Cluster Topology Configuration of Subclusters, Nodes, and Users

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Cluster Topology Configuration on IM and Presence Service

When you configure the multinode feature using Cluster Topology, note the following:

- Perform the system topology configuration on the IM and Presence publisher node.
- Before configuring the system topology, read the multinode planning and deployment information for best practice information about configuring this type of deployment.

Perform these procedures only if you are deploying IM and Presence Service in a multinode configuration.

Caution

Only use the system topology interface to configure your local IM and Presence Service cluster. See the intercluster peer module for information about configuring intercluster peer relationships with remote IM and Presence clusters.

Subcluster, Node and User Management Recommendations

Node Creation and Movement Recommendations

When you create nodes in the system topology management GUI you can:
• Assign the nodes to a subcluster in IM and Presence Service, or allow the nodes to remain unassigned. These states are interchangeable.

• Assign IM and Presence Service users to the nodes, or allow the nodes to remain without any user assignments.

• Turn on or off High Availability on a subcluster. See the section about configuring High Availability deployments later in this chapter.

• Move a node from one subcluster to another if the node is assigned, has no users and high-availability is turned off in the subcluster.

• Move a node from one subcluster to another if the node is assigned and has no users.

• Configure real pingable nodes, or logical nodes which can be installed later and which remain inaccessible until that time.

To move nodes with users assigned, perform one of the following actions:

• Unassign the users, move the node, and then reassign the users to the node. Note that when you unassign the users, they will lose service.

• Create a logical node and move the users to the logical node. Move the node, reassign the users to the node, and remove the logical node.

• Remove all users from a node before you unassign or move it.

• Turn off High Availability in the subcluster before you unassign or move a node in that subcluster.

• We strongly recommend that you perform any node movements that involve unassigning or moving a large numbers of users at off peak times. Such large operations can adversely impact performance.

Related Topics

Manage Nodes in System Topology, on page 5

Node Name Recommendations

By default, the name for a node is the hostname that you configure during IM and Presence Service installation. For example, if the hostname of your IM and Presence Service node is called "cup1", the node name is "cup1". You can change the node name to the dotted IP address or the FQDN, for example, "192.168.0.1" or "cup1.acme.com". If you change the default name for the node, note the following:

• You must be able to resolve the hostname or the FQDN from the IM and Presence Service node, and Cisco Jabber clients.

• If either IM and Presence Service node or the Cisco Jabber client cannot resolve the hostname or the FQDN, configure the IP address for the node name value.

• To test the name resolution from the IM and Presence Service node, use the command `utils network ping <node_name>`

• To test the name resolution from the Cisco Jabber client, use the command `ping <node_name>`

• If your network uses DNS that can map to IPv4 addresses, you can enter the IM and Presence Service hostname. Otherwise, you must enter the full IPv4 address of the IM and Presence Service node.
When using the Cisco Jabber client, certificate warning messages can be encountered if the IP address is configured as the IM and Presence Service node name. To prevent Cisco Jabber from generating certificate warning messages, the FQDN should be used as the node name.

**Related Topics**

Manage Nodes in System Topology, on page 5

**User Assignment Mode Recommendations**

You can manually or automatically assign users in an IM and Presence Service deployment. Use the User Assignment Mode parameter on the Sync Agent to manage user assignment on IM and Presence Service:

- If set to **Balanced**, IM and Presence Service divides all users equally across all nodes in all subclusters. Use this user assignment mode for the Balanced Mode Non-Redundant High Availability and the Balanced Mode Redundant High Availability deployment options.
- If set to **Active/Standby**, IM and Presence Service assigns all users only to the first node of a subcluster. If there is only a single node in the subcluster, IM and Presence Service uses this node for assignment regardless of the location of the node within the subcluster.
- If set to **None**, you must manually assign your users to nodes in system topology management GUI.
- If all the hardware in your cluster is of the same generation and has the same capacity, set the User Assignment Mode to **Balanced**.
- If you have hardware of mixed generations and capacities in a node, set the User Assignment Mode to **None**. Manually assign your users making sure that each server is not loaded beyond capacity.

