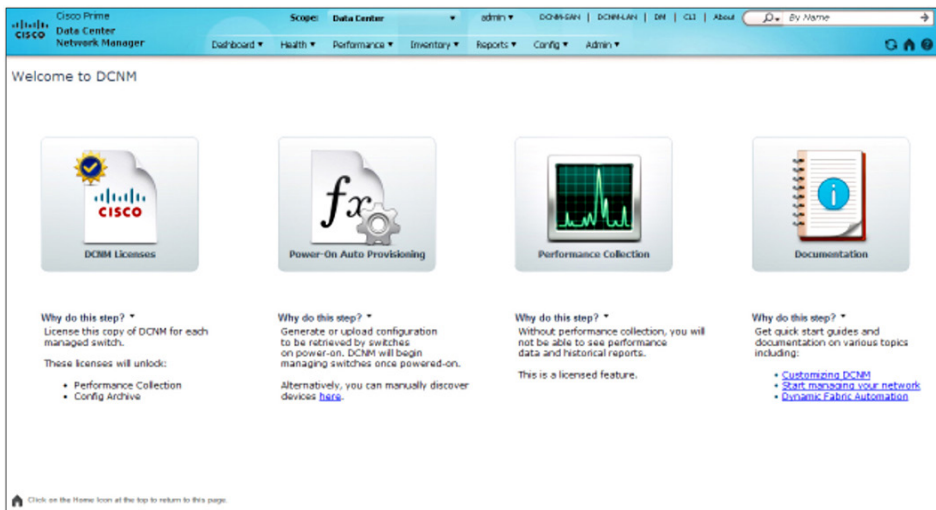# Cisco Prime Data Center Network Manager Release 7.0

Overview

Cisco Prime™ Data Center Network Manager (DCNM) software provides ready-to-use, large-scale, standards-based, extensible management capabilities for Cisco® Dynamic Fabric Automation (DFA). Cisco Prime DCNM 7.0 includes the infrastructure necessary to operate and automate a Cisco DFA network fabric. Cisco Prime DCNM 7.0 policy-based deployment helps reduce labor and operating expenses (OpEx). Cisco Prime DCNM 7.0 integrates with external hypervisor solutions and third-party applications using a Representational State Transfer (REST) API.

Problems That Cisco Prime DCNM 7.0 Helps Solve

Rapid deployment, consistent configuration of devices, and the capability to view a large data center fabric are significant network management system (NMS) and operations support system (OSS) challenges. In addition, synchronization of physical network devices with multitenant cloud orchestration operations is difficult and may require significant investment in custom management solutions or operations. Cisco Prime DCNM 7.0 addresses these challenges with efficient Power-On Auto-Provisioning (POAP) support, tenant-oriented autoconfiguration, an enhanced visualization dashboard, and REST APIs.

Features

- With POAP, you preconfigure a role mapping for a new switch to a template – for example, a Leaf template or a Spine template – and when the switch launches, it will automatically be configured with the correct software image. Templates have smart decision logic and are easily customizable.

- Smart templates for POAP let you import a list of devices and parameter ranges into the template instance so that you avoid repetitive data entry for each device (Figure 1). Decision logic, pop-up comments, and the capability to save parameters for reuse reduce the effort of installing devices and extending the fabric.

Figure 1. Cisco Prime DCNM Smart Template
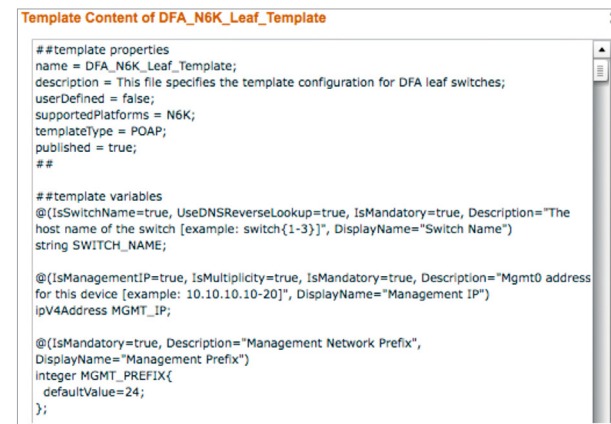
- Autoconfiguration lets the orchestrator push information to Cisco Prime DCNM so that switch ports are automatically provisioned for new or moved workloads. Cisco Prime DCNM stores organization and tenant, partition, and network data used by the switch's autoconfiguration mechanism.

