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*Paul Chang*  
 CIO  
 Asia Pacific Telecom Co., Ltd.

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**INDUSTRY** Telecommunications

### SOLUTIONS

**Storage Management, Business Continuity and Replication**

**Hardware** — Hitachi Universal Storage Platform®, Hitachi Adaptable Modular Storage 500

**Software** — Hitachi Tuning Manager, Hitachi Dynamic Provisioning, Hitachi TrueCopy® Synchronous, Hitachi ShadowImage® Heterogeneous Replication

**Services** — System integration services provided by Hitachi TrueNorth Channel Partner Stark Technology, Inc.



## Asia Pacific Telecom Builds Sound, Reliable Telecommunication Service Environment on Hitachi Storage and Software

Telecommunication service provider Asia Pacific Telecom Co., Ltd., must accommodate millions of system accesses daily. Thanks to the Hitachi Universal Storage Platform® and Hitachi management software, its operation system now houses over 8,000 applications and works seamlessly with bottom tiered servers and storage devices, ensuring successful service delivery.

Established in 2000, Asia Pacific Telecom has more than 2.3 million subscribers and operating more than 2,500 retail locations across Taiwan. After several years of brand reconstruction, the company has advanced from delivering fixed network voice and data services to providing mobile communication, mobile value adding, online value adding, dedicated lines, virtual networks and corporate integrated services for personal and corporate users. In addition, its value added application services are connected to international telecommunication groups' satellite communication network and the global submarine optical cable network to achieve a global communication network without boundaries. Asia Pacific Telecom's automated, around-the-clock network operation center (NOC) is another measure by which the company ensures network stability and high performance.

Asia Pacific Telecom is more concerned than ever about its bottom tiered information system that serves as the pillar for its vast range

of telecommunication services and sizeable scale of operation. The company is well aware that the only way to achieve high-level service quality is through a stable and reliable information architecture.

### Winning the Hearts of Clients with Products of High Cost-to-performance Value

Although Asia Pacific Telecom's former storage device offered respectable performance, the growth of data size from a collection of 40 systems (i.e. accounting, operation) has skyrocketed along with the boom in business and has already exceeded 4.5TB. In addition, the provision of mobile communication value added services, such as voice applications, 3G, data transfer and so forth has brought countless user access operations on a daily basis. This, in turn, has gradually affected the performance of the system.

Asia Pacific Telecom conducted a comprehensive overview of the company's information system and opted for a major system

update in 2006. "After a detailed comparison, we found that the three-year warranty that comes with the purchase of Hitachi products is cheaper than using our existing equipment and paying for its maintenance costs. In other words, the capital expenditure (CAPEX) for the purchase works out to be lower than the operating expenditure (OPEX) for our existing equipment," explained Asia Pacific Telecom CIO Paul Chang. Results of a cost assessment showed that the adoption of Hitachi Data Systems solutions would save Asia Pacific Telecom 40 percent of OPEX and CAPEX while improving performance by 30 percent.

For telecommunication service operators whose systems are required to handle heavy duty operations, in order to ensure uninterrupted operation and stability, the purchase of IT products with reliability, scalability and capability far outweighs the choice of the lowest priced product. But with limited budgets for purchasing, products of high cost-to-performance value that are low in unit price but offer satisfactory performance are more likely to be chosen.

### Constructing a High Availability SAN and Disaster Recovery System

The transfer of Asia Pacific Telecom's core accounting system and operation system was completed after a few months of storage system construction. Paul Chang stated that initially, the operating system of the company's accounting system was too outdated to work with the storage path redundant feature for file transfer. Coupled with the fact that suppliers of the company's existing storage device were unable



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to provide compatible data duplication technology, the company's IT Department became quite concerned that the task of data transfer might not be completed accurately in time. Fortunately, Asia Pacific Telecom's IT personnel were able to perform the upgrade of the company's accounting system using the path redundant feature of the Hitachi Universal Storage Platform, which facilitated the file transfer operation.

In addition to using the Universal Storage Platform as the key equipment for collective storage management, Asia Pacific Telecom has also introduced an identical system at its disaster recovery server room located in Taichung so that the two Universal Storage Platforms could be synchronized for high speed data duplication in order to ensure the stability of its telecom services. Paul Chang remarked, "The Hitachi TrueCopy® Synchronous remote replication and Hitachi ShadowImage® Heterogeneous Replication software allowed us to cut down system replication time by 20 percent and achieve near-simultaneous duplication for systems located at 200km apart. In our routine annual disaster response exercise, the disaster recovery has proven itself to be capable of taking over the operation of our location system. Its performance is noticeably superior to our previous disaster recovery system."

With the success of introducing the key system and given the high availability performance demonstrated by the Hitachi equipment, Asia Pacific Telecom also chose to transfer approximately 200GB to 300GB of data from its noncritical report system to a Hitachi Adaptable Modular Storage 500 system during its minor system upgrades performed in recent years.

### Achieving Zero System Error with Exclusive Hitachi Detection Functions

In order to deliver more efficient services to customers, Asia Pacific Telecom has implemented its "limited time activation" regulation. This ruling stipulates that when a subscriber submits his or her service application at any direct operation, distribution or franchise store, the application must be processed and activated within 15 minutes. This regulation is also added to Asia Pacific

Telecom's internal KPI. This means that from the frontline systems (application, data change and so forth) to the rear end systems (the site switchboard, Home Location Register signal detection system, accounting systems and so forth), the requirement is that all applications be processed in the shortest time possible and all relevant data submitted to make the deadline for immediate activation. However, the company's previous corporate website (CWS), content delivery platform (CDP) and customer management system (CMS) experienced issues of unknown errors and response lag at peak periods of account data update.

With a massive telecommunication system network, it is very difficult to locate the cause of an error and resolve the problem when the system suffers from minor glitches. But an international standard vendor should be able to assist its client to rectify the situation with its rich technological resources. Paul Chang commented that initially, the company's IT Department was unable to pinpoint the root of the problem through initial hardware diagnosis. But thanks to Hitachi Tuning Manager performance analyzing software, the technicians were able to diagnose the issues with each tier in the SAN system before comparing the results to the data in the Hitachi database. The technicians found that the issue was caused by inappropriate configuration of parameters that led to the system configuration error. With the root of the problem identified, the company purchased additional hardware, such as CPU and memory, and made relevant changes to the database and applications to resolve the problem.

The introduction of Hitachi storage solution has allowed Asia Pacific Telecom's IT System to reach a service level of 99.99 percent. Paul Chang added that the company intends to reinforce the monitoring and performance management for its SAN architecture in the hopes of achieving the goals of error prevention and rapid troubleshooting.

### Planning for Future Hitachi Solutions

"Considering the fact that Asia Pacific Telecom's subscribers are growing at the speed of 400,000 to 500,000 per year, it is difficult to estimate the speed of data growth due to the varying volume of sales with different system," Paul Chang commented. The focus of the company's storage system purchase in the near future would be the dynamic allocation of storage resources based on the growth of the company's 40 odd accounting and operation systems and 20 odd content delivery systems, he explained. Therefore, software like Hitachi Dynamic Provisioning, which is available with the Hitachi Universal Storage Platform, would be a feasible solution for system upgrade that Asia Pacific Telecom would consider. "The level of system sophistication will grow as the quantity of data increases, and it will reflect the importance of storage resource allocation. As far as corporations are concerned, minimizing IT resource wastage would be equivalent to effective reduction of OPEX," Paul Chang said.

 **Hitachi Data Systems Corporation**

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