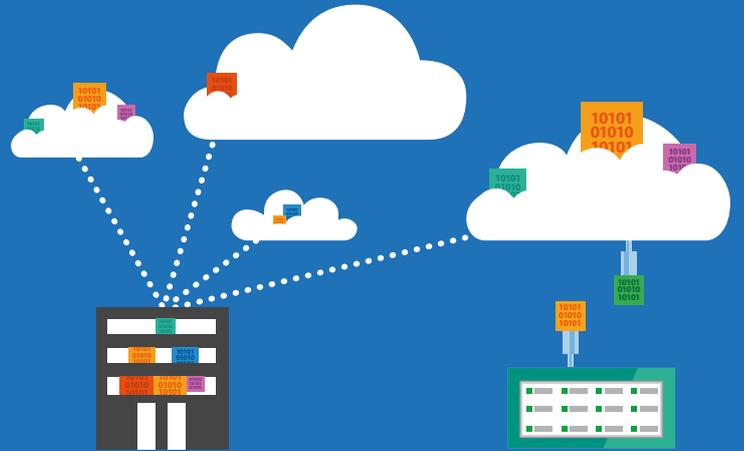


StorSimple + Microsoft Azure
= Hybrid Cloud Storage



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StorSimple

Data Storage Reimagined

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1 Data storage: a changing landscape

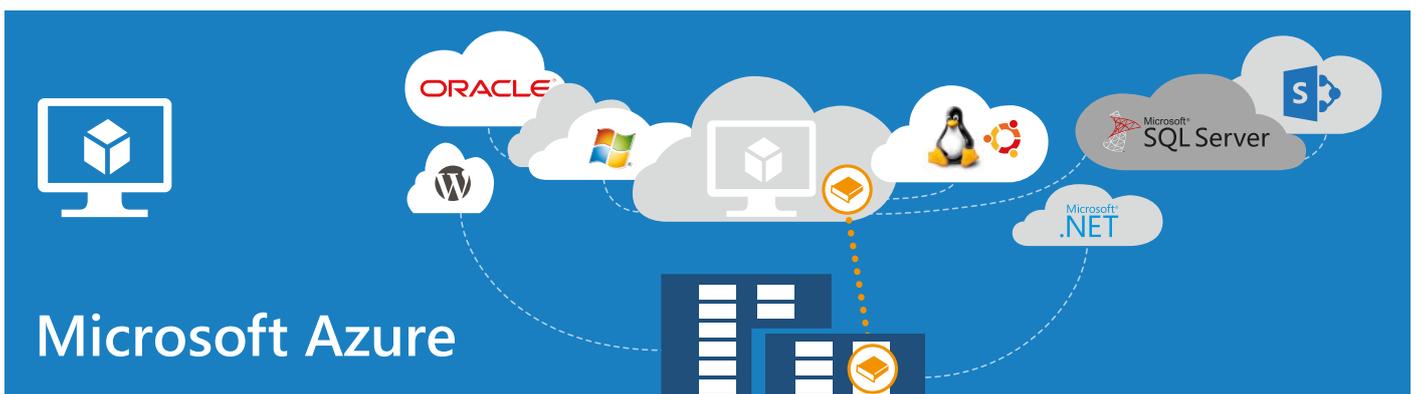
Volumes of business data are growing faster than ever at an average of 40% per annum and IDC predicts that worldwide data will almost double every two years between now and 2020.*

What challenges does that give IT departments? Put simply, they are likely to be spending an inordinate amount of time and money on their storage infrastructures rather than developing and implementing business solutions which drive productivity and have a positive impact on the bottom line.

Then consider the changing way in which we work every day. Trends like BYOD and consumerisation of IT create a justified user expectation and requirement for 24x7 data availability, entailing increased information management and governance.

