

Practical Guide To Understand The Basics Of Cisco Viptela Based SD-WAN Solution

In today's digital era, businesses are looking for efficient, flexible, and secure ways to connect their distributed networks. Cisco's Viptela software-defined wide area network (SD-WAN) solution has emerged as a leading choice for enterprises seeking to streamline their networking infrastructure and improve connectivity across branches.

In this practical guide, we will dive deep into the basics of Cisco Viptela and uncover essential information that will help you unlock the benefits of this innovative SD-WAN solution.

Understanding SD-WAN

Before we delve into the specifics of Cisco Viptela, let's clarify the concept of SD-WAN. SD-WAN is a technology that simplifies the management and operation of a wide area network by decoupling the networking hardware from its control mechanism.



Cisco SD-WAN: A Practical Guide to Understand the Basics of Cisco Viptela Based SD-WAN

solution by Susan Lundy([Print Replica] Kindle Edition)

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Traditional WAN architectures rely on multiple devices such as routers and firewalls to route traffic between branch offices, leading to complex configurations, potential security vulnerabilities, and higher costs. SD-WAN replaces these legacy setups by centralizing network management and control, allowing for seamless connectivity, superior application performance, and significant cost savings.

Cisco Viptela is Cisco's response to the growing demand for high-performance SD-WAN solutions.

Key Components of Cisco Viptela

Now that we understand the fundamentals of SD-WAN, let's explore the key components of Cisco Viptela:

1. **vBond Orchestrator:** The vBond Orchestrator is responsible for authenticating and bringing up control plane connectivity between various SD-WAN elements. It orchestrates all security protocols and certificate exchanges necessary for a secure deployment.
2. **vSmart Controller:** The vSmart Controller serves as the brain of the Cisco Viptela SD-WAN solution. It is responsible for the control plane functionalities, including routing, policy enforcement, and traffic management. The vSmart Controller plays a crucial role in ensuring optimized traffic flow and secure connectivity across the network.
3. **vEdge Routers:** The vEdge routers, deployed at branch offices, act as the data plane elements of the Cisco Viptela solution. They establish IPsec tunnels to connect to the vSmart Controller and enable seamless connectivity across the SD-WAN network.

4. vManage: vManage is a centralized management dashboard that provides a comprehensive view of the entire SD-WAN infrastructure. It allows network administrators to configure, monitor, and troubleshoot the network, ensuring efficient operations and superior user experience.

Benefits of Cisco Viptela

Cisco Viptela offers several advantages over traditional networking solutions, including:

1. Enhanced Security: With Cisco Viptela, data traffic is encrypted and secured, protecting sensitive business information from potential threats.

2. Improved Performance: The centralized control and intelligent routing capabilities of Cisco Viptela ensure optimized application performance, even in highly distributed networks.

3. Cost Savings: By simplifying network management, reducing hardware dependencies, and leveraging affordable internet connections, Cisco Viptela can significantly lower operational costs for businesses.

4. Scalability: Cisco Viptela's modular architecture allows for easy scalability, accommodating the growth and changing needs of organizations without affecting performance.

Implementing Cisco Viptela

Now that we have understood the basics and benefits of Cisco Viptela, let's outline a high-level approach for implementing this SD-WAN solution:

1. Assess Your Network: Conduct a thorough assessment of your existing network infrastructure to identify pain points and understand the requirements for

implementing Cisco Viptela.

2. Planning and Design: Create a detailed implementation plan that includes network design, device placement, and security considerations. Ensure your design aligns with your business goals and compliance requirements.

3. Deployment: Deploy the necessary hardware and software components based on the design. Configure and connect vSmart Controllers, vBond Orchestrator, vEdge routers, and vManage.

4. Testing and Optimization: Conduct extensive testing to verify connectivity, performance, and security. Optimize the network configuration to ensure the best possible user experience.

5. Monitoring and Management: Leverage the capabilities of vManage to monitor your SD-WAN infrastructure, proactively identify issues, and make necessary adjustments for optimal performance.

Cisco Viptela offers a practical and efficient solution for organizations aiming to modernize their networking infrastructure and unlock the benefits of SD-WAN. By understanding the basics of Cisco Viptela and its key components, businesses can streamline network operations, enhance security, improve application performance, and reduce costs.

