



Overview

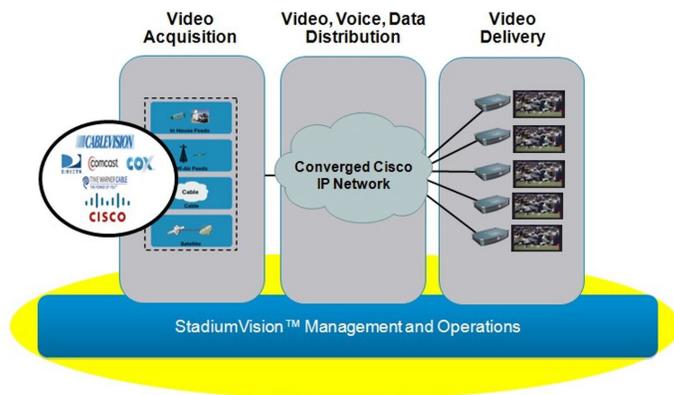
Cisco Vision Dynamic Signage Director (Cisco Vision Director) is a proven, end-to-end, high-definition IPTV solution that provides advanced video content management and delivery. It is a centrally managed video processing and distribution solution that enables the integration and automated delivery of customized and dynamic content from multiple sources to different areas of the venue in Standard Definition (SD), High Definition (HD), or Ultra-High Definition (UHD).

Cisco Vision Director is purpose-built for sports, entertainment, airports, malls and other public venues, which have extensive video systems deployed throughout and is designed to enhance the viewing of live events and to provide in-house advertising. It also leverages video systems in restaurants, clubs, and luxury suites to allow guests to view both in-house programming and external network channels.

Cisco Vision Director comprises four major components, as shown in [Figure 1](#):

- Video acquisition (or video headend)
- Converged voice, video, and data high-speed IP network
- Video delivery (and signage playback)
- Centralized management and operations

Figure 1 Cisco Vision Director Major Components



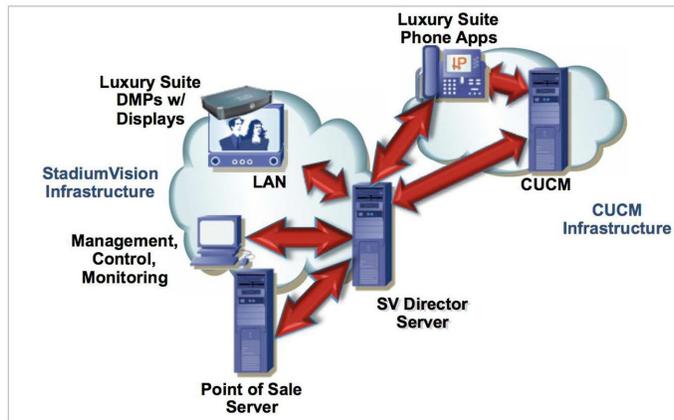
As part of the management and operations, Cisco Vision Director offers a variety of options for local TV control, including the ability to control the on/off settings, the volume, and the channels displayed on the TV.

Local TV Control

Typically, TVs that are placed throughout the concourses and in “public” spaces are controlled centrally through Cisco Vision Director. However, TVs that are placed elsewhere, such as luxury suites, restaurants, clubs and bars, back offices, and press boxes, require the ability for local control.

Several components of the Cisco Vision Director Solution work together to provide local TV control, as shown in [Figure 2](#).

Figure 2 Local TV Control (IP Phone Example)



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Options for Local TV Control

As shown in [Figure 3](#), Cisco Vision Director provides several options for Local TV control, which includes controlling the state of the TV (on/off), the volume, and the channel displayed.

Figure 3 Local TV Control Options



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The options include:

- A Cisco Unified IP Phone 7975
- A third-party touch panel, such as Crestron or AMX
- An infrared (IR) remote for the Cisco Digital Media Player (DMP)
- Customer-selected device integrated with the Cisco Vision Director User Control Application Programming Interface (API)

Only one option can be used to control a given Cisco Vision TV. Typically, each option is used in specific areas of the venue:

- Cisco IP Phones are generally used for local control in luxury suites, back offices, and press boxes.

