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TAPE MEASURES:
IBM and FujiFilm stretch capacity records

FLASH THE CASH:
New economic arguments for data centre SSD

INTERVIEW:
Beta Distribution

WEB-SCALE STORAGE:
Hitting the sweet spot

STORAGE AWARDS 2015:
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Source: As compared to 10k RPM SAS HDD with 164 Read IOPS performance and published pricing as of January 20, 2015.

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WHEN MILLISECONDS MAKE ALL THE DIFFERENCE TO THE BOTTOM LINE, REAL-TIME ACCESS TO CHANGING MARKET DATA IS A NECESSITY.
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It is sometimes easy to lose track of the fact that, for many IT buyers, there is little or no direct contact with most of the storage vendors who feature in our pages - almost all of their procurement is done through a partner channel that may include distributors and resellers (as well as ‘value-added’ variants on both of those) as well as systems integrators and consultancies. On paper we might surmise that this reliance on the channel would make life harder for vendors - how do they get their unique selling points across to end users, for instance? But in reality the channel has developed over decades to become an invaluable tool for both vendor and buyer alike. It has meant that vendors can ‘focus on their knitting’ - i.e. developing the best solution for the job - while effectively outsourcing a large part of their commercial operations to partners of one hue or another.

In this issue we take a look at two very different companies who are doing very nicely out of this situation: NCE Computer Group and Beta Distribution. Beta are in the process of growing their business ‘explosively’ (their word) as they shift toward a storage solutions approach that sees them working with best of breed vendors including Seagate, QNAP and HDS as well as ‘upstarts’ like Falconstor and Exablox. As Enterprise Business Manager Ricky Patel comments: “I’m tasked with bringing in some new and disruptive brands - including Tier 1 vendors and software firms - to our technology solutions division. As a business we see ourselves as very much a Value Added Distributor: we have 3 other divisions, which are important foundations for the whole business. We are almost like a start-up ourselves within an established business.”

Elsewhere we take an in-depth look at the service business at NCE, who are taking on repairs, service and supply chain work for a growing roster of companies who no longer consider it economic for them to provide such services in-house. From tape libraries and optical drives to ruggedised laptops, no job is too big or too small for NCE’s team of experts. With a call centre setup that any insurance giant would envy, NCE are growing a highly successful business for themselves in an area where vendors didn’t see any returns.

The channel then, seems to be in rude health, riding the waves of IT and economic downturns and coming out leaner, smarter and better able to turn a profit.

David Tyler
david.tyler@btc.co.uk
IS YOUR BACKUP TOO SLOW? EXPENSIVE? COMPLICATED?

DO MORE | NEXT GEN BACKUP & ARCHIVE

Zettabyte data growth, changing data types and new demands on IT to save more data and keep it accessible longer are dramatically shifting data lifecycles, resulting in unpredictable data workflows which are breaking traditional IT storage infrastructure.

Quantum can help you rethink your data protection and retention workflow by applying the right technology to the right data at the right time.

WWW.QUANTUM.COM/BACKUPSBUSTED
LaCie’s Rugged Thunderbolt storage solution will be available in a 1 TB SSD capacity. The LaCie Rugged delivers speeds of up to 387 MB/s - three times faster than a standard mobile hard drive - and is capable of transferring 100 GB in less than five minutes. “Wherever digital content is created and wherever our customers want to travel to capture and collect it, our LaCie Rugged Thunderbolt drive will go as the ideal companion,” said Erwan Girard, Business Unit Manager for LaCie. “With fast Thunderbolt speeds that save hours in the field and now a 1 TB SSD capacity, our customers can focus on the creative process instead of worrying about transfer times or storage limits.”

www.lacie.com

Dot Hill’s new AssuredSAN 6000 Series arrays have been optimised for key vertical markets including telecommunications infrastructure, network management, video surveillance, service providers, high performance computing (HPC) and other Internet of Things (IoT) applications. “In partnership with target vertical market customers, we studied the I/Os per second and throughput requirements driven specifically by these new IoT workloads,” said Bill Wuertz, senior vice president, product and solutions, Dot Hill. “To meet these new requirements we were able to quickly enhance our AssuredSAN controller design, demonstrating the inherent flexibility and modularity of our architecture. This allowed us to establish new levels of performance that meet and exceed the demanding requirements of today’s evolving workloads. Dot Hill has been shipping this new AssuredSAN 6000 Series with key vertical market partners and now we are making it more broadly available to all partners.”

www.dothill.com

OCZ Storage Solutions has announced a new series of SATA III SSDs to add to its Intrepid 3000 enterprise portfolio. The new Intrepid 3700 SSD Series delivers superior performance and I/O latency responses that dramatically improve application performance and I/O efficiencies, and supports higher storage densities up to 2TB representing OCZ’s largest capacity enterprise SATA SSDs to date. “Data centre customers have asked for larger solid state drives that do not make any sacrifices in performance or endurance to address the need to manage the ever growing amounts of data being generated by today’s computing environments,” said Daryl Long, CTO at OCZ Storage Solutions. “Our new Intrepid 3700 Series is designed to meet these market requirements for an easy to deploy solid state solution that delivers the very best balance of features, endurance, and capacity.” The Intrepid 3700 Series is available in four models supporting 240GB, 480GB, 960GB and 1,920GB usable storage capacities and utilises the latest Toshiba A19nm NAND flash. Each model is driven by OCZ’s Everest 2 controller platform which includes an optimised firmware architecture and advanced flash management.

www.ocz.com/enterprise

SanDisk has unveiled a revolutionary all-flash storage platform that creates a new category for the IT industry, termed by IDC as ‘Big Data Flash.’ Built using open source software, SanDisk’s InfiniFlash storage system delivers massive capacity, extreme performance, and superior reliability to big data and hyperscale workloads, while significantly reducing data center complexity and costs. Available in three different configurations (IF100, IF500 and IF700), the breakthrough platform provides 5x the density, 50x the performance and 4x the reliability, while consuming 80 percent less power as compared to traditional hard disk drive arrays, surpassing the capabilities of existing all-flash arrays which focus solely on performance. InfiniFlash also delivers breakthrough pricing for an all-flash hardware solution at less than $1 per gigabyte (GB), and breaks the $2 per GB barrier for an all-flash system without requiring compression or de-duplication technologies. “We are very excited to bring our first all flash array storage system to market in the form of a category-defining product that we expect will drive flash into big-data workloads at massive scale,” said Sumit Sadana, executive vice president and chief strategy officer, SanDisk. “By offering InfiniFlash below $2/GB before compression and de-duplication, we are changing the industry dynamics in favor of dramatically broader flash adoption in new hyperscale and enterprise workloads.”

www.sandisk.co.uk/enterprise/infiniflash

Twice as Rugged

ASSURED FOR IOT

Dot Hill’s new AssuredSAN 6000 Series arrays have been optimised for key vertical markets including telecommunications infrastructure, network management, video surveillance, service providers, high performance computing (HPC) and other Internet of Things (IoT) applications. “In partnership with target vertical market customers, we studied the I/Os per second and throughput requirements driven specifically by these new IoT workloads,” said Bill Wuertz, senior vice president, product and solutions, Dot Hill. “To meet these new requirements we were able to quickly enhance our AssuredSAN controller design, demonstrating the inherent flexibility and modularity of our architecture. This allowed us to establish new levels of performance that meet and exceed the demanding requirements of today’s evolving workloads. Dot Hill has been shipping this new AssuredSAN 6000 Series with key vertical market partners and now we are making it more broadly available to all partners.”

www.dothill.com

www.sandisk.co.uk/enterprise/infiniflash

www.ocz.com/enterprise

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Reliable data storage is the lifeblood of any enterprise. So why trust your data to anything less than the most trusted, most reliable drives from the most experienced manufacturer? Toshiba invented NAND flash storage, and have millions of drives installed worldwide. From HDDs to SSDs, and 3.5” to 2.5”, when you need high-capacity, high-performance storage solutions for the heart of your enterprise, your head says Toshiba.

For more information visit www.toshiba-storage.com
**NOT JUST HOT AIR**

With more than one million helium-filled hard disk drives (HDDs) deployed, HGST has now achieved a new milestone in reliability as the only manufacturer with drives field-proven and rated for two and a half (2.5) million hours mean time between failure (MTBF). Now shipping its second generation HelioSeal Platform drives, HGST is shifting its volume mix and ramping Helium production to meet strengthening customer demand across cloud and mainstream data centre applications.

Both the Ultrastar He8 and the Ultrastar He6 families now boast a reliability rating of 2.5M hours MTBF. Due to its patented manufacturing process and the inherent benefits of Helium, HGST’s HelioSeal drives are field proven and have a more robust design margin than traditional air based drives. The drives are hermetically-sealed, which keep air, humidity and other contaminants out of the drive, allowing them to be used in harsh or ambient environments. The Helium inside the drives also reduces disk vibration and flutter, adding to even greater reliability.

