

WHITE PAPER

Generating Proven Business Value with EMC Next-Generation Backup and Recovery

Sponsored by: EMC

Nick Sundby

Daniel Bizo

Randy Perry

October 2011

EXECUTIVE SUMMARY

IDC interviewed ten companies that have deployed EMC backup and recovery solutions, including EMC Data Domain and EMC Avamar. Some of the customers also had EMC NetWorker. The purpose was to identify and quantify the resulting business value of each project, in order to calculate a cumulative return on investment.

The project was deliberately European in focus, complementing a similar study that IDC conducted in 2010 on behalf of EMC with a group of large U.S. corporations (*The ROI of Backup Redesign Using Deduplication: An EMC Data Domain User Research Study, IDC #220503*). The companies in this project were smaller than in the U.S. study, representing a mixture of midsized organisations (mainly fewer than 3,000 employees) and larger companies that were typically running IT services at a country or site level. Respondents were from the private and public sectors and were located in located in Estonia, Finland, France, Germany, Great Britain, Israel, Italy, South Africa and Spain.

The key findings from the research are:

- IDC analysis shows an average payback period of seven months.
- IDC analysis shows a return on investment of 450% over three years.
- Respondents reduced restore times from 17 to 2 hours on average.
- Respondents reduced their backup windows on average from 11 to 3 hours.
- Respondents saved IT staff time equal to 5.8 full-time equivalents (FTEs) over three years.
- Respondents avoided an average €1.4 million in tape upgrade, media and maintenance costs over three years.

SITUATION OVERVIEW

Backup and Recovery Challenges

IDC research shows that midsize companies face a common set of backup and recovery challenges, many of which are apparent in the interviews conducted for this study. The challenges can be grouped into four categories.

Administration

- ☒ IT admin time is in short supply and cannot be spared in managing unreliable backup and recovery processes.
- ☒ It can be difficult to assess the backup success/failure rates and to monitor system reliability.

Backup Process

- ☒ Data located at regional offices, home offices or on mobile devices often fall outside the reach of central datacentre protection.
- ☒ Multiple copies of the same files are backed up.
- ☒ Different processes may be used to protect virtualised and physical servers.
- ☒ It is often difficult to meet SLA commitments around backup and recovery.

Recovery

- ☒ Users require servers to be recovered in hours at most, and small files in minutes.
- ☒ There are generally a range of recovery speed requirements based on the criticality of the data to the business.

Tape Related

- ☒ For many companies, tape no longer has the performance or reliability to cope with their growing volumes of data.
- ☒ Manual errors in handling, such as dropped, lost or mislabelled tapes further compound recovery efforts.
- ☒ It costs time and money moving tapes between sites.
- ☒ Recovering data may be hampered by damaged or old tapes.

Midsize companies faced with these issues should realise that an efficient backup and recovery infrastructure is a strategic necessity for the business. IT administrators that are forced to spend time and effort dealing with these issues are compromised in their ability to serve the business.

Throughout the paper, IDC has called out unique customer situations from the ten interviews to help illustrate points made in the backup and recovery challenges section and illustrate the positive business impacts on a next generation backup approach.

Getting the Best from Backup and Recovery Investments – Three Keys to Sound Investment

When making backup and recovery investment decisions, executives need to judge offerings based on three business requirements. Does the proposed investment:

☒ **Help reduce costs, or at a minimum control cost increases?** In the context of backup and recovery, this study found that savings in operational and management time contributed strongly to reducing the cost of doing business. A modern, automated backup and recovery system can be managed and maintained in minutes per day. Quickly recovering lost data has a direct benefit to staff productivity for the users and IT operators.

☒ **Ensure the integrity of the business in the face of system and site-level failures?** Many of the companies interviewed in this study cited the improvement of disaster recovery as a key objective of their investment. IDC has seen that a high proportion of Data Domain users employ the EMC Data Domain Replicator software to establish off-site DR copies at a relatively low cost and with a greater chance of successful recovery than from tape. IDC research often shows that DR enhancement is consistently one of the top-of-mind considerations in planning storage investments.

☒ **Deliver deduplication capabilities that work across a growing range of applications, information types, and data retention requirements?** Whether IT departments like it or not, users in business units will make greater use of new applications and data types, such as social media, and HD media. Although it may be resource intensive to provide backup across a range of applications and data types, it is here to stay. IT infrastructure generally and backup approaches specifically must step up to the challenge.

