

A Forrester Total Economic Impact™ Study
Commissioned By INFINIDAT
April 2018

The Total Economic Impact™ Of The INFINIDAT® InfiniBox® Storage Platform

Cost Savings And Business Benefits Enabled
By The InfiniBox Storage Platform

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Project Director:
Bob Cormier
Vice President and Principal
Consultant

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Selected Benefits



Capital expense savings:
\$14,343,299



Labor savings:
\$1,321,854



Downtime cost savings:
\$1,161,232

Executive Summary

INFINIDAT® software-defined enterprise storage solutions offer the performance, reliability, and scale that are necessary to support today's data intensive enterprises. INFINIDAT commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying the InfiniBox® storage platform. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the InfiniBox storage platform on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed eight customers with an aggregate total of 65 InfiniBox systems and 19 years' experience using the InfiniBox storage platform. According to INFINIDAT, InfiniBox and its range of storage capabilities can be leveraged to address: mission-critical enterprise data problems including consolidated VMware environments; OpenStack private clouds; and emerging big data and analytics workloads supporting next-generation artificial intelligence (AI) and machine learning (ML) requirements.

Forrester created a composite *Organization* to describe the TEI of INFINIDAT's solutions. The composite *Organization* is a large enterprise (\$2B) with private and hybrid cloud storage requirements. It has been using INFINIDAT solutions to support its storage needs for three years.

Key Findings

Quantified benefits. The *Organization* experienced total benefits of **\$18,483,560** (risk- and present value-adjusted), which are further detailed in the Analysis Of Benefits section. These quantified benefits are representative of those experienced by the eight interviewed customers:

- › **Capital expense savings, \$14,343,299.** On average the interviewed customers were saving 50% by investing in INFINIDAT versus continuing with previous storage investment decisions.
- › **Operational expense alignment savings with Capacity on Demand (CoD) model, \$1,477,974.** INFINIDAT has a flexible pricing model that supports both traditional upfront purchases and flexible storage capacity on demand. InfiniBox systems include capacity for growth, and by leveraging this CoD option, the *Organization* will only pay for what it uses, when it uses it.
- › **Labor savings using INFINIDAT's tools, \$1,321,854.** Interviewed customers reported labor savings with INFINIDAT tools; i.e., storage administrators are more productive and efficient with InfiniBox than with previous storage environments.
- › **Power savings benefits, \$179,201.** Interviewed customers reported significant power and cooling savings over our three-year analysis when they compared previous disk storage arrays with InfiniBox systems.
- › **Downtime cost savings with INFINIDAT, \$1,161,232.** Interviewed customers reported zero unplanned downtime with InfiniBox systems.

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



ROI
125%



Benefits PV
\$18.4 million



NPV
\$10.2 million



Payback
Less than 6 months

- › One interviewed customer reported that INFINIDAT's smaller footprint was a contributing factor to his company's ability to defer expansions of three data centers by two to three years.
- › Customers highlighted the higher quality of support received from INFINIDAT with fewer maintenance interactions than previous storage systems.
- › Each interviewed customer commented on the improved quality of life afforded to storage administrators due to the simplicity and reliability of the INFINIDAT solutions.

Costs. The composite *Organization* experienced costs totaling **\$8,221,538** (present-value adjusted) which are further detailed in the Analysis Of Costs section. These costs are representative of those experienced by the eight interviewed customers:

- › **Planning and deploying INFINIDAT solutions, \$5,769.** The internal labor associated with planning and deploying the initial InfiniBox systems totaled 80 person-hours.
- › **InfiniBox solution purchase costs, \$8,215,769.** The fees include hardware and all software capabilities including NAS, near synchronous replication, and other tools. In addition, the configured InfiniBox storage arrays come standard with three years of 24x7x365 maintenance including on-site hardware replacement and a technical advisor.

Forrester's interviews with eight existing customers and subsequent financial analysis found that the composite *Organization* experienced benefits of \$18,483,560 over three years versus costs of \$8,221,538, adding up to a net present value (NPV) of \$10,262,022 and an ROI of 125%.

The ROI was a very favorable 125%. If risk-adjusted costs, benefits, and ROI still demonstrate a compelling business case, it raises confidence that the investment is likely to succeed because the risks that threaten the project have been taken into consideration and quantified. The risk-adjusted numbers should be taken as "realistic" expectations, as they represent the expected values considering risk. Assuming normal success at mitigating risk, the risk-adjusted numbers should more closely reflect the expected outcome of the investment.

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

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 the INFINIDAT InfiniBox storage platform.

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 the INFINIDAT InfiniBox storage platform can have on an organization:



DUE DILIGENCE

Interviewed INFINIDAT stakeholders to gather data relative to InfiniBox storage platform.



