

Uncovering Total Cost and Business Benefits in Storage Environments

Lessons Learned from Irwin Mitchell Technology Deployments

August, 2008

OLIVER WYMAN

Prepared for:



TABLE OF CONTENTS

Note on Study Methodology	1
■ Executive Summary	2
■ Overview of Technology Decisions Irwin Mitchell Made	4
■ Methodology for Total Cost Assessment	7
■ Actual Total Cost Savings from NetApp IP-SAN	8
■ Actual Cost Savings from Enterprise Vault with SATA	11
■ Projected Cost Savings for NetApp and VMware	13

Note on Study Methodology

Oliver Wyman, a global strategy consultancy, was engaged by NetApp to work with Irwin Mitchell in conducting a thorough total cost assessment of its storage environment. The results included in this document are based on in-depth interviews conducted by Oliver Wyman with Irwin Mitchell IT management and storage administrators. All of the data used in this study was provided by Irwin Mitchell exclusively to Oliver Wyman for the purposes of this study and these summary findings have been approved by Irwin Mitchell for external distribution.

■ Executive Summary

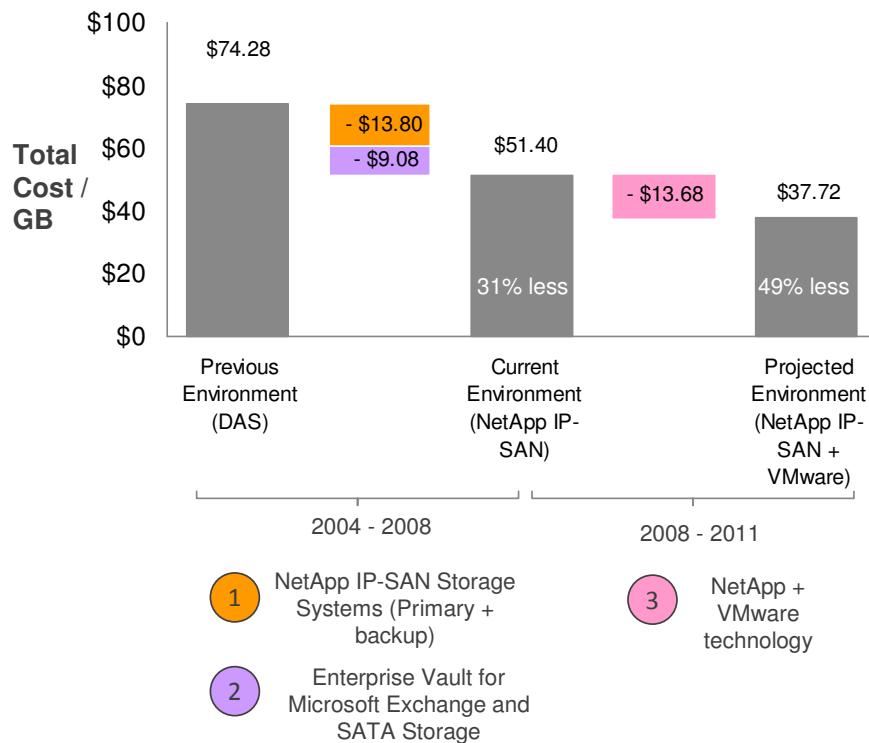
Irwin Mitchell, a leading law firm in the UK, proactively restructured its IT environment over the last five years in order to meet certain business drivers:

- Ensure business continuity
- Increase data availability
- Reduce Total Cost
- Achieve compliance

Irwin Mitchell took a systematic approach to addressing these business priorities through a series of discrete technology deployments in its IT environment. By implementing the NetApp Unified Storage Architecture (IP SAN and NAS for SATA), Irwin Mitchell addressed important challenges that many other companies are also looking to solve. The organization then added archiving and compliance capabilities to its Microsoft Exchange messaging infrastructure with Symantec Enterprise Vault, and installed Serial ATA (SATA) disks to store the archived and backup content. Finally, in 2008, Irwin Mitchell deployed virtualization technology to continue to address its key business priorities.

Irwin Mitchell has been able to achieve significant savings because of cost advantages of the technologies it deployed. The total cost impact to Irwin Mitchell is illustrated in Figure 1¹.

Figure 1 – Irwin Mitchell Environment Total Cost Comparison
Savings from Replacing Direct-Attached Storage with NetApp IP-SAN



¹ It is important to note that although the costs in this paper are denoted in US dollars, they are based on actual figures Irwin Mitchell paid in the UK, and may be different in other geographies.

