



# CHAPTER 1

## Cisco Edge 300 Series Switch

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### Cisco Edge 300 Series Switch Overview

The Cisco Edge 300 series switch delivers cloud-based services to a room environment as part of a Smart Install network. The switch allows in-room devices and applications to fully utilize network infrastructure intelligence.

A Cisco Edge 300 series switch functions as a key component in a cloud network:

#### **In-room client switch**

The Cisco Edge 300 series switch functions as the in-room client switch in class rooms, hotel rooms, hospital rooms, and offices. The switch is a hybrid platform that provides PC, switching, and routing capabilities. It provides various interfaces for these components:

- Input devices such as a keyboard, mouse, microphone, camera, and so on
- Output devices such as a monitor, television, projector, speakers, headphones, and so on

The switch also integrates a wireless access point to allow 802.11b/g/n clients to connect to the network over a wireless connection.

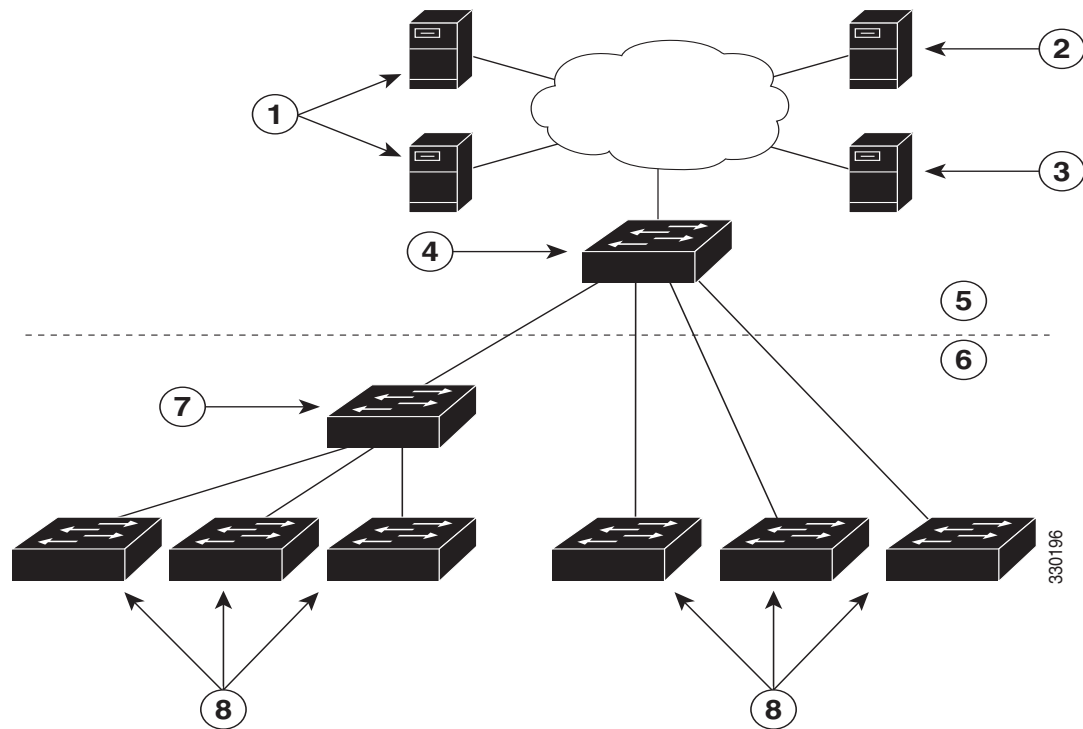
#### **Network aggregator**

An Ethernet switch such as a Catalyst 3000 series switch functions as a Smart Install director and securely manages the Cisco Edge 300 switches. Intelligent services on medianet and security in Catalyst switches enhance the quality of cloud service delivery.

#### **Cloud and application delivery servers**

Data center servers provide environment-specific content, computing power, storage and hosting, and other cloud applications, including third-party applications for use in the client switches.

[Figure 1-1](#) shows a typical Smart Install configuration in which the Cisco Edge 300 series switches function as client switches.

**Figure 1-1 Typical Smart Install Edge Network Diagram**

1	Cloud and application delivery servers	5	Aggregation layer
2	DHCP server	6	Access layer
3	TFTP server	7	Intermediate switch
4	Director	8	Client switches

## Cisco Edge 300 Series Switch Features and Applications



### Note

These features and applications are not documented in this guide.

The Cisco Edge 300 series switch provides these features and applications:

- Cisco Edge Surveillance
- Cisco Edge Video Conference
- Video streaming
- Display of Adobe Flash files
- Display of Windows Office files
- Display of PDF files
- MP3 and AAC audio support
- AVI, WAV, and MPG4 video support and H.264/AVC encode and decode video support
- JPG support

- WebEx meeting
- Software upgrade capability
- Screen capture capability
- VLC player
- VPN support
- SNMP support
- VLAN support (You can configure at most 6 active VLAN on the Cisco Edge 300 Switch)

## Central Management and Configuration

Cisco Edge 300 series switches function exclusively in a Smart Install network. Smart Install is a plug-and-play configuration and image-management feature. This means that you can ship a switch to a location, place it in the network, and power it on with no local configuration required.

