Cisco Extensible Network Controller Overview

This chapter contains the following sections:

About Cisco Extensible Network Controller

Cisco Extensible Network Controller (XNC) is a software platform that serves as an interface between the network elements (southbound) and third-party applications (northbound). Cisco XNC, which is a JVM-based application that runs on a Java Virtual Machine (JVM), is based on a highly available, scalable, and extensible architecture. Cisco XNC is built for extensibility using the Open Services Gateway initiative (OSGi) framework.

Cisco XNC can support multiple protocol plugins in the southbound direction. In Release 1.7, Cisco Plug-in for OpenFlow 1.0 and the Cisco One Platform Kit (onePK) 1.3.0 are supported.

Cisco XNC provides the following:

- Multiprotocol capability with the Cisco Plug-in for OpenFlow.

- Functionality to support network visibility and programmability, such as network topology discovery, network device management, forwarding rules programming, and access to detailed network statistics.

- A Service Abstraction Layer (SAL) that enables modular southbound interface support, such as OpenFlow.

- Consistent management access through the GUI or through Java or Representational State Transfer (REST) northbound APIs.

- Security features, such as role-based access control (RBAC), and integration with an external Active Directory using RADIUS or TACACS for authentication, authorization, and accounting (AAA) functions.

- Troubleshooting tools, such as analytics gathering and diagnostic packet injection.

- Cisco advanced features such as Topology Independent Forwarding (TIF), which enables the administrator to customize the path a data flow takes through the network.

- Cisco network applications such as Network Slicing that allows logical partitioning of the network using flow specification, and Cisco Monitor Manager, which provides visibility into the network traffic.

- High-availability clustering to provide scalability and high availability.

- The Cisco Open Network Environment Platform Kit (Cisco onePK) version 1.3.0 is supported in Release 1.7 of Cisco XNC. The Cisco onePK plug-in communicates with the onePK agent.

- Support for onePK devices in the network and the ability to install TIF rules on onePK devices.

- A command line interface (CLI) framework for Cisco XNC.

- The Virtual Patch Panel Application (Port-to-Port Forwarding application) provides port-to-port traffic management within a switch or across the network without any need for physical connection changes or rewiring.

- Access to the Cisco XNC northbound API content from the application menu bar that enables you to view the API definitions and related calls.

Guidelines and Limitations

Cisco Extensible Network Controller (XNC) runs in a Java Virtual Machine (JVM). As a Java-based application, Cisco XNC can run on any x86 server. For best results, we recommend the following:

- One 6-core CPU at 2 GHz or higher.

- A minimum of 8 GB of memory.

- A minimum of 40 GB of free hard disk space must be available on the partition where you will be installing the Cisco XNC application.

- A 64-bit Linux distribution with Java, such as the following:

    ◦ Ubuntu Linux

    ◦ Red Hat Enterprise (RHEL) Linux

    ◦ Fedora Linux

- Java Virtual Machine 1.7.x

- A $JAVA_HOME environment variable in your profile set to the path of the JVM.

Supported Web Browsers

The following web browsers are supported for Cisco XNC:

- Firefox 18.x and later versions

- Chrome 24.x and later versions

Note   JavaScript 1.5 or a later version must be enabled in your browser.