# WHITE PAPER

## The ROI of Consolidating Backup and Archive Data

Sponsored by: EMC

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July 2013

## EXECUTIVE SUMMARY

What are the cost and productivity benefits of taking a consolidated approach to data protection versus more siloed approaches to backup and archiving? To assess the benefits, IDC recently conducted in-depth interviews with three organizations using EMC Data Domain deduplication storage systems to protect backup *and* archive data. These interviews provided valuable insight into the realized benefits of an integrated data protection strategy. IDC analyzed the data from these interviews and compared the results with data and insights from nine other interviews conducted previously with customers using Data Domain systems to protect *only* backup data. In both sets of interviews, IDC used a consistent methodology, measuring how Data Domain systems reduced infrastructure and ongoing management costs and how they improved IT staff productivity as well as end-user productivity. Based upon an analysis of the aggregate results of the 12 organizations studied, the customer benefits realized from leveraging Data Domain systems to consolidate backup *and* archive data can be summarized as follows:

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**Business Value Highlights**

☑ Generated average annual backup and archiving savings of $1.8 million

☑ Improved IT staff productivity to support storage operations by 55%

☑ Reduced loss of user productivity from backup, restore, and retrieval operations by 81%

☑ Three-year ROI of 489%

☑ Payback in less than six months

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☑ **Strong return on investment (ROI) and annual savings.** Over three years, the organizations in this study achieved an ROI of 489%. These organizations furthermore managed to pay for the initial investment in Data Domain systems in less than six months due to the average $1.8 million annual cost reductions and productivity gains of consolidating backup and archiving.

☑ **Large data protection operations cost reductions.** On average, the organizations in this study reduced their backup and archiving costs by $884,031 annually.

☑ **IT staff productivity optimization.** Organizations with a consolidated backup and archive storage platform reduced the time required to support storage operations by 55%, which resulted in an average gain of $657,316 annually.

☑ **End-user productivity improvement.** End users saw an average improvement of 81% in their productivity due to consolidating on a single backup and archive storage platform, which equated to a $243,843 average annual gain.

# THREE PRINCIPLES TO PROTECTING KEY INFORMATION ASSETS

Effective information management is a must-have for organizations — regardless of size, industry, or location — to ensure proper information handling, corporate governance, regulatory compliance, and, importantly, customer trust. An effective information management strategy includes protecting the right information, making the information appropriately accessible, ensuring data integrity and security, and ultimately disposing of information at the appropriate time and in the appropriate way. By embracing an information management strategy that includes these components, organizations can reduce costs, make smarter business decisions, and react more quickly to changing conditions, not to mention avoid data breaches as well as compliance and potential legal issues.

A key aspect of an effective information management strategy is a company's approach to backup and archiving. Three driving principles serve as guidelines for IT decision makers in making backup and archive storage purchasing decisions. An optimal information management strategy:

☑ Delivers a robust ROI

☑ Meets backup, archive, and disaster recovery objectives

☑ Offers the flexibility to support future needs and changes

Until recently, most organizations thought of backup, archiving, and disaster recovery as three separate silos — each requiring its own infrastructure. However, the rate of data growth, coupled with the fact that electronic information is the lifeblood of nearly every organization, makes a siloed approach ineffective. As such, organizations need to adopt a holistic data protection approach that includes backup, archiving, and disaster recovery as part of their central information management strategy. By taking a consolidated approach, IT decision makers can ensure proper alignment with the three principles previously outlined.

## Delivers a Robust ROI

Many backup and archive implementations suffer from a weak or immeasurable ROI. As a result, these systems often get a bad rap as being a financial drain on the overall IT infrastructure. Therefore, obtaining a consistent, measurable, and robust ROI on a consolidated backup and archive infrastructure should be a mandatory requirement. It should entail the measurement of:

☑ Reduced direct and indirect infrastructure costs

☑ Improved IT staff and end-user productivity

☑ Reduced ongoing capex and opex

When these three metrics are combined, an organization must be able to provide solidly positive cash flows beginning with years subsequent to the investment year.

## Meets Backup, Archive, and Disaster Recovery Objectives

A consolidated approach to data protection that includes backup, archive, and disaster recovery needs to deliver tangible business benefits, including:

☑ **Reliable data access and recovery.** The best information in the world is useless if customers, employees, or business partners can't access it when they need it. The availability and integrity, or lack thereof, of information can directly affect revenues and profits. Data protection issues related to corporate governance can influence reputations and have significant legal implications.