Despite best attempts, the business can be left struggling with unprecedented data growth resulting in storage sprawl, spiralling storage costs and an unending cycle of capacity purchases. Complex data protection can quickly become unmanageable and a drain in resources. Whilst the IT department is desperate to add value, it is unable to be agile and respond to evolving business requirements.

So what's the answer? To keep pace with this change and growth, storage technologies need to be more agile, more scalable and more flexible to address the myriad of business requirements that are now an everyday norm. As traditional on-premise infrastructure evolves to embrace the many business benefits of cloud technology, how does that impact the way business can store, archive and retrieve data? Read on and we'll explore those questions in more detail.



*IDC Digital Universe Study, 2012



2 On-premise or cloud? The considerations

Almost every business has some form of data storage solution in-house. However manual that may be or whether it is sufficiently agile to meet the present and future business requirements, there has undoubtedly been investment in getting a solution up and running. With the advent of the cloud we are promised secure high scalability with cost efficiency. So where does the greatest business potential lie – on-premise storage or cloud storage? And what factors should a business consider when making this decision?

On-premise storage provides fast access between data and applications, so the business has the option of using dedicated high performance disks. Although these are available in the cloud, the input/output (IO) rate is not always as fast. If a business has high performance workloads, large databases, and performance dependant virtual machines where the applications are local, on-premise high-performance storage holds many advantages.

Unstructured data however is growing faster than ever. It is capacity intensive, but it doesn't necessarily have the same performance requirements as tier 1 data. This is largely due to the fact that files of this type are accessed less in the longer term, due to the scale and resilience of the associated workloads. Put simply unstructured data types are ideally suited to storage in the cloud - with the added business advantage that management and maintenance of an underlying hardware platform is no longer required.

3 Introducing the Hybrid approach

Hybrid storage gives businesses the best of both on-premise and cloud capabilities. It combines the fast connectivity of local storage with the high scale resiliency and cost-effectiveness of the cloud.

This blended approach breaks the cycle of data-driven storage purchases and automates time consuming management tasks like data protection and storage capacity scaling. The lowering cost of solid-state drives (SSDs) provides faster performance at a lower price point. So, the business can effectively shift its attention and resources away from managing an every growing storage infrastructure to other projects that drive value for the business.

So extending an on-premise storage architecture to the cloud can make a lot of sense. Using a hybrid approach, businesses can accommodate immediate data growth demands and have a strategy to meet the challenge of future data growth head-on. This approach has the added advantage of also enabling businesses to use traditional on-premise storage capabilities such as snapshots and data tiering and expand these via the cloud for off-site backup and data archiving.

Azure StorSimple from Microsoft is a hybrid cloud storage solution that delivers all these capabilities. It provides tiered storage, with solid-state drive (SSD) and hard-disk drive (HDD) in an on premise appliance, with 1Gbps and 10Gbps iSCSI connectivity, and low cost storage in the Microsoft Azure cloud. The StorSimple solution provides excellent capacity for the hardware footprint, and StorSimple in 2U or 4U form factors can provide up to 200TB and 500TB respectively.

How does a hybrid approach fit in your business?

The joy of the hybrid storage solution is that it fits into your current infrastructure, extending the value of your existing SAN investments and adding greater capacity, capability and flexibility.

StorSimple works across physical and virtual app servers, and Microsoft Azure, using array software to categorise and allocate data into a 3-tier storage structure aligned to different data classifications. The top tier uses SSDs for data that has been most recently accessed; tier 2 uses HDDs for data that is accessed less frequently; and tier 3 accommodates inactive data which is placed in an Azure cloud storage environment for off-site data protection.

Deployed alongside an existing SAN, StorSimple allows the expensive tier 1 storage to be dedicated to the high performance workloads that require a high level of IO. Unstructured, tier 2 data, and suitable workloads,



can be moved from the existing SAN, freeing-up vital capacity for the high performing workloads that need it. This effectively takes away the need to keep expanding SANs to meet ongoing data growth demands.

