The Total Economic Impact™ Of Dell EMC Isilon Scale-Out NAS

Cost Savings And Business Benefits Enabled By Isilon

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ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

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Executive Summary

Dell EMC commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Isilon scale-out network-attached storage (NAS). The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of an Isilon investment on their organizations.

To better understand the benefits, costs, and risks associated with an Isilon implementation, Forrester interviewed several customers with experience using Isilon. Dell EMC Isilon is a scale-out NAS platform that enables organizations to store, manage, and analyze unstructured data. Isilon clusters are composed of different node types that can scale up to 68 petabytes (PB) in a single cluster while maintaining management simplicity. Isilon clusters can also scale to edge locations and the cloud.

Prior to using Isilon, the interviewees used traditional storage solutions to store and analyze a rapidly growing volume of unstructured data. The interviewees often managed data in silos and had multiple storage solutions in their prior environments, creating management inefficiencies that prevented IT staff from focusing on more valuable work. These systems lacked the flexibility to scale as you grow, and overprovisioning created cost inefficiencies from lower utilization. Additionally, these interviewees required continuous delivery of services for customer satisfaction and business growth, and these less flexible systems could not provide the scalability, performance, or availability necessary to avoid costly disruptions to their business or enable business growth.

With Isilon, the interviewees have a storage platform with a single shared data lake that can easily scale to accommodate rapidly growing unstructured data capacity. Isilon's heterogeneous clusters can support a variety of applications and storage needs, with different tiers of storage appliances as well as a cloud storage tier. Aligning data with the best-fit tier creates cost efficiencies, and higher utilization rates from reduced silos and reduced overprovisioning also help to lower costs. Isilon provides significant management efficiencies due to automated tiering with Isilon SmartPools and CloudPools software and efficient data replication with Isilon SyncIQ for disaster recovery. Interviewees all noted that Isilon required very little training, and that managing clusters with several PBs of data required less than one full-time equivalent (FTE). Interviewees also noted that in addition to scalability and cost effectiveness, performance and resiliency of their Isilon clusters help their organizations support fast business growth and drastically reduce downtime. Said one organization: "Isilon certainly has contributed to our customer satisfaction. The downtime on Isilon for our services in the total time we have used it is zero. We continuously do necessary upgrades through the platform and scale capacity without disturbing our customers."

Key Findings

Quantified benefits. The following risk-adjusted quantified benefits are representative of those experienced by the companies interviewed:

› **Isilon storage tiers and scalability enable cost optimization.** Interviewees take advantage of the differing performance levels and cost effectiveness of the Isilon nodes and the cloud tier to optimize storage costs within each cluster. SmartPools and CloudPools help interviewees automatically allocate data to the most appropriate storage tier in the

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ROI
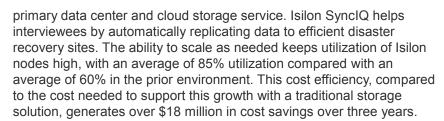**250%**

Benefits PV
$31.3 million

Costs PV
$8.9 million

NPV
$22.4 million

"Without the scalability of Isilon, our growth wouldn't be possible. Storage is critical to what we do."

— *Senior director of SaaS engineering, software company*

primary data center and cloud storage service. Isilon SyncIQ helps interviewees by automatically replicating data to efficient disaster recovery sites. The ability to scale as needed keeps utilization of Isilon nodes high, with an average of 85% utilization compared with an average of 60% in the prior environment. This cost efficiency, compared to the cost needed to support this growth with a traditional storage solution, generates over $18 million in cost savings over three years.

› **Interviewees achieve significant storage management efficiency with Isilon, freeing up time for more value-add work.** Interviewees needed a team of dedicated storage staff to manage their prior storage environment, with additional headcount needed to support rapid data storage growth. Prior to using Isilon, each administrator managed 500 TB of storage. With Isilon, each administrator can manage 10 PB of data. Isilon nodes take minutes to install, and the data lake is easy to manage with the automated features of Isilon software. Isilon InsightIQ also provides reporting and monitoring assistance.

› **Elastic Cloud Storage (ECS) with CloudPools further optimizes storage costs.** CloudPools allows interviewees to integrate with the cloud as an additional storage tier for rarely accessed data. For organizations that choose to use ECS for their cloud tier, ECS provides additional cost efficiencies compared with public cloud options, including no egress costs for data retrieval. By tiering "cold" data to the cloud, organizations can use Isilon nodes for more active data, avoiding some additional node purchases and freeing up data center space. This benefit, in addition to the improved density of Isilon nodes compared with traditional storage systems, helps to reduce data center space requirements for the same amount of capacity by 65%.