☑ **Timely data access and recovery.** Application owners and executives expect their files and data to be available — in the case of either an operational disruption and/or a disaster. Likewise, failure to meet a governance or compliance request to search and retrieve archive data in a timely manner can result in loss of productivity, fines, or loss of customer trust.

☑ **Optimal long-term data retention.** Without a proper strategy in place, organizations are exposed to the risk of violating either regulatory obligations and/or corporate governance regulations. At the same time, retaining years' worth of backup tapes has little value because this data is not online or accessible to anyone. Stale data in the backup stream only serves to slow down the already stressed backup process. It is important to differentiate long-term retention of backup data from archiving.

## Offers the Flexibility to Support Future Needs and Changes

Implementing a consolidated backup and archive solution is a long-term decision that has profound impacts on how effectively an organization meets its service-level objectives. The architecture must be sustainable — over the long term — to cater to specific decision points made in support of the organization's overall backup and archive strategy. IT decision makers should ensure that their architecture, as well as their solution, has the following capabilities to ensure long-term viability:

☑ **Supports all applications — physical and virtual.** The solution needs to accommodate existing and new data sets and information types — both physical and virtual — and adequately and intelligently support, protect, and ensure seamless integration of diverse data sets and information types in an organization. In most IT infrastructures, it is common to find nonintegrated virtualization objects (virtual images), one or more relational databases, and user data such as emails, documents, and spreadsheets. All of these elements require an integrated and consistent backup and archive approach.

☑ **Deduplicates both backup and archive data.** It's important for the solution to be able to intelligently deduplicate data sets that are archived and backed up to ensure minimal data footprint (and costs associated with data management) while ensuring data integrity.

☑ **Ensures data separation.** The solution also should intelligently manage data between backup and archive in line with the needs of the organization to ensure rapid access to needed data sets while not overburdening the infrastructure with the management of seldom accessed data sets.

☑ **Delivers scalability.** To ensure long-term ROI, the solution must be scalable to accommodate sudden unanticipated growth in one or more data sets. The platform should also be upgradeable in place and minimize disruptions during such upgrades.

## CONSOLIDATED BACKUP AND ARCHIVE SOLUTION WITH EMC

The continued expansion in the creation and retention of information is already having a dramatic impact on storage environments, with IT executives realizing that the cost of storing and managing diverse data repositories will become a major concern for their staff. Left unchanged, this situation risks disrupting the delicate balance between the organization's ability to conduct business and avoid budget overruns. Thus, it is imperative that IT organizations deploy a robust and consolidated backup and archive storage solution that meets the criteria outlined in the first part of this paper.

The remainder of this white paper examines the many ways that EMC Data Domain deduplication storage systems help organizations better address the current challenges associated with their backup, archive, and disaster recovery processes. It also provides a detailed assessment of the business value and ROI that organizations obtained from using Data Domain systems.
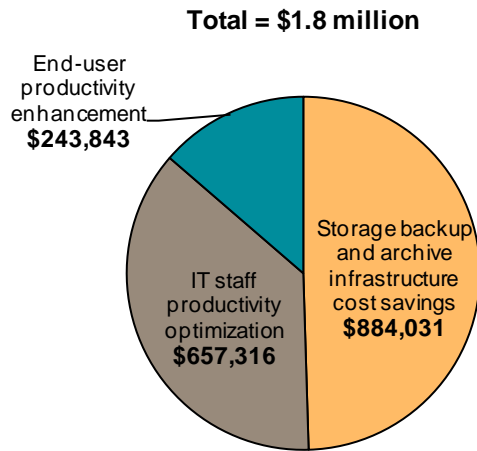
### Benefits

All 12 organizations interviewed by IDC have realized significant benefits from deploying their Data Domain systems. By taking an integrated approach to backup and archiving, the organizations in this study have seen average cost reductions of approximately $1.8 million annually (see Figure 1). Leveraging a Data Domain system for backup and archive consolidation, organizations realized:

☑ **Infrastructure cost reductions.** Organizations greatly reduced the requirements and costs for tape and the associated overhead and eliminated standalone archive storage systems. They reduced current and future infrastructure costs by an average of $884,031 annually.

☑ **IT staff productivity gains.** Organizations reduced annual requirements for time to perform key activities related to backup and archiving — especially search and retrieval, restore, and uploading/reloading data — by an average of 59%, which resulted in an average gain of $657,316 annually.

☑ **End-user productivity gains.** Organizations reduced end-user time lost due to data storage errors, failed backups, restores, and search and retrieval by an average of 81%. End-user productivity benefits translated into an average gain of $243,843 annually.