[www.hgst.com](http://www.hgst.com)

**EXAGRID EXCELS**

ExaGrid has announced that Q1 2015 was its most successful quarter to date. The company achieved record bookings and marked its fifth consecutive quarter as both cash and P&L positive. The company also reported double-digit growth from Q1 2014. ‘Q1 2015 was another record-setting bookings quarter for ExaGrid,’ said Bill Andrews, CEO of ExaGrid. “Our competitive win rate remains high as organisations continue to see the benefit of our architectural approach to backup storage versus simply adding data deduplication to a backup application or to an inline scale-up storage appliance. The combination of ExaGrid’s unique landing zone and scale-out architecture solves all the problems of backup storage and is especially effective in virtual environments.”

[www.exagrid.com](http://www.exagrid.com)

**HOW SAFE IS THE PUBLIC CLOUD?**

Despite one third of UK firms banning public cloud from the workplace, its use appears endemic, unmanaged and unstoppable according to a new survey commissioned by Connected Data.

The survey of 100 UK businesses revealed stark concerns about the safety of the public cloud services, such as Dropbox, Box and Amazon for sharing confidential data. However, despite this caution, the findings demonstrate that most employees’ activity via these platforms generally goes unmonitored and unchecked in 64% of businesses.

The vast majority (90%) of IT decision-makers believe that sharing sensitive data in the public cloud poses some level of risk. However, despite this inherent mistrust, only one third (33%) have banned staff from using public cloud. Of the firms that do ban the use of public cloud at work, over half (58%) admit they would not know whether their employees are using it anyway. Other findings include:

- Over two thirds (69%) of businesses questioned believed that public cloud services were being used by some proportion of their workforce regardless of company policy (with 29% suspecting over half their employees of doing so)
- More than a quarter (27%) rank use of public cloud as the greatest risk to their company data, above lost devices (25%), hacking (14%) and malicious staff behaviour (18%)
- Over a tenth (11%) of UK firms admitted they had lost or had confidential data exposed due to staff sharing it via public cloud. An additional 19% could not be certain whether this had happened to their business or not.

Dr. Geoff Barrall, CEO of Connected Data, commented, “While we shouldn’t be overly surprised at the levels of mistrust in public cloud, we should be concerned by a growing pattern of employee behaviour that puts sensitive company data at risk. Penalties to staff are serious, yet the need to share files across different devices is leading them to break company policy and put their jobs on the line.”

**CISL CUTSBACKUP TIME BY 99%**

The University of Cambridge Institute for Sustainability’s (CISL’s) data backup is now nine times faster after implementing Arcserve’s Unified Data Protection software, with backup times reduced from 18 to just two hours. The Institute’s virtual servers are also now continuously available and a multi-layered recovery approach means crucial data is always on hand. CISL works with future leaders: helping them develop the skills they need to tackle critical global challenges. Through education programmes, business platforms and strategic engagement initiatives, the institute deepens future leaders’ social, environmental and economic understanding.

The Institute selected Arcserve UDP to accelerate backup times, increase availability and speed up its data recovery. Arcserve UDP combines backup, replication, high availability and true global de-duplication technologies within one unified console for virtual and physical systems, along with advanced recovery capabilities. This has enabled CISL to:

- Ensure the availability of information for staff and stakeholders
- Prevent any disruptions due to slow backups
- Safeguard its reputation with future leaders by improving its ability to recover server data.

Arcserve UDP protects data across one physical server and 22 virtual machines running on three Citrix XenServer hosts. A total of 2.5TB of data is backed up including SQL server databases, MS Exchange mailboxes, MS Office files and a CRM system. Each night it automatically carries out incremental backups across CISL’s virtual and physical servers, and during the day, file, email and database servers are backed up every four hours, with each backup taking just ten minutes, a task that previously took up to twenty-two hours.

[www.arcserve.com](http://www.arcserve.com)
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For 150 years, manufacturers all over the world - from the automotive industry to medical equipment producers - have relied on precision measuring instruments from The Mahr Group. This consortium of companies is the world’s third-largest producer of production measurement solutions and offers an extensive product portfolio ranging from large manual calipers to precise digital measuring instruments. Founded in Esslingen, Germany, today The Mahr Group has a global focus with subsidiaries and customers around the world, including Europe, China, and the United States.

Creating production measurement products requires a complex, data-intensive working environment. Technicians and engineers draw on a variety of different computer-aided design (CAD) systems that create gigabyte-sized images and large video files. The company’s 1,700 employees are constantly using databases, which include MySQL, Oracle, and Microsoft Exchange, and Windows applications, such as Office and SharePoint. The result is a massive amount of data that is constantly increasing.

KEEPING UP AS VOLUMES DOUBLE
For years the IT team has trusted Quantum to provide new technology to help the company manage its evolving backup and disaster recovery needs. Initially, the IT team replaced its multiple external tape drives with its first tape library when its data outgrew the older system’s capacity. Later the team moved to the next generation of tape libraries, the Quantum Scalar i500, and Quantum’s early DXi-Series disk backups and deduplication appliances. “Over the last five years, our data volume has doubled, and keeping up has become an ever-increasing challenge,” explains Thomas Wendt, The Mahr Group’s backup administrator.

However, as The Mahr Group’s IT team added server virtualisation, new data-intensive applications, and large-scale, network-attached storage (NAS), the amount of backup data once again began to outpace the ability of the old infrastructure to keep up. “We had a robust tape library in the Quantum Scalar i500 that could scale up to an impressive capacity of 2.6PB,” says Gerd Wiechers, The Mahr Group’s head of IT. “But now we needed a new solution, which could, on the one hand, increase backup performance and reduce capacity requirements, and, on the other, dovetail easily into the existing infrastructure and make administration more efficient.”

NEXT-GEN BACKUP & DEDUPLICATION
For its next-generation backup solution, The Mahr Group selected Quantum’s DXi6700 Series deduplication appliance. The disk-based backup solution, along with the existing Scalar i500 tape library, has since become the foundation for the company’s entire backup operation - providing faster performance and low administrative overhead.
"We had a robust tape library in the Quantum Scalar i500 that could scale up to an impressive capacity of 2.6PB. But now we needed a new solution, which could, on the one hand, increase backup performance and reduce capacity requirements, and, on the other, dovetail easily into the existing infrastructure and make administration more efficient."

"Quantum has impressed us every time we have implemented a new solution because they have what we need and the installations have always been completed in just one day," says Wiechers. "This has helped the team meet their schedule and budget targets."

With the new system, the IT team was able to establish an optimal set of backup processes:

- Data from the virtual machines (VMs) is written to the DXi using Veeam Backup & Replication software
- Data on the NAS system is written to the DXi using Symantec Backup Exec
- Data on the DXi is written to the Scalar i500 tape library using a direct path-to-tape that does not send the data through the backup server
- The backup of the databases is written directly to tape.

**BETTER RELIABILITY AND LOWER COSTS**

"For us, a key advantage is that the Scalar i500 makes our backup as reliable as pack mules," explains Wendt. The full 26TB backup - consisting of VMs, the NAS solution, and databases - takes place on the weekends. Furthermore, incremental backup of the VMs occurs daily, directly to the DXi6700. Veeam then takes a complete storage snapshot of the system once a week, which allows The Mahr Group to bring the VMs back online more quickly. "The Scalar i500 tape library and the DXi6700 deduplication appliance cope with the uncontrolled growth of our databases quite easily. Scalable, high-performance, and easy-to-use, they are the perfect storage solution," says Wendt: "When I think back to our beginnings with external tape drives, I realise that we have made a giant leap in our backup system using Quantum technology."

And this leap is quantifiable: ‘If we assume that the time needed to manage our backup was 100% before, today we are down to just 15%, thanks to Quantum.’ Not only has the backup window been reduced by a third, but the patented data deduplication of the DXi appliance has also dramatically reduced disk needs. An 80% reduction in data means that only 28TB of DXi capacity holds more than 160TB of data, contributing to significantly lower backup costs. Backups are also more reliable because the ilayer software in the Scalar i500 monitors itself using a built-in diagnostic system, so that backups and restores no longer fail.

**TOP MARKS FOR SUPPORT**

Having a good backup solution is not enough if the manufacturer fails to provide effective support. The Mahr Group’s IT team is enthusiastic about the expertise and after-sale service they have received from Quantum over the years. "We have been building on Quantum for more than a decade. When it comes to personal contact and technical support, our team can think of nothing better," says Wiechers. "Quantum easily provides the best quality in terms of service."

The Mahr Group IT team reports that Quantum engineers exhibit proactive attention to new updates, are always approachable for any questions, and resolve any issues quickly. "When the administrative interface was not accessible on the DXi on one occasion, Quantum was able to correct the problem within a few hours," says Wiechers.

An upgrade project is already in the works: a capacity expansion of the DXi6700 from 32TB to 40TB, and the Mahr Group plans to keep working with Quantum in the future. "Only then will we be 100% certain that our backups will keep running smoothly," Wiechers and Wendt agree. More info: www.quantum.com
PRODUCT REVIEW

TOSHIBA PX02SMB160 ENTERPRISE SSD

There can surely no longer be any question that SSD technologies are making a significant inroad into the enterprise, and any remaining worries about reliability are being chipped away with every product release from the main vendors. Indeed there are good arguments today that in many situations SSD storage offers greater reliability and integrity than spinning disk.