CUSTOMER INTERVIEWS

Interviewed eight customers using the InfiniBox storage platform to obtain data with respect to costs, benefits, and risks.



COMPOSITE ORGANIZATION

Designed a composite organization based on characteristics of the interviewed customers.



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 customers.



CASE STUDY

Employed four fundamental elements of TEI in modeling the economic impact of the INFINIDAT InfiniBox storage platform: 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.

DISCLOSURES

Readers should be aware of the following:

This study is commissioned by INFINIDAT 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 the INFINIDAT InfiniBox storage platform.

INFINIDAT 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.

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

The InfiniBox Storage Platform Customer Journey

BEFORE AND AFTER THE INFINIBOX INVESTMENT

Interviewed Customers

For this study, Forrester conducted interviews with eight INFINIDAT InfiniBox customers. Interviewed customers include the following, with each promised anonymity:

INDUSTRY	INTERVIEWEE	PRODUCTS (Quantity)	MONTHS OF EXPERIENCE
Print services and manufacturing	Systems architect	InfiniBox F6000 (5), Host PowerTools, InfiniMetrics	18 months
Healthcare	Infrastructure engineer	InfiniBox F6000 (4), Host PowerTools, InfiniMetrics	28 months
Technology service provider	Vice president of cloud operations	InfiniBox F2000 (12), Host PowerTools, InfiniMetrics	38 months
Financial	Manager of storage	InfiniBox F2000 (2), F6000 (12), Host PowerTools, InfiniMetrics	42 months
Telecommunications	Storage engineer	InfiniBox F2000 (1), F4000 (1), F6000 (12), InfiniMetrics	23 months
Internet security	Director of infrastructure operations	InfiniBox F2000 (1), F6000 (7), Host PowerTools, InfiniMetrics	54 months
Technology	Head of product and cloud	InfiniBox F2000 (6), InfiniMetrics	25 months
Financial	Vice president and CIO	InfiniBox F2000 (1), F6000 (1), InfiniGuard Backup Appliance	36 months

Key Challenges Of Interviewed Customers

Infrastructure costs, especially previous storage costs were increasing rapidly while performance degraded. In addition, previous storage maintenance costs began to balloon out of control after the first three to four years.

There was a need to improve performance, availability, and scalability in future storage investments to meet the demands of the business.

Storage administrators were looking for a simplified management interface to replace multiple previous tools and interfaces. They were also looking for a more reliable storage platform with fewer units that would help them avoid night and weekend storage drills.

“Scalability is not a concern for us because with the InfiniBox Capacity on Demand (CoD) model, if I need incremental capacity, it’s already on the floor; I just need to turn it on.”

Systems architect, print services and manufacturing company



Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite *Organization*, and an associated ROI analysis that illustrates the areas financially affected. The composite *Organization* is representative of the eight companies that Forrester interviewed and is used to present the

aggregate financial analysis in the next section.

Description of composite. The composite *Organization* is a large enterprise (\$2B revenue) with private and hybrid cloud storage requirements of 4.5 petabytes (PB) of data storage over the next three years. It has been using INFINIDAT's solutions for three years to address mission-critical enterprise data problems including: consolidated VMware environments; OpenStack private clouds; and emerging big data and analytics workloads supporting next-generation AI and ML requirements.

Previous storage environment. Prior to investing in INFINIDAT's solutions the *Organization* was challenged with significant performance and resiliency issues with its previous storage environment. This forced the *Organization's* data center and storage administrators to rethink their storage environments with a goal of accelerating the technology transition to something significantly more reliable and scalable.

Goals and objectives. The *Organization's* investment in INFINIDAT's solutions was prompted by InfiniBox systems' enterprise and scale capabilities which directly addressed several pain points experienced with its previous storage environment. With its investment in INFINIDAT solutions, our *Organization*, along with the interviewed customers, had the following simple objectives: minimize storage investment while addressing capacity growth, performance growth, and more stringent availability objectives, with no downtime (seven nines availability) and at a fully transparent cost.

According to the interviewed customers, each indicated that cost savings and maintaining performance were the major goals. The interviewees cited a multifaceted secondary goal: simplify the management interface, by eliminating the need to manage multiple storage vendors' and the different APIs/interfaces, and eliminate the need to train the administrators required for those APIs/interfaces.

