Vol. 9 Issue No. 36, 18 - 24 July 2003

SPECIAL REPORT

COMPUTERWORLD DIALOGUES - STORAGE

Storage challenges

Soaring requirements, limited budgets ... the storage dilemma was one of many issues highlighted by IS professionals at the recent Computerworld Dialogues.

Borneo Motors

Stephen Wong has over 15 years of experience working with Information System Technology. He is presently working as the IT Manager with Borneo Motors and is tasked to improve the business operations by including project management, global data communication network design and implementation.

Computer Associates

John Yang is Computer Associates' regional director of the Channel and Storage Business Division. His responsibilities include developing channel business, and managing the network of partners, distributors and resellers in the region. He joined CA in 1996 and assumed his current position in 1999.

Data Storage Institute

Patrick Khoo Beng Teck is program manager of the Modular Connected Storage Architecture Track in the Network Storage Technologies Division, involved in developing cutting-edge network storage technologies. The Data Storage Institute (DSI) positions itself to drive and support the growth of the data storage industry in Singapore.

Electra Data Services

Roy Lim is operations manager in Electra Data Services, an affiliate of Jebsen & Jessen Group of Companies South East Asia. It was initially established to provide IT services to member companies in the region. Now it operates as an independent consultant to other companies with IT needs.

EMC South Asia

Jon Murray is EMC's regional program manager for Business Continuity in ASEAN and

India. He is responsible for advising EMC customers on the business, financial and operational impacts of BC. He has handled projects including Citibank, DBS Bank, SingTel and Telekom Malaysia.

Hewlett-Packard

Paul Haverfield recently joined HP's Enterprise Storage and Server Group as an applications engineering consultant. He has over 15 years of IT industry experience, having joined Digital Equipment as a sales technical support consultant and at Compaq, he has held key positions as infrastructure manager, technology consultant and enterprise solutions architect.

Inter-Premium Group Services

Foo Say How is the IT Manager for Inter-Premium Group Services, handling the evaluation, planning and implementation of the IT systems for the group. The group provides accounting and corporate services to local and foreign companies.

Kah Motor

Kah Motor hired Billy Cheng as its MIS manager, responsible for Kah Motor's use of information technology within the organisation, a wholly owned subsidiary of Oriental Holdings of Malaysia. Kah Motor Singapore is incorporated in Malaysia and registered in 1960, and is the exclusive Honda distributor in Singapore since 1969.

Legato Systems

Ron Demone is the area consulting director for Legato Systems in the Asia Pacific. Demone is a veteran of the information technology industry. His experience in computing and storage technologies began in mainframe environments and Unix systems. He joined Legato in 2001 handling consulting services business and delivery in Asia Pacific. He is also the vice chairman in the SNIA South Asia Regional Affiliate.

Marks & Spencer

Bernard Thio is IT administrator for Marks & Spencer, a retail chain that arrived in Singapore with its first store at Centrepoint Shopping Centre in 1987. Under the local operator of the franchise, Robinsons Group of Stores, IT is important in managing aspects like inventory control and delivery logistics.

Nanyang Technological University (NTU)

Dr Daniel Tan Tiong Hok is currently director of the Centre for Educational Development, and Associate Professor in the School of Electrical and Electronic Engineering at the Nanyang Technological University. He led the team that developed and implemented the e-learning eco-system for the campus.

Raffles Institution

Gurjit Gill, IT Infrastructure assistant manager in Raffles Institution, manages the use of IT by the schoolboys. The school is one of the top secondary schools of Singapore. Its mission is to cultivate IT into the future generations of individuals who can take on the challenges of their times.

Seagate Technology

Robert Yang heads Seagate's Sales and Marketing operations in South Asia as director and general manager since 2001. Robert joined Seagate in 1997 as senior manager and was promoted to regional sales manager in 1998 where he played a major role in expanding Seagate's distribution networks and OEM partners in Asia Pacific.

