

**Hitachi Implements Streaming-Optimized Storage I/O Technology that can
Deliver 1,200 High Definition Video Streams**

Enables Large Scale Video Delivery Service with Small Amount of Video Delivery
Equipment, Greatly Reducing Environmental Impact

Tokyo, June 5, 2009 --- Hitachi, Ltd. (NYSE:HIT / TSE:6501) announced today that it has succeeded in developing an Input/Output (I/O) control technology for streaming-optimized storage (storage equipped with video delivery functionalities) that can deliver 1,200 streams of High Definition (HD) video simultaneously on its prototype. The performance is more than 10 times as high as conventional UNIXTM-based OS, and more than 3 times as high as the previous prototype ⁽¹⁾ released in 2007. Hitachi has developed this technology by improving its original real-time OS that manages video data I/Os in the storage. The video delivery performance has been enhanced by improving storage I/O efficiency of the OS, which now fully utilizes multi-core CPU capabilities. This high performance is achieved only using software, without any streaming-proprietary hardware requirements. This technology enables larger amount of video data to be handled by a storage system, thus drastically reducing the amount of equipment necessary for a large video delivery service, which leads to not only equipment and management cost savings, but also environmental impact reduction of the service.

The generalization of broadband networks has enabled HD video to be delivered over IP networks. However, due to the challenges of a growing customer base as well as customer expectations in terms of video quality, the workload of video delivery services has been greatly increased. Service providers are faced with an increase of the amount of equipments necessary to handle video delivery, leading to equipment and management cost increase, as well as a serious environmental impact of the service because of the high power consumption of the equipment used.

In response to this demand, Hitachi has developed an I/O control technology (real-time OS) for optimizing storage performance for streaming, which improves video delivery performance by fully utilizing the capabilities of the underlying hardware. Hitachi has implemented a prototype of a streaming-optimized storage with this technology based

on Hitachi midrange storage product, and measured that this prototype can deliver up to 12Gbps of video data (1,200 streams of 10Mbps HD video). The I/O control technology details are as follows.

(1)Low-overhead simultaneous execution of storage I/O

The real-time OS distributes I/Os evenly to multiple CPU cores on the streaming-optimized storage, and executes these I/Os with very limited mutual interaction. Owing to this feature, storage I/O performance linearly increases with the number of CPU cores available. The evaluation system shows that the I/O performance can scale evenly when 4 CPU cores are used concurrently.

(2)Frequently requested video data RAM copy and delivery

Video data that is frequently requested is delivered directly from the 64 bit addressed memory⁽²⁾. This technology enables streaming performance enhancements without the need for additional disk arrays, further lowering equipment, management and environmental costs.

Hitachi presented this technology at the 19th International Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV'09), which was held from June 3rd to 5th 2009, in Williamsburg, USA (VA).

Trademarks

UNIX is the trade mark of The Open Group.

Notes

(1) News releases March 13, 2007 "Hitachi Develops Streaming-Optimized Storage Appliance"

(2) 64bits addressed memory:RAM (memory) region can be accessed by specifying a location (called "address"). If the location is specified as a 64bits encoded address, the accessible RAM range can be extended.

About Hitachi, Ltd.

Hitachi, Ltd., (NYSE: HIT / TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 400,000 employees worldwide. Fiscal 2008 (ended March 31, 2009) consolidated revenues totaled 10,000 billion yen (\$102.0 billion). The company offers a wide range of systems, products and services in market sectors including information systems, electronic devices, power and industrial systems, consumer products, materials, logistics and financial services. For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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