



# CHAPTER 1

## Cisco Prime Network Activation Overview

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This chapter describes the overall purpose, features, and functions of Cisco Prime Network Activation (Network Activation). Topics include:

- [Network Activation Overview, page 1-1](#)
- [Network Activation Architectural Overview, page 1-8](#)
- [Network Activation User Roles and Privileges, page 1-10](#)
- [Supported Platforms for Network Activation, page 1-10](#)
- [Viewing Network Activation, page 1-11](#)

### Network Activation Overview

Network Activation is a Cisco Prime Network (Prime Network) activation feature for users who want to deploy activations such as Carrier Ethernet, IP Radio Access Network (RAN), and Mobile Transport over Pseudowire (MToP) activations, using an activation wizard launched from the Cisco Prime Network Vision GUI. Network Activation provides:

- A predefined collection of activation wizards, workflows, and scripts that allow you to begin activating services on Cisco network elements.



#### Note

The activations (templates, scripts, and workflows) provided with Cisco Prime Network Activation are reference configuration examples to aid in customer implementation activities and to demonstrate the capability of Prime Network Activation. They are not intended to be production-ready activations of any Carrier Ethernet, IP RAN, or MPLS VPN configurations. The activations are expected to require customer-specific implementation extensions. Implementation extensions and modifications to the software product are not supported via Cisco Support Agreements. If you require assistance in extending these activations, please contact Cisco Advanced Services.

- The ability for activation designers, network planners, and activation integrators to customize the wizards and workflows to address activation that need not be provided in the delivered Network Activation package.
- The ability for activation designers, network planners, and activation integrators to preview the activation and deactivation configuration without actually applying them on the network elements and to export the log of the configuration details and workflows, thus reducing troubleshooting effort in Network Activation.

- The ability for system administrators to view the activation events logged in Cisco Prime Network Events and monitor, acknowledge, and process the activation events.

Network Activation provides a visual mechanism for activation of component and service configuration on network elements. In addition, Network Activation open APIs allow it to be integrated with northbound provisioning systems. Network Activation therefore provides a GUI-based activation of device component and service configurations that can also be integrated into existing operational support system (OSS) environments.

**Note**

This guide provides information for using the wizards, workflows, and scripts provided in the delivered Network Activation package. For information about customizing the delivered wizards and workflows, or creating new ones, see the [Cisco Prime Network 3.8 Activation Customization Guide](#).

[Table 1-1](#) lists the Carrier Ethernet and MToP activations that you can activate with the wizards, workflows, and scripts provided with Network Activation.

**Note**

To perform activations in Network Activation, you must have privileges equal to Operator or higher level. For more information on user access roles, see [Network Activation User Roles and Privileges, page 1-10](#).

**Table 1-1** Carrier Ethernet and MToP Activations

Activation	Supported Devices	Activation Workflow
Business E-Line Activation	<ul style="list-style-type: none"> <li>• Cisco ASR 9000 Series</li> <li>• Cisco 7600 Series</li> <li>• Cisco ME 3400 Series (includes Ethernet)</li> <li>• Cisco 3750 Series</li> <li>• Cisco 4500 Series</li> <li>• Cisco ME 3600X and Cisco ME 3800X Carrier Ethernet Switches</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure Ethernet Private Line (EPL) &amp; Ethernet Virtual Private Line (EVPL) activation with all-in-one bundling and multiplexing on the same User Network Interface (UNI) capability.</li> <li>2. You have an option of creating access node configuration.</li> <li>3. Configure Ethernet Flow Point (EFP) level MAC layer security, ACL, and features.</li> <li>4. Configure EFP level flat and hierarchical QoS features.</li> </ol>
Business E-LAN activation with Virtual Forwarding Instance (VFI) on the aggregation node	<ul style="list-style-type: none"> <li>• Cisco 7600 Series</li> <li>• Cisco ME 3400 Series (includes Ethernet)</li> <li>• Cisco 3750 Series</li> <li>• Cisco 4500 Series</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure E-LAN sites with Switch Virtual Interface (SVI) and VFI association with Flex UNI; all in one bundling and activation multiplexing in the same UNI.</li> <li>2. You have an option of creating access node configuration.</li> <li>3. Add additional EFP to and from the existing site (broadcast domain).</li> <li>4. Configure EFP level MAC Layer security, ACL, and features.</li> <li>5. Configure EFP level flat and hierarchical QoS features.</li> </ol>

