

# STORAGE TODAY

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## CONSIDERING CLOUD?

The term "cloud" has been a buzz word for some time in the storage industry. Businesses are being bombarded by suppliers offering a variety of new cloud storage services which allow varying degrees of in-house control

### REDUCING COST IN A DOWNTURN ECONOMY

With the economic outlook for the year ahead still somewhat uncertain, finding ways to reduce cost is very much at the forefront of operational planning

### CREATING AN ULTRA-HIGH-PERFORMANCE TIER OF STORAGE

Adoption for solid state disks (SSDs) within external storage arrays has become a very hot topic in recent discussions



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Organisers of Storage Expo  
 Reed Exhibitions, Gateway House, 28 The Quadrant,  
 Richmond, Surrey TW9 1DN  
 T: +44 (0) 20 8910 7910 F: +44 (0) 20 8910 7866

**Tamar Beck, Group Exhibitions Director**

T: +44 (0)208 910 7884 E: tamar.beck@reedexpo.co.uk

**Claire Sellick, Exhibition Director**

T: +44 (0)208 910 7907 E: claire.sellick@reedexpo.co.uk

**Natalie Booth, Event Manager**

T: +44 (0)208 910 7941 E: natalie.booth@reedexpo.co.uk

**Tony Moyo, Sales Manager**

T: +44 (0)208 910 7966 E: tony.moyo@reedexpo.co.uk

**Emma Tommony, Contents Manager**

T: +44 (0)208 910 7943 E: emma.tommony@reedexpo.co.uk

**Sam Willoughby, Head of Marketing**

T: +44 (0)208 910 7824 E: sam.willoughby@reedexpo.co.uk

**Laura Heather, Marketing Manager**

T: +44 (0)208 910 7849 E: laura.heather@reedexpo.co.uk

**Gurvinder Hunjan, Marketing Executive**

T: +44 (0)208 910 7962 E: gurvinder.hunjan@reedexpo.co.uk

**Sabrina Bonotto, Exhibitions Executive**

T: +44 (0)208 910 7796 E: sabrina.bonotto@reedexpo.co.uk



This magazine is designed and produced on behalf of Reed Exhibitions by Showtime Media Services Ltd

**Managing Director:** David Benson

**Sales Office Manager:** Lesley Maisiey

**Sales:** Sarah Lelarge

**Design:** Andy Milsom

**Accounts:** Mark Benson

**Editorial:** Luke Murphy

Showtime Media Services Ltd, Commerce House,  
 6 Grove Road, Hitchin, Herts, SG5 1SE

T: +44 (0)1462 63 63 66, F: +44 (0)1462 642 464,

E: enquiries@showtimemedia.com, W: www.showtimemedia.com

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# WELCOME TO STORAGE TODAY

Is the economic downturn influencing your data storage and information management strategy?

With the economic outlook for the year ahead still somewhat uncertain, finding ways to reduce cost is very much at the forefront of operational planning. The emergence of virtualization, blade servers and cloud computing can provide immediate cost savings across the bottom line. The sooner organisations have the ability to consolidate, virtualise and better manage resources, the sooner they will also be able to benefit from additional savings through reduced power and cooling. If this all seems a bit of a daunting task, don't miss the article Reducing Cost in a Downturn Economy in this latest issue.

If you are Considering Cloud, read on to find out the key considerations you need to determine how to maximise your return from cloud implementation. The term 'cloud' has been a buzz word for some time in the industry. Businesses are being bombarded by suppliers offering a variety of new cloud storage services which allow varying degrees of control, however every business has unique demands on its storage capabilities. Make sense of your business, assess what you have already, and then you will be able to choose a trustworthy partner.

If you are looking to find out more on cloud and virtualization, then Storage Expo, the definitive event for data storage, information and content management is now less than 4 months away. Taking place on 14th – 15th October, we are launching several new show features including a Virtualization Showcase (including VMware Genius Bar & Partner Pavilion), dedicated to key software and hardware vendors who offer products and services which enable server, storage, application and network virtualisation. There will also be separate zones on Cloud, Information Management and a Solutions Lab.

The free to attend keynote sessions at Storage Expo will also take an in-depth look at some of the latest trends in data storage and information management today.

Andrew Reichman, Senior Analyst, Forrester will lead the keynote on optimising storage through the downturn: delivering first class storage on a third class ticket. Carla Arend, Program Manager, European Infrastructure Software, IDC Group will lead a panel on future directions that will shape your storage strategies

for tomorrow.

