CUSTOMER SATISFACTION:
M&S simplifies its storage landscape

FLASH GOES MAINSTREAM:
But AFA cost concerns linger

TAPE MEASURES:
Can tape save us from the 'Zettabyte apocalypse'?

NATURAL SELECTION:
The evolution of storage virtualisation

MARKS & SPENCER FOOD
AT THE HEART OF DATA STORAGE

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
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If you’ve ever bemoaned the lack of performance of your smartphone, you’re definitely not alone. As with most computing devices, we find ourselves on a never-ending upgrade cycle that sees us buy bigger and faster mobile devices, and finding before very long that they’re full, or slow, or just ‘not up to the job any more’.

It’s worth keeping in mind just how far we’ve come, and how quickly, as Hammer’s Gerard Marlow touches on in an article in this issue about the Internet of Things. As Marlow reminds us, the Apollo moon landing back in 1969 was powered by computers that had a fraction of the processing power and storage of the smartphone in your pocket or bag.

I know from my own early days in the IT industry (or DP as it then was) that it is not that long ago that we needed a room the size of a small aircraft hangar to contain the processors and storage needed for a medium sized business. These days that amount of ‘smartness’ resides in a device you can carry around with you. But as Gerard points out, the next sea change will come about as a result of computing power in hitherto unimagined places: our kitchens, our electricity meters, our cars - even the medicines we consume are becoming ‘smart’.

Gerard quotes a recent Verizon report: “IoT encompasses almost everything that’s digitally connected on the planet. Whether it’s sensors in soil to monitor moisture, cameras at road intersections to monitor traffic, or flow meters in a pipe to monitor oil distribution, they are all generating data. With a little bit of analytics on top of that data layer, consumers, business owners and enterprises can understand their respective environments. And taking that one step further, they can even influence those environments so that the soil can be watered if too dry, the traffic flow can be diverted if there’s an accident, or the flow valve can be turned off if oil prices drop below a certain value.” The potential impact of these developments on the IT storage industry is yet to be fully considered.

Elsewhere in this issue, you can see the full breakdown of the winners and runners-up in our 13th annual Storage Awards. Our initial concerns that the summer storms on the night might dampen the enthusiasm of the attendees were quickly allayed: it turned out to be one of our biggest and best nights so far. If you were there, check out the photographs from the night on the website - and if you weren’t, well, there’s always next year!
EASY INVOICE

Giving ‘Sally from accounts’ the ability to process invoices at super-speed

Saving invoice processing costs, reducing controlled invoice receipt-to payment times, improving cash flow and giving robust audit compliance
News

**storMagic has launched SvSAN 6,** which offers SvSAN in a Standard and Advanced Edition. Both will be available globally now that StorMagic is a Preferred Solution Partner within the Cisco Solutions Partner Program and via the company’s OEM agreement with Cisco.

Version 6 enables large organisations with remote or branch offices, or smaller businesses with more modest IT infrastructure and budget to take advantage of advanced storage caching features that enable the perfect balance of flexibility, efficiency and performance, while also future-proofing their IT infrastructure.

“StorMagic SvSAN is an important part of Cisco’s UCS solutions portfolio that helps us address use cases for enterprise remote or branch offices for our customers,” said Siva Sivakumar, Director UCS Solutions, Computing Systems Platform Group at Cisco. “The combination of SvSAN 6 and Cisco UCS is well suited for customers seeking enterprise-class resiliency, strong performance and cost requirements.”

www.stormagic.com

**Veritas has launched the next-generation of its NetBackup 5200-series Integrated Appliances with data visibility.** Together NetBackup 5240 and Information Map are the first solution to integrate data visibility and data protection, addressing enterprise challenges managing unclassified, dark data.

As organisations struggle to balance the exponential increase in data growth, delivering protection with integrated visibility is critical to reducing risk and bottom-line costs. A free trial of Information Map with NetBackup 5240 allows businesses to quickly and simply identify opportunities to optimise information storage and reduce information risk in as little as 24 hours. Previous versions of NetBackup 5200-series Appliances are also compatible with Information Map.

“Data protection of course remains of paramount importance but is not sufficient by itself in these increasingly complex IT environments. That’s why we’re innovating and delivering a most forward thinking backup solution to our customers - the first step to incorporate integrated data protection with visibility,” said Scott Anderson, Senior VP of Information Protection Solutions at Veritas.

www.veritas.com

**Seagate has unveiled a first-of-its kind, high-capacity drive that can help data centres more easily accommodate exponential data growth, while still maintaining high levels of computing power and performance.** The two terabyte version of its Nytro XM1440 M.2 non-volatile memory express (NVMe) SSD is the highest-capacity, enterprise-class M.2 NVMe SSD currently available.

As the latest addition to the Seagate Nytro SSD product line, the 2TB Nytro XM1440 M.2 NVMe SSD is designed to accelerate enterprise data access, with twice the density of prior M.2 NVMe environments. Optimised for read-intensive and mixed workloads, its high capacity and small form factor are ideal for today’s cloud and enterprise data centre environments, where speed and processing power in a small footprint are increasingly important.

The drive can help meet the needs of demanding enterprise applications including online transaction processing, high-performance computing and big data analytics. It also helps manage storage growth with deduplication and compression, allowing data centres to easily create more virtual machines instantly without having to add additional servers.

www.seagate.com

**2TB SSD for the Data Centre**

**Next Gen NetBackup from Veritas**

**SvSAN Version 6**
AFA WITHOUT FC?

Mangstor Inc. has announced that its family of NX-Series Storage Arrays are the first to comply with the newly released NVMe over Fabrics (NVMeoF) specification developed by the NVMe Express, Inc. consortium. Mangstor is a founding member of the consortium’s NVMeoF committee and was an active participant in the ratification of the new standard.

The NVMe over Fabrics specification was created to enable flash-based SSDs to communicate over RDMA fabrics (i.e. InfiniBand or Converged Ethernet), delivering the same high performance, low latency benefits as local attached NVMe. The specification has broad reach and is expected to help drive All-Flash Array (AFA) revenue from $2.58 billion in 2015 to $5.65 billion in 2019 according to IDC, representing a 21.65 percent CAGR over this forecasted period.

“The newly released standard is helping to lead an industry transition to NVMeoF technology as a superior alternative to FC or iSCSI SAN All-Flash Array solutions, which use interfaces that were created for HDD-based technology along with advances in high aspect ratio semiconductor processing to deliver higher capacity, superior performance and reliability at an attractive cost. Together with BiCS2, our 3D NAND portfolio has broadened significantly, enhancing our ability to address a full spectrum of customer applications in retail, mobile and data centre.”

BiCS3, which has been developed jointly with Western Digital’s technology and manufacturing partner Toshiba, will be initially deployed in 256 gigabit capacity and will be available in a range of capacities up to half a terabit on a single chip. Western Digital expects volume shipments of BiCS3 for the retail market in the fourth calendar quarter of 2016 and to begin OEM sampling this quarter.

www.wdc.com

64 LAYER 3D NAND TECH FROM WD

Western Digital has successfully developed its next generation 3D NAND technology, BiCS3, with 64 layers of vertical storage capability. Pilot production of the new technology has commenced in the Yokkaichi, Japan joint venture facilities and initial output is expected later this year. Western Digital expects meaningful commercial volumes of BiCS3 in the first half of calendar 2017.

“The launch of the next generation 3D NAND technology based on our industry-leading 64 layer architecture reinforces our leadership in NAND flash technology,” said Dr. Siva Sivaram, executive vice president, memory technology, Western Digital. “BiCS3 will feature the use of 3-bits-per-cell technology along with advances in high aspect ratio semiconductor processing to deliver higher capacity, superior performance and reliability at an attractive cost. Together with BiCS2, our 3D NAND portfolio has broadened significantly, enhancing our ability to address a full spectrum of customer applications in retail, mobile and data centre.”

www.wdc.com

HYBRID CLOUD DATA PROTECTION

Acronis has announced an expanded set of solutions that give businesses and IT Managers more control over company data and workloads than ever before, including where they can be backed up, stored, monitored, and recovered. Acronis Backup 12, Acronis Backup Cloud, Acronis Monitor, Acronis Storage and Acronis Notary are based on the company’s new hybrid cloud architecture to support data protection and recovery in virtually any IT environment.

“We’re combining the world’s fastest backup solution with the industry’s most flexible storage options and non-stop monitoring to provide complete data protection for today’s ‘always-on’ digital business,” said Sergey Belousov, Co-founder and CEO at Acronis. Acronis provides businesses with the ability to take back control of their data destiny by extending beyond backup solutions to provide complete data protection across hybrid cloud IT environments. Acronis enables businesses and IT Managers to store their data anywhere and monitor activity at all times to quickly identify and resolve performance issues. Acronis solutions feature a unified web management console that makes it easier than ever for IT managers to converge cloud and on-premises data protection with the ability to monitor and manage all data and workloads.

