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Storage as a Service

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Adopt a modern
storage strategy

Gain cloud economic and
operational advantages

Mitigate risk and accelerate
business change



Abraham Barnes
Ellie Ruano

Pure Storage
Special Edition

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Pure Storage is redefining the storage experience and simplifying how people consume and interact with data. And with the highest Net Promoter Score in its industry, Pure Storage's customers are some very happy people. For more information, visit www.purestorage.com/evergreen.



Storage as a Service

Pure Storage Special Edition

**by Abraham Barnes
and Ellie Ruano**

**for
dummies®**
A Wiley Brand

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Introduction

Current capacity-based, three-to-five-year, rip-and-replace storage product life cycles are no longer working the way they should when it comes to meeting the demands of digital businesses. In contrast, a modern, cloud-based, *as-a-service* storage consumption experience that allows teams to pay for only the data they store aligns IT, finance, and business strategies to deliver on key business transformational initiatives.

Enter storage as a service (STaaS). It boosts organizational agility and resilience through a combination of architectural and operational capabilities and allows your employees to focus on what matters most: business outcomes that deliver optimal value for your data. No more wasting time on mundane storage tasks! If you care about storage performance and availability, efficiency and sustainability, particularly for business-critical systems, you want to understand the ins and outs of the STaaS model that delivers cloud economic, operational, and experience advantages. After all, it never hurts to think about optimizing what you have and at any moment being ready to quickly add to your space.

About This Book

If you and your company are keeping data for some period of time to meet business and compliance rules, you may be familiar with enterprise storage. If you've ever ordered a rideshare or contracted a company for landscaping, large-scale cleaning, or regularly occurring corporate events, you're familiar with services. This book brings those two concepts together in a way that can help you do a better job of keeping your most important business asset — data — safe and productive.

This book is for storage administrators, procurement officers, or C-suite executives charged with a project involving data storage. You can also use it for your infrastructure team and application owners because it speaks their language about how to think about and reimagine all the ways storage — in a cloud-based model — can benefit your business. Because data is now the driving force behind competitive advantage, productivity gains, and risk

mitigation, *Storage as a Service For Dummies*, Pure Storage Special Edition, goes into how the role of a service for storage ensures positive outcomes in all these areas as well as business agility.

Icons Used in This Book



TIP

Throughout this book, we occasionally use special icons to call attention to important details. Here's what to expect:

Tip icons show potential time- and cost-savings opportunities.



REMEMBER

Important definitions and ideas for you to log in the recesses of your brain are marked with the Remember icons.



WARNING

Pay close attention when you see the Warning icons — these indicate things that can trip you up on your STaaS journey.



TECHNICAL
STUFF

The Technical Stuff icons draw your attention to details you won't want to miss if you're in IT. Even if you aren't in IT but you like all the techie details, make sure to read up on these tidbits. If you don't want the deets, feel free to skip this info.

Beyond the Book

This small book is a peek into the world of STaaS, so consider it a quick reference guide. Keep it close to review initiatives dependent on modern storage beyond the basics: a storage refresh or data center consolidation. If you want information beyond what we've covered in the short pages of this book, you can always get the most up-to-date information about STaaS at www.purestorage.com/evergreen-one.

- » Forging into data management
- » Uncovering problems with current storage deployments
- » Addressing storage obstacles in a new way

Chapter 1

Chronicling the Evolution of Storage

Enterprise storage is growing fast and furiously because organizations increasingly depend on data and are reluctant to purge it. Rapid data growth may be unstoppable, but that doesn't mean storage has to be equivalent to a junk-filled garage. Storage is a critical backstop for all the important data your company generates, collects, and uses to gain insights for a competitive edge. Without storage that's easy to access and manage for your authorized people, your data delivers less value and your operations are more vulnerable.

The storage industry's evolution is aligned with computing modernization, particularly the rise of data centers during the dotcom bubble. From 1970 to 2000, storage products evolved from a one-to-one coupling with server to direct-attached storage (DAS) to storage area networks (SAN) to network-attached storage (NAS) with leaders rushing toward non-stop internet operations. Another wave of innovation came on the heels of rapid hybrid and public cloud adoption with all-flash arrays and appliances delivering better performance at scale and speed.