Repsol

Removing Operational Errors in Tape Handling

With 37,000 employees worldwide and €4.7 billion in net income after taxes in 2010, Spanish energy company Repsol is a well-known household brand. The company used tape as a backup medium for many years, but managing tape was labour intensive and vulnerable to human error in its handling. Repsol is gradually replacing legacy tape libraries with Avamar and Data Domain to increase performance and better protect virtualised servers. All new backups are sent to Data Domain, and the old tape backups remain accessible until they expire and are removed from the library. The investment in Data Domain has been largely offset by removing the need to extend and replace the tape-based infrastructure. The investment in Avamar is focused more on process efficiencies rather than direct ROI metrics. According to Repsol estimates, Avamar has improved recovery and disaster recovery speed by 30%, and Data Domain by 20%.

"The savings made are not in terms of money, or saving in hardware because tapes are cheap," said Maria Ángeles Cirugeda García, Director of Publishing and Infrastructure. "The gain with Data Domain is the capability to avoid human error by automating the process, and there is no need in having an operator present at the site. With Data Domain, there are some savings, such as tape cost, and not buying extra slots in the tape library. With Avamar, the savings come from the higher speed and savings in server management and administration."

Repsol has been able to absorb growth in the business without having to increase the number of technicians. The process of managing tape has been automated yielding advantages and saving time. Savings of around €71,400 were achieved by avoiding the purchase of four new backup servers that are not required by Avamar. Regarding disk space, Repsol used to use SATA disks as a backup target before transferring to the tape library, and it has been able to free up 30TB overall with the Avamar and Data Domain migrations.

Bezeq Telco

Protecting a Petabyte With 0.5 Full-Time Equivalent (FTE)

Bezeq Telco, the 8,000-employee Israeli telco had been staging tape backups to disk for years, but it was becoming too unreliable and slow for its growing virtualised environment, "Three years ago we eliminated tape usage. Ten months ago, we took steps to enhance the disaster recovery process to provide rapid failover capability," said Igal Muginstein, Bezeq's IT Director. "We decided to use a combination of NetWorker, Avamar and Data Domain." Avamar is dedicated to protecting the virtual machines plus the remaining physical servers, while all Unix and physical Linux servers are backed up by NetWorker (among them 5-10 TB databases). Synchronous replication over IP mirrors the backups to another Data Domain in a secondary datacentre, providing rapid failover in the event of an outage. "With an average 25:1 deduplication ratio, only about 1TB rather than 25TB is sent to the secondary site each day. Even though we are a telco, we must pay for the links and this saves us money," said Muginstein.

Since the backups are only kept for one month, they are all held online and small file restores take only a few minutes. Bezeq is achieving near 900 Mbytes per second backup and 400Mbytes per second for restoring. Tape has been eliminated, and all data protection processes are handled by one person for about 50% of his time. "We are a small team managing over a petabyte of data, so the reliability and performance are very valuable for us. We are very happy with the EMC solution," according to Muginstein.

The remainder of this white paper examines the ways that the EMC backup and recovery solutions including Data Domain and Avamar help midsize companies to better address the current backup and recovery challenges and improve long-term storage and DR processes. The IDC analysis to follow also provides a detailed assessment of the business value and return on investment from EMC's backup and recovery solutions.

EMC BACKUP AND RECOVERY SOLUTIONS OVERVIEW

EMC Data Domain

Data Domain appliances significantly reduce the backup data footprint with deduplication technology. Data Domain technology uses in-line deduplication, which means it analyses ingested data and looks for data segments previously encountered and stored by the system, therefore writing only unique data to disk. Duplicated data segments are only stored as pointers, which can reduce the storage requirement by an order of magnitude over time. Data Domain systems support a range of interface options and protocol support, including VTL, CIFS/NFS, Symantec OST, EMC Data Domain Boost and NDMP.

EMC Avamar

The process of making a full backup copy has barely changed over the past two decades. A backup application takes a differential copy of the data each day, with a full backup copy taken each week or sometimes monthly. Avamar takes a different approach in that a full backup is taken every time, which in turn greatly improves recovery performance.