**Table 1-1** Carrier Ethernet and MToP Activations (continued)

Activation	Supported Devices	Activation Workflow
Business E-LAN with spoke on the aggregation node and VFI on the distribution node	<ul style="list-style-type: none"> <li>• Cisco 7600 Series</li> <li>• Cisco ME 3400 Series (includes Ethernet)</li> <li>• Cisco 3750 Series</li> <li>• Cisco 4500 Series</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure E-LAN sites with switch virtual interface (SVI) and VFI association on distribution nodes with EFP in a flex UNI: all in one bundling and activation multiplexing in the same UNI. These sites are on the distribution nodes.</li> <li>2. Configure EFP spoke on aggregation nodes with pseudowire to the distribution site.</li> <li>3. Add additional EFP to and from the existing site (broadcast domain).</li> <li>4. Configure EFP level MAC layer security, ACL, and features.</li> <li>5. Configure EFP level flat and hierarchical QoS features.</li> </ol>
Business E-LAN over Layer 3 VPN	<ul style="list-style-type: none"> <li>• Cisco ASR 9000 Series</li> <li>• Cisco 7600 Series</li> <li>• Cisco ME 3600X Ethernet Access Switches and Cisco ME 3800X Carrier Ethernet Switch Routers</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure Layer 3 VPN sites on aggregation nodes.</li> <li>2. Configure E-LAN with SVI and VFI with Layer 3 VPN association on aggregation nodes.</li> <li>3. Configure E-LAN with subinterface and Layer 3 VPN association on aggregation nodes.</li> <li>4. Add additional EFP to and from the existing site (broadcast domain).</li> <li>5. Configure EFP level MAC layer security, ACL, and features.</li> <li>6. Configure EFP level flat and hierarchical QoS features.</li> <li>7. Create an access node configuration.</li> </ol>
Residential High Speed Internet (HSI) Access	<ul style="list-style-type: none"> <li>• Cisco 7600 Series</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure a point-to-multipoint E-LAN in an aggregation node with all-in-one bundling and activation multiplexing: 1:1 and N:1.</li> <li>2. Configure an E-Line activation in a distribution node with all-in-one bundling.</li> <li>3. Create an access node configuration.</li> <li>4. Configure an EFP level MAC layer security with Access Control List (ACL) and features.</li> <li>5. Configure EFP level flat and hierarchical QoS features.</li> </ol>
MToP activation on 7600 CEOPS	<ul style="list-style-type: none"> <li>• Cisco 7600 Series CEOPS</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure ATM IMA, ATM/TDM pseudowire, and pseudowire redundancy on the aggregation node.</li> <li>2. Configure adaptive clock recovery.</li> </ol>
MToP activation on MWR 2941-DC	<ul style="list-style-type: none"> <li>• Cisco MWR 2941-DC Mobile Wireless Router</li> </ul>	<ol style="list-style-type: none"> <li>1. Configure ATM IMA, ATM/TDM pseudowire, and pseudowire redundancy.</li> <li>2. Configure Adaptive Clock Recovery of Sync-E.</li> <li>3. Configure Precision Time Protocol (PTP) clocking and clock recovery based on the IEEE 1588-2008 standard.</li> </ol>
Flat and hierarchical QoS class map and policy map creation and removal	<ul style="list-style-type: none"> <li>• Cisco ASR 9000 Series</li> <li>• Cisco 7600 Series</li> </ul>	<ol style="list-style-type: none"> <li>1. Create global level of class map and policy maps to be referenced by each of the activation instances when applicable.</li> <li>2. Modify class and policy maps.</li> <li>3. Delete global level of class map and policy maps.</li> </ol>