With enterprise storage becoming critical to companies using data to disrupt entire industries, business leaders have realized that

the storage business is the data business. Yet not everyone has done the necessary work to innovate and shift from buying new but inflexible storage technology in a traditional capacity model to a cloud operating model based on consumption.

In this chapter, you explore the advantages of consuming data storage in an as-a-service model and compare the approach to traditional purchasing of technology assets. Not all storage as a service (STaaS) offerings are equal, so be aware of the tell-tale signs that some are just repackaged leases or fancy payment programs.

Watching the Rise of Data Management

Data, like energy, now powers businesses of all kinds and sizes. If you don't believe it, think about how quickly the most popular taxi services in the world — yellow cabs, hackney carriages, and tuk-tuks — lost customers to ridesharing powerhouses like Uber and Lyft. What about Airbnb or Vrbo reimagining the traditional vacation experience?

Yet, to execute on big strategic goals today, companies have to be willing to consider new, innovative approaches to not only the shiny-object parts of IT — for example, automation via machine learning (ML) or Internet of Things (IoT) sensors — but also the really important, yet often under-the-radar parts, like storage.

Enterprise teams typically estimate how much storage infrastructure they need for today and tomorrow, and work with procurement on a fixed-price contract. But the data they end up putting on the hardware doesn't always align with those expectations or business realities. Sometimes teams underutilize storage, but more often they underestimate what they need and have to invest in more. In short, expectations and reality are misaligned — and that's a costly mistake either way. This guesstimate approach seems shortsighted now as economic uncertainty rises and competitors ramp up using data they've analyzed to increasingly deliver insights that drive the following critical business outcomes:

- » Financial flexibility/revenue growth
- » Improved efficiencies
- » Risk management

A few forces in particular are brewing up a perfect data management storm that's putting pressure on business leaders to adopt a new way to buy and consume storage. (Spoiler alert — it's STaaS. Check out Chapter 2 for more info.)

Getting Low Returns on Your Existing Investment

Volume, variety, velocity, and veracity — the four Vs of big data — are making it harder for people to find, deliver, access, and trust their organization's data. Seemingly every day, data changes in quantity, speed of access, and type (unstructured, structured, cloud, IoT, batch, real time, streaming, and more), yet all of it has to be rationally defined so it can make sense, be accurate, be trusted, and importantly, be protected from bad actors with malicious intentions. These actors want to lock up your data in exchange for a ransom payment or steal it in a double-extortion scheme for even greater gain. Finding a solution that handles all that is a tall ask of the brittle storage products in most data centers today.



REMEMBER

Your team needs to be able to justify purchases with an expected return on investment (ROI), driven by a forecast of utilization and productivity. But that's simply not happening with traditional storage investments. IT leaders with "if it's not broken" mentalities are in an over/under spending cycle because their real-world experiences haven't matched what was promised during the initial purchase. For most, the expected benefits rarely materialize. Head to Chapter 3 to check out the highlighted benefits of STaaS.

Spending too much

The information economy is here, and within it, data is taking on a life of its own. (Admittedly, it's a little creepy!) What that means, though, is that for high-value companies like Google and Facebook, data is a foundational asset and the source of successful financial results. To follow that, digital infrastructure decisions — data storage ones especially — should fuel business growth and flexibility. But existing storage products acquired through traditional purchasing channels are burdensome, complex, and costly to maintain. Instead of working on strategic initiatives, admins are continuously wasting time and effort on

the storage management and maintenance tasks required just to deliver on business expectations. That's in addition to fire-fighting storage issues as they happen and supporting disruptive data migrations.

Most existing storage solutions are static, fixed hardware and software configurations that teams can't scale up or down as needed to meet rises and downturns in business. Any big growth change or performance degradation requires a forklift hardware upgrade that's costly and time consuming to manage, and it adds to the growing e-waste problem. Any substantial drop in business requires teams to continue to pay for too much capacity. Plus, every interim change — in addition to the inevitable three-to-five-year rip-and-replace life cycle of storage — raises the specter of data migration and downtime risks of business-critical data that companies can't afford.