Irwin Mitchell identified the following primary benefits from its approach:

- ***Compared to its previous Direct Attached Storage (DAS) environment, Irwin Mitchell has achieved a 31% reduction in total cost based on its current NetApp IP SAN storage environment with Enterprise Vault and SATA disk drives for archived content.***
 - ***The primary driver of the total cost advantage is due to operational efficiencies gained from the NetApp IP SAN environment due to easier manageability, leading to a 71% reduction in internal operational costs.*** The primary driver of these savings for Irwin Mitchell is because of a 3.5x advantage in number of TBs managed per FTE compared to the previous DAS environment.
 - ***Additionally, Irwin Mitchell has also achieved over a 70% reduction in downtime and recovery costs alone.*** Irwin Mitchell has improved recovery times from application errors by 2x, reduced scheduled downtime per year by 4x, and added additional savings from reduced exposure to data loss in the event of a disaster as well as reduced legal risk for Discovery.
- ***When including the recent deployment of VMware technology, and factoring in the total cost savings with NetApp, Irwin Mitchell expects to achieve an additional 27% savings in three years, providing a total savings of 49% compared to a similar size DAS environment.***
- ***Irwin Mitchell has addressed the need for increased system / data availability and business continuity requirements.*** Using the NetApp asynchronous replication technology, Irwin Mitchell has been able to achieve critical recovery point and recovery time objectives to safeguard its data as part of an overall disaster recovery plan with the IP SAN architecture.
- ***In order to meet standards for records management for the Law Society² and to automate email journaling for e-discovery purposes, Irwin Mitchell selected Symantec Enterprise Vault with NetApp storage for its archiving needs.*** This decision, combined with the use of SATA disk drives for archived and other content (e.g. file services, backup), has contributed 15% in total cost savings.
- ***Irwin Mitchell has realized benefits from dynamic storage provisioning with NetApp.*** The transition to an IP SAN architecture with dynamic provisioning has reduced costs while at the same time freeing up critical administrator resources. The head of IT Operations at Irwin Mitchell explained, *“The number of benefits from buying disks as and when we need it, and not having to buy 12 months out and predicting growth that far out made the NetApp decision a no-brainer.”*
- ***Lastly, Irwin Mitchell has also introduced additional flexibility to its infrastructure.*** With the NetApp storage systems, the organization is able to allocate both fibre channel disks and SATA disks within the same system, and has the additional capability for addressing different storage protocols through this architecture. Moreover, Irwin Mitchell is using its disaster recovery site today for development and testing, helping reduce the burden on production systems and providing replication capabilities and development and test instances at one location.

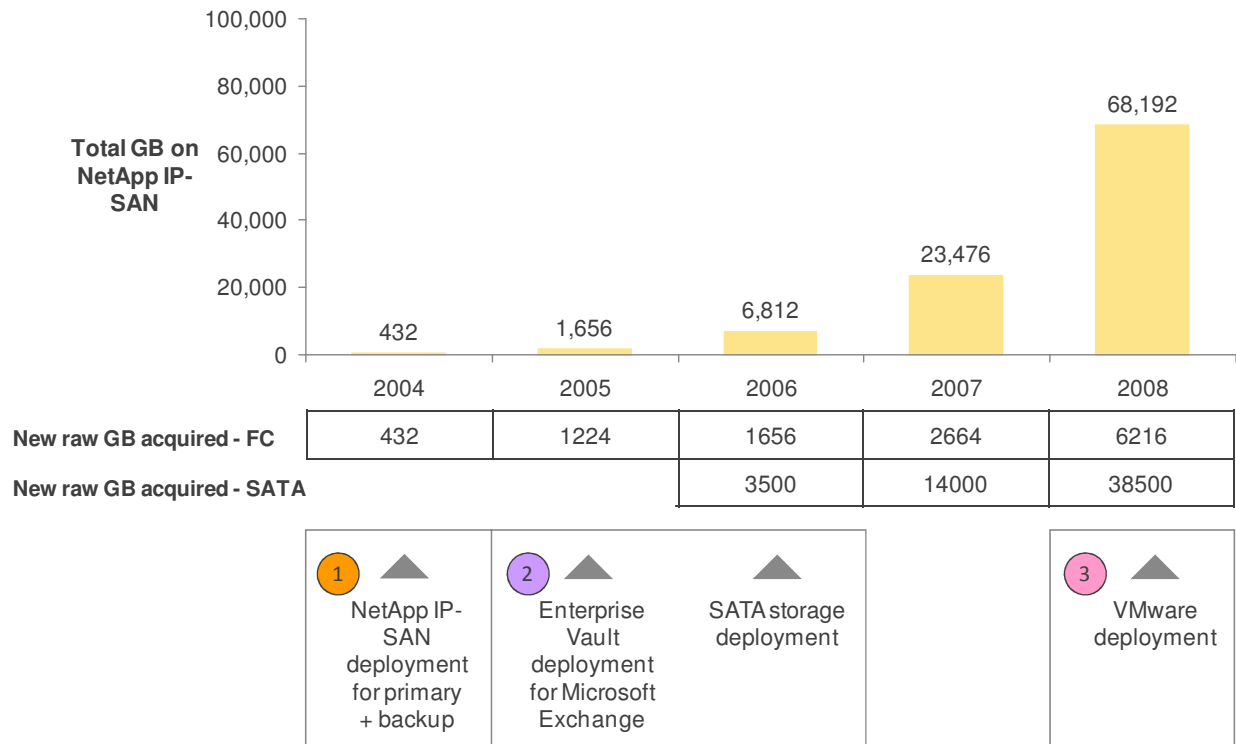
² The Law Society is a membership representing solicitors in England and Wales. The organization is responsible for negotiating with and lobbying the profession's regulators, government and other entities.