Toshiba’s PX02SMB160 is their current top of the range SSD drive at 1.6TB capacity, part of a family that also includes 800GB, 400GB and 200GB models. Only a couple of years ago the idea of a 1.6TB SSD device would have seemed unthinkable - or at least unthinkably expensive. Now we see a world in which the comparative prices of SSD and HDD are coming ever closer together. Indeed the whole pricing discussion has evolved for many users from one of ‘cost per GB’ to one of ‘cost per IOPS’. It is in this environment that the PX02SMB160 excels.

The drive uses multi-level cell (MLC) NAND rather than the dearer SLC NAND which has been more often found in earlier ‘enterprise flash’ offerings. SLC is usually held to offer higher data integrity and therefore be better suited to the enterprise. Toshiba claim that its innovative SSD controller on the PX02SMB160 gives the right combination of high performance and endurance, along with the economies of MLC.

It will handle up to 10 full drive writes per day, which should make it more than adequate for mixed workload read/write environments. The drive has been very cleverly designed to exploit the combination of MLC NAND and the new controller, and includes twice the amount of NAND modules (32) as Toshiba’s first generation SSD offerings. The potentially higher error rates of MLC NAND are addressed by Toshiba’s proprietary ‘Quadruple Swing-By Code’ (QSBC) which offers advanced error correction - and therefore higher endurance - for read-centric applications. The PX02SMB160’s advanced error correction also includes what Toshiba call ‘background patrol’, a function to check data integrity and correct errors as they occur. This works alongside conventional wear levelling, which equalises program/erase cycles across the NAND. The blistering dual-port SAS-3 interface offers a data rate of up to 12GB/second.

The PX02SMB160 enterprise SSD provides 16 channels of NAND flash memory interfaces, twice as many as the Toshiba client SSD. The PX02SMB160 has an interleaved memory access architecture in which each channel is associated with two or more NAND flash memory chips (each with 8-Gbyte capacity). This means that while one memory chip is reading data from or writing data to memory cells, the controller can perform a data transfer with another memory chip simultaneously.

The increased concurrency among NAND flash memory chips not only compensates for the (relatively)! slow read and write speeds of the MLC NAND but also improves the overall SSD access performance. Furthermore, each NAND flash memory interface has a 1-to-2 multiplexer to double the number of accessible NAND memory devices. These design techniques combine to offer the ‘Holy Grail’ for enterprise storage: a high storage capacity of 1.6 TB combined with high performance.

What Toshiba have done so well with the PX02SMB160 is not just in the SSD NAND itself, but in designing the board and controller so as to optimise the whole drive for performance, endurance, and cost-effectiveness in the data centre.

Product: PX02SMB160 Enterprise SSD
Supplier: Toshiba Storage Products Division
Tel: 00800 84685463
Web site: toshiba.semicon-storage.com/eu/product/storage-products.html
Email: spdinfo@tee.toshiba.de

VERDICT: As the creators of NAND, it is only to be expected that Toshiba’s enterprise offerings would be market leaders, and there is no question that the innovative thinking behind the PX02SMB160 brings SSD into the enterprise environment with considerable success.

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COMPANY PROFILE: NCE COMPUTER GROUP

We live, sad to say, in an increasingly throwaway society. And we all know how tempting it can be, when our favourite consumer gadget breaks, to get straight online and buy a new one - because it has more RAM, or curved edges, or it doesn't bend in your back pocket. But in the business world it has got harder and harder to justify the never-ending cycle of 'IT refreshes'. Increasingly businesses are under pressure to make their existing systems and hardware last longer - and at the same time many storage vendors are quietly withdrawing from offering in-house support, repairs and service.

This situation has created the perfect opportunity for NCE Computer Group to flourish - stepping in where hardware companies no longer want to, and making themselves a very nice business model out of it to boot. UK MD of the company Andrew Genever comments: "Our core strength - and what underpins our service offering - is our deep engineering ability."

CRADLE TO GRAVE SUPPORT

A good example of the high regard in which the company is held by vendors is the fact that one of their technical pre-sales staff has been designated a Datacore Master Engineer, an accolade only awarded to 15 people throughout the UK. As Andrew Genever boasts: "This isn't something you can apply for, or sit an exam for - you are awarded it in recognition of your knowledge of their technology." As an example of their in-depth expertise, Genever cites a recent visit to a university client that had been trying with HP and Datacore representatives to resolve an issue for two weeks: "Our professional services guys went on site and they'd fixed the problem within twenty minutes of arriving, solving the technical fault in the software and making relevant adjustments to the hardware."

The ability to do this, insists Genever, comes from the fact that his staff are genuinely multi-skilled: hardware break/fix, software, and engineering: "We don't have one specialist, one product; they're all multi-talented. We have technical pre-sales, professional services people who go out and install and configure solutions, technical break/fix staff, as well as technical support and parts supply. We think of it as covering our customers from cradle to grave."

EXTENDING LIFE

According to Genever, the company made a conscious shift around four years ago from being a 'repair company' to being a 'services company': "Maintenance is what we are predominantly, right now - that's our core business. We have the ability to sell solutions, we have the ability to do supply chain. We might be supporting a manufacturer with a technical help desk, RMA (return merchandise authorisation) handling, logistics and inventory management, warranty handling and repair. Then as a product reaches end-of-life, we might re-appropriate it and sell it on through the broker channel. We really do see a product through from the beginning of its useful life to the end."

AT YOUR SERVICE

NCE SNAPPED UP THE 'STORAGE SERVICE COMPANY OF THE YEAR' AWARD AT THE 2014 STORAGE AWARDS. STORAGE MAGAZINE EDITOR DAVID TYLER VISITED THE COMPANY’S WILTSHIRE OFFICES TO FIND OUT MORE ABOUT WHAT HAS MADE THEM SO SUCCESSFUL IN THEIR FIELD
In a timely example of this 'cradle to grave' approach, NCE is in the process of buying up the Neptune disk array product range from Dot Hill in exactly this way. The message to Dot Hill users will be that NCE will support this kit going forward, while NCE buys up all the remaining inventory, and continues to support installed devices in the field.

PREDICTING FUTURE FAILURES

As the range of products to be supported continues to expand over time, a business like NCE has to continually invest in expertise in additional technologies. Staff spend considerable time reverse engineering specific devices in order to be able to replicate - and often exceed - the knowledge of the original manufacturers. According to Genever when a given piece of technology is approaching around 3 years old, it is approaching its 'official' end of life in the eyes of the original vendor: "We put considerable time and effort into researching those devices in a bit more detail, reverse engineering them - hardware and software - so that we can be confident of being able to offer a full break/fix service on them in the field."

The trick is to do this proactively and have the expertise ready well in advance of the market. It is the role of NCE product managers to monitor the market and keep track of how many of a given unit are out in use, in order to let the technical staff prepare in advance and be ready to offer a full repair and support service when the devices do start to fail in numbers that would make it worth their while to offer support. This proactive strategy gives NCE a time advantage over any competitor who (typically) wouldn’t look at reverse engineering a piece of kit until after they’d seen a potential market demand from users.

THE SERVICE VAR DIFFERENCE

But the marketplace is not one of desperately trying to keep up with vendors, as in fact they frequently approach NCE with new kit to make sure that they are aware of what’s coming. "We are always looking around at what’s emerging, obviously," explains Genever, "And we are careful to explore what works for NCE as a product offering as well as commercially. Obviously what we like best is to sell product where we know we can also do the maintenance. We think of ourselves as a Service VAR, which does differentiate us from other resellers, undoubtedly, to vendors as well as customers."

While there is clearly extra revenue to be had from the SVAR model, it would be a struggle for most VARs to try to emulate NCE’s model, simply because of the huge time and personnel investment they have already made. Genever explains: "It would be very difficult indeed to come in and set up a break/fix company in today’s market. It would require so many multi-vendor skill sets, and there are all sorts of accreditations to be gained and maintained - other companies couldn’t do what we do without incurring significant costs."

Genever is rightly proud of the positive culture at NCE and what he calls the ‘staircase of talent’: technical pre-sales are often ex-professional services, professional services staff have typically moved up from the break/fix team, break/fix from the workshop, and so on. There is great emphasis placed on opportunities to improve and on internal training, including an ‘NCE university’ which offers online courses to staff at all levels from MS Office to time management as well as in-depth technical courses. Andrew Genever concludes: "We share that technology between the UK and US operations, and it offers huge benefits across the business. It is vital for us to keep innovating and moving forward - if we stay still we will fall behind, so we know we have to keep investing for the future of the business as a whole."

More info: www.ncxeurope.com
Kirklees College in Yorkshire uses DataCore's SANsymphony-V platform to provide its 20,000 students with a modern blended learning delivery environment in line with the 2014 FELTAG (Further Education Learning Technology Action Group) report recommendations. The report caused concern throughout the UK's 400 Further Education institutions, as it defined the need for IT to quickly remove any IT infrastructure obstacles that may impede the progress of provisioning combined self-directed studies with traditional college based course delivery or risk losing IT funding.

Jonathan Wilkinson (Head of IT, Kirklees) and Simon Powell (Senior Storage Engineer, Kirklees) have elected to use Software-defined Storage as their flexible, always-on backbone. Jonathan notes: "Essentially we were looking to build upon what had already been achieved using DataCore as a platform across 8 years."

