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Application Server Failover

You can deploy two Application Servers as part of one logical site. Database replication enables the Application Servers to synchronize user profiles, user groups, and meeting data. Profile recorded names are not replicated automically. Only one Application Server is active at any time. If the *active* server fails, you can activate the *standby* server and place the previously active server in standby mode. Each Application Server in a site is called a *node*.

If the site includes two hardware Media Servers, then one Media Server will be associated with each Application Server. If the site includes only one hardware Media Server, it is always associated with the *active* Application Server.

In a failover deployment, each Application Server is configured with two IP addresses-one for each of these interfaces:

- eth0-Physical network interface
  - ♦ Assign the same shared hostname and IP address to eth0 on both Application Servers.
  - ♦ Anyone who tries to access the shared hostname or IP address will reach the active Application Server.
  - ♦ The eth0 interface is disabled on the standby Application Server.
- eth0:0-Virtual network interface
  - ♦ Assign a unique hostname and IP address to eth0:0 on each Application Server.
  - ♦ Use the eth0:0 hostname or IP address to access an Application Server that is in standby mode.
  - ♦ The system uses the eth0:0 virtual network interface for database replication between the two nodes.

Note: The interface eth0 mentioned throughout this module actually refers to the physical Ethernet port 1 on the Application Server.

When a node is rebooted, interface eth0 is initially disabled. However, during startup of the Cisco Unified MeetingPlace application, the node checks for an active Application Server on the network by attempting to ping the eth0 IP address, which is identical on both nodes. If the ping is unsuccessful, the rebooted node enables the eth0 interface and becomes the active server.

Related Topics

- Prerequisites for Application Server Failover
- Restrictions for Application Server Failover
- How to Configure Application Server Failover
- How to Perform Application Server Failover
- Failover in Cisco WebEx Integrations in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module

Prerequisites for Application Server Failover

- Learn about failover deployment options in the *Planning Guide for Cisco Unified MeetingPlace* at http://docwiki.cisco.com/wiki/Cisco_Unified_MeetingPlace%2C_Release_8.0_--_Planning_Your_Deployment.
- Install Cisco Unified MeetingPlace as described in the Quick Start for Installing and Configuring Cisco Unified MeetingPlace Release 8.0 module.
- Determine the hostname, IP address, subnet mask, and default gateway for each node:
    - Node 1 eth0 and Node 2 eth0-Use the same hostname and IP address for the eth0 network interface on both Node 1 and Node 2, for example: meetings.example.com, 10.0.0.1
    - Node 1 eth0:0-Use a unique hostname and IP address for this virtual network interface, for example: meetings1.example.com, 10.0.0.2
    - Node 2 eth0:0-Use a unique hostname and IP address for this virtual network interface, for example: meetings2.example.com, 10.0.0.3
- Configure the Domain Name System (DNS) server for forward and reverse DNS lookup of all three hostname-IP address pairs. Verify by running the **nslookup** *hostname* and **nslookup** *ip-address* commands.
- Whether you configure Application Server failover before or after you install any Web Server(s) and your call-control devices (such as Cisco Unified Communications Manager), make sure that these devices identify the active Application Server by using the shared hostname and IP address of eth0.

Related Topics

- Restrictions for Application Server Failover
- How to Configure Application Server Failover

Restrictions for Application Server Failover

- Not all Application Server configurations are replicated between the active and standby servers. If you make any configuration changes after you set up Application Server failover, make sure you follow the Configuring the Application Servers in a Failover Deployment.
- Only the database and Apache Tomcat processes run on a *standby* server, which you will notice if you enter the operating **status** command on the standby server.
- When you configure the Application Server for the Express Media Server, both the primary and secondary failover Express Media Servers must have the same licenses and port distribution for scheduled and ad-hoc meetings.
- The time must be synchronized between the two Application Servers. This is required to resolve conflicts when the same piece of data is modified simultaneously in both Application Servers.
- The Informix database runs on the same machine as the Application Server. Port 2008 is configured in the Application Servers for database replication purposes.

- If the primary and failover Application Servers share a common set of Audio and Video Blades, you must add all the Audio Blades to both Applications Servers. Be sure to use exactly the same passwords and SNMP community names on the two systems or the failover mechanism will not work.
- Completion of and later changes to the Application Server failover deployment require that you update the Application Server Link. After the failover configuration is completed, complete the procedure in Configuring the Application Server Link on the Cisco WebEx Node for MCS in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module.
- If you need to upgrade your system after setting up Application Server failover, make sure that you follow the failover-specific upgrade instructions in Upgrading Application Servers that are Used in a Failover Deployment in the Upgrading to Cisco Unified MeetingPlace Release 8.0 from Cisco Unified MeetingPlace Release 7.0 module.

