CHAPTER 4

Installing Web Conferencing in a Load Balancing Configuration

This chapter describes how to install Cisco Unified MeetingPlace Web Conferencing in a load balancing configuration. It does not describe upgrades.

This chapter contains the following sections:

- About Installing Web Conferencing in a Load Balancing Configuration, page 4-1
- Preinstallation Tasks: Web Conferencing in a Load Balancing Configuration, page 4-7
- Installation Tasks: Web Conferencing in a Load Balancing Configuration, page 4-9
- Postinstallation Tasks: Web Conferencing in a Load Balancing Configuration, page 4-15

**Note**

About Installing Web Conferencing in a Load Balancing Configuration

Load balancing in Cisco Unified MeetingPlace Web Conferencing makes use of a cluster of Web Conferencing servers to spread the active meeting load, allowing you to scale the number and size of meetings that your deployment can support. It also provides failover capabilities for meetings—if one Cisco Unified MeetingPlace Web Conferencing server is unavailable or unreachable, meeting clients will reconnect to another server, even if they are currently connected to a meeting that is in progress when the connection is interrupted.

You can view the amount of web-conferencing load per server from the Web Server administrative page. This information is displayed only on internal web servers.

To configure load balancing, you should understand the following concepts in this section:

- Restrictions for Installing Web Conferencing in a Load Balancing Configuration, page 4-2
- Web Conferencing Clusters, page 4-2
- Web Conferencing Load Balancing and Failover Capability, page 4-4
Chapter 4 Installing Web Conferencing in a Load Balancing Configuration

- Load Balancing Behavior with Internal and External Clusters, page 4-5
- Recommendations for a Robust Cisco Unified MeetingPlace System, page 4-6
- End-User Experience During Meeting Console Failover, page 4-6

Restrictions for Installing Web Conferencing in a Load Balancing Configuration

- Microsoft Network Load Balancing is not supported.
- Third-party web server load balancing is not supported.

Web Conferencing Clusters

With Cisco Unified MeetingPlace Web Conferencing, you can configure up to three web servers into a cluster, and you can configure clusters as either internal or external.

**Internal cluster**—Places all web servers behind the firewall inside the private corporate network. Typically, all web servers in an internal cluster display the full-access Cisco Unified MeetingPlace Web Conferencing interface.

**External cluster**—Places all web servers between the private corporate network and the Internet, such as in a DMZ. For increased security, all web servers in an external cluster typically display the attend-only Cisco Unified MeetingPlace Web Conferencing interface.

You can attach a maximum of three web servers (including both internal and external servers) to a single Cisco Unified MeetingPlace Audio Server system. The two databases (one for the internal server or cluster, one for the external server or cluster) must have identical GUIDS.

Web Conferencing supports five potential load balancing configurations, as shown in Figure 4-1, Figure 4-2, and Figure 4-3.
### About Installing Web Conferencing in a Load Balancing Configuration

#### Figure 4-1  One Cluster Configuration

1. **Cisco Unified MeetingPlace Audio Server system.**

2. **Internal cluster of web servers.**

3. **SQL Server—All web servers in the internal cluster must connect to the same SQL Server.**

#### Figure 4-2  Mixed Configuration: Internal and External Clusters of Web Servers

1. **Cisco Unified MeetingPlace Audio Server system.**

2. **Internal cluster of web servers.**

3. **SQL Server—All web servers in the internal cluster must connect to the same SQL Server.**

4. **External cluster of web servers.**

5. **SQL Server—All web servers in the external cluster must connect to the same SQL Server.**

#### Figure 4-3  Mixed Configuration: One Web Server and a Cluster of Web Servers
About Installing Web Conferencing in a Load Balancing Configuration

Web Conferencing Load Balancing and Failover Capability

Each Web Conferencing server comprises two separate load balancing components, known as the origin server and edge server. Meetings are hosted on the origin server. Participants connect to the edge server when joining a meeting. These components interact to provide load balancing and failover capability as follows:

- When a meeting starts, the Web Conferencing server assigns a primary and backup origin server to the meeting room based on current active meeting load.
- As participants join the meeting, they are load balanced across the edge servers in the cluster based on the number of participants currently connected to each edge server at that time. The edge server internally makes a connection to the origin server that is hosting the meeting.
- Each client is given the primary edge/origin and backup edge/origin information by the server when the meeting room is launched. No configuration is needed on the clients.