Local TV Control

- Third-party touch screen devices are generally used in clubs, restaurants, and bars, although they can also be used in large luxury suites (recommended for those with more than nine TVs). They can be used to control over 100 TVs.
- The Cisco IR Remote is generally only used in situations where local control of a single TV is needed and the other options are not feasible.

Regardless of the type of device used, the local TV control device cannot change the template used or any content on the screen (such as the ticker, ads in the playlist, or full-screen message) other than the channel. For example, if the TV is showing an emergency message, the local TV control device has no effect on the content displayed.

Note: As an exception to the above, the local TV control can be used to navigate away from the Welcome message in a luxury suite.

Cisco IP Phone

If a Cisco IP Phone is used, it must be a Cisco Unified IP Phone 7975. This phone provides a touch screen interface and color display to interact with the user and is the only phone supported as a local TV control device for Cisco Vision Director.

The phone uses Cisco Vision Director to provide instructions to the DMP for TV on/off, volume control, and channel selection.

If a DVD player, PC, or other external source is connected to the TV, the Cisco IP Phone also allows the user to change the input to the locally attached video device through a pre-determined auxiliary input.

- In luxury suites (and other areas where the phone acts as the primary control device for the TVs), we recommend that the Cisco Vision Services page be configured as the standard phone display.
- In press boxes, back offices, and other locations where using the phone as a local TV control device may be secondary, we recommend that the default call services phone display remain and “Service URL” buttons be configured for easy access to TV Services and Commerce Services.

Note: Although additional Cisco IP Phones may be present, only one Cisco IP Phone can be associated with the DMPs in the suite. Only one phone can provide the local control. Any additional Cisco IP Phones act simply as phones and are provided for the user’s convenience.

Third-Party Touch Panels

Typically, third-party touch panels are used for local TV control in areas where Cisco IP Phones cannot be secured or in locations (bars, restaurants, or clubs) where a significant number of displays need to be controlled with a single device.

The third-party device uses the Cisco Vision Director API for local control to provide instructions to the DMP for TV on/off, volume control, and channel selection.

The third-party touch panel displays a menu of up to 10 favorite channels. If the desired channel is not among the favorite channels, the third-party touch panel allows users to select from a larger channel lineup.

Note: The Favorites feature for touch panels will be removed in a future release.

Crestron (<http://www.crestron.com/>) or AMX (<http://www.amx.com/>) are currently supported third-party touch panels. These devices communicate through Cisco Vision Director to provide instructions to the DMP for TV on/off, volume control, and channel selection.

User Control API

The User Control API allows a developer to create a control application. The API is not platform-specific, so applications can be developed for any platform. Some examples could be iOS, Android, Blackberry, or a standard web browser. If you are interested in developing an application for local control using the User Control API, please contact svd-lclctl@external.cisco.com.

IR Remote

Unlike the Cisco IP Phone and the third-party touch panel, the IR Remote (an optional accessory for the Cisco DMP) communicates directly with the DMP for on/off and volume control. It also communicates directly with the DMP for channel selection. However, the DMP pulls its defined channel lineup from Cisco Vision Director.

If a DVD player, PC, or other external source is connected to the TV, the IR remote also allows the user to change the input to the locally attached video device.

Luxury Suite: A Unique Local Control Area

A luxury suite is a unique implementation of a local TV control area. Physically, a luxury suite generally consists of a “living room” space, kitchenette, small bathroom, and exterior balcony overlooking the venue. In the Cisco Vision design, each luxury suite typically contains the following:

- One or more flat-panel TVs, each with an attached Cisco DMP. One of the TVs is often identified as the “Welcome” TV to display an introductory welcome message. Each TV can display different content/channel.
- One Cisco IP Phone, each associated with Cisco Unified Communications Manager (CUCM). This phone provides touch screen control of all TVs in the suite and should be situated so that a person using it has a view of all TV positions.

Figure 4 shows an example of a luxury suite.

Figure 4 Example Luxury Suite



Local TV Control in Luxury Suites

As mentioned previously, in Cisco Vision Director, a single, designated Cisco Unified IP Phone 7975 enables luxury suite owners and guests to control the power, volume, and channel selection for each of the TVs in the suite. The IP Phone can also be configured to provide access to commerce services, which allow users to place orders with the venue's catering and merchandise store, as shown in Figure 5.