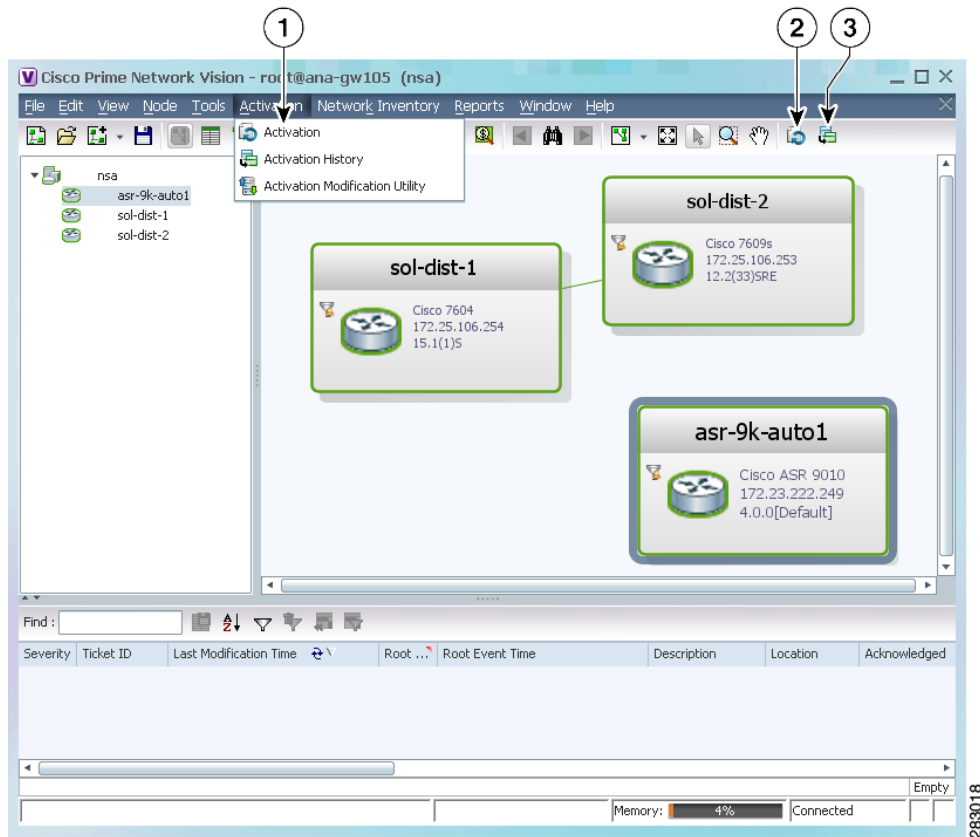
**Table 1-1** Carrier Ethernet and MToP Activations (continued)

Activation	Supported Devices	Activation Workflow
ACL creation and removal	<ul style="list-style-type: none"> <li>Cisco 7600 Series</li> </ul>	<ol style="list-style-type: none"> <li>Create global level of ACLs to be referenced by each of the activation instances, when applicable.</li> <li>Delete global level ACLs.</li> </ol>
Create MAC Secure Addresses	<ul style="list-style-type: none"> <li>Cisco 7600 Series</li> </ul>	Add MAC layer secure addresses to device permit table.

Network Activation wizards are accessed through Cisco Prime Network Vision using the activation toolbar or menu, as shown in [Figure 1-1](#).

Three menu and toolbar options are provided in Cisco Prime Network Vision :