› **Isilon is viewed as a critical enabler of business growth.** All interviewees mentioned the importance of cost-effective, scalable, high-performance storage to enabling business growth. The limitations of traditional storage affected the pace of business growth and customer satisfaction. As one organization noted: "Without the scalability of Isilon, our growth wouldn't be possible. Storage is critical to what we do."

Unquantified benefits. The interviewed organizations experienced the following benefit, which is not quantified for this study:

› **Future plans to run big data analytics on the Isilon data lake could yield key benefits.** Some interviewees are planning to expand big data initiatives to the shared data lake to surface new insights that could create significant business impact. In addition, compared with traditional Hadoop deployments, Isilon's in-place analytics helps organizations avoid infrastructure costs for big data capabilities and improves the efficiency of these projects.

Costs. The interviewed organizations experienced the following risk-adjusted costs:

› **Costs for Isilon appliances and support.** Organizations pay for Isilon appliances as they are added to their clusters and pay for cloud capacity as capacity grows. Interviewed organizations also pay for warranty and support for Isilon nodes.

› **Implementation and management costs.** Interviewed organizations spend time upfront preparing their environments for the Isilon investment
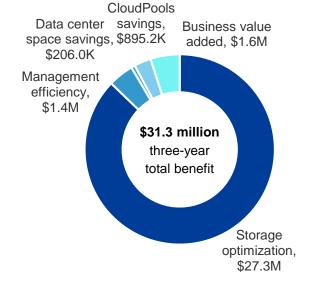
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and migrating data from traditional storage systems to Isilon nodes. Interviewees all noted minimal training time required for the investment, and minimal time spent on ongoing management and scaling of the Isilon environment.

Forrester's interviews with four existing customers and subsequent financial analysis found that a composite organization based on these interviewed organizations experienced benefits of $31.3 million over three years versus costs of $8.9 million, adding up to a net present value (NPV) of $22.4 million and an ROI of 250%.

> "For our services, we needed a storage solution that was easily scalable with a shorter delivery time than the solution we had before, and also a solution that could scale in smaller steps. Our previous solution demanded that scaling up be done in very big volumes and was therefore also very expensive to do. We also needed a solution that provided high performance to support our service offers. Isilon came out on top."
>
> — *Senior service manager, telecommunications*

CloudPools savings, $895.2K

Data center space savings, $206.0K

Business value added, $1.6M

Management efficiency, $1.4M

$31.3 million three-year total benefit

Storage optimization, $27.3M

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TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Isilon.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Isilon can have on an organization. Specifically, we:

DUE DILIGENCE
Interviewed Dell EMC stakeholders and Forrester analysts to gather data relative to Isilon.

CUSTOMER INTERVIEWS
Interviewed four organizations using Isilon to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed organizations.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interviews using the TEI methodology, and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.

CASE STUDY
Forrester employed four fundamental elements of TEI in modeling Isilon's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

> The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by Dell EMC and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in Isilon.

Dell EMC reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

Dell EMC provided the customer names for the interviews but did not participate in the interviews.

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The Isilon Customer Journey

BEFORE AND AFTER THE ISILON INVESTMENT

Interviewed Organizations

For this study, Forrester conducted four interviews with Isilon customers. Interviewed customers include the following:

INDUSTRY	REGION	EMPLOYEES	CURRENT ISILON CAPACITY
Software, video services	Headquartered in the United States	400 employees	12 PB data, six years using Isilon
Telecommunications	Headquartered in Europe	15,000 employees	9 PB data, four years using Isilon
Managed IT services provider	Headquartered in the United States	Three customers use Isilon	50 to 200 TB data per customer, three years using Isilon
Visual media organization	Headquartered in Europe	Several thousand employees	6 PB data, 10 years using Isilon

Key Challenges

The interviewees had several challenges with their prior storage environment that led them to look for a solution like Isilon, including:

› **Many interviewees were using multiple traditional storage systems to manage unstructured data in silos**. This resulted in growing management inefficiencies as capacity needs grew as well as cost inefficiencies and low utilization.

› **Traditional storage systems had a number of limitations, including limits to growth and the inability to scale with demand.** Most interviewees had to overprovision storage capacity in order to scale the storage environment, creating higher capex and opex costs than needed based on the storage capacity actually being utilized. One interviewee noted that if the organization had kept its prior storage solution, it would need to re-architect its key applications in response to its storage limitations, which was expected to be a very costly project. Additionally, interviewees noted limitations of prior backup architecture. The types of data being stored did not compress or dedupe, and with long data retention policies, costly backup system capacity was being used quickly.

