



Cisco Nexus Fabric Manager: Get Point-and-Click Fabric Lifecycle Management

BENEFITS

- Simplified fabric management through a focus on workflows rather than protocols and CLI commands
- Day-0, day-1, and day-2 fabric task automation and simplification through a fabric-aware control engine
- Centralized fabric management and monitoring through an efficient point-and-click web user interface
- Powerful switch image management workflows combined with an embedded image repository
- Intelligent fault management facility with self-remediation capabilities
- Full topology discovery, including Cisco Discovery Protocol and Link-Layer Discovery Protocol (LLDP)–enabled endpoint devices

In two simple steps, build a new Virtual Extensible LAN (VXLAN)–based fabric or add a new switch to an existing fabric: this is the power of Cisco Nexus[®] Fabric Manager.

Overview

Your business today must rapidly adapt to continuously changing demands to stay relevant in a competitive marketplace. When new services and applications are ready to launch or are required for your business to grow, your network infrastructure needs to adapt rapidly to support them. IT departments need tools that can help them accelerate infrastructure changes as they also simplify the lifecycle management of data center fabrics.

Cisco Nexus Fabric Manager provides the tools that your IT department needs. By using fabric-aware intelligent algorithms as part of the full lifecycle management of data center fabrics, the fabric manager

changes the focus from complex command-line interface (CLI) commands and network protocols to workflows. Administrators need only describe what tasks need to be completed in the fabric, and the fabric manager implements them in the fabric automatically. Network operators interact with the fabric manager through a simple and highly intuitive point-and-click web interface. With the powerful new fabric management capabilities enabled by Cisco Nexus Fabric Manager, when your new services and applications are ready, so is your fabric.

Trends and Challenges

Rapidly Deploy and Expand Data Center Fabrics

Cisco Nexus Fabric Manager greatly simplifies the process of building and expanding a data center fabric. Instead of requiring network operators to focus on protocols and CLI-based configuration, the fabric manager completely builds all switch configurations based on the discovered switch topology. After switches are cabled in a leaf-and-spine topology, the fabric manager discovers the switch fabric and relevant switch roles and uses this information to completely build the VXLAN-based fabric. When new switches are cabled and added to the fabric, the fabric manager also discovers these new switches and builds their dynamic configurations and automatically adds them to the fabric. Building and expanding fabrics couldn't be easier.

Eliminate Costly Switch Configuration Errors

According to the Cisco® Technical Assistance Center (TAC), a large majority of all network faults are caused by misconfiguration. Cisco Nexus Fabric Manager eliminates these faults because all switch configurations at the CLI level is performed and managed entirely by the fabric manager. Network operations staff no longer need to be experts at switch CLI configurations, nor at highly complex VXLAN-based configurations. Operators simply use the intuitive point-and-click web interface and tell the fabric manager what they require. The fabric manager then builds and updates the appropriate switch configurations.

Easily Upgrade or Replace Switch Hardware and Software

Upgrading software on supported switches is as easy as choosing an image and assigning it to an upgrade group task. This newly created task, which may consist of several switch upgrades, can be then run at a time that you specify.

And if you need to replace a switch because of a hardware refresh or return materials authorization (RMA), simply add the new switch and assign it to the role of the target switch. The Cisco Nexus Fabric Manager will then rebuild the dynamic configuration for the new switch and put it in service.

How It Works/Key Features/Components

How It Works

Cisco Nexus Fabric Manager provides a simplified way to build and manage fabrics, all based on CLI-free user requests. The fabric manager performs the time-consuming tasks of creating, installing, and maintaining appropriate fabricwide switch configurations. Because it is fabric aware, the fabric manager also understands how the fabric should operate and can autonomously maintain fabric health throughout its lifecycle, as shown in Figure 1. Users can focus on delivering business applications and leave the complexities of data center fabric lifecycle management to the fabric manager.

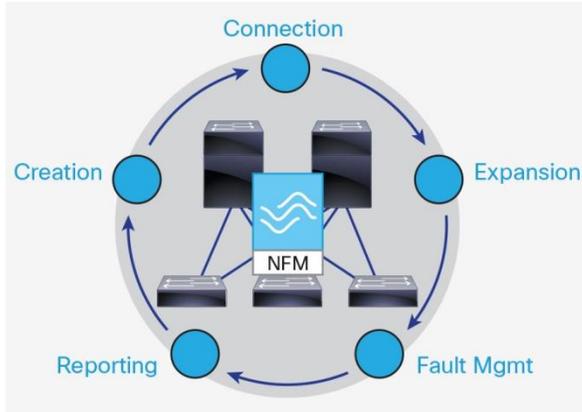
In the background, Cisco Nexus Fabric Manager autonomously implements and self-manages a VXLAN-based topology with an Ethernet VPN (EVPN) control plane. This technology choice provides a fabric that can meet both current and future fabric requirements while using a common network topology and open protocols.

Other fabric management solutions typically provide just the capability to schedule and push static CLI scripts previously defined by the user to one or more devices to achieve the desired fabric operation. These management solutions have no understanding of the fabric state or the fabric's proper topology or operation: a device is just a device. This common approach still requires users to understand complex network protocols and their CLI commands.

