Centric Infrastructure (ACI). The Policy Driven Data Center with ACI helps Architects, IT administrators, Network Administrators and Engineers to build and troubleshoot multipurpose cloud

architectures. Cisco data center experts Lucien Avramov and Maurizio Portolani thoroughly explain the architecture, concepts, and methodology of the policy driven data center. The authors cover the key technology concepts, the tools for modern data centers including python scripting and REST, the design consideration and methodology of modern fabrics including VXLAN-based forwarding, the policy model theory and concepts, how to build a multi-hypervisor and bare-metal infrastructure including OpenStack, the service integration, and advanced telemetry capabilities for troubleshooting. The book concludes by discussing universal data center switch architecture concepts in order to clearly understand switching concepts and the newer trends in the Nexus 9000 product portfolio. Drawing on their extensive experience in enterprise engagements, the authors present effective solutions for virtualized data centers, high performance computing, ultra-low latency environments, and large-scale data centers. In addition to discussing relevant concepts and methodologies, the authors address design considerations associated with hardware, topologies, automation, and scalability. Technical professionals will find invaluable guidance on migrating current data center environments to a policy driven data center.

Implementing CISCO UCS Solutions - Second Edition

A practical guide that simplifies your data center architecture, reduces costs, and improves speed and agilityAbout This Book* Learn how to reduce equipment and operating costs, consolidate resources, and automate data center processes* Eliminate manual, time-consuming tasks that were traditionally required to connect servers in data centers* A practical hands-on guide that will help you to deploy servers and application stacks with easeWho This Book Is ForThis book is for system, network, and storage administrators who are responsible for Cisco UCS deployments. You need to have basic knowledge of server architecture, network, and storage technologies.What you will learn* Set up your Lab using Cisco UCS Emulator* Configure Cisco UCS, LAN, and SAN connectivity* Create and manage Service profiles* Perform various tasks using UCS* Back up and restore Cisco UCS configuration* Test various Cisco UCS scenariosIn DetailCisco Unified Computer System (UCS) is a powerful solution for modern data centers and is responsible for increasing efficiency and reducing costs.This hands-on guide will take you through deployment in Cisco UCS. Using real-world examples of configuring and deploying Cisco UCS components, we'll prepare you for the practical deployments of Cisco UCS data center solutions. If you want to develop and enhance your hands-on skills with Cisco UCS solutions, this book is certainly for you.We start by showing you the Cisco UCS equipment options, then introduce Cisco UCS Emulator so you can learn and practice deploying Cisco UCS components. We'll also introduce you to all the areas of UCS solutions through practical configuration examples.Moving on, you'll explore the Cisco UCS Manager, which is the centralized management interface for Cisco UCS. Once you get to know UCS Manager, you'll dive deeper into configuring LAN, SAN, identity pools, resource pools, and service profiles for the servers. You'll also get hands-on with administration topics including backup, restore, user's roles, and high availability cluster configuration. Finally, you will learn about virtualized networking, third-party integration tools, and testing failure scenarios.By the end of this book, you'll know everything you need to know to rapidly grow Cisco UCS deployments in the real world.

Cisco Cloud Infrastructure

Manage, operate, and integrate existing infrastructure in hybrid and multicloud environments Hybrid cloud adoption is accelerating, as companies discover that hybrid cloud architectures can reduce hosting costs, improve agility, promote scalability, accelerate deployment, and enhance security. Cisco Cloud Infrastructure is the definitive reference for every IT professional, IT manager, and CIO who needs to understand, implement, or manage Cisco hybrid cloud solutions for networking, compute, storage, applications, or security. Bringing together crucial information, a team of leading Cisco architects present end-to-end insights for seamlessly integrating management and operation of public cloud resources and on-premises deployments. The authors describe each Cisco solution and offering in detail, from both technical and business viewpoints. They review each leading deployment option, reviewing key concepts, best practices, guidelines, tradeoffs, design do's and don'ts, case studies, and more. Cisco Cloud Infrastructure contains many configuration examples--including topologies, configuration, and verification--each based on actual Cisco Cloud deployments, and specifically designed to help you drive value faster. Use Cisco data center orchestration software to automate tasks and operations, and enable an agile DevOps approach to continual improvement Gain big-picture insights and actionable drill-down data from the Cisco API-driven monitoring and assurance solutions Optimize workloads across clouds, on-premises data centers, labs, and co-location facilities for scale, performance, agility,

and value Use AppDynamics enterprise-grade performance cloud monitoring and analytics tools to identify issues and overcome growth challenges Efficiently manage modern workloads with Intersight Workload Optimization Manager, Cisco Container Platform, and Intersight Kubernetes Service (IKS) Manage interdependencies between networks, compute, storage, application, and security in hybrid cloud environments Take advantage of Cisco Cloud Webex to improve collaboration in hybrid/multicloud environments Integrate operational hardware with the Internet of Things (IoT) to gain deeper insight for greater efficiency Protect users, data, and applications everywhere with Cloudlock, Umbrella, Cloud Analytics, Duo, and API-based integrations

