

Capacity Savings and Storage Utilization Guarantees: What's Included, and Are They Worth Considering?

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Recently introduced guarantee programs vary widely in what is covered and what is guaranteed. Careful evaluation and judgment is needed, but when users qualify and find that the solutions meet their requirements, they should consider these guarantees a plus in the vendor's favor.

Key Findings

- NetApp made a splash when it announced its 50% Virtualization Guarantee Program, but it was not the first vendor to have a capacity savings guarantee program. Compellent launched its Space Reclamation Program through its reseller partner channel in August 2008 without any public fanfare, and Pillar Data Systems launched a related program that guarantees 80% utilization (which can translate to capacity savings) in July 2008, although it had been quietly running the program since March.
- While NetApp, Compellent and Pillar Data all offer guarantee programs for primary storage that ultimately impact total cost of ownership (TCO), each vendor takes a different approach.
- NetApp aside, it is often smaller storage vendors that implement these kinds of programs in an effort to challenge larger vendors.
- End users should be aware that these kinds of guarantee programs exist but are sometimes used as a sales tool rather than being outwardly marketed.

Recommendations

- During your next storage purchasing cycle, ask each vendor you're evaluating if it provides capacity savings or utilization guarantees.
- Know what's being compared. NetApp bases its guarantee on a comparison of its proposed configuration with a baseline estimate of what you might have bought if you didn't buy from NetApp. Compellent compares itself with a user's existing system and promises to reduce capacity requirements if you switch vendors. Pillar Data guarantees that you'll achieve an 80% storage utilization rate, with established performance service levels (in terms of input/output operations per second [IOPS]) linked to the guarantee, when you buy one of its qualifying systems.
- Examine the contract closely for vague language or restrictions that may preclude your specific environment from participation.

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ANALYSIS

Three storage vendors have introduced capacity savings or utilization rate guarantees in recent months. NetApp announced its 50% Virtualization Guarantee Program on 30 September 2008. Compellent introduced its Space Reclamation Program to its channel partners on 27 August 2008, although a formal press release was never made. Pillar Data publicly announced an 80% Utilization Guarantee on 1 July 2008, although it had been running the program quietly since March.

Programs like these are clearly marketing vehicles designed to build vendor and product awareness, increase customer willingness to switch vendors, and highlight specific features the vendor believes differentiate it from other vendors in the space and will improve customer TCO. While some customers are wary of anything that looks like "marketing hype," campaigns such as these are not inherently bad. As long as there is contractual recourse for not meeting the guarantee and users enter into the programs thoughtfully and with a full understanding of the program and its remedies, these programs can be quite beneficial.

1.0 The Programs

A comparison of three guarantee programs highlights the components of these kinds of marketing vehicles that potential customers should be aware of and consider when evaluating them. A list of recommendations and specific questions follows the descriptions. Also see Table 1 at the end of this report for more detail on these programs.

1.1 NetApp 50% Virtualization Guarantee

NetApp's program starts with the question, "How much capacity do you want to virtualize?" and then bases its guarantee on a comparison of its proposed configuration with a baseline estimate of what you might have bought if you didn't buy a NetApp FAS system. It guarantees that users who purchase these systems during the program period for use in a virtualized environment will use 50% less capacity than they would have with the baseline system. Only VMware environments (desktop or server) are supported today; however, NetApp indicated that support for Microsoft Hyper-V and Citrix Xen environments is also in the works.

The NetApp program requires that the FAS Series system be configured with thin provisioning, data deduplication, Snapshot, AutoSupport (NetApp's "phone home" feature) and RAID-DP. It also limits the amount of certain kinds of data that can be covered under the guarantee. For example, no more than 10% of the files can be images, graphics, XML, database data, exchange data or encrypted data. Since the guarantee program is designed to take optimal advantage of NetApp's feature set — particularly its ability to deduplicate primary storage — it makes sense that there would be a limit on the amount of data that doesn't lend itself well to deduplication for the purposes of this program. Customers who have more than the allowed amount of Exchange or other data can still participate in the program, but that data must be stored in a separate partition and will not be included in the guarantee calculations.