Related Topics

- Prerequisites for Application Server Failover
- How to Configure Application Server Failover
- How to Perform Application Server Failover
- Configuring Cisco Unified MeetingPlace Directory Service module
- Failover in Cisco WebEx Integrations in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module

How to Configure Application Server Failover (Cisco Unified MeetingPlace 8.0.2)

- Setting Up Failover for Two Newly Installed Application Servers
- Setting Up Failover for One Existing Application Server and One Newly Installed Application Server
- Configuring the Application Servers in a Failover Deployment

Setting Up Failover for Two Newly Installed Application Servers

Before You Begin

- Complete the Prerequisites for Application Server Failover.
- Read the Restrictions for Application Server Failover.

Procedure

1. Install the first Application Server (Node 1).
   During installation, you configure the hostname and IP address of eth0, which is called "Ethernet Port 1(device eth0)" on the Network Setup page.
2. Install any licenses on the first Application Server (Node 1). For details, see the Installing and Managing Licenses for Cisco Unified MeetingPlace module.
3. Sign in to the CLI of Node 1 - login as root.
   If you are signing in remotely, use the eth0 IP address or hostname.

4. Enter this command to set up Node 1 for failover:
   failoverUtil setDeployment failover
5. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
   Node 1 automatically restarts and enters *standby* mode.
6. Install the second Application Server (Node 2), ensuring the following:
   - Node 1 and Node 2 use the exact same IP address and hostname for eth0.
   - Time is synchronized between Node 1 and Node 2.
7. Install failover licenses on the second Application Server (Node 2), and reboot the system. For details, see the Installing and Managing Licenses for Cisco Unified MeetingPlace module.
8. Sign in to the CLI of Node 2 - login as root.
   If you are signing in remotely, use the eth0 IP address or hostname.
9. Enter this command to set up Node 2 for failover:
   failoverUtil setDeployment failover
10. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
    Node 2 automatically restarts and enters *standby* mode.
11. Enter this command to initialize database replication:
    mp_replication init -n 2 -r *remote-eth0:0* **[-v]**
12. Sign in to the CLI of Node 1.
    If you are signing in remotely, use the Node 1 eth0:0 IP address or hostname.
13. Enter this commands to initialize and start database replication:
    mp_replication init -n 1 -r *remote-eth0:0* **[-v]**
    mp_replication switchON -S -F *from-sync* **[-v]**
14. Enter this command to change Node 1 from standby mode to active mode:
    failoverUtil setServer active

Verifying

Using the hostname or IP address of the virtual eth0:0 interface, sign in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

Troubleshooting Tips

If the Administration Center in *both* nodes displays "Failover deployment. Standby server," something might have interrupted the process initiated in Step 14. To resolve this issue, see the failoverUtil setServer command description in the Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module.

Related Topics

- Installing the Cisco Unified MeetingPlace Application Server Software module
- Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module

What To Do Next

- If your system is integrated with Cisco WebEx, and your deployment includes the Cisco WebEx Node for MCS, then proceed to Configuring the Application Server Link on the Cisco WebEx Node for MCS in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module.
- Otherwise, proceed to Configuring the Application Servers in a Failover Deployment.

Setting Up Failover for One Existing Application Server and One Newly Installed Application Server

In this task:

- Node 1 is the existing Application Server.
- Node 2 is the new Application Server.

Before You Begin

- Complete the Prerequisites for Application Server Failover.
- Read the Restrictions for Application Server Failover.
- Back up and archive the data on the existing Application Server (Node 1). See the Backing Up, Archiving, and Restoring Data on the Cisco Unified MeetingPlace Application Server module.

Caution! Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Proceed only during a scheduled maintenance period.

Procedure

1. Install the second Application Server (Node 2), ensuring the following:
   - ♦ To reduce system downtime during this procedure, enter the Node 2 eth0:0 (or any valid and currently unused) IP address and hostname when you configure "Ethernet Port 1(device eth0)" on the Network Setup page.
     This configuration is temporary; you will change the eth0 IP address and hostname to the correct value later in this procedure.
   - ♦ Node 1 and Node 2 server times must be synchronized with each other.
2. Install failover licenses on the second Application Server (Node 2), and reboot the system. For details, see the Installing and Managing Licenses for Cisco Unified MeetingPlace module.
3. Sign in to the CLI of Node 1 - login as root.
   If you are signing in remotely, use the Node 1 eth0 IP address or hostname.
4. Enter this command to set up Node 1 for failover:
   failoverUtil setDeployment failover
5. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
   Node 1 automatically restarts and enters *standby* mode.
6. Sign in to the CLI of Node 2 - login as root.
   If you are signing in remotely, use the temporary Node 2 eth0 IP address or hostname that you entered during installation in Step 1.