I/O Consolidation in the Data Center

Using Fibre Channel over Ethernet (FCoE) and related technologies, data centers can consolidate data traffic onto a single network switch, simplifying their environments, promoting virtualization, and substantially reducing power and cooling costs. This emerging technology is drawing immense excitement, but few enterprise IT decision-makers and implementers truly understand it. I/O Consolidation in the Data Center is the only complete, up-to-date guide to FCoE. FCoE innovators Silvano Gai and Claudio DeSanti (chair of the T11 FCoE standards working group) systematically explain the technology: its benefits, tradeoffs, and what it will take to implement it successfully in production environments. Unlike most other discussions of FCoE, this book fully reflects the final, recently-approved industry standard. The authors also present five detailed case studies illustrating typical FCoE adoption scenarios, as well as an extensive Q and A section addressing the issues enterprise IT professionals raise most often. This is a fully updated version of Silvano Gai's privately-published book on FCoE, written for leading FCoE pioneer Nuova Systems before the company was acquired by Cisco. Nearly 12,000 copies of that book have already been distributed, demonstrating the immense interest in FCoE technology, and the scarcity of reliable information that has existed about it.

Grow a Greener Data Center

Alger presents technologies, design strategies, and operational approaches that can help any company improve the energy efficiency and "eco-friendliness" of their IT facilities. He walks step-by-step through "greening" physical construction, power, cooling, and servers; then covers equipment consolidation, virtualization, and much more.

Building Data Centers with VXLAN BGP EVPN

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, 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

Network Automation Made Easy

Practical strategies and techniques for automating network infrastructure As networks grow ever more complex, network professionals are seeking to automate processes for configuration, management, testing, deployment, and operation. Using automation, they aim to lower expenses, improve productivity, reduce human error, shorten time to market, and improve agility. In this guide, expert practitioner Ivo Pinto presents all the concepts and techniques you'll need to move your entire physical and virtual infrastructure towards greater automation and maximize the value it delivers. Writing for experienced professionals, the author reviews today's leading use cases for automation, compares leading tools, and presents a deep dive into using the open source Ansible engine to automate common tasks. You'll find everything you need: from practical code snippets to real-world case studies to a complete methodology for planning strategy. This guide is for everyone seeking to improve network operations and productivity, including system, network, storage, and virtualization administrators, network and security engineers, and many other technical professionals and managers. You can apply its vendor-neutral concepts throughout your entire environment—from servers to the cloud, switches to security. Explore modern use cases for network automation, and compare today's most widely used automation tools Capture essential data for use in network automation, using standard formats such as JSON, XML, and YAML Get more value from the data your network can provide Install Ansible and master its building blocks, including plays, tasks, modules, variables, conditionals, loops, and roles Perform common networking tasks with Ansible playbooks: manage files, devices, VMs, cloud constructs, APIs, and more See how Ansible can be used to automate even the largest global network architectures Discover how NetDevOps can transform your approach to automation--and create a new NetDevOps pipeline, step by step Build a network automation strategy from the ground up, reflecting lessons from the world's largest enterprises

Cisco Unified Computing System (UCS) (Data Center)