**Related Topics**

Configure Sync Agent Settings

**Manual User Assignment Recommendations**

If you choose to manually assign users in system topology management GUI, note the following:

- You can manually unassign, assign or reassign users. You can assign users to a single node, and you can also distribute groups of users across the node, or nodes, in a cluster, or a given subcluster.
- If you assign a user to one of the nodes in a subcluster, the other node in the subcluster can become the backup (redundant) node for the user if you turn on High Availability for the subcluster. If you do not configure a backup node in the subcluster, and you do not turn on High Availability for the subcluster, the user does not have High Availability failover protection.
- Users who are assigned may be reassigned, that is, moved to another subcluster, or to a specific node. You can move users individually or in bulk.
- Users can remain unassigned. Unassigned users do not receive availability information.
We recommend that you only reassign a user (assign a user that was previously unassigned) if the Cisco Presence Engine is running on all nodes in your cluster, otherwise IM and Presence Service will not reestablish the presence subscriptions to and from this user.

When you are assigning users, note the following:

• You can only assign users if they are licensed.

• Unassigning or reassigning users results in termination of active sessions. In such instances, clients must reconnect to the new location.

• You can export users in bulk using the Bulk Administration Tool (BAT). You can also use BAT to perform bulk user reassignment from one node to another.

Generally we recommend that you take the Cisco Presence Engine and Cisco SIP Proxy services offline when performing bulk operations. Note that taking these services offline will adversely impact performance.

**Related Topics**

- Configure User Assignment in System Topology, on page 7
- Turn On or Off High Availability for Subcluster

**User Redistribution**

- If you turn on High Availability in a subcluster, be aware that IM and Presence Service does not redistribute users to nodes that are in a failover states; the valid node states that support user redistribution are Normal and Running in Backup Mode.

- If you rebalance your users, you must reconfigure the upper and lower client re-login limit values based on the HA login profile tables, see topics related to High Availability client login profiles.

After adding or removing nodes, you can redistribute users using the **Rebalance Users** parameter in system topology management GUI. This parameter redistributes users based on the configured User Assignment mode. These are examples of how you can use the Rebalance Users parameter with the User Assignment mode to manage user assignment:

- Scenario A: The customer has a subcluster with two nodes, and each node contains 5000 users. The User Assignment mode is set to Balanced. The customer then adds a second subcluster with two nodes, and sets the Rebalance Users parameter. IM and Presence Service distributes the users evenly to the four nodes so that each node now has 2500 users.

- Scenario B: The customer has a subcluster with two nodes, and each node contains 2500 users. The User Assignment mode is set to Balanced. The customer wants to add a second subcluster with two nodes, but also wants to change the User Assignment mode to Active/Standby. The customer changes the mode to Active/Standby, whereby all 5000 users are redistributed to the first node in the subcluster. The customer then adds a second subcluster with two nodes, and sets the Rebalance Users parameter. IM and Presence Service evenly distributes the users across both first nodes in each subcluster. Each first node now has 2500 users.
We strongly recommend that you perform any node movements that involve unassigning or moving a large numbers of users at off peak times. Such large operations can adversely impact performance.

Related Topics

- High Availability Login Profiles
- Node Creation and Movement Recommendations, on page 1
- Configure User Assignment in System Topology, on page 7

Create Subclusters in System Topology

The system automatically assigns the first IM and Presence Service node that you install as the publisher node. After you install the publisher node, create the required subclusters and subsequent nodes in your IM and Presence Service cluster in system topology management GUI.

Repeat this procedure for each subcluster that you require for your deployment.

Note

Perform this procedure on the publisher IM and Presence Service node.

Before You Begin

Plan your multinode deployment model.

Procedure

Step 1  Select Cisco Unified CM IM and Presence Administration > System > Cluster Topology.
Step 2  Select Add New Subcluster.
Step 3  Define a unique name for the subcluster.
Step 4  Select Save.

Troubleshooting Tip

To update a subcluster, or view the status of a subcluster, select the edit link on the subcluster.

What to Do Next

Proceed to manage nodes using System Topology.