Figure 5 Luxury Suite Local TV Control and Commerce Integration



Using Cisco Vision Director Video Management Services on a Cisco IP Phone, owners and guests can control the power and volume of the TV and access a channel guide to select from the full channel lineup. Luxury suite owners and guests can also use the Cisco IP Phone to change the input on a particular video display to a locally attached DVD player or PC.

Using Cisco Vision Director Commerce Services on the same Cisco IP Phone and integration with a third-party PoS application, owners and guests can also place orders with the venue's catering and merchandise departments. Luxury suite owners, guests, and suite attendants can easily navigate through menus, view images of the items on one of the HD TVs in the suite, and easily (and securely) place an order from the Cisco IP Phone touch screen.

Note: Although there are other options for local TV control, the Cisco IP Phone is the preferred option for a luxury suite because it allows access to both video control services and commerce services from a single device. In addition, only one control device can be used at a time in a luxury suite.

Therefore, if you are using an IP Phone, an IR remote cannot be used, and vice versa.

Welcome Display in a Luxury Suite

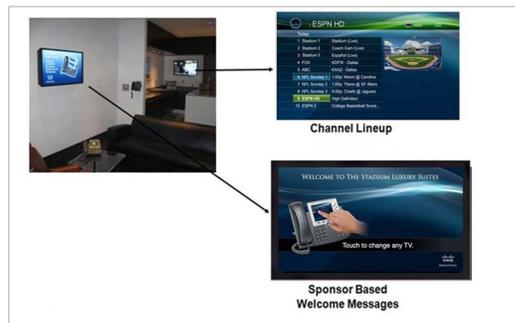
In a luxury suite, one of the TVs is typically identified as the main or "Welcome" display. This allows the venue to display static signage that welcomes the suite visitors to the venue and instructs them to use the IP Phone to control the room (as shown in [Figure 6](#)).

Figure 6 Luxury Suite Welcome Display



Customization in a Luxury Suite

Using the Cisco Vision Director solution, the IP Phone display and content displayed on the TVs in the luxury suite can be customized for the specific venue, event, or luxury suite owner (as shown in [Figure 7](#)).

Figure 7 Luxury Suite Customization

For example:

- The “Welcome” TV can display information unique to the suite owner or sponsor.
- Each TV in the suite can display select advertisements (using a template) as defined by the luxury suite owner.
- The Cisco IP Phone can display the logo of the venue sponsor, the team, or the suite owner.
- The channel lineup on the TV can display the team logo.

This customization not only enables a unique experience for the suite owner, but also enables additional revenue streams for the venue through sponsorship.

Required Applications and Services

Several applications and services play a role in enabling the local control. Some are part of the Cisco Vision family of software; others are standard Cisco offerings.

- Cisco Vision Director (Base License:)

Generally speaking, Cisco Vision Director enables centralized content and scheduling control and administration across the entire venue. It provides a set of applications to establish, coordinate, and manage interactivity between all areas of the venue. Cisco Vision Director is also used to define the channel lineup for the venue.

With respect to local TV control, Cisco Vision Director contains definitions for each of the DMPs (which are attached to TVs), Cisco IP Phones, and third-party touch panels. Leveraging those definitions, Cisco Vision Director allows users to create local control areas by designating which DMPs are to be controlled by a given Cisco IP Phone or third-party touch panel.

Note: The **Luxury Suites** tab in Cisco Vision Director defines all designated local control areas, including clubs, bars, restaurants, back offices, and press boxes.

Regarding channel selection, Cisco Vision Director also contains the definitions of each individual channel and the channel lineup.

Each video stream received from the Cisco Vision headend is associated with a locally-designated channel.

The channel lineup includes a listing of the defined channels and is accessible by the local TV control devices.

Using the master channel lineup, you can create customized per-area channel guides for use in the local control areas.

- Cisco Vision Director Luxury Suite Applications: Video Management Services:

This optional set of Cisco Vision Director-licensed services enables the Cisco Unified Communications IP Phone environment to interact with the TV to control power, volume, and channel selection.

- Cisco Vision Director User Control API:

This optional set of Cisco Vision Director–licensed services allows third–party touch panels or other devices with the API to be used for local control in areas where IP phones are not secure, or where significant numbers of displays are to be controlled with a single device.