› **Ultimately, traditional storage system challenges affected business growth.** Issues with performance and downtime hurt customer satisfaction. Combined with difficulty scaling cost effectively, the interviewees viewed storage as a limitation to growth, not an enabler.

> "The main pain that Isilon solved is the flexibility to scale out in a single namespace. Instead of running and fixing unstable, small storage solutions and managing multiple namespace, we now work with one single namespace that we can scale out. In the previous solution, we had to add more namespace, manage it, and move files all over, and it took a lot of time. There were a lot of errors, and that affected our business."
>
> *— Senior director of SaaS engineering, software company*

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Key Results

The interviews revealed key results from the Isilon investment, including:

› **All interviewees realize both capital and operational cost efficiency with Isilon.** Interviewees use SmartPools to automatically allocate specific workloads to the most cost-effective Isilon tier. They scale as capacity needs increase to reduce overprovisioning and maintain higher utilization of Isilon infrastructure compared with traditional infrastructure. Interviewees also noted the overall lower cost per gigabyte (GB) for Isilon storage versus traditional storage. CloudPools helps interviewees shift rarely accessed data to the cloud, moving capex costs to opex by freeing up on-premises capacity and reducing data center space requirements. Isilon's single file system and automation capabilities allow organizations to add capacity in minutes, spend minimal time on management, and dramatically reduce time that was previously spent on resolving issues that resulted in downtime.

› **Isilon better supports business growth.** All of the interviewees struggled with the limitations of traditional storage systems and the effect of these limitations on customer satisfaction and business growth. Data storage capacity scalability is viewed as pivotal to supporting current and future services, with one interviewee noting: "Without the scalability of Isilon, our growth wouldn't be possible. Storage is critical to what we do." Performance and availability are also critical to customer satisfaction, and the prior storage solution struggled to handle spikes in demand, which resulted in several days of downtime a year. With Isilon, these challenges are resolved, as one interviewee noted: "Isilon certainly has contributed to our customer satisfaction. The downtime on Isilon for our services in the total time we have used it is zero."

› **Interviewees view Isilon as a key partner and benefit from Isilon support.** Several interviewees highlighted the benefit of having Isilon as a key storage partner. One interviewee noted that the Isilon teams have deep domain and industry knowledge, helping the interviewee feel more confident that the Isilon investment will meet storage requirements and effectively support business needs. Another interviewee commented on the importance of the Isilon support team in reducing the organization's storage management burden. Whenever there is an issue with the Isilon environment, or if a node or hard drive fails, Isilon engineers will replace defective equipment or help the interviewee troubleshoot. Says the interviewee, "At the end of the day, Isilon support saves me resources because I don't need these capabilities in-house, and it lets me concentrate more on our business and less on the storage."

"With traditional storage system limitations, eventually you hit a point of growth where the storage had a limit. Isilon removed that limitation for us so we could grow their single share out to basically unlimited capacity."

— *Storage architect, managed services provider*

"Isilon made it possible to invest in smaller steps, because the way Isilon scales, you can buy it in much smaller blocks than our previous solution. That isn't only a benefit for the initial investment. If you buy in big blocks, you'll also pay support for a much larger amount of storage than you are using at that moment. So, Isilon is more cost efficient in capital and operational expenses."

— *Senior service manager, telecommunications*

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Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

Description of composite: It is a global organization with $2.5 billion in annual revenue and 6,000 employees. The organization uses Isilon to manage video files, image files, metadata, and general unstructured file data (software build files, files from CAE simulation runs, general file/home directory data). The organization previously used siloed traditional storage solutions to manage this data. The organization is experiencing rapid growth in its data capacity needs.

Deployment characteristics: Data capacity needs are increasing every year. The organization starts with 500 TB of capacity at the beginning of Year 1 and grows to 5 PB of capacity by the end of Year 3. In order to manage this data, the organization uses Isilon X410 nodes for production workloads in its primary data center, and it uses SmartPools and CloudPools to tier data to ECS after six months. It uses Isilon NL410 nodes for disaster recovery in its secondary data center and uses SyncIQ to efficiently replicate data. The organization also uses InsightIQ for reporting and monitoring. The organization has an average utilization of 85% for Isilon nodes.