Acronis solutions can be deployed in the cloud, on-premises and in hybrid configurations, protecting company data across the entire business, whether it resides in the cloud or with cloud applications, on-premises, across virtual and physical systems, in remote systems, and on mobile devices.

www.acronis.com

www.storagemagazine.co.uk
LERG S.A. is a leading manufacturer within the chemical industry in Poland. The company’s focus is the production and export of resins for a wide range of applications in various industries. Their mission is to maintain the highest quality standards across their range of products and to adapt their portfolio to meet the needs and expectations of customers in both domestic and foreign markets. Established in 1937, the company has grown currently to nearly 500 employees in Poland, with revenue over 100 million Euros and customers around the world.

“The steady growth of business, the rapid response to customer requests, maintaining the quality of our products at a high level as well as regulatory requirements are challenging the reliability and performance of our IT systems. Especially for our integrated enterprise management systems users expected an improvement of availability (MTBF, MTBSI) and recovery (RTO, RPO)”, explains Adam Bek, Financial Director at LERG.

The IT infrastructure of LERG relies on a pool of critical data and applications, which are vital to its operational efficiency and future growth. To make their business operations more reliable and flexible to their dynamic needs, the company decided to virtualise core application servers (including Exchange for Mail, File Services, Domain Server) all under VMware in a clustered configuration, while their vital ERP system, IFS based on Oracle databases, would remain on separate Linux machines.

The underlying storage was provided from a single HP storage array. When it was time to renew their equipment, the company’s IT team decided it needed to modernise its infrastructure to gain more performance, reliability and grow capacity. The latter had become a highly urgent issue, as the usable capacity was within 10% of the maximum acceptable tolerance levels and had reached a point that any growth could harm the stability of the overall infrastructure. With that and other risks in mind, LERG also decided to set up a second data centre, as their backup and recovery site.

At that point in time, a much higher level of availability for business continuity and the integration of flash based solid state disks (SSD) for higher performance were not the expectation based on what they knew and had experienced in terms of costs. That all changed when Komtech Infrastruktura entered the scene.

This local IT service provider focuses on security and business continuity and had worked for several years with DataCore’s storage virtualisation products. But the Komtech experts did not only offer a product, they introduced a different approach to solve LERG’s challenges: an automated high availability concept in a stretched cluster that would span the 2 data centres, at a lower price point than the originally envisioned offline replication scenario. This concept was based on a hyper-converged data centre solution supported by DataCore Virtual SAN software. After a couple of workshops, a live demo at Komtech’s lab, and further evaluations, Andrzej Nalepa, IT Manager, recommended this innovative solution.

Komtech was able to replace the external HP storage array, three VMware servers and the Linux machine with a single HP Proliant server at each data centre site, each with enough internal hard disk drives (HDD) to meet their capacity growth needs, connected via 10 Gbit/s iSCSI. By reducing the
"In environments with multiple application servers, the DataCore Virtual SAN is a great and cost effective alternative to physical SANs. It combines DataCore’s core technology for storage virtualisation and provisioning, high availability and performance gains in a very effective manner to support VMware and other hypervisors."

hardware footprint from 5 to 2 systems and implementing the cost effective DataCore solution, LERG was also able to implement a Solid State Disk (SSD) directly into the servers. On this hardware resides VMware ESXi 6.0 as hypervisor to deliver virtual machines for Windows applications like Exchange, Web, Domain or File Services as well as their more critical Linux-based ERP systems using Oracle.

Moreover, the DataCore Virtual SAN software added several key features to the converged server and storage solution. For true high availability the system synchronously mirrors all data between the sites. The virtualisation servers with distinct sets of disks both add performance in standard operation. In case one site goes down, the software ensures business continuity by an automatic failover and automatic resynchronisation (auto failback), without any manual action required by LERG’s IT staff. The “stretched” VMware clusters now physically run on two separate data centre sites in an active-active configuration, both providing capacity as well as performance to the productive systems. DataCore virtualises HDD and SSD capacity and manages a virtual pool, providing the virtual machines with much higher performance virtual disk capacity.

The installation of DataCore immediately alleviated the previous I/O bottlenecks, as multiple VMs running on the same physical servers could now access a readily available shared pool of storage. The DataCore Virtual SAN uses CPUs and memory as high speed cache - automatically optimising read and write traffic - and I/O throughput is dramatically increased.

In the back office, management under one single management console is also significantly easier for LERG’s IT staff, with a central operational view of distributed resources on the SAN. Provisioning new VMs therefore becomes clicks away and non-disruptive, as does maintenance tasks, which can now be planned, co-ordinated and performed by switching between nodes, meaning that no system downtime is required.

The hardware, vendor and platform independence of the Virtual SAN offers a maximum of investment protection, allowing capacity growth and performance whenever needed. The DataCore solution scales up to 64 nodes; scales out into a SAN infrastructure and supports both iSCSI and FC. In the case of increased performance or capacity requirements, LERG now has the freedom in hardware choice or the underlying hypervisor platform.

"By implementing DataCore Virtual SAN we were able to benefit from more stability, higher productivity and cost efficiency," concluded Adam Bek. "In comparison to alternative concepts which were just a refresh, Komtech’s solution based on DataCore resulted not only in new equipment that was more productive but for a similar price - we were also able to modernise the IT architecture, consolidate to fewer systems and add more functionality and performance."

More info: www.datacore.com
HYBRID CLOUD ARCHITECTURE HAS BEEN A WHILE MATURING, BUT NOW OFFERS BUSINESSES UNPARALLELED FLEXIBILITY, ROI AND SCALABILITY. ANDREW STUART, MD FOR EMEA AT DATTO, ARGUES THAT THE SMALLER THE BUSINESS, THE MORE VITAL THESE TRAITS ARE - MAKING HYBRID CLOUD THE NUMBER ONE CHOICE FOR SMES IN 2016

It's been more than two years since Gartner predicted that, by 2017, 50 per cent of enterprises would be using a hybrid of public and private cloud operations. This prediction was based on growing private cloud deployment coupled with interest in hybrid cloud, but a lack of actual uptake - back then in 2013. 'Actual deployments (of hybrid cloud) are low, but aspirations are high', said Gartner at the time.

It's fair to say that Gartner's prediction has been borne out, with hybrid cloud services rapidly becoming a given for a whole range of businesses, but perhaps less predictably the value of hybrid is being most felt in the SME sector, where speed, ROI and overall flexibility are most intensely valued. As enterprise data requirements continue to rocket - indeed overall business data volume is growing at a rate of more than 60 per cent annually - it's not hard to see why this sector is burgeoning.

DATA PROTECTION IS NO LONGER OPTIONAL

Across the board, from major corporations through to SMEs in particular, there's now clear recognition that data protection is no longer merely a 'nice-to-have', it's a basic requirement for doing business. Not being able to access customer, operational or supply-chain data for even short periods can be disastrous, and every minute of downtime impacts on ROI. Critically, losing data permanently threatens to damage operational function, as well as business perception.

The latter point is particularly important in terms of business relationships with suppliers and customers that may have taken years to develop, but can be undone in the course of a few hours of unexplained downtime. It's never been easier to take business elsewhere, so the ability to keep up and running irrespective of hardware failure or an extreme weather event is essential.

SPEED AND COST BENEFITS COMBINE

Perhaps the most obvious benefit of hybrid cloud technology (a combination of on-premises and off-premises deployment models) is that SMEs are presented with enterprise class IT capabilities at a much lower cost. SMEs that outsource the management of IT services through Managed Service Providers (MSP) pay per seat, for immediate scalability - and what's more avoid the complexity of managing the same systems in-house. This model also avoids the requirement for capital investment, allowing SMEs to avoid large upfront costs, but still enjoy the benefits - such as data protection in the example of hybrid cloud data backup.

The considerable upside of the hybrid model is that where immediate access to data or services is required, local storage devices can make this possible without any of the delay associated with hauling large datasets down from the cloud. SMEs in particular are affected by bandwidth concerns as well as costs. In the event of a localised hardware failure or loss of a business mobile device, for example, data can be locally restored in just seconds.

UNBURDEN THE NETWORK

Many hybrid models use network downtime to backup local files to the cloud, lowering the impact on bandwidth during working hours, but also ensuring that there is an off-premises backup in place in the event of a more serious incident such as extreme weather, for example.

Of course, this network management isn’t a new idea, but with a hybrid cloud setup it’s much more efficient: for example, in a cloud-only implementation the SMEs server will have an agent or multiple agents running to dedupe, compress and encrypt each backup, using the server’s resources. A local device taking on this workload leaves the main server to deal with the day-to-day business unhindered, and means that backups can be made efficiently as they’re required, then uploaded to the cloud when bandwidth is less in demand.
"The considerable upside of the hybrid model is that where immediate access to data or services is required, local storage devices can make this possible without any of the delay associated with hauling large datasets down from the cloud. SMEs in particular are affected by bandwidth concerns as well as costs. In the event of a localised hardware failure or loss of a business mobile device, for example, data can be locally restored in just seconds."

