

# New Storage Solution Services which Cover the Complete Storage Systems Life Cycle

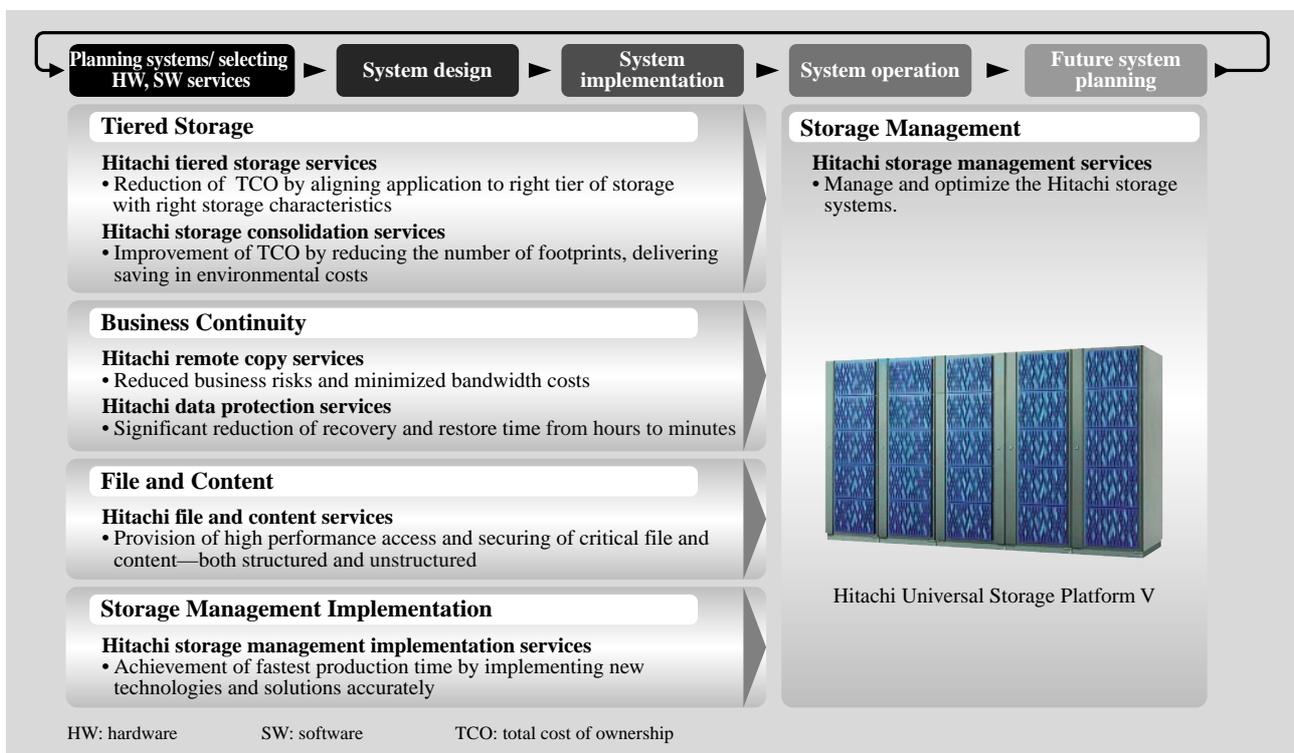
Yoko Sugiura  
Kenzo Tabata  
Tetsuya Minematsu  
Tomohiko Suzuki

*OVERVIEW: For administering IT storage systems which create new value and for optimally managing a large variety of data which grows by volume from day to day, Hitachi, Ltd. is providing storage solution services which cover the entire life cycle of a storage system. These storage solution services include system planning, hardware and software selection, system design and implementation, and future system planning. These new storage solution services provide a service menu in accordance with each phase of a storage system life cycle. Applying these customized services to each phase enables total and continual support of a storage system which spans the entire storage life cycle. These storage services make it possible to maintain an optimal storage system while at the same time lowering customer workload.*

## INTRODUCTION

WITH the advent of the so-called “ubiquitous information society” — which is becoming a vital lifeline for people’s livelihoods and businesses — IT

(information technology) systems that can optimally handle a wide variety of information that grows by the day and that can create new value are being strongly demanded.