The definitive guide to UCS and the Cisco® Data Center Server: planning, architecture, components, deployment, and benefits With its new Unified Computing System (UCS) family of products, Cisco has introduced a fundamentally new vision for data center computing: one that reduces ownership cost, improves agility, and radically simplifies management. In this book, three Cisco insiders thoroughly explain UCS, and offer practical insights for IT professionals and decision-makers who are evaluating or implementing it. The authors establish the context for UCS by discussing the implications of virtualization, unified I/O, large memories and other key technologies, and showing how trends like cloud computing and green IT will drive the next-generation data center. Next, they take a closer look at the evolution of server CPU, memory, and I/O subsystems, covering advances such as the Intel® XEON® 5500, 5600, 7500, DDR3 memory, and unified I/O over 10 Gbps Ethernet. Building on these fundamentals, the authors then discuss UCS in detail, showing how it systematically overcomes key limitations of current data center environments. They review UCS features, components, and architecture, and demonstrate how it can improve data center performance, reliability, simplicity, flexibility, and energy efficiency. Along the way, they offer realistic planning, installation, and migration guidance: everything decision-makers and technical implementers need to gain maximum value from UCS–now, and for years to come. Silvano Gai has spent 11 years as Cisco Fellow, architecting Catalyst®, MDS, and Nexus switches. He has written several books on networking, written multiple Internet Drafts and RFCs, and is responsible for 80 patents and applications. He teaches a course on this book’s topics at Stanford University. Tommi Salli, Cisco Technical Marketing Engineer, has nearly 20 years of experience with servers and applications at Cisco, Sun, VERITAS, and Nuova Systems. Roger Andersson, Cisco Manager, Technical Marketing, spent more than 12 years in the CLARiiON® Engineering Division at EMC, and 5 years as Technical Product Manager at VERITAS/Symantec. He is now focused on Cisco UCS system management. Streamline data centers with UCS to systematically reduce cost of ownership Eliminate unnecessary server components–and their setup, management, power, cooling, and cabling Use UCS to scale service delivery, simplify service movement, and improve agility Review the latest advances in processor, memory, I/O, and virtualization architectures for data center servers Understand the specific technical advantages of UCS Integrate UCS 6100 Fabric Interconnect, Cisco UCS 2100 Series Fabric Extenders, UCS 5100 Series Blade Server Enclosures, UCS B-Series Blade Servers, UCS C-Series Rack Servers, and UCS Adapters Use Cisco UCS Manager to manage all Cisco UCS components as a single, seamless entity Integrate third-party management tools from companies like BMC ®, CA ®, EMC ®, IBM ®, Microsoft ®, and VMware ® Practice all this with a copy of Cisco Unified Computing SystemTM Platform Emulator Lite (UCSPE Lite) on the DVD in the back of the book 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.

ACI Advanced Monitoring and Troubleshooting

Advanced real-world Cisco Application Centric Infrastructure (ACI) monitoring and troubleshooting Forewords written by Yusuf Bhaiji, Director of Certifications, Cisco Systems; and Ronak Desai, VP of Engineering for the Data Center Networking Business Unit, Cisco Systems. This expert guide and reference will help you confidently deploy, support, monitor, and troubleshoot ACI fabrics and components. It is also designed to help you prepare for your Cisco DCACIA (300-630) exam, earning Cisco Certified Specialist–ACI Advanced Implementation certification and credit toward CCNP Data Center certification if you choose. Authored by three leading Cisco ACI experts, it combines a solid conceptual foundation, in-depth technical knowledge, and practical techniques. It also contains proven features to help exam candidates prepare, including review questions in most chapters, and Key Topic icons highlighting concepts covered on the exam. The authors thoroughly introduce ACI functions, components, policies, command-line interfaces, connectivity, fabric design, virtualization and service integration, automation, orchestration, and more. Next, they introduce best practices for monitoring and management, including the use of faults, health scores, tools, the REST API, in-band and out-of-band management techniques, and monitoring protocols. Proven configurations are provided, with steps for verification. Finally, they present advanced forwarding and troubleshooting techniques for maximizing ACI performance and value. ACI Advanced Monitoring and Troubleshooting is an indispensable resource for every data center architect, engineer, developer, network or virtualization administrator, and operations team member working in ACI environments. Understand Cisco ACI core functions, components, and protocols Apply the ACI Policy-Based Object Model to develop overall application frameworks Use command-line interfaces to manage and monitor Cisco ACI systems Master proven options for ACI physical and logical fabric design Establish connectivity for compute, storage, and service devices, switches, and routers Gain visibility into virtualization layers through VMM, and integrate hypervisors from multiple vendors Seamlessly integrate Layer 4 to Layer 7 services such as load balancing and firewalling Automate and orchestrate for fast deployment with the REST API, scripting, and Ansible Minimize downtime and maximize ROI through more effective monitoring and configuration Thoroughly master concepts and techniques for advanced ACI and VXLAN for-warding Build deep practical expertise for quickly troubleshooting critical events Gain quick visibility into traffic flows and streamline problem isolation with the ACI Visibility & Troubleshooting Tool Walk through multiple real-world troubleshooting scenarios step-by-step 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 LAN Switching Configuration Handbook