■ Overview of Technology Decisions Irwin Mitchell Made

Irwin Mitchell has a relatively complex IT environment with data centers across seven different locations, and is one of the fastest growing law firms in the UK, having gone from 600 employees to 2500 employees in 10 years. However, it has been able to address certain business concerns by deploying innovative technologies and getting new insight into costs.

The business is seeing 60% year over year growth in data storage needs for email alone. The rapid growth of storage requirements because of the increased volume of email and corresponding growing numbers and sizes of PST files has forced Irwin Mitchell to innovate earlier than many other companies in order to improve storage utilization at both the primary and backup sites. Figure 2 illustrates the annual growth on the NetApp IP SAN storage environment since its deployment in 2004.

Figure 2 – NetApp IP-SAN Environment Growth



Part of the creative approach Irwin Mitchell employed in order to dramatically improve service levels and better position the company for future growth was based on discrete technology deployments of NetApp IP SAN, Enterprise Vault with SATA, and VMware. Each technology is detailed below, along with the specific objectives.

1. Transition storage from DAS to an IP SAN architecture with NetApp storage systems beginning in 2004 – Irwin Mitchell identified three business objectives for the NetApp IP SAN deployment.

- *Ensure business continuity.* Irwin Mitchell has achieved this objective by deploying a hot disaster recovery (DR) site using NetApp SnapMirror® technology with asynchronous replication. The organization is mirroring its critical data to the DR site, including all archived email content. The firm has built in a recovery point objective (RPO) of one hour and a recovery time objective (RTO) of eight hours, although for the most critical data, including email content, the firm has service level agreements set to four hours. *“Our preparedness for disaster recovery and meeting business requirements through NetApp technology was proven with the floods in UK. We shipped 50-60 people to the recovery site and re-diverted all our communications. If needed, we could have failed over in the 4 hour SLA.”*
 - *Lower total cost.* Irwin Mitchell has been able to achieve higher storage efficiencies through the NetApp deployment, requiring fewer raw TB for each usable TB. More importantly, the IT organization has achieved greater productivity through the networked storage environment because of the ease of use of the NetApp user interface and the dynamic provisioning advantages leading to “storage on demand.”
 - *Increase data availability.* Irwin Mitchell has employed the NetApp Snapshot technology to recover faster from application errors, reducing unscheduled downtime. According to Irwin Mitchell IT, *“For documents and email, we use [NetApp] SnapManager with built in [automated] capabilities to do nine hourly snapshots that we keep for seven days, and keep daily and weekly Snapshots as well. With our DAS storage, it took one weekend of activity for two network engineers to provide a backup.”* The firm has also driven considerable improvements in support and been able to reduce downtime significantly compared to the DAS environment: *“We can add storage during the day without taking the unit offline. Adding a shelf is a five minute job...with our DAS environment, the downtime required when adding storage was at least a few hours.”*
2. Deploy Enterprise Vault for compliance needs and SATA disks to store archived data – Irwin Mitchell addressed two issues with the implementation of Enterprise Vault and SATA disks.
- *Achieve compliance.* With Enterprise Vault, Irwin Mitchell has an automated process for *“journaling every single email,”* as well as a robust archiving solution. Irwin Mitchell explained that if faced with Discovery, the firm has two weeks to deliver on the subject access request, and is easily able to achieve this with its current solution because it can search using full text indexes. *“If there are any disputes, we can go back and recover the emails and get an accurate picture in hardly any time.”* Before Enterprise Vault was deployed, Irwin Mitchell IT needed to recover Microsoft Exchange emails going back 3-4 months. As explained by the IT team, *“We needed to build a new Exchange environment and retrieve from tape for all of that data – this process took 2-3 weeks and wasn’t easy by any stretch.”* The team went on to explain that with the current environment leading to fast recovery of email through easy access, *“now we just need one afternoon.”*
 - *Achieve additional storage efficiencies and reduce performance bottlenecks.* Irwin Mitchell does this by storing the archived email content on larger SATA disks, while keeping Microsoft Exchange primary data and the EV SQL database and full-text index on fibre channel drives. *“Most people use email for file stores, and we are able to increase the space on information stores through this solution.”* The firm has built in