Key assumptions for the financial analysis include:

› Impact risk refers to the risk that the business or technology needs of the organization may not be met by the investment in Isilon, resulting in lower overall total benefits. Implementation risk is the risk that a proposed investment in Isilon may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates. Quantitatively capturing implementation risk and impact risk by directly adjusting the financial estimates provides more meaningful and accurate estimates and a more accurate projection of the ROI. The risk-adjusted numbers should be taken as "realistic" expectations since they represent the expected values considering risk.

› The discount rate used in the PV and NPV calculations is 10%. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their company's finance department to determine the most appropriate discount rate to use within their own organizations.

Key assumptions
Initial capacity: 500 TB
Year 3 capacity: 5 PB

Primary data center cluster:
Isilon X410 nodes
Data to ECS after six months

Secondary data center cluster:
Isilon NL410 nodes

Software used:
SmartPools
CloudPools
SyncIQ
Insight IQ

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Financial Analysis

QUANTIFIED BENEFIT AND COST DATA AS APPLIED TO THE COMPOSITE

Total Benefits

REF.	BENEFIT	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Storage cost optimization	$5,165,625	$6,056,250	$9,084,375	$12,112,500	$32,418,750	$27,279,355
Btr	Storage management efficiencies	$0	$256,500	$532,000	$902,500	$1,691,000	$1,350,913
Ctr	Data center space savings	$7,125	$35,625	$78,375	$135,375	$256,500	$205,993
Dtr	CloudPools savings	$0	$167,310	$354,510	$599,040	$1,120,860	$895,151
Etr	Business value added	$0	$425,000	$637,500	$850,000	$1,912,500	$1,551,841
	Total benefits (risk-adjusted)	$5,172,750	$6,940,685	$10,686,760	$14,599,415	$37,399,610	$31,283,253

Storage Cost Optimization

The composite organization replaced its prior traditional storage solution with Isilon, generating significant cost savings with increased storage efficiency and cost-effective options for "colder" data. In order to calculate this impact, the table below includes the costs needed to support this capacity growth with the composite organization's prior storage environment. The costs to support this capacity with Isilon are on the cost side of the model. The net of these two tables is the storage cost optimization benefit impact.

For the composite organization, Forrester assumes that:

› The composite organization requires storage capacity of 500 TB initially at the start of Year 1, increasing to 5 PB of capacity needed by the end of Year 3.

› With Isilon appliances, the composite has an average utilization rate of 85%. In the prior environment, the average utilization rate was 60%. This improved efficiency means less total capacity is needed with Isilon to support the same utilized capacity. Row A4 is the total capacity the composite would have purchased to support the same utilized capacity with traditional storage.

› With Isilon, the organization can also scale in smaller increments, reducing overprovisioning. Row A5 shifts 500 TB to the previous year because the composite provisioned traditional storage in larger increments, paying for that storage farther in advance of when it was needed.

› Rows A8 and A10 capture the efficiencies noted above combined with the cost effectiveness of Isilon compared with traditional storage. For its primary data center, the composite would have spent an average of $3 per GB for traditional storage, and it pays significantly less per GB with Isilon X410 nodes and ECS capacity. In the disaster recovery data center, the composite would have spent $1.50 per GB for traditional storage but instead spends less with the Isilon NL410 nodes.

The table above shows the total of all benefits across the five areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite expects risk-adjusted total benefits to be a PV of over $31 million.

Average utilization rate
Before: 60%
With Isilon: 85%

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Storage cost optimization benefits can vary with:

› The prior storage environment, prior storage costs, and ability to replace prior storage with Isilon.

› The difference in utilization rates between Isilon and the prior environment.

To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted PV of $27.3 million.

> Impact risk is the risk that the business or technology needs of the organization may not be met by the investment in Isilon, resulting in lower total benefits. The greater the uncertainty, the wider the potential range of outcomes for benefit estimates.