Ordnance Survey

900% Data Growth

Ordnance Survey is a 1,100-employee national mapping agency for Great Britain that saw a 900% increase in its data over a three-year period due in large part to higher resolution images from a new aerial imagery system. The aging tape infrastructure was not sufficient for the growth and didn't provide reliability with frequent hardware failures. About 25 hours a week of admin time was needed to ensure that backups actually completed. "Backups took too long and were prone to failure if a drive needed maintenance," said Mark Hunt, Enterprise IS Support Engineer. "A restore request could mean driving 30 miles to the secondary site to recover the required tapes. We came to realise that continued investment in tape wasn't a viable strategy for Ordnance Survey."

The company implemented Data Domain systems for both its primary backup and offsite DR. Starting initially with two Data Domain systems in 2008, Ordnance Survey now has five Data Domain systems between two sites in 2011. The backup window for some backups was cut by a factor of 11, from 19 hours to less than two. And restore times went from several hours, if the required tape was offsite, to two or three minutes, since 12 months of backups can be kept online. Even though the high resolution mapping images don't duplicate or compress very well, the company benefited from deduplication of operational and production data backups, seeing an average ratio of 23:1 — currently storing 1,333TB on 56TB of storage, saving 1,277TB capacity as well as power, cooling and floor space. And the company has resiliency built into its system to recover from datacentre outages and also confidence in the reliability of the backup and restore process.

Sub-file deduplication is performed on the client data before it is sent over the network to the backup device. Only a single instance of each sub-file segment is held in the backup and is therefore only ever backed up once. This is particularly effective when backing up virtual server environments, such as VMDK image files which are running the same operating system and tend to have a high proportion of common data between them.

Eliminating redundancy can reduce the size of the VM backup by a factor of 40–60x, allowing it to be run at any time during the day without disrupting critical application workloads. During the course of this and other research, IDC has seen numerous examples of a significant improvement in backup performance from Avamar.

EMC NetWorker

NetWorker is unified backup and recovery software that provides backup and recovery for a broad range of mission-critical applications, operating systems and storage devices. This software application provides a single point of control for both traditional and next-generation backup approaches, including backup-to-disk, backup-to-tape, snapshot and replication management, and deduplication.

NetWorker is integrated with both Avamar and Data Domain, allowing customers to incorporate data deduplication into existing backup processes. NetWorker provides backup capabilities for both physical and virtualised environments.

FINANCIAL IMPACT OF EMC BACKUP AND RECOVERY SOLUTIONS

Key Findings

IDC conducted in-depth interviews with ten organisations, each of which had deployed a mixture of EMC backup and recovery solutions. The companies have an average employee count of 3,200 and hail from all corners of the EMEA region. Diverse industries are represented, including retail, financial services, telecommunications, manufacturing, and public sector. Most of these organisations have extensive storage requirements, with an average of 430 TBs (31 GB per user) and are growing on average at 40% annually.

The interviews yielded information defining initial investment in EMC technology, deployment and ongoing maintenance costs. The interviews also elicited the experiences of each company with tangible and measurable business benefits over a three-year period, looking both at IT and end-user benefits. IDC's Business Value team combined all of these factors in the synthesis of an overall return on investment (ROI) calculation (see Table 1).

TABLE 1

Demographics

Median number of employees	3,200
Median number of IT users	2,816
Average backup requirement in TBs	431
Annual growth rate for storage	40%
Average number of IT staff	62
Average number of Avamar/Data Domain users	4
Geography	Estonia, France, Finland, Germany, Great Britain, Israel, Italy, South Africa, Spain

Source: IDC, Various interviews, 2011

IDC measured the economic benefits of deploying EMC backup and recovery technologies. About 70% of the organisations deployed multiple EMC solutions, with the combination of Avamar and Data Domain being especially prevalent. Overall, companies saw average annual benefits of €32,797 per 100 users. The savings are expressed per 100 users so that the reader can easily estimate potential savings in their own environment (see Figure 1). Savings are from the following areas:

- ☒ **Backup costs** — Organisations reduced their CAPEX associated with the purchase and infrastructure related to backup media by nearly €24,000 per 100 users annually (72% of total benefits).
- ☒ **IT staff productivity optimisation** — By reducing the time IT staff spent dealing with backup and recovery activities, organisations saved €4,201 per 100 users in IT labour costs per year (13% of total benefits).
- ☒ **End-user productivity enhancement** — End users benefit from reduced disruption from prolonged backups, and faster recovery times totalled €5,028 in savings per 100 users annually (15% of total benefits).