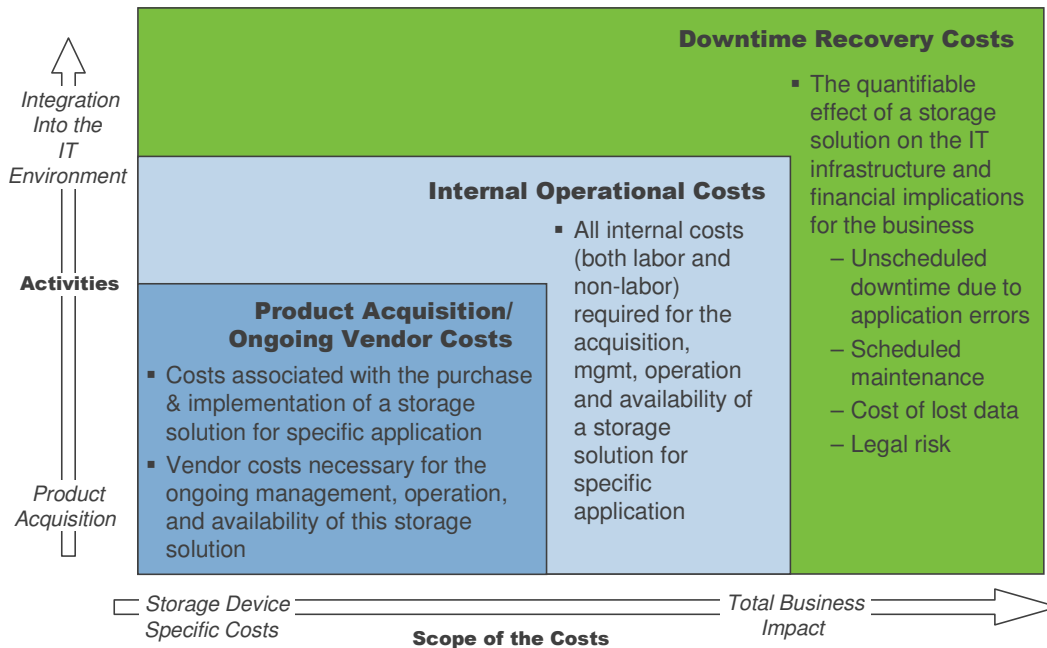
policies where any email that is 45 days or older, or over 10Mb, is automatically archived, and with the robust capabilities, Irwin Mitchell is able to keep all archived data indefinitely. The company also alleviated the issue with employees creating Personal Information Store (PST) files which created performance issues. *“Our 2Gb limit for inboxes is not big enough for a law firm, and so many partners would use the PST function and would have multiple stores with large sizes, which had a big impact on our network. When an employee would shut down Outlook, a backup was taken of the PST. We have now gotten rid of that by moving data into the vault.”*

- *Lower total cost.* With low cost SATA disks, Irwin Mitchell is able to alleviate costs as growth for its email storage has increased dramatically. The result is a cost-efficient tiered storage solution in the backup environment.
3. Implement virtualization technology (2008) – Irwin Mitchell had two key priorities in mind when purchasing the VMware Infrastructure 3 (VI3) enterprise license.
- *Lower total cost.* Irwin Mitchell is focused on reducing the multiple servers spread across the seven data centers, leading to consolidation of storage. The firm has already started to see benefits from hardware (server) cost savings, power and cooling efficiency, easier manageability, and reduced downtime. The organization has created 70 Virtual Machines (VMs), virtualizing 25% of its server environment within months of deploying the technology. It has achieved a virtual machine to host ratio of 18:1, and is running the following applications on VMware: Microsoft SQL Server, Microsoft Exchange Server, Microsoft SharePoint Server, Citrix, web applications, and a mixture of other proprietary development applications. The organization plans to expand to over 300 virtual machines over the next three years, leading to much greater expected total cost savings.
 - *Increase data availability.* Irwin Mitchell is looking to build on the advantages gained through the NetApp storage environment, and achieve faster maintenance and higher uptime in the server environment as well. With VMotion, the firm is able to conduct maintenance on servers with zero downtime through the live migration of virtual machines.

■ Methodology for Total Cost Assessment

Irwin Mitchell also took a detailed and comprehensive financial approach to assessing its storage environment, and Oliver Wyman was able to conduct this analysis by comparing Irwin Mitchell data with an internal database of storage-related costs. The financial analysis was performed using the framework defined in figure 3.

Figure 3 – Total Cost Framework



This view captures cost data across three categories:

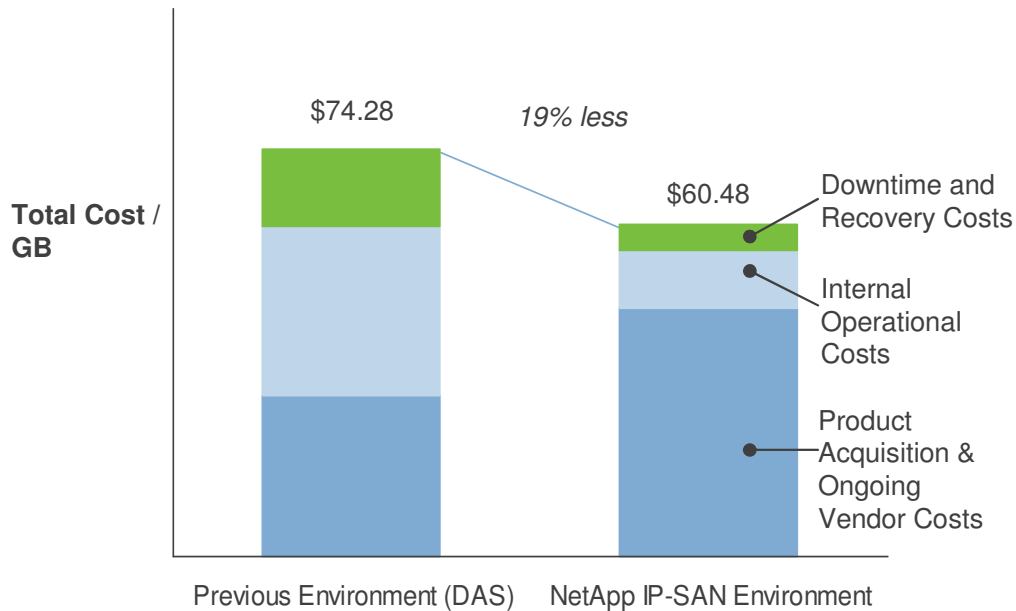
- *Product Acquisition & Ongoing Vendor Costs* include all the up-front hardware, software, networking, implementation and training costs associated with purchasing and implementing a storage solution, as well as hardware and software support and maintenance agreements.
- *Internal Operational Costs* include all labor costs associated with the ongoing management and operation of the storage solution as well as all ongoing non-labor costs (e.g., facilities, power, cooling, floor space, etc).
- *Downtime and Recovery Costs* include both scheduled downtime and unscheduled downtime caused by an application error or file corruption, or even a disaster requiring failover to the Disaster Recovery site. Data loss was factored in by taking into account the Recovery Point Objective (RPO), and the time spent on unscheduled downtime was calculated by the frequency of errors and number of hours required in the recovery process. A conservative average cost of downtime per hour was used in the analysis.³