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
Storage Cost Optimization — Calculation Table						
A1	Isilon storage capacity, end of period, TB		500	1,500	3,000	5,000
A2	Isilon utilization rate, average		85%	85%	85%	85%
A3	Prior environment utilization rate, average		60%	60%	60%	60%
A4	Storage capacity needed with prior solution, TB	(A1*A2)/A3	708	2,125	4,250	7,083
A5	Shift in provisioning of capacity due to reduced scalability in prior environment		1,208	2,625	4,750	7,583
A6	Capacity added per year, prior solution, TB		1,208	1,417	2,125	2,833
A7	Cost of prior solution, primary, per TB	$3/GB	$3,000	$3,000	$3,000	$3,000
A8	Cost of prior solution, primary data center	A6*A7	$3,625,000	$4,250,000	$6,375,000	$8,500,000
A9	Cost of prior solution, backup, per TB	$1.5/GB	$1,500	$1,500	$1,500	$1,500
A10	Cost of prior solution, backup architecture	A6*A9	$1,812,500	$2,125,000	$3,187,500	$4,250,000
At	Storage cost optimization	A8+A10	$5,437,500	$6,375,000	$9,562,500	$12,750,000
	Risk adjustment	↓5%				
Atr	Storage cost optimization (risk-adjusted)		$5,165,625	$6,056,250	$9,084,375	$12,112,500

Storage Management Efficiencies

Management of traditional storage systems was complex and time consuming for all of the interviewees. Adding capacity and managing the environment required significant effort, and management time was spent on reducing downtime and resolving issues. With Isilon, the composite organization can consolidate from multiple silos of storage to a single file system and automate many management tasks using tools like SmartPools, drastically simplifying storage management and generating time savings. Adding new Isilon nodes to an existing cluster to scale capacity and performance takes minutes. Once the new nodes are added, the AutoBalance feature of the Isilon OneFS operating system automatically redistributes data and balances capacities across all nodes in the cluster. This simplifies management, avoids potential "hot spots," and helps to increase overall storage utilization in the cluster. The composite organization spends some time each year upgrading to the newest Isilon firmware, but interviewees noted that this is nondisruptive to end users. Interviewees also noted the high resiliency of Isilon; for some, it eliminates downtime completely. Other management tasks mentioned were setting policies and monitoring capacity to ensure

enough room for growth, and InsightIQ simplifies reporting and monitoring. The key takeaway was that unlike prior traditional storage, Isilon's storage management complexity does not grow with added capacity. Less than one FTE can manage petabytes of data with Isilon, freeing up staff to work on more value-add activities.

For the composite organization, Forrester assumes that:

› In the prior environment, each administrator managed 500 TB of data, on average.

› With Isilon, each administrator can manage 10 PB of data, on average.

Storage management efficiencies can vary with:

› The administrator-to-capacity ratio in the prior environment.

› The ability for the organization to standardize on Isilon for unstructured data storage.

To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted PV of $1.35 million.

Admin-to-capacity ratio
Before: 500 TB/admin
With Isilon: 10 PB/admin

REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
Storage Management Efficiencies — Calculation Table					
B1	Storage management, prior solution, FTEs		3	6	10
B2	Storage management, Isilon, FTEs		0.3	0.4	0.5
B3	Average fully loaded compensation		$100,000	$100,000	$100,000
Bt	Storage management efficiencies	(B1-B2)*B3	$270,000	$560,000	$950,000
	Risk adjustment	↓5%			
Btr	Storage management efficiencies (risk-adjusted)		$256,500	$532,000	$902,500

Data Center Space Savings

Interviewees found that the improved storage efficiency, density, and cloud capability of Isilon all contribute to reduced data center space requirements compared with traditional storages solutions, given the same storage capacity. Higher utilization of Isilon nodes compared with traditional storage utilization means less physical capacity is needed in the data center to support the same storage needs. By tiering "cold" data to the cloud, the composite organization can further reduce on-premises physical capacity needed in the data center.

For the composite organization, Forrester assumes that:

› Isilon capacity takes up an average of 50% less space compared with the prior storage solution.

› A benefit of using CloudPools is the avoidance of additional Isilon X410 node purchases, further reducing data center space needs compared with the prior environment. With CloudPools, the organization needs 65% less space compared with the prior storage solution for the same capacity.

In total, the organization reduces data center space needs by 65% using Isilon with CloudPools.

- When including both the primary and disaster recovery data centers, by Year 3 the organization is able to save almost 20 racks of space by using Isilon with CloudPools.
- To quantify the benefit of saving this space, Forrester approximates data center savings per rack driven primarily by average power costs.

Data center space savings can vary with:

- Differences in the prior storage environment, including prior space requirements and utilization rates.
- Whether the organization uses a cloud tier or has redundant data center sites.

To account for these risks, Forrester adjusted this benefit downward by 5%, yielding a three-year risk-adjusted PV of almost $206,000.