Annual Benefits from Consolidating Backup and Archive Data
on a Data Domain System

**Total = $1.8 million**



End-user
productivity
enhancement
**$243,843**

IT staff
productivity
optimization
**$657,316**

Storage backup
and archive
infrastructure
cost savings
**$884,031**

Source: IDC, 2013

### *Infrastructure Cost Reductions*

With Data Domain systems, 11 out of 12 organizations in this study significantly
reduced their backup and archive capital and operating costs. Much of the cost
reduction stemmed from reducing the role of tape in the backup and archive process,
saving $598,193 on tape and tape drives and $179,273 on tape transportation,
storage facilities, and not having to upgrade tape libraries. In addition, they avoided
server costs of $39,975. By deploying a consolidated backup and archive storage
platform, these organizations no longer needed to support and upgrade their
standalone archive storage system, resulting in additional savings of $66,590. In total,
Data Domain customers enjoyed backup and archive savings of $884,031 annually
(see Figure 2). Customers that consolidated backup and archive data using Data
Domain generated 28% higher storage environment savings than customers that
used Data Domain to protect only backup data.

## FIGURE 2

Infrastructure Cost Savings from Consolidating Backup and Archive Data on a Data Domain System

**Total = $884,031**
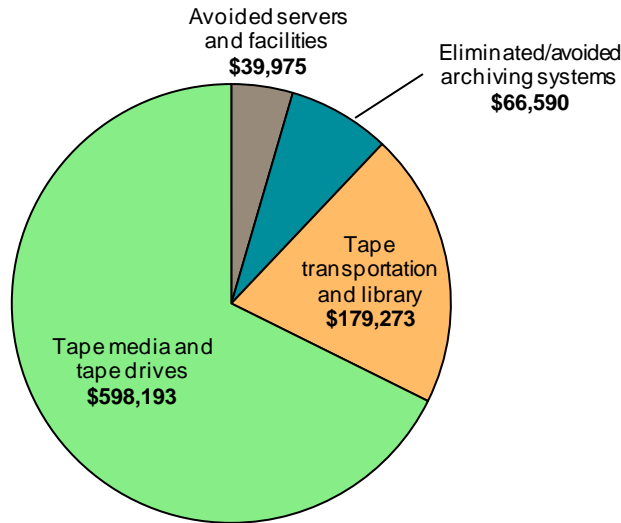


Source: IDC, 2013

### *IT Staff Productivity Gains*

With Data Domain systems, the organizations reduced the time their IT staffs spent managing backup and archiving functions by 59%. This time savings includes provisioning, managing capacity, and space reclamation. However, the most significant time savings came from restore and search and retrieval (see Figure 3). For example:

☑ The organizations conducted an average of 22–23 restores per month. They reduced the restore/access time by 86% (from just under five hours to 40 minutes).

☑ On average, the organizations reduced search and retrieval time by 90%.

☑ Organizations reduced the time spent preparing for external archive audits and conducting the audits by 39%.

One IT manager from a financial company saw significant savings in reloading data: "They ask for a file that they deleted or that they had four or five years ago. I used to have to tell one of the administrators to go and order cases of tapes from storage. In fact, we had an administrator just responsible for ordering tapes. Now I can tell my assistant administrator … 'Please go pull that file,' and there are no tapes to order. That happens, maybe not every day, but a few times each week. … I'd say that they would save two hours per week … so a half hour saved per incident."

The average savings from increased IT staff productivity amounted to $657,316 annually. Customers that consolidated backup and archive data using Data Domain generated 50% higher IT staff productivity savings than customers that used Data Domain for backup data only.

## FIGURE 3

IT Staff Productivity Gains from Consolidating Backup and Archive Data on a Data Domain System



