STORING UP OPPORTUNITIES, NOT TROUBLE

Flash and hybrid array technologies have revolutionised data storage, the cloud has become a player, and new EU regulations could finally see the end of tape backups. Jason Walsh finds out about the changing world of enterprise storage.

Storage is at the centre of IT activity; after all, if computing is about anything, it’s about processing data. But the volume of data has exploded in recent years, with more of it needing to be processed more rapidly. And then it needs to be stored, in some cases almost forever.

Thankfully, storage technology has been developing as fast as processing power. With the reign of the array of spinning disks being challenged by solid state and hybrid devices. The humble backup tape, meanwhile, is now on its last legs, challenged by solid state and hybrid arrays. The humble backup tape, meanwhile, is now on its last legs, challenged by solid state and hybrid arrays. The humble backup tape, meanwhile, is now on its last legs, challenged by solid state and hybrid arrays.

Quick as a flash

The biggest change in storage is, of course, flash-based solid state drives, which have dropped considerably in price in recent years. "It's making enterprise storage more accessible to the SME market. Now there are all-flash solutions that make it very attainable for any business," said John Casey, group sales director of managed service providers Trilogy Technologies.

"We're doing a couple of technologies at the moment, and it's amazing how much things have changed," he said.

Howard Roberts, chief technology officer of managed IT services company Arkphire, agreed. "With all-flash arrays coming in, things are changing very quickly."

Until now, the main barrier to the adoption of flash-based solid state drives has been two-fold: cost and capacity. Now both of these barriers are beginning to break down. "The cost is starting to drop rapidly. The reckoning is they'll be on a par by 2017 or 2018 on a cost per gigabyte. The highest capacity SSD array at the moment is 3.6 terabytes. It will move to 15 terabytes within the next quarter," said Roberts.

Arkphire, which recently acquired Bootstrap thus adding Cisco 'gold partner' capability to its ICT product and services stack, has found that the Irish market has some unique characteristics. "The average customer in the Irish context is looking for a general purpose, single system that does everything," said Roberts.

Typically this means hybrid arrays that combine both flash and spinning disks. "Hybrid arrays were originally designed to get a bit more 'punch'. Clever software was able to tier things and use less SSD, but get it for the high speed into what would otherwise have been a [slower] spinning disk [setup]," he said.

For now, spinning disks remain the key technology where truly vast files are being manipulated, such as in healthcare: "Flash works for tier one to tier two workloads, but for tier three it doesn't work – yet. But it will," he said.

Dell, already a major player in enterprise hardware, has recently increased its offerings, having bought EMC Corporation. Naturally, storage is a significant part of its infrastructure offering.

Marc O’Rogan, Dell EMC Ireland’s chief technology officer, said that hybrid storage architectures are designed specifically to address and balance the price vs performance equation.

"By adding a tier of flash storage, the IOPS (performance) available to the applications dramatically increases compared to legacy all hard disk drive (HDD) arrays, while latency can be as low as sub-millisecond," he said.

"Hybrid storage technologies, by their very nature, use intelligent software to keep cold, warm and hot data optimised for efficient placement within the storage tiers. They’re also a much more cost-effective option for increasing storage performance. A hybrid array basically permits less expensive and slower HDD to handle less frequently accessed data, while the high-speed, high-performance flash memory is used for frequently accessed data."

"These technologies incorporate intelligent software capabilities for such applications as tier management, caching, and data management. High-capacity disks also can be used to mirror the flash memory for backup and data retention and protection, as well as recovery uses. Key platforms for SSD would be busy and hungry databases where there’s lots of I/O and virtual desktop, which required a lot of engineering to get the performance with spinning disk," said Martin Carry, head of enterprise business at Evros Technology Group.

The benefits of speed are also matched by lower power consumption and less space being taken up. "It’s a ten-fold increase in speed," he said. "There’s an inflection point in the market where the size is now the same as spinning disk solutions, but much smaller in terms of the space it takes up in the data centre."

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According to Carry, storage is increasingly also being viewed as a service, whether that’s on-premise, in the data centre – or in the cloud, where Evros’ brand ‘Digital Planet’ is pitched as a ‘service provider cloud’. "It has been sad that people have bought their last SAN [storage area network] not trouble.
network], or are buying their last SAN,” he said.

“To use what we call a ‘service provider cloud’ is a conservative step toward cloud. There is a certain amount of flex that we can produce in the system. A solution used by an enterprise might span on-premise, service provider cloud and public cloud.”

**Storage as a service**

Logicalis is a storage partner of all the major vendors in the market, including IBM, HPE, and NetApp, and said it takes a customer-centric approach, starting by defining the requirements, building the systems and, increasingly, managing it.