One area that has generated a great deal of comment and contention is the redundant array of independent disks (RAID)-level specification in the baseline configuration that the guarantee is based on. NetApp assumes a RAID 10 implementation with 100% overhead for the baseline comparative configuration, but it uses RAID-DP (RAID 6) on the guaranteed system. Although it's true that most VMware implementations use RAID 10, there's something unfair about using a comparison between RAID 10 and RAID-DP as a baseline for calculating capacity savings. RAID 10 requires $n \times 2$ capacity for a 100% overhead, while RAID 6 requires $n+2$ drives. Thus a great deal of capacity savings is already built into the comparative premise. For the purposes of the

comparative baseline configuration, NetApp also assumes a 40% utilization rate and traditional (not thin) provisioning.

There are numerous specifications written into NetApp's agreement, but none of them was newly created for this program. The features and configuration requirements are part of the best practices that NetApp has laid out for anyone seeking to get optimal performance from a FAS System. If the company is going to guarantee capacity savings, it makes sense that it would require users to implement the features that will allow it to do so, and NetApp gets credit for being so transparent about the requirements. Nevertheless, a customer's view of the program benefits could potentially be obscured by the way those requirements are presented.

1.2 Compellent Space Reclamation Program

Compellent's program starts with the question, "How much data do you want to migrate from your existing storage onto a Storage Center system?" It guarantees that users will require 40% less capacity with the Compellent disk array than was needed on the existing system. Customers can take advantage of the Space Reclamation Program whether the existing allocated capacity is traditionally provisioned or thin-provisioned. However, the guarantee is limited to a maximum of 100TB of allocated legacy storage.

Compellent's Dynamic Capacity (thin provisioning) and Thin Import features are part of the standard Storage Center product, and Compellent intends for these to be activated. Likewise, participants can achieve better utilization rates if they make use of Compellent's Data Instant Replay (space-efficient snapshot) functionality. However, no feature use is specifically required to qualify for the guarantee program.

Compellent's program description is encompassed in a single page and does not require customers to sign an agreement to participate. While this highlights the simplicity of Compellent's program, technically it also leaves the customer without an enforceable statement of the remedy if the guarantee is not met. Gartner recommends that all agreements be formalized to provide better protection for customers.

1.3 Pillar Data 80% Utilization/Performance Guarantee

Pillar Data's guarantee program is different from the other two. Rather than guaranteeing a capacity savings over a baseline or existing configuration, Pillar guarantees that new Pillar Data customers will achieve a minimum storage utilization rate of 80% with no performance degradation (based on agreed-upon performance levels of IOPS) for a 12-month period. That performance guarantee is for 80% utilization and no performance degradation consistently over the 12-month period, not on average, and it applies to new purchases of the Axiom 500/500MC or Axiom 600/600MC products. It is included in this analysis because increased storage utilization rates can be equated to less required storage overall and because the program includes a capacity remedy.

There are a few eligibility requirements. While the Pillar Data Axiom 500/500MC and Axiom 600/MC products support thin provisioning, its use is not required in order to participate in the guarantee program. Pillar Data believes that it can achieve these levels of utilization based on its base architecture alone. Activating the feature will of course help the cause, but it is not required. Customers must agree, however, to notify Pillar of any changes to their IT environment (external to the Axiom) which may drive a renegotiation of the agreement relative to performance service levels. While this makes sense considering that there is a performance aspect to the guarantee, it does introduce some ongoing requirements for the storage administrators in terms of staying aware of the program guidelines, and the possibility that a company could negate the agreement if it needed to change the number or type of applications accessing the stored data and didn't get prior approval.

The contract addendum for Pillar Data's 80% utilization/performance guarantee is encapsulated in less than three pages. We note, however, that specific remedies are not spelled out in the boilerplate version. Rather, they are individually negotiated with each customer, assumedly to highlight what the customer values most in terms of remediation. This puts an added burden on the customer to consider, identify and clearly define all aspects of the remedy that the customer will receive should the guarantee not be met, requiring more negotiation time and skills than it may want to ascribe to the purchase.

Pillar Data also offers a guarantee of 99.999% availability per Axiom system, but that guarantee requires a separate addendum.

2.0 Advice for End Users

Guarantee programs can help ease user concerns about changing storage vendors, especially when the new storage vendor is a smaller one. They allow users to negotiate more confidently with incumbent vendors because the hesitation to switch vendors is reduced or eliminated. Guarantees also provide internal justification for making a change. Heed these recommendations and ask a lot of questions to ensure that you fully understand the offer.