³ The downtime estimates used in this analysis are based on figures published by various research experts. The estimated cost of unscheduled downtime used in this analysis is \$50,000 per hour, and the cost of scheduled downtime used is \$5,000 per hour.

■ Actual Total Cost Savings from NetApp IP-SAN

The product features and manageability benefits from deploying NetApp are a critical factor in the results Irwin Mitchell was able to achieve. As shown in Figure 4, Irwin Mitchell found that the initial NetApp IP SAN deployment with fibre channel disks provides a 19% cost advantage when compared to its previous DAS environment of a similar size, based on cost elements from 2004 to 2008. This has resulted in a reduction in total cost per GB from \$74.28 to \$60.48 today.

Figure 4 – Irwin Mitchell Environment Total Cost Comparison – DAS vs. NetApp IP-SAN (2004 – 2008)



The cost advantage is driven from the following factors⁴:

1. Through the NetApp IP SAN environment, Irwin Mitchell has achieved a 66% cost advantage in internal operational costs when compared to the expected costs for the previous DAS environment.
 - *The NetApp solution has led to 3.5 times more TB managed per FTE, helping to keep management costs constant. Although data growth on the NetApp environment has been quite significant, increasing from less than 1 TB in 2004 to over 68 TBs today, Irwin Mitchell has not needed to increase the number of resources required to manage the storage environment, leading to a TB per FTE ratio of over 68 today. This would not have been possible if the organization had continued to grow at this rate with the DAS environment. With the ten data center locations that Irwin Mitchell has deployed, management of the*

⁴ It is important to note that these costs are based on the actual Irwin Mitchell NetApp IP-SAN storage environment as deployed from 2004 - 2008, and may differ in any other scenario. Additionally, the comparison to DAS is not truly equivalent, as the DAS environment would require more storage capacity and higher performance to replicate the capabilities used with the NetApp system.

disparate storage systems would have required resources at each site. Irwin Mitchell IT was able to sum up the advantages best: *“NetApp has a very easy to use management interface, and has allowed us to keep our [operational] costs constant.”*

- *Irwin Mitchell has added dynamic provisioning capability with the NetApp solution, further providing labor efficiencies.* Historically, Irwin Mitchell support staff has been bogged down with storage provisioning of Direct Attached Storage for applications. The deployment of the NetApp systems has alleviated the concerns over capacity planning and reduced the drain on critical administrator resources. The head of IT explained: *“The ability to provision at the right time and right cost – use what we need – helps postpone the purchase, and saves costs.”*
2. Similarly, Irwin Mitchell has achieved 67% cost savings over DAS in downtime and recovery costs because of the NetApp IP SAN environment.
- *Irwin Mitchell is using the NetApp Snapshot functionality to recover twice as fast from an application error or a file corruption, leading to a reduction of 50% in unscheduled downtime costs.* According to Irwin Mitchell IT, *“Single file recovery now takes three clicks because of the Snapshot technology. We can recover up to 2-3 weeks out in three mouse clicks.”* This is a huge change from the DAS environment, where *“the recovery of single file that might be less than 1Mb could take three days.”*
 - *With the NetApp solution, Irwin Mitchell has also reduced scheduled downtime in its storage environment by 4x, adding greatly to the cost advantage.* Two major reasons for these savings, as explained by Irwin Mitchell’s head of IT, comes from faster provisioning and the ability to add storage while keeping the NetApp systems online: *“With DAS, we needed 16 hours for re-provisioning instead of 1 hour now with NetApp. With DAS, we had to schedule downtime weeks in advance, shut the server down, add spare capacity, and reallocate storage. This was typically a full weekend’s outage and required 2 FTEs. With NetApp, even if we don’t have free space in the disk shelves, we can add additional shelves and can allocate system capacity very easily, and we can do this while keeping the systems online – we add the shelf, plug in the connectors, let the head unit look at it and you are set.”*
 - *Irwin Mitchell has also reduced its exposure to data loss by implementing a true disaster recovery solution with the NetApp systems, leading to a 88% cost advantage over DAS.⁵* Irwin Mitchell has deployed the NetApp SnapMirror technology with asynchronous replication based on the recovery point objective (RPO) set to one hour. Irwin Mitchell

