Enabling Your Storage Process

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INTELLIGENCE

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ENABLING YOUR STORAGE PROCESS

Executive Summary

As a storage administrator, analyst, or manager, you are constantly bombarded with issues from both IT and business users. You are, after all, the hub that serves all of the spokes within and beyond your IT ecosystem. With these issues come critical decisions that need to be made. In many cases, you will have the information you need to make the decisions, but there may be some instances in which you do not.

This is where Visual Storage Intelligence® can help. Our cross-platform Software-as-a-Service (SaaS) solution allows you to be more effective at making these decisions and allow you to handle many of the problems you and your users face more efficiently. Our solution offers a process that enables you to make decisions to solve these problems more effectively and competently.

To the best of our knowledge, the industry has yet to offer you a set of best practices depending on the phase you are in. In the pages that follow, we will walk you through three important, distinct phases of your storage process. From there, we will show you how our reports enable you to make the most critical decisions found within each phase.

Our team wrote this guide with you in mind. A person with a fancy PhD did not write it, nor did a slick salesman. It was written by people who have had years of experience doing exactly what you do every day and spend countless hours helping people in your shoes. We know your problems and we feel your pain. This guide seeks to cast a light on these issues and show you the reports that can help you make expert-level storage decisions.

Introduction

“My brain hurts.”

ENABLING YOUR STORAGE PROCESS

As shown in Figure 1, the storage management process begins with using Visual Storage Intelligence® to analyze your current storage environment and ends with enabling you to plan based on that information.

Figure 1 The storage management process

Within the analysis phase of the storage management process, you're able to quickly gain insight into your current storage environment. Through various reports, you are able to assess your current storage configuration against a set of best practices. This first phase, therefore, offers you the ability to obtain the health status of your current environment.

The next phase of the storage management process results in you being able to easily provide those in charge of managing costs with a report on usage of storage by business line, user group, or even user.

The final phase of the storage management process -planning- affords you the ability to use the analysis and reports to your company's best advantage. This will enable you to plan through analytics matched with best practices – not with artificially-inflated, superficial intelligence. Figure 2 highlights various problems Visual Storage Intelligence® solves.

Figure 2 Solutions with each phase

To summarize, by following the process's best practice you will be able to:

- Quickly gain an understanding of the current environment.
- Easily communicate current data storage needs.
- Plan and model future storage needs.

What truly sets Visual Storage Intelligence® apart from competitors is how we help you accomplish this. The reports we provide enable more refined decision-making. In the next three chapters, we will highlight real use case scenarios faced by our customers.

Chapter 1

Analyze

“The price of light is less than the cost of darkness.”

Arthur C. Nielsen, Market Researcher & Founder of ACNielsen

Your storage process usually starts off with you proactively trying to understand your storage environment. You are not doing it for unnecessary and futile reasons; you are doing it to see what is happening within the company. What is happening may often be good. At other times however, your fellow IT and business users may experience issues that force you to reactively assess and right-size your environment to meet these service needs. Below are a set of scenarios on how our reports can help you address both of these issues.

One of our customers, for example, benefited from our superior analysis capabilities. This customer is by no means a tiny entity, it is one of the nation’s leading food and beverage

companies, producing a full line of dairy and soy products. They have a large IT infrastructure spread across five main data centers in the United States. Due to their complex, widely-distributed network, they needed a solution to quickly analyze and display their SANs and NAS devices.

The company's Vice President of IT Infrastructure stated, "One of our challenges with our large and diverse IT Infrastructure was keeping track of our storage environment. Knowing which servers were using which portions of our Tier 1/Tier 2 storage, where our freespace existed (shown in Figure 3), and making sure all of our SANs and NAS devices were being used properly was a very complex and manual task, which was error-prone as well as impossible to keep up with. Not only was this a difficult task for our storage administrators, but management did not have the information to make our business decisions."

They chose Visual Storage Intelligence® because it's a tool that doesn't require any type of intrusion. "We chose Visual Storage Intelligence® because it leveraged our existing environment without requiring any additional tools or products to install," said the Director of Architecture.