Of course, since Gartner’s original prediction there has been considerable consumer uptake of cloud-based backups such as Apple’s iCloud and Google’s Drive, which has de-stigmatised the cloud and driven acceptance and expectations. SME’s have been at the forefront of this revolution, making cloud technology far more widely accepted as being reliable, cost-effective, low-hassle and scalable. The fact that Google Apps and Microsoft Office 365 are both largely cloud-based shows just how the adoption barriers have fallen since 2013, which makes reassuring SME decision-makers considerably easier for MSPs.

**COMPLIANCE RESOLVED**

Compliance can be particularly onerous for SMEs, especially where customer data is concerned. For example, the global demands of a standard like PCI DSS demand specific standards of care in terms of data storage, retention and recovery. Hybrid solutions can help smooth this path by providing compliant backup storage off-premises for retention, protect data from corruption and provide a ‘paper trail’ of documentation that establishes a solid data recovery process.

**GOOD NEWS FOR MSPS**

Finally, hybrid cloud offers many benefits for the Managed Service Provider, delivering sustainable recurring revenues, not only via the core backup services themselves, which will tend to grow over time as data volumes increase, but also via additional services. New value-add services might include monitoring the SME’s environment for new backup needs, or periodic business continuity drills, for example, to improve the MSP’s customer retention and help their business grow.

More info: www.datto.co.uk

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**INTRODUCING SIRIS 3: SUPERIOR DATA PROTECTION FOR ANY DATA ON ANY DEVICE**

Datto recently announced the new SIRIS 3 high performance appliances - the SIRIS 3 Virtual service which can be deployed across a wide range of leading hypervisors, and the new SIRIS 3 Imaged service (previously GENISIS), a conversion tool that instantly turns non-Datto BDR devices and other servers into a SIRIS appliance. The SIRIS 3 software comes standard with the purchase of any new SIRIS 3 service effective immediately, and will be available as a free upgrade for all SIRIS 2 appliances shortly.

The SIRIS 3 platform includes agentless backups for systems running VMware hypervisors, new agent technology to support both Linux and Apple Mac endpoints, diskless restores, the addition of rich NAS and iSCSI support, hybrid virtualisation (previously only available on the Datto ALTO), and Linux backup screenshot verification. Datto’s SIRIS 3 appliances come with 10 gigabit ethernet interfaces and the latest generation of Intel XEON CPUs for increased performance as well as IPMI across the entire range. In addition, Datto is upgrading SIRIS 3 to Ubuntu OS 16.04 and to the KVM hypervisor, another industry first, which brings both performance and security enhancements.

Plus, SIRIS 3 features Datto’s proprietary technology, such as Inverse Chain Technology (which eradicates the possibly of a broken back chain), and Instant Virtualisation, which can take as little as six seconds.

Additionally, Datto has also released the SIRIS 3 X1 as an all-flash business continuity solution. It comes in a very powerful yet small form factor and supports all the advanced SIRIS 3 functionality. The X1, with a 1TB solid state drive and 16 gigabytes of RAM, can perform local virtualisation directly on the appliance. And the X1 incorporates the new NAS shares, iSCSI Boot, Linux and Mac agent support, and even the Infinite Cloud Retention long term storage offering.
One of the UK’s iconic high-street brands, Marks & Spencer (M&S) has over 850 stores in the UK, generating sales of £10.3 billion, with food accounting for over 50% of its turnover. Consumers expect the highest standards from M&S in terms of quality, value and service, and that the right products are on the shelves every day. Growing sales at M&S support its belief that ‘it is newness and innovation that makes M&S food special’, and they can launch over a thousand new products in a year. Naturally, replenishing stock for successful and seasonal products is even more important: For example, fast reporting and replenishment was essential for M&S Belgian Chocolate Jaffa Sphere one of its fastest-selling desserts ever, which sold over 170,000 units in just six weeks.

TIGHT DAILY DEADLINE
Each store reports its daily sales, and the data is then analysed overnight to provide the replenishment orders to be sent out to each supplier. Replenishment orders must be sent by 5:15 a.m. to give suppliers enough time to ensure stock is delivered to refill the shelves across the UK. As sales volumes grew, the time taken to process the sales figures overnight to produce the next-day supplier orders gradually took longer and longer, getting dangerously near the deadline.

Head of Operations at Marks & Spencer, Mark Dickson reports, "While we had never actually missed the target, we had less and less room to adapt. If we had experienced a technical challenge, we had almost no time to recover the overnight batch tasks, and sending supplier orders at 5:15 a.m. or earlier is absolutely critical for our business."

With an IT infrastructure that had grown in size and complexity, M&S identified data storage and management as a critical area that could impact overnight batch processing. How could the IT division optimise technical performance to help ensure that the M&S food stores continued to get the right foods on the right shelves at the right time, never disappointing a customer, especially during peak season?

The existing data storage landscape at M&S provided support for almost all production, development and test environments. From website to finance, food to supply chain, multiple business units placed competing demands for performance and capacity.

COMPLEXITY ISSUES
Storage Governance Manager at Marks & Spencer, Alex Ling explains, “As new storage devices and systems had been added,
complexity became a significant challenge to performance and overall stability. With order processing running so close to the deadline, we could not afford any kind of outage or slowdown, which represented a considerable business risk. Additionally, complex systems are hard to manage, and as a result operational costs were starting to rise.”

Ling continues, “At the business level, M&S always looks to control its operational costs. If we knew which systems were costly to operate and support, and allocated expenses accordingly, we could direct investments and resources more effectively. The existing environment did not provide the detailed cost visibility we wanted, limiting our ability to understand, adjust and optimise operations,” he explains. “We set out strategic goals to improve manageability and embed stability, at reduced capital and operational cost, based on a simplified storage landscape that would offer greater cost visibility.”

COST-EFFECTIVE IN THE LONG TERM

M&S looked at simply increasing capacity on existing systems through to complete reform of the data storage infrastructure. With long term business simplification in mind, M&S wanted to reduce complexity, increase total capacity and performance, and cut both device acquisition costs and operational costs.

After careful consideration, M&S selected two Hitachi Virtual Storage Platform (VSP) G1000 systems with hybrid flash, capable of replacing multiple devices throughout the systems infrastructure. The VSP G1000 models provide immense scalability combined with very high storage performance, based on a clean systems architecture that helps to cut operational costs.

Head of Infrastructure Operations at Marks & Spencer, Chet Patel remarks, “We knew what our requirements were, and that the VSP G1000 systems were the standout products that could satisfy those needs. Working with our systems integration partner, Tata Consultancy Services, we established that the VSP G1000s could meet our cost, performance and capacity targets. The major challenge was migrating data safely, securely and without any business interruption.”

M&S created a shared program team, combining its own in-house business expertise with implementation and migration experts from Hitachi Data Systems Global Services, with additional support from Tata Consultancy Services.

GOOD HOUSEKEEPING

“As a team, we moved the entire storage workload on time, on budget, with no business interruption. During the process, we identified multiple areas for further rationalisation and consolidation, and completed ‘good housekeeping’ tasks that helped to further simplify the storage landscape. With help from HDS, we have cut the existing device footprint by around 75%, and saved power, cooling and data centre space.”

Over a period of six months, the program included migration of around 750TB of data, accessed by 6,000 virtual machines and 180 IBM AIX logical partitions. With the VSP G1000 solution fully live in good time for Christmas 2015, the question was: Would all the food be delivered on time, every time?

Dickson comments, “Not only did we deliver food orders on time every day with the HDS solution, but also the hugely improved technical performance meant that processing overnight food orders regularly beat the deadline by over two hours, a 35% improvement. For our foods business, this released critical contingency time for the suppliers and logistics teams to manage any unforeseen operational issues, greatly reducing business risk and potential food wastage.”

He concludes, “Migration to the HDS solution has reduced our storage acquisition costs by more than 30%, and reduced our storage related operational IT expenses by more than 50%. The simplified landscape is easier to support and manage, yet at the same time delivers increased performance and capacity.”

More info: www.hds.com
According to the results of 451 Research’s latest Voice of the Enterprise survey, IT organisations are embracing a range of new, Flash-optimised architectures as they continue to transform their storage infrastructures. Overall, almost 90% of organisations now have some form of Flash-based storage installed in their data centres, while ‘all Flash’ approaches are becoming increasingly standard to support transactional applications.