Back to previous page

Vol. 9 Issue No. 36, 18 - 24 July 2003

SPECIAL REPORT

COMPUTERWORLD DIALOGUES - STORAGE

Keep it simple

Put the business first before technology. That is the clarion call for organisations struggling to manage the data deluge.

By Melanie Liew

Business first, technology later. When companies are in the process of considering their storage needs, they need to get the business involved. IT cannot do this on its own. If they try, they will fail.

This is the advice of Patrick Khoo (left) of Data Storage Institute (DSI).

Many organisations look at backup and disaster recovery process as a necessary evil. Instead, backup should be taken as a restoration process with recovery time objectives. This will enable organisations to change their views about backup.

Said Peter Haverfield (right) of Hewlett-Packard (HP), "To do this, IT managers must think of recovery. Many backup procedures fail because they approach it from the backup perspective. Think of the top two or three scenarios that have caused IT to restore data."

"Think of what you can afford to lose and align this to what you can afford to spend."

After this, look at the size and the configuration of the solution from the technology standpoint. This is because budgets are limited while the options are not.

But, it is undeniable that users today have zero patience. They do not want to have to wait for data. For example, in a recent 2003 InfoWorld Storage Survey, 61 per cent of new storage purchases are used for employees' email. Respondents say that 67 per cent of corporate data must be maintained online whereas only 17 per cent of data can be moved to offline archives.

The banking and finance industry, for example, have to keep data – paper, film-based and electronic – which have to be readily available should regulatory agencies request it.

This makes an IT manager's job much harder.

One of the challenges the industry faces is that the regulations rarely spell out specific

implementations or provide any type of guidance other than the number of years the data must be kept. Therefore, it is up to the IT managers to figure out how to meet the mandatory requirements for the electronic records and to work with vendors.

Said EMC's Jon Murray (left), "In any case, the kinds of data that are considered vital include email, intellectual capital, customer relationship management, enterprise resource planning, supply chain and transaction records that are outside the normal production systems."

This means that users should be educated or re-educated about what they should keep.

"They have to be disciplined and to prioritise what they need to keep. In this instance, different types of organisations have different needs. Therefore, IT executives have to provide storage tools and systems that will enable their organisations to archive and protect records in compliance with the rules and regulations of the country," said John Yang from Computer Associates.

Said HP's Haverfield, "The more information IT staff have about their storage environment, the better they can manage and plan to maximise returns from their storage investment."

CA's John Yang (left) pointed out, "Users within organisations must classify their data and accord this priority based on the characteristic of the data. Once the IT manager has intimate knowledge of the system and the storage environment, such as the top ten users or file types, then it will be somewhat easier to make decisions on how and what to prioritise."

To do this, managers can make use of tools such as automated software which will streamline the process of provisioning. It saves time and cuts down on errors. Automated provisioning ensures that systems and applications get the correct type of storage by relying on preset rules for allocation. IT managers set the rules based on service levels, the value of the data and the needs of specific business applications."

Said Haverfield of HP, "Organisations must understand the major elements or aspects of storage management since storage is cheap to buy but expensive to manage."

These aspects include asset management, configuration management, fault management, capacity and security management.

In any case, companies are going with the "backup to disk, archive to tape" philosophy.

Information architectures using disk-based storage can free staff for more productive projects and cut the time for reviving critical business functions, said Robert Yang (left) of Seagate Technology. Disk-based options are quickly replacing tape as the primary means of backing up data. This is because of the increasing cost difference between tape and disk while backup and retrieval speed is another.

So, instead of waiting for as long as two weeks to reload data,

operations can resume within hours or minutes if designed properly.

However, for archival purposes, companies should look at tape. By and large, tape is not as sexy as storage area network, network attached storage or other more advanced technologies but it is one of the most cost effective medium to backup, restore and archive applications, said Khoo from DSI.

On the flip side, organisations that have mission-critical data such as hospitals and banks simply cannot afford to suspend operations for the time it takes to deal with tape backups.

In the past, the nightly backup operation was not a problem. Then, IT managers could take databases out of operation when their companies closed for the night.

But today, data stores are growing exponentially. Incremental backups are necessary at many organisations as time does not allow for entire backup processes to be performed nightly.