Implementing Cisco Viptela requires careful planning and execution, but the resulting flexibility, scalability, and efficiency make it a compelling choice for organizations of all sizes.

Stay ahead of the networking curve by embracing the power of Cisco Viptela and taking your SD-WAN strategy to the next level!



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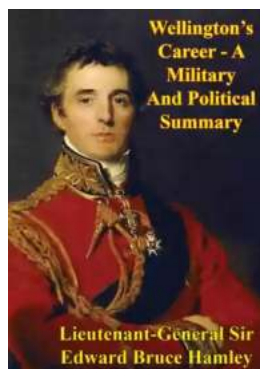
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I wrote this book primarily for those of you who want to learn the basics of a Cisco SD-WAN solution. The first two chapters explain how to set up your local test environment. You will learn how to install certificates to vBond, vManage, vSmart, and vEdge and how to set up underlay and Out-of-Band management network connections. Chapter three introduces a centralized control plane with the Overlay Management Protocol (OMP) running between vEdges and vSmart. After reading this chapter, you should be familiar with how overlay tunnels between vEdges are built by using TLOC routes. Besides, you learn how Service VPN routing information is advertised by using OMP routes. This chapter also introduces the data-plane operation explaining how Service VPNs are segmented in the WAN data plane by using labels. The fourth chapter explains the end-to-end control-plane operation and data-plane encapsulation over the SR-MPLS transport network. Besides, you will learn some of the basic concepts of the IS-IS Segment-Routing extension. The fifth chapter introduces how you can implement Hub and Spoke overlay topology by filtering TLOC routes using Centralized Policy. You will learn how Lists are used within a Control Policy and how the Control Policy, in turn, is attached to Centralized Policy. The sixth chapter introduces Feature Templates in which you set protocol and feature specific values. Then it shows how Feature Templates are attached to Device Template

which in turn is attached to devices. This chapter also introduces CLI Templates with device-specific variables. Chapter seven explains how you can use TLOC Extension for transport network connection in dual-homed sites. Chapter eight discusses LAN side BGP routing. It shows how to implement BGP using Feature Templates as well as CLI configuration. It also explains how you can build a Centralized Policy to filter out unnecessary OMP routes. Chapter nine explains how to do preference-based traffic engineering, again with Centralized Policy. Chapter 10 introduces Application-Aware Routing. It starts by explaining how BFD probes are used for tunnel Health Monitoring and how the AAR uses the RTT of BFD probes to monitor the Path Quality. The last chapter explains how to build a Direct Cloud Access (DCA), where the remote-sites user can access applications hosted in Cloud provider networks using the local Internet connection while all other traffic is sent over SD-WAN overlay tunnels. You will also learn how to filter DCA traffic with a centrally managed Zone-Based Firewall.

Network topologies used in this book are built with the minimum amount of devices in order to keep examples as simple as possible.



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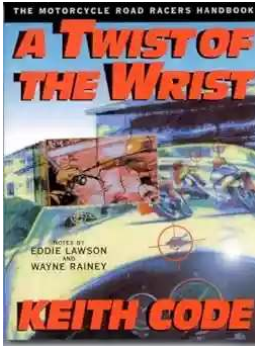
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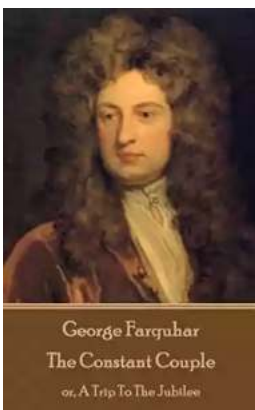
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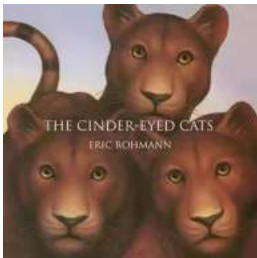
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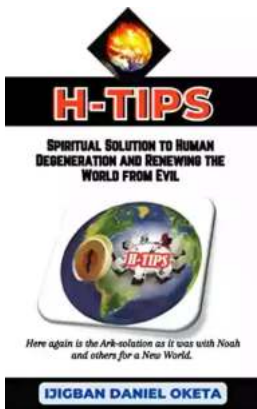
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