TECHNICAL
STUFF

As organizations modernize, addressing technical debt can be a source of innovative, as-a-service funding. Nearly one in three chief information officers (CIOs) recently surveyed by global management consulting firm McKinsey & Company said that more than 20 percent of their technical budgets earmarked for new products are diverted to resolving issues related to tech debt. The same respondents estimated that tech debt accounts for 20 to 40 percent of the value of their entire tech estates.

Innovating too fast

An unceasing wave of technology innovation is both a boon and burden to businesses. Data management solutions are capable of amazing things: automatically discovering data in new devices and structures, transforming it, and delivering it to where and when it's needed while ensuring it's been cataloged, analyzed, monitored, secured, compressed, archived, and more. Storage products must keep up.

On the storage innovation front, you have good and bad news. On the up side, vendors are inventing new, better versions of their solutions so quickly that performance and reliability issues associated with legacy storage products are becoming obsolete. On the down side, storage equipment in operation is also becoming out-of-date faster. Existing storage products aren't failing in three to five years; the technology is just getting better faster. The outcome? Even more technical debt.

HOW CASH RICH CAN LEAD TO POOR DECISIONS

If your organization still spends capital to purchase technology, beware. You may be paying much more to buy and maintain assets because most products now have a less-expensive as-a-service model. Due diligence can help you make the best economic decision now that there are options to use different types of budgets (for example, capital expenditure [CapEx] and operating expenditure [OpEx]) to pay for a subscription as-a-service offering.

Needing to be cautious

If we had a crystal ball that showed your organization the world's economic future, you wouldn't have to be fiscally conservative. You'd already know what to expect. But because we can't offer that future-telling service to you, your team should consider all the "extras" that accrue in your traditional storage spend. With storage solution purchases, these add-ons can include

- » Upfront purchases of hardware/software
- » Just-in-case capacity overprovisioning
- » Ongoing software licensing and maintenance agreements
- » Refreshes and upgrades to address business pivots
- » Labor-intensive and risky data migrations
- » E-waste payments, including fees and fines

Extras are unwelcome surprises when you're under pressure to preserve cash, protect reserves, or show capital adequacy.

Accelerating the Speed of Business

Despite how much business leaders depend on them, forecasts are flawed. After all, humans are typically the ones doing the estimating and predicting, and if you couple that reality with a few other key facts, you can see why a five-year storage solution forecast isn't a good idea anymore.

The acceleration of innovation in the tech industry as well as pressures on businesses to adapt more rapidly and in increasingly extreme ways makes five-year forecasts utterly unrealistic. Yet teams are still feeling like they have to invest and commit on Day 1 to a multi-year cycle. (You know insanity is doing the same thing over and over and expecting a different outcome, right?)

Adapting faster to new models

As business owners go off and investigate specific technologies, such as containerization, or look into application layers or DevOps procedures for maintaining their IT estates, any ad hoc requests for additional storage capacity start to come through at startling rates. Traditional storage offerings have a difficult time supporting these requests.



WARNING

Because additional storage capacity isn't typically readily available to address new scenarios quickly, internal IT departments must begin a lengthy procurement cycle to justify buying capacity, then navigate supply chain issues to get hardware delivered onsite while negotiating with a systems integrator to install it in a timely manner. That whole process can take a few months, or even longer, and in that time, competitive advantage can be squandered.

Focusing on what matters most

When you use the traditional model of acquiring physical storage products to own (rather than using a STaaS model), storage admins are required to complete paperwork for product acquisitions and liaise with internal application owners and procurement teams (sometimes even executives) for sign-off. Once acquired, the physical storage products require that those same admins spend time installing new hardware and software (with subsequent upgrades leading to data migrations and unexpected downtime), plus troubleshoot issues as they arise. All these tasks take valuable time away from the work your organization really wants its storage admins to be doing — helping teams achieve their strategic business goals (which have revenue, efficiency, and risk management objectives).

Addressing ad hoc requests

Among the hardest moves to anticipate and quickly adapt to within your sustainability objectives are the actions of industry regulators and competitors. This case is particularly true in the finance and energy industries where requirements continually change with the expectations that businesses will comply. For example, if you're a software-as-a-service (SaaS) company and one of your large customers has a sudden workload spike, you have to rapidly scale, too.