Rene Millman, Senior Research Analyst, Gartner Research will expose the truth and hype about cloud and Nigel Stanley, Practice Leader, Bloor Research will chair a panel on is your backup and archive effective.

This year we have 2 new themed seminar theatres: "It all starts with Storage" and "Don't just store it, do more with it."

The "It all starts with Storage" stream will demonstrate optimisation of assets, reduction of cost, storage as an enabler, how to store unstructured data and creating a business case for storage. Key areas that will be covered include Virtualization, Thin Provisioning, SAAS/Cloud, De-duplication, Storage Infrastructure and Networks, Storage Architecture/SAN, Storage as a Platform, SSD's & Flash, IP Storage/FCoE and Data Centres

The "Don't just store it, do more with it" stream, will include focus sessions on business intelligence, successful information management, and managing unstructured data. Key technologies will include: Enterprise Applications, Information Infrastructure, Sharepoint, BC/DR/Backup, Retrieval/Search, Security, Archiving/Email, Classification/DR, File Sharing/Collaboration, Data Warehousing/Mining and Content and Records management

All the key vendors will be present at Storage Expo, so if you are looking to find out the latest developments in storage, information and content management technology, then there is the one key date to store in your calendar and that is Storage Expo 14th – 15th October.

For more information about Storage Expo, or to register free to attend, visit [www.storage-expo.com](http://www.storage-expo.com)

We look forward to welcoming you to the show.



**Natalie Booth**  
Event Manager  
Storage Expo

# STORAGE NEWS

All the latest storage news

## C2C HITS FOUR MILLION MILESTONE

C2C today announced the four millionth user of its solutions for email, files and SharePoint content.

First introduced to optimise Microsoft Exchange performance, over the years ArchiveOne has evolved to support Microsoft SharePoint, Microsoft Windows File Server together as well as IBM Lotus Domino.

"Hitting this milestone demonstrates the strong user value of C2C platforms and the strength and agility of the product line to meet a broad range of IT managers' needs," said Dave Hunt, CEO at C2C. "We are seeing increased customer adoption of the ArchiveOne suite because of its flexibility in providing comprehensive archiving, retention and discovery requirements for email and files, e-Discovery, compliance management, intellectual property containment and storage management tools."

Earlier this year, ArchiveOne received two perfect scores in a comprehensive Network World evaluation comparing ten email archiving vendors. In addition to high scores for ease of use and installation, ArchiveOne earned the best possible scores for management and flexibility. The review credited C2C's product with offering a "complete array of features, with enterprise-class functionality in management, granularity of permissions and scalability."

"It's an excellent time to provide messaging solutions that address capacity, mailbox quota size and backup and restore times, since these are cost-saving measures most of our customers can implement right

now," said Steve Bishop, CTO at Veristor. "We have been offering ArchiveOne for a number of years and we appreciate C2C for how they value our partnership and our customers."



## FIRST UK DISTRIBUTOR

Brocade® has selected Avnet Technology Solutions as a Brocade Alliance Partner Network Distributor, helping to expand its existing data centre distribution network to enterprise IP networking products via channel reseller partners.

"Brocade is pleased to be partnering with Avnet in order to expand our route to market for industry-leading networking products. Customers will now be able to purchase enterprise IP networking products and services through channel resellers via our new UK distribution partner, in addition to OEMs and direct from Brocade," said Amanda Giddins, EMEA Channel Sales Director at Brocade. "By partnering with Avnet, Brocade channel resellers will be able to leverage their extensive data centre networking and enterprise IP networking product expertise and solution support to help customers build extraordinary networks."

The selection of Avnet as a distributor is one element of Brocade's global Alliance Partner Network programme. The channel reseller programme consists of four distinct partnership levels: distributor, elite, premier, and select. All levels have been designed with specific requirements and benefits to help partners leverage and be rewarded for their networking product knowledge and solution support expertise.

"Avnet has been a long standing Brocade distributor in the storage networking market and is proud to have been awarded 'EMEA Distributor of the Year' for the last four years. We are delighted that we are now able to build on this successful relationship with Brocade's IP networking portfolio," said Mark Walker, EMEA Director of the Storage Product Business Group at Avnet Technology Solutions.

## AIMING HIGH

FalconStor Software and STORDIS GmbH have announced a partnership to create an InfiniBand-based storage appliance for the high performance computing market.