*Fig. 1—System of New Storage Solution Services for Handling the Entire Life Cycle of Storage Systems in Japan. New storage solution services for supporting the whole life cycle of a customer’s storage systems are split into the following five categories: (1) tiered storage for designing storage system and performing data migration between storage and storage devices using virtual storage; (2) business continuity for constructing environments for remote-copying systems and backup systems; (3) file and content for creating secure storage and access; (4) storage management implementation for supporting implementation of storage-management software; and (5) storage management for supporting management and operation of storage.*

Working under our “uVALUE” concept, we at Hitachi, Ltd. are positioning IT systems — as the foundation of new “value creation” — as service platforms. As for storage platforms, which form the core of these IT systems, a concept known as “Services Oriented Storage Solutions” has been put forward. “Total solutions” for unifying solution services, hardware, and software are being proposed. In addition, maximization of business value with the reduction of the TCO (total cost of ownership) of storage in IT systems is being supported.

Since July 2007, Hitachi has been providing solution services centered on Hitachi’s disk array subsystems. At present, we are providing new storage solution services that cover the entire life cycle of storage systems; that is, services that cover not only SANs (storage area networks) but also content archives and NAS (network-attached storage) (see Fig. 1).

The rest of this report describes the new storage solution services that are being provided in the Japanese market.

### CHARACTERISTICS OF NEW STORAGE SOLUTION SERVICES

With our new storage solution services, it is easy to reconfigure a customer’s system in a manner that is easy to understand from the customer’s viewpoint.

Moreover, our new storage solution services provide a “service menu” for each phase of the discovery of a customer’s storage system, namely, discovery of systems and equipment used in a customer’s storage system and analysis of system design, system implementation, system operation, and future systems. By applying services adapted to each customer it is possible to support the entire storage system life cycle from system planning, design, implementation, operation, and future growth (see Fig. 2).

### REQUIREMENTS FOR NEW STORAGE SOLUTION SERVICES

#### Service Category: Tiered Storage

With the services in the Tiered Storage category, a configuration for a storage system appropriate for each customer is provided through the following procedure: investigation and analysis on existing-storage-system configuration, proposal of the suggested configuration obtained from the results of these investigations, and design and deployment of the proposed configuration (see Fig. 3).

#### (1) Hitachi tiered-storage assessment service

In the case of surveys of existing configurations, tools are used to gather the information. Requirements are then confirmed and information about storage is acquired by listening to customers. After that, a visual

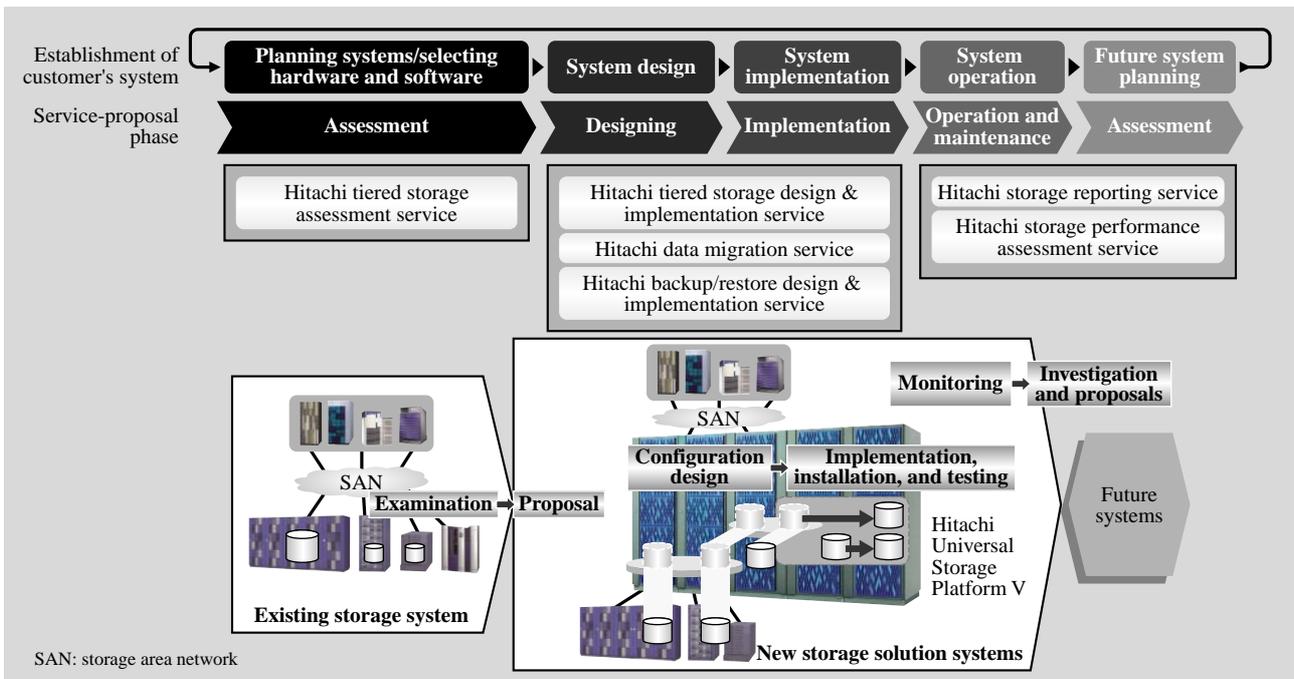


Fig. 2—Storage Solution Services for Supporting the Whole Life Cycle of Storage Systems. By applying services appropriate for handling each phase, each customer’s storage system is supported over its whole life cycle.