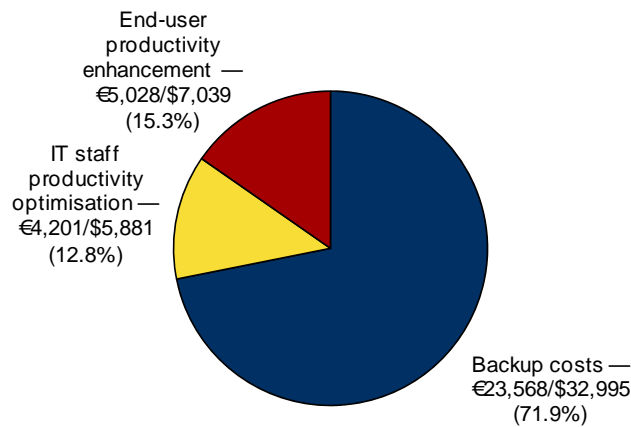
Swedbank***Rapid System Recovery***

Swedbank is a leading bank in Northern Europe with 550 branches and 17,000 employees across Sweden, Estonia, Latvia and Lithuania. It was relying heavily on aging LTO libraries that were a major management burden. "Backup windows had to be carefully managed each day to ensure that the job completed," said Swedbank Head of Storage Department, Ivan Suhhonenko. "This was taking about four hours a day. Also we needed to hit a new SLA requirement for a DR recovery in four hours. With tape it was taking about 18 hours for critical system data and up to 80 hours for lower priority files." Swedbank embarked on a 4-month project to identify a solution that would deliver the required performance and efficiency, eventually settling on Data Domain to be installed in regional and national datacentres. In a later phase, the legacy backup application was replaced by Symantec NetBackup, allowing Swedbank to exploit Data Domain's OST support and DD Boost for improved throughput performance.

Tape is now used only for long-term archive, and Suhhonenko is delighted with the performance of the Data Domain units. "Despite data growth of 30%, we can meet the DR SLA for our 100TB of criticality-1 and -2 data. We can be confident that backups complete as planned, and that we have a sound foundation for data protection in the future."

FIGURE 1

Average Annual Benefit (Per 100 Users)



Note: Exchange rate €\$ = 1:1.4

Source: IDC, Various interviews, 2011

Financial Benefits

Organisations in the study generally struggled with rapid data growth, aging tape infrastructures, and administrative overheads associated with backup processes. By implementing EMC backup and recovery solutions, organisations experienced cost savings from elimination of old hardware and reduced spending on tape storage and services, including hardware reduction and refresh avoidance. Other cost savings came from licensing fee reduction, productivity improvements from eliminating the time IT staff spent on backup and recovery, datacentre facilities expansion, and operational costs such as power and cooling.

Much of the hard costs savings came from better utilisation of storage media as a result of deduplication. Organisations in the study achieved deduplication savings ranging from 60% to 98%, with an average of 84%. Given an average 40% annual increase in storage consumption for these respondents, the benefit generated from more efficient use of storage exceeds €17,000 per 100 users annually (see Table 2).

About 60% of the companies in the study significantly reduced or eliminated their use of tape as their primary backup medium. Those companies moving away from tape as their backup medium avoided spending €3,806 per 100 users annually. Tape savings came from not only reducing tape but also by

Eiffage

Removing Tape From the Building

Eiffage, a French construction company, was facing a common problem: tape was becoming a liability as a backup medium in the context of relentless growth in data volume and the number of tapes required for backup. The mechanical nature of the medium meant every mounting and dismounting step took about half a minute, losing hours of effective backup time daily. There was also the practical consideration of the physical storage of 600 tapes. With more than 70TB of SAN data, multiple backup streams per tape were necessary to fit into the backup window, resulting in 100 different backup jobs that had to be monitored and managed. Finally, there was the exposure to mechanical failures.

Due to all these issues, Eiffage decided to get rid of tapes. Data Domain was selected because it was found to be straightforward to install and manage. Eiffage achieved a 14:1 data reduction rate, offering a more cost effective solution than tape. "We've found that the Data Domain DD580 systems offered more robustness and simplicity over tapes, enabling us to introduce differential backups again. All this with the cost benefit of using CIFS/NFS protocol, and the instantaneous replication to a second site for disaster recovery", said Rachid Habouchi, who is responsible for Eiffage's backup and storage infrastructure.

removing tape altogether, thereby eliminating the cost for tape maintenance and storage and transportation between sites. Total annual savings exceeded €2,400 per 100 users. Streamlining server assets through virtualisation also reduced costs for the respondents, and although they did not directly credit EMC solutions for the server consolidation, they did accept that virtualisation would not have been possible without Avamar and Data Domain.

