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HyperSCSI touted for low-cost SANs

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

Speaking at Computerworld's Storage Management Forum, Patrick Khoo, program manager with the Data Storage Institute's network storage technology division, pointed out that fibre channel SAN implementations are still expensive and complex.

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

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

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

The absence of TCP/IP also makes Ethernet-based storage more secure, said Khoo.

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

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

Wijaya noted that it would 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

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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% faster than NFS and iSCSI protocols. The tests were conducted on a Gigabit Ethernet network with 2Gbyte 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 virtual local area network (VLAN)."

Besides SCSI and integrated drive electronics (IDE) hard disk drives, HyperSCSI also supports optical, tape and removable USB 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.

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