The new appliance is based on high quality InfiniBand Director switches, which enable high performance applications to run on distributed server, storage and network resources. Multiple Director switches can be interconnected to form very large, high-performance clusters and grids that can grow into the thousands of nodes with "pay as you grow" scalability and bandwidth. Customers can leverage FalconStor NSS with these clusters and grids to implement an ultra-high performance storage network with storage virtualisation, provisioning and management across multiple disk arrays, operating at speeds far in excess of anything achievable with Fibre Channel, and at significantly lower costs.

"FalconStor solutions in conjunction with InfiniBand-based switching can reduce the overall complexities and costs associated with a dynamic storage environment, providing customers with new levels of performance at a price point they might have believed it impossible to make," said Guillaume Imberti, FalconStor President and General Manager EMEA Operations.

"We expect this innovative combination to be very attractive to our mutual customers, many of whom demand the fastest possible performance from their storage environments in order to give themselves the greatest possible competitive advantage in their own business sector," said Alexander Jeffries, Managing Director of STORDIS.

## FORWARD THINKING

StorMagic® has signed up twenty VMware Partner Network resellers over the past three months, following the launch of the StorMagic SvSAN™ storage virtual appliance.

These resellers include Active Network Solutions, Engitech, DataScope, Admitelsa, New Datum and Westerhout in Europe, and E-Safe Technologies, PBG, Flytrap Technologies, JP Schwartz and DSN Group in the United States. Asian partners include Proware in Taiwan, as well as Core Micro Products in Japan and Rorke Data in China.

"We are looking forward to working with StorMagic because the SvSAN will help us differentiate our offering and make us more competitive," said Frank Westerhout, CEO at Dutch-based StorMagic reseller ClassBase Software & Westerhout Beheermaatschappij BV.

"The recruitment of VMware-focused partners puts us head-to-head with more traditional, larger competitors, but we are looking forward to the challenge," said Mike Stolz, Vice President of Marketing at StorMagic. "SvSAN is a disruptive solution that allows our customers and partners to extend their VMware environments into a highly available infrastructure without the cost and complexity of traditional SAN approaches. Today, this is very appealing to all end-users out there who are closely monitoring their CAPEX and OPEX."

StorMagic SvSAN works with VMware vCenter™ Server to enable administrators to manage datastores, the StorMagic iSCSI SAN, and the internal RAID controller from a single interface. With capacity starting at 2 TB and scaling to unlimited storage, the SvSAN lets administrators create, manage and provision datastores through a single-operation, which allows them to rapidly deploy datastores without managing multiple applications.

## ALL-IN-ONE

i365 Inc., A Seagate® Company, has launched EVault® Plug-n-Protect technology, an all-in-one backup and recovery appliance designed for fast, economical, system and data protection.



The EVault Plug-n-Protect appliance consists of pre-configured hardware and storage, and a complete suite of software including EVault Software, EVault System Restore and EVault Real Time Protection. The EVault Plug-n-Protect appliance is an additional deployment option to complement the existing i365 software, SaaS, and outsourced managed service offerings that are trusted by over 22,000 customers worldwide.

"Customers of all sizes require various deployment options, but at the end of the day, they are all looking for the same thing: technology that meets their needs, is economical, and is easy to manage. The EVault® Plug-n-Protect appliance allows customers to leverage EVault's data protection solutions while enjoying potential cost savings," said George Hoernig, Vice President of Product Operations at i365™, A Seagate® Company. "This new appliance builds on our commitment to giving customers flexibility in how they deploy the EVault platform. In addition to traditional software, SaaS or an outsourced managed service, customers now have the option of an all-in-one appliance."

## HIGH-END STORAGE TO A BROADER MARKET

BlueArc Corporation has recently introduced the BlueArc Mercury™ series: a premium, network storage platform that delivers business and technological benefits to the commercial midrange market. BlueArc designed the Mercury platform to deliver data management, scalability and performance in a midrange solution that overcomes the storage challenges faced by an ever-increasing number of customers.

As the volume of unstructured, file-based data continues to explode, and as retention and archiving demands increase, companies struggle to keep pace. While traditional network storage solutions have offered some relief, they have resulted in the unintended creation of storage silos, filer sprawl, poor utilisation rates and lagging performance. BlueArc Mercury addresses these storage inefficiencies with a powerful file system and hardware platform that allows companies to consolidate users, applications and storage systems in order to lower the total cost of their storage infrastructure, without giving up performance.