In addition, with businesses operating 24 x 7 all year round, there is no time to take down databases or applications to perform backup operations.

One way to alleviate this is to use disk for fast retrieval, emphasised Khoo.

In the event of a disaster, putting in place a business continuity plan is crucial to recovery. Said Jon Murray of EMC, "Companies need a system to mitigate or even prevent damage that can be caused by both planned and unplanned events. Ensuring that your company can remain in operation is what business continuity is about. In this instance, the integrity of information is the core of any business continuity strategy. People, structures and strategies that drive an organisation depend on this information."

In fact, Gartner Group Dataquest estimates that two out of five companies that experience a disaster go out of business within five years. The research firm projects that by 2005, the market for storage management will more than double as issues get more complex.

In the past, companies viewed disaster recovery plans as a necessary evil with little financial benefit.

"But, instead of treating such plans as an insurance policy that costs money but pays no dividends until a disaster occurs, companies are now identifying ways to create a more complete business continuity solution. To do this, business should establish its storage architecture centred on information currency and accessibility and hence, turn their information into an active asset.

One method of doing this is to implement a flexible, adaptable and scalable business continuity programme. Having a resilient computing platform can free up resources that have been saved for "a rainy day".

Said DSI's Khoo, "Companies that want to build and maintain a cost efficient storage environment should bear in mind that it is no longer just a matter of selecting equipment and disks based on the total cost of ownership. Companies should also look at architectural alternatives and invest in storage management software to improve the return on investment for the company."

Said Ron Demone (left) from Legato, "In addition, businesses would do well to re-evaluate their opportunities on an ongoing

basis, because as costs decrease, new software emerges and architectures become more stable. But bear in mind that media will wear out, so organisations must have processes in place to evaluate the level of content. In addition, practitioners have to be aware that this has to be performed on a regular basis. Such a process is tedious and time consuming and certainly not a glamourous job."

Still, as John Yang from CA said, "Ninety per cent of downtime is planned downtime, so this can be accounted for."

Said EMC's Murray, "The needs of every organisation will change and in a year's time, the requirements would have evolved. Whatever it is, the needs must 'gel' into what the IT manager decides now. Otherwise, the business will be undoing all the good that the IT manager has done."

Added Demone from Legato, "This means that striking the right balance and getting the best results from a storage investment will require continuous review and adjustment." Therefore, it would be in a company's best interests to purchase solutions that are highly flexible and scalable.

"At the end of the day, companies have to realise that anything that makes data recovery more complex invariably reduces the likelihood of successful retrieval. So, with storage, the end goal of the IT manager should be to 'keep it simple,'" said DSI's Khoo.

Back to previous page

Vol. 9 Issue No. 36, 18 - 24 July 2003

SPECIAL REPORT

COMPUTERWORLD DIALOGUES - STORAGE

Money constraints

A recurring theme during the Computerworld Singapore Storage Dialogues was the tight budgets and manpower constraints faced by the end users.

By Louis Chua

A recurring theme during the Computerworld Singapore Storage Dialogues was the tight budgets and manpower constraints faced by the end users. "It is all very well to talk about doing tape testing but for teams like ours, which are very lean, we do not have the luxury," said Stephen Wong (above) from Borneo Motors. "But we still need the reliability."

Side-bar Stories

Looking for partnerships
A close working relationship with storage vendors is important if enterprises are to get a firmer grip on their escalating storage requirements.

While any discussion on the newest technologies and the functionalities that can solve the gamut of storage needs can always excite end users, justifying the long-term cost of implementation often restricts them from implementing these new storage solutions. This is because storage is viewed as an infrastructure investment that cannot be replaced or written off easily.

"It takes about two years for us to write off the hardware," said Billy Cheng (left) from Kah Motor. "Sometimes even up to four or five years."

Roy Lim (right) of Electra Data Services noted that from the end user's point of view, managing storage growth is about managing the costs and new technologies. This is because the cost of storage solutions keeps going down, said Lim, and two years later, it is difficult to justify the initial cost outlay that had been put in for storage.

