White Paper: Installing and Maintaining a Cisco Unity Connection 7.x Warm-Standby Server

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This document contains the following sections:

Overview

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To use a warm-standby server as your disaster recovery model, you:

- Install a spare Cisco Unity Connection server at a remote or disaster recovery location without populating the database on the server.
- Use the Disaster Recovery System to back up Connection data on the currently active server, and store the backups at the remote or disaster recovery location.
- In the event of a disaster, restore the backup to the warm-standby Connection server at the remote or disaster recovery location and activate that server.

You can use a warm-standby server as a temporary replacement either for a single server or for an entire Connection cluster. If you have a warm-standby server as a backup to a Connection cluster, activate the warm-standby server only when both servers in the cluster are unavailable.

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Caution Do not activate the warm-standby server as a replacement for one server in a Connection cluster, or the cluster will not function properly.

The warm-standby server must have the same platform overlay as the server it is replacing.

Licensing a Warm-Standby Connection 7.x Server

When you activate a warm-standby server, you must install one or more Connection licenses. You have the following options:

- You can purchase a Connection license that has the same functionality as the server or Connection cluster that the warm-standby server is intended to replace. If the warm-standby server is a potential replacement for any of several servers in a digital network, the license should have sufficient licensed features (for example, number of users) to replace any of the servers in the digital network.
- You can use the license from the server that you are replacing on the warm-standby server. Licenses are automatically backed up and restored by the Disaster Recovery System.

  Because the MAC address of the warm-standby server does not match the MAC address on the license and, therefore, Connection will consider the warm-standby server to be in violation of the Connection license, you will have to restart the warm-standby server every 24 hours.
- If you are not expecting to replace the original server or Connection cluster for a while, you can have Cisco issue a replacement license with the MAC address of the warm-standby server. Note, however, that if you replace the original server, you will need to have the license reissued a second time, with the MAC address of the replacement server.

Note Getting a replacement license with a new MAC address may take several business days.

For information on Connection licensing, see the "Managing Licenses" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.

Installing and Configuring a Warm-Standby Connection 7.x Server

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Do the tasks in this section to install a warm-standby server before a disaster happens. You can then turn off the standby server except to update it (as described in the "Maintaining a Warm-Standby Connection 7.x Server to Facilitate a Restore" section on page 4).

1. Install software on the warm-standby server by following the procedures in the *Installation Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/installation/guide/7xcucigx.html. While installing, note the following:
   - Do not restart the warm-standby server until after you run the command in Task 3.

- Do not choose the option to use DHCP to automatically assign an IP address to the Connection server.
- Do not choose the option to use DNS.
- Enter static IP addresses of the Connection server and all other servers, including NTP servers, SMTP hosts, and so on.
- Assign a different IP address to the warm-standby server than the one you assigned to the server that the warm-standby server would replace.

  The warm-standby server does not need to be in the same subnet as the existing cluster. However, the warm-standby server must be able to communicate with all of the clients, devices, and external services with which the existing Connection server or cluster communicates.
- Assign the same hostname to the warm-standby server that you assigned to the server that the warm-standby server would replace.

  If a Connection cluster is configured, assign the warm-standby server the same hostname that you assigned to the publisher server in the Connection cluster.

2. If you purchased a license for the warm-standby server, install it. For more information, see the "Managing Licenses" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.
3. In case the warm-standby server is accidentally started while the currently active server is running and taking calls, on the warm-standby server run the following CLI command:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)

   This command makes the Connection Conversation Manager (CuCsMgr) service optional and causes the service to be deactivated after you restart the server in Task 4. This prevents the service from restarting and handling calls the next time you restart the server.
4. Restart the warm-standby server.
5. If the existing server or the servers in a cluster are configured to access the phone system by using hostnames, change the configuration in Cisco Unity Connection Administration on the Telephony Integrations > Port Group pages so the servers access the phone system by using IP addresses.
6. If the existing server or the servers in a cluster are configured to save DRS backups on a network drive, and if the server that contains the drive is currently specified by server name or fully qualified domain name, change the configuration to access the server by IP address.
7. On the currently active server, configure the Disaster Recovery System to perform regular backups, so that you have a backup with which to activate a warm-standby server.

   If a Connection cluster is configured, back up the publisher server and, optionally, the subscriber server.

   For more information, see the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/drs_administration/guide/7xcucdrsag.html.
8. On the warm-standby server, in the Disaster Recovery System web interface, select Backup > Backup Device, and add the backup device on which the warm-standby server will access a backup.

If backups are mirrored to another location, you can configure the warm-standby server to access the backup in a location other than where it was originally stored.