Imagine an energy regulation changing and a natural gas company having to purchase more capacity to protect more of its data for longer periods of time. What about a financial services leader spotting a new market opportunity and quickly spinning up a software project to deliver an application to address it, only to be told by the internal IT team that it's unable to make the necessary storage capacity available to this new project on such short notice?



REMEMBER

Pivoting fast while protecting the planet are both good reasons to talk about having a modern storage consumption approach — whether it's a one-off request or a planned transformational initiative (like those we cover in Chapter 4). Your organization's ability to be agile in the face of business disruptions depends on it. For more on protecting the planet with sustainable solutions, check out the later section in this chapter, “Seeking Sustainable Solutions.”

Demanding More of Your Storage

Regulators aren't the only ones making demands. Application owner calls to IT staff, particularly storage admins, are becoming increasingly unpredictable, too, and the line between who's responsible for demand management and who oversees capacity management is blurring.

Challenging existing mindsets

Teams know who's traditionally responsible for capacity management (storage admins), but where does the business responsibility ownership lie when app owners now demand high stability, performance, and efficiency on their terms and timeframes from

storage infrastructure? And what if they have the budget to get it on their own without involving IT?

Demand management becomes much more difficult across the organization when there's not a high-quality signal. What's needed is a stable, efficient, modern consumption-based STaaS platform that's easy and inexpensive to change as needs evolve.

Reviewing different storage requirements drivers

Organizations are forging modern storage strategies for their modern data and application approaches for the following reasons:

- » **Increasing competition:** Teams seek storage that can help them meet demanding service-level agreements (SLAs) for their customers with efficient cloud operations and cloud economics for on-prem and hybrid data centers.
- » **Compliance requirements:** Teams want the flexibility and scalability to adjust storage and capacity parameters as industry and company requirements change.
- » **Budget pressures:** Teams want to control capacity and only pay for what they use yet still have the freedom of choice to categorize their purchases as CapEx or OpEx to achieve the optimal tax/cash flow benefits.

Seeking Sustainable Solutions

Digital transformation initiatives (see Chapter 4) aren't the only impetuses for companies looking to modernize storage approaches. Corporate Environmental, Social, and Governance (ESG) objectives are also catalyzing change. Enterprises are paying close attention to their data centers to meet sustainability goals. A modern data storage consumption model promotes environmental sustainability by improving operational efficiency — deploying and powering only what you need — while driving down costs and minimizing e-waste.



A study by Pure Storage and Bredin Research of 500+ IT decision makers revealed that ESG initiatives are at the forefront in mission statements, supply chain decisions, operations, and more. If you think that's only to meet new regulations or curb power costs, think again. The top reasons are to align with customer and employee priorities and do the right thing. Over 60 percent of organizations studied now see sustainability as critical to their IT investment choices.

Unlike traditional hardware-based storage models, as-a-service approaches improve sustainability because organizations delivering it only procure (and upgrade in place) the infrastructure they use, which reduces e-waste. Energy efficiency is also a top byproduct for teams procuring services because they use only the capacity that they want and expand it on demand as their needs grow. This way, teams completely eliminate the need for over-provisioning. It's a win for productivity and the planet!

All of these business realities point to the need for a modern approach to storage, and Chapter 5 illustrates the best way for organizations to start with STaaS.

- » Defining a new storage strategy
- » Comparing capacity and consumption considerations
- » Steering clear of STaaS imposters

Chapter 2

Entering a New Era of Storage as a Service

Organizations everywhere are moving faster to embrace as-a-service offerings because of their on-demand capabilities, operational guarantees, and pay-only-for-what-you-use efficiencies — proven by the public cloud. While some technical teams are still skeptical, what if your organization could enable the cloud operating model in your onsite data centers or co-location facilities, enjoying all the on-demand capabilities and pay-per-use efficiencies with none of the risk? That's what Storage as a Service (STaaS) brings to on-premises and hybrid cloud environment storage.

STaaS isn't an entirely new idea, and that can be confusing. In this chapter, you get a good idea of what a modern STaaS offering is and isn't and how a STaaS solution can truly help you achieve transformational business outcomes.

Setting the Stage

Modern STaaS is *not* a fancy payment plan for existing storage products. STaaS *isn't* modern if it's static hardware without guarantees that it's also hybrid cloud ready. Yet to date, what's been offered as STaaS has mostly been a repackaging of fixed hardware configurations — complete with snazzy new dashboards — instead of a wholesale rethinking of STaaS innovation.