For example, while vendors always talk about the ability to upgrade their systems when the need arises and charge a premium for that, the reality faced by Lim is that the cost for upgrading his old storage box is about the same as buying a new box. "For $200,000, we can buy a new box, which will look like a new purchase, or we can stick with the old box and make it look like an expansion," said

Lim. "It is the same amount."

"It could be cheaper to change the whole server than to try to extend the hardware," agreed Cheng.

Patrick Khoo from Data Storage Institute said flexibility should be a key consideration in making storage purchases.

"The technologies we have are merely tools," he said. "We need to buy equipment that are highly flexible and allow us to run an Exchange server today and run something else tomorrow."

There is also a need for end users to decide where their key requirements are.

"At the end of the day, users have limited budget and vendors want to sell at the highest profit margin," said Khoo. "It is an impossible task, but we need to figure out what is needed in order to prioritise."

At Nanyang Technological University, for example, e-learning applications are considered critical for the students – especially during examination period – and must be available 24 hours every day for all the students. In scenarios like those, storage must be reliable and accessible, said Dr Daniel Tan of the university's Centre for Educational Development. The yearly growth of storage in terms of terabytes means that additional management software and manpower are needed to manage the storage growth.

"There is a need for software that can help assess what type of storage is needed and constantly looking at what is happening," said John Yang of Computer Associates. "The knowledge of your data is important - who are the top ten users, top ten accessed files, data types…"

With software that can assess the storage needs continuously, end users will also be able to predict their internal enterprise's usage trends. For example, the system will be able to inform the end user that due to the increase in storage volume, the time needed for backup – the backup window period – will exceed the normal amount of time needed for backup. This will impact the network if the backup time extends to working hours. With the increase lead time provided by the predictive software, end users would be able to budget and plan for purchases in advance.

By defining the internal category of data and having a finer granularity of data knowledge, it will be easier to plan for storage needs such as archive systems. "Enterprises need to look for where the critical data really is," said Ron Demone of Legato. "Nowadays, email is becoming a critical component of normal business transaction."

By identifying the not-so-critical data, it will be possible to put in cost control measures such as placing less accessed files into tape storage systems. "You just cannot put everything into the top range systems," said Yang.

For Lim of Electra, enterprise resource planning (ERP) transaction data makes up the bulk of the storage needs while for Cheng of Kah Motor, it is email.

Disaster recovery is another area which enterprises have to address, but find difficult to budget for.

"It is difficult to justify the disaster recovery cost for a lot of businesses," said Lim. He finds that disaster recovery is similar in nature to insurance expenditure. "Most businesses are quite tight with their budget unlike banking and other financial institutions which have

to fulfil legislative requirements."

And yet, all businesses need to make sure that they are able to recover from unexpected downtime and run within the shortest possible time, said Lim, "regardless of whether they need a cold site, warm site or hot site to achieve it".

Back to previous page

Vol. 9 Issue No. 36, 18 - 24 July 2003

SPECIAL REPORT

COMPUTERWORLD DIALOGUES - STORAGE

Staying up all night (and day)

System outage is one of the issues that keeps Dr Daniel Tan of Nanyang Technological University (NTU) awake at night.

By Lee Ser Wei

System outage is one of the issues that keeps Dr Daniel Tan (left) of Nanyang Technological University (NTU) awake at night. As the director of NTU's Centre of Educational Development (CED), one of his major concerns is ensuring that the university's e-learning system is available, especially during critical periods before examinations.

The centre is responsible for the online content which both staff and students depend on.

"Students have actually called up the helpdesk to complain about access outages. They threatened to hold us responsible if they failed their papers, because they were not able to access their notes online," he laughed.

Tan was speaking on CED's IT and storage challenges at the Computerworld Dialogues on Storage last week.

He said in the early phases of the e-learning rollout, managing the system and its storage requirements was much easier as e-learning then involved mainly static material. Moving forward, however, the emphasis has shifted to include more interactive content.