Key Results

The interviews revealed that key results from the InfiniBox storage platform investment included:

- › **Capital expense savings.** On average the interviewed customers were saving 50% by investing in INFINIDAT versus continuing with previous storage investment decisions.
- › **Operational expense alignment savings with CoD model.** One of the business models INFINIDAT offers allows clients to activate incremental capacity as they grow, rather than all up front or having to add physical hardware later. With capacity on demand, growth capacity is included in the InfiniBox systems and the *Organization* will only pay for what it uses when it needs the capacity to grow into.
- › **Labor savings using INFINIDAT's tools.** Interviewed customers reported labor savings with INFINIDAT tools; in other words, storage administrators are more productive and efficient with InfiniBox than with the previous storage solutions.
- › **Power savings benefits.** Interviewed customers reported significant power and cooling savings when they compared previous disk storage arrays with InfiniBox systems.
- › **Downtime cost savings with INFINIDAT.** Interviewed customers reported zero unplanned downtime with InfiniBox systems.



Key benefits:

- 50% capital savings
- Zero unplanned downtime with InfiniBox systems
- 3.75 storage FTEs able to be leveraged elsewhere in the *Organization*

"As an infrastructure service provider, the INFINIDAT solutions provide the performance, availability, and scalability which allows us to maintain our upscale reputation perspective and excellent customer satisfaction levels with our clients."

*Vice president, cloud operations,
technology service provider*



Analysis Of Benefits

QUANTIFIED BENEFIT DATA AS APPLIED TO THE COMPOSITE ORGANIZATION

Total Benefits						
REF.	BENEFIT	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Atr	Capital expense savings	\$4,895,936	\$2,937,561	\$9,935,531	\$17,769,028	\$14,343,299
Btr	Operational expense alignment savings with CoD model	\$507,144	\$311,306	\$1,011,103	\$1,829,553	\$1,477,974
Ctr	Labor savings using INFINIDAT's tools	\$506,250	\$533,250	\$560,250	\$1,599,750	\$1,321,854
Dtr	Power savings benefits	\$56,002	\$56,002	\$109,152	\$221,156	\$179,201
Etr	Downtime cost savings with INFINIDAT	\$560,000	\$280,000	\$560,000	\$1,400,000	\$1,161,232
	Total benefits (risk-adjusted)	\$6,525,331	\$4,118,119	\$12,176,036	\$22,819,487	\$18,483,560

Capital Expense Savings

Prior to investing in INFINIDAT solutions each interviewed customer went through a vendor selection process which included their incumbent storage provider(s), INFINIDAT and other providers. Their due diligence included looking at performance, reliability, scalability and the longevity of the storage provider. They also looked at cost components, including capabilities, optionally priced features, and timing of operational expenses such as capacity upgrades.

The *Organization* took into account all these factors and decided to invest in INFINIDAT solutions including InfiniBox systems and included software such as Host PowerTools and InfiniMetrics. Interviewed customers reported that "all-in" INFINIDAT solutions averaged 50% less expensive on a usable TB basis than continuing with their previous storage; in other words, it would cost interviewed customers twice as much per terabyte of capacity if they continued with their previous storage environment.

The interviewed customers reported that there are no incremental software licensing fees with InfiniBox. All InfiniBox software capabilities (including NAS, inline compression, asynchronous and synchronous replication, and advanced snapshots) are included in the base price.

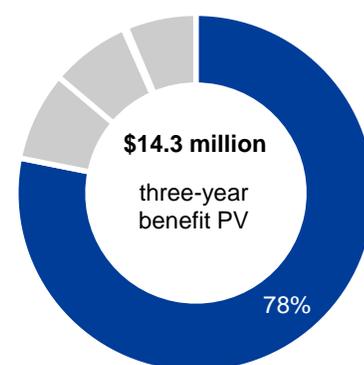
InfiniBox storage arrays come standard with three years of 24x7x365 maintenance, including on-site hardware service and a technical advisor at no extra charge.

Modeling and assumptions. On average the interviewed customers were saving 50% by investing in INFINIDAT versus continuing with previous storage environments. Forrester reviewed and confirmed INFINIDAT pricing and calculated the 50% savings in the table below. INFINIDAT costs (row A2) are also included in the Analysis Of Costs section.

Risks. Storage vendor pricing is variable across the industry based on TB volume purchased, negotiated discounts, and time of year.

To account for this risk, Forrester adjusted this benefit downward by 10%,

The table above shows the total of all benefits across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than \$18 million.



Capital expense savings: **78%** of total benefits

yielding a three-year risk-adjusted total PV of \$14,343,299.