Cisco LAN Switching Configuration Handbook Second Edition A concise reference for implementing the most frequently used features of the Cisco Catalyst family of switches Steve McQuerry, CCIE® No. 6108 David Jansen, CCIE No. 5952 David Hucaby, CCIE No. 4594 Cisco LAN Switching Configuration Handbook, Second Edition, is a quick and portable reference guide to the most commonly used features that can be configured on Cisco® Catalyst® switches. Written to be used across all Catalyst IOS platforms, the book covers general use of Cisco IOS®, followed by a series of chapters that provide design and configuration guidelines. Each chapter starts with common design overviews and then describes the configuration of management features. Coverage includes Layer 2, Layer 3, multicast, high availability, and traffic management configurations. This book is organized by groups of common features, with sections marked by shaded tabs for quick reference. Information on each feature is presented in a concise format, with background, configuration, and example components. The format is organized for easy accessibility to commands and their proper usage, saving you hours of research time. From the first page, the authors zero in on quick facts, configuration steps, and explanations of configuration options in each Cisco Catalyst switch feature. The quick reference format allows you to easily locate just the information you need without having to search through thousands of pages of documentation, helping you get your switches up and running quickly and smoothly. Whether you are looking for a handy, portable reference to more easily configure Cisco Catalyst switches in the field, or you are preparing for CCNA®, CCNP®, or CCIE® certification, you will find Cisco LAN Switching Configuration Handbook, Second Edition, to be an essential resource. Steve McQuerry, CCIE No. 6108, is a technical solutions architect with Cisco focused on data center solutions. Steve works with enterprise customers in the midwestern United States to help them plan their data center architectures.

David Jansen, CCIE No. 5952, is a technical solutions architect (TSA) with Cisco focused on Data Center Architectures at Cisco. David has more than 20 years of experience in the IT industry. David Hucaby, CCIE No. 4594, is a lead network engineer for the University of Kentucky, where he works with healthcare networks based on the Cisco Catalyst, ASA/PIX/FWSM security, and VPN product lines. Implement switched campus network designs Configure switch prompts, IP addresses, passwords, switch modules, file management, and administrative protocols Understand how Layer 3 interfaces are used in a switch Configure Ethernet, Fast Ethernet, Gigabit Ethernet, and EtherChannel interfaces Implement VLANs, trunking, and VTP Operate, configure, and tune Spanning Tree Protocol (STP) Handle multicast traffic and interact with multicast routers Streamline access to server and firewall farms with accelerated server load balancing Deploy broadcast suppression, user authentication, port security, and VLAN access lists Configure switch management features Implement QoS and high availability features Transport voice traffic with specialized voice gateway modules, inline power, and QoS features 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.

Designing Cisco Network Service Architectures (ARCH)

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

Programming and Automating Cisco Networks

Improve operations and agility in any data center, campus, LAN, or WAN Today, the best way to stay in control of your network is to address devices programmatically and automate network interactions. In this book, Cisco experts Ryan Tischer and Jason Gooley show you how to do just that. You'll learn how to use programmability and automation to solve business problems, reduce costs, promote agility and innovation, handle accelerating complexity, and add value in any data center, campus, LAN, or

WAN. The authors show you how to create production solutions that run on or interact with Nexus NX-OS-based switches, Cisco ACI, Campus, and WAN technologies.You'll learn how to use advanced Cisco tools together with industry-standard languages and platforms, including Python, JSON, and Linux. The authors demonstrate how to support dynamic application environments, tighten links between apps and infrastructure, and make DevOps work better. This book will be an indispensable resource for network and cloud designers, architects, DevOps engineers, security specialists, and every professional who wants to build or operate high-efficiency networks. Drive more value through programmability and automation, freeing resources for high-value innovation Move beyond error-prone, box-by-box network management Bridge management gaps arising from current operational models Write NX-OS software to run on, access, or extend your Nexus switch Master Cisco's powerful on-box automation and operation tools Manage complex WANs with NetConf/Yang, ConfD, and Cisco SDN Controller Interact with and enhance Cisco Application Centric Infrastructure (ACI) Build self-service catalogs to accelerate application delivery Find resources for deepening your expertise in network automation

Interconnecting Data Centers Using VPLS (Ensure Business Continuance on Virtualized Networks by Implementing Layer 2 Connectivity Across Layer 3)