Staff and students of NTU have migrated their course material online, and this led CED to adopt a SAN (storage area network), to take advantage of easier scalability and manageability. "But no big bang approach," said Tan. "We intend to do it in phases."

A SAN will also enable better performance, and make the disaster recovery (DR) process easier.

According to Tan, NTU spent time talking to many SAN vendors. The system needed good management tools, as the content would be huge, he said. And the processes had to be transparent. Also, it had to be able to handle dynamic content: on a week-to-week basis, the data and its access patterns could change drastically, depending on curriculum needs or schedule needs. And, "there's definitely a crunch as exams draw near", Tan said.

For Tan, it was very important that the vendor was a partner in the undertaking. "Our success is their success," he said. He was looking for good service besides good support. "The vendor should not be one to sell first and then talk later. The system is not a one-off sale but for long-term. We need to look beyond two years, so that later on we'll not be

caught in a hole."

Capacity-wise, NTU recently moved from 300GB to 1TB, and Tan expects this to be used up in six months.

The CED has had to be prepared for "multiple learning objects" and "rich content". And that is also contributing to the storage challenge it now faces.

For example, the centre is mulling over the recording of lectures. "Lectures are going on back-to-back daily," said Tan. "This generates about 37,000 hours a year."

And the self-imposed archival requirement of four years – which is the average time span of an NTU course – would mean capturing 150,000 hours of lectures. This would mean a massive jump in data storage requirements. "We're looking at huge numbers, so it's not possible to do it for every theatre," said Tan, who is exploring the possibility of selective recording.

Back to previous page

Vol. 9 Issue No. 36, 18 - 24 July 2003

SPECIAL REPORT

COMPUTERWORLD DIALOGUES - STORAGE

Putting IT out

As the assistant manager for IT Infrastructure in Raffles Institution, Gurjit Gill manages an IT infrastructure for nearly 2,000 students. While the school's e-learning platform has been outsourced, meaning that there is no streaming data load, storage requirements have still exploded – thanks to the Internet.

By Lee Ser Wei

As the assistant manager for IT Infrastructure in Raffles Institution, Gurjit Gill (left) manages an IT infrastructure for nearly 2,000 students. While the school's e-learning platform has been outsourced, meaning that there is no streaming data load, storage requirements have still exploded – thanks to the Internet. "It's simple on the user side – they can use CDs for archival, but for network storage it's not so easy," said Gill, who has allocated each student 10MB of online storage.

IT professionals such as Gill have to work with tight budget constraints, especially under current economic conditions. For example, enterprise-class storage even at $50,000, was a lot of money. "I hope vendors can work with us to come up with more affordable solutions," he said.

His chief wish is for vendors to keep it simple, "By constantly buying new technology, we're going into something we can't manage. Buying is easy, it's maintaining it for three to five years down the road that is hard."

One possible solution that was raised at the Computerworld Dialogues was outsourcing.

Paul Haverfield of Hewlett-Packard suggested that with technology refreshing itself every two to three years, outsourcing made sense. The emergence of utility computing models point in that direction, he said.

But, citing the Australian experience, he noted that outsourcing has led to skill leakage from a user company to its vendors. "As the skills were lost, the companies lost the ability to control their own IT direction, handing it over to the outsourcing vendor," he said.

Bernard Thio of Marks & Spencer felt that there were still many constraints on outsourcing and that local response would still be more efficient. Another participant, Foo Say How of Inter-Premium, raised the question of speed of access, if storage were to be outsourced.

Jon Murray of EMC felt that some of these issues could be addressed through appropriate service level agreements (SLAs), which would ensure performance while shielding users from the actual technical details.

John Yang of Computer Associates agreed. "They are important to protect our interests," he said, "but a lot of effort is needed to draft out a proper agreement which is why currently, only the big companies are doing it."

Gill himself is not very comfortable with the idea of outsourcing, especially with regard to the security of the outsourced data. "The physical store, where is it? Who else is going to access it? These are things that people must be sure of to feel comfortable (enough to use outsourcing)," he said.

Back to previous page