# AXIGEN Mail Server – Speed of Light Messaging

***Deliver up to 84 million messages per day with a single server***

## 1. Introduction

**AXIGEN** is one of the fastest mail servers in the world, probably the fastest messaging solution in the market. This was the conclusion of a speed test conducted by the AXIGEN engineers within a standard usage scenario, a test reproduction of highly available solutions recommended for large implementations in the ISP and Telco market segments. In this scenario, AXIGEN delivers a maximum of **976 messages per second**. We compared our results against all test data publicly available online and AXIGEN clearly outranked all its competitors.

Traditional speed tests employ a single server configured for local delivery which simply discards all received e-mail messages, thus taking into account only the SMTP service acceptance speed. What is so special about the test run for AXIGEN is a single server setup that replicates a real life usage, where messages are only counted after being received, processed, delivered through the multiple layers and successfully retrieved via POP3. In a simpler scenario, the results would have shown an even more impressive AXIGEN speed.

## 2. Architecture setup

For the test suites, we have used a dedicated HP Proliant DL180 G5 enclosure, with the following hardware configuration:

- 1 x Intel Xeon QuadCore CPU 5440 2.83GHz
- 8GB RAM
- 3x146GB SAS 15K RPM (RAID 5, Storage Controller: HP Smart Array P400)
- HP NC105i Gigabit Server Adapter with Gigabit connection cable

The software setup consisted of the following relevant components:

- AXIGEN Mail Server in direct relay mode (no local domains, no SSL/TLS)
- Active services: SMTP, IMAP, POP3 for end-user services and CLI, WebAdmin for administration
- The connection limits for all services were disabled

## 3. Test suite description

All the tests were performed using multiple message patterns with an average size of 20KB, having the following distribution of transactions:

**Table 1: Overall transactions distribution**

| Transaction Name | Distribution (%) |
|---|---|
| POP_TRAN | 10 |
| SMTP_4K_TRAN | 25 |
| SMTP_8K_TRAN | 5 |
| SMTP_12K_TRAN | 10 |
| SMTP_20K_TRAN | 40 |
| SMTP_50K_TRAN | 5 |
| SMTP_100K_TRAN | 5 |

## 4. Test results

Two test suites were conducted over two separate AXIGEN Mail Server configurations: with 8, respectively 16 threads per service.

### *4.1 Configuration with 8 threads per service*

For the first set of tests, AXIGEN was configured with 8 operating system threads per each of the SMTP, IMAP and POP3 services. Tests consisted of 3 mixes, with 1, 5 and 10 parallel engines performing transactions according to the distribution described below.

**Table 2: Test results for 8 threads per service**

| Engines Participating | Server Response Time (seconds) | Total Valid Messages Sent | Total Valid Messages Received | Messages Sent Per Second | Messages Received Per Second | Message Latency (seconds) |
|---|---|---|---|---|---|---|
| 1 | **0.005** | **55,193** | **55,206** | 183.977 | 184.020 | 0.053 |
| 5 | **0.007** | **75,103** | **75,100** | 250.343 | 250.333 | 0.164 |
| 10 | **0.011** | **133,651** | **133,663** | 445.503 | 445.543 | 0.201 |

### *4.2 Configuration with 16 threads per service*

During the second set of tests, AXIGEN was configured with 16 threads per service. Tests consisted of 4 mixes - with 16, 18, 22 and 28 parallel engines.

**Table 3: Test results with 16 threads per service**

| Engines Participating | Server Response Time (seconds) | Total Valid Messages Sent | Total Valid Messages Received | Messages Sent Per Second | Messages Received Per Second | Message Latency (seconds) |
|---|---|---|---|---|---|---|
| 16 | **0.014** | **585,637** | **585,725** | **976.062** | **976.208** | 0.135 |
| 18 | **0.017** | **555,677** | **555,722** | 926.128 | 926.203 | 0.164 |
| 22 | **0.022** | **535,517** | **535,537** | 892.528 | 892.562 | 0.246 |
| 28 | **0.037** | **406,012** | **406,121** | 676.686 | 676.868 | 0.564 |

## 5. Conclusions

Based on the tests that we have performed, we can conclude that AXIGEN Mail Server is able to process up to **976 messages per second,** which results in an outstanding performance of nearly **84 million messages processed per day** and significant savings on hardware resources.

**Note:** the tests were conducted on May 14, 2009, on AXIGEN Mail Server version 7.1.1