STS-MAS Capacity

Content

History

Version	Date	History
A	2007-11-19	First release of doc. content collected from STS-MVAS Capacity.

1 Introduction

This document describes how the MAS capacity shall be measured for voice traffic.

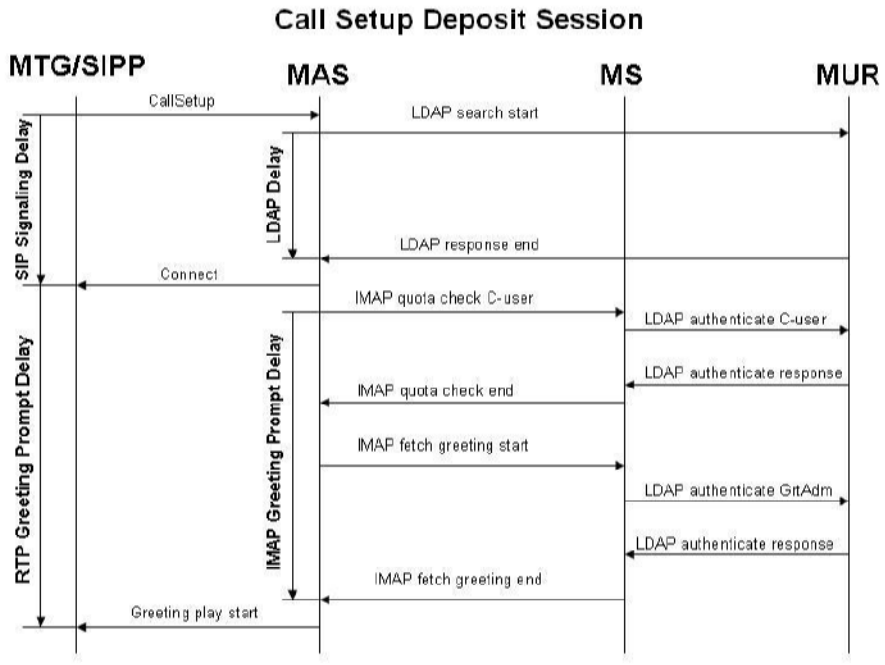
2 Test Information

2.1 Requirement Definitions

The capacity requirement on MAS is defined as a maximum time consumed by MAS to play the first prompt at call setup. The maximum time for deposit- and retrieve sessions is specified in the following chapters. Apart from those requirements is also a "host resource" requirement defined: The average CPU usage on the MAS host shall not be higher than 80% during busy hour. The CPU usage is the sum of "user", "kernel" and "iowait".

2.1.1 Deposit and Slam down sessions

Below is a simplified picture showing the internal signaling performed during the call setup of a deposit (or slam down) session.



The IMAP and LDAP greeting prompt delays can be measured with MVASsim and the RTP greeting prompt/SIP signaling delay can be measured with Hammer. When the average greeting prompt delays (RTP and IMAP) and the distributions

(standard deviations) are known can the MAS greeting prompt delay be calculated as follows:

$$D_{MAS} = D_{RTP} - D_{IMAP}$$

Where:

D_{MAS} : Average MAS greeting prompt delay
D_{RTP} : Average RTP greeting prompt delay
D_{IMAP} : Average IMAP greeting prompt delay

$$\sigma_{MAS} = \sqrt{\sigma_{RTP}\sigma_{RTP} - \sigma_{IMAP}\sigma_{IMAP}}$$

Where:

σ_{MAS} : Standard deviation for MAS greeting prompt delay
σ_{RTP} : Standard deviation for RTP greeting prompt delay
σ_{IMAP} : Standard deviation for IMAP greeting prompt delay

The capacity requirement on MAS is defined as:

$$D_{MAS} + \sigma_{MAS} \leq 1000ms$$

Similar can the MAS signaling delay be calculated. There is no requirement on the signaling delay but the MAS signaling delay (average and standard deviation) shall be reported for all measured traffic levels.

2.1.2 Retrieve sessions

For the retrieve sessions is the requirement defined as:

The RTP greeting prompt delay shall be shorter than 1800 ms for 95% of the sessions.
For the whole retrieve session, less then 95% of the ss7+MAS greeting prompt delay shall be shorter then 2000 ms.

ss7+MAS greeting delay = 200ms + RTP greeting prompt delay.