7. Enter the net command to change the Node 2 eth0 IP address and hostname to match the Node 1 eth0 IP address and hostname.
   Because Node 1 is still in standby mode, Node 2 is now the active server.
8. Enter **mpx_sys restart** to restart Node 2.
9. Sign in to the CLI of Node 2, this time using the shared eth0 IP address or hostname.
10. Enter this command to set up Node 2 for failover:
    failoverUtil setDeployment failover
11. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP address, subnet mask, default gateway, and hostname.
    Node 2 automatically restarts and enters *standby* mode.
12. Enter this command to initialize database replication:
    mp_replication init -n 2 -r *remote-eth0:0* **[-v]**
13. Sign in to the CLI of Node 1.
    If you are signing in remotely, use the Node 1 eth0:0 IP address or hostname.
14. Enter these commands to initialize and start database replication and synchronize existing data:
    mp_replication init -n 1 -r *remote-eth0:0* **[-v]**
    mp_replication switchON -S -F *from-sync* **[-v]**
15. Enter this command to change Node 1 from standby mode to active mode:
    failoverUtil setServer active

Verifying

Using the hostname or IP address of the virtual eth0:0 interface, sign in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

Troubleshooting Tips

If the Administration Center in *both* nodes displays "Failover deployment. Standby server," something might have interrupted the process initiated in Step 14. To resolve this issue, see the failoverUtil setServer command description in the Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module.

Related Topics

- Installing the Cisco Unified MeetingPlace Application Server Software module

What To Do Next

- If your system is integrated with Cisco WebEx, and your deployment includes the Cisco WebEx Node for MCS, then proceed to Configuring the Application Server Link on the Cisco WebEx Node for MCS in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module.
- Otherwise, proceed to the Configuring the Application Servers in a Failover Deployment.

Configuring the Application Servers in a Failover Deployment

Whenever you need to configure the Application Server in a failover deployment, use this procedure to make sure that both the active and standby servers have the same configuration.

Before You Begin

- Complete one of these tasks:
  - ♦ Setting Up Failover for Two Newly Installed Application Servers
  - ♦ Setting Up Failover for One Existing Application Server and One Newly Installed Application Server
- Determine the hostname or IP address of both of these virtual network interfaces:
  - ♦ eth0:0 of the active server
  - ♦ eth0:0 of the standby server

Procedure

1. Go to **http://***application-server***/admin/**.
   Use the shared eth0 hostname or IP address, which always goes to the *active* Application Server.
2. Sign in as a System administrator.
3. Configure the active server.
   Take note of any changes you make on pages or fields that are labeled as:
   · Copied
   · Server-specific
   · Partially replicated
   The "copyConfigFiles" commands will include recorded name files as well.

1. If you made changes to any *copied* pages or parameters, then perform these steps:
   1. Sign in to the CLI of the *active* server.
      If you are signing in remotely, use the eth0 IP address or hostname.
   2. Enter this command to compress and transfer the files from the active server to the standby server:
      failoverUtil copyConfigFiles
   3. Sign in to the CLI of the *standby* server.
      If you are signing in remotely, use eth0:0 IP address or hostname.
   4. Enter this command to decompress the transferred files and put them in the correct directories on the standby server:
      failoverUtil restoreConfigFiles
2. If you made changes to any *server-specific* pages or parameters, then perform these steps.
   Tip: If your workstation screen is large enough to accommodate two full web browser windows without overlapping, then you can simultaneously view the Administration Center for both the active and standby servers. This might help you configure the server-specific parameters to match between the active and standby servers.
   1. Go to **http://***standby-eth0:0***/admin/**.
      Use either the hostname or IP address of the virtual eth0:0 interface of the *standby* Application Server.
   2. Sign in as a System administrator.
   3. Verify that "Failover deployment. Standby server." appears at the top of the page.

4. Configure the server-specific parameters on the standby server.

What to Do Next

Perform the following from both Application Servers to replicate custom prompts and some configurations from the Primary application server to the Standby application server during a maintenance window or off-peak hours.

1. Log in to the CLI of the active server.
   If you are logging in remotely, use the eth0 IP address or hostname.
2. Enter the following command to compress and transfer the files from the active server to the standby server:
   failoverUtil copyConfigFiles
   This will compress and copy over configuration files and user prompts to the remote server.
3. Log in to the CLI of the standby server.
   If you are logging in remotely, use eth0:0 IP address or hostname.
4. Enter the following command to decompress the transferred files and put them in the correct directories on the standby server:
   failoverUtil restoreConfigFiles
   This action copies over custom prompts including customized system prompts and user name recordings. Without this action .wav files are not replicated to the standby server.