Key insights from the study include:

- The most common method for deploying data centre Flash is as a tier in a hybrid SAN array, with just over half (51%) of organisations citing this implementation method as in use today, and a further 29% planning to deploy Flash as a tier in the next two years.
- However, All-Flash Array (AFA) adoption is growing most rapidly, with 27% of enterprises having deployed this technology already, and a further 28% planning to deploy an AFA within the next two years.
- Three-quarters of AFA deployments support multiple applications, with only a quarter supporting single applications. The top two use cases for AFA deployments are databases and virtual desktop infrastructure (VDI), while data analytics is expected to be a top two use case within two years.
- Data-optimisation efficiencies such as deduplication and compression are in use by a majority of organisations that have deployed Flash; most respondents - 59% - said they gained between 2x and 5x space savings from using these technologies.
- The traditional storage vendors, led by EMC, dominate the AFA market today, though smaller specialists such as Pure Storage are still proving popular; a quarter of respondents say they are considering buying Pure Storage in 2016.
- A sizeable minority of organisations - 19% - is aggressively embracing Flash-based storage to the extent that these organisations have already - or will have over the next two years - entirely replaced HDD technology for SAN-based storage workloads.
- However, cost was highlighted as the largest single barrier to broader AFA adoption, with 51% saying AFAs are too expensive. A further 47% said their existing storage performance was sufficient as a reason for not purchasing an AFA.

“Organisations of all sizes are looking to transform their storage infrastructures to drive both improved performance and efficiency, and Flash-based approaches are at the heart of this transformation,” said Simon Robinson, Research Vice President at 451, and Research Director of the Voice of the Enterprise: Storage service. “While all-Flash approaches have gained substantial momentum in recent years and will continue to grow in popularity, it’s also clear that many prospective buyers still view these solutions as cost-prohibitive. We expect these barriers to erode over time, but most enterprise decision-makers will continue to use a blend of Flash and HDD-based storage technologies for the foreseeable future.”

The Voice of the Enterprise: Storage study focuses on end-user trends in enterprise storage. Based on research conducted with over 1,000 IT professionals worldwide, the quarterly study combines 451 Research’s analysis with responses from a panel of more than 30,000 senior IT buyers and enterprise technology executives. The Q1 survey focuses on storage workloads and key projects.

More info: www.451research.com
The next four years will see the addition of between 40 to 60 zettabytes of new data to the digital information burgeon. Each zettabyte equals 1000 exabytes or one billion terabytes. That’s a lot of bits, and they’ll all be seeking a home that is durable and affordable. So what are the options for storing all of these zettabytes?

Disk storage is no longer growing its capacity at a sufficient rate or with the affordability characteristics that will make it suitable for zettabyte storage, at least according to Microsoft. Moreover, even as innovations come on line to expand capacity, the total manufacturing capability of the disk industry will not be able to keep pace with data growth.

So, we are left with one remaining digital medium to catch the tremendous influx of data that analysts are predicting. That medium is tape. Here are five reasons why tape storage is the best way to manage the coming zettabyte apocalypse:

1. Tape ‘plays nice’
   Tape is a technology that has been relegated to the history books many times, but it continues to enjoy fairly widespread adoption. Two of the three “industrial farmers” of the Cloud world, Google and Microsoft, admit to using tape in their storage infrastructure and to having big plans for tape storage going forward. So, increasingly, when you talk cloud storage, you will likely be talking about tape.

2. Tape is resilient
   The problems that most anti-tapers cite when deriding the technology are mostly misguided. Contrary to the hyperbolic (and now recanted) statements of analysts in the late 1990s, tape is not more prone to failure than other storage media and is, in fact, among the most resilient. With a non-recoverable bit error rate that is an order of magnitude less than SATA hard disks and on par with the best flash memory in the market today, tape is very reliable. And because of improvements in substrate materials and coatings, the durability of tape storage is about 30 years - much more than flash, disk or optical.

3. Tape is growing in capacity
   Tape storage is growing its capacity by leaps and bounds. Owing to Barium Ferrite (BaFe) coatings, which replace metal particle tape coatings of the past and enable a variation of perpendicular magnetic recording on tape media that rivals PMR on disk, tape has a long runway of capacity improvements ahead. The Linear Tape Open (LTO) roadmap currently goes out to 120TB of compressed capacity per tape. This is actually a modest projection since demonstrations have been made of BaFe cartridges with 220TB raw (uncompressed) capacity within the last year, courtesy of Fujifilm and IBM.

4. Tape is enhanced with LTFS
   Tape technology has been further enhanced by the Linear Tape File System (LTFS) technology from IBM, which has been standardised by the Storage Networking Industry Association. LTFS provides a way to bridge transparently the file systems (and object storage systems) of the flash and disk world to tape, enabling files and objects to be stored to and retrieved from tape in much the same way as they are from a USB drive or disk drive. This usability improvement mitigates the retraining requirements that may be created by reintroducing tape into a central storage role. It also helps to eliminate the need for problematic backup software which has long been the source of the acid indigestion that operators blamed on tape technology to begin with.

5. Tape will be required
   If zettabytes are to be stored cost-effectively, tape will be required. This simple conclusion has been reached by leading cloud vendors and by a growing number of enterprises, especially those considering hybrid cloud architectures (“build your base, buy your burst” applied to storage and processing technology). Only tape can be manufactured in sufficient quantity to handle a 40 to 60 ZB spike in storage capacity demand by 2020.

More info: www.ironmountain.co.uk
How confident would you be of a successful moon landing if the mission was controlled solely by a single smartphone? It seems incredible, but the Apollo Guidance Computer in the Apollo 11 command module (which in 1969 achieved the first moon landing) had just 64kb of memory and operated at 0.043MHz.

In comparison an iPhone 5s has a CPU running at speeds of up to 1.3GHz and 1GB of RAM; more than enough to store the 6MB of code NASA developed to monitor the status of its spacecraft and astronauts in 1969. This is just one of many comparisons that show just how fast and how far computing power, speed and capacity have developed over the past few decades.

But we know that: we know our smartphones are, well, smarter than the room-sized mainframes of the 1960s. We know our tablets have greater processing speeds than the most cutting-edged PC of the 1980s. And we know our smart watches have greater data storage capacity than the standard office desktop of the 1990s.

Speed, storage and size: they have all been top of the developmental agenda as technology has continued to innovate. Concepts such as big data, cloud computing, interconnectivity, super-fast networks and artificial intelligence (AI) have all emerged as a result, but have all, until now, been viewed in relative isolation.

It's where a plethora of smart devices create, collect, collate, share and sync data with each other and, crucially, with no human input whatsoever.

This smart data leads to smart decisions being taken by smart devices. From the micro (such as ingestibles - digital pills that we swallow and which, using wireless technology, monitor internal reactions to medications) to the macro (smart cities where data from driverless cars is used in real time to manage traffic flows) these devices, driven by super-smart and super-small processors, are playing a far more proactive part in our lives.

They have sensors that can measure a wide range of variables such as humidity, pressure, proximity, light, gravity, temperature, motion, activity, velocity and sound. Based on this data, they can assess the condition of machinery, load, pressure, force and biological, chemical and organic activity. This information is stored and shared over the internet.

That, in itself, is revolutionary enough. But add in artificial intelligence (the name
"Speed, storage and size: they have all been top of the developmental agenda as technology has continued to innovate. Concepts such as big data, cloud computing, interconnectivity, super-fast networks and artificial intelligence (AI) have all emerged as a result, but have all, until now, been viewed in relative isolation. What's changed? The Internet of Things; where all these big issues fit neatly together under one banner."

given to the way computing power has evolved to be able to learn from its own past actions) and machines that can think, act, innovate and decide on their own are just around the corner. AI is the biggest disrupter that will drive the IoT. In the next five to ten years, according to Facebook's Mark Zuckerberg, computers will be better at the core human competencies of seeing, hearing and language than we are.

THE FOUR PILLARS OF WISDOM
The four cornerstones of this smart device collaboration that is the Internet of Things are cloud, connectivity, digitisation and data. According to a Verizon report published earlier this year: "IoT encompasses almost everything that's digitally connected on the planet. Whether it's sensors in soil to monitor moisture, cameras at road intersections to monitor traffic, or flow meters in a pipe to monitor oil distribution, they are all generating data. With a little bit of analytics on top of that data layer, consumers, business owners and enterprises can understand their respective environments. And taking that one step further, they can even influence those environments so that the soil can be watered if too dry, the traffic flow can be diverted if there's an accident, or the flow valve can be turned off if oil prices drop below a certain value. This is the complexity of the vast IoT ecosystem."

As the communication is via the internet, data transfer speeds are a key component. 5G super-fast data transfer will boost the growth of IoT with its near-instant sending and receiving of data. We should start to see 5G by 2018 and many expect it to be commercially available by 2020. Such is the expected growth in IoT devices that Ofcom, the telecoms regulator in the UK, has earmarked a portion of the VHF spectrum for IoT capacity, while Cisco has predicted that data created by devices that make up the Internet of Things will reach 507.5 Zettabytes (ZB) per year by 2019 - up from 134.5 ZB in 2014.

OPPORTUNITY KNOCKS
Aside from faster, real-time analytics and improved performance, this will lead to many business opportunities in areas such as supply chain management, security and surveillance, automation, tracking and analysis. By 2020, the IoT is expected to have a market greater than $1trillion.

All this data will need to be collected and stored while it is being processed and analysed. That's why data centres increasingly turn to us at Hammer, the award-winning, specialist value-add distributor with 25 years’ experience in data storage, servers and end-to-end IT solutions.