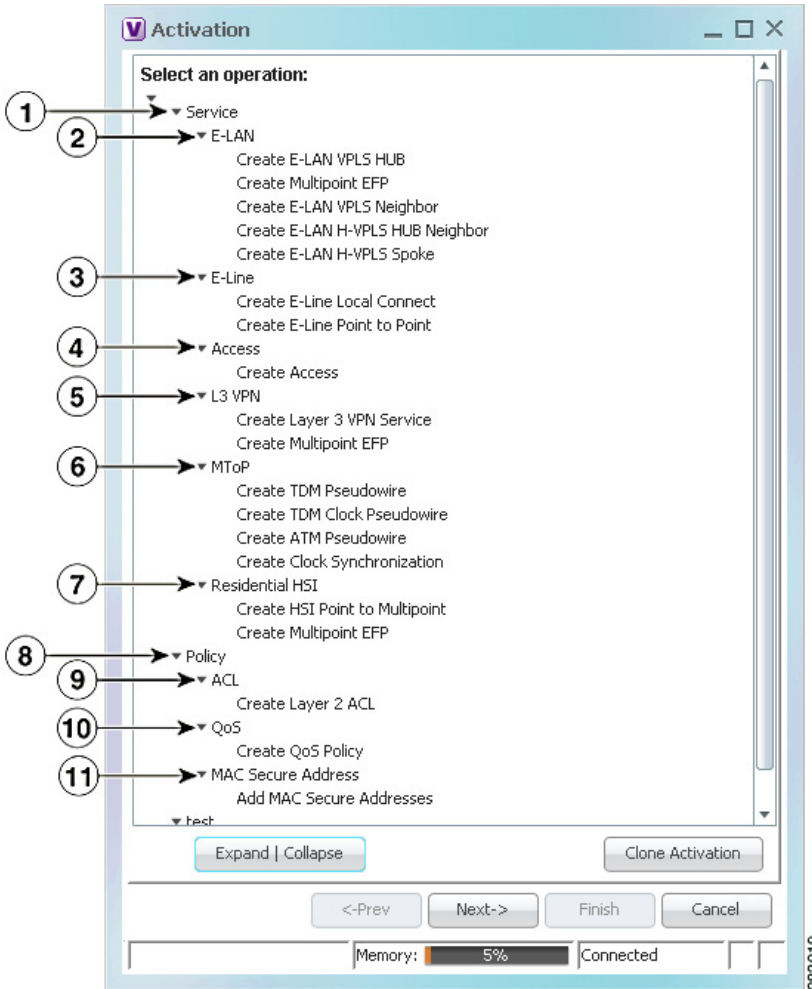
- Activation—Displays the activation window where you can choose the activation wizard to launch.
- Open Activations—Displays the activations that have been run.
- Activation Modification Utility—Is used by activation planners to download and upload wizard files. (For information on modifying activation wizards, see the [Cisco Prime Network 3.8 Activation Customization Guide](#).)

**Figure 1-1** The Activation Launch Point of Network Activation

1	Activation menu	3	Activations toolbar tool
2	Activation toolbar tool		

If you select to perform an activation, the activation window of Network Activation is displayed as shown in Figure 1-2.

Figure 1-2 The Activation Window of Network Activation



1	Activation wizards	7	Residential HSI wizards
2	E-LAN Wizard	8	Policy wizards
3	E-Line wizards	9	Layer 2 ACL wizard
4	Access wizard	10	QoS wizard
5	Layer 3 VPN wizard	11	MAC secure addresses wizard
6	MToP wizards		

The Network Activation installed package includes activation, policy, and MToP activation wizards. Preconfiguration wizards set up the devices for the activations, while the activation wizards activate the activations.

**Note**

Wizards provided in the Network Activation installed package can be modified and new wizards can be created. For information, see the [Cisco Prime Network 3.8 Activation Customization Guide](#).

Table 1-2 lists the activation wizards provided in the installed package.

**Table 1-2**      **Activation Wizards**

Wizard	Function
Create E-LAN VPLS Hub	Sets up a distribution device as a site to participate in an E-LAN activation instance and adds an EFP to the activation.
Create E-LAN VPLS Neighbor	Creates an E-LAN VPLS neighbor.
Create E-LAN EFP	Associates an activation instance on an UNI with an existing E-LAN hub or spoke.
Create E-LAN H-VPLS Spoke	Creates an E-LAN H-VPLS spoke. Sets up an aggregation device as a site to participate in an E-LAN activation instance and adds an EFP to the activation.
Create E-LAN H-VPLS Neighbor	Creates an E-LAN H-VPLS neighbor.
Create Point-to-Point E-Line	Creates the pseudowires between two aggregation device interfaces (UNIs).
Create E-Line Local Connection	Handles the special case where two E-Line UNI endpoints reside on the same aggregation device.
Create Access	Configures an access device so that it can be reached by the aggregation network.
Create E-LAN EFP	Configures an E-LAN Ethernet flow point.
Create Layer 3 VPN	Sets up an aggregation device as a site to participate in a Layer 3 VPN E-LAN activation instance and adds an EFP to the activation.
Create Residential HSI	Creates a pseudowire between the aggregation device and the residential broadband network gateway (BNG) device.