The hybrid approach dynamically adapts as the business landscape changes, ensuring data stays accessible but is more cost-effectively managed. Put simply, the business achieves the optimal balance between performance, capacity, service quality and cost.

4 StorSimple – the business benefits

a. Manage immediate and future data growth

StorSimple enables a business to manage data growth by leveraging cloud storage for on-demand capacity and immediate scale. In everyday terms, whenever additional data storage capacity is required, it can be provisioned within StorSimple and Azure without the need for additional budget requests and hardware purchases. This directly saves time and cost.

The simplicity doesn't stop there. Unlike physical storage, when additional capacity is provisioned on StorSimple, it is managed easily across the platform and there is no need for data migration between appliances. StorSimple capacity can be extended on demand through a simple web management portal, with geo-redundancy provisioned automatically so there is no need to deploy 'like for like' on a secondary site.

StorSimple also reduces the amount of ongoing IT management time that is required to monitor and manage the storage infrastructure. Deploying storage in a datacentre generally requires an upfront purchase of a SAN with a pre-determined storage capacity. As data grows the scalability of the platform impacts how much capacity can be added, how quickly it can be added, and the amount of work and application change required. The storage capacity is increased by either adding storage components such as shelves or disks to the existing platforms, or by adding entirely new storage systems to an existing infrastructure – so a scale-up architecture.

StorSimple uses a completely different approach, and one that maximises IT management time and efficiency. Capacity is incrementally added using the Azure cloud storage "bucket". This process is fully automated and requires no procurement process or intervention from the IT team. The only costs involved are those attributed to the increased capacity use of cloud storage, which we should add is comparatively cost-effective. Built-in data de-duplication and compression also contributes to an overall reduction in IT management time and improves the efficiency of storage; de-duplicated on low-latency SSD and then also compressed for the capacity-oriented HDDs or Azure Cloud Storage.

Put simply, with StorSimple you can scale up your data storage infrastructure effortlessly and quickly to enterprise scale. What's more you do that without the need for hardware investment, excessive IT management time or reliance on in-house security measures. A cost-effective, secure, resilient approach to managing present and future data growth.

b. Reduce storage costs

StorSimple enables a business to reduce storage costs by 40-60%, especially those associated with the expensive storage systems that hold tier 2 and 3 data. In does this in a number of ways. Firstly, due to the scale of datacentres, cloud storage is inherently cheaper than the cost of using local disks. What's more, tiering your data and allocating storage applicable to each tier ensures that you are only paying for the storage you actually need - data is only moved to the cloud once the capacity thresholds are reached on the in-house appliance, and you only pay for the de-duped and compressed cloud capacity you actually use, each month.

Automated functions like data tiering, snap-shot taking and removal of data offsite, also immediately reduces the time and cost involved in managing and maintaining the platform. Azure maintains 3 copies of the data in the local datacentre and it replicates this within the region, providing 6 copies in total – often, this level of redundancy would be economically unviable in an on-premise environment, particularly for tier 2 and 3 data. Extending into capacity in the cloud ends the perpetual cycle of purchasing additional capacity for storage appliances, or even new appliances in their entirety.



So with a hybrid storage approach, you save cost at every level – you use the most cost effective approach for each tier of data, you reduce the need for buying additional capacity for your in-house appliances, you only pay for the cost-effective cloud storage you use, and automated features free up daily IT management time, whilst giving the business a level of protection it might not otherwise be able to afford.

c. Simplify data protection and recovery

As business data grows causing rapid storage sprawl, data protection becomes increasingly complex and unmanageable.

Despite advancements in traditional backup technologies, including disk-based backups, snapshot and replication products, the complex task of data protection and recovery continues to be a labour and cost intensive activity.

StorSimple replaces traditional backup processes with cloud based snapshots, essentially providing an automated, centrally managed offsite data protection facility. This approach eliminates the need for tape back-up and all the problems, errors and IT management time associated with that. This can be an enormous time and cost saver for the IT team and removes them from the drudgery of managing tapes, tape equipment, and backup processes.