- Cable-plan management functions help manage physical device connections and ensure that devices are installed correctly, as the operator intended. Cisco Prime DCNM generates and keeps track of cable plans for efficient operations awareness. The user can import an existing cable plan for a predesigned configuration or automatically create a new cable plan from the POAP configuration or an existing, discovered fabric.

- Device autoconfiguration and tenant awareness enable automatic network configuration of an organization's or tenant's workload on the switch port. Cisco Prime DCNM manages these configurations and exposes a northbound API that interfaces with the orchestrator. Thus, when the hypervisor manager deploys a new workload such as a virtual machine or a physical device, the system can automatically detect the action and provision the Cisco DFA fabric accordingly. When a workload such as a virtual machine moves from one host on the network to another on a different fabric switch, the system automatically provisions the workload on the new switch.

- With the ready-to-use extensible open virtual appliance (OVA), you can deploy Cisco Prime DCNM and very quickly implement a Cisco DFA fabric management solution.[1] The OVA includes the standards-based infrastructure and protocols necessary to deploy a Cisco DFA network, including:

  - Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) server

  - Secure file server for switch images, command-line interface (CLI) templates, cable plans, and scripts

  - Cisco Jabber® Extensible Communications Platform (XCP) publish and subscribe messaging server

  - Lightweight Directory Access Protocol (LDAP) multiorganization and multitenant autoconfiguration data server

  - Advanced Message Queuing Protocol (AMQP) message broker and REST API

- Enhanced fabric display visualization includes an innovative fabric health display to provide a view of large fabrics (Figure 2). This highly scalable display shows link-related anomalies, including misconfiguration. Pop-up notifications show the intended connectivity measured against the fabric's cable plan for rapid troubleshooting on a large fabric. The display shows the number of links that are down on a given device and indicates which connectivity is affected and whether any devices are unreachable.

Figure 2. Cisco Prime DCNM Enhanced Fabric Display
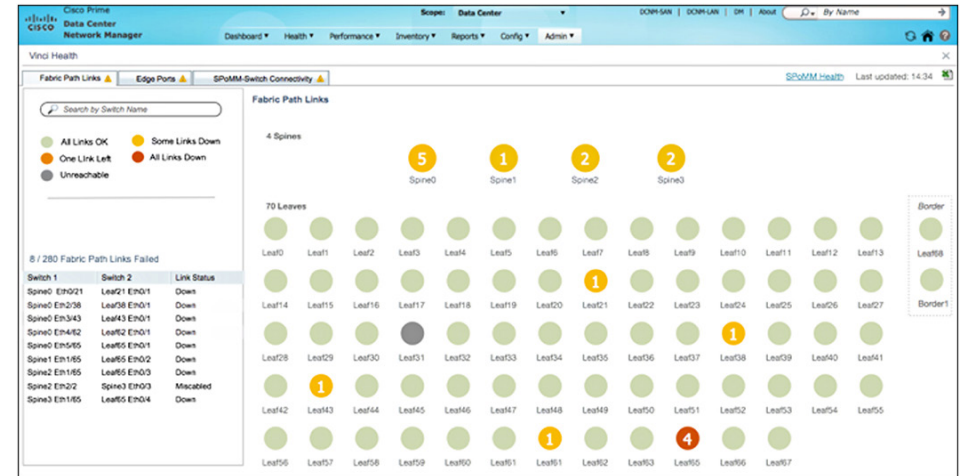
- Organization or tenant search on the fabric includes a unique search feature with which the user can search for networks that match a given organization or tenant (Figure 3). The display shows which switches carry the tenant's workload: either virtual machine or physical device traffic for that network.