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
Data Center Space Savings — Calculation Table						
C1	Racks needed for prior solution		3	9	18	30
C2	Racks needed for Isilon nodes		2	4	7	11
C3	Data center cost savings per rack		$7,500	$7,500	$7,500	$7,500
Ct	Data center space savings	(C1-C2)*C3	$7,500	$37,500	$82,500	$142,500
	Risk adjustment	↓5%				
Ctr	Data center space savings (risk-adjusted)		$7,125	$35,625	$78,375	$135,375

CloudPools Cost Avoidance

The composite organization chose ECS for its cloud tier to drive additional cost efficiency and free up space on its X410 nodes. By choosing ECS, the organization is able to achieve additional cloud cost effectiveness compared with public cloud. A key distinguishing feature of ECS is no egress costs for data retrieval. Even assuming a low percentage of data retrieval each month, the lack of egress costs can create cost savings.

For the composite organization, Forrester assumes that:

- The composite organization moves data from its Isilon X410 nodes to ECS after six months.
- The composite has a low (<5%) percentage of data retrieval each month.
- Overall, ECS provides 40% additional cost savings per gigabyte per month compared with public cloud costs.
- By including the cost for public cloud capacity in the table below and the costs for ECS capacity in the Isilon Costs table, the net benefit is captured in the overall ROI.

CloudPools cost avoidance totals can vary:

- Cloud storage pricing depends on a number of factors.
- Organizations can use more than one cloud service with CloudPools.

Overall, ECS provides 40% additional cost savings per GB per month compared with public cloud costs.

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> › Tiering policies and data retrieval frequency will affect savings.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted PV of approximately $895,000.

CloudPools Cost Avoidance — Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
D1	CloudPools capacity used, TB		715	1,515	2,560
D2	Cost for public cloud capacity, per TB	$0.022/GB/month	$260	$260	$260
Dt	CloudPools cost avoidance	D1*D2	$185,900	$393,900	$665,600
	Risk adjustment	↓10%			
Dtr	CloudPools cost avoidance (risk-adjusted)		$167,310	$354,510	$599,040

Business Value Added

Scalability, performance, and availability of storage infrastructure affect the interviewed organizations' ability to deliver services that satisfy customers and keep pace with business growth. Some interviewees are able to quantify some of that impact, which ranges from several hundred thousand dollars of benefit per year to several million in incremental revenue. Some of these impacts include the following, as described by the interviewees:

> › "It was part of our plan to increase our business and get more customers and allow quick growth. Without a system like Isilon, it wouldn't be possible. Storage is a critical part of our system, and we have a strong vendor in Isilon to back us up."

> › "From the moment we started with Isilon, we grew in a very continuous and more stable way to the customer base we have today. High availability is very important, and upgrading the firmware or software of Isilon solutions can be done without any customer impact. This was a very important requirement for selecting Isilon because our service is being used 24x7."

Some interviewees rely on high performance and availability for the success of revenue-generating projects. Others rely on Isilon scalability and availability to drive customer reach and customer satisfaction to generate incremental revenue. Forrester conservatively assumes that the composite organization generates $500,000 in incremental business value in Year 1, increasing to $1 million in business value per year by Year 3.

Interviewees provided a broad range of quantified impacts that are dependent on the prior environment, industry, and organization-specific opportunities. To account for this, Forrester adjusted this benefit downward by 15%, yielding a three-year risk-adjusted PV of almost $1.6 million.

"It was part of our plan to increase our business and get more customers and allow quick growth. Without a system like Isilon, it wouldn't be possible. Storage is a critical part of our system, and we have a strong vendor in Isilon to back us up."

— Senior director of SaaS engineering, software company

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Business Value Added — Calculation Table					
REF.	METRIC	CALC.	YEAR 1	YEAR 2	YEAR 3
Et	Business value added		$500,000	$750,000	$1,000,000
	Risk adjustment	↓15%			
Etr	Business value added (risk-adjusted)		$425,000	$637,500	$850,000

Flexibility

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. There are multiple scenarios in which a customer might choose to implement Isilon and later realize additional uses and business opportunities, including:

› **A key benefit of the Isilon data lake, which supports a wide range of applications, is the ability to share data more effectively across those applications and potentially surface new insights with in-place analytics.** The organization noted: "A key thing for us is we're advertising Isilon as our data lake foundation. As we're pushing more big data initiatives and big data services, it's becoming more and more valuable to us to have multiprotocol access to the same set of data. Based on initial tests, we are able to use Isilon to eliminate additional infrastructure that would have been required with a traditional Hadoop platform." Potential benefits for future analytics efforts include avoided infrastructure costs, more efficient data analytics projects, and business impact from data insights.