The incremental-only approach of cloud snapshots, coupled with data deduplication on-premise prior to transferral, means that only a minimal amount of data ever needs to be copied and transferred to the cloud. Plus it is replicated 3 times in 2 geographical locations and provides an archiving solution, without an additional function for IT or users.

Planning data recovery scenarios is also far greatly simplified. Scenarios can be tested in the cloud and proven without any impact to the primary environment. In a recovery scenario once the metadata is recovered the data can be accessed; StorSimple can recover the metadata for terabytes of storage and bring it online within minutes, not hours or days.

Data replication mitigates the risk of data loss due to hardware failures, by providing data available from the cloud. The StorSimple 8000 series even includes a virtual storage appliance that can be deployed in Azure, turned off and then powered on as required either for DR, DR testing or to present the data to servers, typically for testing cloned live data. The stored data can be presented to servers on-premise or within Azure, removing the requirement for a secondary datacentre and dramatically reducing failover time.

d. Increase IT agility

There's no doubt that never-ending purchase cycles of on-premise data storage and long deployment cycles associated with creation of new apps, where there is demand for storage, can stifle the IT department and leave it unable to respond to evolving business needs.

A hybrid storage solution, powered by StorSimple, enables the IT department to deliver storage capacity as needed, reducing reliance on procurement cycles. It also means that provisioning that capacity often takes less time than it takes to get an order approved. Adding capacity in a traditional environment, particularly where a second or third appliance is required, means cost, quite possibly a budget approval and signoff process, purchasing and delivery. Cost aside this is a lengthy process.

Furthermore, StorSimple scales without the need to add archive storage, backup capacity or offsite availability. Using a cloud snapshot of production data and presenting this via the StorSimple virtual appliance to servers in Azure, businesses can analyse data or test and develop applications efficiently.

5 Implementation considerations

When implementing any storage platform or new solution it's vital to have realistic expectations around implementation and performance, and the StorSimple solution is no exception.

StorSimple delivers excellent performance while accommodating the high latencies inherent in cloud data transfers. But, like all other storage solutions, it has strengths and weaknesses that need to be understood.



The first consideration is whether the workloads you plan to put on StorSimple are in fact suitable; applications with very high IO requirements, large number of virtual machines (VMs) or high performance virtual machines may not be suitable. Also it's worth considering what the business plans to use the StorSimple appliance for. StorSimple is not a backup target or search appliance in itself, but the hybrid configuration provides offsite backup and Azure can be used for discovery of data in the cloud. Hybrid is a new way of thinking about storage and needs to be considered in the correct context.

From a technical perspective, however, there are very few implementation considerations.

StorSimple volumes are presented to hosts via iSCSI. If you don't already have one, setting up an iSCSI SAN to connect servers to StorSimple is very straightforward! The StorSimple device speaks to Azure Cloud Storage via HTTPS (outbound only) so no major firewall reconfiguration is necessary. StorSimple bandwidth throttling can be configured to reduce the impact of StorSimple traffic on Internet bandwidth. Throttling Internet bandwidth is typically no problem as most of the time StorSimple is active when cloud snapshots are taken, which can be scheduled to occur outside of normal hours.

When using StorSimple the best performance is achieved when the least amount of data needs to be downloaded from cloud storage. In other words, the working set (hot) data fits within the capacity resources of the local appliance.

The StorSimple appliance itself has multiple Ethernet ports for high availability. The iSCSI network should be separated from LAN traffic using separate physical networks, VLAN's or subnets. The appliance also needs to access the Internet, unlike iSCSI networks we can't typically segregate on the type of Internet traffic from another.

The key to the StorSimple proposition is that it keeps data online and instantly accessible using the same names and format regardless of where it is stored, be it local on the appliance or in the cloud. This means applications and servers require no reconfiguration and data never has to be copied by additional storage products or subject to other processes to ensure data is backed up efficiently such as tape or de-dupe backup devices.