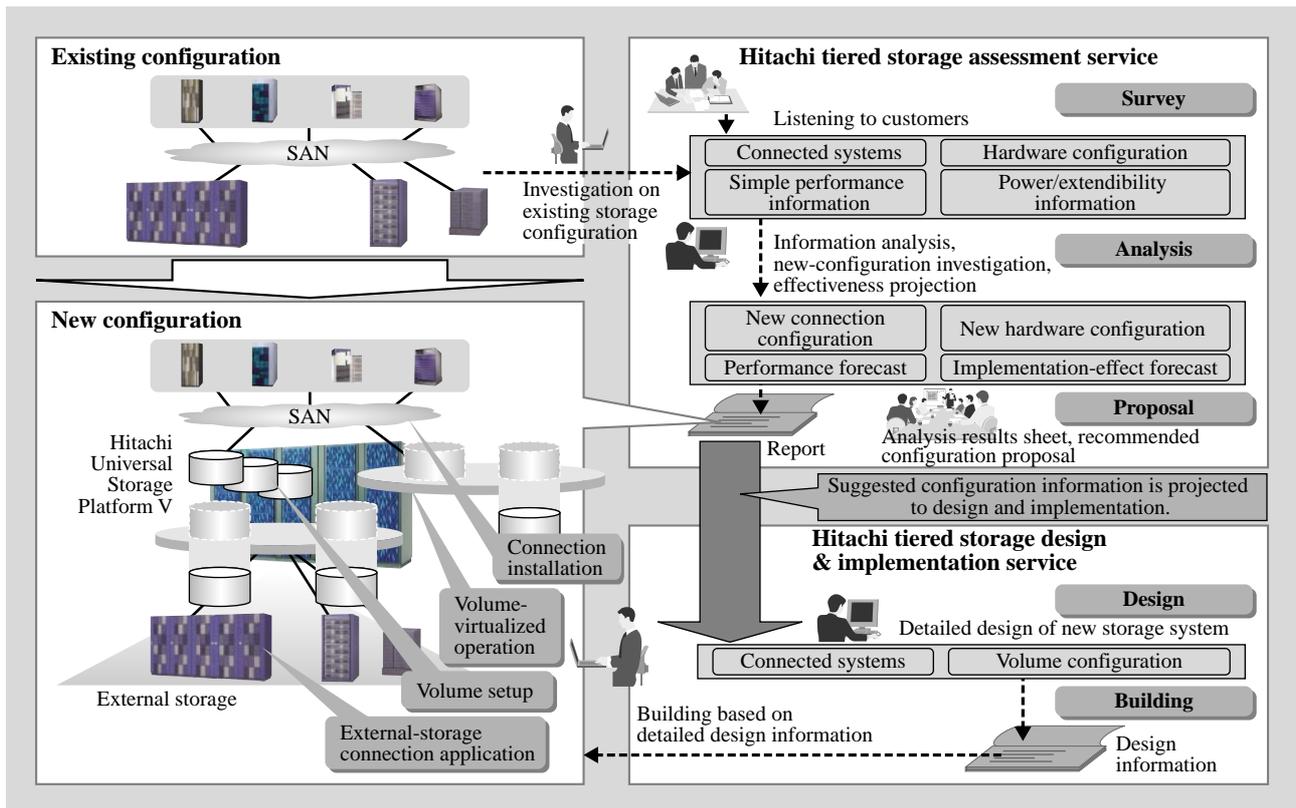


Fig. 3—Application Example of the Tiered Storage Category.

Hitachi tiered storage assessment service and Hitachi tiered storage design & implementation service are linked, and a configuration for a storage system appropriate for a particular customer is proposed and established.

configuration is created from the obtained information. Given that information, analysis from viewpoints like usability improvement of disk resources and system extendability is performed. In addition, storage integration is planned using the external-storage-connection function and the volume-virtualization function of Hitachi Universal Storage Platform V. Lastly tiered storage layers are designed. The results of these procedures are then estimated and measured. At the same time as the analysis results are presented to the customer, a recommended configuration for a new storage system is proposed.

