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SIP Voicemail HA Deployment Guide

Solution HA Failure Scenarios

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Solution HA Failure Scenarios

When an application failure happens, two types of switchover scripts are invoked: Virtual IP (VIP) control, and application control. You must add VIP control scripts on the host where the voicemail components are installed, and application control scripts on the host where SCS is running. SCS executes a script based on alarm reactions to execute the VIP and Application control scripts. For details about the events, scripts and third-party applications, see: [Solution HA Events and Scripts](#). The following are failure scenarios for Solution HA, where one component failure results in a coordinated switchover of all components, from primary to backup server, using the MLCMD utility, which is installed with SCS.

Primary Host Failure

The following items describe the switchover mechanism using the MLCMD utility when the primary host components fail while running in primary mode.

VM SIP Server-1 Fails

- The VM SIPServer-2 generates a 4563 event.
- Alarm reaction scripts are triggered to react to the 4563 event from the VM SIP Server-2.
- VIP takeover scripts are linked to only the primary and backup VM SIP servers.

MLCMD Reaction:

1. The VM Server-2 is switched to primary mode.
2. VIP is enabled on the backup VM host.
3. VIP is disabled on the primary VM host.

VM Server-1 Fails

- VM Server-2 generates a 4563 event.
- Alarm reaction scripts are created to react to the 4563 event from VM Server-2.
- VIP takeover scripts are linked to only primary and backup VM SIP servers.
- The 4563 event from VM Server-2 switches VM SIP Server-2 to primary mode.
- The 4563 event from VM SIP Server-2 executes the VIP control scripts.

MLCMD Reaction:

1. VM SIPServer-2 is switched to primary mode.
2. The 4563 event from VM SIP Server-2 executes the VIP control scripts.

Resource Manager-1 Fails

- The RM-1 generates 5091 and 5064 events.
- Alarm reaction scripts are created to react to the 5064 and 5091 events from the RM-1.
- The 5091 and 5064 events from the RM-1 switch the VM SIP Server-2 to primary mode.
- The 4563 event from the VM SIP Server-2 triggers the enable and disable VIP scripts and switches the VM Server-2 to primary mode.
- The event from the RM-1 triggers only the switchover of the VM SIP Server-2.
- The VM SIP Server-2 reaction scripts trigger all other reactions including the VIP enable and the VM Server-2 switchover.
- Enable and Disable VIP reaction scripts are not linked to the RM 5091 and 5064 events because they unnecessarily trigger the Enable and Disable VIP reaction script, when the RM fails while running in backup mode.

MLCMD Reaction:

1. The VM SIP Server-2 is switched to primary mode.
2. The 4563 event from the VM SIP Server-2 triggers the enable and disable VIP scripts and switches the VM Server-2 to the primary mode.

Media Control Platform-1 Fails

- The 5091 and 5064 events are generated from the Media Control Platform-1 (MCP-1).
- Alarm reaction scripts are created to react to the 5091 and 5064 events from MCP-1.
- The 5091 and 5064 events from MCP-1 switches the VM SIP Server-2 to primary mode.
- The 4563 event from VM SIP Server-2 triggers the enable and disable VIP scripts and switches the VM Server-2 to primary mode.
- Event from the MCP-1 triggers only the switchover of VM SIP Server-2.
- The VM SIP Server-2 reaction scripts trigger all other reactions including the VIP enable and the switchover of the VM Server-2.
- Enable and Disable VIP reaction scripts are not linked to the MCP 5091 and 5064 events because they unnecessarily trigger the Enable and Disable VIP reaction script, when the MCP fails while running in backup mode.

MLCMD Reaction:

1. The VM SIP Server-2 is switched to primary mode.
2. The 4563 event from the VM SIP Server-2 triggers the enable and disable VIP scripts and switches the the VM Server-2 to primary mode.

Entire Primary Host Fails

- Any one of the following events automatically perform the switchover, since alarm reactions are

individually configured for each component:

- 4563 from the VM SIP Server-2
- 4563 from the VM Server-2
- 5091 and 5064 from the RM-1 and MCP-1
- The VM SIPServer-2 and Voicemail Server-2 automatically switch to primary mode.

Note: In this scenario there are chances of getting an IP conflict problem. See [Known Issues and Recommendations](#) for more information.
 MLCMD Reaction:

1. VIP is enabled on the backup VM host.
2. VIP will be disabled on the primary VM host.

Backup Host Failure

If any component on the backup host fails, the primary components keep running, but with no redundancy in the solution. If the failed component is brought back up, HA is restored. If any component on the backup host fails while running in Primary Mode, the events (4563, 5091 & 5064) are generated from the components and alarm reaction scripts are executed in the reverse direction to switch the primary host components to primary mode.

Switchover Cases

During manual switchover scenarios, the 4563 event is generated from the VM Server-2 and the reaction scripts are the same as when the VM Server-1 fails. For example, an administrator switches the VM Server-2 to primary mode using the SCS switchover option. When an administrator switches the VM SIP Server-2 to primary mode using the SCS switchover option, the 4563 event is generated from the VM SIP Server-2 and the reaction scripts are the same as those for the VM SIP Server-1 failure.

Key Notes:

- If any component on the backup host fails, the primary components keep running, but with no redundancy in the solution. If the failed component is brought back up, HA is restored.
- If the Premise SIP server fails, no alarm reaction scripts are triggered.
- MLCMD must use the application DBID. In Management Framework release 8.1.1, MLCMD can use the application name.
- VIP takeover scripts are linked to the event for only the VM SIP Server-1 and VM SIP Server-2. This prevents duplicate execution of the takeover scripts. If any application fails in a host, all applications are switched. Alarm reaction scripts are triggered for the events from different applications for the single switchover scenario.
- VIP takeover scripts are connected to the SIP Server so that the VM SIP Server port is bonded to the VIP immediately when it becomes primary. If the VIP is not enabled immediately after SIP server becomes primary, the SIP server is in an unavailable state.

For example, when VM SIP Server fails, if the VIP scripts are connected to the VM Server, VM SIP server-2 is in an unavailable state until the 4563 event from the VM SIP Server-2 triggers the switchover of VM Server-2 and the 4563 event from VM Server-2 triggers the VIP enable script. VM SIP server-2 remains in an unavailable state until the Virtual IP is enabled in the host that becomes primary.

Note: This issue does not apply to the other applications, because the port and VIP bonding of the other applications do not happen at the switchover, when the applications become primary.