*Figure 4-4* shows an example load balancing topology with a cluster of Web Conferencing servers. Meetings are spread across the three origin servers in the cluster based on the current meeting load on each. Participants are spread across the three edge servers based on the participant load on each. Note that participants are not necessarily connected to the edge server on the machine hosting the meeting they are attending.
About Installing Web Conferencing in a Load Balancing Configuration

Figure 4-4 Web Conferencing Load Balancing for Meetings and Participants

Load Balancing Behavior with Internal and External Clusters

All users attend a Cisco Unified MeetingPlace web conference by opening their browsers and signing in through the Cisco Unified MeetingPlace Web Conference home page. When the first meeting participant attempts to join the web conference, the Cisco MeetingPlace Agent Service determines if the meeting should be held on an internal web server or external web server by checking the Allow External Web Participants parameter. This parameter is visible only if the Cisco Unified MeetingPlace system has an external site or cluster configured.

Table 4-1 describes load-balancing behavior for load-balancing configuration options.

Table 4-1

<table>
<thead>
<tr>
<th>Meeting 1</th>
<th>Meeting 2</th>
<th>Meeting 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origin 1</td>
<td>Origin 2</td>
<td>Origin 3</td>
</tr>
<tr>
<td>Edge 1</td>
<td>Edge 2</td>
<td>Edge 3</td>
</tr>
<tr>
<td>Participant 1 in meeting 1</td>
<td>Participant 2 in meeting 1</td>
<td>Participant 3 in meeting 2</td>
</tr>
<tr>
<td>Participant 4 in meeting 2</td>
<td>Participant 5 in meeting 3</td>
<td></td>
</tr>
</tbody>
</table>

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## About Installing Web Conferencing in a Load Balancing Configuration

Internal users can join both internal meetings and external meetings. If a meeting is designated as external, internal users who log in to an internal web server are redirected to an external web server.

Recommendations for a Robust Cisco Unified MeetingPlace System

To ensure a robust system with redundancy and failover, we recommend that you have the following:

- An internal web cluster.
- An external web cluster.
- A dedicated remote SQL Server system for each cluster.
- Remote storage location with an appropriately sized RAID array and a comprehensive backup policy.

End-User Experience During Meeting Console Failover

When failover occurs on a system that is configured for redundancy and failover, users will experience the following behavior:

1. The web server to which the participant is connected stops responding (for example, the computer loses power or the Web Conferencing services are shut down).
2. Users who are connected to the edge server on that web server lose their connection to the meeting.

### Table 4-1 Load Balancing Behavior in Cisco Unified MeetingPlace Web Conferencing

<table>
<thead>
<tr>
<th>If...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allow External Web Participants is set to No</td>
<td>This meeting is reserved for internal attendees only. When the first attendee launches the meeting console, Cisco Unified MeetingPlace Web Conferencing directs the web-conferencing session to the web server with the fewest currently active meetings in the internal cluster. This web server now owns the meeting. Subsequent attendees may be directed to any internal web server when they join the web conference.</td>
</tr>
</tbody>
</table>
| Allow External Web Participants is set to Yes | This meeting is accessible to external attendees, that is, participants attending from outside the firewall. If the first attendee attempts to join the web conference from an external web server, Cisco Unified MeetingPlace Web Conferencing directs the web-conferencing session to the web server with the fewest currently active meetings in the external cluster. This web server now owns the meeting. If the first attendee attempts to join the web conference from an internal web server, Cisco Unified MeetingPlace Web Conferencing determines if it has an associated external web server. Such information is found on the Web Server Properties administrative page in the DMZ Web Server field.  
  - If there is an entry in the DMZ Web Server field, Cisco Unified MeetingPlace Web Conferencing performs a redirection to that external server.  
  - If Cisco Unified MeetingPlace Web Conferencing does not find an entry in the DMZ Web Server field, the web-conferencing session is directed to the least loaded internal server as described for internal meetings. All subsequent attendees are directed to an internal web server for their web conference. |

Internal users can join both internal meetings and external meetings. If a meeting is designated as external, internal users who log in to an internal web server are redirected to an external web server.