The pace of change facing education is nothing short of a revolution in the way we facilitate our students. What needs to underpin this change is a watertight, expandable system that allows us to grow capacity as needed and keep applications highly performant on a continuous basis. SANsymphony-V delivers the high-end storage services we need today and provides the flexibility for further growth in the future."

**REMOVING IT OBSTACLES IN A RAPIDLY TRANSITIONING INFRASTRUCTURE**

Part of Kirklees College's success in being at the forefront of this dual delivery lies with the flexible, always-on and ready to expand, software based IT infrastructure delivered through a fully functioning Storage Area Network (SAN). The decision to move toward Software-driven Storage actually occurred well ahead of the mainstream rush initially to combat incidents of outages of their virtual servers through the deployment of the DataCore software.

Then, as the College expanded and merged, the DataCore storage virtualisation platform continued to comfortably provide a scalable and robust platform for expansion and resilience. And that ability to scale and trim is key to adherence and optimal IT enablement. In 2013, as part of a move to the new campus' data centre, DataCore Gold Partner, NCE recommended an overhaul of the original SAN infrastructure with new storage hardware from Nexsan's by Imation storage family, together with an upgrade to DataCore's SANsymphony-V10 enhanced software-defined software platform for full future proofing and latest feature sets.

Now, fully armed with the ability to perform additional operations such as Random Write Acceleration to speed transactional processing and DR snapshots that ensure replication of data on a real time basis, the team can relax in the knowledge that they are flexibly enabled for many years to come. Simon comments: "There are some neat features in the upgraded DataCore solution that we have noted. We now use Random Write acceleration to reduce the storage overhead as it produces faster storage-friendly sequential writes at our busy data mining times. Auto Tiering now also automates and allocates the data seamlessly."

Flexibility of the solution is a key attribute for the College. DataCore opens up choices through its full agnostic approach to hardware provision, taking stranded storage capacity into free space, and has allowed the team a more bullish approach to selecting the most appropriate vendor without fear of future lock in when the hardware warranty expires. Flexibility is also paramount in considering the way that the college caters for students' learning preferences under FELTAG recommendations. "It is true that lots of solutions claim to offer resilience and flexibility, but there are few solutions on the market that could offer us the total peace of mind that DataCore offers, and has done so for many years," concluded Jonathan Wilkinson. "Once installed, SANsymphony-V is a transparent software layer that you can fine tune as you go along without fear of failure, downtime or a dramatic overhaul to the infrastructure or College budget. We wouldn't face the future without it."

More info: www.datacore.com
Tegile’s Intelligent Flash Arrays make virtualising your desktop infrastructure easy. Think *And not Or*, when it comes to delivering on the promise of desktop virtualisation while keeping storage infrastructure costs down.


#thinkandnotor
For many years, we’ve looked at storage in the data centre in terms of “enterprise-scale.” Traditional storage has been and continues to be a great fit for enterprise-scale. Hard drive arrays are fast, dependable, capacious, and affordable. But now the top tier of service providers are exceeding enterprise-scale and transitioning into something even more demanding: Web-scale. Consider the level of Google, Amazon, Facebook, Microsoft, and similar globe-spanning organisations. These groups fuel modern digital existence and are trusted with safeguarding it.

However, with the overlapping explosions of mobile and unstructured data, the storage challenges of 2020 will not be the same as those of 2010. As such, the providers grappling with the lion’s share of that storage will face different issues and priorities than more mainstream enterprises. The question of “Can we store it?” now gives way to “How can we optimally store - and scale - it?” Answers must accommodate providers’ operational and TCO needs, changing global usage patterns, and economics that can scale evenly with demand.

**CAPACITY STORAGE: ENTERPRISE VS. WEB-SCALE**

Traditionally, capacity storage has focused on 7,200 RPM hard drives spinning the highest number of affordable terabytes (currently in the 4 TB to 6 TB range). Reliability, performance, and cost per gigabyte all fell within a comfortable range for businesses needing to grow their petabytes of lower tier storage. Web-scale organisations, however, face new storage parameters. They need to assess metrics such as performance per watt and capacity per watt. In an era when a user’s decade-old...
"Web-scale organisations face new storage parameters. They need to assess metrics such as performance per watt and capacity per watt. In an era when a user’s decade-old photo (that might not have been viewed since just after being uploaded) must still be accessible within seconds, is tape still the right fit for archiving? Are there ways to trade some performance for higher reliability?"

Emerging Web-scale organisations have been asking WD questions like these recently. Clearly, a new range of market needs was evolving, so WD went to the drawing board and began to redesign the hard drive for this emergent class of mass storage. The results will soon be seen throughout WD’s Re, Se, and Ae data centre drive families. In particular, WD will be the first vendor to market with hard drives optimised for Web-scale archiving, an application that effectively constitutes a new storage tier for disk.

Enterprise archiving, of course, has conventionally relied on tape (and still often does due to compliance restrictions). The price and capacity points were right, even if performance was such that it might take minutes to hours to fulfill a file request. Many organisations persisted with tape simply because there was no better solution for the task, although they have increasingly asked WD to come up with something. Some wanted a more feasible, sustainable approach to offering storage as a cloud service. Others wanted a more cost-effective approach to maintaining data - potentially for centuries - without having to "bury it in a cave."

TARGETING NEW ARCHIVING

When it comes to lower tier disk storage, IT generally examines combinations of four factors: performance, capacity, power, and cost. At this level, "performance" tends to mean "will reliably deliver megabytes in a few seconds or less," not "blistering IOPS," which appear higher in the storage stack. Capacity remains magnetic disk technology’s forte. With platters now reaching over 1TB each, it’s possible to achieve very high capacities per drive by stacking eight platters per unit (or even twelve platters, as in the case of 1.6"-high drives). WD leads the industry in volumetric drive density.

High platter counts push up drive BOM costs, but, coupled with high areal density, also push down cost-per-gigabyte, which is what Web-scale IT wants to see in a lower tier application. Concurrently, WD is driving down power consumption in these drives through everything from lower spin rates to PCB component choices to highly optimised firmware. Again, coupled with high capacity, this results in best-in-class power-per-gigabyte results.

Enterprises have been slow to adopt top capacity drives because higher areal density penalises performance while high platter counts impact cost-per-gigabyte. In archival disk storage, though, slowing performance is acceptable if the counterbalancing rewards are preferable. Consideration of these variables reveals a sweet spot in the market ideal for archival disk with five platters in a one-inch-high format. In fact, the five-platter form factor turns out to play particularly well across several data centre segments with both high- and low-intensity workloads. WD can maximise all of the benefits Web-scale organisations are prioritising in their present and future disk storage by targeting most of its disk development resources into this sweet spot.

THE WD ACTION PLAN

WD’s new Web-scale drive options will allow data centres to cut costs, expand capacity, and potentially cut storage power consumption in half. In many cases, when tape fails to meet given application criteria, archival disk will prove to be a more desirable solution. These new drives will ultimately impact enterprises in much the same way that flash storage did around ten years ago - starting with a trickle, but finally building into a tier-filling flood.

Thankfully, WD doesn’t carry the legacy burden of a heavy SAS or 10/15K RPM commitment. Data centres now buy four SATA drives for every one SAS, and that ratio skews even more heavily toward SATA in the lower tiers. WD has long prioritised its commitment to SATA, and now that determination is paying dividends with this fresh push to help Web-scale providers realise their Tier 3 storage objectives. By correctly reading the market, WD invested in the right platforms and positioned itself for growth in the niches that enterprises and providers would need most.

Soon, these investments will bear fruit among traditional enterprises operating a step below Web-scale as major data centres look to leverage the same economies and scaling as their larger counterparts. When they’re ready, enterprises will be able to follow the trail of partners and deployment strategies successfully blazed by Web-scale pioneers. Any business large enough to need purpose-tuned, mid- to low-tier disk storage will be able to realise value in their applications. Meanwhile, top-level service providers can continue to optimise their storage for the absolute best capacity-per-watt and provide more cost-effective performance to users than ever before.

More info: www.wdc.com
STORAGE RE-DEFINED
THE RISE OF OPEN-SOURCE-BASED SOFTWARE-DEFINED SOLUTIONS SIGNALS A NEW ERA OF AGILE AND SCALABLE STORAGE, SUGGESTS JASON PHIPPEN, HEAD OF GLOBAL PRODUCT MARKETING AT SUSE

Migratory creatures such as stingrays have an innate response to changes that are reliable indicators of a changing season. Certain changes signal the onset of the migratory season, and more immediate factors, such as water temperature, determine the precise day they will migrate. Circumstances are signalling to enterprise IT organisations that a change in season is on the way for data centre infrastructure, and a few important factors are triggering a mass migration to software defined data centres.

In a typical enterprise data centre today, IT organisations are rapidly breaking free from server vendor lock-in with hypervisors, which can virtualise any server using an x86 processor. However, most networking and storage environments remain silos of restrictive and expensive vendor-specific hardware and software.

With software defined data centres, IT organisations are beginning to transform their networking and storage infrastructure from expensive, proprietary, vendor-specific hardware into open-source based software and low-cost, commodity hardware.