Capital Expense Savings: Calculation Table					
REF.	METRIC	CALC./SOURCE	YEAR 1	YEAR 2	YEAR 3
A1	Estimated average cost of continuing with previous storage, all inclusive	Interviews	\$5,439,928	\$3,263,957	\$11,039,479
A2	Cost of INFINIDAT solutions, all inclusive (for comparison purposes only)	INFINIDAT	\$2,719,964	\$1,631,979	\$5,519,739
At	Capital expense savings	A1	\$5,439,928	\$3,263,957	\$11,039,479
	Risk adjustment	↓10%			
Atr	Capital expense savings (risk-adjusted)		\$4,895,936	\$2,937,561	\$9,935,531

Operational Expense Alignment Savings With CoD Model

INFINIDAT has a flexible pricing model that supports storage capacity on demand. Growth capacity is included in InfiniBox systems and the *Organization* will only pay for what it uses and when it grows into that capacity. When the *Organization* starts to consume the extra capacity, only then does it get charged. According to one interviewed customer: “INFINIDAT delivers a system with extra capacity based on my end-state need. When I need more storage, I just access it, no service call, no need to have an engineer come on site to add the capacity. I already have it from day one and I only pay for the extra capacity as I start to consume it.” This allows for more granular timing of operating expenses; further, interviewed customers estimated an average additional savings of 10% on a usable TB basis due to this flexibility.

INFINIDAT’s CoD model simplifies procurement, both initially and for future capacity needs. Subsequent capacity purchases within the previously purchased box do not have to be renegotiated with INFINIDAT. The incremental capacity resides in the InfiniBox at an agreed-upon price, and once activated INFINIDAT will send an invoice.

INFINIDAT’s CoD model limits the amount of tinkering the vendor and storage administrators need to do. It limits the amount of risk and operational hours to what previously would be time and effort to expand the previous systems including shelves, modifications, updates, all of which add complexity and risk to a storage environment.

Modeling and assumptions. In addition to the average 50% savings that INFINIDAT’s customers saved on the initial storage purchase (see the Capital Expense Savings section), the interviewed customers saved an average additional 10% by advantage of INFINIDAT’s CoD model. In addition, there were labor savings in procurement activities of 10% of one FTE and storage administration savings of 5% of an FTE.

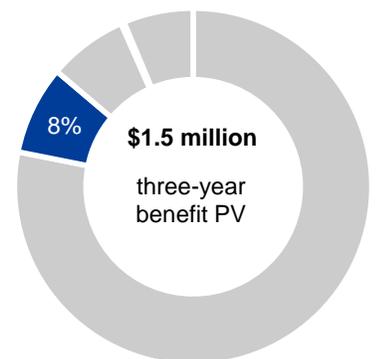
Risks. Storage vendor pricing is variable throughout the industry based on TB volume purchased, negotiated discounts, and time of year.

- › Future storage pricing trends downward, possibly reducing the benefit of setting an agreed-upon price for the extra capacity within InfiniBox.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$1,477,974.

“What I like about INFINIDAT’s licensing and pricing model is that it’s predictable, clear, and simple, with all of the features and functionality included. That’s unique in this industry.”

Head of product and cloud, technology industry



Operational expense alignment savings: **8%** of total benefits

Operational Expense Alignment Savings With CoD Model: Calculation Table

REF.	METRIC	CALC./SOURCE	YEAR 1	YEAR 2	YEAR 3
B1	Estimated average cost of continuing with previous storage, all inclusive	At	\$5,439,928	\$3,263,957	\$11,039,479
B2	Additional capital savings from INFINIDAT's CoD model	Interviews	10%	10%	10%
B3	Total CoD model savings	B1*B2	\$543,993	\$326,396	\$1,103,948
B4	Labor savings, procurement	10% of FTE	\$12,000	\$12,000	\$12,000
B5	Labor savings, storage administration	5% of FTE	\$7,500	\$7,500	\$7,500
Bt	Operational expense alignment savings with CoD model	B3+B4+B5	\$563,493	\$345,896	\$1,123,448
	Risk adjustment	↓10%			
Btr	Operational expense alignment savings with CoD model (risk-adjusted)		\$507,144	\$311,306	\$1,011,103

Labor Savings Using INFINIDAT's Tools

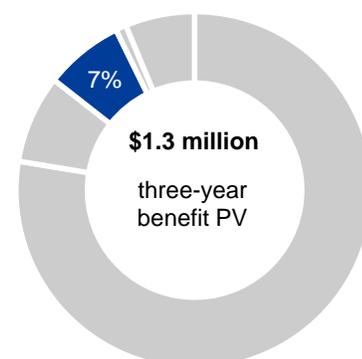
Interviewed customers reported labor savings with INFINIDAT tools; in other words, storage administrators were more productive and efficient with InfiniBox than with the previous storage solutions. INFINIDAT provides a set of software management tools for rapid provisioning, error prevention, storage management, and ease of use; all to reduce complexity, time, and effort:

Host PowerTools. INFINIDAT provides both storage, virtualization, and application administrators with storage management capabilities through its Host PowerTools utilities, included at no extra charge. Host PowerTools automates the host configuration process reducing labor time and shortening configuration time. Host PowerTools offers the following additional benefits:

- › Fully automated initial storage provisioning process, on both the storage and host sides, using a single, user-friendly GUI, and CLI (command line interface), or REST API.
- › Capability to increase existing storage unit size or provision new storage can be done in seconds via the GUI, the CLI, or REST API.
- › A clear, real-time configuration status of all available storage on each system to ensure that the individual storage units are performing well.
- › GUI and CLI consistency across multiple operating systems, while still preserving the unique capabilities of each OS (such as file system types).
- › Simplified security authentication.