External users can join only external meetings on external web servers.
3. Each meeting console client automatically tries to reconnect the user to the edge server. If this attempt fails, the meeting console attempts to connect to the edge server designated as the backup for that meeting. (The Web Conferencing server sends the assigned primary and backup edge server information to each client when the client first connects to a meeting.)

### About Installing Web Conferencing in a Load Balancing Configuration for Video-Enabled Systems

If your Cisco Unified MeetingPlace Audio Server system is licensed for video, all of the web servers connected to it will display video-related fields. These fields appear on the following pages for those users who have video scheduling privileges:

- New Meeting scheduling page
- Meeting Details pages
- Account Basics page

In order for users to schedule their video meetings on a web server in a load balancing configuration, you must install the Cisco Unified MeetingPlace Video Integration on the server. Users receive an error if they attempt to reserve video ports while scheduling a meeting on a server which does not have the Video Integration installed.

Although in a load balancing configuration you install the Cisco Unified MeetingPlace Video Integration on each web server that users will use to schedule video meetings, you activate the Video Integration on only one web server in the cluster. We recommend that you activate the Video Integration on a server that is not used for scheduling, in order to minimize the load on the server.

If a meeting is scheduled with video ports reserved, video features will be available for end-users who use their video endpoints to dial in to the meeting regardless of which server hosts the meeting. If a meeting is scheduled without video ports reserved, ad hoc video may be available for end-users who dial in with a video endpoint if video ports are available at the time of the meeting.

### Preinstallation Tasks: Web Conferencing in a Load Balancing Configuration

#### Before You Begin

- Read the “About Installing Web Conferencing in a Load Balancing Configuration” section on page 4-1.
- If applicable, read the “About Installing Web Conferencing in a Load Balancing Configuration for Video-Enabled Systems” section on page 4-7.

Complete the following tasks, as applicable, before you begin the installation:

- Preparing the Internal Cluster, page 4-8
- Preparing the External Cluster, page 4-8
Preinstallation Tasks: Web Conferencing in a Load Balancing Configuration

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Preparing the Internal Cluster

Before You Begin

To Prepare the Internal Cluster

Step 1  Determine and create a common domain Windows administration account.
This account is used by all of the web servers in this cluster. It starts Web Conferencing services and allows all web servers in this cluster to access the shared storage location by using a Universal Naming Convention (UNC) path.
After creating the account, write down the value, which you will need later.

Note  Enter different values for your internal and external clusters.

Step 2  Determine and create a shared storage location.
You can create this folder on the same machine as your first internal web server, or on a separate machine. Keep in mind that this shared storage location is where attachments are stored and, therefore, where all web servers in this cluster go to find attachments.
After creating the location, write down the value as a UNC path, for example, \servername\shared folder\MPWeb.

Preparing the External Cluster

Before You Begin
(Optional) Read the “Installing Web Conferencing for a Segmented Meeting Access Configuration” chapter to understand the difference between internal and external servers.

To Prepare the External Cluster

Step 1  Determine and create a common domain Windows administration account.
This account is used by all of the web servers in this cluster. It starts Web Conferencing services and allows all web servers in this cluster to access the shared storage location using a UNC path.
After creating this account, write down the value, which you will need later.

Note  Enter different values for your internal and external clusters.

Step 2  Determine and create a shared storage location.
You can create this folder on the same machine as your first external web server, or on another machine. Keep in mind that this shared storage location is where attachments are stored and, therefore, where all web servers in this cluster go to find attachments.

After creating the location, write down the value as a UNC path, for example, `\servername\shared folder\MPWeb`.

### Installation Tasks: Web Conferencing in a Load Balancing Configuration

The installation is completed in six parts:
- Installing the First Internal Web Server, page 4-9
- Installing Additional Internal Web Servers, page 4-10
- Copying GUIDS from the Internal to the External Web Server, page 4-11
- Installing the First External Web Server, page 4-12
- Installing Additional External Web Servers, page 4-13
- Linking the Internal and External Servers, page 4-14

### Installing the First Internal Web Server

#### Before You Begin
- Read the “Installing Web Conferencing” chapter and have it available to assist you with this section.
- Complete the “Preparing the Internal Cluster” section on page 4-8.