Already being used by Helphire Group plc in the UK, Giles Ogram, Senior Infrastructure Engineer at the company commented: "The amazing performance we have seen from Mercury, along with its mid-market pricing, gives us an affordable, no-compromise option which we have not had before."

## LSI PARTNERS WITH TERASCALA

LSI Corporation has announced an OEM partnership with Terascale, Inc. to drive increased storage sales in the high-performance computing (HPC) market. Under the terms of the agreement, the LSI™ Engenio® 7900 HPC storage system will be integrated with the Terascale™ DTS 4000 parallel file storage appliance.

"Every year, high-performance computing applications become more complex and the demand for increased processing power, storage performance and data reliability intensifies," said Larry Genovesi, CEO of Terascale, Inc. "Terascale's proven parallel storage appliances deliver a combination of throughput, capacity and cost effectiveness that cannot be achieved with conventional architectures. The integration of the LSI 7900 HPC storage system into our solution opens the door to the next level of storage performance and system reliability."

Based on LSI seventh-generation XBB2 architecture, the 7900 HPC storage system is ideally suited for computing environments that store and utilise vast amounts of data for high-bandwidth and mixed-workload applications. The system combines industry-leading performance with advanced availability and reliability features designed to provide continuous high-speed data accessibility and protection across a wide range of HPC environments.

"The LSI Engenio 7900 storage system is trusted by leading server OEMs and end customers to deliver continuous high-speed data accessibility and protection across a wide range of HPC application workloads," said Steve Hochberg, Senior Director, Worldwide HPC Segment, LSI Corporation. "The integration of the 7900 HPC system with the new Terascale DTS 4000 storage appliance offers customers a cost-effective, turnkey solution for meeting the unique computing requirements of HPC installations."

# PSST... ■ ■ ■

Insiders' Information

## HP APPOINT NEW VP

HP has appointed Garry Veale to serve as Vice President of its StorageWorks division in Europe, Middle East and Africa (EMEA).

Veale will report to Wolfgang Wittmer, Vice President and General Manager, Enterprise Storage and Servers EMEA. He will be responsible for driving the growth and aggressive go-to-market strategies for HP's full range of StorageWorks products and solutions.

"We are very pleased to have Garry leading our StorageWorks business to help customers drive out storage complexity and costs," said Wittmer. "His strategic leadership and sharp insights will be key to driving continued innovation and superior customer satisfaction throughout the region."

Veale succeeds Neal Clapper, who has been appointed Vice President of HP's Enterprise Storage and Server (ESS) business in Asia-Pacific and Japan.

## SIMPLIFIED AND AFFORDABLE

NETGEAR®, Inc. has added a new, high-density network storage system to its award-winning family of ReadyNAS® products for Small-to-Medium-sized Businesses (SMBs). The ReadyNAS 3200 is a 2U 12-bay unified storage platform that provides up to 24 terabytes in a single system.

The easy-to-use system offers high-end features such as redundant power supplies and dual Gigabit Ethernet ports at an SMB price point, enabling growing businesses to securely share, store and protect business-critical network data.

## REAL-TIME CAPACITY OPTIMISATION

Isilon® Systems and Storwize have partnered to deliver an integrated primary storage solution based upon Isilon's scale-out NAS products and the Storwize STN-6000 appliance. The new solution delivers high scalability, performance, and usable capacity, enabling customers to reduce storage acquisition and management costs, while significantly improving data centre efficiency.

"File-based data continues to grow rapidly in both capacity and importance throughout the enterprise, regardless of budgeting pressure, requiring efficient, primary storage solutions that accelerate productivity and reduce costs," said Ram Appalaraju, Vice President of Marketing, Isilon Systems. "By integrating Isilon IQ with Storwize's real-time data compression, enterprises can maximise system efficiency to speed data access for mission-critical applications."

## RECOVERY BREAKTHROUGH

Kroll Ontrack can now recover data from an Xsan server that has encountered volume corruption. The capabilities apply to Apple Inc.'s Xsan® 2 clustered file system for Mac OS X, using newly developed proprietary technology at Kroll Ontrack.