⁵ The analysis factors data loss by taking into account the Recovery Point Objective (RPO) policy. The methodology is based on an Oliver Wyman report published in January 2007, *“Cost and Risk Management in Disaster Recovery: IT Decision Maker Perspectives on EMC, HP, and NetApp Disaster Recovery Solutions”*. The following equation is used to calculate the data loss component for use in calculating the cost of lost data:

$$\text{Incremental change in replicated storage [TB]} * \text{Block level change rate} * \text{RPO}/2 * \text{probability of disaster} * \text{Cost of lost data [$/TB]}$$

A conservative value of \$2000/MB is used to calculate the cost of lost data. RPO is divided by 2 in this equation due to the assumption that a disaster will occur at the halfway point within the replication interval. The probability of disaster is based on third party data used in the stated report, suggesting that a single location disaster or large power grid or campus wide failures are assumed to occur once every 10 years.

suggested the RPO would have been at best 8 hours with the DAS environment, due to the daily incremental backup to tape.

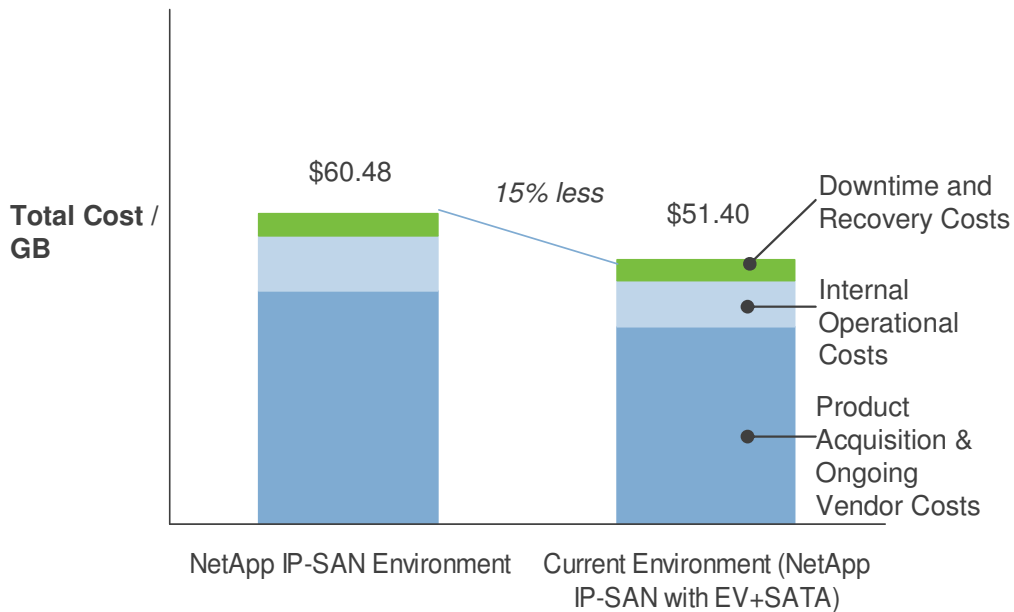
In addition to these cost savings, Irwin Mitchell illustrated that they have been able to achieve higher performance on NetApp compared to DAS, have implemented a robust business continuity plan that provides true business benefits and risk mitigation, and have been able to resolve a lot of capacity issues with the previous environment: *“We had a lot of fragmented storage which led to issues with capacity. We could not allocate on different systems like you can with NetApp thin provisioning which allows you to shrink and expand the volumes very easily. We needed to add data, reconfigure the RAID array, and perform backup, making sure you have a valid copy. As we added more data, the capacity was not sufficient, and we had to upgrade to a new architecture.”*

With these new benefits delivered from the NetApp system, Irwin Mitchell is able to address their key business drivers.

■ Actual Cost Savings from Enterprise Vault with SATA

Along with the NetApp storage systems, Irwin Mitchell deployed Symantec Enterprise Vault for its archiving needs, and made a decision to store backup data on low cost SATA disks, starting in 2006. Today, Irwin Mitchell has over 12 raw TB using fibre channel disks on NetApp and over 56 raw TB using SATA on NetApp systems. The combination of Enterprise Vault and SATA with NetApp has resulted in an additional total cost savings of 15%, or a resulting total cost per GB of \$51.40, as shown in Figure 5. These savings are on top of the NetApp total cost savings over DAS shown in the previous section, which assumed all fibre channel disks and no Enterprise Vault platform.