This is a huge opportunity for Hammer's customers; this is not new technology replacing old, but a whole new development; the Internet of Things will generate a vast number of new business opportunities, allowing channel partners to increase their revenues and profits.

There will be certain environments where local infrastructure is required prior to data being migrated to the cloud. The opportunities will most likely initially centre on vertical markets such as house developers (who increasingly are incorporating smart metering into new builds) and utility companies (always seeking ways to monitor usage and reduce waste).

Vendors such as Dell OEM are already working on specific IoT offerings including industrial-grade PCs and gateway systems that connect various wired and wireless devices, aggregate and analyse the data and send it on. Because the gateway sits close to devices and sensors, it sends only meaningful data to the cloud or control centre, saving expensive bandwidth.

With our world-class portfolio of vendors and offices across Europe, Hammer is well-placed to help resellers identify these opportunities, to develop their offering and skill sets and so make the most of what, undeniably, will be a great business growth opportunity.

More info: www.hammerplc.com
HERE COMES THE RAIN (AGAIN!)
A TORRENTIAL SUMMER NIGHT DIDN’T DAMPEN THE ENTHUSIASM OF THE ATTENDEES AT THE 13TH ANNUAL STORAGE AWARDS IN JUNE

We’ve never yet had to call off a Storage Awards night because of the weather, but this year came pretty close - hot days beforehand had given no warning of the heavy rain that hammered down on London’s Grand Connaught Rooms for the whole evening. But despite a few spoiled hairdos and squelching shoes, the audience didn’t let the weather impact on their night: as ever the evening was hugely enjoyable and revellers carried on into the (slightly damp) night.

Big winners this year included Company of the Year Netapp and Product of the Year winners Tintri, while the Editor’s Choice this year was split into two categories, Product (won by SanDisk for its InfiniFlash 150) and Vendor (won by Veritas). The full list of winners and runners-up is below.

www.storageawards.com

Storage Magazine “One to watch” Award – Product

WINNER: Kaminario K2 All Flash Array
RUNNER UP: Cloudian HyperStore

“Winning the ‘One to Watch’ Award for our K2 all-flash arrays is a great achievement for Kaminario. We only launched in EMEA under a year ago so it is fantastic so see Kaminario K2 already being recognised as a disruptor in the UK market. We were also nominated in 10 other categories - clearly flash arrays are no longer a niche product, and we’re proud to be leading the way in the flash revolution.”
Mick Bradley, VP & General Manager EMEA, Kaminario

Storage Magazine “One to watch” Award – Company

WINNER: Datto
RUNNER UP: Kaminario

Datto is an innovative provider of comprehensive backup, recovery and business continuity solutions used by thousands of managed service providers worldwide. Datto’s 200+ PB private cloud and family of software and hardware devices provide Total Data Protection everywhere business data lives. Whether your data is on-premises in a physical or virtual server, or in the cloud via SaaS applications, only Datto offers end-to-end recoverability and single-vendor accountability. Founded in 2007 by Austin McChord, Datto is privately held and profitable, with venture backing by General Catalyst Partners and Technology Crossover Ventures.
http://www.datto.co.uk

Storage Magazine “Value for Money” Award

WINNER: ExaGrid - EX40000E Appliance
RUNNER UP: Infortrend

“Being honoured with the ‘Value for the Money’ award is fantastic recognition of the industry-leading price/performance of ExaGrid’s EX40000E appliance,” said Andy Walsky, ExaGrid’s VP of EMEA Sales. “Organisations continue to tighten their IT budgets and mandate that staff do more with less. From our base of over 10,000 installations and hundreds of partners, we’re consistently hearing that customers choose ExaGrid over other systems for its unique architecture that delivers faster backup and restore performance, VM boots in seconds to minutes, cost-effective scalability, and all-around superior value.”
Storage Marketing Team of the Year

**WINNER: CMS Distribution**

“We are very proud to win Marketing Team of the Year for the second year running! The Marketing Team at CMS Distribution is extremely passionate about growing the business for our vendors and resellers, so it is fantastic that all the expertise and hard work has been recognised by Storage Magazine readers and the UK Channel. We regularly achieve record breaking results for our end user and reseller marketing campaigns which we believe is a key differentiator between us and our competitors, so if you haven’t engaged with us yet, then please do so and we will be happy to help you too!” Julia Radtke, Marketing Director, CMS Distribution

**RUNNER UP: SUSE**

Connectivity Product of the Year

**WINNER: QLogic 27xx Gen 6 (32Gb) Fibre Channel Adapters**

The new QLogic 2700 Series Gen 6 Fibre Channel Adapters accelerate enterprise applications, deliver a highly resilient infrastructure and optimise IT staff productivity.

“Fibre Channel is an inherently secure and reliable data network,” said Vikram Karvat, vice president of products, marketing and planning, QLogic. “The new QLogic Gen 6 Fibre Channel Adapters build on this foundation, delivering unsurpassed value by enabling enterprise applications to meet peak demand, minimising downtime, and further simplifying Storage Area Network (SAN) administration. Additionally, as we look forward, the industry is defining Gen 7 Fibre Channel, providing continued investment protection to enterprise data centres for many years to come.”

**RUNNER UP: Brocade**

Storage Magazine Service to Industry Award

**WINNER: Richard Massey, Arcserve**

“It was a great surprise, but also great honour to win this award, especially seeing the shortlist of industry veterans up for the award. Does this make me old?” joked Richard of his win. “I’ve been a regular at the Storage Awards for the last 10 years, which also coincides with me celebrating my 10th Anniversary at Arcserve so it was great recognition for the work I’ve been doing with customers and partners all over the UK. In that time, I have gone from managing partners to managing all the Arcserve Business in the North of the UK and Ireland. It was fantastic to win this for myself and for a growing company in the data protection market like Arcserve.”

**RUNNER UP: Bob Aitchison**

Channel Excellence Award

**WINNER: Commtech, William Bond**

William (Billy) Bond has been in the IT Channel for over 23 years. This award highlights the impact Billy has truly had on his partners and vendors over this time. Commtech have built Value Added Distributor focusing on delivering emerging technologies to our partners over the past 4 years. Billy’s `value added` knowledge of the storage market has enabled Commtech to deliver significant growth to some of the largest resellers in the UK.

Billy and Commtech are very proud of this achievement and see it as an endorsement of the work they have done and acknowledgement that when it comes to supporting the channel with incremental business there is only one place to go.

**RUNNER UP: Vince Blackall**
European-based Pharmaceutical Company, Allergy Therapeutics, engaged Trusted Partner NCE when looking to implement a SAN solution. Working in partnership with DataCore & Quantum, NCE designed, provided and support a scalable solution that combines performance and capacity. SANsymphony-V from DataCore features True Synchronous Real-time Replication and Automated Storage Tiering whilst the QXS Hybrid Storage architecture from Quantum supports both SSD and HDD technology providing a both a commercially and technically blended approach to the underlying storage platform. The solution captured the eye of the panel of judges at the Storage Magazine and represents the diversity and flexibility that NCE provide.

WINNER: DataCore / NCE / Quantum - Allergy Therapeutics
RUNNER UP: Pure Storage

We are thrilled with this recognition which further strengthens our unique Data Protection Plus solution within the storage arena. Thank you to everyone who voted for Barracuda Message Archiver. Protect your most important business files, emails and applications with Barracuda’s cloud-connected, mobile-enabled storage technologies which are designed to simplify IT, and provide “Data Protection Plus” enabling users to work more efficiently wherever they are.

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Data protection is paramount for any business and access to data is one of IT’s biggest challenges. Barracuda’s Message Archiver, part of the Data Protection Plus, reduces cost and risk and enhances productivity enabling you to simplify user access, email and instant message management, and eDiscovery/compliance. Users can search and retrieve archived messages anywhere, anytime.

WINNER: Barracuda Networks - Barracuda Message Archiver
RUNNER UP: Commvault

“As the global leader in data storage solutions, Seagate develops amazing products that enable people and businesses around the world to create, share and preserve their most critical memories and business data. Our continuous investment into current and future storage technologies means we can offer our customers the most innovative and broadest range of products to store, access and get more value from their precious data,” said Andrew Rayment, Sales Manager Northern Europe at Seagate. “We are honoured to see this recognised by Storage Magazine’s readers and would like to thank them for this Innovators Award. The accolade further validates the technology advantages in the products we bring to market.”

WINNER: Seagate
RUNNER UP: Pure Storage

Arcserve Unified Data Protection (UDP) just got even better! We are thrilled to have won Data Protection Product of the Year by Storage Magazine readers, as this highlights our strong technology offering in the backup and disaster recovery market.

Arcserve UDP already encompasses global deduplication, encryption and WAN-optimised replication, the new Arcserve UDP generation offers even more, helping organisations enrich their backup and recovery experience.