Traditional enterprise-class storage can be described simply as file, block and object storage systems including software embedded on expensive, proprietary storage controllers, along with server-based storage management software. Transform both types of software into open source software running on industry-standard servers and commodity storage, and you have software defined storage. This will lie at the heart of a software defined data centre, providing a flexible, cost effective, high-performance, highly-available and massively scalable storage environment.

POWERED BY CEPH
The best choice for open software defined storage is Ceph, the most popular software defined storage solution for OpenStack based clouds. Using inexpensive commodity off-the-shelf hardware, Ceph extensively scales from tens of terabytes to multi petabytes. Ceph provides industry-leading storage functionality such as erasure coding for space-efficient resilience and fault tolerance; cache tiering for performance and optimised data placement; a unified block, file and object interface; as well as thin provisioning for capacity optimisation. Ceph storage clusters are also self-healing and self-managing, which significantly reduces operational costs.

Powered by Ceph and available as part of SUSE OpenStack Cloud or as a stand-alone storage solution, SUSE Enterprise Storage is a highly scalable and resilient software based storage solution that enables organisations to build these cost-efficient and highly scalable storage solutions using commodity off-the-shelf servers and disk drives.

SUSE Enterprise Storage customers can have confidence that the enterprise storage solutions they deploy now and in the future are tightly integrated with SUSE Linux Enterprise Server, which has a long history of delivering leading data storage functionality to enterprise customers. SUSE Linux Enterprise Server was first to provide a journaling file system with XFS followed by first to market support for EXT3 and ReiserFS. It was also the first to support a clustered file system with OCFS2. And, most recently, it is the first to market with support for the scalable, copy-on-write, B-tree file system Btrfs. SUSE has over two decades of experience delivering the data integrity enterprise customers demand.

SUSE Enterprise Storage customers benefit from the flexibility to deploy enterprise storage solutions on a wide selection of SUSE-certified, industry-standard hardware platforms combined with best-in-class, worldwide, enterprise, 24x7 support services.

CHANGE IS GOING TO COME
With hyperscale and large enterprise companies leading the way, enterprise storage migration from proprietary hardware-centric products to software defined storage solutions is underway. Revenue for traditional enterprise storage peaked in 2014 and will gradually decline from this point forward. In 2015, a catalyst for the acceleration of enterprise adoption of software defined storage will be the general availability of open-source-based software defined storage suites from Linux vendors like SUSE. Six years from now revenue for enterprise software defined storage will surpass revenue for traditional enterprise storage and become the dominant class of storage through our visible horizon of 2027.

The bottom line is that the general availability of open-source-based, software defined solutions from Linux vendors like SUSE marks the beginning of a new era of much more agile, scalable and cost effective storage.
Gain Breakthrough Performance
By upgrading to Intel® Xeon® processor E5 v3 family-based servers running the Windows Server* 2012 R2 operating system, you can gain the breakthrough performance, flexibility, and speed you need to stay ahead.

Upgrade Now to Minimize Risk
As of July 2015, support for Windows Server 2003 will end. Organizations who don’t act now will be at risk, whether from compromised applications, data theft, or failure to meet regulatory requirements.

• Compliance - Failure to meet compliance requirements from HIPAA, Sarbanes-Oxley, PCI, and others can bring workflows to a halt.
• Security - Without security updates, physical and virtualized instances will be left vulnerable to threats, placing sensitive company data at risk.
• Inefficiency - Without standard patching, you’ll be forced to maintain systems with custom support agreements. Ultimately, it will cost more to maintain old systems versus upgrading.

For more information on Intel products please contact Avnet now on 01344 355 800.
THE FINAL STRAIGHT

NOMINATIONS ARE CLOSED, AND THE FINALISTS CAN NOW BE ANNOUNCED FOR THE STORAGE AWARDS 2015

The 12th annual Storage Awards will take place at London's Connaught Rooms on the evening of June 18th, 2015. This year's list of finalists sees a refreshing combination of 'familiar faces' and new names, and we expect the crowd on the night to reflect that mix, making for an exciting night as ever.

The full breakdown of categories and finalists can be found over the following pages. Voting is now open for readers to choose the 'best of the best'. Please note that the 'Editors' Choice' and 'Storage Magazine Solution of the Year' categories will be judged by our editor Dave Tyler and a selected panel of experts respectively, so are not open to a public vote.

Voting closes on June 9th, so make sure you visit the Awards website soon and make your voice heard!

More info: www.storage-awards.com

THE FULL BREAKDOWN OF CATEGORIES AND FINALISTS CAN NOW BE ANNOUNCED FOR THE STORAGE AWARDS 2015

STORAGE MAGAZINE "ONE TO WATCH" AWARD - PRODUCT

- Acronis Backup as a service
- Aplexone StorageConsole
- Barracuda Networks PST Enterprise
- Cloudian HyperStore
- Code 42 Crashplan
- Dell DR4100 Disk Backup Appliance
- Dot Hill AssuredSAN Ultra 56
- ExaBlox OneBlox +
- ExaGrid EX32000E
- GFI GFI Archiver
- Infortrend DS4000
- PMC NVRAM Drive
- Proact Probox
- Qbox Saber 1000 SATA 3.0 Enterprise SSD
- Rockstar Ant
- SanDisk Infiniflash
- Seagate 8TB Archive HDD
- Spectra Logic Black Pearl
- Sphere 3D Glassware Application Virtualisation
- StarWind Software Virtual SAN
- StorMagic SvSAN
- Suse SwiftStack
- Zadara Enterprise Storage as a Service

STORAGE MAGAZINE "ONE TO WATCH" AWARD - COMPANY

- Acronis
- Aplexone
- Barracuda Networks
- Cloudian
- Code 42
- ExaBlox
- Gridstore
- Infortrend
- Aplexone
- Barracuda Networks
- Cloudian
- Code 42
- ExaBlox
- Gridstore
- Infortrend

STORAGE MAGAZINE "VALUE FOR MONEY" AWARD

- Acronis Access
- Asigra Cloud Backup
- Cleversafe
- Easy Software
- Emulex by Avago Technologies ExaGrid
- Fujifilm
- Infortrend
- OICZ
- Rockstar
- SanDisk
- Sphere 3D
- Suse
- Toshiba
- Veeam Availability Suite

THE FULL BREAKDOWN OF CATEGORIES AND FINALISTS CAN NOW BE ANNOUNCED FOR THE STORAGE AWARDS 2015

STORAGE MAGAZINE "VALUE FOR MONEY" AWARD

- Acronis Access
- Asigra Cloud Backup
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- Infortrend
- OICZ
- Rockstar
- SanDisk
- Sphere 3D
- Suse
- Toshiba
- Veeam Availability Suite
EVENT PREVIEW

STORAGE MARKETING TEAM OF THE YEAR
Beta Distribution
CMS Distribution
DataCore with On Your Case
EASY Software with Sarum PR
Hammer
iomart
NetApp
Oracle
QLogic
SanDisk
Suse
Tintri
Zerto

STORAGE MARKETPLACE TEAM OF THE YEAR

STORAGE MAGAZINE SERVICE TO INDUSTRY AWARD
Arcserve
Beta Distribution
BMC Software
Code 42
Computacenter
ExaGrid
Fujifilm
Hammer
NetApp
Oracle
QLogic
Quantum
Tarmin
SanDisk
Vision Solutions

STORAGE MAGAZINE SERVICE TO INDUSTRY AWARD
Arcserve
Beta Distribution
BMC Software
Code 42
Computacenter
ExaGrid
Fujifilm
Hammer
NetApp
Oracle
QLogic
Quantum
Tarmin
SanDisk
Vision Solutions

CHANNEL EXCELLENCE AWARD

ARCHIVING & COMPLIANCE PRODUCT OF THE YEAR
Arcserve
Backup Technology
Barracuda Networks
CommVault
EASY Software
EMC
GFI
HGST
iomartcloud
LogicNow
Nexsan by Imation
Quantum
Spectra Logic
Symantec
Tarmin

ARCHIVING & COMPLIANCE PRODUCT OF THE YEAR
Barracuda Networks
CommVault
EASY Software
EMC
GFI
HGST
iomartcloud
LogicNow
Nexsan by Imation
Quantum
Spectra Logic
Symantec
Tarmin

STORAGE INNOVATORS AWARD
Arcserve
Cleversafe
Dot Hill
Infortrend
NetApp
OCZ
Oracle
QLogic
Quantum
Samsung
SanDisk
Seagate
Sphere 3D
Suse
Tegile
Tintri
Veritas
WD

STORAGE MEDIA BRAND OF CHOICE AWARD
Dell
FujiFilm
HP
IBM
Imation
Maxwell
Quantum
Samsung
Seagate
Sony
Tandberg
Verbatim

HYPER-CONVERGED VENDOR OF THE YEAR
Cisco
Dell
EMC
Fujitsu
HDS
HP
Huawei
IBM
NetApp
Nutanix
SimpliVity
VCE

DATA PROTECTION PRODUCT OF THE YEAR
Arcserve
Backup Technology
Barracuda Networks
CommVault
Dell
ExaGrid
FalconStor
IBM
Oracle
Quorum
Unitrends
Veeam
Veritas
Vision Solutions