Figure 3. Cisco Prime DCNM Organization or Tenant Search
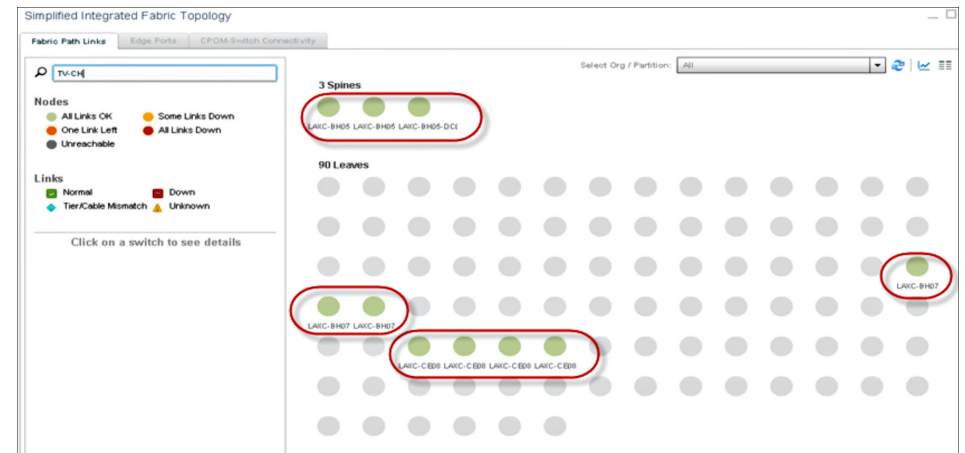
[1] Based on internal tests; additional information available on request

- REST API and AMQP event bus for third-party cloud integration supports integration with hypervisor and cloud management systems such as OpenStack and VMware vCloud Director or third-party NMS and OSS automation systems. REST APIs use Java Standard Object Notation (JSON) format to make integration simple and straightforward. The AMQP event bus facilitates automation and synchronization with external agents.

Targeted Users

Cisco DFA users should deploy the Cisco Prime DCNM 7.0 OVA. Cisco Prime DCNM 7.0 includes new infrastructure to support this deployment. Existing customers who want to deploy fabrics that support Cisco DFA using existing Cisco Nexus® Family switches should deploy Cisco Prime DCNM 7.0 as part of any new Cisco DFA fabric deployment.

Users not using Cisco DFA should continue to use the Cisco Prime DCNM 6.0 release train until the next minor release of Cisco Prime DCNM 7.0, targeted for 2HCY14.

Customers deploying Cisco Prime DCNM 7.0 should follow the instructions provided in the installation guide for the Cisco Prime DCNM 7.0 virtual appliance with regard to VMware virtual machine requirements. Cisco Prime DCNM 7.0 requires VMware vSphere 5.1 hypervisor hosts.

Ordering Information

Cisco Prime DCNM 7.0 software is offered for order at no charge. You can download software here. Baseline Cisco DFA support is included without additional per-device licensing.

Cisco Prime DCNM 7.0 is available only as an OVA for VMware vSphere deployments.

Benefits

Cisco Prime DCNM 7.0 helps simplify, automate, and optimized new Cisco DFA fabrics. With Cisco Prime DCNM 7.0, customers can rapidly deploy and integrate new Cisco DFA networks in multitenant solutions. Standards-based protocols and mechanisms allow flexible deployment as your Cisco DFA fabric evolves. Preintegrated functions and innovative features help reduce OpEx and enhance operations capabilities.

Why Cisco?

Cisco Prime DCNM 7.0 provides innovative and forward capabilities. Cisco Prime DCNM 7.0 extends fabric management capabilities specifically to meet the demands of Cisco Nexus switches in a Cisco DFA evolved unified fabric.

For More Information

For more information about Cisco Prime DCNM, visit http://www.cisco.com/go/DCNM or contact your local account representative.

For more information about Cisco DFA, visit http://www.cisco.com/go/DFA or contact your local account representative.