- Cisco Unified Communications Manager (CUCM):

This enterprise–class IP telephony call–processing system provides traditional telephony features, such as speed dials, and advanced capabilities. This is only required for IP phone control.

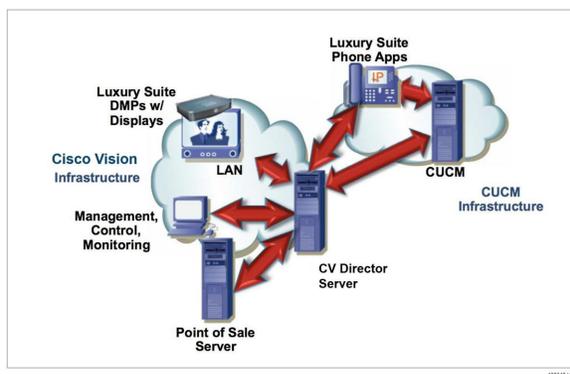
Process Flows

This section provides an overview of the flow of the local TV control processes.

Local TV Control Using a Cisco IP Phone

At a functional level, several components interact to enable the communications required for local TV control from a Cisco IP Phone, as shown in [Figure 8](#):

Figure 8 Local TV Control Using a Cisco IP Phone



To enable the TV control process:

- Cisco Vision Director defines the channel guide and associated icons.
- Cisco Vision Director controls the underlying commands used by the DMP to change the channel, input, and volume.
- Cisco Vision Director also stores the images that make up the phone UI (including the icons).
- The IP Phone is subscribed to the Cisco Vision Services on CUCM.

When the user touches TV/Volume on the IP Phone (for example, to change a channel):

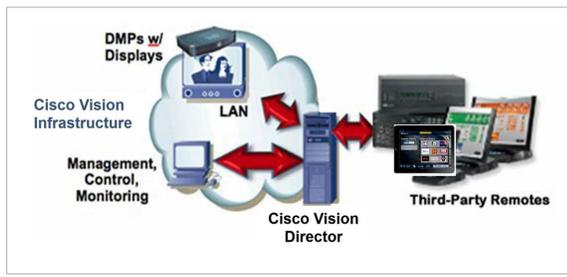
1. The IP Phone sends a request for video control services to Cisco Vision Director.
2. Cisco Vision Director dynamically creates the XML (content and pointers) for the local TV control device. Simultaneously, Cisco Vision Director sends an HTTP request to CUCM for the phone's speed dial information (if using speed dials).
3. Cisco Vision Director sends the XML information to the IP phone to update the touch screen content. The XML includes URLs to the screen graphics that the phone must show next. Cisco Vision Director builds these graphics on the fly as the user navigates through the menus.

4. Cisco Vision Director simultaneously sends HTTP commands to the DMP to effect the channel change (or other command). These commands instruct the DMP to “listen to” a different IP multicast address.
5. The DMP joins the new IP multicast group to pick up the new channel.
6. The DMP receives the video content from the IP network via IP Multicast, merges the new video stream into the correct template, and sends it to the TV via an HDMI, S-Video, or component video (YPrPb) connection.

Local TV Control Using a Third-Party Touch Panel or User Control API Device

At a functional level, several components interact to enable the communications required for local TV control from a third-party touch panel, as shown in [Figure 9](#).

Figure 9 Local TV Control Using a Third-Party Touch Panel or User Control API Device



To enable the TV control process, Cisco Vision Director:

- Defines the channel guide.
- Configures the underlying commands used by the DMP to change the channel, input, and volume.

When the user touches TV/Volume on the third-party touch panel (for example, to change a channel):

1. The touch panel sends a request for video control services to the Cisco Vision Director user control API.
2. The Cisco Vision Director server sends the XML information to the touch panel to update the touch panel content.
3. The Cisco Vision Director server simultaneously sends HTTP commands to the DMP to effect the channel change (or other command). These commands instruct the DMP to “listen to” a different IP multicast address.
4. The DMP joins the new IP multicast group to pick up the new channel.
5. The DMP receives the video content from the IP network via IP Multicast, merges the new video stream into the correct template, and sends it to the TV via an HDMI, S-Video, or component video (YPrPb) connection.