InfiniMetrics. Performance, monitoring, and analysis software included with InfiniBox systems at no extra charge. InfiniMetrics provides system administrators with transparency and a unified view into the performance and capacity of all InfiniBox systems. InfiniMetrics offers the following additional benefits:

- › Performance and capacity visibility of all InfiniBox systems to make smarter decisions about application placement.



Labor savings: 7% of total benefits



INFINIDAT's solutions averaged 50% less expensive on a usable TB basis than previous storage.

- › Insights provided by InfiniMetrics to lower capital costs by consolidating systems and identifying storage performance issues.
- › Ability to proactively monitor performance 24x7x365 from anywhere in the world, preventing problems before they occur. Troubleshoot and identify the root causes of performance issues using an intuitive, HTML5 interface within a standard web browser.
- › Analysis of hosts, volumes, and file systems to maintain high performance across the *Organization* and identify top performance consumers.

Modeling and assumptions. Each interviewed customer reported significant labor savings using the above tools, as well as the general reliability and simplicity of InfiniBox systems. At a fully loaded annual cost of \$150,000 (per senior storage administrator), the *Organization* can reassign or downsize through attrition 2.25 FTEs; and avoid hiring another 1.5 storage administrators to support what would have been previous storage growth. In addition, interviewed customers predicted normal attrition savings, i.e., future replacements of senior storage administrators could be more junior than predecessors due to the simplicity of administering InfiniBox systems, saving an average of \$30,000 annually in salary and benefits per administrator. Our model anticipates replacing senior storage administrators with more junior staff, with one in Year 2 (two years of benefits) and another in Year 3. Annual labor savings range from \$506,250 to \$560,250 over the three-year analysis.

Risks. The labor savings benefits have been risk-adjusted to reflect how long it may take to redeploy administrators to other tasks or positions in the *Organization*.

- › Our model assumes a \$150,000 fully loaded cost for a senior storage administrator and a \$120,000 fully loaded cost for a more junior administrator. Readers should adjust these savings based on their own labor costs.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of \$1,321,854.

“Regarding the INFINIDAT support teams; this is an area where they really shine above and beyond. INFINIDAT’s responses are measured in minutes versus hours or days for previous storage providers.”

Manager of storage, financial company



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

Labor Savings Using INFINIDAT's Tools: Calculation Table

REF.	METRIC	CALC./SOURCE	YEAR 1	YEAR 2	YEAR 3
C1	FTEs downsized, storage administrators	Interviews	2.25	2.25	2.25
C2	FTEs avoided (future growth of previous storage)	Interviews	1.50	1.50	1.50
C3	Cost per senior storage administrator	\$150,000 fully loaded	\$150,000	\$150,000	\$150,000
C4	Labor savings using INFINIDAT's tools, simplicity and reliability	(C1+C2)*C3	\$562,500	\$562,500	\$562,500
C5	Less expensive future storage administrators' replacements savings	One FTE Year 2; Two FTEs Year 3	\$0	\$30,000	\$60,000
Ct	Labor savings using INFINIDAT's tools	C4+C5	\$562,500	\$592,500	\$622,500
	Risk adjustment	↓10%			
Ctr	Labor savings using INFINIDAT's tools (risk-adjusted)		\$506,250	\$533,250	\$560,250

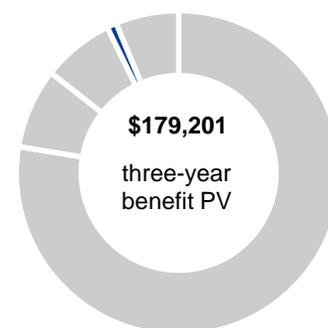
Power Savings Benefits

Interviewed customers reported significant power and cooling savings when they compared previous disk storage arrays with InfiniBox systems.

Modeling and assumptions. For the *Organization*, power and cooling savings totaled \$179,201 (risk- and present-value adjusted) over three years and assumes a cost per KWH for power of \$0.14 and a cost per KWH for cooling of \$0.10.

Risks. We have risk-adjusted the savings downward by 7% to reflect regional KWH rate differentials.