Arcserve Unified Data Protection (UDP) Appliance and Arcserve Cloud is the latest addition to the Arcserve UDP solution introducing the first “set and forget” UDP appliances; featuring Assured Recovery. We’re not just another backup solution - we’re data protection made simple!

WINNER: Arcserve - Unified Data Protection (UDP) v6
RUNNER UP: Commvault
IP EXPO EUROPE
5-6 October 2016, ExCeL London

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SUSE is delighted to won the “Availability Platform of the Year” award for 2016. SUSE Enterprise Storage, powered by Ceph, is the highly scalable and resilient software-defined storage (SDS) solution that delivers cost-efficient and highly scalable storage using commodity off-the-shelf servers and disk drives. As businesses evolve in today’s hi-tech business world, coping with the sheer volume and growth of data, while not exceeding the IT organisations budget, is proving to be a significant challenge. SUSE Enterprise Storage is helping customers meet that challenge with a self-managing, self-healing and highly-trusted open source storage cluster.

All of us here at Virtual Instruments are very happy with being awarded Storage Monitoring Product of the Year, 2016, for the Load DynamiX Product Suite. Being able to look at workloads of applications and how they perform on different platforms is a huge cost and time saving in Vendor selection, in purchase validation, in right sizing and right tiering, in change management performance impact and in matching customer needs and SLAs with the right storage platforms.

Go Daddy reduced their unit storage costs by 65% over 2 years by implementing LDX methodology across their business.

We’re delighted to receive this award, which recognises our long history of leadership in object storage innovations as well as delivering proven, mature solutions that are meeting the rapidly growing requirements of users. Earlier this year we announced a year of unprecedented growth in the usage of our advanced WOS object storage platform.

In less than a year, use of DDN’s object storage solutions have grown by more than 150 percent to over 500 billion objects in production. With a relentless commitment to continual development, our latest WOS release provides users with even greater network efficiency for data sharing, enhanced data durability and accessibility options across industries from media and entertainment to research, life sciences and education.

Pivot3’s patented solutions dramatically improve data centre simplicity and economics by increasing scale-out performance, driving down complexity and cost, saving an extraordinary amount of disk and physical space and ensuring fault tolerance. The award comes on the heels of three recent awards that recognize Pivot3’s innovation in HCI solutions for enterprise IT and security applications. Pivot3 provides these solutions to more than 2000 customers in 53 countries. For more information about Pivot3’s solutions, visit pivot3.com.
Disk/Hybrid Product of the Year

WINNER: Infortrend EonStor GS

“The Infortrend EonStor GS Family is built for excellence and we are very honoured to receive this award,” said Teddy Lin, General Manager of Infortrend Europe Ltd.

EonStor GS cloud integrated unified storage features powerful SSD Caching that can automatically allocate hot data to the SSD cache pool. It has 4 tier levels of automated storage tiering to fully leverage the benefits of different drive types.

The EonStor GS family offers outstanding performance, amazing cache capacity, excellent flexibility, and is cost-effective while providing our customers with the best hybrid storage experience.

RUNNER UP: Boston

Flash/SSD Product of the Year

WINNER: Pure Storage //m20 All Flash Array

We’re delighted to have won the Flash Product of the Year award. It’s recognition that businesses throughout the UK and Europe, including YouGov and Waitrose, already understand the difference Pure Storage FlashArrays can make to their businesses.

It’s a successful and disruptive Flash storage product which is disrupting the enterprise storage industry at an unprecedented rate. FlashArray, FlashBlade, and Pure 1 together create the very first radically simple, yet complete all-flash cloud storage platform for the datacentre. It’s the latest innovation in all-flash, and is as attractive to customers as our Evergreen Storage model.

RUNNER UP: SanDisk

Cloud Enabler/Provider of the Year

WINNER: SUSE

SUSE is thrilled to have won the “Cloud Enabler of the Year” award for the second year running. SUSE OpenStack Cloud is the open source private cloud solution of choice for the enterprise, providing the agility and innovation needed to quickly respond to today’s business demands. Designed for fast deployment and enhanced high availability, it also has the widest hypervisor choice and broadest interoperability on the market.

SUSE is a proven industry leader with a reputation for engineering excellence in delivering open source enterprise solutions with outstanding support - the ideal partner for your cloud platform.

RUNNER UP: Barracuda

Cloud Product of the Year

WINNER: Cloudian HyperStore

Cloudian HyperStore object storage enables enterprises and solution providers to build full-featured, Amazon S3-compatible cloud storage, on-premises, utilising stand-alone software, or fully integrated Cloudian HyperStore appliances. It incorporates innovative automation for data storage management so enterprises and solution providers can simply and cost-effectively manage petabyte-scale data volumes. With its enhanced data management features, including unique proactive repair, and Amazon S3 cross-region replication for disaster recovery, as well as smart storage analytics, HyperStore transforms the data centre for a fraction of the cost of other object storage offerings. Cloudian would like to thank everyone who voted for Cloudian HyperStore for Cloud Product of the Year.

RUNNER UP: Veritas
Storage Service Company of the Year

WINNER: Q Associates

Q Associates enjoyed a highly successful evening at the UK Storage Awards 2016, held at The Grand Connaught Rooms, Covent Garden, scooping two of the top awards and being named Storage Services Company of the Year and Corporate Storage Reseller of the Year 2016. “This is a huge achievement for Q and a strong reflection of the excellent work that our services and support teams in Newbury and Newcastle are now delivering,” said Managing Director, David Cue. “These awards are particularly pleasing as they are voted for by the end-user customers. We are delighted that we have received these awards and would like to thank all of our customers and magazine readers who voted for us.”

Software-Defined Storage (SDS) Company of the Year

WINNER: DataCore

DataCore were thrilled to scoop the Software-Defined Storage Company of the Year award at the 2016 ceremony. It’s been a summer of success for the leading SDS company. Along with the coveted Storrie, DataCore’s announced a truly remarkable 5.1 million SPC-1 IOPS gained on the industry’s most respected head-to-head comparison - the Storage Performance Council’s SPC-1 benchmark - placing DataCore number one on the SPC-1 list of Top Ten by Performance. The independently-audited SPC-1 result confirms the product as faster than the previous top two leaders combined. Even more staggering, DataCore’s record-smashing results were achieved on a pair of standard Lenovo servers - connected by Fibre Channel to 12 external hosts.

Channel Partner Program of the Year

WINNER: Commvault

Commvault’s partners are fundamental to its business and recent enhancements to its PartnerAdvantage programme have provided profit-driving, differentiation with new channel packaged solution sets, and as-a-service enabling commercial options. The overall programme has been further enhanced with significant investment in new partner focused enablement portals that speed up partner branded campaign distribution, marketing support and planning, access to Commvault technical information, training, functionality and industry insight. These changes have been designed to assist the channel in their journey to be a more services-led and cloud centric models. Commvault would like to thank everyone who voted for them for Channel Partner Programme of the Year.

Bench Test Product of the Year

WINNER: EASY Software - EASY for Exchange

EASY SOFTWARE UK, Europe’s leading supplier of document management solutions, has once again triumphed at this year’s Storage Awards in the ‘Bench Test Product of the Year’ category with its EASY for Exchange solution. EASY for Exchange supports automatic, rule-based and user-centric archiving scenarios, and offers customers increased data security and compliance peace of mind - and by integration with the latest Microsoft technologies, it supports users in implementing comprehensive e-mail management and archiving solutions. Howard Freea, Director of Sales and Marketing at EASY, commented: “We’re thrilled to have won a prestigious Storrie Award for the tenth year running; we’d like to thank everyone who voted for us and, of course, everyone who uses our solutions.”
**Editor’s Choice - Product**

**WINNER:** SanDisk Infiniflash IF150  
We are delighted to be awarded the Editor’s Choice for the Infiniflash IF150 and would like to thank the Storage magazine editorial team and everyone for voting for us. This recognises our leadership and innovation in data centre storage. It also demonstrates how our Infiniflash systems are delivering massive capacity and performance at breakthrough economics for no compromise at petabyte scale for our customers and partners. We are proud of this achievement and are looking forward to continue to develop technology that improves performance, increases data access speeds while being cost effective for our customers and partners.

**RUNNER UP:** Kaminario

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**Editor’s Choice - Vendor**

**WINNER:** Veritas  
Barnaby Wood, Product Marketing Manager at Veritas: “We are thrilled to receive the ‘Editor’s Choice’ award from the 2016 Storage Awards. This latest win highlights our ability to deliver real-world value to our customers. In these increasingly complex IT environments, it’s important to focus on what’s constant: the data. Every one of our information management solutions - from business continuity to back up and recovery to software defined storage and information governance - is designed around the principle that information is more important than infrastructure. For 25 years and counting, we have the privilege to help the world’s organisations - including 86% of the global Fortune 500 - collect, protect, analyse and optimise their data, even in the most demanding environments.”