Maintaining a Warm-Standby Connection 7.x Server to Facilitate a Restore

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For the events listed in this section, do the associated tasks to keep the warm-standby server ready to become the active server.

Upgrading the Active Server

1. Upgrade the warm-standby server.
2. Run the following command on the warm-standby server to prevent the CuCsMgr service from restarting and handling calls the next time you restart the server:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)
3. Restart the warm-standby server to deactivate the CuCsMgr service.

Installing an Engineering Special

1. Install the same engineering special on the warm-standby server.
2. Run the following command on the warm-standby server to prevent the CuCsMgr service from restarting and handling calls the next time you restart the server:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)
3. Restart the warm-standby server to deactivate the CuCsMgr service.

Adding a Mailbox Store

Add a mailbox store with the same name on the warm-standby server. The value of the Maximum Size Before Warning field need not match on the two servers; having mismatched values will not affect functionality.

Adding Languages

Add the same languages to the warm-standby server. Otherwise, users who use the new languages on the active server will hear the default system language on the warm-standby server.

Making Other Changes

Whenever you make a significant change to the active server (for example, adding license files, adding a large number of new users, and so on), do a manual backup to ensure that the changes are available in a backup in case you need to activate the warm-standby server.

Restoring Data to the Warm-Standby Server (Optional)

After a DRS backup of the active server or the publisher server in a cluster, you may want to do the following tasks to reduce the amount of time required to switch from the active server or cluster to the warm-standby server:

1. Restore the backup to the warm-standby server.
2. Run the following command on the warm-standby server to prevent the CuCsMgr service from restarting and handling calls the next time you restart the server:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)
3. Restart the warm-standby server to deactivate the CuCsMgr service.

Activating a Warm-Standby Connection 7.x Server

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When a single Connection server fails or when both servers in a Connection cluster fail, do the tasks in this section to restore Connection data and messages to the warm-standby server and to activate it.

Caution Do not activate the warm-standby server as a replacement for one server in a Connection cluster, or the cluster will not function properly.

1. If you have not recently restored a backup on the warm-standby server, do so. If a Connection cluster is configured, restore the backup from the publisher server.

   Caution Do not restart the warm-standby server until you are prompted to later in this procedure.

   Restoring data on the warm-standby server automatically restores the license files from the server that you are replacing.

   Caution The MAC address of the warm-standby server does not match the MAC address on the license, so Connection will consider the warm-standby server to be in violation of the Connection license. You will have to restart the warm-standby server every 24 hours.

   For more information, see the "Restoring a Server or Cluster to a Last Known Good Configuration Without Replacing the Server" section in the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/drs_administration/guide/7xcucdrsag.html.
2. If the original server is still running (because, for example, you are testing warm standby), run the CLI command **utils system shutdown** to shut it down.

   If a Connection cluster is configured, run the command on both the publisher and subscriber servers.

3. If the original server was a node in a digital network, go to another node in the digital network and remove the original server from the network. See the "Using Digital Networking" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.
4. On the warm-standby server, run the following CLI command:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 3, iscritical = 1, activationtype = 0, issrmmanaged = 1, serviceabilitytype = 3 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)

   This command allows the Connection Conversation Manager (CuCsMgr) service to restart the next time you restart the server. (You deactivated the service in Task 3. of the "Installing and Configuring a Warm-Standby Connection 7.x Server" section on page 2.)
5. Update DNS records so that forward and reverse lookups for the original server now refer to the IP address of the warm-standby server.
6. If DNS was used by the Connection server that you are replacing, do the following tasks:
   a. Run the following CLI command to configure the DNS client on the warm-standby server:

      set network dns primary <DNS Server IP>

   b. Restart the Cisco Tomcat service.
7. If a secondary DNS server was used by the Connection server that you are replacing, run the following CLI command to configure the DNS client on the warm-standby server:

   set network dns secondary <DNS Server IP>
8. If DNS was used by the Connection server that you are replacing, run the following CLI command:

   set network domain <DNS suffix>
9. If any devices (for example, SIP gateways) refer to the IP address of the original server, update the devices to refer to the IP address of the warm-standby server.
10. If you did not run the CLI command set network domain in Task 8., which automatically causes the warm-standby server to restart, run the CLI command **utils system restart** to restart the server.
11. If the original server was a node in a digital network, go to a node in the digital network and add the warm-standby server to the network. See the "Using Digital Networking" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.
12. If you did not license the warm-standby server and if you want to use the warm-standby server indefinitely or you do not want to restart the server every 24 hours until the permanent replacement for the original server is installed, contact Cisco and request that the existing license(s) be reissued with the MAC address of the warm-standby server. Then install the license(s).

    For information on obtaining and installing licenses, see the "Managing Licenses" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.