"Prior to this development, Xsan file system data recovery was mostly limited to hardware-based failures. Organisations that rely on the Xsan file system would often have no other course of action other than to reinitialise these very valuable and expensive servers when volume corruption occurred, making their data inaccessible," said Phil Bridge, Managing Director of Kroll Ontrack UK. "With the innovative development of Kroll Ontrack's Xsan server-specific data recovery capabilities, organisations have a viable alternative for their data protection needs. Utilising the skills of our world-class engineers, Xsan server recoveries are feasible in a matter of a couple of business days."

## THE POWER OF TEAMWORK

Texas Memory Systems' RamSan-500 solid state disk system has been certified interoperable with IBM's System Storage™ SAN Volume Controller (SVC).

The RamSan-500 is an enterprise-class cached Flash storage system with a large RAM cache to buffer write performance and 2TB of RAID protected hot swappable SLC NAND Flash that delivers better read performance than 300 hard drives while consuming 1/20th the power. By incorporating the RamSan-500 into a heterogeneous, virtualised storage environment using the SVC, enterprises can improve application performance while saving money.

"IBM's SVC customers have been looking for ways to improve the performance of their applications using RamSan SSD," said Woody Hutsell, President of Texas Memory Systems. "Texas Memory Systems and IBM consistently top Storage Performance Council (SPC-1) performance benchmark audits and both companies deliver broad interoperability for heterogeneous IT environments. So we think customers will welcome the news that the RamSan-500 and the SVC have been extensively tested together and certified interoperable."

# CUTTING BACK ON BACKUP

When backup is taking up to 36 hours a week, it's time for an overhaul

## Case Study

► Bracknell Forest Borough Council in central Berkshire is a unitary council and generates a large amount of data which needs to be stored in a manageable and searchable form. As a government body, the council must adhere to strict compliance and data protection regulations, and regular audits also mean that the council must be able to provide information quickly.

Whilst the ageing technology it was using could no longer scale to meet business needs, and necessitated significant investments in tape to complete backups, Bracknell also wanted to significantly decrease its backup window which was taking as much as 24-36 hours to complete. Critically it also needed to reduce the number of staff hours involved in managing, monitoring and restoring emails, as well as other documents and other critical data.

In the first phase of this system overhaul the council began to search for a new storage technology that would require fewer tapes, reduce costs and ultimately simplify administration. Bracknell also required a system that supported replication, with two media servers, two tape drives and a 12TB disk unit to provide fail-over support.

Richard Dawson, IT Services Manager, said, "The final system chosen would need to have a wide breadth of capabilities and only one met all our needs. CommVault offered open backup technology and support for a range of hardware."

As the second phase progressed Bracknell migrated its entire backup to CommVault, which then provided solutions for data protection, storage management, active data migration and administrative control.

System demands have since seen Bracknell expand to incorporate 21TB of data storage. A major factor in the increase in data was the Council's need to archive all email, both internal & external, using Quest Mail Archive so CommVault's software is now tasked with managing the backup of all this – which equates to around one million messages per month being retained. CommVault also met the challenge of rising data levels as the Council migrated to electronic document management. New systems also went live to support adult and child social care, and the council's legal documentation.

The use of synthetic backups has since enabled Bracknell to reduce its backup window. Incremental backups during the week are combined with a



## BRACKNELL ALSO WANTED TO SIGNIFICANTLY DECREASE ITS BACKUP WINDOW WHICH WAS TAKING AS MUCH AS 24-36 HOURS TO COMPLETE

full backup of all data over the weekend, with systems checked every day to ensure backups have completed. Dawson added, "Previously there was lots of babysitting involved, now that's automated."

The easy to use reporting functions and email alerts offered by CommVault are two key benefits and have greatly reduced administration. Dawson noted that, "The automated reporting is a vast improvement on the previous paper based checks that we had to refer to. Reporting is now outstanding, second to none."

Because of the daily backups, Bracknell realised immediate benefits from the system, as administration time was substantially reduced. System confidence is now high as the backup window has continued to shrink. "Initially we were saving three man days a week just on backup, now we no longer treat backup in terms of allocation of man days as any member of the server team can manage the process."

The real value of deploying CommVault's hardware agnostic and easy to use software has become more apparent as Bracknell introduced new technology. "It has enabled us to buy anything we need and bolt on new components safe in the knowledge that we can rely on the flexibility of the software, and the high level of support, to make it work flawlessly," says Dawson. This has ensured CommVault's data management has grown and adapted, remaining an integral element of the backup solution. "The CommVault software has stood up well to the changes," notes Dawson, "It has been able to accommodate all our changing needs."