Table 1-3 lists the policy wizards provided in the installed Network Activation package.

**Table 1-3**      **Policy Wizards**

Wizard	Function
Create Layer 2 ACL	Creates Layer 2 ACLs on aggregation devices. These might be referenced by the activation configuration wizards.
Create QoS Policy	Creates QoS policy and class maps on aggregation devices to support activation offering CoS. These might be referenced by the activation configuration wizards.
Add MAC Secure Addresses	Adds MAC addresses to the permit table.

Table 1-4 lists the Network Activation MToP activation wizards provided in the installed package.

**Table 1-4 MToP Wizards**

Wizard	Function
Create ATM Pseudowire	Creates an Any Transport over MPLS (AToM) pseudowire from a Radio Access Network (RAN) device to a Cisco 7600 Series or Cisco MWR 2941 Series router.
Create TDM Clock Pseudowire	Creates TDM clocking pseudowire from a RAN device to a Cisco 7600 Series or Cisco MWR 2941 Series router.
Create TDM Pseudowire	Creates TDM pseudowire from a RAN device to a Cisco 7600 Series or Cisco MWR 2941 Series router.
Create Clock Synchronization	Configures IEEE 1588v2 clock synchronization over a pseudowire.

Table 1-5 maps the Network Activation installed wizards to the Carrier Ethernet and MToP activations.

**Table 1-5 Carrier Ethernet and MToP Activation- Network Activation Wizard Matrix**

Carrier Ethernet and MToP Activation	Network Activation Wizards
Business E-Line Activation	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> <li>• Create QoS</li> <li>• Create Access</li> <li>• Create Point-to-Point E-Line</li> <li>• Create E-Line Local Connection</li> </ul>
Business E-LAN Activation with VFI on the aggregation node	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> <li>• Create QoS Policy</li> <li>• Create Access</li> <li>• Create E-LAN VPLS Hub</li> <li>• Create E-LAN EFP</li> <li>• Create MAC Secure Addresses</li> </ul>
Business E-LAN with spoke on the aggregation node and VFI on the distribution node	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> <li>• Create QoS Policy</li> <li>• Create Access</li> <li>• Create E-LAN H-VPLS Hub</li> <li>• Create E-LAN H-VPLS Spoke</li> <li>• Create E-LAN EFP</li> <li>• Create MAC Secure Addresses</li> </ul>

**Table 1-5 Carrier Ethernet and MToP Activation- Network Activation Wizard Matrix (continued)**

Carrier Ethernet and MToP Activation	Network Activation Wizards
Business E-LAN over L3VPN	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> <li>• Create QoS Policy</li> <li>• Create Access</li> <li>• Create Layer 3 VPN</li> <li>• Create Layer 3VPN E-LAN Site</li> </ul>
HSI Access	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> <li>• Create QoS Policy</li> <li>• Create Access</li> <li>• Create Residential HSI</li> <li>• Create MAC Secure Addresses</li> </ul>
MToP activation on Cisco 7600 CEoPS	<ul style="list-style-type: none"> <li>• Create ATM Pseudowire</li> <li>• Create TDM Clocking Pseudowire</li> <li>• Create TDM Pseudowire</li> <li>• Create Clocking Activation</li> </ul>
MToP activation on Cisco MWR 2941-DC	<ul style="list-style-type: none"> <li>• Create ATM Pseudowire</li> <li>• Create TDM Clocking Pseudowire</li> <li>• Create TDM Pseudowire</li> <li>• Create Clocking Activation</li> </ul>
Flat and hierarchical QoS class map and policy map creation and removal	<ul style="list-style-type: none"> <li>• Create QoS Policy</li> </ul>
ACL creation and removal	<ul style="list-style-type: none"> <li>• Create Layer 2 ACL</li> </ul>
Secure MAC addresses	<ul style="list-style-type: none"> <li>• Add MAC Secure Addresses</li> </ul>

## Network Activation Architectural Overview

Network Activation installs components into the Cisco Prime Network Vision GUI framework and the Prime Network gateway. Network Activation GUI components are based on XML metadata, so that they can be easily reused, extended, or migrated to future Network Activation releases.