#### (2) Hitachi tiered storage design & implementation service

As for designing and implementation of new configurations, more detailed design (based on information about the proposed connection configuration and hardware configuration) as well as implementation according to design information are executed. Specific connections between servers, switches, and storage are designed and implemented. This includes zoning and virtualization of the FCSWs

(Fibre Channel switches) as well as correspondence between volume and servers.

#### (3) Hitachi data migration service

Rapid and secure migration of data from existing configurations to new configurations is carried out. By means of these services in the tiered storage category, storage systems that suit the level of importance of customers' data and that effectively utilize existing storage resources are designed and implemented. As a result, it is possible to group data in the optimum places and cut costs involved in storage systems.

#### Service Category: Storage Management

As for the service category termed storage management, once implementation of the proposed system is completed, operation of customer systems starting actual activities is monitored, and in the case that any trouble occurs, detailed analysis is done and the analysis results are reported (see Fig. 4).

#### (1) Hitachi storage reporting service

Storage systems of customers are monitored

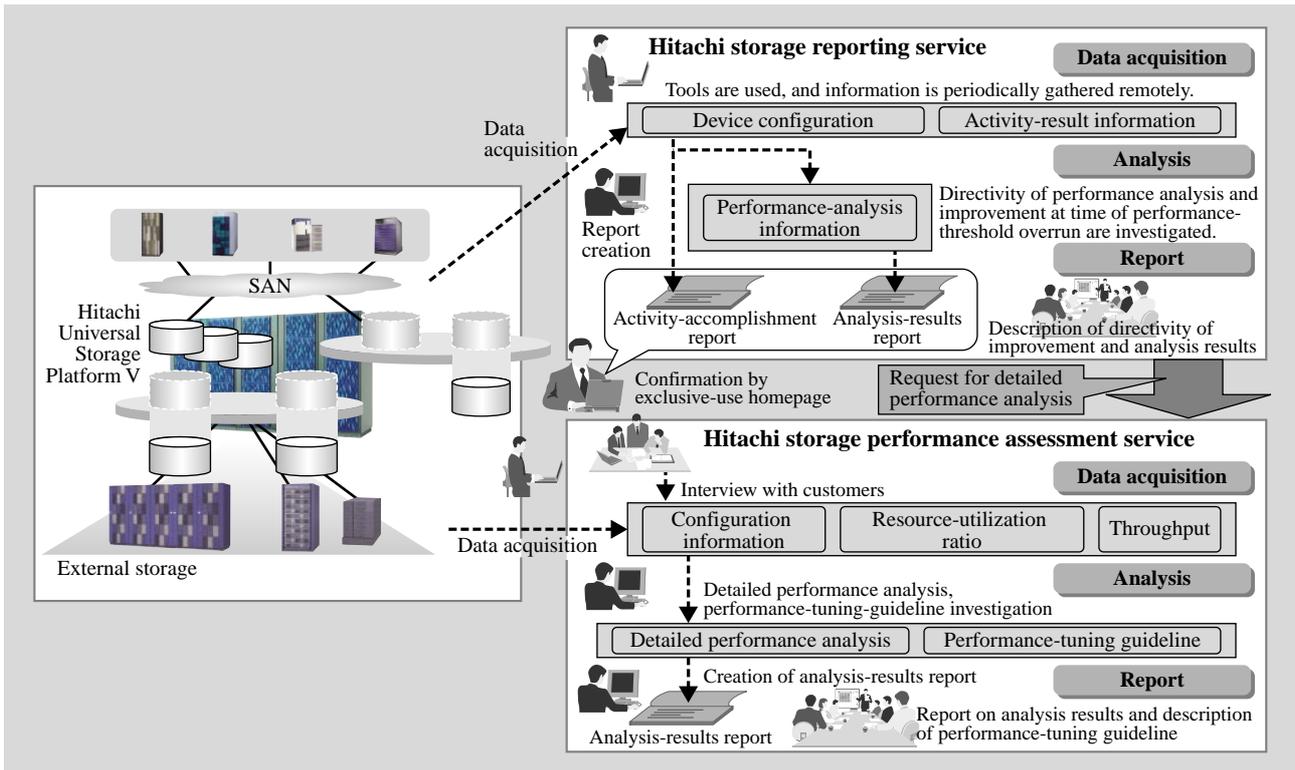


Fig. 4—Application Example of Storage in the Storage Management Category.  
 By connecting the Hitachi storage reporting service and the Hitachi storage performance assessment service, it is possible to support operation and management of a customer’s storage system.

remotely, and information on operational performance is gathered at fixed intervals. In the case that there is no trouble with operational status, the operational-performance information regarding a customer’s system is compiled in a report, which is then posted on an exclusive homepage for that customer. The customer can access that homepage and, at any time, ascertain the operational status of their storage system. In the case that a performance criterion is exceeded, the conditions regarding that overrun are analyzed and the directionality of continuous improvement is investigated. The investigation results are compiled in an analysis-results report, which is then presented to the customer with a detailed explanation.