Figure 5 – Irwin Mitchell Environment Total Cost Comparison – Enterprise Vault with SATA (2004-2008)



The total cost advantages primarily result from:

1. Compared to a NetApp environment with fibre channel disks, Irwin Mitchell has reduced product acquisition and ongoing vendor costs by 15% through the deployment of SATA storage on NetApp systems, even when including the cost for Enterprise Vault. The head of IT at Irwin Mitchell highlighted that the costs for SATA disk drives are less than 50% of the costs of fibre channel disks, and illustrated his main objective in reducing costs with SATA: *“We were looking to mitigate costs as growth for email storage increases drastically, and we wanted to provide a cost-efficient tiered solution in the backup environment, using SATA for all file services and Enterprise Vault archived data.”* A second benefit that Irwin Mitchell has been able to take advantage of is the increased space on information stores: *“We are able to increase capacity for cheaper costs with SATA.”*
2. In addition, Irwin Mitchell has seen an improvement in internal operational costs by 15% because of the robust compliance and journaling solution implemented with Enterprise Vault, providing fast recovery of emails for Discovery or internal needs, and automated archiving capabilities. The

organization “archives all email that meets a predefined threshold based on age and size,” archiving email that is older than 45 days or greater than 10Mb in size. Through the Enterprise Vault implementation, the company has been able to significantly reduce the time to recover emails and lessen the burden on their resources. In one circumstance, a company Director required all Microsoft Exchange emails to be recovered over the course of multiple months, and the IT organization was able to deliver in hours as opposed to the weeks it would have taken without Enterprise Vault. Irwin Mitchell explained the situation:

“One of our Directors required all of his email to be recovered over a four month period. If not for Enterprise Vault, this would take 3-4 weeks of work. Historically, we would have had to go offsite and recover from tape, create another Exchange environment and search off that. It would still have not given us a direct picture because we only store monthly backups to offsite tape, so we would have had only one month worth of emails available, and would not have been able to give a complete and accurate view. However, in this case, we had the request in the morning, and it was satisfied in the afternoon. We accomplished this because of the journaling. We were able to search in the indexed logs for all the data and recover as we needed.”

3. Irwin Mitchell has also achieved a further savings of 10% in downtime and recovery costs because of Enterprise Vault, reducing the exposure to legal risk⁶ as part of the Discovery process. Through Enterprise Vault, Irwin Mitchell has “a true and accurate record of all email correspondence” since every single email is journaled and archived for compliance reasons. Because the organization is ready and able to meet any regulatory request, it is not susceptible to the same legal exposure that a lot of other organizations find themselves in. Irwin Mitchell is able to achieve this because the NetApp solution with Enterprise Vault allows indexes to be rebuilt in hours rather than days or weeks, and therefore is not prone to the risk of fines if a regulatory request comes in when the indexing is not up to date.

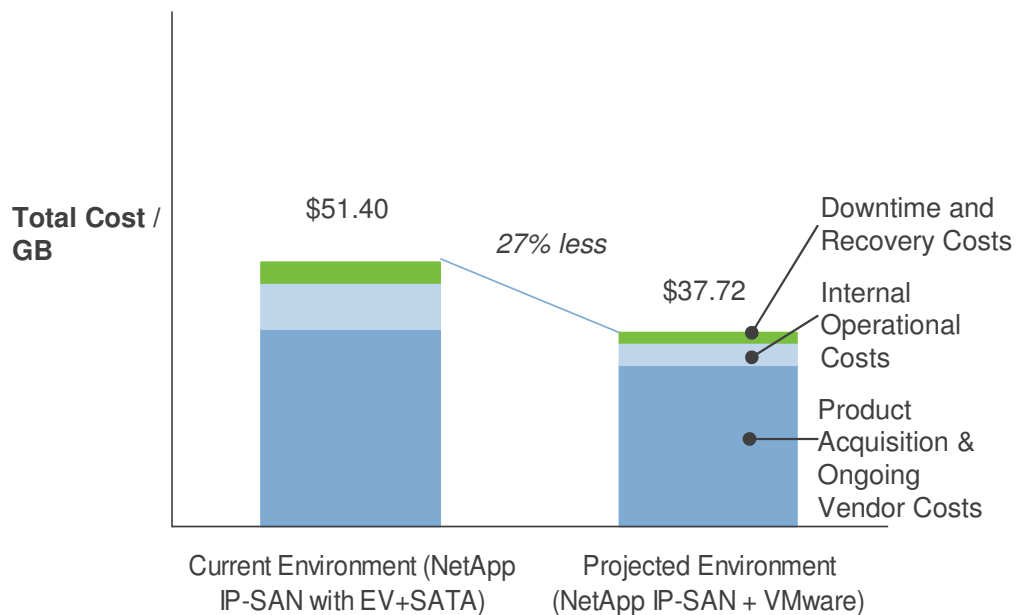
Irwin Mitchell also explained that the benefits of Enterprise Vault with NetApp extend beyond just the cost implications. The organization values the increased flexibility with fibre channel and SATA drives in the same NetApp system, as well as the improvement it has seen in email performance.

⁶ The estimate used in this analysis for regulatory fines levied by the court for not completing discovery in time is \$10,000 per occurrence, as captured in Oliver Wyman’s total cost study published in December 2007: “Total Cost Comparison: IT Decision-Maker Perspectives on EMC, NetApp, and JBOD Storage Solutions in Archive Environment.” It is worth noting that these fines may not apply across all geographies or industries. However, we are taking this more conservative approach to legal risk rather than calculating the dollar value of risk based on lawsuits incurred at any given time.