DATA PROTECTION PRODUCT OF THE YEAR
Arcserve
Backup Technology
Barracuda Networks
CommVault
Dell
ExaGrid
FalconStor
IBM
Oracle
Quorum
Unitrends
Veeam
Veritas
Vision Solutions

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**STORAGE MONITORING PRODUCT OF THE YEAR**
- HDS: Storage Capacity Management & Reporting
- IBM: Tivoli Productivity Centre
- NetApp: OnCommand
- Nimble Storage: InfoSight
- Oracle: StorageTek Tape Analytics
- Paessler: PRTG Network Monitoring
- SolarWinds: Storage Manager
- Terin: Gridbank
- Tintri: Global Center
- Veecom: Veeam
- Virtual Instruments: VirtualWisdom

**SSD ACCELERATION CARD OF THE YEAR**
- EMC: XtremSF
- HP: SmartCache I/O Accelerator
- HGST: FlashMAX III
- LSI by Avago: Axiom Network Accelerator
- OCZ: Saber 1000 SATA 3.0 Enterprise SSD
- Oracle: Sun Flash Accelerator F20 PCIe Card
- Pexlor: M6e
- PMC Sierra: Flashtec NVRAM Drives
- Qlogic: FabricCoche
- Samsung: T1 Series
- SanDisk: Fusion ioDrive2 Duo
- Seagate: Nytro WarpDrive Flash Card
- Toshiba: PX02SMF

**OBJECT STORAGE VENDOR OF THE YEAR**
- Amplidata
- Cleversafe
- Data Direct Networks (DDN)
- Dell
- EMC
- Exablox
- Hgst
- HP
- NetApp
- Quantum
- Scality
- Terin

**FLASH ARRAY OF THE YEAR**
- Avere: FXT Series Edge Filer
- Dell: SC220 Flash Optimized Solution
- EMC: xTremIO Scale-out Array
- IBM: FlashSystem 900
- Infortrend: DS1024B
- Kaminaro: K2 Flash Array
- NetApp: EFS540 Flash Array
- Nimbus: Gemini F400 All Flash Array
- Pure Storage: PA 450 Flash Array
- SanDisk: Infiflash
- Tegile: Zebi Storage Array
- Tintri: VMstore
- Violin Memory: 6600 Flash Array
- X-IO: ISE Storage System

**DISK BASED PRODUCT OF THE YEAR: SMALL/MID-RANGE**
- Dell: EqualLogic PS4100
- Dot Hill: AssuredSAN 3004 Series
- ExaGrid: EX Series
- Fujitsu: Eternus DX200
- Infortrend: DS4000
- Imation: NST2000
- Lenovo: N4610 Network Storage Server
- Overland Storage: SnapServer XSR 120
- Promise: VTrakk30 Series RAID subsystem
- QNAP: HS-210 Silent NAS
- Qvis: AegisSAN LX P6000Q
- Synology: DS1812+
- WD: DX4200

**CLOUD ENABLER OF THE YEAR**
- Acronis
- Amazon S3
- Barracuda Networks
- Cleversafe
- Code 42
- EMC
- Evault
- iomart
- Microsoft Azure
- Pulsant
- Proact
- Six Degree Group
- Sphere 3D
- Suse
- Veritas
- VMware
- Vodafone

**DISK BASED PRODUCT OF THE YEAR: ENTERPRISE**
- Dell: Compellent SC8000
- Dot Hill: Ultra 48 AssuredSAN
- EMC: VNX8000
- HDS: Hitachi Unified Storage (HUS) VM
- HP: 3PAR StoreServ 7400 Modular Storage System
- IBM: System Storage DS8870
- Imation: Nexsan NST6000MC Metro Storage Cluster
- NetApp: FAS8020
- Oracle: ZFS Storage Array
- Quantum: DX16900
- Spectra Logic: Black Pearl Deep Storage Appliance
- Toshiba: AL13Sx 15k rpm 600GB HDD

**FLASH ARRAY OF THE YEAR**
- Avere: FXT Series Edge Filer
- Dell: SC220 Flash Optimized Solution
- EMC: xTremIO Scale-out Array
- IBM: FlashSystem 900
- Infortrend: DS1024B
- Kaminaro: K2 Flash Array
- NetApp: EFS540 Flash Array
- Nimbus: Gemini F400 All Flash Array
- Pure Storage: PA 450 Flash Array
- SanDisk: Infiflash
- Tegile: Zebi Storage Array
- Tintri: VMstore
- Violin Memory: 6600 Flash Array
- X-IO: ISE Storage System

**STORAGE HOSTING COMPANY OF THE YEAR**
- Amazon S3
- Claranet
- Databarracks
- iomart
- Onyx
- Peer 1 Hosting
- Phoenix
- Pulsant
- Rackspace
- Six Degrees Group
- Sungard
- Vodafone

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Lightning Ultra™ Gen. II SAS SSDs

Maximum bandwidth with high availability and superior data integrity for demanding big data analytics.

Lightning Ultra™ Gen. II SAS SSDs offer industry-leading predictable performance with high availability for the analysis of large data sets. Available in 19nm SLC, these SSDs are designed for write-intensive applications such as high performance computing (HPC), big data analytics, database logging, media editing, and indexing with a heavy workload comprised of a 50/50 read/write mix.

This next generation Lightning® SSD offers a feature-rich robust design combined with SanDisk’s innovative parallel processing architecture to deliver full data path protection (supports T10-DIF), temperature based power control, SED instant secure erase, an MTBF of 2.5 million hours** and power fail protection.

Benefits:
• High, Predictable Performance
• Industry-leading Reliability
• Highest cost-to-performance value
• High availability for large dataset analysis
• Complete vertical integration

For more information on SanDisk products please contact Avnet now on 01344 355 800.

*Terms and conditions apply to the 10% discount offer, contact sunny.badyal@avnet.com for more information and a copy of the terms and conditions.

Order now and save up to 10% on your order

Accelerate Technology Success

Order now and save up to 10% on your order
### STORAGE VIRTUALISATION PRODUCT OF THE YEAR

- DataCore SANsymphony-V
- Dell Compellent Storage Center
- Dot Hill RealStor 2.0
- FalconStor FreeStor
- IBM Storwize
- Imation Nexsan NST Series
- Maxta MXSP
- Nexenta Nexentastor
- Oracle Oracle VM
- PernixData FVP
- Sphere 3D Glassware Application Virtualisation
- Tintri T800
- VMware vsphere Storage Appliance (VSA)

### CHANNEL PARTNER PROGRAM OF THE YEAR

- Arcserve
- Barracuda Networks
- Commvault
- Dot Hill
- Fujitsu
- Imation
- NetApp
- Pure Storage
- QLogic
- Quantum
- Seagate
- Tarmin

### STORAGE SERVICE COMPANY OF THE YEAR

- Bluechip
- Capita
- Comms-Core
- Computacenter
- CTERA
- Daisy
- IBM
- Maindec
- NCE
- One Source IT
- Phoenix
- Proact
- Q Associates
- Sol-Rec

### CORPORATE STORAGE RESELLER OF THE YEAR

- Computacenter
- EACS
- Esteem
- Insight Direct
- Kelway
- NCE
- OISG
- Proact IT
- Q Associates
- SCC
- SoftCat
- Stone

### SPECIALIST STORAGE RESELLER OF THE YEAR

- Capita
- Cognitive Solutions
- Computacenter
- COOLSPIRIT
- ERA

### STORAGE DISTRIBUTOR OF THE YEAR

- Arrow ECS
- Avnet
- Beta Distribution
- Cloud Distribution
- CMS Distribution
- Commtech
- Global Distribution
- Hammer Plc
- Northamber
- Westcoast
- Wipro
- Zykco

### STORAGE PRODUCT OF THE YEAR

- Arcserve Unified Data Protection (UDP)
- Barracuda Networks Barracuda Backup
- Cleversafe DsNet
- CommVault Simpana
- DataCore SANsymphony-V
- Dell DR4100 Disk Backup Appliance
- Dot Hill AssuredSAN Ultra 48
- NetApp EFS40
- Oracle StorageTek
- Pure Storage FA-450 Flash Array
- QLogic FastLinQ 3400 Series Adapter
- SanDisk Optimus Max
- SanDisk Infiniflash
- Seagate BTB Archive HDD
- Suse Enterprise Storage
- Tintri VMware
- Toshiba HGST
- WD Re+

### STORAGE COMPANY OF THE YEAR

- CommVault
- DataCore
- Dell
- EMC
- HP
- IBM
- Imation
- NetApp
- Oracle
- QLogic
- Quantum
- SanDisk
- Seagate
- Suse
- Symantec
- Veeam
- Veritas
- WD
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- Complete vertical integration

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According to IDC, over the next five years, more than 95% of all IT expenditure will go towards the ‘third platform’ of computing infrastructure (cloud computing, big data, mobile computing and the Internet of Things). Older storage infrastructures are not suited to handle the scale of many of the processes required for the current and emerging world, such as evolving workloads, intense and high demand scalability and resource agility.

This has been the principal driver for the changing expenditure. Traditional HDDs, for example, are better for capacity-intensive environments that not only require a low dollar-per-gigabyte cost for capacity but also need relatively few inputs/outputs per second or IOPS per gigabyte. However, using the same approach in today’s data intensive world would not be economical at all and IDC has spoken at length about the potential of Flash to dominate spinning disk in the performance intensive storage environments.

