



“We have felt the benefits of centralized management of storage equipment, as well as the stability of Hitachi products.”

*Bill Wang*  
Director of Information  
Technology Department  
Tungs' Taichung MetroHarbor Hospital



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Inspire the Next

## Tungs' Taichung MetroHarbor Hospital

**INDUSTRY** Healthcare

**SOLUTIONS** Business Continuity and Replication, Enterprise Platform, File and Content Services, Modular Platform

**Hardware** — Hitachi Universal Storage Platform® VM, Hitachi Adaptable Modular Storage 2100 and 2300, Virtual Tape Library Solutions by Hitachi Data Systems and Hitachi NAS Platform, powered by BlueArc®

**Software** — Hitachi Data Protection Suite, Hitachi IT Operations Analyzer and Hitachi TrueCopy® Synchronous software

**Services** — System integration services provided by Hitachi Asia (Taiwan) Co., Ltd.

## Tungs' Taichung MetroHarbor Hospital Ensures High Quality Healthcare Services with Hitachi Storage Environment

Founded in 1971 in Taiwan by Dr. Tung Jui-chin, Tungs' Taichung MetroHarbor Hospital has grown into a regional-level teaching hospital that recently experienced a startling growth rate in its information volume. To address this growth, ensure all patient medical records are preserved properly and support long term medical research, the hospital turned to the high quality, reliable storage environment created by Hitachi storage and software.

### The Need for a Comprehensive Storage Structure Update

In the early stage, Tungs' Taichung MetroHarbor Hospital had less business and relatively simple information equipment; disk storage bought and assembled by the Information Technology (IT) Department according to the needs of different systems was enough to cope with the demand. Although the stability was poor, most hospitals were using manual operation by then, and the impact was limited. However, over the past decade, the information volume of the hospital has grown 85 times. All hospital businesses, including clinics and administration, rely on the application system. If its underlying storage devices should break down, the system would be immediately disrupted, resulting in serious consequences. Therefore, the IT Department decided to import a more reliable storage system.

### Stability Is the First Consideration

In order to ensure the stability of many systems, Tungs' Taichung MetroHarbor Hospital decided to implement a comprehensive update of old storage equipment. After a careful evaluation and strict POC (proof of concept) testing, the hospital chose Hitachi Universal Storage Platform® VM as the storage trunk; Hitachi NAS Platform, powered by BlueArc®, was selected to provide for hospital information sharing of services; and Virtual Tape Library Solutions by Hitachi Data Systems were chosen to conduct the lifecycle management of data. According to the current Director of the IT Department, Bill Wang, the Hitachi hardware that has passed compatibility testing and stress testing will meet the need for high availability. In addition, many exclusive management software programs are available that can safely protect all the information of the hospital.

The primary task of the hospital's IT Department is to complete the updates of the picture archiving and communications system (PACS). As early as five years ago, PACS was stored with Hitachi equipment. Although access speed was good, it could not cope with the recent growth of the hospital business or the astonishing increase in medical imaging data; in addition, as the medical equipment improved with each day, the high resolution image data quickly consumed hard disk space.

PACS went online in 2005 and, with an annual growth of 1TB to 3.5TB, has been gradually approaching full capacity; in addition, the competent authority of the Department of Health actively promotes the electronic medical records program and requires hospitals to prepare a digital medical information structure for easy circulation. For these reasons, the IT Department, hoping to stabilize and perfect PACS in order to cope with future growth in the next three to five years, substantially expanded the space of the existing 15TB to 200TB.

The stability and smoothness for shifting data from the old equipment to the new system is a concern of the hospital's IT Department in this project. "Image data stored in PACS represents the most valuable medical records of the hospital. There is no room for error to occur during the transfer," said Bill Wang. Among the many well known manufacturers, only Hitachi Data Systems, offering the Universal Storage Platform VM can meet the requirements of Tungs' Taichung MetroHarbor Hospital. "Universal Storage Platform VM is able to



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 Director of Information Technology Department  
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integrate with storage equipment of other brands and has a large cache volume that is sufficient to undertake the core management work of the entire SAN environment and to master other equipment,” Bill Wang explained.