3.0 General Recommendations

- During the research phase of your next storage purchasing cycle, ask each vendor if it offers a capacity savings or utilization guarantee.
- Know what's being compared. Is the guarantee based on a configuration estimate of what you might otherwise have bought (NetApp)? Is it relative to an existing system (Compellent)? Is it strictly based on the performance of the new system (Pillar Data)?
- Read the fine print, because some programs have more restrictions than others. Thoroughly evaluate your environment to ensure that you meet all the requirements.
- Note phrases like "meet best practices" and get a full definition in writing prior to signing up. A vendor's best practices might not be the same as yours.
- Closely examine program descriptions and contracts for vague language, particularly in the recourse/remedy definitions. While too many caveats may seem restrictive, the opposite can also be a problem. Vague language equals a nonenforceable guarantee.
- Pick apart the remedy to determine any hidden costs. (Find out whether additional rack space, power and cooling, installation costs, and software licensing are part of the deal.)
- A best practice is to have a clear contract agreement in place that specifically sets forth what is being guaranteed, the customer's eligibility requirements (what the customer must do to qualify and remain in compliance), the claim process and the specific remediation if the guarantee is not met.

4.0 Sample Questions to Ask

Questions to pose to vendors include the following:

- How is the guaranteed capacity savings or utilization rate measured? Specifically what tools are used?
- What are the performance guarantees? Implementing the features required for the guarantee could potentially impact performance. Be sure this is taken into consideration and minimum requirements defined before committing.

- What is included in the remedy if the guarantee is not met? Additional disk capacity? Relevant software licensing? Installation? Rack space if needed? The first three, at least, should be free if the system fails to perform up to the guaranteed standard.
- What happens if there is a change to my environment (such as new applications or added capacity)?
- Are professional services required?
- What is the time period for the guarantee?

Table 1. Comparison of Guarantee Programs From NetApp, Compellent and Pillar Data

	NetApp 50% Virtualization Guarantee	Compellent Space Reclamation Program	Pillar Data Utilization/Performance Guarantee
Capacity Savings Guaranteed	50% reduction in capacity without performance degradation vs. baseline estimated configuration using traditionally provisioned storage	40% reduction in capacity vs. existing configuration (traditional or thin-provisioned)	Maintain a minimum utilization rate of 80% (calculated using written data as well as allocated space) with no performance degradation
Length of Guarantee	One time (on purchase)	One time (data migration)	12 months
Situation	Virtualized Server Environments (VMware)	Data migration from traditional storage	New purchase of Axiom 500/500MC or Axiom 600/600MC disk arrays
Geographic Availability	Worldwide	Worldwide	Worldwide
Program Period	30 September 2008 through 31 March 2009	27 August 2008 through December 2008	1 July 2008 official announcement date. No specified end date. Available since March 2008.
Available to:	Customers placing new orders during the program period for FAS Series systems intended for use as primary storage in a VMware ESX virtualized server environment	New customers or current customers purchasing new Storage Center systems during the program period	New customers orders for Axiom 500/500MC or Axiom 600/600MC arrays during the program period

	NetApp 50% Virtualization Guarantee	Compellent Space Reclamation Program	Pillar Data Utilization/Performance Guarantee
Caveats	<p>Must agree to:</p> <p>Run Data ONTAP 7.3 or later (Data ONTAP 10, excluded).</p> <p>Use at least 14 drives.</p> <p>Activate thin provisioning without logical unit number (LUN) reservation, deduplication, RAID-DP (RAID 6), NetApp Snapshot and AutoSupport.</p> <p>Follow NetApp's defined best practices.</p> <p>Purchase NetApp Installation and Deployment, and NetApp VMware Implementation Professional Services.</p> <p>No more than 10% of files can be images, graphics, XML, database data, exchange data or encrypted data.</p> <p>Must have 10 or more similar virtual machines per flexible volume for optimal data deduplication.</p> <p>Large database Exchange deployments are excluded due to lower deduplication rates.</p> <p>Workloads with high performance requirements, as determined by NetApp during qualification evaluation, are excluded.</p> <p>Savings are determined off a baseline calculated using RAID 10 with 100% overhead.</p>	<p>Must be migrating data from an existing system (traditional or thin provisioned).</p> <p>Maximum of 100TB of allocated legacy storage.</p> <p>Compellent Dynamic Capacity (thin provisioning) and Thin Import are part of the standard product. The guarantee intends for these to be activated, but does not specifically require that they be.</p>	<p>Customers must notify Pillar of any change to the IT environment external to the Axiom system, and Pillar may require adjustments to the guaranteed performance service level. This includes changes to type or number of applications, the data load, or the data center connection capacities</p>
Products Included	FAS systems (200, 2000, 3000 and 6000 series)	Storage Center	Axiom 500/500MC and 600/600MC models

