

## Data Storage

With the increasing information overload crowding business data storage systems today, businesses are struggling to harness the optimal value of operational data. This has led to a growing demand for an ideal data storage system to meet business requirements while managing costs effectively. What is the key towards striking that right balance towards information agility?



For  
Small  
Business



### HAVE YOU BACKED UP RECENTLY?

When disaster strikes, it comes without warning. When Wolfgang Kramer, Asia regional director for cosmetic device specialists Thermage, met his client for a meeting, a freak accident saw his laptop crashing three storeys down. This is but one scenario that highlights the countless possibilities of losing critical data. When was the last time you backed up?

The importance of data storage takes many forms – apart from new legislative requirements<sup>1</sup> making secure storage a compulsory element for small- and medium-sized businesses (SMBs), other primary considerations for SMB owners include partner agreements, set-up and maintenance costs, the speed and ease of retrieving data, as well as its vulnerability ratio as opposed to security breaches. There is no one clear-cut data storage solution across the board and the main challenge for SMB owners is to find the right balance after all data storage concerns have been considered.

### CONVENIENCE VERSUS SECURITY

Data storage presents a dilemma for SMBs as the type of data comes in various different levels. For instance, while routine organizational information should be easily accessible to users such as employees or auditors and regulators, other confidential data such as high-risk customer profiles should be protected. For example, corporate confidential data must be encrypted, e-mails can be stored as plain text, partner data can be protected by different keys, etc.

A sample checklist for data storage should include the following:

- ✓ All corporate plans and personnel records should be encrypted in store and in flight.
- ✓ All company e-mails and data over the Internet must be encrypted and authenticated.

<sup>1</sup> CoSign Digital Signatures and HIPAA, HIPAA Act, 20 June 2009.  
<http://www.zdnetasia.com/itlibrary/security/0,3800009948,45066663p,00.htm>

- ✓ All passwords and secrets should be transmitted and stored only in encrypted format.
- ✓ Each device, user and application must be authenticated and in case of sensitive transactions, strong (two-factor) authentication will be required.
- ✓ All storage data will be backed in encrypted format and at a minimum ensure acceptable level of data integrity.
- ✓ Separate keys will be used for encrypting stored data belonging to different parts of the corporation.
- ✓ All configuration data for the storage network will be protected from unauthorized modifications.

## STRIKING THE RIGHT BALANCE

For SMBs with limited IT budgets, the establishment of a storage area network (SAN) can be highly expensive. After the complexities involved with mandatory security encryption procedures have been factored in, finding a right balance between cost and capability now presents an uphill task. Completing this jigsaw might be tough but not unattainable, and there are various options available for business owners to finding the ideal, affordable and secure data storage or information management system.

There are three steps towards setting up a secure data storage system: the planning stage, choosing the hardware and architecture, and implementation before a post-evaluation process.

### STEP I – PLANNING



During this pre-implementation process, the critical assets of your organization should be thoroughly accessed. Costs should be kept to a minimum (set-up costs should be significantly lower than the value of that information), while security levels should remain adequate enough (the value, time and effort required to steal the piece of information should hover above the actual value of that information).

A thorough risk analysis of your data should be segmented into three main categories: marketing and sales records, old email and documents with critical customer information, and archives of transactional history and confidential organizational blueprints.

However, the data security level should not be confused with the amount of encryption. Data storage also involves the proper categorizing of the different types of information (low to high-risk), and although the piece of data might have been encrypted, it does not necessarily equate to being secure.

An effective way in deciding how to design your data storage system's security should include a two-pronged approach – by securing data overlaid with layers of peripheral security. It should have four main markers to guide security levels: access to data, data in transit, data in store and data being managed. For each marker, there is a range of available technology security options. For example, you can use authentication and access control schemes to control access to data. In addition, multi-layered security zones can be introduced into your data storage system. “Demilitarized Zone” is an example of a two-layered security. Adding layers of security such as firewalls and filters within your organizational intranet helps protect storage data. Examples of this “Secure Zone” layer approach include Secure Management Zones and Virtual Storage Area Networks. (VSANs)

## STEP II – CHOOSING THE RIGHT TOOLS

The availability of the wide spectrum of vendor offerings for data storage also presents business owners a bigger task when it comes to picking the right tools. However, for SMBs, this has been made easier by bigger industry players catering to the small and middle markets by scaling down their high-end security features traditionally meant for enterprises.