6 Real-life experiences: Paul Smith

Nottingham-based Paul Smith is a preeminent British designer with 14 different collections—produced in England and Italy—under the global Paul Smith brand. In addition to 17 shops in England, Paul Smith retail stores are found in fashion capitals around the world.

The global IT infrastructure is managed by just 15 people in the Nottingham head office and the centralised IT model works on a multi-tier structure. There are three Tier 1 data centres; two sites in Nottingham and one in London. Tier 2 sites are branch offices in fashion capitals such as Paris, Milan, New York, and Tokyo. The company's 35 retail stores form Tier 3. Paul Smith opens an average of 3 new stores a year and the demand for IT services is growing. Employees expect IT to work all the time and to have ubiquitous access to information. The consumption of IT services is also dictated by the fashion industry's seasonal activities: spring and autumn collections and holiday retail sales.

Paul Smith generates a significant amount of design data in its London office. Historically the IT department simply added more and more storage to accommodate growing data requirements. The business soon realised it needed to find less expensive and time-consuming ways to accommodate fluctuating demands in compute and storage requirements. Business continuity and disaster recovery (DR) planning was another critical issue top of their agenda.

As part of an infrastructure refresh and move to Hybrid Cloud Computing, Paul Smith introduced StorSimple to protect and copy data to Microsoft Azure, based on created policies that automatically archive data which hasn't been accessed in 12 months. StorSimple is also helping Paul Smith manage the amount of data that resides in its data centres.

Read more about the Paul Smith story on the Microsoft website at <http://www.microsoft.com/en-gb/server-cloud/products/storsimple/customerstories.aspx>

7 Summary

The decisions for businesses today are no longer about whether they manage data storage in-house or in the cloud. It's now about how a business should evolve its architecture and approach to storage to meet its individual needs. Hybrid storage solutions offer a very compelling proposition, delivering the best of both worlds: enterprise level data storage capabilities with the economics of the cloud.

StorSimple is one of the most advanced hybrid cloud solutions available. It is designed from the ground up to address all the problems that businesses face with data growth. But it's much more than a device or appliance which simply transfers data between on-premises storage and cloud storage. StorSimple provides highly scalable storage with compelling backup, disaster recovery, and archiving capabilities. Plus it is the only cloud storage solution certified by both Microsoft and VMware.

So when thinking about your data storage headaches and what you need to achieve as the next stage in your own business evolution, ask yourself whether a hybrid solution meets your goals?

8 Resources

To find out more about StorSimple, contact us today on:

Email: cis@sol-tec.com

Tel: 01189 514200

Visit: <http://www.sol-tec.com/storsimple-8000>

For more information on StorSimple features and benefits, please visit:

Blog: "Enterprise storage with cloud economics"

<http://www.sol-tec.com/Blog/Post/18/Enterprise-storage-with-cloud-economics>

Blog: "4 storage issues and how to solve them"

<http://www.sol-tec.com/Blog/Post/19/4-key-storage-issues---and-how-to-solve-them>

<http://www.microsoft.com/en-gb/server-cloud/products/storsimple/default.aspx>

To view our StorSimple video series, please visit:

StorSimple 8000 – Overview - https://youtu.be/zow_hRgRHmM

StorSimple 8000 – Manage data growth - <https://youtu.be/w-zmx-EekT8>

StorSimple 8000 – Increase business agility - <https://youtu.be/w3JS-HhhIUM>

StorSimple 8000 – Reduce storage costs 40-60% - <https://youtu.be/-4jw7X14-Nk>

StorSimple 8000 – Simplify data protection and DR - <https://youtu.be/ZC-sIeptM2Y>

To read StorSimple customer success stories, please visit:

<http://www.microsoft.com/en-gb/server-cloud/products/storsimple/customerstories.aspx>