#### To Install the First Internal Web Server

**Step 1**
Install Cisco Unified MeetingPlace Web Conferencing on the first internal machine.
- For Server Location, choose **Internal (Full Access)**.
- For Database Location, choose the applicable option:
  - If there is a full SQL Server installed elsewhere, choose **Existing remote server**.
  - To have the installer install SQL Server 2000 on this machine for you, choose **Local server**.
- When you reach the final installer window, choose to reboot your computer later, then click **Finish**.

**Step 2**
Configure the shared storage for this web server by performing the following sub-steps:
- Open your web browser to access the Web Conferencing home page.
- Use your System Manager-level user ID and password to sign in.
- Click **Admin**, then **Shared Storage**.
- For Enabled, click **Yes**.
- For Shared Storage Path, enter the path of the shared storage location that you determined in **Step 2** of the “To Prepare the Internal Cluster” procedure on page 4-8.
f. For Content Cache Size, enter a value between 0 and 100 for the percentage of total disk space to use to cache content on the local server.

g. In the appropriate fields, enter a domain, username, and password for a Windows account that will be used to access the shared storage location. If the account is a local account, enter the machine name in the Domain field.

Note: All Cisco Unified MeetingPlace Web Conferencing services will be configured to "Log On As" the account you choose in this sub-step.

h. Re-enter the password in the Confirm Password field.

i. Click Save Changes.

j. To put the changes into effect, click Reboot Server, then click OK to confirm the reboot. The server shuts down and restarts.

Step 3 Continue with the next task as applicable:

• If you have additional internal web servers, see the “Installing Additional Internal Web Servers” section on page 4-10.

• If you do not have additional internal web servers, see the “Copying GUIDS from the Internal to the External Web Server” section on page 4-11.

Installing Additional Internal Web Servers

Before You Begin
Complete the “Installing the First Internal Web Server” section on page 4-9.

Restrictions
When installing two or more web servers that share a single database and point to the same Cisco Unified MeetingPlace Audio Server system, the MeetingPlace Server hostname that you specify during the installation of all web servers must match. By default if the MeetingPlace Server hostnames do not match, a second site is created with a WebConnect configuration.

To Install Additional Internal Web Servers

Step 1 Copy the GUIDS.reg file from the first internal web server to the next machine in your internal cluster:

a. Copy the drive:\Program Files\Cisco Systems\MPWeb\GUIDS.reg file from the first server.

b. Place the GUIDS.reg file in the next web server’s drive:\Temp directory.

c. On the next web server, double-click the GUIDS.reg file to install it.

d. When prompted to add the information from the GUIDS.reg file to the registry, click OK.

Step 2 Install Cisco Unified MeetingPlace Web Conferencing on the next machine in your internal cluster.

• For Server Location, choose Internal (Full Access).

• For Database Location, choose Existing remote server and specify the SQL Server that you used in the “Installing the First Internal Web Server” section on page 4-9.
Step 3 Configure the shared storage for this web server by performing the following sub-steps:

a. On the Web Conferencing server, open a web browser and browse to http://localhost:8002. When you access this URL on the server, you are automatically signed in to Cisco Unified MeetingPlace Web Conferencing as a technician.

b. Click Admin, then Shared Storage.

c. In the appropriate fields, enter a domain, username, and password for a Windows account that will be used to access the shared storage location. If the account is a local account, enter the machine name in the Domain field.

   Note All Cisco Unified MeetingPlace Web Conferencing services will be configured to "Log On As" the account you choose in this sub-step.

d. Re-enter the password in the Confirm Password field.

e. Click Save Changes.

f. To put the changes into effect, click Reboot Server, then click OK to confirm the reboot. The server shuts down and restarts.

Step 4 Repeat this procedure until you have installed all of your internal web servers.

Step 5 Continue with the “Copying GUIDS from the Internal to the External Web Server” section on page 4-11.