The Cisco Nexus Fabric Manager solution differs significantly from other solutions in that the core component of the solution, the management engine, is fabric aware: that is, it understands the topology, the roles of all switches, and the numerous protocols in use to deliver the required fabric functions. This awareness enables the fabric manager to build and manage the fabric on behalf of the user. This fabric awareness also enables such features as a fabricwide configuration snapshots and rollback.

This fabric awareness also enables the fabric manager to proactively look for faults and offer point-and-click resolutions to the user and in many cases to autonomously perform the required actions.

Figure 1. Fabric Management Lifecycle



Main Features

Cisco Nexus Fabric Manager enables you to build and manage a data center fabric through fabric management workflow automation delivered through a web-based user interface. Fabric bring-up, port-channel, and broadcast domain management are the most common yet time-consuming IT operations that the fabric manager offloads through its intelligent fabric-aware engine. Enhanced statistics and fabric monitoring capabilities with task and fault management enables the system administrator to quickly assess fabric health and reallocate resources as needed. Advanced processes including switch software upgrades and RMAs are also part of the management feature set delivered by the fabric manager. Table 1 summarizes the main features of the fabric manager.

Table 1. Main Features

Feature	Description
Self-configured and self-managed fabric topology	<ul style="list-style-type: none"> • Full VXLAN-based fabric topology completely built and managed by the fabric manager with a few simple steps • No CLI interaction required
VXLAN-based topology	<ul style="list-style-type: none"> • Fully automated VXLAN-based topology using open Ethernet VPN (EVPN) control plane • Easy creation and management of VXLAN anycast gateways
Simple point-and-click GUI	<ul style="list-style-type: none"> • Highly intuitive point-and-click GUI with simplified workflows for completing day-0, day-1, and day-2 fabric management tasks • Two views to work with, including a tiles view and a fully actionable topology view
Fully discovered fabric topology	<ul style="list-style-type: none"> • Full fabric discovery of fabric switches and connected hosts and hypervisors enabled with Cisco Discovery Protocol or LLDP
Fabricwide focus	<ul style="list-style-type: none"> • Managed fabric treated as a single object within the system • Fabricwide aggregation of subobjects, including switches, switch interfaces, hosts, broadcast domains, and gateways, for easy sorting, filtering, and application of workflows

Feature	Description
Port-channel and virtual port-channel (vPC) management	Easy workflows for creating host-facing port channels and vPCs with no CLI interaction
Broadcast domain creation and management	<ul style="list-style-type: none"> • Simplified creation of fabricwide broadcast domains from both GUI views (tiles and topology) • Automated translation of broadcast domain definition to VXLAN configuration • Automatic installation of dynamic VXLAN configuration in fabric switches
Virtual Routing and Forwarding (VRF) instance creation and management	<ul style="list-style-type: none"> • Simplified creation and management of VRF topologies
Switch image management	<ul style="list-style-type: none"> • Embedded switch image repository and easy switch image management workflows, including switch software upgrades • Use of upgrade groups to group switches for sophisticated upgrade procedures
Switch RMA workflow	<ul style="list-style-type: none"> • Simple 2-step switch RMA workflow for replacing or upgrading switch hardware • New dynamic configuration automatically built and pushed to new switch
Fabric expansion workflow	Simple 2-step fabric expansion, including autodiscovery and autoconfiguration of new switches based on existing fabric state
Snapshots and rollback	<ul style="list-style-type: none"> • GUI-enabled fabric snapshot and rollback facility for rapid restoration to previous fabric configuration
Representational state transfer (REST) API	<ul style="list-style-type: none"> • Well-structured northbound REST API with 100% feature coverage • Support for GET, PUT, POST, and DELETE methods

Components

Cisco Nexus Fabric Manager consists of a single virtual machine that is deployed in the data center together with existing management applications and appliances. It is distributed as a single Open Virtualization Archive (OVA) file and requires IP reachability to the management interfaces of fabric switches.

Use Cases

Table 2 presents typical use cases for Cisco Nexus Fabric Manager.

Table 2. Use Cases

Use Case	Description
Rapidly deploy and manage a new data center fabric	<ul style="list-style-type: none"> • Point-and-click mechanism to discover and build fabric • Operations-friendly workflow-based fabric management • Comprehensive data center fabric lifecycle management
Adopt a VXLAN-based fabric architecture	<ul style="list-style-type: none"> • Automated creation of VXLAN leaf-and-spine architecture • Dynamic switch CLI configuration based on best practices • Use of open EVPN control plane in VXLAN implementation
Simplify network operations	<ul style="list-style-type: none"> • Workflow-based management • No-CLI fabric management • Point-and-click implementation of day-0, day-1, and day-2 tasks

Why Cisco?

Cisco continues to build data center networking solutions that bring a powerful set of benefits and business enablers to all market segments: from small and medium-size businesses to large-scale enterprises and service providers. Cisco is uniquely positioned to understand how data centers will grow over time and how the requirements that both IT and business place on data center environments will evolve.

Cisco Nexus Fabric Manager provides a solution for those customers who want a simplified point-and-click approach to building industry-leading data center fabrics.

Cisco Capital

Cisco Capital Financing to Help You Achieve Your Objectives

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Next Steps

For more information about the Cisco Nexus Fabric Manager solution, see <http://www.cisco.com/go/nexusfabricmanager>

To evaluate Cisco Nexus Fabric Manager, contact your Cisco sales representative or Cisco authorized channel partner.



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