**RUNNER UP:** Pure Storage

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**Storage Virtualisation Product of the Year**

**WINNER:** FalconStor FreeStor  
FreeStor by FalconStor is a single software-defined platform which gives IT teams control of their storage across both legacy and virtual environments. FreeStor provides an organisation’s network with business continuity, optimisation, migration, protection, disaster recovery (DR) and predictive analytics. This allows IT managers to maximise storage utilisation and reduce costs while providing intelligent insight into operational efficiencies. The key to FreeStor is its intelligent abstraction layer that allows data to migrate to, from and across any platform, physical or virtual. FreeStor sits above hardware and through managing the data storage it allows organisations to avoid vendor lock-in, thereby reducing costs.

**RUNNER UP:** Datacore Software

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**Corporate Storage Reseller of the Year**

**WINNER:** Q Associates  
Q Associates enjoyed a highly successful evening at the UK Storage Awards 2016, held at The Grand Connaught Rooms, Covent Garden, scooping two of the top awards and being named Storage Services Company of the Year and Corporate Storage Reseller of the Year 2016. “This is a huge achievement for Q and a strong reflection of the excellent work that our services and support teams in Newbury and Newcastle are now delivering,” said Managing Director, David Cue. “These awards are particularly pleasing as they are voted for by the end-user customers. We are delighted that we have received these awards and would like to thank all of our customers and magazine readers who voted for us.”

**RUNNER UP:** PROACT
We are proud to have won this prestigious award within two years of our inception. It endorses our vision and strategy and tells the world it is working. The Specialist Storage Reseller landscape is fiercely competitive and to rise to the top in such a short space of time is what we have strived for.

Specialist Storage Reseller of the Year
WINNER: Epaton
RUNNER UP: Q Associates

Hammer is proud and delighted to have won the Storage Distributor of the Year award: we pride ourselves on setting the benchmark in value-add distribution, so appreciate the recognition by everyone who voted for us. Thank you! “Awards such as the Storries are a great way for us to highlight our deep market knowledge and show that even in today’s uncertain economic climate Hammer can, and does, offer a first-class service with world-class storage solutions,” says MD, James Ward. This August we celebrate 25 years in data storage, servers and end-to-end IT solutions, working with leading vendors and adding value across Europe.

Storage Distributor of the Year
WINNER: Hammer Plc
RUNNER UP: CMS Distribution

Tintri’s All-Flash T5000 Series is the flagship member of the company’s storage portfolio that allows organisations to see and therefore manage their entire virtual infrastructure at the virtual machine (VM) level. Built using the industry’s first VM-aware storage architecture, the T5000 Series is designed specifically to address the mismatch between virtualisation and legacy storage. It is the first all-flash VM-aware storage, offering up to 308 TB for 5,000 VMs in two rack units. The T5000 series was awarded Storage Product of the Year thanks to the support of Storage Magazine readers.

Storage Product of the Year
WINNER: Tintri T5000 Series
RUNNER UP: Datacore

Throughout the world, leading organisations count on NetApp for software, systems and services to manage and store their data. We help enterprises and service providers envision, deploy and evolve their IT environments. Customers also benefit from our open collaboration with other technology leaders to create the specific solutions they need.

Storage Company of the Year
WINNER: NetApp

Our team is passionate about customer success. Our company culture and work environment support that dedication. Together with our global network of partners, we are united in one goal: to help our customers achieve the outcomes that matter most to them.
Neil Armstrong’s “one small step” in 1969 marked a new era in space exploration. Most likely unbeknownst to Armstrong, another wave of change was underway in technology. The first hypervisor providing virtualisation had already debuted, and the first virtual machines were on their way.

You could be forgiven for thinking virtualisation is a modern concept, given its recent acceleration. The past four years have seen server workloads double, and this is only set to continue as the arrival of virtual machines cements them in the IT landscape.

While virtualisation was developing, storage was hot on its heels. The first disk array with integrated cache for the mainframe arrived in 1990, and kickstarted the billion-dollar market for disk-centric block storage. The versatility of block level storage made it usable for almost any kind of application, including file storage, database storage and virtual machine file system volumes.

With the explosion in data from digital cameras, camcorders, laptops and smartphones, file storage became more attractive because most users only needed a simple centralised place to store files and folders. In addition, NAS devices that save files on a file level provide a lot of space at a much lower cost than more complex block storage.

The limitations of block and file storage technologies were exposed by the arrival of server virtualisation as a mainstream technology in the enterprise and the rise of cloud technology. Designed for a physical world decades before the arrival of virtualisation, block and file storage were ill-equipped to support virtualisation. Virtual environments generate far more random I/O patterns than physical ones which can seriously choke hard disk storage. While servers can support upwards of tens of thousands of virtual servers, each generating its own I/O stream, disk-centric storage can’t keep up. To solve the problem, along came flash storage as a means to match the need for higher I/Os. Offering lower latencies, high density and lower power consumption, flash helped solve the storage tailback, albeit temporarily. But while flash can put a lot of IOPS at an organisation’s disposal, it can only do so if it is put to work in the right places.

In an increasingly virtualised data centre, the only way to improve performance in the long term is to have VM level visibility as well as VM level manageability. VM-aware storage (VAS) addresses the mismatch between storage and virtualisation. It offers direct visibility into VMs, enabling VM-level analytics that replaces guesswork with precision and automation, while eliminating the root cause of storage pain. With VM-level visibility, storage admins can help eliminate planning and complex troubleshooting by providing control, insight and agility. End-to-end visibility shows latency breakdown across the host, network and storage, allowing users to solve problems in a few clicks.

Because it is built for virtualised applications, VAS reestablishes a 1:1 mapping between application VMs and their storage, stripping out the complexity of LUNs and volumes with multiple conflicting VMs. As it is application-aware, VAS natively understands and integrates with the applications in a virtual infrastructure. Instead of conventional storage abstractions such as volumes, LUNs, or other legacy storage objects, VAS uses virtual machine abstractions, such as VMs and virtual disks. Data management operations, such as snapshots, clones, and replication, are at the VM level. This removes the problem of “noisy neighbours” on traditional LUNs where a VM becomes overly demanding or goes rogue, ensuring there is no conflict over resourcing or policies.

VAS is the only storage solution built for the future; by making virtualisation predictable and easily scalable, by improving performance by as much as 10x, by slashing costs and enabling higher IT productivity. We all need to move with the times, and your storage solution should be no exception.

More info: www.tintri.com
Intelliflo has been providing information technology services to financial services companies since its formation in 2004. Its leading web-based business management software, Intelligent Office (IO), helps large and small financial businesses improve efficiency and increase profits in an ever-changing market. Intelligent Office supports more than 1,600 firms and 14,650 users with assets under management of almost £250 billion as at 31 December 2015.

Intelligent Office traffic and data has gone through staggering growth in recent years, driven by the delivery of expanded functionality in each release, the introduction of a mobile platform for end retail investors, and a consistently growing customer base. The application executes 10,000 database transactions per second during peak hours and handles 2.5 million web requests and as many as 250 million database queries each day. The application is highly data-driven and relies heavily on reading and caching various data elements to provide a richer application experience. Query response times significantly affect a given adviser’s productivity and the time spent doing administrative work on the site. During business hours, the data read and write ratio is 80 percent to 20 percent respectively. A massive amount of data is moved, processed, replicated, and transformed in the background. This enables users to access their data in near real time through report, extract, search, and business intelligence tools.

HEAVY TRAFFIC AHEAD

Romanth Nirmal, Database Manager at Intelliflo was seeking a new solution to address a number of challenges. First, a new Intelliflo product introduction, Personal Finance Portal 2.0 (PFP) had the potential to reach millions of end retail investors, compared with the 14,650 financial advisers using IO. The company expected unprecedented traffic to the web site 24x7 upon the launch of PFP and needed additional headroom to provide the burstable capacity for the additional database traffic.

Second, the current SAN was becoming extremely busy with growing traffic. The Intelliflo engineering team wanted to prepare the SAN for the IOPS and throughput performance demands that were projected for large upcoming releases and anticipated customer growth. The SAN often showed large spikes during heavy batch processing and topped out at one gigabyte of throughput as databases, the VMware infrastructure, and the documents volume competed for I/O.

As a result of these challenges, the Intelliflo database team was tasked with taking their database infrastructure to the next level. “We needed our database response times to be lightning fast and our infrastructure to provide significant burst ability in terms of IOPS and throughput,” explained Romanth Nirmal.

At the same time, Intelliflo decided to withdraw their database footprint from the expensive SAN to avoid costly upgrades in the future, considering that even a replacement SAN may not be able to continue to deliver the required performance: “Our approach was to provide database traffic management across both the production and disaster recovery sites. Microsoft SQL Server 2014 AlwaysOn and InfiniBand, together with Fusion ioMemory PCIe cards, were the clear answer to the challenges we were having.”
KEY DIFFERENTIATORS
Intelliflo had been running Microsoft SQL Server 2008 R2 on HP servers and wanted to move to SQL Server 2014 on new HP servers with a smaller footprint. The goals were to deliver greater application performance to achieve better customer experience; consolidate core count by increasing CPU utilisation and efficiency of fewer cores; and ultimately realise SQL Server licensing cost savings.