City of Oulu IT Services

Dealing With an Aging Tape Family

"Our aging LTO3 tape library was becoming a major liability for us," said Marko Niskala, Infrastructure Manager of City of Oulu IT, an 85-employee, €15 million local government department providing a range of IT services to the 9,800 employees and 25,000 comprehensive school and secondary education students. "Daily differential backups were taking 12 to 14 hours, and a full backup would require continuous running over a weekend. Backup was becoming an almost continuous process, and if it failed, there was no time to rerun the process." Restoring a server was also problematic as a full block-level restore was very slow. "We had to reinstall the OS first and then do a file restore to recover the data and registry settings, taking up to two days to complete. We needed a reliable copy of the servers, as the services were restricted while the server was being rebuilt."

Rather than update the tape infrastructure, Niskala decided to invest in a disk-based solution and put together a set of requirements that included NDMP backups for the 30TB of NAS filers, and deduplicated block-level backups of the ESX servers. "To meet all our requirements, we settled on a combination of NetWorker, Avamar and a Data Domain DD670," said Niskala. "NetWorker is used to create file-level backups of virtual machines, the NAS filers and user home directories. Avamar is used for block-level backups of the virtual machine VMDK file, to give users the fast DR restores as we don't replicate to a second site. Both systems use Data Domain as a target, which replaces the tape library and allows us to hold about 60 days of backups online."

Niskala has calculated that data protection costs have been reduced by 28%, a saving that as a public sector organisation, he is happy to pass on to his users. Avamar deduplication, NDMP support and DD Boost have all helped to minimise network traffic, allowing future network investment to be deferred. The LTO3 tape library has a new role, as an off-site long-term archive.

TABLE 2

Storage Environment Cost Savings (per 100 Users)

	Average annual savings (€)	Average annual savings (\$)
Reduction from deduplication	84%	84%
Storage savings from deduplication	€17,335	\$24,269
Annual tape purchase savings	€3,806	\$5,328
Savings on elimination of tape drives (maintenance per year)	€2,427	\$3,398
Average annual benefit (per 100 users)	€23,568	\$32,995

Note: Exchange rate €:\$ = 1:1.4

Source: IDC, various interviews, 2011

As a result of streamlining storage management, the average daily backup window declined from 10.7 to 2.9 hours, saving each company an average of 2,200 hours annually. In addition, eliminating backup to tape saved another 3,760 hours associated with tape management. Better storage backup management also led to fewer errors, resulting in fewer restores per year. IT staff spent almost 900 fewer hours in restoring activities. The total savings are equivalent to 5.8 IT staff FTEs over the three years. Typically, on average three FTEs support more than 400 TBs.

Considering these companies are seeing an average capacity increase of 40% per year, a benefit of the EMC backup solutions is that the existing staff can handle an increase in storage with the same number of people. In most of the interviews, the existing IT staff were at peak effort; several respondents said that their staff members were already working more than eight hours a day just to keep up with their current load. As a result, improvement in IT productivity associated with better management of data resources contributed another €4,201 per 100 users in annual savings (see Table 3).

Signal Iduna

Tape Removed From 180 Locations

German insurance group, Signal-Iduna, had two major backup challenges: offices at 180 locations, each with demanding data protection requirements, and data growth at a rate of 70%–100% per year. Managing so many fast growing locations with tape proved to be unsustainable, so the company looked for a solution that would enable it to centralise backup management and put a cap on the growth of costs.

After evaluating several solutions, Signal-Iduna chose Avamar as the central backup hub in its datacentre. Each of the 180 branches now replicates backup data to Avamar, replacing the existing tape infrastructure. This initiative removed the need for hiring an additional full time tape administrator. "The reduction in backup management effort in time and complexity is something like 95%," said Stefan Gipser, manager of storage systems. "The implementation of the Avamar solution took only one month with two technical persons working on it only part time. The backup process also became significantly faster, and administrators now have more time to spend on production systems to improve business productivity."