It enabled them to "…get weekly reports and charts showing exactly what the status of our DS4000 and NetApp NAS storage arrays are, which servers are using which storage, and where potential issues may be. This is the perfect tool for our environment. It has required no implementation time or effort and we get the reports we need whenever we need them." This is just one example of how Visual Storage Intelligence® can help you analyze your current environment.

In another example, a large retailer selling a full line of auto parts, with a large IT infrastructure spread across seven main data centers needed to allocate storage for a new business-critical application. Although they relied heavily on their storage vendor for advice, they wanted more factual insight on their current environment to ensure they were making an intelligent business decision.

The IT Manager stated, "We needed the insight into specific performance across all our environments to insure our storage environment was meeting the application and users requirements. Before Visual Storage Intelligence we just gave away storage on a first come first server basis. Now, with VSI, we are able to place and manage storage more strategically which allowed us to reduce our overall costs, improve our storage performance, and significantly lower

the amount of time and effort required to do analysis and tracking. VSI did all the work for us so we could spend our time on decision making, not data collection and analysis."

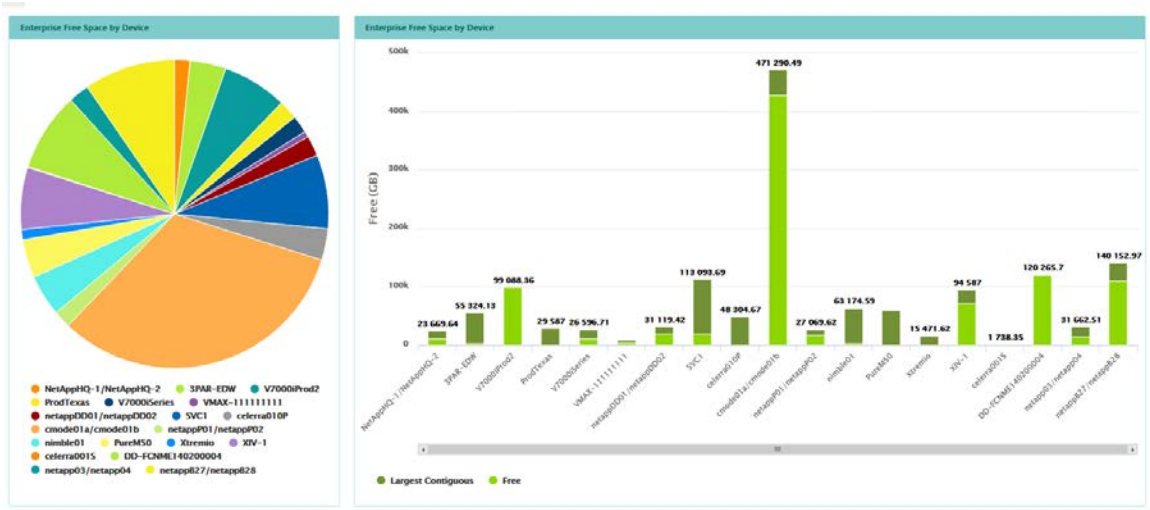

Figure 3 Enterprise Free Space by Device Report

Additionally, Visual Storage Intelligence ® provided reports that helped them right-size storage for this new business-critical application. This was because the Storage Summary and Pool reports enabled them to discover what is actually required vs. what was allocated.
That is only the beginning to the benefits of the analysis properties of Visual Storage Intelligence ®. Visual Storage Intelligence® can also help you to decrease response time (i.e. latency) complaints and decrease maintenance window risk.

Specifically, the reports that can help you to decrease response time (i.e. latency) complaints include the Host Performance and Host/LUN Performance reports. This is because the reports highlights I/O Rates by resource, latency by resource, MB/sec by resource and average block size for all hosts and LUNS in your storage environment.