To account for regional differentials a 7% risk adjustment yields a total PV of \$179,201 over three years.



Power savings: **2%** of total benefits

Power Savings Benefits: Calculation Table

REF.	METRIC	CALC./SOURCE	YEAR 1	YEAR 2	YEAR 3
D1	Average annual power cost for previous storage arrays	INFINIDAT	\$66,962	\$66,962	\$66,962
D2	Annual power cost for InfiniBox F4000 series replacing previous storage	INFINIDAT	\$6,745	\$6,745	\$6,745
D3	Annual power savings per InfiniBox F4000 arrays	D1-D2	\$60,217	\$60,217	\$60,217
D4	Annual power cost for InfiniBox F6000 series replacing previous storage	INFINIDAT	-	-	\$9,811
D5	Annual power savings per InfiniBox F6000 arrays (deployed in Year 3)	D1-D4	-	-	\$57,151
Dt	Total power savings	D3+D5	\$60,217	\$60,217	\$117,368
	Risk adjustment	↓7%			
Dtr	Total power savings (risk-adjusted)		\$56,002	\$56,002	\$109,152

Downtime Cost Savings With INFINIDAT

Technology infrastructure, and storage in particular, is hypercritical to the operations of any business; and any downtime at all costs dearly. Infrastructure and operations professionals leading their firms' business continuity efforts need to arrive at a downtime cost to help them build a business case and secure investments in reliable storage solutions that deliver continuous operations.

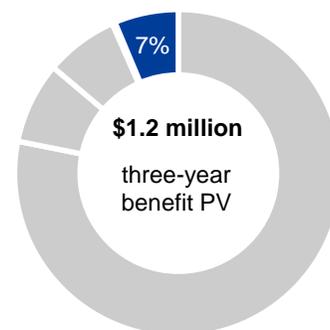
According to INFINIDAT, its InfiniBox systems are built with a self-healing architecture designed for 99.99999% (seven nines) availability, which equates to less than 3 seconds of downtime per year.

When asked the following, "Have you had any unplanned downtime with your InfiniBox systems?" The eight interviewed customers responded by saying that there was "no unplanned downtime." Customers then went on to describe the costs of unplanned downtime with their previous storage, which averaged 30 to 60 minutes annually. A few customers had calculated the cost of downtime, which averaged \$11,667 per minute, and included the cost of unrecoverable business revenue (gross profits).

Modeling and assumptions. The average cost of downtime per minute was \$11,667 and this amount represents unrecovered loss of revenue, and specifically the gross profit associated with that revenue. Forrester uses the more conservative and accurate gross profit calculation (revenue minus cost of goods sold equals gross profit) to quantify cost of downtime. Based on customer interviews, we assumed 60 minutes of total downtime in years 1 and 3; and 30 minutes of downtime in Year 2.

Risks. The industry average cost of downtime is dependent on a lot of areas. The monetary losses vary when you consider your revenue, industry, the actual duration of the outage, the number of people impacted, the time of day, etc. For example, losses are significantly higher per hour for businesses with high-level data transactions, such as banks and online retail sales. An unplanned outage during a peak traffic time produces even more losses.

To account for the wide variety of downtime costs, Forrester risk-adjusted downward this benefit by 20%, yielding a NPV of \$1,161,232 over three years.



**Downtime cost savings:
7% of total benefits**

"Our InfiniBox systems are very reliable — no unplanned downtime ever. I don't have to think about my InfiniBox systems. This is in contrast to my other storage solutions which take up significantly more administrative and management time."

*Vice president, cloud operations,
technology service provider*



Downtime Cost Savings With INFINIDAT: Calculation Table

REF.	METRIC	CALC./SOURCE	YEAR 1	YEAR 2	YEAR 3
E1	Minutes of unplanned downtime annually, InfiniBox	Interviews	0	0	0
E2	Minutes of unplanned downtime annually, previous storage	Interviews	60	30	60
E3	Cost per minute of downtime for unrecovered revenue (gross profit)	Interviews average	\$11,667	\$11,667	\$11,667
E4	Total cost of downtime, previous storage	E2*E3 (rounded)	\$700,000	\$350,000	\$700,000
Et	Downtime cost savings with INFINIDAT	E4	\$700,000	\$350,000	\$700,000
	Risk adjustment	↓20%			
Etr	Downtime cost savings with INFINIDAT (risk-adjusted)		\$560,000	\$280,000	\$560,000

Unquantified Benefits

The interviewed customers identified the following additional benefits of investing in INFINIDAT but were not able to quantify the benefits at the present time:

- › One interviewed customer reported that INFINIDAT’s solutions helped his company defer expansions of three data centers by two to three years. The data centers were nearing full capacity for power and floor space and INFINIDAT’s much smaller footprint contributed to deferring multimillion-dollar data center expansions.
- › Customers highlighted the higher quality of support received with fewer maintenance interactions than previous storage systems.
- › Each interviewed customer commented on the improved quality of life afforded to storage administrators due to the simplicity and reliability of the INFINIDAT solutions; fewer weekends and later nights had become the norm for administrators.