### Administrative Storage System Gets Capacity Upgrade

In the past, the information exchange of the hospital’s administrative system was subject to demand according to each unit set up by the IT Department file servers, one by one. Due to different generations of equipment, maintenance costs were high, the servers were not integrated and most of the space was wasted. Now Hitachi NAS Platform works along with the Hitachi Adaptable Modular Storage 2000 family systems, which provide uniform space with 30TB to 40TB for administrative use.

In order to ensure the stability of the file system, the IT Department attached a NAS host directly under the structure of the Universal Storage Platform VM. Such a deployment in the front end of the system removes fear of failure; the rear end is backed up by the cluster structure of Universal Storage Platform VM, so the IT Department does not need to make extra efforts to maintain administrative systems.

### Reliable Backup Structure Prevents Disruption of Hospital Services

In the beginning, the Tungs’ Taichung MetroHarbor Hospital was at risk of a system crash because tapes were stored in separate places. But with the increase of patient and business volume, and to attach importance to medical quality, the hospital set up the goal of “zero service interruption” for the IT Department. The original tape backup that took several hours to complete system recovery obviously could not meet the demand.

The IT Department therefore assembled a set of synchronized high speed replication disaster recovery systems based on Hitachi TrueCopy® Synchronous software in the generator room at a distance of 500 meters from the main area of the hospital. If the hospital host were to break down, the backup host

would launch within one minute, without affecting the operation of the front end registration, billing and clinic.

### Reducing Resource Use in the Most Appropriate Places with Virtual Tape Library Solutions

In order to optimize storage efficacy, the hospital also completed management of the data lifecycle of PACS with Hitachi equipment. As required by competent authorities, medical data must be kept for seven years. Bill Wang indicated that over the past two years, data that was most often accessed was stored in the equipment for the best performance; backup was made of the data over two years old through the Hitachi Data Protection Suite software and transferred to a second tier storage media virtual tape cupboard. Data more than seven years old was stored in offline storage media to ensure long term preservation. Bill Wang explained that because Virtual Tape Library Solutions from Hitachi Data Systems carry data de-duplication technology that can effectively save data space, the hospital only procured a space of 70TB, which was deemed sufficient to cope with the image data storage needs for the next five years.

From the planning in 2008 to the implementation of the project in 2009, Tungs’ Taichung MetroHarbor Hospital proceeded to build the data storage system incrementally. Bill Wang commented on Hitachi Data Systems and the expertise of its system integration partner, Hitachi Asia (Taiwan) Co., Ltd. “Hitachi Data Systems can determine for us which products and technology can sort out the problem while we attend to a variety of business needs. And these solutions have helped to prevent management problems.”

With the procurement of round-the-clock support services for three years, the hospital no longer has to worry about equipment failure. Once the host detects a problem, the system automatically sends a message about the abnormality to the original Hitachi Data Systems plant, Hitachi Asia Taiwan and IT management personnel, who work to solve the problem as soon as possible.

The update of the hospital storage structure is gradually being completed. Bill Wang said that in order to provide better medical services, the IT Department will continue to develop and update the system in accordance with the needs of the physicians. As all these huge and complicated systems rely on the underlying storage equipment as backup, the Hitachi Data Systems solution reduces worry and can meet the diverse needs of front end users.

### Looking Toward the Future

As the healthcare environment in Taiwan changes from the civil servant and labor insurance system to the National Health Insurance payment system, the external environment can be seen as not ideal. Despite this, the Tungs’ Taichung MetroHarbor Hospital management team is still willing to invest more of the budget to actively promote information technology to strengthen the quality of healthcare. In addition to continuing to uphold its duty as a medical guardian, the hospital will adhere to the principle of “respect for life, promotion of health” and strive to achieve the goal of being “the most trusted local resident hospital and the best hospital for cultivating medical personnel,” in order to continually improve the quality of healthcare to meet customers’ needs, serve the people of Central Taiwan and move towards becoming an “internationalized Medical Center.”

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