Related Topics

- Signing In to the Cisco Unified MeetingPlace Administration Center module
- Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module
- *Integration Guide for Installing and Configuring Microsoft Outlook with Cisco Unified MeetingPlace* at http://www.cisco.com/en/US/products/sw/ps5664/ps5669/prod_installation_guides_list.html
- Integrating Cisco Unified MeetingPlace with Cisco WebEx module
- Customizing Music and Voice Prompts for Cisco Unified MeetingPlace module
- How to Perform Application Server Failover
- Installing the Cisco Unified MeetingPlace Application Server Software module

How to Configure Application Server Failover (Cisco Unified MeetingPlace 8.0.1)

Before You Begin

- Note the following nomenclature that is used for clarity: node 1 is the server that originally is the active Application Server and node 2 is the server that originally is the standby Application Server.
- Turn off failover before you begin.

Procedure

1. Sign in to the CLI of node 1. If you are signing in remotely, use the eth0:0 IP address or hostname.
2. Enter **su -** to switch to the root user.
3. Enter **mp_replication status** on node 1 to ensure that all database changes have been synchronized.
   The system displays the queue column as zeroes.

4. Enter **mp_replication switchOFF -r***node_2_eth0:0* on node 1, to switch off replication between the two Application Servers, where *node_2_eth0:0*is the eth0:0 address for node 2.
5. Enter **mp_replication teardown -r** *node_2_eth0:0* on node 1, to tear down the replication setup with the remote Application Server, where *node_2_eth0:0*is the eth0:0 address for node 2.
6. Archive and save the configuration data on node 1.
7. Enter **failoverUtil setDeployment singleServer** to change the mode of node 1 to SingleServer.
8. Upgrade node 1. See the Upgrading the Application Server by Using the Console.
9. Enter **failoverUtil setDeployment failover** on node 1 to change the mode of node 1 to failover.
   Note: This disables the eth0 interface of node 1, so that node 2 can become active.
10. Sign in to the CLI of node 2. If you are signing in remotely, use the eth0:0 IP address or hostname.
11. Enter **su -** to switch to the root user.
12. Enter **failoverUtil setServer active** on node 2 to change its mode from standby to active.
13. Enter **mp_replication teardown -r** *node_1_eth0:0* on node 2, to tear down the replication setup with the remote Application Server, where *node_1_eth0:0*is the eth0:0 address for node 1.
14. Enter **failoverUtil setDeployment singleServer** on node 2 to change its mode to SingleServer.
15. Upgrade node 2. See the Upgrading the Application Server by Using the Console.
16. Enter **failoverUtil setDeployment failover** on node 2 to change its mode to failover.

At this point, both Application Servers are in standby mode.

1. Sign in to the CLI of node 2. If you are signing in remotely, use the eth0:0 IP address or hostname.
2. Initialize database replication:
   - Release 8.0 MR1--Enter **mp_replication init -n 2 -r <*node1-eth0:0-hostname*> [-v]**
   - Release 8.0 FCS-- Enter**mp_replication init -s 1 -n 2 -l node2-eth0:0 -r node1-eth0:0 -h**
3. Sign in to the CLI of Node 1. If you are signing in remotely, use the Node 1 eth0:0 IP address or hostname.
4. Enter the following to initialize and start database replication:
   - Release 8.0 MR1
     mp_replication init -n 1 -r <*node2-eth0:0-hostname*> [-v]
     mp_replication switchON
   - Release 8.0 FCS
     mp_replication init -s 1 -n 1 -l node1-eth0:0 -r node2-eth0:0 -h
     mp_replication switchON -r node2-eth0:0
5. Sign in to the CLI of node 1. If you are signing in remotely, use the eth0:0 IP address or hostname.
6. Enter **failoverUtil setServer active** on node 1 to change its mode to active.
   Node 1 is the active Application Server and node 2 is the standby Application Server.

Related Topics

- Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module
- Backing Up, Archiving, and Restoring Data on the Cisco Unified MeetingPlace Application Server module
- Upgrading the Application Server by Using the Console
- Upgrading the Application Server Remotely

How to Perform Application Server Failover

- Performing Application Server Failover
- Performing Application Server Failover to Switch to the Previous Active Server

Performing Application Server Failover

Before you perform this task:

- Node 1 is the current active server.
- Node 2 is the current standby server.

After you complete the task:

- Node 1 will be the standby server.
- Node 2 will be the active server.