TABLE 3

IT Staff Productivity Optimisation

	Before	After	Savings
Time to restore (hours)	16.50	1.55	91%
Backup hours per day (tape)	4.15	0.06	99%
Managing backup	1.52	0.28	81%
Average annual benefit (per 100 users)			€4,201
Average annual benefit (per 100 users)			\$5,881

Source: IDC, various interviews, 2011

Better managed storage backup resources and optimised IT operations significantly impact end users. For example, shorter backup windows eliminated the occasional spillover into business operations. This was not common in all organisations, but where it was a problem it negatively impacted the start of the business day, such as in the case of SPAR Group. In this study, IDC found that on average the backup window was reduced from 11 to 3 hours. Additionally, backup errors were reduced 53%. Backup errors and failed backups create minor disruptions in business operations but more importantly undermine users' confidence. Additionally, respondents reduced restore time for data files by 91%, from an average of 1–3 days to under two hours. Several of the respondents reported restore times of 5–10 minutes. As a result of the improved backup windows and the accelerated recovery times, IDC calculated benefits of 4.3 hours per user per year, resulting in savings of €5,028 per 100 users.

SPAR

Not Enough Hours in the Day for Backup

"Slow backups used to affect us quite drastically," said Predashen Nair, Technical Analyst of SPAR Group South Africa. SPAR provides distribution and retail services to over 800 stores located throughout the country through six distribution centres. "The backup jobs often had to be split up and managed manually to ensure that they completed on time. The most critical systems were typically backed up during the night and lower priority systems during the day. Just managing and monitoring the backups would take us about five hours a day, and if a backup overran into normal workings hours, production systems like Exchange could slow down, affecting several hundred people".

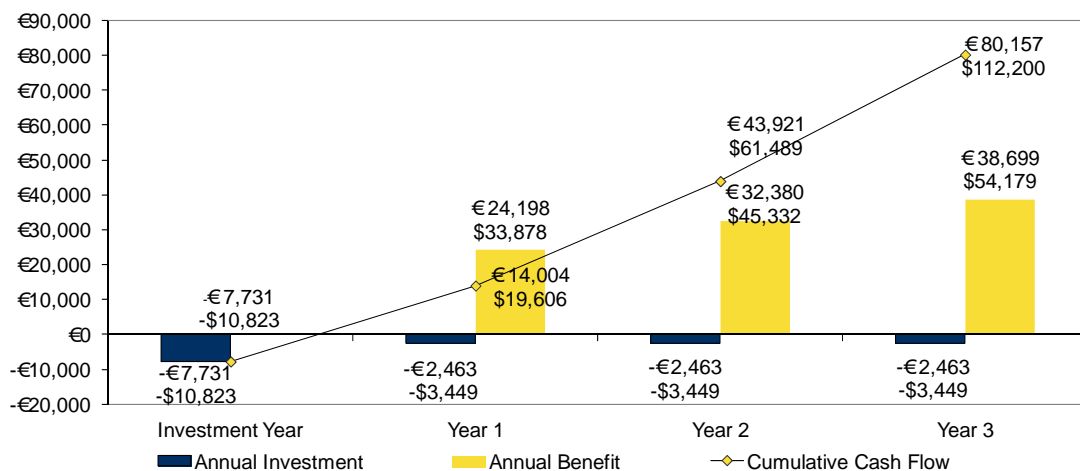
With data volumes growing at about 30% per year, SPAR knew that the legacy infrastructure would not be able to support their future requirements. Based on recommendation from a trusted local reseller, Avamar with 6TB storage was installed two years ago, initially to back up the most critical production systems. Other systems were added over time, and the capacity now stands at 18TB. All backups can be completed overnight, and if required, additional backups can be done non-disruptively during the day. Tape is no longer required as Avamar is also used as the archive platform: SPAR adds 2–4TB per year to the disk capacity rather than removing backups and transferring them to tape. The company is now planning to enhance its disaster recovery capabilities with the Avamar replicating to a new system at a secondary datacentre. "Avamar has been a tremendous success for SPAR," said Nair. "It has shown great reliability over its two years of use and typically takes only a few minutes a day to manage. It just does its thing in the background."

ROI Analysis

As with any IT solution, most of the investment takes place up front. Initial investment in EMC backup and recovery solutions was €7,731 per 100 users. Total investment over a three-year period averaged €15,121 per 100 users. Benefits start at zero and only accrue after the initial deployment period (in this case, deployment took around two months on average). Benefits totalled €95,278 per 100 users over the same period, yielding a cumulative gain of €80,157 per 100 users (see Figure 2).