(2) Hitachi storage performance assessment service  
 In response to requests from customers, acquisition and analysis of performance information in more detail are performed. After required points of the performance analysis are elicited from a particular customer, information is acquired directly from that customer’s storage system, and the content of that information is analyzed. The analysis results are compiled as a report, which is presented to the customer along with “performance-tuning” guidelines. These services in the

storage management category support stable operation of the storage system of each customer.

**Service Category: Business Continuity**

As for the service category termed business continuity, investigation and analysis concerning information related to continuity of existing-storage-system configurations and operations are carried out. After the analysis is completed, a report is created which gives recommended business continuity configurations, operational procedures, and implementation information.

(1) Hitachi remote copy assessment service

A survey of existing systems is done, and disaster-recovery requirements are elicited by interviewing with each customer. Analysis results, recommended system configuration, necessary bandwidth, and basic operation plans are proposed to each customer.

(2) Hitachi remote copy design & implementation service

System configuration and operational procedures design are implemented based on the proposed configuration and operational plan. At the time of implementation, basic-operation verification testing

according to an operation script is carried out, and proper operation of the implemented disaster-recovery systems is confirmed.

### (3) Hitachi backup/restore design & implementation service

Services for designing and implementation of backup systems for customer data are provided.

#### Service Category: File and Content

As for the service in the category File and Content, systems that utilize the Hitachi Content Archive Platform (for realizing long-term storage of digital content) and the Hitachi Essential NAS Platform for new NAS-gateway products are provided for customers.

In regard to a NAS environment, designing and implementation of a remote backup system for file-based environments using functions of the Hitachi Essential NAS Platform are provided. The files and media services for local backup systems will use the NDMP (Network Data Management Protocol) (a standard protocol enabling backup of appropriate files). A service for supporting migration of customer data from NAS equipment of other companies to a NAS environment using the Hitachi Essential NAS Platform and quickly starting up the Hitachi NAS environment is provided.

Moreover, design and implementation services are

provided for the Hitachi Content Archive Platform. This service is suitable for various kinds of data such as log data, document files, e-forms, and e-mail. The design and implementation service for the Hitachi Content Archive Platform provides for long-term storage of digital content in a secure and easy manner.

## CONCLUSIONS

New storage services for covering the entire life cycle of storage systems are described in this report.

Total support, from system investigation to designing, implementation, and operation, is provided by tailoring services in particular categories in each phase of a storage system. These services are described in the preceding sections. Furthermore, applying information acquired during operation and performance-tuning guidelines enables improvement of storage systems as well as investigation on implementation of more suitable future systems. As a result of implementing these new storage solution services using Hitachi storage experts, customer workloads are reduced and storage systems can be optimally maintained.

By continuing to provide “total solutions” in a timely fashion to handle problems facing our customers, Hitachi, Ltd. will continue to even more strongly support customers’ storage systems throughout their entire life cycle.

## ABOUT THE AUTHORS



**Yoko Sugiura**

*Joined Hitachi, Ltd. in 1999, and now works at the Strategic Business Planning Department, the Storage Area Network Systems Solution Division, the Information & Telecommunication Systems. She is currently engaged in the planning of the storage-solution business.*



**Tetsuya Minematsu**

*Joined Hitachi, Ltd. in 1993, and now works at the Solution Service Development Department, the Storage Systems Solution, the Storage Area Network Systems Solution Division, the Information & Telecommunication Systems. He is currently engaged in the planning of the storage-solution business.*



**Kenzo Tabata**

*Joined Hitachi, Ltd. in 1991, and now works at the Strategic Business Planning Department, the Storage Area Network Systems Solution Division, the Information & Telecommunication Systems. He is currently engaged in the planning of the storage-solution business.*



**Tomohiko Suzuki**

*Joined Hitachi, Ltd. in 2003, and now works at the Strategic Business Planning Department, the Storage Area Network Systems Solution Division, the Information & Telecommunication Systems. He is currently engaged in the planning of the storage-solution business.*