Before You Begin

Set up Application Server failover by completing one of these sections:

- Setting Up Failover for Two Newly Installed Application Servers
- Setting Up Failover for One Existing Application Server and One Newly Installed Application Server

Caution! Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Perform this task only if the current active server fails, or during a scheduled maintenance period.

Procedure

1. If the Node 1 is up, then complete these steps:
    1. Sign in to the CLI of Node 1.
        If you are signing in remotely, use the Node 1 eth0:0 IP address or hostname.
    2. Enter this command to change the server to *standby* mode:
        failoverUtil setServer standby
2. Sign in to the CLI of Node 2.
    If you are signing in remotely, use the Node 2 eth0:0 IP address or hostname.
3. Enter this command to change the server to *active* mode:
    failoverUtil setServer active
4. Restart the MCUs manually to resynchronize them or complete the steps in Resynchronizing the MCUs.

Verifying

Using the hostname or IP address of the virtual eth0:0 interface, sign in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

Troubleshooting Tips

If the Administration Center displays the wrong failover mode on either or both servers, something might have interrupted the process initiated by the failoverUtil setServer command. To resolve this issue, see the failoverUtil setServer command description in the Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module.

Related Topics

- Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module
- Performing Application Server Failover to Switch to the Previous Active Server
- Failover in Cisco WebEx Integrations in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module

Performing Application Server Failover to Switch to the Previous Active Server

Before you perform this task:

- Node 1 is the current standby server.
- Node 2 is the current active server.

After you complete the task:

- Node 1 will be the active server.
- Node 2 will be the standby server.

Before You Begin

Caution! Performing this task temporarily brings down your Cisco Unified MeetingPlace system. Perform this task only if the current active server fails, or during a maintenance period.

- Complete the Prerequisites for Application Server Failover.
- Back up and archive the data on the currently active Application Server (Node 1). See the Backing Up, Archiving, and Restoring Data on the Cisco Unified MeetingPlace Application Server module.

Procedure

1. If Node 1 was brought to single-server mode, perform these steps:
    1. Sign in to Node 2 using eth0:0 to bring Node 2 into Standby mode.
        failoverUtil setServer standby
    2. Sign in to the Node 1 CLI using the console.
    3. Enter this command to set up failover:
        failoverUtil setDeployment failover
    4. Follow the CLI prompts to configure the virtual network interface (eth0:0) with an IP

address, subnet mask, default gateway, and hostname.

Node 1 automatically restarts and enters *standby* mode.

5. Enter this command to initialize database replication:
   mp_replication init -n 1 -r *remote-eth0:0* **[-v]**
6. Enter this command to synchronize existing data from Node 2 and start database replication:
   mp_replication switchON -S -F *from-sync* **[-v]**

2. If Node 1 was never brought to single-server mode, but database replication configuration was removed from Node 1, do the following:
   1. Sign in to the CLI of Node 1.
      If you are signing in remotely, use the Node 1 eth0:0 IP address or hostname.
   2. Enter this command to initialize database replication:
      mp_replication init -n 1 -r *remote-eth0:0* **[-v]**
   3. Enter this command to synchronize existing data from Node 2 and start database replication:
      mp_replication switchON -S -F *from-sync* **[-v]**
3. Sign in to the CLI of Node 2.
4. Enter this command to change Node 2 to *standby* mode:
   failoverUtil setServer standby
5. Sign in to the CLI of Node 1.
6. Enter this command to change Node 1 to *active* mode:
   failoverUtil setServer active

Verifying

Using the hostname or IP address of the virtual eth0:0 interface, sign in to the Administration Center of each node, and verify that the correct failover deployment mode (active or standby) appears at the top of the page.

Troubleshooting Tips

If the Administration Center displays the wrong failover mode on either or both servers, something might have interrupted the process initiated by the failoverUtil setServer command. To resolve this issue, see the failoverUtil setServer command description in the Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module.

Related Topics

- Using the Command-Line Interface (CLI) on the Cisco Unified MeetingPlace Application Server module
- Performing Application Server Failover
- Failover in Cisco WebEx Integrations in the Integrating Cisco Unified MeetingPlace with Cisco WebEx module

Resynchronizing the MCUs

Procedure

1. Sign in to the Media Server Administration for the Hardware Media Server.
2. Select **Resource Management > MCU** from the left panel.
3. Select the name of the Audio Blade.
4. Select **Synchronize** on the Resource Management page.
5. Select **OK** at the informational message.
6. Select **Synchronize** on the Active Meeting Types page.
   The system displays a message that the meetings were downloaded successfully.
7. Select **OK**.