HP flash storage white paper

What matters to successful companies is execution and delivery. This frees them to outperform their competitors in terms of agility and productivity. Technology should make that performance happen and make it happen quickly.

Storing and retrieving data in an instant is at the core of so many business success stories. The new wave of storage products, known as Flash technology, does this and brings tangible economic benefits to the table at the same time.

More than that, Flash offers a great opportunity to extend service offerings without ramping up charges to users. And HP clients are proving the power of Flash around the globe today.

The Rise Of Flash

Data storage has come a long way since a gigabyte was a large number and one terabyte was contained in a box the size of wardrobe. But it is fair to say that traditional storage has not kept pace with the massive changes seen elsewhere in IT.

Most advances in storage have been predictable and incremental. While the storage sector has progressed with a steady increase in capabilities the wider world of business has been adapting to a barrage of new technologies. Mobile commerce, social media and the realisation that Big Data could apply to small businesses have all expanded the horizons of SMEs.

The quantity of data available for exploitation has exploded in a digital economy. But it has remained expensive to store that information. Hence storage has emerged as a constraint for ambitious companies. Recognition of this road-block has fuelled a set of approaches such as software-defined storage and hyper-convergence. Both of these advances offer easier management of information with fewer devices at a more economical rate. But the most prominent of the new movements is Flash storage, and it is the one that demonstrates the greatest rewards.

Put simply, Flash is all about one home for data. It abandons the spinning disks that have characterised previous storage models. Existing in a solid state without the need to shift and retrieve data between different parts of a drive Flash equals less power consumption and less heat. This reduces power-hungry cooling. On top of that, Flash accelerates the performance of storage arrays.

Whether a company is running existing software or putting new applications to work Flash delivers a level of performance that was previously the domain of very expensive and customised storage products. Known formally by the term Solid State Disk (SSD) the rise of Flash is a story of a high-end product that has embraced mass affordability.

Far-Sighted Investment

The core technology behind Flash came into being as a platform for high-performance work. This was specifically tailored for demanding environments such as database systems or for dedicated applications in business verticals like banking. But this advance prompted serious investment by HP's world-renowned research laboratories in SSD. The thinking behind this move was to roll the SSD advantage out to a much wider community and spread the value of this new storage resource.

This heavyweight technical campaign dovetailed perfectly with the range of storage products that HP had brought on-board with a critical acquisition. This was the 2011 purchase of storage specialist 3PAR, bought by HP for $2.1bn. 3PAR's hardware proved very adaptable to the SSD world, presenting Flash to a new audience and pushing its cost of ownership down. Exclusivity was about to end in the Flash club.

November 2014 saw a benchmark passed with the cost of two useable terabytes of Flash storage slipping below that of conventional high speed disk storage. Now that cost point has extended to four terabytes, underlining the pace at which Flash is arriving and the rate at which the price of new generation storage is falling.

Flash adoption has accelerated as its cost benefits have become obvious. And data centres are the venue where Flash is already making a dramatic impact. The all-Flash data centre allows a vast number of legacy storage devices to be collapsed into a much smaller space. This advance is not before time. The electricity demands of 21st Century data centres are a significant problem. A society concerned with energy security cannot afford to allow data storage power consumption to grow at an exponential rate.

What does the all-Flash data centre look like? Well for a start it is not anywhere near as large as the familiar server-packed information warehouses. With Flash the footprint of systems is substantially reduced. Conventional data centres that convert to Flash will be half-empty. And Flash is extremely frugal in terms of power consumption. Cheaper data processing in less floor space with reduced energy needs adds up to an 85% reduction in total cost of ownership over classic storage.

HP's 3PAR Flash storage allies these benefits to a series of world-class data services. So the Flash-powered data centre can rely on support for fault-tolerance planning and effective migration as new kit and applications are put in place. These services are simple to manage and boost levels of customer service without adding any complexity to the IT operation.

A Real Storage Revolution

Big Data has been associated with generous IT spending. But Flash augurs in a world where unlimited amounts of data can be sliced and diced by companies working to modest budgets. Businesses will be able to manage and exploit Big Data projects without worrying about mounting costs.

