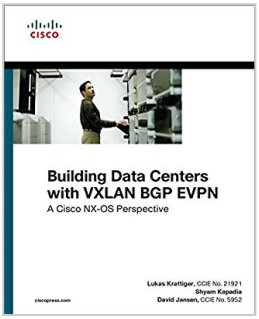

Building Data Centers with VXLAN BGP EVPN: A Cisco NX-OS Perspective (Networking Technology)

By Lukas Krattiger, Shyam Kapadia, David Jansen

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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

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Editorial Review

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Shyam Kapadia is a principal engineer in the Data Center Group at Cisco Systems. With more than a decade of experience in the networking industry, Shyam holds more than 30 patents and has coauthored the book *Using TRILL, FabricPath, and VXLAN: Designing MSDC with Overlays*. In his 10 years at Cisco, Shyam has worked on a number of products, including the Catalyst and Nexus families of switches, with special emphasis on end-to-end data center solutions, including automation and orchestration. He holds a Ph.D. and master’s degree from the University of Southern California in the field of computer science. Over the past 15 years, Shyam has been the Program Chair for the Southern California Linux Exposition (SCALE). He lives in California with his wife, enjoys watching international movies, and is passionate about sports including cricket, basketball, and football.

David Jansen, CCIE No. 5952 (*Routing/Switching*), is a distinguished systems engineer (DSE) for Cisco, specializing in data center, campus, branch/WAN, and cloud architectures. He has 20 years of experience in the industry and has earned certifications from Novell, VMware, Microsoft, TOGAF, and Cisco. His focus is working with global enterprise customers to address their challenges with comprehensive end-to-end data center, enterprise, WAN/Internet, and cloud architectures. David has been with Cisco for more than 19 years; for the last 4 years or so as a DSE, he has gained unique experiences in building next generation data center solutions. David has a bachelor's degree in computer science engineering from the University of Michigan and a master's degree in adult education from Central Michigan University.

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