

HyperTape Put To The Test

***at StorageTek Brussels
20 October 2000***



BridgeHead set a technical objective to have its lead product, HyperTape, tested at StorageTek's performance laboratory in Brussels.

HyperTape is an enterprise-ready backup and restore product already in use in many major European corporations. Through a close working relationship with StorageTek, and in their position as a leading supplier of storage hardware and systems, the tests described here were devised and conducted.

Several senior technical people attended and helped with the testing. Our thanks to Magnus and Chris at StorageTek Belgium for their assistance in setting up the hardware and answering all our questions about the libraries. Gareth Griffiths and John Leonard attended from BridgeHead Software.

Objectives

Our objectives were to Confirm HyperTape Robot Manager support for StorageTek's L series libraries. We also wanted to confirm HyperTape support for 97xx libraries, HyperTape SAN (LAN Free) backup between UNIX and NT and confirm support and benchmark HyperTape backup to 9840 drives. Because of HyperTape's inherent ability to support multiple media types, we wanted to confirm the support of StorageTek's mixed-media libraries.

Equipment Used

StorageTek provided an NT system (dual processor PIII 700 MHz - Dell 1300/700) with Qlogic HBA, Sun SPARC Ultra10 single 440 MHz processor with JNI HBA.

This system was connected via switch and fibre channel to a StorageTek 9730 library with two DLT7000s, and an L180 library with one DLT7000 and one 9840.

A StorageTek RAID array was set up with two LUNs - one for NT and one for UNIX.

Software Loaded

HyperTape Control Node for NT
HyperTape Service Node for NT
HyperTape Service Node for UNIX
HyperTape Backup Node for NT
HyperTape Backup Node for UNIX
HyperTape OpenMedia Manager for NT
HyperTape OpenMedia Client for UNIX
HyperTape Robot Manager for NT

During testing, the OpenMedia database was configured to reflect the i/o paths from both UNIX and NT to all the drives in the SAN environment.

The Robot Manager was run on WindowsNT, and the NT system was used as the Control Node.

The majority of the tests used a sample database file which was representative of larger, relatively compressible data files.

The test results are tabulated overleaf.

Testing Results

9730

Robot configuration auto detection	✓
Robot Contents Display	✓
Basic robot manipulation (tape moves)	✓
Device Load	✓
Device Eject (via OpenMedia)	✓
Device UNLOAD	✓
Moves to/from CAP	✓
CAP open detection	✓
Inventory/Reconcile	✓
Create Specific Data File	✓

L180

Robot configuration auto detection	✓
Robot Contents Display	✓
Basic robot manipulation (tape moves)	✓
Device Load	✓
Device Eject (via OpenMedia)	✓
Device UNLOAD	✓
Moves to/from CAP	✓
CAP open detection	✓
Inventory/Reconcile	✓
Create Specific Data File	✓

9840

Drive from NT	✓
Drive from UNIX	✓
Save	✓
Append	✓
Restore	✓
Reel Switch	✓
List Saveset	✓
Sustained single stream save rate	*20MB/sec
Sustained List Saveset rate	23MB/sec

* Note that the data rate is highly dependent on the compressibility of the data. More compressible data can stream to the drive faster. The drive was observed to be streaming continuously.

Tests were made on the blocksize on tape. Setting the blocksize below 32K caused a noticeable decrease in performance, increasing above 64K slightly reduced the cpu load on NT but made only marginal difference to the data rate obtained.



BridgeHead Software / USA
400 West Cummings Park
Suite 6600 Woburn MA 01801
USA
Tel: (001) 781 939 0780
Fax: (001) 781 939 5607
Sales.US@BridgeHeadSoftware.com

BridgeHead Software / UK
Bailey House 215 Barnett Wood Lane
Ashted Surrey KT21 2DF
UK
Tel: +44 (0)1372 221950
Fax: +44 (0)1372 221977
Sales.UK@BridgeHeadSoftware.com

DLT7000

Drive from NT	✓
Drive from UNIX	✓
Save	✓
Append	✓
Restore	✓
Reel Switch	✓
List Saveset	✓
Sustained single stream save rate	7.3MB/sec
Sustained List Saveset rate	7.7MB/sec

SAN Testing

Read/Write from NT	✓
Read/Write from UNIX	✓
Request Load/Unload from NT	✓
Request Load/Unload from UNIX	✓
Request Load from NT, Unload from UNIX	✓
Request Load from UNIX, Unload from NT	✓
Queued Series of jobs from NT/UNIX	✓
Overload (start job from both UNIX and NT) to prove correct device locking and queuing	✓

Further tests were conducted with the pre-release HyperTape Backup Node for NT version 4.0 which supports multiplexing. In these tests multiple streams of data were used from the slower direct SCSI disks on the NT system, and over the network (100Mbit) between the UNIX and NT systems, and also using slower (10Mbit) network between the two systems. In these tests the objective was to prove that good sustained data rates could be achieved with a mix of multiplexed data.

The tests confirmed that a slow network data stream (~1MB per sec) could be multiplexed with a fast local stream to achieve full tape streaming speed.

Mixed media support

The L180 was configured with both 9840 and DLT7000 drives and contained a mixture of 9840 and DLT tapes. After configuring the tapes to the correct media type in OpenMedia, full automatic operation of the mixed media library was confirmed.

Conclusion

HyperTape fully supports the 97xx and L series libraries, automatically detecting the correct Slot, CAP and Drive configuration. HyperTape supports the 9840 drive, and is capable of sustained streamed backup to the drive. The SAN configuration (shared drives between UNIX and NT) worked flawlessly.