



“The Hitachi Data Systems products and solutions fully satisfied our requirements. The consolidated storage platform with virtualization technology has provided us a flexible SAN infrastructure that can help us to meet future business growth.”

*Fu Bin
Maintenance Department
InfoVision Optoelectronics*

InfoVision Optoelectronics

INDUSTRY Manufacturing: LCD

SOLUTIONS **Enterprise Platform, Storage Management, Virtualization**
Hardware — Hitachi Universal Storage Platform® V
Software — Hitachi Universal Volume Manager, Hitachi Virtual Partition Manager and Hitachi Dynamic Link Manager



InfoVision Optoelectronics Selects Hitachi Enterprise Storage and Software to Ease Growth Pains

China-based InfoVision Optoelectronics (Kunshan) Company Limited is involved in the R&D, production and sales of TFT-LCD panel products for notebook computers, PC monitors and LCD TVs. The company was looking to avert growth pains by consolidating its storage infrastructure and ensuring that its IT infrastructure can accommodate current and future growth. After a search for the right storage partner who would understand their needs and provide the right answer, InfoVision Optoelectronics chose Hitachi Data Systems.

Located at The Kunshan Economic and Technical Development Zone in Jiangsu, China, and established in July 2005, InfoVision Optoelectronics aims to be a global leader in TFT-LCD manufacturing. To do this, the company built three advanced manufacturing plants with fifth generation production lines. The total investment cost would reach US\$900 million. After the completion of the Phase I, the total investment cost would reach US\$2 billion. Operations at the new plants began in September 2006.

After a few months of operations, the production of InfoVision Optoelectronics already exceeded the estimated capacity of the original plan. The planned production capacity was 30,000 slices per month and the company has just reached 33,000

slices per month. It was expected that monthly target of 35,000 slices could be attained. At the same time, InfoVision Optoelectronics planned to expand to a target of 110,000 slices per month in its Phase II development.

Current IT Infrastructure at InfoVision Optoelectronics

InfoVision Optoelectronics was established in 2005, which is much later than its competitors, BOE Technology Group or SVA Group. Therefore, InfoVision needed to quickly build its production capacity soon after the company was founded. In the industry of LCD panel products, where the product lifecycle has become shorter, the production capacity is of particular importance to a manufacturer.

In the actual production of LCD panel products, IT systems do not play a very dominant role. However, IT systems are vital for controlling various production facilities. These systems can greatly affect the operation, efficiency and product quality of LCD panel products.

InfoVision Optoelectronics uses the IBM® liquid crystal manufacturing CIM system LCDView in its LCD panel production lines. The IBM CIM system was developed in the 1990s to support its own automatic DRAM manufacturing plant in Japan. It has then evolved into the SiView Series for semiconductor manufacture and the LCD View Series for LCD panel manufacture. In the Greater China Region, more than 40 semiconductor and LCD panel factories have adopted IBM CIM systems and more than 20 are LCD panel factories.

Solution Details

Hitachi Data Systems provided the solution that answered these challenges by incorporating the following components:

- **One enterprise storage platform** — Hitachi Universal Storage Platform® V
 - Configured with 88GB cache, 16 x 4Gb/sec Fibre Channel front-end ports and 280 pieces of 146GB 15K rpm Fibre Channel hard drives, this enterprise storage platform will satisfy applications that require performance.



"Thanks to Hitachi Data Systems and their strong industry expertise, our concerns for shorter product lifecycle and improved capacity were successfully met."

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- **Virtualization software** — Hitachi Universal Volume Manager software
 - With Universal Volume Manager, the IBM DS4800 and DS4300 storage systems can be managed and accessed by the Universal Storage Platform V as tier 2 storage
- **Virtual partitioning software** — Hitachi Virtual Partition Manager software
 - The Universal Storage Platform V cache can be partitioned and assigned to different applications for ensuring application quality of service.
- **Switches** — two sets of 32 port Fibre Channel switches
 - The existing applications have outgrown the total number of ports in the current SAN. Therefore, two brand new Brocade 5000 switches (each with 32 ports) were proposed to replace the existing switches and to provide a high performance SAN storage network.
- **Load balancing software** — multiple sets of Hitachi Dynamic Link Manager load balancing software
 - Dynamic Link Manager provides path failover and load balancing capabilities for server paths.

New Data Center Development

The new data center incorporated the existing SAN storage architecture with: DS4500 – 2GB cache memory, 28 units of 73GB 15K hard drive; DS4800 – 2GB cache memory, 42 units of 146GB 15K hard drive; tape library; production data; level two data protection and backup data.

Issues and Requirements

InfoVision identified the following issues:

- The current storage capacity could not meet future needs.
- There were not enough ports in the existing switches to meet the future growth in servers and storage.
- The current disparate storage systems were not efficient in management and utilization.
- There was growth in business systems, as well as demand for higher storage performance.
- No long term data classification or planning was in place.
- There was interaction between application and storage data.

Objectives of the Initial Storage Proposal

Hitachi Data Systems aimed to increase storage capacity by at least 8TB to meet the need for the future growth in production capacity. The solution would also increase the number of ports in each SAN switch to 32 for the future demands of servers and storage systems and improve overall storage performance in order to support the future growth of business systems.

On top of that, Hitachi Data Systems aimed to consolidate the existing DS4800 and DS4500 storage into the new storage infrastructure for simplified storage management, deploy a tiered storage architecture in the new storage infrastructure, enable online data migration, enhance data protection and implement a disk-to-disk-to-tape backup solution.

Technical Solution Highlights

- Universal Storage Platform V has superior performance and is 99.999 percent availability guaranteed. It also supports IBM AIX®4.3.3 and other operating systems to meet the current application needs.
- Through storage virtualization, existing storage facilities can be fully utilized for investment protection. It also simplifies management for the consolidated storage environment.
- The proposed storage infrastructure provides three tiers of storage, including the Universal Storage Platform V tier 1 internal storage, DS4800 and DS4500 tier 2 storage and the tape tier 3 storage. This allows application data to be stored in different tiers that meet data protection criteria that best serve their needs.
- The Universal Storage Platform V cache with the cache partitioning function can improve the data access rate for the tier 2 DS4800 and DS4500 storage.
- Application data can move among storage tiers nondisruptively, according to the performance requirement of the data.
- The uniform storage virtualization architecture improves management and provides a solid foundation for future system expansion, multilevel backups and a uniform data disaster recovery platform.

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