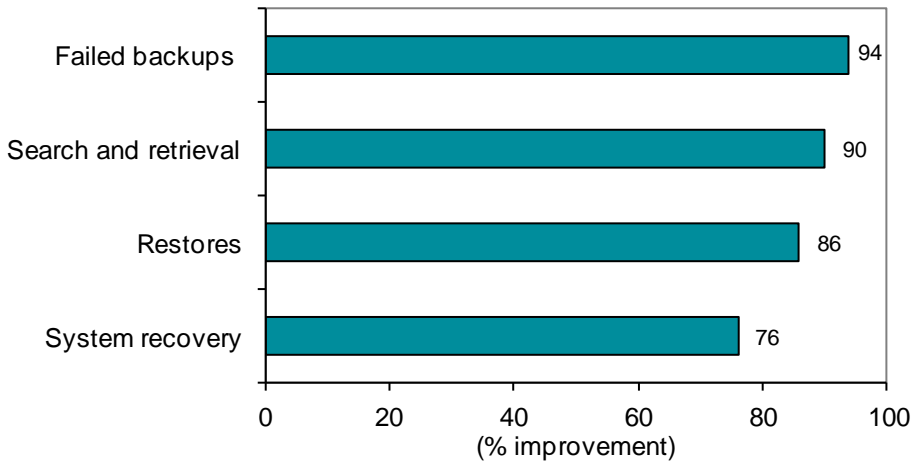Source: IDC, 2013

### End-User Productivity Gains

End-user productivity improved by 81% as organizations avoided situations that cause downtime for users, including failed backups, long restore times, and lengthy search and retrieval (see Figure 4).

In the case of search and retrieval, one company reduced the total process from eight hours (a very manual process involving tape retrieval) to 30 minutes. According to the company, "Throughout the firm, we probably do three or four restores a day. In the meantime, the users are waiting. They are probably paid $80,000 a year. When they had to wait a day to get a file restored, they lost two hours of productivity."

The 12 organizations realized average benefits of $243,843 annually from improved user productivity by consolidating backup and archive data on a Data Domain system.

## FIGURE 4

End-User Productivity Gains from Consolidating Backup and Archive Data on a Data Domain System
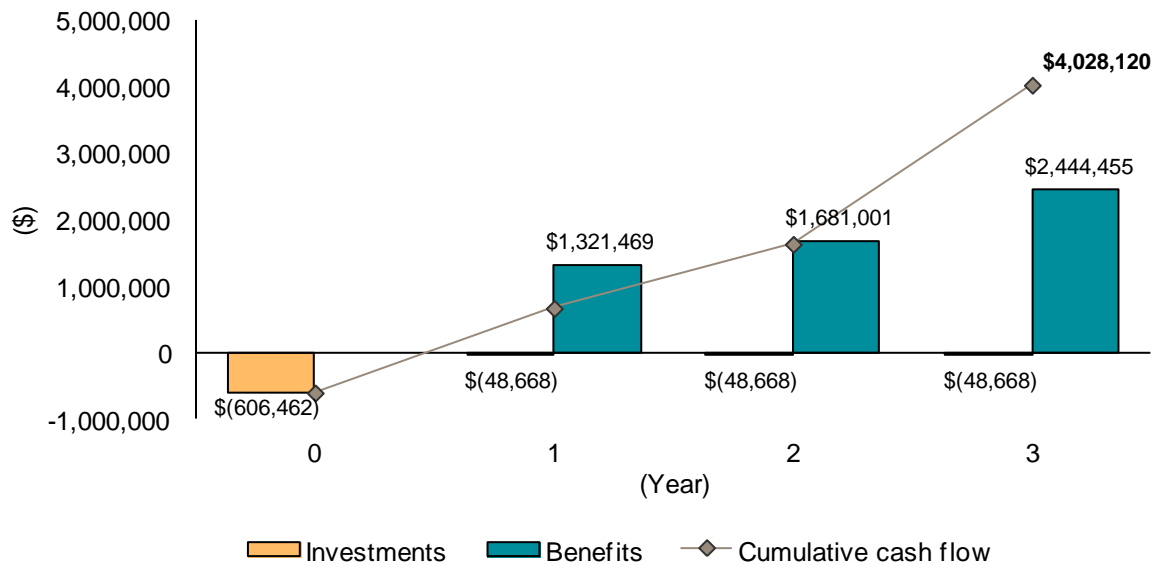


Source: IDC, 2013

## Investment, Benefit, and Cumulative Cash Flow Summary

On average, the organizations in this study initially invested just over $600,000, which included the purchase of the Data Domain system, labor cost for installations, and training and consulting costs. Annual benefits averaging approximately $1.8 million enabled the organizations in the study to pay back the initial purchase in less than six months.

Figure 5 illustrates the aggregated annual benefits, investments, and cumulative cash flow over three years for the customers IDC interviewed in this study.

## FIGURE 5

Investments, Benefits, and Cash Flow



Source: IDC, 2013

### *Return on Investment*

IDC's ROI analysis of Data Domain systems is based on cash flow of initial and annual investments compared with benefits over three years. Based on the data gathered from the customers, Data Domain systems offer an ROI of 489% and payback occurs in 5.7 months (see Table 1). Organizations that consolidated backup and archive data on Data Domain enjoyed a 41% higher overall ROI and realized payback more quickly than organizations deploying Data Domain for only backup data.

