Mutare Message Mirror Technical Notes

The Mutare Message Mirror application is designed to synchronize mailboxes and COS from a production Avaya Aura Messaging message store to a disaster recovery (DR) Avaya Aura Messaging message store. Message Mirror runs as a series of services on a dedicated application server. This server is configured with SMTP to send alarms and status messages to system administrators and IIS Web Services to configure participating mailboxes and view status reports and errors. MS SQL Server stores the configuration and transactional history.

Message Mirror has two primary components:

1. Several LDAP components are utilized to determine mailbox and COS changes on the production message store and make the corresponding updates on the DR message store.
2. Two services utilize IMAP4 to synchronize messages and greetings from the production message store to the DR message store.

Mailboxes and COS (LDAP)

Message Mirror provides a series of services that run hourly to compare the COS and Mailbox (i.e. Local Subscriber) attributes on the production message store and DR message store. Any changes are then made to the DR message store.

Each hour, the LDAP process runs automatically. It performs an LDAP extract of the COS and Subscriber directory from both the production message store and the DR message store. This data is imported into a local MS SQL database for comparison. Any differences are then made to the DR message store to synchronize with the production message store. This could include adding a mailbox, changing a password, changing a recorded name, deleting a mailbox, or modifying a COS attribute. All attributes of the COS and Local Subscriber are synchronized to the backup, including the GUID.

For COS, the Message Mirror application also increases the maximum mailbox and message size by a small amount for each COS on the DR message store. The default is an increase of 5%, where possible. This allows for maximum length voice messages to be mirrored to the corresponding DR message store mailbox.

The final step in the process updates the list of mailboxes that need to be mirrored for their IMAP4 databases.

All LDAP functions are set to run using scheduled tasks under the local SYSTEM account. The default is hourly.

All LDAP service processes are logged to the hard drive of the application server. Logs are purged weekly.

![Mutare logo]

Messages, Greetings (IMAP4)

Message Mirror also provides a series of services that run continuously to mirror the messages, greetings and mailbox configuration data stored in the Inbox and .USERINFO IMAP4 folders.

Message Mirror uses one service to initialize an IMAP4 connection to the production message store utilizing the IDLE command. This allows mailbox "events" to be seen immediately. Upon receiving an "event" (e.g. new message, message marked read, etc.), this service can update the Message Mirror database of mailboxes with events. A second Message Mirror service simply checks for mailboxes that need work and very quickly copies any necessary messages and/or greetings to the corresponding mailbox on the DR message store.

As a fail-safe, both services work in conjunction to force a review of every mailbox on the production message store. The default is every 4 hours, but can be changed as necessary.

A message cache is stored on the application server for use throughout the day. This allows for very efficient message checking and mirroring. The cache is cleared and rebuilt daily.

A web interface for the Message Mirror IMAP4 services is available for administrators. Message store information details (IP address, Trusted Server credentials, etc.) are edited here. In addition, a dashboard is available for monitoring the message and greeting synchronization in real time.

Message Mirror Suspension

In the event of a failover to the DR Avaya Aura Messaging system, the administrator should suspend all Message Mirror service processes. From the Message Mirror website, an administrator may suspend all service processes via the web services. Both LDAP and IMAP4 services honor this setting. Once suspended, no Message Mirror service processes will run.

When Message Mirror services need to be enabled, the administrator can use the same interface to resume Message Mirror service processes.

Restoration Process

During a failover process, messages may be left in subscribers' mailboxes. When restoring service to the production Avaya Aura Messaging system, those messages will only reside in the DR message store. Message Mirror has a "restore" feature that can copy messages that were left in mailboxes on the DR message store back to the production message store. This Message Mirror restore process can be run by an administrator directly from the application server console. This process can be run while Message Mirror has been suspended. The restore process can be monitored via the Message Mirror web interface.

The restore process only restores message and greetings. Mailbox changes made to the DR message store are not restored to the production message store.

Requirements

Both participating message stores are identified by an IP Address/Host name and IMAP4 Trusted Server name and password. All Avaya Aura Messaging systems must be at release 6.3.3 or greater.

Message Mirror runs on a dedicated Windows Server. It may be run from a virtual server.

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Bandwidth Considerations

It is recommended that the Application Server and production message store be on the same subnet, if possible. Most network traffic occurs between these two servers. If any servers are connected through the WAN, consideration should be made for traffic. Messages on a message store are saved in either G.711 or GSM format. GSM messages are about 90KB per minute of length and G.711 consumes roughly 270KB per minute.

When Message Mirror is first turned on, it will inject a steady stream on the network because it must move all current messages and greetings of all subscribers from the master to the backup. But once the first cycle completes, the traffic is much lower as only new messages or changes since the last cycle are pushed through the network. There is no set required bandwidth as the application will simply move messages over as the bandwidth allows.

How quickly messages can be copied is based on the following items:

- NIC configuration on each AAM.
- NIC configuration on Application Server.
- Message size (GSM or G7.11, length of message, number of messages).
- Overhead for each message header.
- Overhead for processing/connecting/logging in.

Security

The basic application uses the IMAP4 and LDAP ports to connect to the MSS. Optionally, the Secure IMAP4 and LDAP ports can be used when connecting to the MSS.

The Message Mirror application encrypts all Trusted Server password information data at rest.

The web-based administration tool used for monitoring Message Mirror and the suspension of Message Mirror services is accessible via username and password. No mailbox data (messages, passwords, etc.) is accessible from the web-based administration tool. Passwords for the web-based administration tool are stored in the SQL server database in plain text.

All specific mailbox information is stored on the Message Mirror application server. Mailbox data is stored in a SQL server database; by default this is located on the Message Mirror application server. Voicemail passwords are encrypted at rest.

Backups and Anti-Virus Software

Mutare's recommendations for backups and anti-virus software are:

Backups: Since the Message Mirror application is itself a form of backup for the voicemail system, backups are not necessary. If backups are required by the organization, Mutare recommends adding the SQL Server database as well as the \OD folder and subfolders to backup routines.

Anti-virus: Anti-virus software may be installed as required by your organization. Please add the \OD folder and subfolders and the SQL Server folders to your exclusions lists for on-demand scanning.

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