As data centers grow in size and complexity, enterprises are adopting server virtualization technologies such as VMware, VMotion, NIC teaming, and server clustering to achieve increased efficiency of resources and to ensure business resilience. However, these technologies often involve significant expense and challenges to deal with complex multisite interconnections and to maintain the high availability of network resources and applications. Interconnecting Data Centers Using VPLS presents Virtual Private LAN Service (VPLS) based solutions that provide high-speed, low-latency network and Spanning Tree Protocol (STP) isolation between data centers resulting in significant cost savings and a highly resilient virtualized network. The design guidance, configuration examples, and best practices presented in this book have been validated under the Cisco Validated Design (CVD) System Assurance program to facilitate faster, more reliable and more predictable deployments. The presented solutions include detailed information about issues that relate to large Layer 2 bridging domains and offer guidance for extending VLANs over Layer 3 networks using VPLS technology. Implementing this breakthrough Data Center Interconnect (DCI) strategy will evolve your network to support current server virtualization techniques and to provide a solid foundation for emerging approaches. The book takes you from the legacy deployment models for DCI, problems associated with extending Layer 2 networks, through VPN technologies, to various MST-, EEM-, and GRE-based deployment models and beyond. Although this book is intended to be read cover-to-cover, it is designed to be flexible and allow you to easily move between chapters to develop the solution most compatible with your requirements. Describes a variety of deployment models to effectively transport Layer 2 information, allowing your virtualization solution to operate effectively Explains benefits and trade-offs of various solutions for you to choose the solution most compatible with your network requirements to ensure business resilience Provides detailed design guidance and configuration examples that follow Cisco best practice recommendations tested within the CVD 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.

Network Security with NetFlow and IPFIX

A comprehensive guide for deploying, configuring, and troubleshooting NetFlow and learning big data analytics technologies for cyber security Today's world of network security is full of cyber security vulnerabilities, incidents, breaches, and many headaches. Visibility into the network is an indispensable tool for network and security professionals and Cisco NetFlow creates an environment where network administrators and security professionals have the tools to understand who, what, when, where, and how network traffic is flowing. Network Security with NetFlow and IPFIX is a key resource for introducing yourself to and understanding the power behind the Cisco NetFlow solution. Omar Santos, a Cisco Product Security Incident Response Team (PSIRT) technical leader and author of numerous books including the CCNA Security 210-260 Official Cert Guide, details the importance of NetFlow and demonstrates how it can be used by large enterprises and small-to-medium-sized businesses to meet critical network challenges. This book also examines NetFlow's potential as a powerful network security tool. Network Security with NetFlow and IPFIX explores everything you need to know to fully understand and implement the Cisco Cyber Threat Defense Solution. It also provides detailed configuration and troubleshooting guidance, sample configurations with depth analysis of design

scenarios in every chapter, and detailed case studies with real-life scenarios. You can follow Omar on Twitter: @santosomar NetFlow and IPFIX basics Cisco NetFlow versions and features Cisco Flexible NetFlow NetFlow Commercial and Open Source Software Packages Big Data Analytics tools and technologies such as Hadoop, Flume, Kafka, Storm, Hive, HBase, Elasticsearch, Logstash, Kibana (ELK) Additional Telemetry Sources for Big Data Analytics for Cyber Security Understanding big data scalability Big data analytics in the Internet of everything Cisco Cyber Threat Defense and NetFlow Troubleshooting NetFlow Real-world case studies

Designing Networks and Services for the Cloud

Designing Networks and Services for the Cloud Delivering business-grade cloud applications and services A rapid, easy-to-understand approach to delivering a secure, resilient, easy-to-manage, SLA-driven cloud experience Designing Networks and Services for the Cloud helps you understand the design and architecture of networks and network services that enable the delivery of business-grade cloud services. Drawing on more than 40 years of experience in network and cloud design, validation, and deployment, the authors demonstrate how networks spanning from the Enterprise branch/HQ and the service provider Next-Generation Networks (NGN) to the data center fabric play a key role in addressing the primary inhibitors to cloud adoption–security, performance, and management complexity. The authors first review how virtualized infrastructure lays the foundation for the delivery of cloud services before delving into a primer on clouds, including the management of cloud services. Next, they explore key factors that inhibit enterprises from moving their core workloads to the cloud, and how advanced networks and network services can help businesses migrate to the cloud with confidence. You'll find an in-depth look at data center networks, including virtualization-aware networks, virtual network services, and service overlays. The elements of security in this virtual, fluid environment are discussed, along with techniques for optimizing and accelerating the service delivery. The book dives deeply into cloud-aware service provider NGNs and their role in flexibly connecting distributed cloud resources, ensuring the security of provider and tenant resources, and enabling the optimal placement of cloud services. The role of Enterprise networks as a critical control point for securely and cost-effectively connecting to high-performance cloud services is explored in detail before various parts of the network finally come together in the definition and delivery of end-to-end cloud SLAs. At the end of the journey, you preview the exciting future of clouds and network services, along with the major upcoming trends. If you are a technical professional or manager who must design, implement, or operate cloud or NGN solutions in enterprise or service-provider environments, this guide will be an indispensable resource. * Understand how virtualized data-center infrastructure lays the groundwork for cloud-based services * Move from distributed virtualization to "IT-as-a-service" via automated self-service portals * Classify cloud services and deployment models, and understand the actors in the cloud ecosystem * Review the elements, requirements, challenges, and opportunities associated with network services in the cloud * Optimize data centers via network segmentation, virtualization-aware networks, virtual network services, and service overlays * Systematically secure cloud services * Optimize service and application performance * Plan and implement NGN infrastructure to support and accelerate cloud services * Successfully connect enterprises to the cloud * Define and deliver on end-to-end cloud SLAs * Preview the future of cloud and network services