# REDUCING COST IN A D

With the economic outlook for the year ahead still somewhat uncertain, finding ways to reduce cost is very much at the forefront of operational planning

**Words:** By Ian Masters, Sales and Marketing Director UK and Ireland, Double Take Software

►One area where smart investments can actually help drive substantial cost reduction is IT. The emergence of technologies such as virtualisation, Blade servers and cloud computing can provide immediate cost savings to the bottom line. These three technologies in particular enable much needed IT consolidation and power and cooling reduction, as well as provide the ability to outsource new application areas to external hosting companies, who can drive down service costs because of economies of scale.

## Virtual reality

The virtualisation sector is recognised by many industry commentators as set to maintain growth, even through this choppy period. Many of the major software and infrastructure vendors now support virtualisation in some way. Analyst groups such as Gartner, Forrester and IDC all predict significant growth of data centres implementing virtualisation in H2 2009. According to a Forrester research statistic, approximately one-third of x86 servers were virtualised in 2008, which still leaves the other two-thirds ripe for a virtual makeover. The cost benefits of virtualisation are proven. It is clear to see the appeal of migrating physical servers that utilise only a fraction of their processing power to a virtualised environment that uses only the resources it needs, freeing up additional computing capacity to power further application and service development. So, are the days of large data centres and expanding facilities numbered? There's a growing contingent that say they are, and that it will be those companies possessing smaller, faster, more nimble data centres, that also consume less power, that will be the ones that operationally will be the fittest.

One thing is clear, we can expect to see a growing use of virtualisation, not only in the primary data centre but also in disaster recovery or co-location facilities. The IT infrastructure is adapting to cope with the need for more agility as we bow to new business and environment pressures.

## Blade runner

Virtualisation, however, is only part of the story. Blade servers versus rack mount units take up less space and provide other benefits such as greater efficiency. Some forecasts suggest that 20-30 per cent of servers will be blades by 2011. This will be critical to reducing the overall footprint of servers required to provide the processing needed for today's modern business operations. When Blade servers were first announced there were some hesitations to adopt because of limitations to NIC cards, I/O, processing and / or HBA for storage connections. Many of these concerns are less important when combined with virtualisation and the increased demand for iSCSI storage devices. Many of the storage vendors are moving to provide iSCSI products because they are limited by the fibre channel connection and because expensive proprietary HBA's aren't required to connect the servers to



## BLADE SERVERS VERSUS RACK MOUNT UNITS TAKE UP LESS SPACE AND PROVIDE OTHER BENEFITS SUCH AS GREATER EFFICIENCY

the storage. Now, iSCSI devices can be connected via a simple Ethernet port and allow connectivity over the internet versus requiring the storage to be centrally located near the attached servers. This is also helping companies with regulatory compliance requirements for disaster recovery plans, allowing them to make use of asynchronous replication where previously SAN to SAN replication would have been too expensive or required too much bandwidth. In addition, utilising asynchronous replication can allow business to replicate between heterogeneous storage platforms, which previously couldn't have been achieved. Having the ability to connect servers to storage over the internet helps fulfil an offsite location need for disaster recovery. Many companies are also taking the older servers that have been migrated to Blades and using them as their disaster recovery targets. Most of these servers in a virtual environment don't necessarily need to be powered on and can still be used for provisioning workloads in the event of a disaster. When you combine smaller servers with virtualisation technology, you can now fit dozens of servers in the same space that you may have only been able to fit ten in the past. This will drastically reduce not only the expensive real estate price for hosting the servers but the power and cooling requirements needed to keep the data centre at a consistent ideal temperature.

## Every Cloud...

The last piece of the puzzle is cloud computing, also referred to as "grid" or "utility computing". Using the Internet to provide software or storage-as-a-service offers companies the opportunity to access powerful computing services while reducing capital outlay. Organisations that would typically host all of their transactional web server farms or commerce applications will now turn to the cloud to provide those services. Being able to access applications via the web, cell phone or PDA is becoming a requirement for many. And, as the millennial generation begins to become even more prevalent in the workforce it won't only be expected but will be demanded. The Cloud will provide the smaller SMB companies the option not to host their own servers and the larger companies may turn to the Cloud to host some of the less critical or lower tiered applications to further reduce their

# OWNTURN ECONOMY

data centre footprint. One of the causes of reluctance to using the Cloud is availability and meeting SLAs. The Cloud still hasn't proved that it can meet or exceed availability requirements. A Dynamic Infrastructure may be the solution that will help the Cloud ensure availability confidence by providing the ability to move server workloads any time, any place, for any purpose. Industry observers expect Cloud providers or managed service providers to see substantial growth over the next few years as businesses look for ways to reduce CAPEX and drive down OPEX.

