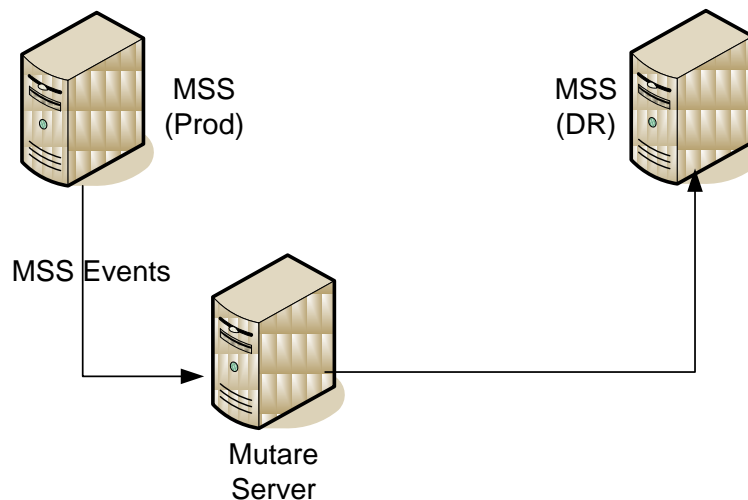


Mutare Message Mirror Technical Notes

The Mutare Message Mirror application is designed to synchronize mailboxes from a production Avaya Message Store Server (MSS) to a disaster recovery (DR) MSS. Message Mirror runs as a service 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) Two services utilize IMAP4 to synchronize messages and greetings from the production MSS to the DR MSS. (2) Several LDAP components are utilized to determine mailbox changes on production and make the corresponding updates on the DR MSS.

Messages, Greetings (IMAP4)

Message Mirror initializes an IMAP4 connection to the production MSS utilizing the IDLE command waiting for changes to the MM to stream across the connection. These changes are automatically sent out from the production MSS as IMAP4 events. Each event could be a user logging into a mailbox, a message being deposited in a mailbox or a user changing a greeting. As each impacting event is seen by this IMAP4 connection, a flag is marked in the Message Mirror database for the associated mailbox.

A separate update process runs every 60 seconds reviewing the database to determine which mailboxes require work. If there is work to do, a second IMAP4 connection to the production MSS is opened and any changes that since the last check are made on the DR MSS. Any new messages are copied from the production to the DR MSS. Any messages that have been deleted from the Production are deleted from the DR site. And message status changes are replicated to the DR MSS. Any greeting adds/changes/deletes are made to the DR MSS as well.

If the Message Mirror Events connection is interrupted, the events are queued by the production MSS and acted upon by Message Mirror once the connection is re-established. Message Mirror also does periodic full compares to ensure data integrity on the DR MSS.

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Mailboxes, Password, Recorded Names (LDAP)

Message Mirror provides an LDAP function allowing for mailbox creation, modification and deletion on the DR MSS based on changes made to the production MSS. This allows for administration of mailboxes on the production MSS only.

Four times a day, the Message Mirror LDAP function runs. It performs an LDAP dump of the directory from both the production MSS and the DR MSS. This data is imported into a local database for comparison. Any differences are then made to the DR MSS to synchronize with the production MSS. This could include adding a mailbox, changing a password, changing a recorded name or deleting a mailbox. In the case of adding and modifying mailboxes, the following fields are set and maintained by the LDAP function of Message Mirror.

MSS LDAP Attribute Type	Admin Subscriber Screen Field	Mutare db Name
MailboxNumber	Mailbox Number	MailboxNumber
Password	*Password	Password
avUmFindMeEnabled	<i>not shown</i>	avUmFindMeEnabled
umRecordedName	<i>not shown</i>	RecordedName
Community	*Community	Community
ClassNo	*Class Of Service	COS
asciiName	ASCII Version of Name	asciiName
cn	Common Name	cn
sn	*Last Name	LastName
givenName	First Name	FirstName
telephoneNumber	Telephone Number	Phone
NumericAddress	*Numeric Address	NumericAddress
Misc1	Miscellaneous1	Misc1
Misc2	Miscellaneous2	Misc2
Misc3	Miscellaneous3	Misc3
Misc4	Miscellaneous4	Misc4

All LDAP functions are set to run using scheduled tasks under the local SYSTEM account. The default is four times each day but these can be modified from default.

Requirements

Message Mirror is a complimentary adjunct to Avaya's Survivable Modular Messaging (SMM) option. Message Mirror can also be used with a normal DR MSS acting as the backup. The latter is often used if SMM cannot be used because of hardware differences between the primary and DR sites.

Both participating MSS are identified by an IP Address/Host name and IMAP4 Trusted Server name and password. All MSS systems must be at release 3.1 or greater. Messages are extracted using IMAP4 fetch and inserted using the IMAP4 APPEND functions.

Avaya's IMAP4 Trusted Server provides super user access such that individual mailbox passwords are not required by the software.

Avaya's LDAP Trusted Server provides Message Mirror the ability to query the production MSS while making mailbox changes to the DR MSS.

It should be noted that the Mutare application only deals with MSS systems. Configuration of hot standby MAS systems and the re-routing of calls is not part of Message Mirror. Nor is the synchronization of caller applications, COS, ELA lists, or web subscriber options.

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Restoration Process

The application normally runs as Windows services, but if the services are terminated and the application launched from the command prompt, it can be run in Restore mode. The user identifies the MSS to have messages restored. Please refer to Administrator's Guide for Restore detailed instructions.

Required Bandwidth

It is recommended that the Application Server and Primary MSS 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 an MSS are stored as either G.711 or GSM. GSM messages are about 90K per minute of length and G.711 consumes roughly 270K per minute. These estimates can be used to determine disk capacity needed if synching to a UNC path and bandwidth in all cases.

When message mirror is first turned on, it will inject a steady stream on the bandwidth 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 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:

- 100Mbps (Note: not megabytes, rather megabits) NIC on MSS
- 100Mbps NIC 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 information data.