Although the Intelliflo team seriously considered a competitor’s product, the ioSphere Management Suite software proved to be a key differentiator which allowed the team to monitor both the performance and endurance of the Fusion ioMemory PCIe cards throughout their lifecycle. Additionally, the higher capacity of Fusion ioMemory PCIe flash storage enabled a solution to be architected such that larger multiples of smaller disk-attached storage could be avoided - thus decreasing overall complexity. Furthermore, SanDisk could provide on-site and responsive technical support as both the developer and manufacturer of the product.

After a successful initial Proof of Concept evaluation supported by the SanDisk Enterprise team, Intelliflo procured nine Fusion ioMemory 2.6TB PX600 PCIe application accelerators to increase application performance and customer satisfaction. With a database approaching five terabytes in size, the total dataset required for the four servers (one master and three slaves) was 20TB. Eight of the cards have been deployed in the production environment, while the ninth card serves as a standby ‘swap-out’ spare.

The infrastructure enhancements consisted of a four-node active/passive HP server cluster, on HP ProLiant DL380 G9 servers with 18 cores - a substantial reduction from the previous core count of 48. Two Fusion ioMemory PX600 2.6TB PCIe cards were installed in each node. Windows 2008 and Microsoft SQL Server 2008 R2 were upgraded to Windows 2012 R2 and Microsoft SQL Server 2014 with AlwaysOn availability groups, while an InfiniBand card between the two database servers ensured ultralow latency. The team also removed complex transaction replication topologies, and moved user searches and data warehouse pipelines to leverage AlwaysOn read slaves.

ACROSS THE BOARD IMPROVEMENTS
The re-architecture and database modernisation project was carried out to increase efficiency for IO users by reducing the amount of time they need to spend interacting with the wide range of available tools and services. As a result of the implementation, Intelliflo has been able to improve web and database application response times, as well as to reduce batch processing time - by as much as 90 percent.

“Looking at our most critical database instance of our ten SQL Servers, the overall application wait on database response on a ten-minute sample interval experienced a 75 percent reduction in wait time,” commented Romanth. “The CPU decreased from 40 percent to eight percent, and disk latency became a thing of past. The read/write disk latency literally went from 35 milliseconds to zero.”

Similar results were detected with respect to web site response times. “The number of web requests taking longer than one second diminished by 42 percent,” Romanth continued. “Requests taking less than one second became even faster. As a net result, most of the user-facing web pages got a 50 percent performance boost.”

With respect to the network, the team realised a 99.98 percent reduction in latency between the production instance and old mirroring instance. “A 300 millisecond latency was reduced to just 40 microseconds,” said Romanth. “This is a massive enabler in terms of introducing Synchronous Read Slaves without compromising user experience. Without InfiniBand, the traditional network card would be unable to harness the transaction log influx that is produced by the Fusion ioMemory cards.” The new architecture has also extended the life of the SAN. By moving the databases off the SAN, application servers are given more I/O priority and greater performance across the architecture.

When asked about future plans, the Intelliflo team is optimistic. “With the additional performance headroom that the Fusion ioMemory cards have provided, we don’t need to worry about any performance constraints resulting from more client demand,” concluded Romanth. “We are able to add additional feature sets with confidence.”

More info: www.sandisk.com/fusion
Massive amounts of enterprise data are generated every day, and organisations are now faced with two choices: an on-premises storage system, or an external, hosted solution through cloud service providers. Although many companies continue to invest in traditional local storage, cloud based storage is quickly becoming a storage contender.

Look at Amazon's announcement of the storage appliance, Snowball, to securely transfer data from on-premises to the AWS cloud. Of course, while cloud storage may be an intriguing option, there are positives and negatives associated with each, including cost, control and security. Sadly, there is not a one-size-fits-all solution.

Instead, organisations need to decide which approach - on-premises or cloud-based - provides the best fit based on individual needs. When evaluating which option is best suited, three key considerations must be kept in mind.

1. Management and control

For organisations that want or need more control over their storage, traditional on-premises infrastructures offer a wide range of options. On-premises storage hardware is often ideal for organisations looking to optimise performance for different types of applications, by offering greater support for file system replication, data tiering, snapshots and backup capabilities. On-premises hardware also provides organisations with more direct management of data security and compliance, whereas some cloud providers may not have the level of privacy needed to comply with specific data regulations such as the EU data protection law.

In contrast, businesses that choose to leverage the services of a cloud provider must comply with the terms laid out in the SLA. This means that the IT professionals don't have to manage as closely, but they also don't have the same level of control. If the current SLA does not have the sufficient services and capabilities, organisations must upgrade to the next, more expensive, tier.

Nevertheless, cloud storage can still outweigh physical hardware in terms of
"With cloud based storage, the main advantage when it comes to cost is its scalability. An organisation can purchase the exact amount of storage needed on demand, rather than having to buy expensive hardware which carries a high initial investment cost - not to mention the added costs of space and power. The cloud’s ‘grow as you go’ capability can help businesses with a smaller initial spend, whilst being prepared for future growth." - Kong Yang, Solarwinds

benefits. For example, SMEs with limited IT budgets may find cloud storage’s built-in data management extremely cost effective, despite the SLA.

2. Availability and latency
The ability to store and access data at any point in time is a critical component of data storage solutions and greatly influences whether on premises or cloud is the best for an organisation. In this case, cloud storage may exceed the benefits offered by traditional storage, as systems accessing data won’t typically have a single point of failure in the way that one failure is unlikely to disable the whole system. Also, it means data can also be easily accessed from multiple locations.

On the other hand, traditional on-premises storage infrastructures can be configured for high availability, although it will often come with a hefty price tag. However, fast storage networking combined with SSDs can make it suitable for a number of different workloads that require high performance and low latency storage, such as server and desktop virtualisation or database applications.

3. Cost savings
With cloud based storage, the main advantage when it comes to cost is its scalability. An organisation can purchase the exact amount of storage needed on demand, rather than having to buy expensive hardware which carries a high initial investment cost - not to mention the added costs of space and power. The cloud’s ‘grow as you go’ capability can help businesses with a smaller initial spend, whilst being prepared for future growth.

However, whilst cloud storage has smaller overall capital expenses, there can often be hidden expenditures which may increase operating costs such as charges per gigabyte of storage and for each data transfer. In order to efficiently determine whether cloud computing is an affordable option, businesses should conduct sufficient due diligence with regards to pricing structures and SLAs so there are no surprises.

SO, WHAT’S THE ANSWER?
Both solutions can support an organisation’s application stack. So IT and the business need to decide on which criteria are the most important to their objectives. As long as businesses have a need for a range of storage availability, protection, services and compliance, both storage solutions will remain viable. IT professionals need to evaluate and understand the quality-of-service and compliance requirements of their applications in relation to the needs of the business before determining whether to keep their data on their grounds or up in the clouds.

More info: www.solarwinds.com
Pure Storage, the market’s leading independent solid-state array vendor, has announced that Waitrose is using its FlashArray technology, reducing its data centre footprint by 75 per cent. With flash storage, Waitrose benefits from increased speed, overall improved storage performance and extra usable storage space, which it has already used for additional Oracle workloads.

Waitrose, a major UK supermarket chain with 346 stores and 60,000 employees, runs an in-house demand forecasting application using a SAS database. It uses information from various sources to make predictions on the groceries Waitrose stores need to stock to fulfil customer demand. It does this by tracking various sets of data - for example, it can look at weather patterns over the last few years, as well as sales, dates and events.

Aaron Denton, Infrastructure Development Manager at Waitrose, said, “With this information we can accurately predict what stores will require to sell to customers. This directly drives our order fulfilment, and actively impacts what we send to stores.”

The application runs using a heavy AIX operating system. Previously there were major issues using a spinning disk array for this process, but with two Pure Storage FlashArrays the app is running on much more efficient hardware, leveraging the amount of capacity that Waitrose wants to dedicate.

Denton added, “We’re still early in our journey with Pure Storage, but we’re very impressed by the way the company works and what its technology has done for our business. We want to build an ongoing relationship - we’re considering buying more storage in the short and long term.”

Flash storage provides fast speeds and a small data centre footprint, removing complexity in Waitrose’s day-to-day storage activity. Also, Forever Flash and Evergreen storage means that when it does need upgrading, it doesn’t mean the costly implementations of the past that came with spinning disk technology.

“Today’s digital world business success depends on being able to quickly analyse and access data. This is nowhere more relevant than the retail sector, which sees millions of customer engagements every single day,” said Peter Gadd, Pure Storage’s Director of Northern EMEA. “Pure Storage was founded to fundamentally transform businesses while substantially reducing IT costs - essentially storage that pays for itself. We’re incredibly proud to be working with Waitrose and are eager to help them accelerate new possibilities in their business.”

More info: www.purestorage.com
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