



Performance report on hardware accelerator with EMC Retrospect 7.5

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INTRODUCTION

Backup is the number one headache for many system administrators. Completing the backup of ever increasing data within ever shrinking backup windows is an ongoing challenge. To help SMB (Small to Medium Business) customers address these challenges in a cost effective way, Indra Networks and EMC Corporation have teamed up to provide cost effective hardware acceleration with EMC Retrospect 7.5 backup software.

The latest version of EMC Retrospect 7.5 has native support for StorCompress 300 and StorSecure 300 boards from Indra Networks. These boards offload the compute intensive task of compression and encryption from the host processor, thereby speeding up the data backup process. The following table compares the two products:

	StorCompress 300	StorSecure 300
# of compression engines	2	1
# of encryption engines	0	1
Bus interface	PCI-X	PCI-X
Recommended application	Disk to disk backup (without encryption)	Tape encryption

To benefit from this hardware acceleration technology, users simply install one of these cards in the backup server running Retrospect 7.5 and compression and encryption tasks will be automatically offloaded to hardware.

Indra Networks Inc., in association with EMC corp., has run performance tests to evaluate the speed up achieved by StorCompress 300 and StorSecure 300 using EMC Retrospect 7.5. These tests were performed to evaluate CPU performance, time required to backup and data size after compression.

We compared the throughput performance between StorCompress 300/StorSecure 300 and software compression and encryption. The results are reported in the following section.

TEST RESULTS

The test simply involved backing up data from a disk drive or disk array to another disk array. Thus, the test is measuring a typical disk to disk backup scenario. During the test, we measured Performance in MB/minute (higher is better) and time taken to backup and to verify (lower is better). In addition, the compression ratio and CPU utilization were tracked.

I. **Single Execution unit:**

Source of data: Local Drive
Destination of data: AX150.

Test Type	Errors	Performance MB/Minute	Time in Minutes Copy / Compare	Compression	CPU %
Software Compression	0	1017.0	28/23	49.0%	25.0%
SS300 Compression	0	2125.1	14/10	48%	12%
Retrospect Software Compression/Encryption AES-256	0	1027.9	29/22	49%	30%
SS300 Compression/Encryption AES-256	0	2117.8	14/11	48.0%	12.0%

II. **Two simultaneous executions:**

Source of data: AX150
Destination of data: AX100.

Test Type	Errors	Performance MB/Minute	Time in Minutes Copy / Compare	Compression	CPU %
Retrospect Software Compression	0	773.6 745.9	38/32 40/32	49.0%	50.0%
SS300 Card Compression	0	1418.0 1410.0	20/16 20/16	48%	20.0%
Retrospect software Compression and AES-256 Encryption	0	730.9 709.5	39/31 42/31	49%	
SS300 Compression and AES-256 Encryption	0	1300.4 1308.7	21/18 21/18	48.0%	

Note: Measurements with hardware acceleration are highlighted in blue.

Conclusions:

Hardware accelerators have improved the performance of data backup and storage in terms of:

1. Backup speed in Megabytes per minute. StorSecure300 hardware acceleration board roughly doubles the throughput.
2. Time required for data backup is almost half when using StorSecure300 hardware acceleration.
3. CPU utilization is halved by using hardware acceleration.

Thus, using StorSecure 300 hardware accelerator board, customers can attack many of their backup window challenges.

About Indra Networks

Indra Networks Inc., formed in 2001, is a pioneer in data compression and encryption technology and has been shipping hardware compression and encryption boards since 2002. Indra Networks Inc. has OEM customers worldwide, using these boards in applications such as:

1. Real time HTML compression
2. Data compression in Virtual Tape Libraries
3. Data compression and encryption in disk based backup appliances

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