	NetApp 50% Virtualization Guarantee	Compellent Space Reclamation Program	Pillar Data Utilization/Performance Guarantee
Feature Use Required:			
Thin Provisioning	Required (without LUN reservation)	Bundled with system so intended, but not technically required	Not required
Thin Import	No, not available	Required	No, not available
Data Deduplication	Required	No, not available	Not required
RAID Level	RAID DP (NetApp's RAID 6 implementation) required	No specific RAID level required. Storage Center supports RAID 0, 5 and 10. Customers that buy Data Instant Replay (snapshot) should be aware that inactive data blocks are automatically migrated from RAID 10 to RAID 5 in the background.	No specific RAID level required. The Axiom products use Pillar's distributed RAID architecture, which Pillar characterizes as roughly equivalent to RAID 50 and RAID 10
Snapshot	Required	Not required	Not required
Phone Home	Required (AutoSupport)	Required	Required (Call Home)
Professional Services	Required: (1) Base Storage Implementation; (2) Service and Customer Service for Add On Features; (3) Base SAN Storage Implementation (if deployed in a SAN environment)	None required	Required: 1) Pillar Pulse Service
Formal Contract	Yes	No	Yes
Remedy	Free disk capacity sufficient to make up the difference plus the associated software licensing, installation and whatever other hardware is required to make the customer whole (including racks and controllers if necessary for performance). Not to exceed 50% of storage purchase.	Free SATA enclosure and disk drives sufficient to make up the difference plus associated software licensing for all software purchased on the system, installation and whatever else is needed to make the customer whole	Individually negotiated for each contract depending on what customer values in terms of remediation

	NetApp 50% Virtualization Guarantee	Compellent Space Reclamation Program	Pillar Data Utilization/Performance Guarantee
Claim Process	Complete checklist If no improvement occurs, submit a claim form. NetApp Professional Services will endeavor to bring it to the guaranteed level either via phone using AutoSupport or onsite at no charge. If claim is valid, NetApp will determine capacity shortfall and deliver additional storage.	Contact account team, supply screenshot from legacy storage before the data migration and 15 days after the data migration using Compellent's reporting tools to show current usage	Claims must be made by end of 12-month period
Claim Deadline	Six months from unit shipment	45 days from install	End of 12-month contract period

Source: Gartner (October 2008)

5.0 Other Vendors' Programs

Septon is another example, mentioned here because its guarantee also includes a capacity remedy. It was not included in the general analysis because its guarantee is not around primary storage.

Septon guarantees new customers that its FastStart Plus Deduplication Package, which consists of an appliance, an S2100-ES2 virtual tape library, DeltaStor data deduplication software and one year of technical support, will reduce the capacity of backup data at a 40-1 deduplication ratio within 30 days of installation. If it does not, the company will provide an additional disk shelf plus DeltaStor software licensing valued by Septon at \$50,000. The FastStart Plus Deduplication Package must be installed and configured by Septon's professional services organization (note that the guarantee does not specify whether the remedy also includes free installation) and applies only to backup applications with Microsoft Exchange 2003 and 2007 data or Oracle 10 and 11 using flat files or RMAN data. Customers must agree to run full backups of the applicable data at least five times a week for the first 30 days to achieve the 40-1 ratio by the 30-day mark. Septon publicly announced its FastStart Plus Deduplication Package on 7 October 2008 after running it quietly since August 2008. The program is available in the U.S. and the U.K. and runs through 15 December 2008.

6.0 Conclusion

NetApp aside, it is often smaller storage vendors that implement these kinds of programs. They are the ones that can benefit most from a program that increases visibility and reassures potential customers that it is okay to switch to a less-known storage provider.

When researching this report, Gartner contacted several disk array storage vendors to inquire whether they had a capacity savings or storage utilization guarantee program or had any plans to institute such a program. EMC and HP indicated that they did not. IBM, which offers much of the NetApp portfolio as the IBM-branded product N Series, is reviewing the NetApp guarantee and will determine at a later date whether or not to provide a similar offering. Hitachi Data Systems, Sun and Dell did not respond to our request for information.

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