Designing Content Switching Solutions

A practical guide to the design and deployment of content switching solutions for mission-critical applications in data center environments Design and deploy content switching solutions in the data center using this definitive guide Learn about various content switching design approaches with implementation details, requirements for each solution, and design caveats Examine detailed case studies that include configuration examples based on deployed content switching solutions Explore scaling server load balancing within the data center, integrated data center design, and GSLB using DNS or IP Assists network administrators in managing their content switching solutions With the advent of e-commerce and Internet-accessible applications, more and more enterprises and service providers rely on data center services to grow their businesses. Content switching solutions, such as load balancing, caching, and disaster recovery for applications, are an essential data center technology and a key to helping businesses run in an efficient and redundant fashion. Understanding content switching solutions is a must for network designers, engineers, and administrators who need to scale their networks to meet the demands of their business. Designing Content Switching Solutions helps you understand content switching solutions using Cisco® content switching products. You'll get a thorough grounding in the theories and concepts behind content switching and then examine specific

solutions through case studies. The case studies in Designing Content Switching Solutions emulate real-world scenarios for the solutions covering some of the common features and functionality deployed in production networks. Designing Content Switching Solutions begins by introducing you to server load balancing (SLB), load balancing HTTP, VPNs, firewalls, and migrations between SLB devices. From there, you move to Secure Socket Layer (SSL) using Cisco products, including providing end-to-end encryption from client to server using backend SSL. Later chapters explore advanced techniques, such as how to provide distributed data center solutions using global server load balancing (GSLB) and how to conduct scaling and integration of SLB with SSL and GSLB. Intended for data center architects and managers, network engineers, network administrators, and project managers, Designing Content Switching Solutions shows you the best practices for each content switching solution, enabling you to design and deploy the most critical content switching solutions in the data center.

Cisco Unified Contact Center Enterprise (UCCE)

Cisco Unified Contact Center Enterprise (UCCE) The complete guide to managing UCCE environments: tips, tricks, best practices, and lessons learned Cisco Unified Contact Center Enterprise (UCCE) integrates multiple components and can serve a wide spectrum of business requirements. In this book, Gary Ford, an experienced Cisco UCCE consultant brings together all the guidance you need to optimally configure and manage UCCE in any environment. The author shares in-depth insights covering both the enterprise and hosted versions of UCCE. He presents an administrator's view of how to perform key UCCE tasks and why they work as they do. He thoroughly addresses application configuration, agents, scripting, IVR, dial plans, UCM, error handling, reporting, metrics, and many other key topics. You'll find proven, standardized configuration examples that help eliminate errors and reduce downtime, step-by-step walkthroughs of several actual configurations, and thorough coverage of monitoring and troubleshooting UCCE systems. Cisco Unified Contact Center Enterprise (UCCE) is an indispensable resource to help you deploy and operate UCCE systems reliably and efficiently. · Understand the Cisco Unified Contact Center product portfolio and platform architecture · Choose the right single-site, multi-site, or clustered deployment model for your environment · Take a lifecycle services approach to UCCE deployment and application configuration-–including preparation, planning, design, and implementation · Implement traditional, current-generation, and next-generation call routing · Master the latest best practices for call flow scripting · Understand UCCE's nodes and distributed processes and build a clean system startup sequence · Design, implement, and deliver unified CM/IP IVR solutions · Set up and efficiently manage UCCE databases · Make the most of UCCE's reporting tools · Create advanced applications with Data-Driven Routing · Effectively maintain any UCCE deployment, including older versions · Use a best-practice methodology for troubleshooting, and master valuable, little-known Cisco diagnostic tools This IP communications book is part of the Cisco Press® Networking Technology Series. IP communications titles from Cisco Press help networking professionals understand voice and IP telephony technologies, plan and design converged networks, and implement network solutions for increased productivity.