Flexibility

The value of flexibility is clearly unique to each customer, and the measure of its value varies from organization to organization. Below are scenarios in which a customer might choose to implement INFINIDAT storage solutions and later expand to additional uses and business opportunities, including:

- › **InfiniGuard™ backup appliance.** A relatively new product, each interviewed customer indicated an interest in evaluating it in the future. According to INFINIDAT: “Today’s data protection and disaster recovery architectures demand short backup windows, seamless application integration, and nearly limitless capacity with the lowest possible cost of ownership, all fitting in a single floor tile. The InfiniGuard offers a highly available, multi-protocol, data protection solution with all of the performance, capacity, and efficiency to support modern workloads.”
- › **INFINIDAT Neutrix Cloud storage service.** A new product described by INFINIDAT as, “a storage-as-a-service solution that allows customers to consume INFINIDAT storage capabilities in public clouds or as a replication target without purchasing any hardware.”

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



When asked the following, “Have you had any unplanned downtime with your InfiniBox systems?” the eight interviewed customers responded by saying that there was “no unplanned downtime.”

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 do so.

Analysis Of Costs

QUANTIFIED COST DATA AS APPLIED TO THE COMPOSITE ORGANIZATION

Total Costs							
REF.	COST	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
F1	Planning and deploying INFINIDAT solutions	\$5,769	\$0	\$0	\$0	\$5,769	\$5,769
F2	InfiniBox solution purchase costs	\$2,719,964	\$0	\$1,631,979	\$5,519,739	\$9,871,682	\$8,215,769
	Total costs (risk-adjusted)	\$2,725,733	\$0	\$1,631,979	\$5,519,739	\$9,877,451	\$8,221,538

Planning And Deploying INFINIDAT Solutions

The internal labor associated with planning and deploying the initial F4280 two InfiniBox systems totaled 80 person-hours across three IT staff (server administrator, storage administrator, and network administrator).

The average fully loaded cost per IT staff is \$150,000 (\$72.12 hourly), for a total labor cost of \$5,769 (80 hours*\$72.12) as an Initial expense.

The table above shows the total of all costs across the areas listed below, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects total costs to be a PV of more than \$8.2 million.

InfiniBox Solution Purchase Costs

The initial investment included two InfiniBox F4280 systems with 1.36 PB usable capacity — 50% of their total capacity purchased up front, with additional capacity to be added in Year 2.

In Year 2, the *Organization* took advantage of INFINIDAT's CoD model and activated 30% more storage or 408 TB.

In Year 3, the *Organization* expanded its storage capacity with the purchase of two InfiniBox F6280 systems with 2.765 PB usable capacity, again starting with 50% capacity on demand.

Modeling and assumptions. The fees include all InfiniBox hardware and software capabilities, including NAS, inline data compression, synchronous and asynchronous replication, and advanced snapshot features. In addition, the priced InfiniBox storage arrays come standard with three years of 24x7x365 maintenance, including onsite hardware maintenance, and a technical advisor at no extra charge.

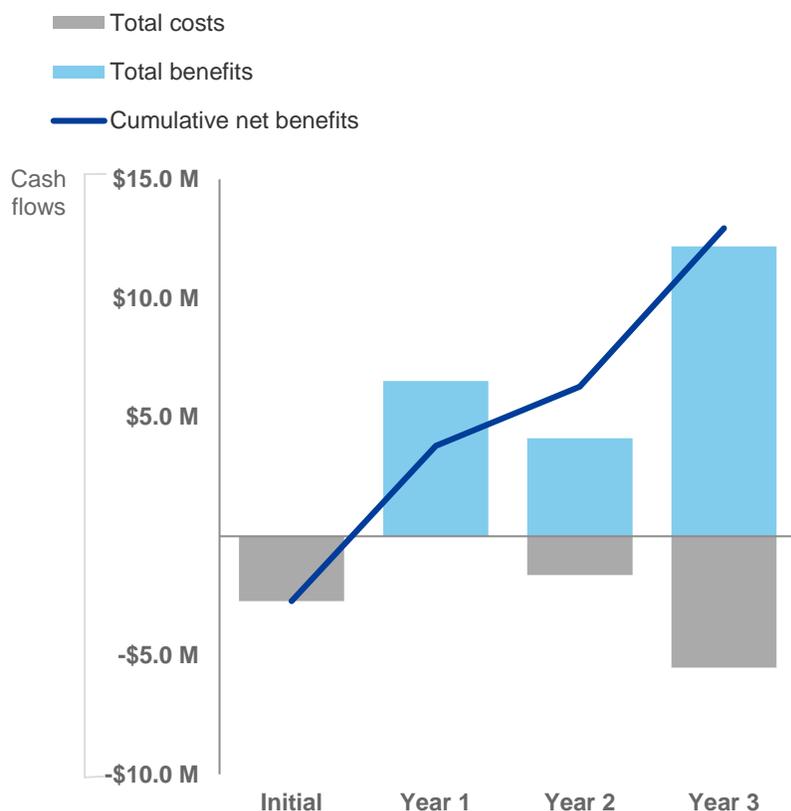
Implementation risk is the risk that a proposed investment may deviate from the original or expected requirements, resulting in higher costs than anticipated. The greater the uncertainty, the wider the potential range of outcomes for cost estimates.