Were the 200ms is an approximation of the time consumed in the network.

2.2 Test Configuration

During the test the system shall be configured as following:

- MAS shall be configured to send MWI-off for all retrieve sessions.
- All users shall have at least one voice mail in the inbox.
- The A-user for all deposit and slam down sessions shall exist in MUR
- Spoken name shall be included in all deposited and retrieved mails.
- Everything stated in the Traffic Model shall be followed.
- All CoSes shall be configured for auto play, fast login and PIN skip.

- All CoSes shall be configured to play both header and body of mail.

The distribution between traffic scenarios shall be:

Slam down: 38%
Retrieval: 31%
Deposit: 31%

2.3 Test Execution

All test cases shall be executed as follows:

1. Start all scripts that is collecting (MAS) host specific data (e.g. getmeas.pl)
2. Start traffic generators. Use one Hammer to run 6 channels for measuring the greeting prompt delay, SIPP to put load on MAS and one MVASsim instance generating 5 channels towards the backend to measure the IMAP greeting prompt delay.
3. Let the traffic run for two hours.
4. Stop the traffic and collect all needed logs from traffic generators and scripts.
5. Check in the MAS logs and the traffic generator error logs that the traffic has been running without problems.

The traffic level for each measurement shall be calculated as the average value of the MAS MIB attribute "masConnectionStatisticsConnections.1.1" during the test.

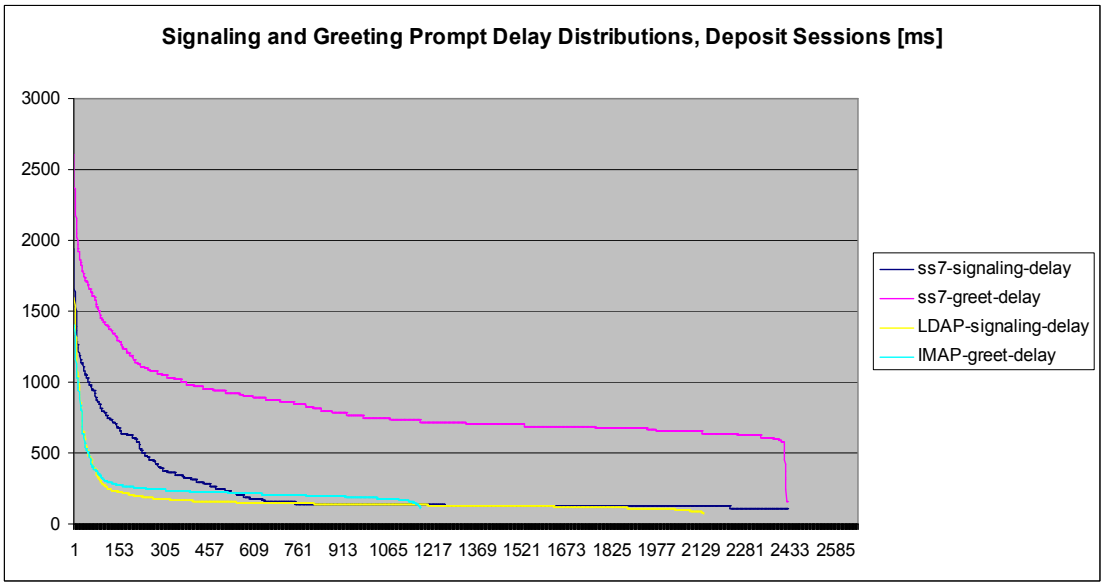
All test cases shall be performed for a couple of load levels, 90%, 100% and 110%.

2.4 Test Results

The following shall be reported for all measured traffic levels in all test cases.

- Average IMAP greeting prompt delay.
- Standard deviation for IMAP greeting prompt delay.
- Average greeting prompt delay.
- Standard deviation for greeting prompt delay.
- Average MAS greeting prompt delay.
- Standard deviation for MAS greeting prompt delay.
- Average plus standard deviation for MAS greeting prompt delay.
- Average plus standard deviation for MAS signaling delay.
- CPU graphs for the MAS host.