Manage Nodes in System Topology

Create the required subsequent nodes for your deployment. By creating the subsequent nodes in the topology view of the publisher node, IM and Presence Service associates the subsequent nodes with the publisher node.
Before You Begin

Note

- Perform this procedure on the publisher IM and Presence Service node.
- Perform this procedure before you install any of the subsequent IM and Presence Service nodes. If you assign a subsequent IM and Presence Service node to a subcluster prior to installing it, users in remote clusters will not receive availability information. An availability outage will occur until the node is installed.

Depending on how you plan to configure your node name, obtain the required value for your nodes (for example FQDN, hostname or dotted IP address). Note the following restrictions:

- If you wish to change the default node name, there are certain node name restrictions. Read the node name recommendations topic.
- You can only move a node from one subcluster to another if the node is assigned and has no users.
- You must turn off High Availability in a subcluster before you move or unassign a node in that subcluster.

Procedure

Step 1
Create the required subclusters for your deployment.

Step 2
Select Cisco Unified CM IM and Presence Administration > System > Cluster Topology.

Step 3
Create the required subsequent nodes for your deployment:

a) Select Add New Node.
b) Define a unique name for the node.
c) Select Save.

Step 4
Perform one of the following actions:

- To assign a node to a subcluster, drag the node into the empty slot in the subcluster.
  - Do not assign the subsequent node to a subcluster until after you install it, and you have checked the status of the node.
  - Before you assign a node to a subcluster, check the following
    - From System troubleshooter page, verify that the Cisco Replication Watcher service is running on all nodes.
    - On the Network services screen in Cisco Unified IM and Presence Serviceability (on the subscriber node), verify that all IM and Presence services are running on the assigned node.

- To move a previously assigned node, drag the node from the subcluster and drop it into the empty slot of the peer subcluster.
  - Turn off high-availability in the subcluster before you move the node.
  - Unassign all users from the node before you move it.
Step 5  Select Cisco Unified CM IM and Presence Administration > Diagnostics > System Troubleshooter to verify the status of your topology configuration.

Tip  To update a node, or view the status of a node, select the edit link on the node to view the Node Detail screen. From the edit window, you can:

- View the total users assigned to the node.
- Verify the status of the node.

- If you turn on High Availability in the subcluster, the critical services that IM and Presence Service monitors on the node for failover are marked in the “Monitored” column.
- If you turn on High Availability, you can also view the High Availability state of the node, and the reason for this state.

What to Do Next

Proceed to configure user assignments in System Topology.

Related Topics

- Restart Cisco XCP Router Service
- Node Name Recommendations, on page 2
- Node Creation and Movement Recommendations, on page 1
- High Availability Deployments
- Intercluster Deployments
- Intercluster Peer Configuration

Configure User Assignment in System Topology

Note  This topic is only applicable if you have chosen to manually assign your users.

In system topology management GUI, you can manually unassign, assign or reassign users. You can assign users to a single node, and you can also distribute groups of users across the node, or nodes, in a cluster, or a given subcluster.

Before You Begin

- Read the user assignment recommendations topic.
- You may want to export users in bulk. Use the Bulk Administration Tool (BAT) to perform this procedure. Restriction
- You can only assign licensed users.
- If you turn on High Availability in a subcluster, note that you can only assign or move users to nodes in that subcluster that are not in a failover state. Valid node states are Normal and Running in Backup Mode.
Procedure

**Step 1** Select Cisco Unified CM IM and Presence Administration > System > Topology.

**Step 2** Perform one of the following actions:

- To assign users, choose Assign Users.
- To unassign or reassign users, choose All Assigned Users in the left pane of the system topology interface.

**Step 3** Use the Find User Assignment window to find and display users.

**Step 4** Perform one of the following actions:

- a) Check the users that you wish to assign, and select Assign Selected Users.
- b) Select all users, and select Assign All Users.

**Step 5** Using the list boxes in the Change Assignment frame, specify your user assignment:

- a) to a named node
- b) to a named subcluster (auto-assigned)
- c) to all subclusters (auto-assigned)
- d) to nothing (unassigned)

**Step 6** Select Save.

**Tip** Select Cisco Unified CM IM and Presence Administration > Diagnostics > System Troubleshooter to verify the status of your topology configuration.

**Related Topics**

- User Assignment
- User Assignment Mode Recommendations, on page 3
- Turn On or Off High Availability for Subcluster
- Multinode Scalability and WAN Deployments