› **Interviewees may achieve additional cost efficiency with Isilon SmartDedupe data deduplication software.** Based on the amount of redundant data organizations are storing, SmartDedupe can help them achieve additional storage efficiency by reducing the amount of physical storage needed, helping to avoid unnecessary node purchases, and maximizing the use of data center space.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for a future additional Investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to so.

"A key thing for us is we're advertising Isilon as our data lake foundation. As we're pushing more big data initiatives and big data services, it's becoming more and more valuable to us to have multiprotocol access to the same set of data. Based on initial tests, we are able to use Isilon to eliminate additional infrastructure that would have been required with a traditional Hadoop platform."

— *Storage architect, managed services provider*

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Total Costs

REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Ftr	Isilon costs	$1,161,238	$2,346,261	$2,728,987	$4,404,685	$10,641,171	$8,858,869
Gtr	Implementation time	$69,485	$0	$0	$0	$69,485	$69,485
	Total costs (risk-adjusted)	$1,230,723	$2,346,261	$2,728,987	$4,404,685	$10,710,656	$8,928,353

Isilon Costs

The composite organization has two Isilon clusters, one in the primary data center and one in the disaster recovery data center.

› In the primary data center cluster, the organization uses Isilon X410 appliances for production workflows and tiers data that is older than six months to its ECS cloud.

› The organization replicates its data to the Isilon NL410 appliances in the disaster recovery data center.

› By the end of Year 3, the organization has 29 X410 appliances, 2.6 PB of data in ECS, and 76 NL410 appliances to store 5 PB of data.

› In Year 1, the organization pays for the first year of maintenance for the appliances purchased upfront and in Year 1.

› In order to automate these tiering and data replication policies, the organization uses SmartPools, CloudPools, and SyncIQ. The organization also uses InsightIQ for monitoring and reporting.

Isilon costs can vary with:

› Different licensing agreements or discounts.

› Differing configurations of appliances, tiering policies, and selections of Isilon tiers.

› Differing storage growth rates.

To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year risk-adjusted PV of almost $8.9 million.

> The table above shows the total of all costs across the two areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total costs to be a PV of $8.9 million.

> Implementation risk is the risk that a proposed Investment in Isilon may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

Isilon Costs— Calculation Table

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
F1	X410 appliances		$705,684	$806,496	$403,248	$1,008,120
F2	X410 maintenance			$210,000	$266,000	$406,000
F3	NL410 appliances		$400,257	$920,591	$1,320,848	$1,761,131
F4	NL410 maintenance			$183,333	$366,667	$611,111
F5	CloudPools cost with ECS			$114,114	$242,273	$408,576
Ft	Isilon costs	F1+F2+F3+F4+F5	$1,105,941	$2,234,534	$2,599,035	$4,194,938
	Risk adjustment	↑5%				
Ftr	Isilon costs (risk-adjusted)		$1,161,238	$2,346,261	$2,728,987	$4,404,685

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Implementation Time

All interviewees agreed that minimal time was spent on Isilon management upfront and on an ongoing basis. Only one organization had to purchase a few 10 GbE switches to upgrade its network, but it noted that this cost was minimal. The interviewees noted that minimal training was needed as part of the Isilon implementation because Isilon is very easy to manage.

For the composite organization, Forrester assumes that:

› For the initial implementation, the composite organization had several employees spending most of their time over the course of a few months designing the Isilon investment, working with the network team to ensure the network infrastructure could support the Isilon investment, and migrating the data to the first Isilon nodes. The composite spent 1,300 total hours on implementation.

› The composite organization had a few employees participate in a half-day training session, totaling 16 hours spent on training.

› As mentioned in the storage efficiency benefit explanation above, on an ongoing basis about 0.5 FTEs' worth of time is spent on Isilon management by Year 3.

› The Isilon team installs new Isilon appliances, and the organization's employees quickly activate and synchronize the new nodes. Software upgrades require little time, and the Isilon support team does most of the troubleshooting and repair work.

Implementation can vary with:

› Different staff skill levels.

› Different prior environments.

› Complexity of data migration efforts.