Reverting from a Warm-Standby Connection 7.x Server to a Replacement Server or Connection Cluster

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Do the tasks in this section when you are ready to replace the original server or Connection cluster and to deactivate the warm-standby server.

1. If you are replacing the original server (or both servers in a Connection cluster) with a new server that has a different MAC address, contact Cisco and request that the existing licenses be reissued with the MAC address of the new server. You install the licenses during installation of the new server(s).

   For more information, see the "Managing Licenses" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.

2. Install the new server and give it the same name as the old server by following the procedures in the *Installation Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/installation/guide/7xcucigx.html. While installing, note the following:

   - If you are reverting to a Connection cluster, install the new publisher server now. (You install the new subscriber server later.)
   - Do not restart the replacement server until after you run the command in Task 3.
   - Do not choose the option to use DHCP to automatically assign an IP address to the replacement server.
   - Do not choose the option to use DNS.
   - Enter static IP addresses for the replacement server and all other servers, including NTP servers, SMTP hosts, and so on.
   - Assign a different IP address to the replacement server than the one assigned to the warm-standby server.

     The replacement server does not need to be in the same subnet as the warm-standby server. However, the replacement server must be able to communicate with all of the clients, devices, and external services with which the warm-standby server communicates.
   - Assign the same hostname to the replacement server that you assigned to the warm-standby server.

     If a Connection cluster is configured, assign the replacement publisher server the same hostname that you assigned to the warm-standby server.

3. In case the replacement server is accidentally started while the warm-standby server is still running and taking calls, on the replacement server run the following CLI command:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)

   This command makes the Connection Conversation Manager (CuCsMgr) service optional and causes the service to be deactivated after you restart the server in Task 4. This prevents the service from restarting and handling calls the next time you restart the server.

4. Restart the replacement server.

5. Back up the warm-standby server. For more information, see the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/drs_administration/guide/7xcucdrsag.html.
6. Restore data to the replacement server from the backup that you made in Task 5. For more information, see the *Disaster Recovery System Administration Guide for Cisco Unity Connection Release 7.x*.
7. On the warm-standby server, run the following CLI command to disable the CuCsMgr service on the warm standby server in case it is restarted in the future:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 1, iscritical = 0, activationtype = 2, issrmmanaged = 0, serviceabilitytype = 1 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)

   This command prevents the CuCsMgr service from restarting and handling calls the next time you restart the server.
8. On the warm-standby server, run the CLI command **utils system shutdown** to shut it down.
9. On the replacement server, run the following CLI command:

   run cuc dbquery unitydirdb UPDATE tbl_service SET servicestate = 3, iscritical = 1, activationtype = 0, issrmmanaged = 1, serviceabilitytype = 3 where processName = 'CuCsMgr' AND VmsServerObjectId IN (select objectid from tbl_vmsserver where clustermemberid = 0)

   This command allows the Connection Conversation Manager (CuCsMgr) service to restart the next time you restart the server. You deactivated the service in Task 3.
10. Update DNS records so that forward and reverse lookups for the warm-standby server now refer to the IP address of the replacement server.
11. If DNS was used by the warm-standby server, do the following tasks:
    a. Run the following CLI command to configure the DNS client on the replacement server:

       set network dns primary <DNS Server IP>

    b. Restart the Cisco Tomcat service.
12. If a secondary DNS server was used by the warm-standby server, run the following CLI command to configure the DNS client on the replacement server:

    set network dns secondary <DNS Server IP>
13. If DNS was used by the warm-standby server, run the following CLI command:

    set network domain <DNS suffix>
14. If any devices (for example, SIP gateways) refer to the IP address of the warm-standby server, update the devices to refer to the IP address of the replacement server.
15. If you did not run the CLI command **set network domain** in Task 8., which automatically causes the replacement server to restart, run the CLI command **utils system restart** to restart the server.
16. If the warm-standby server was a node in a digital network, remove the standby server and add the replacement server:
    a. Go to another node in the digital network and remove the warm-standby server from the network. See the "Using Digital Networking" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/administration/guide/7xcucsagx.html.

b. Add the new server to the network. See the "Using Digital Networking" chapter of the *System Administration Guide for Cisco Unity Connection Release 7.x*.

17. If you are reverting to a single server, skip to Task 18.

    If you are reverting to a Connection cluster, install the new subscriber server and give it the same name as the old subscriber server. Continue following the procedures in the *Installation Guide for Cisco Unity Connection Release 7.x* at http://www.cisco.com/en/US/docs/voice_ip_comm/connection/7x/installation/guide/7xcucigx.html .

18. Manually back up the new server (or the new publisher server in a cluster) so that a backup is available in case you need to revert to the warm-standby server again.