FIGURE 2

Investment and Benefits are Columns. Cash Flow is a Line



Note: Exchange rate €/\$ = 1:1.4
 Source: IDC, Various interviews, 2011

The three-year ROI analysis shows that on average the companies in this study spent €13,639 per 100 users (12% discount rate) deploying and maintaining EMC backup and recovery solutions and received €74,964 per 100 users in benefits for a net present value (NPV) of €61,317. The companies saw a payback period of seven months and an ROI of 450% (see Table 4).

TABLE 4

Three-Year ROI Analysis

	Per 100 users (€)	Per 100 users (\$)
Benefit (discounted)	€74,964	\$104,950
Investment (discounted)	€13,639	\$19,095
NPV	€61,325	\$85,855
ROI (NPV/Investment)	450%	450%
Payback (months)	7.00	7.00
Discount rate	12.0%	12.0%

Note: Exchange rate €/\$ = 1:1.4

Source: IDC, Various interviews, 2011

CHALLENGES AND OPPORTUNITIES FOR EMC

These case studies demonstrate that EMC has a broad range of backup and recovery solutions that address many of the pain points associated with tape replacement, disaster recovery and the rapid growth of virtualised infrastructure. However, there are challenges facing EMC in its efforts to encourage adoption of next-generation backup technologies among midsize organisations:

- ☒ Customers' perceptions of deduplication — IDC research shows that about 70% of companies in Western Europe are not yet using data deduplication. The primary reasons given for non-adoption are that the financial case is not perceived to be strong enough or a fear of losing data or of introducing performance bottlenecks. EMC faces a marketing challenge in bringing customers up to date with the clear benefits of the current generation of solutions.
- ☒ The maturing of a successful technology — Over the past eight years, EMC has been a pioneer in bringing viable deduplication solutions to market with products including Data Domain and Avamar. Deduplication technology has evolved from its early days as a leading-edge and somewhat high-end solution to its current position as a critical element of an effective backup and recovery solution for a wider range of organisations. As the market evolves, EMC must win business in more use cases, for example in highly virtualised environments and from incumbent vendors that may have added deduplication to installed backup applications. EMC is highly focused on success in the midmarket, where EMC has the opportunity to package Avamar, Data Domain and NetWorker for the broadest possible market acceptance.

FINAL THOUGHTS AND ESSENTIAL GUIDANCE

Many companies scaled back or postponed investment in backup and recovery during the economic crisis of 2008/9, only to see data volumes continue to grow. Their aging infrastructure can't cope with the growth and is becoming a serious risk to the business. In this climate, sign-off on capital projects requires that IT managers can provide a clear and compelling financial argument to justify the investment. In this study, IDC found that the new generations of backup and recovery solutions from EMC have consistently provided a significant range of financial, operational and strategic business benefits, resulting in a strong return on investment.

Companies that are looking to invest in similar next-generation backup projects should consider the following factors in assessing the available solutions:

- ☒ The most effective solution may include a combination of integrated elements. IDC found that companies using both Avamar and Data Domain obtained higher levels of performance, operational cost saving and financial return than those using only one product in the portfolio.
- ☒ Customers should work with a VAR that knows their business and that they trust as an advisor in backup and recovery issues. While this may be obvious, many VARs are strong on the server and application side, but less so in storage and backup and recovery. Optimal solutions are unlikely to come from non-specialist suppliers.
- ☒ Measure the time taken to manage the backup and recovery process. The benefits associated with the costs of the backup solution and the associated user satisfaction are largely driven by backup and recovery process improvements — reducing time and efforts associated with backup and recovery .
- ☒ Some backup and recovery solutions are more mature than others. Maturity, stability and proven reliability are generally more valuable than the latest product feature or technical gimmick.
- ☒ Get up-to-date with next-generation backup and recovery solutions. Many companies struggling with legacy tape systems are delaying investments because of outdated or ill-informed opinions. Antiquated backup approaches can be modernised with deduplication, though many companies have yet to embrace deduplication.

In summary, the new generation of backup and recovery solutions is providing significant, consistent and proven benefits to companies that need to upgrade their backup and recovery and disaster recovery capabilities, particularly in the case where companies have virtualised infrastructure, constrained IT resources and legacy tape hardware.