■ Projected Cost Savings for NetApp and VMware

VMware adds another level of savings for Irwin Mitchell, and provides further flexibility and scalability for the network storage environment. As shown in Figure 6, a VMware networked storage solution with NetApp storage can drive an additional 27% total cost savings for Irwin Mitchell over the next three years (2008 – 2011), leading to a total cost per GB value of \$37.72. When compared to the expected costs of a DAS solution, the total cost advantage grows to 49%, as highlighted in the executive summary section of this paper.

Figure 6 – Irwin Mitchell Environment Total Cost Comparison – NetApp + VMware (2008 – 2011)



The drivers of VMware and NetApp benefits are:

1. VMware provides for lower server hardware and network costs, leading to 18% expected savings in up-front costs alone over the current environment.
 - *The majority of the savings from VMware are a result of foregoing the purchase of new servers.* Irwin Mitchell IT is preparing to expand its virtual server environment to 300 VMs by 2011 (from 70 VMs today), the underlying basis for the savings calculated in this section. Today, the company hosts 1500 mailboxes on virtual machines, and will be primed to expand this in the near future.
 - *Additionally, Irwin Mitchell staff expects maintenance costs to ease as well. “We can move a virtual host on another physical host any time we want to conduct maintenance on a server, giving us a lot more agility and flexibility to maintain a fully functional environment.”*
2. *The NetApp environment with VMware is also expected to reduce operational costs by 50%.*

- *Because of the simplicity in management of the NetApp environment, Irwin Mitchell expects to keep the same number of resources to manage the storage, while expecting the storage growth rate (increase in total number of TBs required) to continue at a staggering 60%. The FTE efficiencies for Irwin Mitchell in the storage environment are expected to lead to a ratio of over 200 TB managed per FTE. These advantages are also expected to translate into the server environment. According to Irwin Mitchell, “Provisioning new servers takes less than an hour, as opposed to 3-4 days previously.”*
- *Irwin Mitchell expects to reduce internal operational costs by 36% based mostly from the power, cooling, and space advantages of the virtualized server environment. Irwin Mitchell’s head of IT explained that the organization has already deployed 70 virtual machines, leading to a 25% virtualized server environment since the integration of VMware in January 2008. Within this short period of time, Irwin Mitchell has already reduced internal operational costs by 6%. According to the company, “50% of this savings is due to electricity, 10% - 20% is due to maintenance, and 20% - 30% is from reduced management, especially provisioning and procurement.”*

Although not directly factored into the total cost analysis, another significant benefit Irwin Mitchell has attained through VMware and NetApp systems working together is the ability to reduce the time required for testing at the disaster recovery site while testing live data without it being a disruptive process to the production environment. *“From a business continuity perspective, we have the ability to do testing with live data, without any downtime, and with considerable less resource effort. We can bring up a DR virtual machine in 30 minutes versus hours required for bringing an actual server at the DR site, and we are getting around the need to fail over or test in a recovered state using additional NetApp technologies.”* Irwin Mitchell intends to transform into even more of a dynamic environment in the coming years, and expects to continue using leading technologies to meet its business objectives.

About Irwin Mitchell



Irwin Mitchell is the fourth largest law firm in the UK with offices in London, Sheffield, Birmingham, Manchester, Leeds, Glasgow, Newcastle, as well as in Spain. The firm provides a full range of legal services to private individuals, businesses, and other institutions. Since its establishment in 1912, Irwin Mitchell has strived to deliver excellent service to its clients by being governed by the following four values: Responsiveness, Innovation, Solutions, and Value. Information about Irwin Mitchell can be found at www.irwinmitchell.com.

About NetApp

NetApp is a leading provider of innovative storage and data management solutions that help customers accelerate business breakthroughs and achieve outstanding cost efficiency. The dedication to simplicity, innovation, and customer success has made NetApp one of the fastest growing storage and data management providers today. Since its inception in 1992, NetApp has delivered a broad portfolio of solutions for business applications, storage for virtual servers, disk-to-disk backup, and more in order to provide availability of critical business data and simplify business processes. Information about NetApp solutions and services is available at www.netapp.com.





Oliver Wyman

As one of the world's premier corporate strategy and operations firms, Oliver Wyman helps leading enterprises develop, build, and operate strong businesses that deliver sustained shareholder value growth. Oliver Wyman's proprietary business design techniques, combined with its specialized industry knowledge and global reach, enable companies to anticipate changes in customer priorities and the competitive environment, and then design their businesses and improve operations to seize opportunities created by those changes. The firm serves clients from 22 offices in the Americas, Europe, and Asia.

Atlanta

Madrid

Beijing

Mexico City

Boston

Montréal

Chicago

Munich

Cleveland

New York

Dallas

Paris

Frankfurt

Pittsburgh

Hong Kong

San Francisco

Houston

Seoul

Lisbon

Toronto

London

Zürich

www.oliverwyman.com