“More and more the key value for us is in the requirement gathering,” said Loman McCaffrey, sales manager at integrated IT solutions company Logicalis.

“In the old days it was box ticking about performance, size and so on. We’re working with the customer to challenge the requirements, asking: ‘What do you need this storage for?’ and ‘How is the management of data causing challenges?’”

Logicalis has found customers producing an amount of data they feel is too much to cope with, and also that the right people can’t get the right data at the right time.

The solution is software-defined storage, a form of virtualisation.

“A software-defined tool can get you the best return. This sees you move to a hybrid environment. More and more, spinning disks won’t be the norm, but we’re not there yet,” he said.

“There is no one right answer. Unless you’re in a very distinct and settled environment where you’re unlikely to change, there will always be an argument for going mostly flash, but also having spinning disks, but anyone starting now with a clean sheet of paper will be looking at a software-defined strategy, where the intelligence is in the software,” said McCaffrey.

HPE (Hewlett Packard Enterprise) has also found that software defined storage is a growing product sector for corporate data storage.

“SDS enables customers to create a pool of shared storage on industry-standard servers, without the need for dedicated arrays,” said Declan Hogan, head of enterprise servers, storage and networking at HPE Ireland.

“SDS breaks the dependency on hardware devices by delivering data storage through software and abstracting it from the underlying infrastructure. SDS solutions are software applications layered on server infrastructures to deliver data storage supporting snapshots, thin provisioning, and multisite disaster recovery.”

“With SDS, organisations can take advantage of x86-based hardware, allowing the reuse of older equipment or the efficient optimisation of newly acquired technologies. In addition they can provide shared storage and common services across the datacentre.”

Loman McCaffrey
sales manager, Logicalis

Howard Roberts,
chief technology officer, Arkphire

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from page 37

multiple hypervisors, maximising capital investment and flexibility. At the same time, they can also deliver single management for the entire portfolio with application-aware orchestration and open application programming interfaces,” he said.

New tricks with old data

One area of storage where capacity is changing.

Today, many businesses still do deep, long-term backups on tape, but this method is likely to become unviable following the introduction of the new EU data protection regulation, which will require data to be accessible. Besides, tapes are slow, sometimes unreliable and, due to the heavy labour intensive, often forgotten about.

“The thing about tape is that it’s relatively cheap as a technology, but it’s slow and unreliable. The challenges in backup are retention period – monthly forever – and volume of data,” said Carry of Evros.

So what can replace tape for those long-term backups? One alternative is the cloud.

“We’ve come up with solutions to move people away from tape,” said Carry. “One is to use public cloud as a target. We’ve developed a retention-as-a-service product. We can give them a more deterministic, linear price-point [and] in a fully costed TCO you have to bear in mind the quality of living with tape.

But it’s slow and unreliable. The move away from tape is already well under way, said John Casey of Trilogy Technologies.

“People say, ‘We’re not in the IT business’, and they’re right. But we are in the IT business, and that’s where we develop our differentiation.”

“The Centre is Changing

Carry, of Evros, said that such simplification of IT by abstracting provisioning can really help a business get on with its primary tasks. People say, ‘We’re not in the IT business’, and they’re right. But we are in the IT business, and that’s where we develop our differentiation.”

There is an amount of IT that enables a business, and there is an amount of IT that differentiates your business. Can you really differentiate your business on how you run an Oracle database? Probably not, but you can differentiate on how your customer platform works, while knowing the infrastructure will work.

Software-defined storage

Something of the buzzword du jour, software-defined storage brings the much-touted benefits of virtualisation to the humble disk drive.

The idea is to divorce the software that manages storage from the storage hardware itself, resulting in a more flexible set-up consisting of standardised building blocks.

Software-defined storage has resulted in a dramatic simplification of storage – at least from the point of view of the user.

“Effectively, it’s software that allows you to place data on multiple storage devices,” said Loman McCaffrey of Logicals.

“It allows you to place the storage on any device that you can see. The real benefit is that the flexibility it there. If you need any more storage, you can extend it in terms of the storage being able to match the workload. If you have a group doing a lot of database processing, online kind of stuff, you can ensure that the storage is set to match its needs.”

Often twinned with a service contract, software-defined storage aims to lessen the importance of any individual piece of storage hardware and use intelligent software to store the right data on the right device, so that it can be retrieved seamlessly.

“With cloud-as-a-service, it’s a much more automated process, and we continually check it, asking the customer to nominate a file to re-

Carry also said that data backups should not be confused with a complete disaster recovery (DRP) plan.