What a transformational, modern STaaS offering does consist of is an enterprise-class subscription, providing foundational block, file, and object services for de-risking and accelerating strategic business change initiatives. It's designed for and works for the consumer, not just the vendor. It flexes and adapts to business needs and is ideal for a wide range of industries and operational scenarios. For example, it can help healthcare providers align picture archiving and communications systems (PACS) costs such as x-rays with storage infrastructure costs and IT vendors with Software-as-a-Service (SaaS) offerings in aligning business revenue targets with storage investments.

Not all modern STaaS offerings are created equal though. You want one that offers

- » A non-disruptive, scalable architecture and a service-oriented experience
- » Proactive monitoring and support
- » Performance, availability, capacity, ransomware recovery, and sustainability levels backed by service-level agreements (SLAs)
- » All the capacity guarantees you need to meet your precise business requirements
- » Deployment everywhere you want — your onsite data center, a co-location or managed service provider location, or the public cloud with one unified bill and no upfront capital investment



REMEMBER

A new era of STaaS innovation entails a new mindset along with a STaaS architecture that ensures you stay in control of your data and avoid downtime.

Rethinking the Traditional Buying Model

For many years, an individual (or team) in an organization has been responsible for estimating how much storage or capacity a business needs not only for today but also three to five years from today to support applications and workloads. Based on that information, senior IT, finance, and procurement leaders put their heads together to purchase the right storage product configuration plus a maintenance and support plan on top of the initial purchase to cover unexpected issues. (Check out Chapter 1, where we talk about the flawed forecasting process.)

Table 2-1 gives you the typical roles and interests involved in the storage product acquisition process.

TABLE 2-1 **Parts of the Acquisition Process**

Role	Interest
Business Leader (CEO, COO, App Owner, Line of Business Leader)	Look to use data as an asset, optimize full-time employee time, manage risk
Finance Leader (CFO, VP of Finance)	Focus on TCO, controlling investment, and balance sheet optimization
Procurement Leader	Seek predictable capital and budget expenses, proven product ROI
Governance Committee	Require compliance, security, and data controls
Technical Leader (CIO, CTO, CISO)	Have interest in cloud enablement, automation/integration ease, and security
App/Database Leader	Want agility, adaptability, and availability with high performance; focus on faster development cycles and cutting complexity
IT Leader	Seek high performance and availability plus easy management and scalability; want interoperability at low TCO and hybrid-cloud-ready solutions to optimize resource management
Storage Leader	Focus on solutions that are easy to manage, non-disruptive, standardized, and interoperable
Cloud Leader	Seek agility, flexibility, data mobility, and cost efficiency

Think about someone in one of these buying centers hearing about this different approach — STaaS — that can give their teams an all-encompassing service that further leans into their cloud operating model vision without maintenance hassles and gives them the configuration and capacity they need, when they need it. What's the first question that person might ask? You guessed it. "What's the cost?" followed by "How should I think about and compare my options?" In this section, we cover why those questions are not only shortsighted but also nearly impossible to answer.

Showroom versus sharing

Imagine you need new transportation. If you want to, you can walk into a vehicle showroom and buy a car. But you can only choose from the available makes and models. Yes, there are different interiors, trim colors, sound systems, and wheel-size options, but your choices are limited by what the vendor has pre-configured. You decide to own the vehicle, sign and pay (or promise to pay), and it's yours. Now you own a fixed asset, and you have to worry about gassing it up and keeping it running — even hiring a tow-truck on short notice if it breaks down. Despite getting some cool, even regular, updates such as free inspections every 10,000 miles, your car needs care and feeding from day 0 to the day it cruises its final mile.

Choosing a service as your new form of transportation is a radically different approach. Instead of purchasing a fixed asset, you install a car-sharing application on your phone, add your credit card, and make a request. You don't think about whether the car is gassed up or has been in the shop, you think about how fast it will arrive (performance and availability metrics) and whether it has the space and power (capacity and scale metrics) you need to get you to your destination.