Figure 4 Host Performance Report

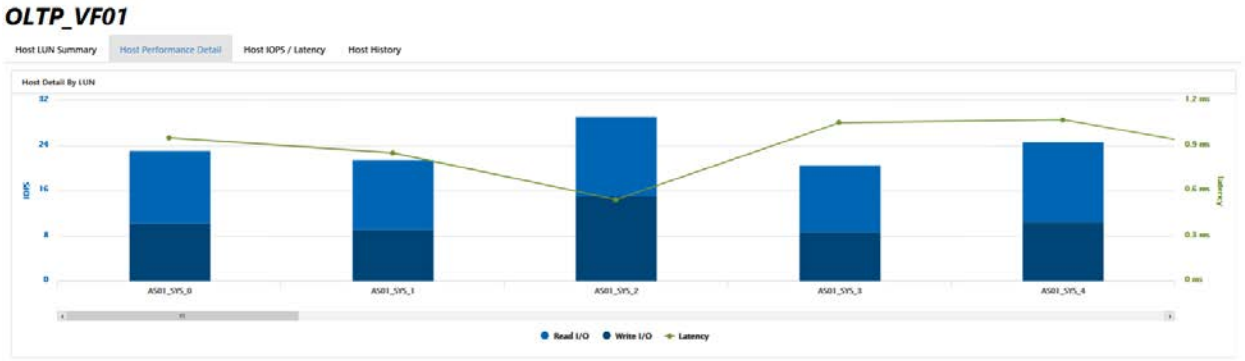

Figure 5 Host/LUN Performance Report

Finally, the reports that can help you decrease maintenance window risk include the firmware analysis and cabling/physical diagram reports. This is because the reports highlights inconsistent firmware levels across all physical resources within your storage arrays and report cabling errors that could result in outages if errors occur.

The customer was surprised by the insight quickly provided by Visual Storage Intelligence®. In one particular array, they found 75% of the array was orphaned. Six months before, the IT team had undergone an intense data migration project and moved storage amongst their various arrays. This particular array had data that was no longer needed and/or valid, but the LUNs still showed as allocated. Excited about these findings, the IT manager was able to recognize how he could use this free space for the new application. Eventually, the company did not have to buy new storage and saved themselves $250,000.

Chapter 2

Inform

“Yeah. You see, we're putting the coversheets on all TPS reports.”

Bill Lumberg, Office Space

We’ve all seen the film Office Space and fondly (or disdainfully) remember Bill Lumberg asking for cover sheets on the TPS reports. Reports, however, do not have to be the butt of a joke. After all, reports help organizations see the mysteries that lie deep within the company. It is for that reason that we address reporting as the second phase of the storage management process. This phase begins with key users (or those responsible for costs and budgeting) wanting to understand how much is currently spent by users on storage. Below are a set of scenarios and examples of how our tool’s reports can help you address these needs.

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Phil Godwin, President of Visual Storage Intelligence®, recounts a story where a customer was sharing his frustration with end-users. In particular, this customer explained that a knowledge gap exists between business users and the IT cost centers.

While the customer spoke, Phil later explained "…something hit me. Not a brick or something like that; instead, I had an 'aha' moment when the IT manager said something like 'These guys keep asking for more and have no idea what it costs…"

At that moment, Phil shared a similar experience he had a few months earlier with his 15-year-old son.

It started when his son sent Phil a text saying, "I want a Range Rover." Of course, the responding text was "Ha-ha do you have any idea how much that costs?" His son had no idea he was asking for a $100,000 car, but once Phil pointed that out to him, he completely understood. Phil realized then that all he had done was show him the cost. The discussion then quickly changed to a more realistic one; his son still needed a car, but not a $100,000 one.

After sharing the story about his son, Phil asked if the IT manager showed business users the IT resources they were using and an estimate of the cost. Thirty minutes later, Phil explained, they invented a new phrase, "show backs." In organizations, especially when it comes to IT-related issues, it is normal for business users to ask for more without thinking about the cost associated. However, by simply pointing out the obvious, Phil offered a better way to reduce cost and waste in IT.

You can't "get" what you can't "see". The original purpose for the meeting was to talk about how Visual Storage Intelligence® can be used for storage reporting on demand. However, in addition to inventing a phrase and "philosophizing" about life, they figured out that some of the standard reports in Visual Storage Intelligence® are perfect to depict "show backs". Figure 6 below highlights what is now known as the "Show Backs" Report.