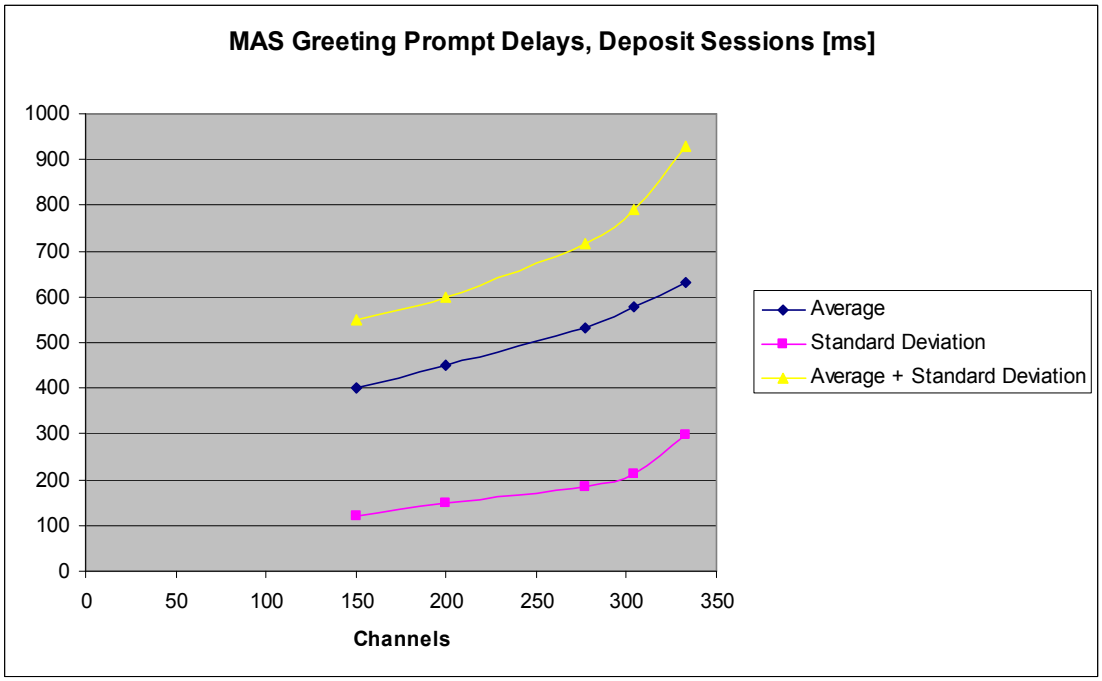
The distribution of ss7 and IMAP delay can be presented with graphs as in the following examples:



X-axis: Number of samples.

Y-axis: Signaling and Greeting Prompt delay in ms.

For each test case shall a graph showing the MAS greeting prompt delays (average and standard deviation) at the measured traffic levels be presented:



3 Test Cases

3.1.1 Verify the MAS voice capacity with traffic according to the traffic model.

Measure the MAS voice capacity with session lengths according to the traffic model:

Retrieval: 29 s
Deposit: 22 s
Slam down: 7 s

Mean hold time: 18 s

3.1.2 Verify the MAS voice capacity with 10 s as mean hold time for the telephony sessions.

Measure the MAS voice capacity with 10 s as mean session length.

Retrieval: 17 s
Deposit: 12 s
Slam down: 3 s

Mean hold time: 10 s

The greeting prompt length shall not be changed, so the message length will be 5 s during this test (deposit session is 7 s greeting plus message length). The message part of all retrieved mails shall also be 5 s (spoken name is not changed). Therefore must all users mailboxes be populated with 5 s mails as a preparation before this test. During this test must the attribute messageplayvoice be set to "body", to be sure that the mail is retrieved.

3.1.3 Verify the MAS voice capacity with 30 s as mean hold time for the telephony sessions.

Measure the MAS voice capacity with 30 s as mean session length.

Retrieval: 50 s
Deposit: 39 s
Slam down: 7 s

Mean hold time: 30 s

The greeting prompt length shall not be changed, so the message length will be 32 s during this test (deposit session is 7 s greeting plus message length). The message part of all retrieved mails shall also be 32 s (spoken name is not changed). Therefore must all users' mailboxes be populated with 32 s mails as a preparation before this test.

4 References

[1] Traffic Models for MoIP
6/1551-HDB 101 02 Uen

5 Terminology

CoS	Class of Service