**MANIFOLD RETURNS**

Flash arrays have a higher performance throughput, which means fewer arrays to manage the same workloads. Additionally, as workload capacities demand higher throughput rates (measured in inputs/outputs per second or IOPS), many enterprises are finding their workloads are perfectly positioned for Flash’s cost-to-performance ratio. As well as reducing the need for storage over provisioning, Flash-based SSDs require much less power for running and cooling than HDDs, especially once IT managers run de-duplication and installed less capacity to begin with. With power in the data centre usually in the top three IT operating costs, alongside people costs and data centre space, any reduction in these generates significant savings to the business. Hitting all of them at once, as you can with Flash, brings manifold returns. Also, deploying Flash within storage arrays built significantly to take advantage of Flash based media will result in lower storage administration. Revolutionary internal architecture completely eliminates complex set-up and tuning steps, while inherently delivering maximum performance. Given that a single tier of Flash based media will be deployed there is no more management of storage tiers and the ‘chasing of performance hotspots’.

However, though Flash is the only storage solution that is able to adequately cope with the demands of the third platform, until recently it has not been available at a reasonable enough price point for many, as the dollar-per-gigabyte cost has been a large barrier to entry into the secondary market. Though the...
absolute cost of Flash storage has been coming down significantly over the last few years, making the relative cost per TB of storage more attractive than ever in a Flash vs. traditional array, the applications in the secondary market have been unable to justify the cost of Flash, as they are unable to take advantage of conventional Flash performance to fully leverage secondary economic benefits.

SECONDARY BENEFITS
To make Flash appealing to these markets, it is important to understand how the secondary economic benefits of Flash (lower device count, lower energy consumption and reduced floor space requirements) would apply in secondary storage environment. If one makes the conservative assumption that Flash can achieve a data reduction ratio of 2:1 for secondary stage workloads and a conservative 20% lower device count, and that a Flash-based medium was available at roughly $0.40 per gigabyte for raw capacity by 2018, a Flash-based configuration would cost roughly the same as a storage solution built out of performance optimised HDDs priced at $0.183 per gigabyte and would have a 40-80% lower TCO.

To compare a Flash-based configuration with a storage solution built entirely out of capacity-optimised HDDs, we would have to assume that we'd need 4 times the number of devices to meet IOPS requirements, a number that significantly raises not only the acquisition cost but also the TCO of the solution.

BIG DATA FLASH IS BORN
Based on this quick analysis, we can start to formulate what a viable storage product that could meet the previously defined market opportunity might look like. The storage product would have the secondary economic benefits of Flash and cost $0.40 per gigabyte by 2018. It would have to deliver performance (latencies, IOPS, and throughput) that is consistently better than the best case that performance-optimised HDDs can offer today. And since this would be targeted at secondary storage environments, it should be built for scalability into the tens or hundreds of petabytes for application workloads that require high ingest rates, exhibit low change rates, and need high read rates with some level of intermixed random writes.

It should be delivered in a package that meets enterprise requirements for availability, reliability, and manageability; should be able to support multiple data types (block, file, and object as well as structured, unstructured, and semi-structured); and should mesh well with pre-existing data centre workflows for operations like access, monitoring, and break/fix. Targeted as it would be at massively scalable environments, IDC suggests that an appropriate name for this new category would be ‘Big Data Flash.’

The creation of the new category of Big Data Flash is a welcome development in an industry that is struggling with legacy HDD technologies for secondary storage applications in the third platform computing era. The performance and cost characteristics of Big Data Flash enable not only new types of secondary storage applications but possibly also new types of primary storage applications that meet its performance profile.

Admittedly, prices per gigabyte vary among vendors based on their products’ configurations and whether or not they factor in data reduction technologies, such as deduplication and compression. Prices per IOPS are no easier, with differing sets of variables to weigh. However, as there is no sign that the rate at which we are creating data will subside anytime soon, solutions like Big Data Flash are what we need to enable us to use the data sets we are creating in a cost effective and reliable way for our business advantage. As illustrated, Big Data Flash offers a significant shift in economics; that, more often than not, is the biggest factor in the process of adopting new technology.

More info: www.sandisk.com/enterprise
IBM scientists have demonstrated an areal recording density of 123 billion bits of uncompressed data per square inch on low cost particulate magnetic tape, a breakthrough which represents the equivalent of a 220 terabyte tape cartridge that could fit in the palm of a hand.

To put this into perspective, 220 terabytes of data is comparable to 1.37 trillion mobile text messages or the text of 220 million books, which would themselves require a 2,200 km bookshelf spanning from Las Vegas to Houston, Texas.

IBM says that this new record proves that computer tape - a storage medium invented in 1952 with an initial capacity of about 2 megabytes per reel - continues to be an ideal technology not just for storing enormous amounts of back-up and archival data, but for new applications such as Big Data and cloud computing. The record setting demonstration is an 88 fold improvement over an LTO6 cartridge, the latest industry-standard magnetic tape product, and a 22 fold improvement over IBM’s current enterprise class tape product.

Today more than 500 exabytes of data reside in tape storage systems, according to IT analyst firm Coughlin Associates. The new record was achieved using a new, advanced prototype tape developed by FujiFilm Corporation of Japan, in collaboration with IBM scientists. This is the fourth time in less than 10 years that IBM Research and FujiFilm have collaborated to achieve such a feat.

ETH Zurich, a leading international university based in Switzerland, is using IBM tape technology for central data back-up and restore services. “The average data transfer rate to tape has increased steeply over the years to approximately 60 terabytes daily and our tape library has reached more than 5.5 petabytes. Despite advances in overall storage technology, tape is still a promising media for large amounts of data for its transferability of data in Linear Tape File System applications and its low energy consumption,” said Dr. Tilo Steiger, Deputy Head of ITS System Services, ETH Zurich.

“With this demonstration, we prove again that tape will continue to play an important role in the storage hierarchy for years to come,” added Dr. Evangelos Eleftheriou, IBM Fellow. “This milestone reaffirms IBM’s continued commitment and leadership in magnetic tape technology.”

While tape has traditionally been used on premise for video archives, back-up files, replicas for disaster recovery and retention of information, off-premise applications in the cloud are beginning to emerge due to its low cost, which averages just a few pennies per gigabyte.

**Into the Cloud**

IBM Research scientists in Zurich are now exploring the integration of tape technology with current cloud object storage systems such as OpenStack Swift. This would enable object storage on tape and allow users to seamlessly migrate cold data to an extremely low-cost, highly durable cloud based storage tier perfectly suited for back-up or archival use cases. A research prototype of this technology is being demonstrated at April’s 2015 National Association Broadcasters Show in Las Vegas, while additional technical details will be presented at the 2015 Intermag conference (May 11-15) in Beijing and at the IBM EDGE conference (May 11-15) again in Las Vegas.

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**Tape Measures**

IBM Research and Fujifilm are busy setting new capacity records for tape media: Storage Magazine takes a closer look.
To achieve 123 billion bits per square inch, IBM researchers developed several new technologies, including:

- A set of advanced servo control technologies that include a high bandwidth head actuator, a servo pattern and servo channel and a set of tape speed optimised H-infinity track follow controllers that together enable head positioning with an accuracy better than 6 nanometers. This enables a track density of 181,300 tracks per inch, a more than 39 fold increase over LTO6.
- An enhanced write field head technology that enables the use of much finer barium ferrite (BaFe) particles.
- Innovative signal-processing algorithms for the data channel, based on noise-predictive detection principles, enable reliable operation with an ultra narrow 90nm wide giant magneto-resistive (GMR) reader.

IBM has been working closely with Fujifilm on this technology since 2002, particularly on the optimisation of its dual-coat magnetic tape based on barium ferrite (BaFe) particles. The results of this collaboration have led to various technology improvements, among them a dramatic increase in the precision of controlling the position of the read-write heads - which has resulted in an increase in the number of tracks that can be squeezed onto half-inch-wide tape.

In addition, the scientists have developed new, advanced detection methods to improve the accuracy of reading the tiny magnetic bits, achieving an increase in the linear recording density of more than 76 percent over LTO6, while enabling the use of a reader that is only 90nm in width.

Many of the technologies developed and used in the areal density demonstrations are later incorporated into IBM tape products. Two notable examples from 2007 include an advanced noise predictive maximum likelihood read channel and first generation BaFe tape media.

Of course IBM has a long history of innovation in magnetic tape data storage. Its first commercial tape product, the 726 Magnetic Tape Unit, was announced more than 60 years ago, and used reels of half-inch-wide tape that each had a capacity of about 2 megabytes. This latest areal density demonstration represents a potential increase in capacity of 110,000,000 times compared with IBM’s first tape drive product.

