



Redundancy

Cisco CallManager (release 3.0 and later) provides several forms of redundancy:

- Database redundancy—The Cisco CallManagers in a cluster maintain backup copies of their shared database. See the “Clusters” section on page 1-1.
- Call processing redundancy—Using Cisco CallManager groups, you can designate backup Cisco CallManagers to handle call processing for a disabled Cisco CallManager.

The following procedure describes how to configure call processing redundancy using Cisco CallManager groups:

- Configuring Call Processing Redundancy, page 2-5

Groups and Clusters

Groups and clusters are logical collections of Cisco CallManagers and their associated devices. Groups and clusters are not necessarily related to the physical locations of any of their members.

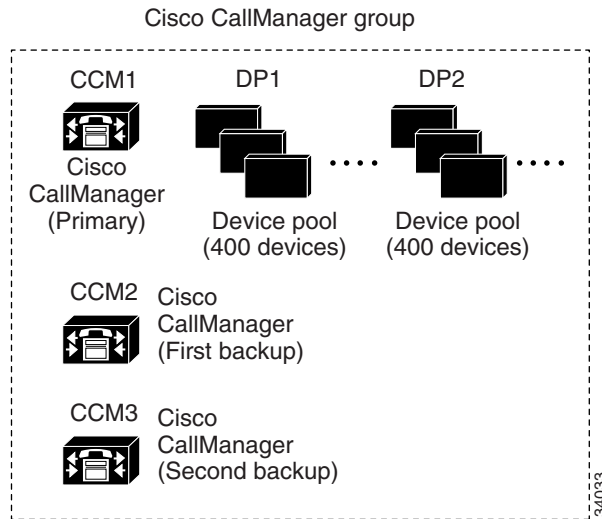
A cluster is a set of Cisco CallManagers that share a common database. You specify which servers and which Cisco CallManagers belong to the same cluster when you install the Cisco CallManager software. For more information on clusters, refer to the installation instructions for Cisco CallManager.

A group is a set of Cisco CallManagers that provide redundant call processing for the devices in the group. You use Cisco CallManager Administration to define the groups and to specify which Cisco CallManagers and which devices belong to each group. You also define the priority order for the Cisco CallManagers in a group.

Components of a Group

Each group must contain a primary Cisco CallManager, and it may contain one or two backup Cisco CallManagers. Under normal operation, the primary Cisco CallManager controls call processing for all the devices (such as phones and gateways) in the group. If the primary Cisco CallManager fails for any reason, the first backup Cisco CallManager takes control of the devices in the group. If you specify a second backup Cisco CallManager for the group, it takes control of the devices if both the primary and the first backup fail.

You assign devices to a Cisco CallManager group by means of device pools. Each device belongs to one device pool, and each device pool belongs to one Cisco CallManager group. You can combine the groups and device pools in various ways to achieve the desired level of redundancy. For example, Figure 2-1 shows a simple system with three redundant Cisco CallManagers controlling 800 devices.

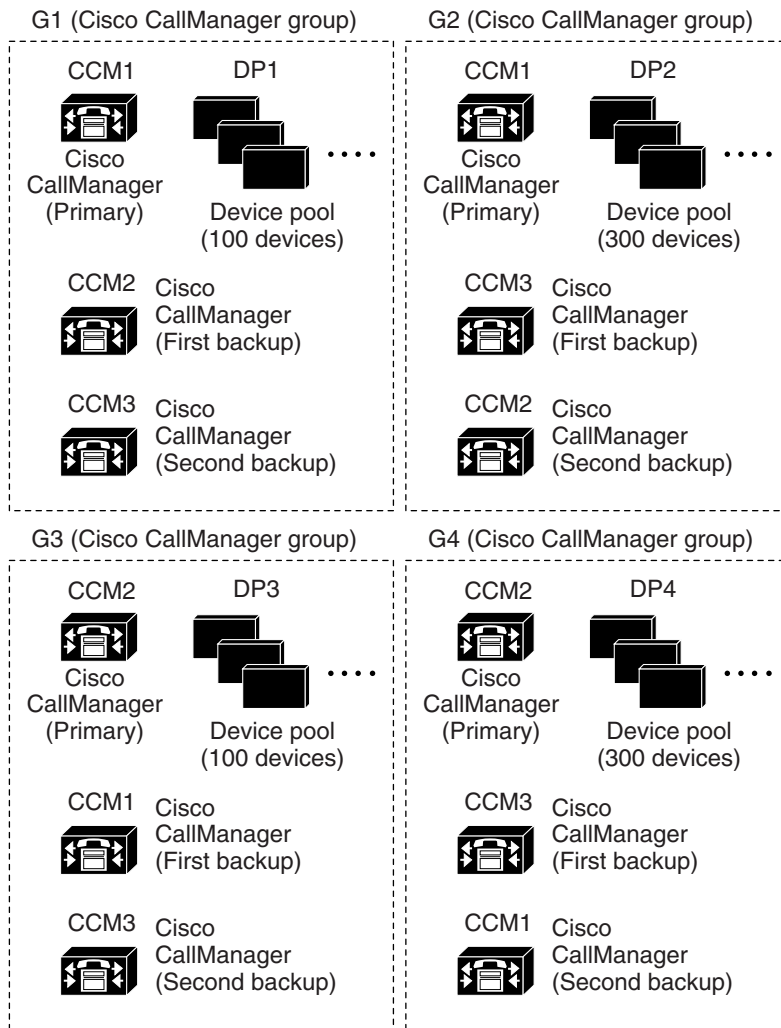
Figure 2-1 Example of a Cisco CallManager Group