The activation workflows of Network Activation are installed on the Cisco Prime Network gateway. The workflows are created with the Prime Network Workflow Editor. The workflows direct the Carrier Ethernet and MToP activations listed in [Table 1-1](#). The workflows have corresponding activation scripts linked to each workflow activation tasks. The workflow data also drive the Cisco Prime Network Vision activation wizard screens to emulate the activation deployment steps.

Network Activation installed components include:

- Activation wizards—Metadata-driven, XML activation wizards are added to Cisco Prime Network Vision. Network operators can use the wizards to create, modify, and delete end-to-end activations for Carrier Ethernet and MToP networks. Activation designers or system integrators can customize the wizards to collect or remove specific inputs that meet specific network needs or service provider needs.



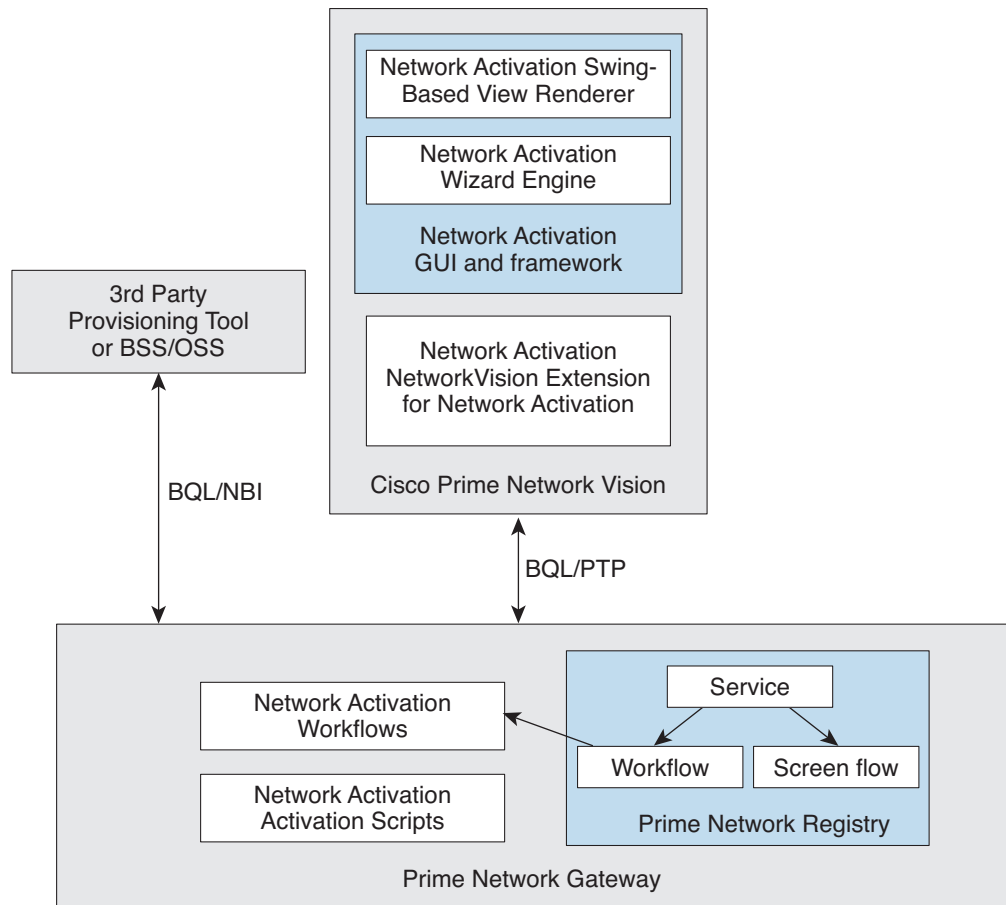
- Point-n-Click GUI—A point-n-click GUI provisioning framework to simplify the provisioning and reduce the number of steps for Carrier Ethernet and MToP activations.
- Activation Workflows—Network Activation includes a set of Carrier Ethernet and MToP activation workflows. The workflows can be customized with the Prime Network Workflow Editor to workflows that meet specific needs.
- Service Activation Scripts—Provides the command line interface sequence at the device to effect the activations indicated by the activation wizards and workflows.
- BQL-based NBI Interface—Network Activation provides APIs to allow Network Activation to be integrated with BSS and OSS applications.