More info: www.research.ibm.com
INTERVIEW: BETA DISTRIBUTION

David Tyler: The last few years have seen some huge changes in your business - can you sum up the shift for us?
Ricky Patel: The company actually started off in calculator repairs over 35 years ago, before moving into print hardware and subsequently consumables, which is where we’d focused for some time - for instance we are Canon’s oldest distributor in the UK. Nine years ago Steve Soper stepped in as MD and took the opportunity to recalibrate and look at the broader market, which highlighted a number of areas within the channel that we should enter to help our growth. Two years later we created our technology solutions division which has gone from strength to strength – this was initially based on building an LTO business – we are outselling all other distributors on LTO media in Europe – so on the back of that we have brought in product managers and business managers who have added major technology brands to the business. This includes the likes of Seagate, QNAP, Synology, Infortrend, LaCie, and others.

Ben Jackson: As a result of this we’ve grown the Technology Solutions division from around 10% of the business to close to 34% for this year. We’ve gone from around a £90 million distributor to £159 million in the space of 5 years – this has been an explosive growth by any standards. Within the corporate reseller market, we still have this established reputation in the print/consumables sector, so we have a bit of profile raising work to do, as we now have so much more to our portfolio than ‘just ink and toner’. Our aim is to be seen as serious storage supplier out there now that we have these great brands on board and the right level of experienced staff in place.

RP: We have a commodity-based storage platform offering (Seagate, Transcend, LaCie), alongside a very successful NAS business (QNAP, Synology, Drobo), and we’ve recently signed Falconstor, Overland and Exablox, a US startup in the scaleout NAS sector. I’m tasked with bringing in some new and disruptive brands - who are best of breed and provide a margin rich product set – to our technology solutions division. As a business we see ourselves as very much a Value Added Distributor: we have 3 other divisions, which are important foundations for the whole business. We are almost like a startup ourselves within an established business.

DT: What is the specific message to the reseller market from Beta Distribution now?
BJ: The strategic next step for us is to make the market more aware of what we can now offer. The proposition for resellers is simple: come and work with us and we will bring you incremental business. This means we have to ensure that we can bring some value-add to the table, whether that is via integration services or by bringing in new technologies. We deal with some 1800 customers every month; around 900 of them are currently buying storage products from us. So we already have some senior relationships in place from a management perspective, so it is

SHAKING THINGS UP
BETA DISTRIBUTION HAS BEEN AROUND FOR OVER THIRTY YEARS AND REMAINS EUROPE'S LARGEST DISTRIBUTOR OF LTO MEDIA - BUT THERE IS MUCH MORE TO THE BUSINESS THAT NOW DESCRIBES ITSELF AS 'ONE OF THE MOST DISRUPTIVE STORAGE PLAYERS OUT THERE'. STORAGE MAGAZINE EDITOR DAVID TYLER SPOKE TO BEN JACKSON, HEAD OF BETA'S TECHNOLOGY SOLUTIONS DIVISION, AND RICKY PATEL, ENTERPRISE BUSINESS MANAGER

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down to us to enhance those relationships when it comes to storage conversations.

RP: From the reseller’s perspective it’s good for them to be able to talk about multiple brands and multiple technologies - not just limited to storage, although of course that is our key focus right now! One of the benefits of being a smaller company than some of the CMS/Hammer type rivals out there is that we can turn round a decision within a day if necessary, thanks to our relatively flat structure as a business. There’s no complex hierarchy for signoff and the like - and that again helps our reseller partners.

BJ: Strategically we are very focussed on best-of-breed, as opposed to Tier-1 - you can see this from the sort of brands that we’re signing up with. Some of these are startups like Exablox, others are very established vendors such as Falconstor or Overland, who frankly have had a tough time over the last few years, but are now ‘coming out the other side’. These firms have a great story to tell, they have heritage, and in many cases are market leaders. It’s been important for us to get that mix of vendors just right and this is an evolving process.

We’ve invested in growing the right way; in getting the right people on board with in-depth storage industry knowledge. They also have the right relationships across the market to know the best vendors to talk to while also being able to get traction with the reseller market and push the appropriate brands.

DT: How do you decide on a relationship with a firm like, for instance, Exablox?

RP: Exablox are a good example of what we’re aiming to achieve - they’re a three-year old start-up, specialising in object-based storage. So at the high end they are competing with the likes of CleverSafe, Scality, as well as Nimble and Pure, then there’s a ‘gap’ between those vendors and the likes of QNAP, Synology and Drobo: Exablox sit more or less in the middle and therefore we believe they can offer the best of both worlds. We’ve signed an exclusive deal with them to help them get the brand out there in the UK over 18 months. We have a demo room here at our head office so we can bring resellers in and show them the offerings. Our services team will also be able to put them through the technical training and testing required to support the product – all of which helps us to drive the opportunity for us, our resellers and our end users.

If, as a vendor, you want to partner with a growing business - and one that is extremely proactive - then we’re the guys you should be speaking to. We have one of the ‘hungriest’ sales teams in the market, without question - we’re driven, at all levels to become a significant player in the storage market. We will continue to invest in not only the current team but also bringing in experienced people from within the industry who will complement what we are trying to achieve.

DT: Do you get a different perspective on the industry - and on end user requirements - as distributors, from the way that storage vendors might see things? If so, how does that colour how you do business?

BJ: We do calls with our resellers, so we get to hear the real end user issues at the sharp end, so we can then be truly vendor-agnostic and decide the best solution for their requirements, as opposed to being driven to push a specific product. We are able to develop a solution stack that we can then take to our partners, to develop joint campaigns with them that we know will address recurring end user issues. It’s about gathering decent market intelligence and then putting together a solution that we’re happy to market.

I can give you a good example: there is a lot of legacy hardware out there, as we all know. With people talking about flash and Big Data, there’s lots of talk about ‘rip and replace’ as the only solution - but the reality is that the budgets aren’t there for most companies. The real issue for end users is how to utilise what you have already invested in, and complement it with appropriate new technologies for your business. Solutions like Falconstor’s can help there - letting you optimise the performance of your legacy hardware, with the addition of flash arrays. We see this as a big gap in the market that we can help address - we have the expertise to talk to business about long term planning, about their financial strategy as much as their IT one, and give good advice on both. Issues like scalability, and future-proofing a potentially huge investment, are areas where our expertise can add real value.

More info: www.betadistribution.com
GUARDING THE VALUABLES

MARK EDGE, UK COUNTRY MANAGER & VP SALES AT BRAINLOOP SAYS THAT A NEW APPROACH TO IT SECURITY IS NEEDED: ONE THAT GUARDS DATA WITHIN A PROTECTED INFRASTRUCTURE

With the growing threat of cybercrime and security breaches and increased incidents of data loss, securing your information has never been more important. Statistics released this month from The Online Trust Alliance revealed that from January to June 2014 only 40 per cent of data breaches involving the loss of personally identifiable information (PII) were caused by external intrusions: 29 per cent were caused either accidentally or maliciously by employees.

Whilst tackling the cyber security challenge has become more difficult, the good news is that it is not insurmountable. It does, however, require a different approach to the traditional one of protecting the infrastructure and adding reinforced firewalls that ring-fence your company’s information. In today’s world where employees are a significant source of security breaches, securing applications and systems is only half the job.

A NEW APPROACH

The huge amount of information that is generated by and resides within organisations means that it’s not possible to protect it all. However for many CISOs and CSOs, protecting these enormous quantities of data has become their primary goal. But ultimately it will become their Achilles heel because there’s simply too much of it.

Organisations need to find a way of protecting valuable information without enforcing draconian security policies on staff that will negatively impact their ability to work. What’s needed is a new approach to IT security that not only protects your IT infrastructure, but protects the data itself.

WHAT’S IMPORTANT?

The first step is to seriously question how critical all this information is. Of course you want to lock down important data such as financial records and customer transactions. But in addition, let’s not forget all that valuable information found in documents such as financial forecasts, board minutes, RFPs and product roadmaps. This potentially highly valuable information is often shared via email and unsecured file-sharing platforms by employees. Your most valuable assets could already exist outside your control, unprotected and unencrypted.

TrendLabs state that 56 per cent of employees frequently store sensitive data on their laptops, smartphones, tablets and other mobile devices. What’s worse is that this data is all too often unguarded.

KISS - KEEP IT SIMPLE SECURITY

Where sensitive and secure data is at stake, organisations should implement a collaboration and file-sharing platform with a simple and user-friendly interface that is highly functional, intuitive, and easy to learn. It should provide the utmost control in managing sensitive data for insiders and collaborating organisations. The implementation of data classification standards should also be considered to improve the protection of sensitive information.

Focus your security policy on the high-risk areas first, for example M&A documentation and valuable IP rather than chaining up everything. In most organisations, employees with access to sensitive information will be sharing it both inside and outside the business. The best security policy should enable them to continue to do this, safely and securely.

EASY DOES IT

Finally, ensure that your security policy is easy to understand and simple to follow. This will help to ensure your employees are on board from the outset and avoid confusion. Also don’t forget that your employees are the eyes and ears of your security strategy. They need to know how to spot a threat and the quickest and most efficient way to react.

A WINNING COMBINATION

2014 saw some of the largest organisations suffer significant cyber attacks. Sony, Apple’s iCloud and the rise of hacktivism have shown that the threat of cyber crime is very real. However, a combination of the right security policy, a security-aware culture, and easy-to-use tools that employees like using, preferably integrated into applications they use daily, like Microsoft Office, will enable organisations to give their information the protection it needs - before it is too late.

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