Cryoserver Ltd
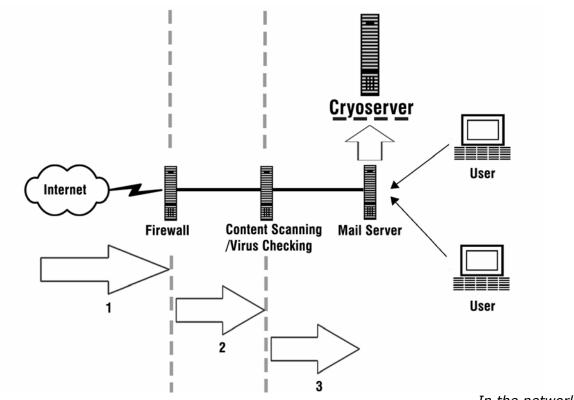## Cryoserver – Forensic Compliance System

Testing Template:

This document will be used to describe, from a technical perspective, the elements that were included as part of the IBM TotalStorage Proven testing. It is intended to give an overall picture of the technical elements of the configuration, with a brief description of the results of the testing including any specific highlights of the interoperability results.

High-level architecture/description, include a list of products that meet the compatibility requirements ("Approved Product(s)") as well as a list of the IBM storage products with which the Approved Products meet the compatibility requirements ("Qualified IBM Storage Products"):
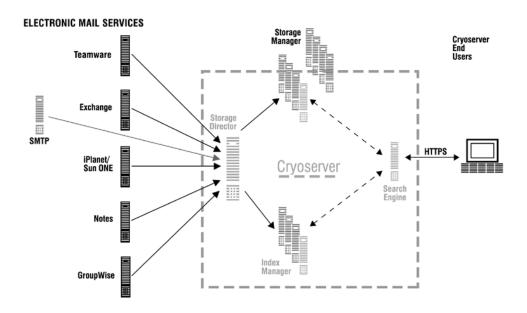
> Cryoserver is a forensic email archiving and compliance system. You can think of it like the trusted flight recorder in an aircraft, acting as a "black box" sitting quietly and unobtrusively on the network, allowing an independent and trusted audit of the email record whenever required. Searching for data in Cryoserver is as simple as using Google, allowing access to literally billions of stored emails and attachments in seconds.

Testing scenario:

In the network

Within the dotted line are the Cryoserver components (modules)
which were installed on the IBM hardware.

Testing level achieved: Comprehensive

- Standard: The standard test consists of elements like install, configuration, load, exercise I/O, and backup/restore testing.
- Comprehensive: Comprehensive testing would include the standard testing in addition to a much higher level of integration and failure testing. In either case, these tests are customized for the specific product(s) being tested, and in consultation with the participant.
- The level is determined by IBM based on the test plan and results.

Testing Overview:

Test objectives, we set up 3 different environments

The aim of these tests were to investigate the impact on the systems resources and to monitor the performance of the xSeries 440 server, pSeries 650 (64bit hardware) and the difference in performance between the IBM JVM and the SUN JVM.

This was accomplished by varying the number of CPU's from 1 to 4 and later replacing the CPU's with the 8 CPU's Hyper-threading, which was either enabled or disabled. For each CPU and 8 CPU's Hyper-Threading a set of results were obtained and during each test the following variables were taken into account:

- the number of storage manager/index manager pairs, the pairs increased when further tests were conducted on each CPU and on the 8 CPU's Hyper-threading.
- the numbers of agents, the number of agents were kept constant at 24 unless stated otherwise on the results table.
- the time taken for the xSeries 440 server to process the data.

Test Configurations:

Comparison between the xSeries 440 server and the P-series 650 (64bit hardware)

Test results obtained:

The X-series 440 server is a reasonably powerful server and is not regarded as a top end server by IBM. The purpose of conducting tests on this server was to observe the performance of the Cryoserver on the IBM 8 CPU's architecture.

In conclusion the X-series is a preferred platform when the objective is stability and robustness rather than performance.

The P-series 650 is an extremely powerful and expensive piece of hardware, it was one of the only machines at IBM that produced performance figures above 5000 kb/sec. Unfortunately there was no SUN JVM compiled to run on this PowerPC architecture therefore a slower JVM from IBM 1.4.2 was used, if the SUN JVM 1.5.03 was used it might have produced better performance figures.

Comparing the results between the IBM and SUN JVM it is apparent that there was not a significant difference between the two in terms of performance. Regardless of how many SM/IM pairs are configured to run the performance between the two JVM's does not differ a great deal.

The highest jump in performance was observed between results for SM/IM pair 1 and SM/IM pair 2. The main differences in performance of these 2 different Java Virtual Machines were as follows:

1. When the server was not over strained the IBM JVM performed better but as the number of SM/IM pairs increased the SUN JVM out performed IBM by a small margin.

2. When the IBM JVM was enabled with the 4 CPU's with Hyper-Threading (HP) the performance figures were lower than compared to the other tests performed, this was odd since the IBM JVM was used on the IBM hardware i.e. I would have expected IBM JVM to be optimised to run faster on IBM hardware.

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