When you consume a service, it meets your needs at a price you've agreed on when you need it. If it's a transportation service, for example, you don't have to forecast in advance how many trips you'll take, where those trips will take you, what time of day you'll go, or by whom and how often the car will be serviced. It responds and adapts based on your needs (the same is true for hiring a lawn service — no purchasing and servicing your own mower, edger, and so on). In contrast, a fixed, sunk-cost purchase with ongoing upkeep requirements makes you adjust your demands to what it offers.

HOW IS STORAGE EVOLVING?

Vendors that used to sell the best appliances for performing the storage function are now providing data services and data management as-a-service offerings. Organizations can pivot — from thinking about storage to thinking about data — by choosing vendor solutions that can meter and charge for the amount of data on the service. There's no element of capacity or concept of needing to know about arrays. With the right modern STaaS offering, teams only need to think about the nature of their data, the location, and performance and availability they need for these workloads. Then they pay only for the amount of data put on the platform relative to the tier of service they selected. They take data off; they pay less. They put data on; they pay more. They bump up availability or performance or ratchet it down to hit the right point on the cost-performance curve. That's the transformation. To meet business needs now requires moving away from the traditional storage parameters of space and capacity to data, usage, consumption, and data utilization.



WARNING

An apples-to-apples comparison of a storage array to subscribing to modern STaaS doesn't make sense because you end up applying traditional thinking and often reach incorrect conclusions about how costly the consumption service will be.

Changing considerations

Business has changed and with it buying patterns must too. Think about the following important considerations for acquiring modern storage:

- » **Consumption (data not space):** If organizations have insight into what their businesses will be doing, including recognizing big compelling events on the horizon, they'll add some contingency and increase their capacity. They'll want to buy a fixed configuration product that meets functional requirements and think about replacement in five years. But the unexpected is always out there. Because forecasting is increasingly unreliable, teams need to focus on data volume, not capacity.
- » **Access:** What happens when organizations want or need access to more capacity? Do they have to increase their

commercial exposure, commitment, or contractual obligation to do it? With the increasing velocity of data, what team can afford to wait for a new buying cycle to meet rapidly changing requirements and still manage to adapt?

» **Technology solving real business challenges:** Storage has always been must-have infrastructure because of the role it plays in data protection. Beyond that, now stored data also delivers insights that drive business outcomes from operational efficiency to financial flexibility.

Addressing as-a-Service Misconceptions

Moving from a product acquisition model to consuming a service for the purposes of risk mitigation and productivity can be a big win for businesses because the service can redirect all the associated administrative overhead, inconvenience, and unnecessary costs. But many organizations are letting cost and control misconceptions get in the way of reaping the benefits that managed service providers (MSPs) and global systems integrators (GSIs) can achieve through their buying power, economies of scale, consistent quality of service, and SLA assurances. Two big perceived risks are holding teams back from going all-in on as a service for storage.

Rising costs

Some folks think that consuming a service is going to be a lot more expensive than simply buying a storage product. People incorrectly believe that all the flexibility and agility that comes from as-a-service models must come at a price, and at a premium no less.

They also think pricing models for these services, compared to capital expenses, are deliberately confusing, complex, and opaque because they're designed to "fool" customers into thinking they're getting a good deal, but in the end, they end up paying a lot more.

Losing control

Other people have a perception that they will lose control if they use a service. A fear with a service is not knowing what's

happening and when. How much capacity does the hardware have? What model is it? What are the triggers that push costs up or down? It can all seem pretty mysterious (and not in a comfortable way).

What enterprise pros may not understand though is with modern STaaS, there is a very clear line between what the business subscribing to the service does and what the vendor offering the service does. In general, the business owns the day-to-day storage operations — allocations of volumes to hosts, servicing of all requests or needs from application owners, and the like. The vendor is responsible for ensuring performance and availability, maintenance, updates, and capacity. And the best STaaS providers help ensure the organization stays within the business and industry data governance and regulatory compliance guardrails. (Think General Data Protection Regulation [GDPR] and data sovereignty.)



TECHNICAL
STUFF

Modern STaaS vendors that incorporate artificial intelligence (AI) and machine learning (ML) in Day 2 operations offer additional benefits. They use data science to fingerprint workloads and improve workload placement, get proactive in recommendations, surface curated self-service actions and provide visibility and transparency against SLAs. It's artificial intelligence for IT operations (AIOps) in action.