Risks. Forrester did not risk-adjust these costs because 99+% of the costs are actual fixed fees quoted by INFINIDAT.

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Costs and Benefits (Risk-Adjusted)



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



These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Table (Risk-Adjusted)

	INITIAL	YEAR 1	YEAR 2	YEAR 3	TOTAL	PRESENT VALUE
Total costs	(\$2,725,733)	\$0	(\$1,631,979)	(\$5,519,739)	(\$9,877,451)	(\$8,221,538)
Total benefits	\$0	\$6,525,331	\$4,118,119	\$12,176,036	\$22,819,487	\$18,483,560
Net benefits	(\$2,725,733)	\$6,525,331	\$2,486,141	\$6,656,297	\$12,942,035	\$10,262,022
ROI						125%
Payback period						<6

The INFINIDAT InfiniBox Storage Platform: Overview

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

INFINIBOX

Enterprise Storage that scales, learns, and evolves

The InfiniBox enterprise storage array delivers faster-than-all-flash performance, high availability, and capacity density at multipetabyte scale for mixed workloads. Zero-impact snapshots, synchronous/asynchronous replication, and data-at-rest encryption assure maximum data reliability and security. With InfiniBox, enterprise IT organizations and cloud service providers exceed their service level objectives while lowering the cost and complexity of their storage operations.

High availability and reliability

The InfiniBox self-healing architecture, designed to deliver unmatched availability, combined with our patented InfiniRAID™ and predictive analysis, delivers seven nines (99.99999%) uptime and non-disruptive upgrades. The InfiniBox component redundancy design enables rapid recovery from any component failure without impacting performance.

High performance and multipetabyte scale

The system's innovative neural cache leverages learning algorithms, combined with an ultra-efficient data layout, to deliver maximum performance across all workloads. Maximum system capacity utilization is possible due to extremely efficient thin provisioning, continuous space reclamation, and inline data compression.

Business agility and continuity

Space-efficient, low impact snapshots simplify data protection as well as accelerating agile development and quality assurance with nearly infinite copies of your data. Integrated InfiniSnap® technology with synchronous/asynchronous replication provides high levels of data reliability for both onsite and offsite business continuity and disaster mitigation planning. InfiniBox can also integrate with the InfiniSync™ appliance to provide zero data loss at any distance for mission-critical environments.

Ecosystem integration

InfiniBox offers rich integrations for applications, operating systems, and host software from VMware, Microsoft, OpenStack, Oracle, Commvault, Veeam, and other major vendors, taking advantage of key features like consistent snapshots and replication. Host PowerTools integration software makes it simple to integrate InfiniBox within existing IT environments, reducing the time required for storage management tasks and preventing mistakes that can lead to expensive downtime.

Simple and powerful management for multitenant environments

An intuitive HTML5 GUI simplifies the most complex storage management operations. The comprehensive RESTful API and a powerful CLI help automate complex tasks, including Quality of Service (QoS) policy management. Easily facilitate service level coordination across tenants, workloads, and volumes. Monitor and measure all feature performance elements across systems using InfiniMetrics.

Unified storage

InfiniBox is designed for all modern workloads, supporting SAN and NAS storage protocols within a single platform. Centralize all your core storage workloads on a single, scalable platform. With a flexible and pragmatic quality of service management capability and InfiniMetrics monitoring, defining and enforcing realistic SLOs for performance and throughput is easier than ever to implement and track.

A “green” system in a small footprint

The InfiniBox is designed to minimize power consumption and related cooling load, resulting in a “green” storage system with a smaller carbon footprint than most petabyte scale enterprise arrays. InfiniBox has an efficient energy rating, with up to 8.3 PB of effective capacity in a single 42U rack, reducing system sprawl in the data center.

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 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. 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 cost.