### TABLE 1

Three-Year ROI Analysis

| Benefits (discounted) | $4.3 million |
|---|---|
| Investments (discounted) | $723,000 |
| Net present value (NPV) | $3.5 million |
| Return on investment (ROI) | 489% |
| Payback | 5.7 months |
| Discount rate | 12% |

Source: IDC, 2013

## CHALLENGES AND OPPORTUNITIES

The insights EMC customers provided clearly show that consolidating backup and archive data on a Data Domain system can have a dramatic impact on overall costs and operations. Suppliers that embrace this notion will be in better shape to cater to existing and prospective clients than suppliers that tend to look at backup and archive as separate issues. IDC believes that EMC belongs to the former camp — suppliers that are looking ahead to the future needs of existing and prospective customers.

The challenge — and opportunity — for EMC is to demonstrate that a consolidated Data Domain approach for both backup and archive is more cost effective than silos of storage for backup and archive, especially since the latter still most often uses ineffectual tape storage in a closet or a warehouse. As the world's market share leader in purpose-built backup appliances, Data Domain systems are a very strong and established brand for backup. However, EMC needs to raise the profile of Data Domain to become more of a protection storage platform that includes backup and archiving. Given how strong Data Domain is in the market for backup, it is not a stretch to believe that it will become the leading platform for both backup and archive. In addition, many customers not only will welcome the elimination of multiple backup and archive silos but also will benefit from the added security and ensured data integrity provided by the Data Domain Data Invulnerability Architecture that ensures the appropriate protection of both short-term data and long-term data.

# FINAL THOUGHTS AND ESSENTIAL GUIDANCE

The issues of backup, archiving, and disaster recovery have never been more critical for IT executives as they make investment decisions. They must deal with an expanding set of business-critical applications, a shrinking window for acceptable time to application recovery, and a heightened awareness of the costs associated with lost or corrupted data. Furthermore, governance and compliance requirements drive investments in archiving.

Given that needs around backup, archiving, and disaster recovery are converging, it is time for IT organizations to think of them not as three separate issues but as one issue. To do this, organizations need to embrace a solution that addresses all three data protection challenges holistically. In this new world, consolidation and automation are operative words that govern backup, archival, and disaster recovery processes across the entire organization. The goal should be to consolidate resources, lower costs, improve manageability, and provide operational and disaster continuity for applications in a manner consistent with stated service-level objectives. At the same time, archiving processes must provide reliable access to data for the long term to meet governance and compliance requirements.

# IDC'S ROI METHODOLOGY

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

1. Evaluate the internal and external costs of administering the systems before deploying the solution.

2. 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 the cost of purchase, setup, and integration as well as ongoing software fees and IT maintenance time.

3. 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 backup tape purchases, and "soft" costs, including IT staff productivity, IT management efficiency, and end-user productivity. For this study, we have modified our standard category labels to the terms noted in parentheses:

   ❑ **Cost reduction (reduced backup costs).** IDC asks about what costs have been avoided or reduced for servers, backup tapes, bandwidth, licensing, and 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 as well as the reduction in backup window time and time spent auditing and uploading/reloading data.

- ❑ **Improved management of space (improved storage management).** IDC asks customers specific questions about the number of data storage errors per week, recovery times, failed backups per week, restore times, and user productivity lost during restores.

4. 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 Data Domain systems.

## Data Sourcing

The data model underlying the business value analysis in this paper is based on interviews with IT executives and managers at 12 organizations using Data Domain — three of which used Data Domain as a consolidated target for backup and archive data. The interviews focused on the experiences of these organizations and the impact of Data Domain systems on their storage operations and future planning. These medium-sized to large organizations had an average of 5,448 employees. Based in North America, the organizations represented the financial services, media, manufacturing, retail, transportation, and utilities industries. Study demographics are presented in Table 2.

### TABLE 2

Demographics

| | |
|---|---|
| Average number of employees | 5,448 |
| Average number of IT end users | 4,844 |
| Average storage (TB) | 815 |
| Annual storage growth (%) | 45 |
| Average number of storage management staff | 2.83 |
| Industries | Financial services, media, manufacturing, retail, transportation, utilities |

Source: IDC, 2013

## ROI and Payback Period Calculation Assumptions

IDC bases the ROI and payback period calculations on a number of assumptions, which are summarized as follows:

- ☑ 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.

*Note: All numbers in this document may not be exact due to rounding.*

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