The connected world conjured up by the Internet of Things is dazzling. But the amount of information generated by that vision is daunting. This does not have to be the case. A company can store the data generated by a huge population of intelligent devices in Flash. And that Flash advantage means it can create multiple copies of critical information without pushing up costs.

Economic Opportunity Today

Flash means taking stock of existing IT infrastructure and working out how a much cheaper and faster storage inventory can change the way a company views data protection and retention. Back-up regimes no longer need to be an expensive overhead.

HP has driven the agenda by using HP Labs to push SSD forward into a commercially-viable realm. This has forced costs down and in turn created a great opportunity for any business that handles significant amounts of data.

Affordable Flash spells out a way to renew technology and steal a march on the competition. Now is the time to look hard at data protection and back-up regimes. The economics of Flash become even more appealing when combined with Cloud services. HP's Flash clients are using high-speed arrays to build the online facilities their customers demand. Flash data centres anticipate the fast affordable services that every competitive business wants to offer today. Flash mirrors the reality of business data storage and the facts of cost-effective digital commerce.

Smaller Footprint Spells Bigger Profits

Metrex is a Russian IT outsourcing and business consulting firm. The company took its own Cloud services into a Flash-based data centre and quadrupled cash flow while reducing labour costs by 25%. And the new Metrex data centre takes up very little space, which is just what Metrex CEO Pavel Maingard had in mind when he turned to HP. "We wanted to implement a compact data centre with a limited number of racks to provide optimum price-performance and lower capital and operational expenditure."

All of this occurred within a much shorter deployment cycle than Metrex was accustomed to. With the company's Cloud service parked within HP 3PAR Flash storage Mr Maingard is confident he can meet any fluctuations in demand from clients while cutting down on the overall cost of the data centre.

Coping With Cross-Border Compliance

Dutch logistics services group Astrata provides vehicle fleet operators with a wealth of operational information culled from swathes of data. The rise of mobile devices has meant that Astrata can collect a far greater range of reports and mine a much richer seam of data. But this has boosted data volumes.

Flash in the form of an HP 3PAR array allowed Astrata to cope with the new world of mass data input and remain confident that its own databanks are safe and secure. The company has to comply with differing data retention rules across Europe but with Flash the need for different copies of files to match various national data privacy rules is no burden.

Keeping The Noise Down At Claranet

Claranet is a UK IT managed services company and a Cloud services pioneer. But Product Director Neil Thomas spotted a potential problem with multiple clients operating off the same hardware. A surge in activity on one account cannot be allowed to degrade the service offered to other customers. "You have to control the quality of the service, you can't have clients suffering from what I call noisy neighbours" Mr Thomas observes.

Claranet wanted to offer a high-performance deal, but knew that not all of its customers needed the same speed of service. "One size fits all is not the way to deliver storage" says Mr Thomas. "What matters to the end-user is the performance of their applications. But not all applications need to be accessed at the same speed."

The company's Cloud infrastructure is tiered to reflect the different ways businesses use data. While a high-performance option is available for businesses relying on rapid throughput, there is also an archive tier for users who don't require constant data-churning. For this latter category of client the traditional spinning disk model of storage is perfectly adequate. A standard service sits in-between these two offerings.

Mr Thomas cites areas such as storage of data for regulatory compliance purposes where the speed of Flash is not needed. Hosted desktop services on the other hand are performance hungry. "The end-user experience for desktop services is directly linked to the storage technology" says Mr Thomas, "so all our clients there need Flash."

HP's 3PAR Flash arrays have given Claranet the ability to match performance to each client. However this adoption of Flash points to a deeper truth. This technology is no longer considered to be an exotic or adventurous option. "We started out using Flash only for high-performance applications and then we realised that we could go for all-Flash data centres."

HP's Flash arrays cost no more than spinning disks so Claranet was able to consolidate both its high-performance and standard storage on one type of hardware. Use of 3Par De-duplication technology has also enabled the standard tier, now 100% flash, to replace spinning disk at a lower cost, while improving performance.

Flash answers a range of different storage needs and as Claranet found out, "noisy neighbours" are not a problem with the right tools installed.