### COMPATIBILITY



The data storage data storage security product should be compatible with your existing network and SAN infrastructure. This should integrate smoothly into your existing access management system. Also, with grow and expansion forecast in data storage needs, this product should allow for scaling-up purposes with ease. In addition, tie-ups arrangements can be made with your chosen vendor to establish relative cost-saving maintenance and service contracts.

For service providers such as Singapore's Sentosa, the resort organization needed a seamless, secure and reliable data centre with an integrated network to keep all its hotels and theme parks running together.<sup>2</sup>

The Stock Exchange of Thailand (SET) faced the challenge of its existing technical infrastructure approaching the limit of its capabilities.<sup>3</sup> One of the challenges encountered was the result of over-decentralization of networks in the organization. Its data center contained all trading operations systems, including network infrastructure, servers, storage, email, as well as hosting intranet and Internet applications. However, all the various departments were operating independently using their own servers which created a high level of maintenance overheads. SET decided to upgrade their network, with the goal to provide an infrastructure that would be stable, standardized, secure and flexible for the users and applications running on it. Via Cisco's Business Ready Data Center, SET was able to consolidate its data centre operations and achieve cost savings, primarily due to the lowered complexity of maintaining its resources. And ever since the new network has been in operation, there has not been any incidence of downtime, and it was able to increase organizational efficiency significantly.

### GOING GREEN

The growing emphasis by national governments on corporate governance and social responsibility has led to both cost-saving and energy efficient options.

For Lembaga Hasil Dalam Negeri Malaysia (LHDN), Malaysia's flagship Inland Revenue Board chose a technology system based on the capability to provide its virtualized platform on servers and SAN storage as well as backup systems.<sup>4</sup> The criteria of the chosen technology were that it had to be

<sup>2</sup> Resort's data centre keeps hotels, theme parks up and running, Victor Ng, 1 Sep 2009

<http://www.searchstorageasia.com/content/resorts-data-center-keeps-hotels-theme-parks-and-running>

<sup>3</sup> Stock Exchange of Thailand puts its money in a Business Ready Data Centre, Datacraft Case Study, 2005

[http://www.datacraft-asia.com/pages/mm\\_download\\_ok.asp?t=d2lkd3&page=19](http://www.datacraft-asia.com/pages/mm_download_ok.asp?t=d2lkd3&page=19)

<sup>4</sup> Asian Organisations Employ Green And Cost-effective data centre strategies, Victor Ng, 16 Feb 2009

<http://www.searchstorageasia.com/content/asian-organizations-employ-green-and-cost-effective-data-center-strategies?page=0%2C1&src=related>

scalable, manageable and simple. In this project, the organization chose a cost-effective VMWare virtual server technology with Hitachi Data Systems' USP-V and SAN to provide storage virtualization and thin client provisioning.

## SECURITY

Hardening of platforms is fast becoming a common practice. This offers an affordable method to keep your data storage system less vulnerable to the most common forms of security exploits and attacks.

## STEP III – IMPLEMENTATION

The two most common forms of data storage security communication channels between your existing network and SAN are fibre channels and IP. Of course, fibre channels operate at a higher speed, but the significantly higher costs must be kept in mind and maintenance might be more difficult due to the specialized nature of technical expertise required.

## TAKING THE INFORMATION SCALE TO NEW HEIGHTS

In summary, choosing the right data storage solution requires a strong risk assessment process to segregate data and review existing network needs. In careful consideration with regards to the factors as described, the main benefits that you will be looking to realize while consolidating your data storage system mainly weighs between costs and effectiveness. However, with the huge number of offerings being made available due to an increasing demand in SMBs, securing data is now a relatively easy and routine process. The key towards reaching the next business level is not in managing the data or information, but the ease of which we can access it – towards a truly decision-oriented organization.

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