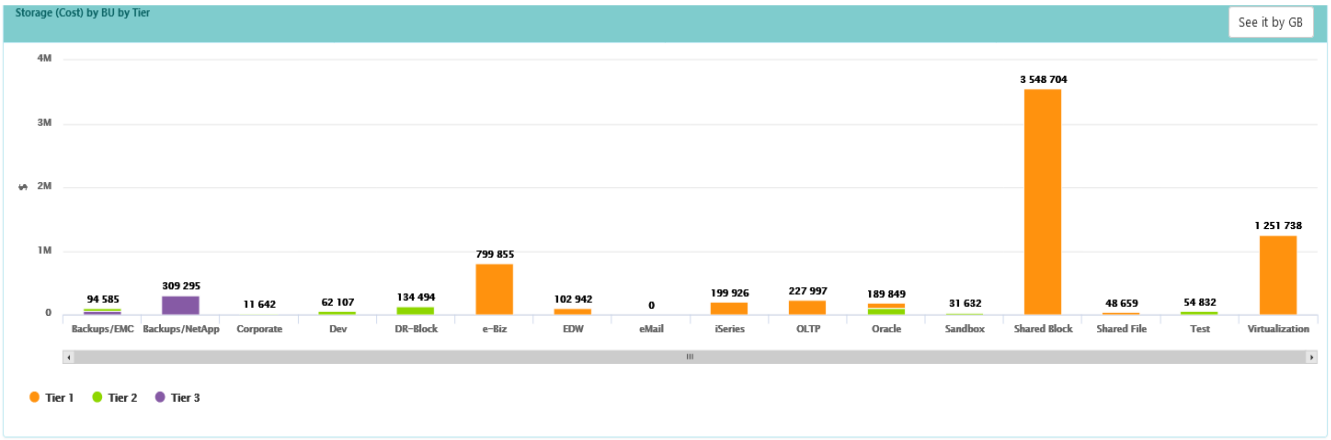

Figure 6 "Show Backs" Report

Since then, customers have benefited greatly from this report provided by Visual Storage Intelligence ®. In particular, they have found a better way to communicate storage costs with end-users. Not only that, but this report offers the beneficial feature which not only shows the departments that use the most storage, but also isolates usage per user. Specifically, the reports that can help isolate usage per user include the business unit reports by application and/or department reports. This is because the reports highlights who is using what and how fast growth is occurring at the business unit and application level.

Chapter 3

Plan

“Failing to prepare is preparing to fail.”

John Wooden

The success of an organization is primarily due to its ability to prepare. Preparing, however, is not an easy task. Just ask some of legendary UCLA basketball coach John Wooden’s former basketball players. In the same vein, the final phase of your storage process is marked by you proactively trying to understand your organization’s future storage needs. Buying too much storage results in a bloated budget for which you are the direct cause. Buying too little results in your users not being correctly served. Throughout this phase of the process, vendors are (notoriously) trying to get a piece of your budget.

This is exactly why a forward-looking infrastructure team at a large airline turned to us to help them not only make certain that their 87 arrays were optimally and efficiently operating, but also, with budgets being set soon, to help them justify future storage purchases. This is no

average airline. They perform 3,600 flights a day that serve 94 global destinations and have a large cross-platform storage infrastructure spread across three main data centers.

As Van Symons, Visual Storage Intelligence®'s CTO, stated, "This airline is like no other airline in the world. They are known for the importance they place on innovation, often trailblazing beyond their competitors. Furthermore, this Fortune 500 Company is known to hire the best, most sophisticated and most proactive employees in their industry!"

To achieve this, they needed real, rapid insight on their current environment. The IT Director said, "Our challenges with our storage environment included knowing how much unclaimed storage we had, spotting inefficiencies, and seeing which business unit and user groups consume the most or the least of their allocated storage. We simply didn't have the technology in place to perform this analysis on a weekly basis — so we assumed that all arrays were fully utilized. Not only that, but we couldn't track and spot trends to proactively tackle issues, such as which systems are overextended and when upgrades are needed on these systems. This left us flying blind."