CCNA Data Center DCICT 200-155 Official Cert Guide

CCNA Data Center DCICT 200-155 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 is the eBook edition of the CCNA Data Center DCICT 200-155 Official Cert Guide. This eBook does not include the access code for the practice exam that comes with the print edition. 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 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 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 200-155 exam.

Virtual Routing in the Cloud

The Cisco expert guide to planning, deploying, and operating virtual routing with the CSR 1000V Cloud Services Router Virtual routing and the Cisco Cloud Services Router (CSR 1000V) are key enablers of today's revolutionary shift to elastic cloud applications and low-cost virtualized networking. Now, there's an authoritative, complete guide to building real solutions with the Cisco CSR 1000V platform. Three leading experts cover every essential building block, present key use cases and configuration examples, illuminate design and deployment scenarios, and show how the CSR 1000V platform and APIs can enable state-of-the-art software-defined networks (SDN). Drawing on extensive early adopter experience, they illuminate crucial OS and hypervisor details, help you overcome migration challenges, and offer practical guidance for monitoring and operations. This guide is an essential resource for all technical professionals planning or deploying data center and enterprise cloud services, and for all cloud network operators utilizing the Cisco CSR 1000V or future Cisco virtual routing platforms. · Review the fundamentals of cloud virtualization, multitenant data-center design, and software-defined networking · Understand the Cisco CSR 1000V's role, features, and infrastructure requirements · Compare server hypervisor technologies for managing VM hardware with CSR 1000V deployments · Understand CSR 1000V software architecture, control and data-plane design, licensing requirements, and packet flow · Walk through common virtual router scenarios and configurations, including multiple cloud and data center examples · Integrate CSR 1000V into the OpenStack SDN framework, and use its APIs to solve specific problems · Master a best-practice workflow for deploying the CSR 1000V · Use the Cisco management tools to automate, orchestrate, and troubleshoot virtualized routing Category: Networking/Cloud Computing Covers: Cloud Services Router 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

Designing for Cisco Network Service Architectures (ARCH) Foundation Learning Guide

Designing for Cisco Network Service Architectures (ARCH) Foundation Learning Guide, Fourth Edition · Learn about the Cisco modular enterprise architecture · Create highly available enterprise network designs · Develop optimum Layer 3 designs · Examine advanced WAN services design considerations · Evaluate data center design considerations · Design effective modern WAN and data center designs · Develop effective migration approaches to IPv6 · Design resilient IP multicast networks · Create effective network security designs Designing for Cisco Network Service Architectures (ARCH) Foundation Learning Guide, Fourth Edition, is a Cisco-authorized, self-paced learning tool for CCDP 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 to achieve effective performance, scalability, and availability. This book presents concepts and examples necessary to design converged enterprise networks. You learn additional aspects of modular campus design, advanced routing designs, WAN service designs, enterprise data center design, IP multicast design, and security design. Advanced and modern network infrastructure solutions, such as virtual private networks (VPN), Cisco Intelligent WAN (IWAN), and Cisco Application-Centric Infrastructure (ACI), are also covered. Chapter-ending review questions illustrate and help solidify the concepts presented in the book. Whether you are preparing for CCDP certification or CCDE 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 for Cisco Network Service Architectures (ARCH) Foundation Learning Guide, Fourth 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 https://learningnetwork.cisco.com. Category: Cisco Certification Covers: CCDP ARCH 300-320

VersaStack Solution by Cisco and IBM with SQL, Spectrum Control, and Spectrum Protect

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 to be 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 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 Storwize V7000 enhances virtual environments with its Data Virtualization, IBM Real-time CompressionTM, 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 that are tasked with deploying a VersaStack solution with Microsoft Sequel (SQL), IBM SpectrumTM Protect, and IBM Spectrum ControlTM.