Network Activation uses the following Prime Network components:

- The Prime Network golden source registry—Registers the activation scripts of Network Activation. The activation scripts use the Prime Network script activation feature (bean shell).
- The Prime Network workflow engine (AVM 66)—Supports the Carrier Ethernet and MToP activation flows.
- The Cisco Prime Network Vision GUI plug-in framework—Used as an extension point to build the activation application, including Network Activation wizards, activation listing, Activation Modification Utility, and other elements.

Figure 1-3 provides a high-level overview of the Network Activation and Prime Network architecture.

**Figure 1-3 Network Activation Architecture**



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## Network Activation User Roles and Privileges

Network Activation performs user authentication and authorization using the methods and rules configured on the Prime Network gateway. For more details, see [Cisco Prime Network 3.8 Administrator Guide](#).

User authentication can be controlled locally by Prime Network. Network Activation will use the method as it is configured on the gateway.

User authorization is managed according to the user access roles and device scopes assigned to the user when the user account is created on the Prime Network gateway. The user access role determines the actions the user can perform in Cisco Prime Network Vision.

[Table 1-6](#) identifies the tasks that you can perform if you are in user access role.

**Table 1-6** Network Activation User Access Roles

Task	Viewer	Operator	Operator Plus	Configurator	Administrator
Perform Activations	—	—	—	X	X
View Workflow Output	X	X	X	X	X
Preview Configuration on a Selected Device	—	—	—	X	X
Preview Deactivation of a Selected Activation	—	—	—	X	X
Perform Deactivations	—	—	—	X	X
View Details of a Workflow	X	X	X	X	X
Search Workflows	—	X	X	X	X
View Network Activation events in Cisco Prime Network Events	—	—	—	—	X

## Supported Platforms for Network Activation

Network Activation supports Cisco IOS and Cisco IOS XR software versions on the following devices:

- Cisco ME 3400 Switches
- Cisco ME 3400E Series Switches
- Cisco ME 3800 Series Switches
- Cisco 7600 Switches
- Cisco MWR 2941 Cell Site Router
- Cisco ASR 9000 Router
- Cisco ME 3600X Ethernet Access Switches and Cisco ME 3800X Carrier Ethernet Switch Routers
- Cisco Catalyst 4500 E-Series Switches
- Cisco Catalyst 3750 Series Switches

Table 1-7 lists the supported network elements and the Cisco IOS and Cisco IOS XR software versions supported by the network elements.

**Table 1-7 Supported Network Elements and Software**

Network Element	Software
Cisco ME 3400 Switches	Cisco IOS XR Release 12.2(55)SE
Cisco ME 3400E Series Switches	Cisco IOS XR Release 12.2(55)SE
Cisco ME 3600X Ethernet Access Switches	Cisco IOS Release 12.2
Cisco ME 3800X Carrier Ethernet Switch Routers	
Cisco 7600 Switches/Routers	Cisco IOS Release 15.1S (RLS8)
Cisco MWR 2941 Cell Site Router	Cisco IOS Release CSR 3.3
Cisco Catalyst 4500 E-Series Switches	Cisco IOS Software Release 12.2(52)SG
Cisco Catalyst 3750 Series Switches	Cisco IOS Release 12.2(52)SE
Cisco ASR 9000 Router	Cisco IOS XR Release 4.0

## Viewing Network Activation

You can view Network Activation GUI by launching the Activation menu from Cisco Prime Network Vision. For details on how to launch Cisco Prime Network Vision GUI, see the Launching Prime Network Vision section in [Cisco Prime Network 3.8 User Guide](#).