## The path to agility

Typically, when you need to get from point A to point B you need a method of transportation. In order to implement the following technologies there is going to be a need for several migrations, consolidations and, potentially, movement of entire physical facilities. This method of transportation will be in the form of the transmission or replication of the servers from one point to the other. This may also force companies to consider getting away from

specific hardware solutions that aren't as flexible as some software solutions available that remain hardware and application independent. The sooner IT organisations have the ability to consolidate, virtualise and better manage resources, the sooner they will be able to start recognising additional cost savings such as those enabled through reduced power and cooling. This is going to require the ability to efficiently provision, move, migrate and transfer workloads from physical to virtual all while minimising downtime and the impact to the company's business operations. This sounds like a daunting task but there are now solutions available that can provide workload optimisation and facilitate live migration of workloads across physical and virtual environments. Such tools are enabling companies to accelerate the implementation of the above technologies and achieve significant cost savings. Such an approach can make a real difference not only to the bottom line but also to the success of long-term business strategy. And ideally, that is the goal of any CTO, to reduce costs while increasing performance and efficiency.

# CONSIDERING

The term “cloud” has been a buzz word for some time in the storage industry. Businesses are being bombarded by suppliers offering a variety of new cloud storage services which allow varying degrees of in-house control

**Words:** By GlassHouse Technologies

► David Leyland, UK Managed Services Business Manager at GlassHouse Technologies outlines key considerations when determining how to maximise your return from a cloud implementation.

Storage and backup have never been the 'sexiest' elements of the IT manager's role. However, a business cannot function without storing and managing its data effectively. Storage environments are also notoriously difficult to manage efficiently whilst also gauging provisioning, capacity planning and accuracy of service levels.

Restricted 2009 budgets have forced businesses to ask themselves if their storage spend is effective, and whether they are best positioned to provide traditional storage services to their business. If the answer is no, cloud solutions are increasingly seen as viable storage alternatives now that we are learning what cloud is and what it can offer. But how do businesses measure what should be stored in the cloud?

With the spend-thrift attitude of the past still lingering on shelves, in-house assessment can be labour intensive. Some choose to outsource IT infrastructure analysis. Objective specialists can then assess what is there, recommend and implement effective changes, and predict the impact changes will have on the business. It's important to be certain that transferring aspects of storage into the cloud are correct. If not, this cost-cutting efficiency drive could cost more in the long-term.

Essentially, cloud services claim to reduce capital expenditure and maximise asset utilisation to provide a quantitative return on investment (ROI). Cloud storage removes resource-consuming administration from the IT department as network drives are mapped to the cloud for the business to access data, allowing IT staff to focus on strategic projects and optimising efficiency.

Increasingly cloud expertise can be achieved through a pay-as-you-go, consumption-based cloud storage approach. Buying cloud storage space on demand means that correct provisioning for big projects and future needs is less critical, so long as the provider is reliable and trustworthy. The importance of ongoing monitoring to ensure your IT infrastructure is behaving normally, should also be a consideration however.

Security should be a primary consideration. Storage administrators often have an acute knowledge of their systems, and the sensitivity of the data within them. A shift to the cloud means handing control of it to a third party and some businesses see this as a risky

proposition, in the absence of robust security guarantees.

Several other key requirements must be met when choosing a cloud storage supplier. Are the segregation, encryption and backup systems sufficient and reliable enough to meet service level agreements? Most importantly, you must ensure that the supplier is reliable in the long-term. Only once these questions have been answered can

# CLOUD?



## CLOUD SERVICES OFFER VARYING DEGREES OF CONTROL THAT BUSINESSES HAVE OVER THEIR DATA

a business make an educated decision.

Cloud services offer varying degrees of control that businesses have over their data. Many offer cloud based off site services (OSS). This allows the business to retain control over the physical data and systems whilst it is supplied with automation and monitoring expertise from its provider. External specialist expertise, Intellectual Property (IP) and high level consultancy can often deliver a highly efficient service at the lowest possible cost.

