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COVER STORY

Ethernet SANs
Data Storage Institute is positioning Ethernet-based HyperSCSI as a more cost-effective route to localised SAN implementations.
By Tan Ee Sze

A new Ethernet-based network storage protocol, designed for the transfer of SCSI (small computer system interface) data and commands over networks, is being positioned as a lower cost alternative for localised storage area network (SAN) implementations.

Speaking at the Computerworld's Storage Management Forum, Patrick Khoo (left), programme manager with the Data Storage Institute's Network Storage Technology Division, pointed out that fibre channel (FC) SAN implementations are still expensive and complex, he said.

An alternative would be HyperSCSI, which runs directly on Ethernet without TCP/IP (transmission control protocol/Internet protocol).

"Cost savings will be found in the networking, and in the integration of Ethernet into disk arrays," said Khoo.

"The cost of the chips and hardware for FC and iSCSI (Internet SCSI) is rather high currently, whereas HyperSCSI can use commonly available network cards. This point is also true of switches," he added, estimating that an FC switch could cost up to three times a Gigabit Ethernet switch.

"No one can hack into your storage if your storage does not have TCP/IP."

The HyperSCSI protocol and reference implementation code into open source was released by the Data Storage Institute into open source earlier this year.

But Martin Wijaya, senior storage analyst at IDC Asia Pacific, believes that it is early days yet for HyperSCSI. He expects it to take off at only four to five years from now, after iSCSI makes its mark. ISCSI is an IP-based storage networking standard for linking data storage facilities.

Wijaya noted that it will take at least another year for iSCSI products to mature, be adopted, or mass produced to the general public.

"Once iSCSI is established, I think HyperSCSI will be the next big wave for storage protocol, but only in niche markets such as data centres catering to small and medium enterprises."

He pointed out that an average business would not need the storage capacity that HyperSCSI can handle. In addition, the big data block size that HyperSCSI is able to transport will be more efficient for data centre usage," he added.

Khoo said in comparative benchmark tests, HyperSCSI showed a sustained 100Mbps data transfer speed for both block and file, more than 60 per cent faster than NFS and iSCSI protocols. The tests were conducted on a Gigabit Ethernet network with 2GB size data sets using off-the-shelf hardware.

According to Wijaya, the bigger the size of the data block, the more efficient the data flow will be with HyperSCSI, as less processing power will be required from the server allocated for the TCP/IP.

But there are distance limitations to HyperSCSI implementations, admitted Khoo.

"Basically, accessing the storage over long geographical distances is not possible with HyperSCSI. However, within the same data centre, or even across a few floors or on a controlled campus environment should be possible with technologies like VLAN (virtual local area network)."

Besides SCSI and IDE (integrated drive electronics) hard disk drives, HyperSCSI also supports optical, tape and removable USB (universal serial bus) drives. It is compatible with Fast Ethernet, Gigabit Ethernet and 802.11b wireless local area networks. The present version of HyperSCSI also includes built-in 128-bit encryption.

The Data Storage Institute is at **http://nst.dsi.a-star.edu.sg**.

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