“DR isn’t just backup,” he said. “It’s fine to restore a server, but DR is re-

Cadenhead said.

“The amount of IT that differentiates your business. Can you really differ-

Karen O’Connor, general manager of service delivery at ICT solutions provider Datapac, said that her company’s research found that a quarter of Irish businesses never tested their backup procedures.

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The Centre Is Changing Data Storage

Karen O’Connor, general manager service delivery, Datapac

The trick, then, is to know when data needs to be on highly responsive systems as well as when it can be moved back through the system and finally into an archive. Not an easy task, but with the range of new technologies out there, at least it’s a lot easier than before.

SLAs [service level agreements] and availability statistics to meet our customers specific requirements, blended with the ability to offer an enterprise-level managed service. No one else can do this! And it’s not only truly unique in the industry, it absolutely has the potential to change the way we consider cloud consumption in the future,” he said.

“Each business is different, so the solution needs to be evaluated on a case-by-case basis,” said Karen O’Connor, general manager of service delivery at Datapac.

Regulatory concern may play a role in the decision, but also speed of access.

“Various factors need to be considered, such as whether a business is legally obliged to have particular data stored on-premise. They would also need to consider the type of data it is, how they plan to access it and how quickly they need to be able to access it,” she said.

O’Connor said that not all data is created equally, and so it shouldn’t be treated equally; as some collections of data are needed more often than others.

In fact, Datapac recently carried out a survey of 163 IT professionals and found that the average amount of data being stored by businesses in Ireland has increased by 37 per cent over the past year.

“The combination of public and private storage in a hybrid cloud is a good option for many businesses. With a hybrid cloud solution, mission critical data can be kept on-premise so that it’s secure and readily accessible when needed. Less important data can be moved to the public cloud,” she said.

The ideal solution will be tailor-made for a business, but focused not on the technology – SSD vs disk, or on-premise vs cloud – but a combination of technologies based on business need.

“Intelligent tiered storage solutions will consider changes in frequency of data access and its importance to the business. Most data goes through a lifecycle with varying degrees of activity,” said O’Connor.

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Secure data

Growing volumes of data mean a growing potential for data breaches – something that has become more pressing than ever in a world of digital customer interaction and growing regulatory constraints.

The most pressing security and privacy concerns fall into two areas: ‘data in motion’ and ‘data at rest’, said Declan Hogan of HPE.

“For ‘data in motion’, customers want to ensure that data is fully encrypted and secure in transit and is protected from interception. For ‘data at rest’, customers want to ensure that data when stored is fully encrypted, correctly secured from an access point of view and that it is fully protected from a backup point of view,” he said.

“One of the things that is pertinent in all our conversations is security,” said Lorcan McCaffrey of Logicalis.

“The focus needs to be on the security of the data as a whole, not merely the device it is stored on, he said.

“Nearly every device will allow you to encrypt data, but you need to plan it properly. We find people are securing at a software level. If you secure data at a software level, it doesn’t matter where it is – in transit on a plane, on a laptop, on a tape, on a disk – so it’s always secure. Encrypting your backup is fine, but it’s not enough.

“A lot of our conversations are about encrypting the data rather than encrypting a device,” said McCaffrey.

Off-site, not out of mind

Although many ‘born in the cloud’ operations take advantage of the cloud for storage – including production data, not just backups – other businesses are only beginning to dip toes in the water.

“We see a reluctance to put production databases in the cloud,” said John Casey of Trilogy Technologies.

That doesn’t mean the cloud isn’t being used, though. Just that businesses are choosing which data can and should be delivered which way.

“All this hybrid service delivery is put together into a managed IT-as-a-service contract, and a proper contract is no longer about simply chasing tickets,” he said.

The objective should be secure yet seamless access to data.

“End-users might not be aware of where they’re receiving data from,” said Casey.

Darren Gill, Dell EMC Ireland’s storage sales manager, said his company’s goal with cloud computing was to be both innovative and open.

“We consider our capability for enterprise class cloud delivery and the ability to offer similar or superior experience at the enterprise application level by migrating core business assets such as SAP and Oracle from Bare Metal to a ‘virtual private cloud’ platform through our Virtustream technology, while delivering QoS [quality of service],

Karen O’Connor, general manager service delivery, Datapac

backups, so any kind of recovery could prove extremely difficult.

“It’s vital that organisations consider their back-up and recovery in tandem with storage,” she said.

“With such strict data protection regulations in place, these companies are putting themselves at serious risk if they lose their data and can’t retrieve it. We recommend that companies perform a full disaster recovery test at least once a year and more frequently for industry sectors with stricter compliance regulations and targets.”

Datapac

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September 2016 | The Sunday Business Post | 39