APPENDIX

Methodology

The research had two key objectives:

- ☒ To identify and assess the impact made by midmarket user investment in the new generation of EMC backup and recovery technologies
- ☒ To quantify the business value of each user's investment in terms of ROI and payback period for the company. The research findings were then combined in a financial model that provides an indicative business value expectation that may be applied to comparable midmarket companies considering a similar investment in EMC backup and recovery solutions.

Project Outline

Ten companies were chosen as research subjects that conformed to a range of selection criteria, including:

- ☒ The company was a user of EMC Data Domain, Avamar and/or NetWorker solutions that had been in place for six months or more.
- ☒ The customer solution should conform to conventional practice in terms of use case, deployment methodology and project objectives in order to have the most representative results.
- ☒ The company was prepared to disclose internal IT process, infrastructure, and cost information to IDC researchers on a confidential basis. It would be required to provide information covering the period before, during and after the deployment.
- ☒ The company size was generally to be midsized enterprises, though the final range of companies interviewed was from 1,100 to 70,000 employees. Companies needed to be based in the Europe, the Middle East, or Africa.

TABLE 5

Case Study Demographics

Country	Company	Employees	IT Users
Estonia	Swedbank	17,000	17,000
France	Eiffage Group	70,000	20,000
Finland	City of Oulu Information Technology	9,000	85
Germany	SIGNAL IDUNA Gruppe	14,000	14,000
UK	Ordnance Survey	1,100	1,100
Italy	Anonymous	42,500	600
Israel	Clal Group	5,000	5,000
Israel	Bezeq Telco	8,000	8,000
South Africa	SPAR Group Ltd	3,200	400
Spain	Repsol	37,000	3,500

Source: IDC, various interviews, 2011

Each company was interviewed by IDC analysts, without EMC being present. The interviews were semi-structured in that they followed a detailed interview guide, but with the freedom to discuss or clarify particular points at whatever level was required.

IDC Business Value Methodology

IDC's ROI methodology measures the efficiency of solutions uses the findings to calculate ROI for the deployed systems. The method includes four steps:

- ☒ Evaluate the internal and external costs of administering the systems before deploying the solution.
- ☒ Ascertain the investment in the purchase, implementation, and deployment of the solution. It is important to estimate not only the initial purchase cost but also the required implementation, integration, consulting and/or training costs. To measure the total deployment investment required, IDC includes questions that cover both the cost of purchase, setup and integration as well as ongoing software fees and IT maintenance time.
- ☒ Measure the cost savings and gains in productivity, availability, and efficiency achieved using the solution. Portions of the interviews are dedicated to the discovery of cost reductions, including both "hard" IT costs, such as savings in server and back-up tape purchases and "soft" costs, including IT staff productivity, IT management efficiency and end-user productivity. For this study, IDC has modified standard category labels to what is found in the parenthesis:
 - ☐ Cost reduction (reduced backup costs): IDC asks about what costs have been avoided or reduced for servers, backup tapes, bandwidth, licensing fees and avoided travel. Savings are reported in terms of dollars per unit saved or annual reduction in spend.
 - ☐ IT staff productivity (increased IT productivity): To measure changes in IT productivity, IDC specifically asks about the reduction in time to restore databases or mission-critical business applications, the reduction in backup window time, time spent auditing and uploading/reloading data.
 - ☐ Improved management of space (improved storage management): IDC asks the customer's specific questions about the number of data storage errors per week, recovery times, failed backups per week, restore times and user productivity lost during restore.
- ☒ Calculate the payback period and ROI for the deployed solution. Based on the aggregated interview data, IDC calculates the payback period and rate of return based on the overall cost savings resulting from the investments in EMC systems.

ROI and Payback Period Calculation Assumptions

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarised below:

- ☒ Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.

- ☒ Downtime values are a product of the reduction in downtime hours multiplied by the number of users affected and their hourly rate.
- ☒ Because not every hour of downtime equates to a lost hour of productivity, IDC specifically asks about the percentage impact of an hour of downtime and attributes a fraction of the hourly result to the dollar savings.
- ☒ All IT solutions require a deployment period. The full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis based on the average deployment term.
- ☒ The net present value of the three-year savings is calculated by subtracting the discounted three-year investment from the discounted three-year benefit. IDC uses a 12% discount rate to account for potential outlays made at the time of deployment and interest on that expense.

Copyright Notice

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2011 IDC. Reproduction without written permission is completely forbidden.