Every business has unique demands on its storage capabilities. When choosing to move aspects of storage into the cloud, the most important recommendation is to see if it makes sense for your business and then measure and assess exactly what you already have so that you can make the right decisions before choosing a trustworthy partner. The cloud offers a variety of alternatives for storage with varying degrees of in-house control that may significantly benefit businesses in times of budgetary constraint. It's ultimately a case of determining which option offers the best ROI, be it in the cloud or on 'terra firma'.

# CREATING AN ULTRA-HIGH-PERFORMANCE TIER OF STORAGE

Adoption for solid state disks (SSDs) within external storage arrays has become a very hot topic in recent discussions. This is being driven largely by the fact that advances over the last decade in hard disk drive (HDD) capacity have outpaced the random IOPS capability of HDDs

**Words:** By Chris Hoffman, Senior Product Marketing Manager - Embedded Storage Products, Emulex Corporation

►The latency inherent to the mechanical nature of HDDs is a major bottleneck in the movement of data to and from the storage array. High rotational speed HDDs and striping the data across additional disk drives have been common methods used to improve the IOPS capability in storage systems; however, these approaches do not provide dramatic improvements in IOPS performance, while resulting in a dramatic increase in power consumption. SSD technology promises to vastly improve IOPS performance (by a factor of up to 1000), while reducing the total power consumption of a storage array.

## SSDs' Entry into the external storage market

SSDs represent a huge opportunity to the external storage market, as this technology is more than simply an extension of the HDD technology roadmap. Rather, SSDs represent a whole new approach to storage technology by taking advantage of the commoditisation in pricing for NAND Flash technology and moving the storage of data off spinning disks and onto Flash. This move provides storage vendors with a much faster-access alternative to traditional mechanical HDDs, and helps alleviate the I/O bottleneck issues.

However, not all SSDs are created equal. In a fashion that is parallel to creating tiered storage with traditional HDDs, SSDs have likewise been designed to be used for different applications, ranging from notebook applications to mission-critical transactional applications. SSDs can provide the ultra-high-performance capabilities that are demanded by today's enterprise storage arrays, but as yet, do not provide high capacity at low cost per GB. While SATA interface SSDs have recently emerged as lower cost alternatives to their Fibre Channel (FC) interface cousins, the SATA interface is not technically acceptable for use in the back-end of external storage systems, necessitating that all SATA SSDs be bridged to either the FC or Serial Attached SCSI (SAS) protocol.

## Creating an ultra-high-performance tier of storage

While the primary drivers for incorporating SSDs into external storage are to navigate around the I/O bottlenecks and to save power, the variety of back-end storage protocol support needed (both FC and SAS) and the difficulty of meeting mission-critical storage requirements have proven to be very challenging for potential suppliers. One way of simplifying this complexity is to take advantage of the robust capabilities of an enterprise-class protocol bridge by incorporating it along with the SATA SSD devices. This can be done with an external bridge interposer card, or by integrating the bridge directly into the SATA SSD.

However, there are challenges in doing this, not only because of the



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different protocols that are possible, but also because of the physical connector differences between the types of SSDs. There are differences in the type of drive connectors and availability for each of the three types of SSDs, which can create a bit of a challenge for storage vendors wanting to deploy SSDs in storage arrays. One way to easily address this challenge is through the addition of a drive interposer card. The protocol bridge on the interposer card provides the intelligence to convert the SATA protocol into FC or SAS, physically and operationally converts the SSDs' SATA drive connector to FC or SAS drive connector and provides dual-ports for path failover purposes.

With the addition of the drive interposer card or integration of the bridge onto the drive itself, a SATA SSD is presented to the storage array's controller as if it were an ultra-high-performance FC and SAS SSD. Furthermore, SATA SSDs from multiple vendors can be mixed and matched in the same storage array, because the protocol bridge provides an abstraction layer that can be customised to make any drive look and act the same to the storage array controller, regardless of who manufactured it.

While SSDs represent a whole new era for storage arrays, it is not necessary to reinvent the wheel when creating a cost-effective and ultra-high-performance storage tier. As companies struggle with balancing the demands for increased performance with increased capacity, the answer is to use SATA SSDs with an enterprise-ready protocol bridge to create an ultra-high-performance storage tier. Through the simple addition of a drive interposer card or integrating the protocol bridge into the SSD device, storage vendors are now able to mix and match ultra-high-performance SSDs with high-capacity HDDs, greatly extending the value and functionality of their storage arrays.