To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted PV of approximately $70,000.
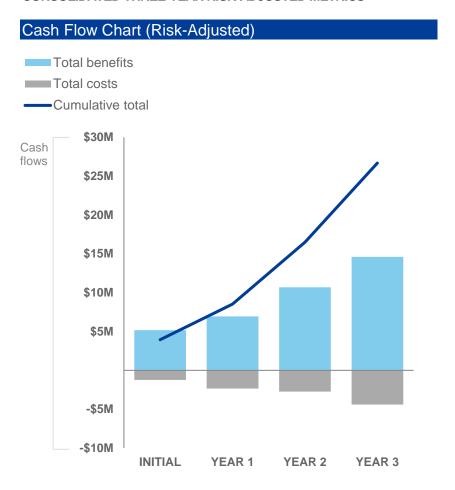
1,300 hours
Total implementation time

REF.	METRIC	CALC.	INITIAL	YEAR 1	YEAR 2	YEAR 3
Implementation Time — Calculation Table						
G1	Initial implementation/data migration (total hours)		1,300			
G2	Training time (total hours)		16			
G3	Average fully loaded hourly compensation		$48			
Gt	Implementation time	(G1+G2)*G3	$63,168	$0	$0	$0
	Risk adjustment	↑10%				
Gtr	Implementation time (risk-adjusted)		$69,485	$0	$0	$0

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Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)

- Total benefits
- Total costs
- Cumulative total

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI and NPV for the composite organization's investment in Isilon. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI and NPV values are determined by applying risk-adjustment factors to the unadjusted results in each benefit and cost section.

These risk-adjusted ROI and NPV values are determined by applying the risk-adjustment factors to the unadjusted results in each relevant cost and benefit section.

Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	($1,230,723)	($2,346,261)	($2,728,987)	($4,404,685)	($10,710,656)	($8,928,353)
Total benefits	$5,172,750	$6,940,685	$10,686,760	$14,599,415	$37,399,610	$31,283,253
Net benefits	$3,942,027	$4,594,424	$7,957,773	$10,194,730	$26,688,954	$22,354,900
ROI						250%

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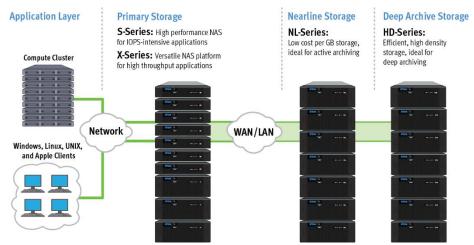# Isilon Scale-Out NAS: Overview

The following information is provided by Dell EMC. Forrester has not validated any claims and does not endorse Dell EMC or its offerings.

Dell EMC Isilon scale-out NAS storage is ideal to consolidate, store, manage, protect, and analyze unstructured data with the powerful platform that stays simple, no matter how large the data environment. Isilon solutions combine the right blend of performance and capacity for a wide range of workloads, including file shares, home directories, archiving, in-place data analytics, and a wide range of high-performance computing applications.

The Isilon scale-out storage product family includes:

› **Isilon S-Series.** This is high-performance scale-out storage for high-transactional, IOPS-intensive needs.
› **Isilon X-Series.** This provides a balance of high-performance and large capacity with the flexibility to support a broad mix of applications. It is ideal for storage consolidation initiatives.
› **Isilon NL-Series.** This highly efficient, highly scalable near-line storage is ideal for active archiving.
› **Isilon HD-Series.** This high-density storage to reduce related data center costs is ideal for deep archiving.

With Isilon's modular architecture, various Isilon platform nodes may be combined into a single Isilon cluster to create a flexible storage solution that meets specific performance and capacity needs.

The Isilon OneFS operating system provides the intelligence behind all Isilon scale-out storage systems. OneFS combines the three layers of traditional storage architectures — file system, volume manager, and data protection — into one unified software layer, creating a single intelligent file system that spans all nodes in an Isilon cluster. With a modular, single file system architecture, Isilon provides a massively scalable platform that is highly efficient and simple to manage.

Key features:
› **Simple to manage.** Isilon offers a single file system and a single volume architecture.
› **Highly efficient.** Get over 80% usable capacity for unstructured data, automated tiered storage, data deduplication, and CloudPools software to automatically tier data to a choice of cloud storage services including Dell EMC ECS.
› **Operational flexibility.** Multiprotocol capabilities support a wide range of workloads on a single platform.
› **Massive scalability.** Easily expand from 16 TB to 68 PB in a single cluster, and scale capacity and performance quickly without disruption.
› **Safeguard data.** Robust data protection and security options include data backup, disaster recovery, role-based access control (RBAC), secure access zones, SEC 17a-4 compliant WORM, and self-encrypting drives (SEDs).

For more information about Isilon scale-out NAS storage, visit http://www.emc.com/isilon.

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Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows in years 1 through 3 are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16%.

PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or costs.

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