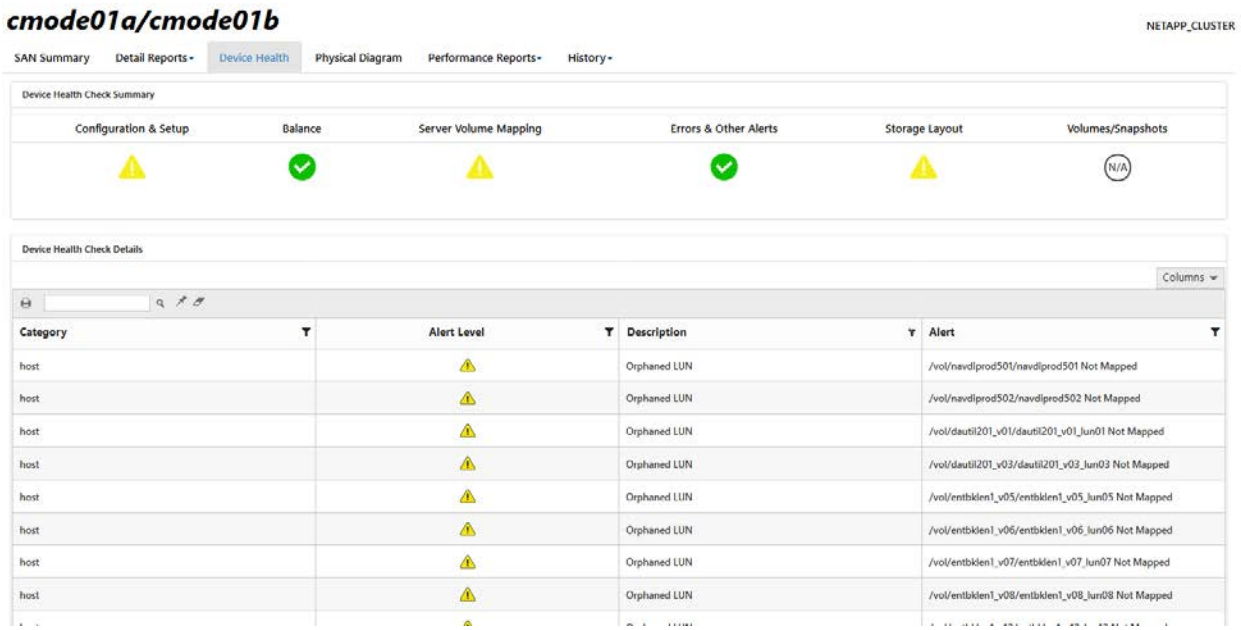

Figure 7 Orphaned LUN Report

Figure 8 Freespace by Disk Group Report

"Visual Storage Intelligence® helped us to not only know how much unclaimed storage we had, but also spot inefficiencies which resulted in two key benefits: saving the company money and pinpointing overextended systems that were in need of attention and upgrades. And, this is just the beginning…" Specifically, as shown in Figures 7 and 8, the reports that helped this company include the Orphaned LUN Report and the Freespace by Disk Group reports. This is because the reports highlight what shows as allocated, but is not used, as well as the difference between what is allocated and what is actually consumed.

In total, with Visual Storage Intelligence®, the company identified over 730 GB of immediately available orphaned storage – and, at $1.30/GB, they avoided spending $1 M in costs. Visual Storage Intelligence® also helped the company pinpoint systems where storage user pools were overused, systems where performance thresholds were overextended, and isolated frequently failing systems where firmware upgrades were needed.

This is just one example of how Visual Storage Intelligence® can help you plan and set accurate budgets. Other advantages of Visual Storage Intelligence® include helping you to become the trends/growth expert, buy better, and hold vendors accountable. Specifically, the reports that can help you to become the trends/growth expert include the forecasting, capacity planning, and commitment reports. This is because the reports highlight what is used as well as allocated and how these are growing over time for each application and business function.

Further, the reports that can help you buy better include the Performance Analysis reports. This is because the reports highlights growth by pool and type of storage so you can see what types of storage are needed and when they will be needed.

Finally, the reports that can help you hold your vendors accountable include the Vendor Analysis reports. This report highlights usage trends across all arrays at a vendor and application area.

Summary

In conclusion, IT organizations need a storage management process that enables them to conduct a proper assessment, make critical decisions, and inform stakeholders. With Visual Storage Intelligence ® users are able to think through exactly what is required for critical decisions and figure out how to make that information available in a systematic way. Through its actionable reports, Visual Storage Intelligence ® provides organizations with layer of insightful information to make these decisions and communicate all these insights more effectively.

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