In Figure 2-1, Cisco CallManager CCM1 is the primary, and it controls all 800 devices under normal operation. If CCM1 fails, control of all 800 devices transfers to CCM2. If CCM2 also fails, then control of all 800 devices transfers to CCM3.

Combining Redundancy with Distributed Call Processing

The configuration in Figure 2-1 provides call processing redundancy, but it does not distribute the call processing load very well among the three Cisco CallManagers in the example. In most cases, you would want to distribute the devices in a way that prevents a single Cisco CallManager from becoming overloaded if one of the other Cisco CallManagers in the group fails. Figure 2-2 shows one possible way to configure the Cisco CallManager groups and device pools to achieve both distributed call processing and redundancy for a system of three Cisco CallManagers and 800 devices.

Figure 2-2 Example of Redundancy Combined with Distributed Call Processing



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For the example shown in Figure 2-2, Cisco CallManager CCM1 is the primary controller in two groups, G1 and G2. If CCM1 fails, the 100 devices in device pool DP1 transfer to CCM2, and the 300 devices in DP2 transfer to CCM3. Similarly,

CCM2 is the primary controller of groups G3 and G4. If CCM2 fails, the 100 devices in DP3 transfer to CCM1, and the 300 devices in DP4 transfer to CCM3. If CCM1 and CCM2 both fail, all devices transfer to CCM3.

For more information on distributed call processing, see the “Distributed Call Processing” section on page 1-1.

Configuring Call Processing Redundancy

This section describes the general steps for configuring Cisco CallManager groups to provide for call processing redundancy and distributed call processing as illustrated by the example in Figure 2-2.

Procedure

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- Step 1** Install the Cisco Media Convergence Servers and Cisco CallManager software to form a cluster of Cisco CallManagers. A cluster is a set of Cisco CallManagers that share the same database. In Figure 2-2, the cluster consists of Cisco CallManagers CCM1, CCM2, and CCM3. For details, refer to the installation instructions for Cisco CallManager.
- Step 2** In Cisco CallManager Administration, select **System > Cisco CallManager** and update the configurations for CCM1, CCM2, and CCM3 as needed. When you install the Cisco CallManager software, the database contains an initial configuration for each of the Cisco CallManagers in the cluster. However, you might want to update these configurations to change the settings for some of the parameters such as auto-registration. For details, see the “Updating a Cisco CallManager” section on page 9-5.
- Step 3** In Cisco CallManager Administration, select **System > Cisco CallManager Group** to configure the four groups G1, G2, G3, and G4. The Default group is configured automatically when you install the Cisco CallManager software, and devices that auto-register with Cisco CallManager are normally assigned to this Default group. However, you might want to change the configuration of the Default group or specify one of the other groups as the TFTP default group for purposes of auto-registration. For details, see the “Cisco CallManager Group” section on page 10-1.

- Step 4** In Cisco CallManager Administration, select **System > Device Pool** to configure the four device pools for this system, DP1, DP2, DP3, and DP4.
- a. The Default device pool is configured automatically when you install Cisco CallManager. However, you might want to update its configuration to set the parameters such as region and to assign this pool to the appropriate Cisco Call Manager group. Cisco CallManager normally assigns the Default device pool to devices that auto-register with it, unless you specify a different default device pool through the Device Defaults (see the “Device Defaults” section on page 12-1).
 - b. Configure the other device pools and assign them to the appropriate Cisco CallManager groups. In this example, device pool DP1 is assigned to group G1, DP2 is assigned to G2, and so forth.

For details, see the “Device Pool” section on page 14-1.

- Step 5** In Cisco CallManager Administration, select the desired options under **Device** to configure the devices on your network and to assign them to the appropriate device pools.
- Step 6** After making your configuration changes and saving them in the database, restart the Cisco CallManagers affected by those changes. See the “Starting and Stopping Cisco CallManager” section on page 17-1.
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Additional Information

Cisco CallManager groups provide both call processing redundancy and distributed call processing. The way you distribute devices, device pools, and Cisco CallManagers among the groups is critical for maintaining the desired level of redundancy and load balancing in your system.

For more information on distributed call processing, see:

- Distributed Call Processing, page 1-1.