The LISP Network

The complete guide to seamless anytime/anywhere networking with LISP In an era of ubiquitous clouds, virtualization, mobility, and the Internet of Things, information and resources must be accessible anytime, from anywhere. Connectivity to devices and workloads must be seamless even when people move, and their location must be fully independent of device identity. The Locator/ID Separation Protocol (LISP) makes all this possible. The LISP Network is the first comprehensive, in-depth guide to LISP concepts, architecture, techniques, behavior, and applications. Co-authored by LISP co-creator Dino Farinacci and Victor Moreno–co-developer of the Cisco LISP implementation–it will help you identify the opportunities and benefits of deploying LISP in any data center, campus and branch access, WAN edge, or service provider core network. This largely implementation-agnostic guide will be valuable to architects, engineers, consultants, technical sales professionals, and senior IT professionals in any largescale network environment. The authors show how LISP overcomes key problems in large-scale networking, thoroughly introduce its key applications, guide you through designing real-world solutions, and present detailed deployment case studies based on their pioneering experience. · Understand LISP’s core principles, history, motivation, and applications · Explore LISP’s technical architecture, components, mechanisms, and workflows · Use LISP to seamlessly deliver diverse network services and enable major advances in data center connectivity · Improve mobility, network segmentation, and policy management · Leverage software-defined WANs (SD-WANs) to efficiently move traffic from access to data center · Evolve access networks to provide pervasive, mega-scale, high-density modern connectivity · Integrate comprehensive security into the networking control and data plane, and learn how LISP infrastructure is protected against attacks · Enforce access control policies, connection integrity, confidentiality for data in flight, and end-point anonymity · Discover how LISP mobility mechanisms anticipate tomorrow’s application use cases

Interconnecting Data Centers Using VPLS

This book describes Cisco's break-through solutions that solve the network traffic problems created by Virtualization technologies.- Design guidance and configuration examples that follow Cisco best practice recommendations for the new Data Center Interconnect strategy.- Multiple deployment models provided for readers to choose the solution most compatible with their requirements to ensure their business resiliency.- Thorough description of data center technologies used in the deployment solu-tions. Data availability and business resiliency is becoming a critical requirement for a wide range of enterprises. To address these issues, organizations provide dedicated networks to guarantee perfor-mance and high availability. However, this approach can involve significant expenses and complexity. Organizations require cost-effective, comprehensive solutions that provide for economical, efficient, and effective deployment of a network that allows business resiliency. Companies today typically deploy two separate networks: one network for Layer 3, and an optical network that is dedicated to virtualization technologies. Today, these virtualization technologies require Layer 2 connectivity, which has caused an expansion of Layer 2 domains. Larger networks must provide the required Layer 2 connectivity to ensure high availability between geographically dispersed data centers. As a result, customers are facing issues such as maintaining the high availability of applications and dealing with complex multi-site interconnections. Companies require a deployment that effectively transports Layer 2 information, which allows a virtualization solution to operate effectively. The solutions in this book offer significant cost savings by eliminating the need for a dedicated optical network.

Deploying Cisco Wide Area Application Services

Implement advanced WAN optimization, application acceleration, and branch virtualization with Cisco WAAS 4.1 This book brings together all the information you need to design and deploy scalable, transparent application acceleration, WAN optimization, and branch virtualization solutions with dramatically improved Wide Area Application Services (WAAS) 4.1 products from Cisco®. Cisco WAAS insiders Joel Christner, Zach Seils, and Nancy Jin systematically cover new WAAS software enhancements that enable far better performance, simplified workflow, and improved manageability. They introduce powerful new solution components including application-specific acceleration techniques, hardware form factors, and virtualization. They also thoroughly explain recent architectural improvements that provide a solid foundation for future WAAS solutions. The authors begin by reviewing the underlying technologies that comprise today's Cisco WAAS solution. Next, drawing on extensive personal experience, they walk through collecting requirements, designing effective solutions, integrating WAAS into existing networks, and configuring WAAS 4.1 software. This book is replete with real-world implementation examples and case studies– including extensive coverage of network, branch office, and data center integration. One step at a time, you'll learn how to deploy Cisco WAAS in a scalable, transparent, and seamless fashion: one that addresses both your business and technical challenges. Thoroughly understand WAAS 4.1's capabilities, and learn how to use and manage it effectively Understand both the Cisco WAAS appliance and router-integrated network module hardware family Quickly deploy WAAS in lab or production pilot environments to quantify its potential benefits Size, design, and deploy Cisco WAAS for maximum performance and value in your enterprise network Compare and select design options for branch office and data center network integration Deploy the WAAS Central Manager and accelerator WAAS devices Implement centralized authentication, authorization, alarm management, monitoring, and reporting Configure WAN optimization with the Application Traffic Policy Manager Configure, verify, and manage application acceleration Leverage WAAS 4.1's powerful new branch office virtualization capabilities Quickly troubleshoot WAAS problems using Cisco's own best practices 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.