Copying GUIDS from the Internal to the External Web Server

The GUIDS entries for site and system must match between internal and external web servers. Make sure that you run the GUIDS.reg file on each external web server before installing Cisco Unified MeetingPlace Web Conferencing.

Caution You must complete this step before running the Web Conferencing installer on the external web server. If this step is skipped or completed incorrectly, Presentation mode will not work for internal users in external meetings, and recovering from this problem requires that you rebuild the SQL Server database.

Before You Begin
Complete installing and configuring at least one internal Cisco Unified MeetingPlace web server.

To Copy GUIDS from the Internal to the External Web Server

Step 1 Copy the GUIDS.reg file from the first internal web server (located in drive:\Program Files\Cisco Systems\MPWeb).

Step 2 Place the GUIDS.reg file in the first external web server’s drive:\Temp directory.

Step 3 On the external web server, double-click the GUIDS.reg file to install it.

Step 4 When prompted to add the information from the GUIDS.reg file to the registry, click OK.

Step 5 Continue with the “Installing the First External Web Server” section on page 4-12.
Installing the First External Web Server

Before You Begin

- Read the “Installing Web Conferencing” chapter and have it available to assist you with this section.
- Complete the “Preparing the External Cluster” section on page 4-8.
- Complete the “Copying GUIDS from the Internal to the External Web Server” section on page 4-11.

Note: The GUIDS entries for site and system must match between internal and external web servers. Make sure that you run the GUIDS.reg file on each external web server before installing Cisco Unified MeetingPlace Web Conferencing.

To Install the First External Web Server

Step 1
Install Cisco Unified MeetingPlace Web Conferencing on the first web server in your external cluster.
- For Server Location, choose External (Limited Access).
- For Database Location, choose the applicable option:
  - If the SQL Server is installed locally, choose Local Server.
  - If there is a full SQL Server installed elsewhere, choose Existing Remote Server.
- When you reach the final installer window, choose to reboot your computer later, then click Finish.

Step 2
Configure the shared storage for this web server by performing the following sub-steps:

a. Open your web browser to access the Web Conferencing home page.
b. Use your System Manager-level user ID and password to sign in.
c. Click Admin, then Shared Storage.
d. For Enabled, click Yes.
e. For Shared Storage Path, enter the path of the shared storage location that you determined in Step 2 of the “To Prepare the External Cluster” procedure on page 4-8.
f. For Content Cache Size, enter a value between 0 and 100 for the percentage of total disk space to use to cache content on the local server.
g. In the appropriate fields, enter a domain, username, and password for a Windows account that will be used to access the shared storage location. If the account is a local account, enter the machine name in the Domain field.

Note: All Cisco Unified MeetingPlace Web Conferencing services will be configured to "Log On As" the account you choose in this sub-step.

h. Re-enter the password in the Confirm Password field.
i. Click Save Changes.
j. To put the changes into effect, click Reboot Server, then click OK to confirm the reboot. The server shuts down and restarts.
Step 3  If you have additional external web servers, continue with the “Installing Additional External Web Servers” section on page 4-13.

If you do not have additional external web servers, continue with the “Linking the Internal and External Servers” section on page 4-14.

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Installing Additional External Web Servers

Before You Begin

- Complete the “Installing the First External Web Server” section on page 4-12

To Install Additional External Web Servers

Step 1  Copy the GUIDS.reg file from the first external web server to the next external web server:

a. Copy the \Program Files\Cisco Systems\MPWeb\GUIDS.reg file from the first server.

b. Place the GUIDS.reg file in the next web server's \Temp directory.

c. On the next web server, double-click the GUIDS.reg file to install it.

d. When prompted to add the information from the GUIDS.reg file to the registry, click OK.

Note  The GUIDS entries for site and system must match between internal and external web servers. Make sure that you run the GUIDS.reg file on each external web server before installing Cisco Unified MeetingPlace Web Conferencing.

Step 2  Install Cisco Unified MeetingPlace Web Conferencing on the next external web server.

- For Server Location, choose External (Limited Access).
- For Database Location, choose Existing remote server and specify the SQL Server used in the “Installing the First External Web Server” section on page 4-12.

- When you reach the final installer window, choose to reboot your computer later, then click Finish.