### Smart Install Network

A network using Smart Install includes a group of networking devices, known as clients, that are served by a common Layer 3 switch or a router that acts as a director.

All Cisco Edge 300 series switches function as Smart Install client switches in a Smart Install network. End users do not configure the client switches: all switches are centrally configured through a GUI that is installed on a TFTP server and managed by the director.

### Smart Install Director

The Smart Install director provides a single management point for images and configuration of client switches. When a client switch is first installed in the network, the director automatically detects the new switch and identifies the correct image and configuration files to download. It can allocate an IP address and hostname to a client. If a standalone switch in the network is replaced by another switch of the same SKU, that is, a switch with the same product ID, it automatically gets the same configuration and image as the previous one.

The Smart Install director supports these functions in the network:

- Configuration management for Edge configuration files
- Cisco Discovery Protocol (CDP) information consolidation from neighbors and client switches
- DHCP snooping

The director can also support these functions in the network, or other devices in the network could provide them:

- DHCP server
- TFTP server for storage of image and configuration files

For information about configuring the director, see the [“Configuring the Smart Install Director”](#) section on page 2-6.

## DHCP and TFTP Servers

DHCP is the backbone of a Smart Install network: a Smart Install client switch uses DHCP to get an IP address and the Smart Install director snoops DHCP messages. All DHCP communication passes through the director so that it can snoop all DHCP packets from client switches.

The director can function as a DHCP and TFTP server and can store the configuration and image files. However, in a large network, there are third-party DHCP and TFTP servers for the director to use. The client switch downloads the image and configuration files from the TFTP server.

The DHCP server provides the client switches with an IP address, and DHCP options are used to send information and files:

- The TFTP server IP address to the client switches
- Configuration file names to the client switches
- Image filenames and locations to the client switches
- Hostnames to the client switches
- The director IP address to other switches in the network

For information about configuring the DHCP server, see the [“Configuring the DHCP Server” section on page 2-2](#). For information about configuring the TFTP server, see the [“Configuring the TFTP Server” section on page 2-7](#).

**Note**

In networks that do not use DHCP to assign IP addresses to the clients, you can configure a static IP address on the client switch. See the [“Using Static IP Addresses” section on page 2-5](#) for more information.

## GUI and Configuration Files

You use a GUI to centrally configure the Cisco Edge 300 series switch as a Smart Install client. You need to install the GUI on the TFTP server (see the [“Setting Up the GUI on the CentOS/Fedora Server” section on page 2-10](#)).

The director requires information to manage the client switches. Using the GUI, you can create these files that the director can retrieve from the TFTP server:

### Image List File

Specifies the images that need to be loaded on the client switch:

- Root file system image—Specifies the critical files and subdirectories for the switch. The root file system is located on the same partition as the root directory. When a switch starts up, all file systems are attached to the root file system.
- Bootable Linux kernel image—Specifies the Linux operating system kernel that runs on the switch.
- Cisco applications image—Specifies the Cisco applications that run on the switch.
- Third-party applications image—Specifies the third-party applications that run on the switch.
- Fonts image—Specifies the languages on the desktop and GUI.

You configure the image list file as part of the Smart Install director configuration file.

### Cisco Edge Configuration File

Specifies a common configuration that applies to all client switches in a group and an individual configuration that applies to a single client switch in a group and that includes components such as the SSID, wireless security settings, and wireless radio settings. You use a CLI to enter Cisco Edge 300 series switch-specific commands in the GUI to create the Edge configuration file (see the [“Managing Cisco Edge Configuration Files” section on page 2-23](#) and [Chapter 4, “Configuring Local CLI - Clish”](#)).

### Smart Install Director Configuration File

Specifies which image list file and Cisco Edge configuration file to load on a group of client switches.

## Applying and Upgrading Images and Configuration Files

When the switch starts up, it connects to the director. If the switch detects any new images or configuration files, it automatically restarts in factory-default mode and then downloads and installs the new images or configuration files.

These are the supported types of image and configuration upgrades:

- Upgrade initiated by the user—For a single client switch that is in the network and connected to the director. The user can turn the switch off and on or can press and hold the Reset button for 5 seconds to start from factory-default mode. In either case, the switch connects to the director and can detect any new images or configuration files.
- Upgrade initiated by the administrator—For a single client switch that is in the network and connected to the director. The administrator initiates the upgrade by rebooting the switch using the GUI or by connecting to the switch, for example, over a Telnet connection.

For more information, see [“Switch Image and Configuration Upgrades” section on page 2-34](#).

**Note**

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On-demand upgrades and scheduled downloads are not supported. You cannot upgrade switches from the director by using the **write erase** and **reload**, **vstack download-image**, **vstack download-config**, or **archive download-sw** privileged EXEC commands.

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