Step 3  Configure the shared storage for this web server by performing the following sub-steps:

a. On the Web Conferencing server, open a web browser and browse to http://localhost:8002. When you access this URL on the server, you are automatically signed in to Cisco Unified MeetingPlace Web Conferencing as a technician.

b. Click Admin, then Shared Storage.

c. In the appropriate fields, enter a domain, username, and password for a Windows account that will be used to access the shared storage location. If the account is a local account, enter the machine name in the Domain field.

Note  All Cisco Unified MeetingPlace Web Conferencing services will be configured to "Log On As" the account you choose in this sub-step.

d. Re-enter the password in the Confirm Password field.

e. Click Save Changes.
f. To put the changes into effect, click Reboot Server, then click OK to confirm the reboot. The server shuts down and restarts.

Step 4 Repeat this procedure until you have installed all the external web servers.

Step 5 Continue with the “Linking the Internal and External Servers” section on page 4-14.

Linking the Internal and External Servers

External meetings are held on an external web server so that users can access their meetings from the Internet. Rather than have all of your users log in to a particular external web server, configure automatic redirection of all external meetings from your internal web servers to a designated external web server.

The internal and external servers (or clusters of servers) each operate as completely separate units until you link them by configuring automatic redirection.

Before You Begin
You must have properly installed Cisco Unified MeetingPlace Web Conferencing on all of your internal and external web servers.

To Configure Redirection of External Meetings

Step 1 From an internal web server, sign in to Cisco Unified MeetingPlace Web Conferencing.

Step 2 From the Welcome page, click Admin, then Web Server.

Step 3 From a blank Web Server Name field, enter the name of a new web server to represent your designated external web server.

Step 4 For Hostname, enter the fully qualified domain name (FQDN) of your external web server (for example, hostname.domain.com). If your web server is not in a Domain Name Server (DNS), enter the IP address instead. Note the following considerations:
- You must be able to resolve this hostname from the internal web server.
- If you plan to use SSL, make sure that the hostname on the SSL certificate resolves to the external web server’s IP address.
- If you plan to use SSL and a segmented DNS, make sure that the DNS name and the SSL certificate name differ.

Step 5 To add this web server to the database, click Submit.

This server now appears as part of your list of web servers on the bottom portion of the page.

Step 6 If you have only one internal web server and one external web server, you are finished with this procedure.

If you have more than one internal web server, continue with Step 7.

Step 7 Return to the main Admin page and click Site.

The Site administrative page appears.

Step 8 Click the Site Name that represents your cluster of internal web servers. Note the following considerations:
- There should be only one site indicated on this page unless you deployed WebConnect.
• Site Name should have a default value equal to the NetBIO name of the first web server you installed in this cluster.

**Step 9** For DMZ Web Server, choose the external web server you just added.
This configures the internal web servers in this cluster to point to this external web server in the case of external meetings.

**Step 10** Click **Submit**.

**Tip** The external cluster does not require any additional SQL Server database configurations.

**Step 11** (Optional) If one of your web servers has Cisco Unified MeetingPlace Video Integration activated, review the information on load balancing video-enabled systems in the “About Installing Web Conferencing in a Load Balancing Configuration for Video-Enabled Systems” section on page 4-7.

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**Postinstallation Tasks: Web Conferencing in a Load Balancing Configuration**

This section contains information on the following tasks:

- **Synchronizing Purge Parameters**, page 4-15
- **Configuring SSL (Optional)**, page 4-15
- **Viewing the Web Conferencing Load on a Server**, page 4-16

**Synchronizing Purge Parameters**


**Configuring SSL (Optional)**

Viewing the Web Conferencing Load on a Server

The amount of web conferencing load on a web server is indicated in the Current Server Load Index field as a number between 0 and 1. This number is a weighed average among several factors, such as CPU, memory, and disk usage. The higher the value, the heavier the load on this web server.

To View the Web Conferencing Load on a Server

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**Step 1** Sign in to Cisco Unified MeetingPlace Web Conferencing.

**Step 2** From the Welcome page, click **Admin**, then **Web Server**.

**Step 3** From the View section of the page, locate the web server you want to view.

The amount of web-conferencing load on this web server is indicated in the Current Server Load Index field.