One might discover storage admins have more control than ever because they make the decisions between on-demand or committed usage. They just have to inform the vendor, and the vendor does all the work! (Who in IT doesn't like that idea?)

Spotting STaaS Imposters



WARNING

Data, not capacity, is the optimal unit of measure in STaaS offerings. Any vendor telling or selling you otherwise should raise a big red flag for you. If you're looking for a true STaaS offering, watch out for vendors that are

- » Selling only a capacity-based model (talking about commercial commitments in terms of percentage of capacity)
- » Failing to offer SLAs or service guarantees with service credits and remediation

- » Telling you there's no unexpected downtime (it's planned)
- » Typically offering only one set of terms: a fixed, long-term contract (3+ years)
- » Forcing you into specific hardware — that requires a complex and disruptive process to change later — with usage limited to the box you buy
- » Discussing balloon or other payments to make their own businesses more profitable after delivering new functionality
- » Avoiding a discussion about what data your organization really needs to keep and protect to meet business objectives

Don't accept these imposters. If you're curious about what to accept and what's on the must-have STaaS capabilities list, check out Chapter 3.

- » Having more financial freedom
- » Boosting your operational agility
- » Reducing organizational risk
- » Maintaining data compliance
- » Hitting your sustainability goals

Chapter 3

Getting Results with STaaS

All business change is driven by a motivation to deliver on a vision while remaining relevant, optimizing costs, and managing risk. Given the demands on businesses to adapt and grow are accelerating and that mid-to-long-term forecasting is increasingly unreliable, organizations have to find new ways to achieve revenue, cost, and risk management goals. That's where storage as a service (STaaS) comes in.

STaaS is an enterprise-class subscription offering of foundational block, file, and object storage services in a consumption-driven model. It delivers a service-oriented experience that includes proactive monitoring and support and its performance levels are guaranteed by service-level agreements (SLAs). This non-disruptive architecture can be consumed in a private data center, in a co-location facility, at a managed service provider location, or in the public cloud. STaaS, with its simple way of accessing the most-up-to-date storage technology in an easy-to-account for subscription model, catalyzes transformational change during times of uncertainty. It also frees up staff and management to spend their time and skills on more important work.



TIP

At the highest level, the value of STaaS rolls up into three categories of benefits:

- » **Cloud economics:** STaaS is consumption-based purchasing, which is more efficient than traditional capital purchases based on flawed forecasts of future needs — benefits that appeal to executives and procurement pros.
- » **Cloud operations:** STaaS guarantees SLAs for performance, availability, capacity, and energy consumption and delivers high levels of scalability, sustainability, cyber resilience, operational efficiency and simplicity while baking in risk mitigation wherever it's needed. IT leaders, hands-on storage and database admins, as well as governance committees and security leaders like this benefit.
- » **Cloud experience:** STaaS gives teams agility and flexibility when it comes to consumption (scaling up, down, and out as needed) with an artificial intelligence for IT operations (AIOps)-powered control plane that can be accessed from anywhere while keeping quality of service consistent — features that app owners and cloud leaders appreciate.

Drilling deeper reveals five key advantages that teams with different business outcomes and transformational initiatives, different regulatory and compliance requirements, and different operating models and skills gain from STaaS. These advantages make up the rest of this chapter.

Attaining Financial Flexibility

Moving to STaaS is leaving the comfort of costly traditional product purchases based on unreliable forecasts in favor of service freedom to control your pace of investment and pivot your strategy without delay or penalty. You learn more about that transition in this section.

So long to over and under

With STaaS, you only pay for actual consumption with minimum commitment. You get the storage capacity you need today and can invest the savings in more strategic initiatives. Consider a scenario where you have to provision additional storage technology today to support a new data center. If you currently own products,

an intensive migration is going to put more pressure on existing infrastructure before the move occurs. So how do you support the change without over or underinvesting or over- or underprovisioning? Without further burdening your staff with Day 2 and beyond operations? You can't with the traditional model. You purchase boxes and own them. You install them in the existing data center, add data to them, and then centralize the data before moving the boxes to the target data center. The process is time-consuming, costly, and operationally intensive and one in which it's almost impossible to predict the return on your investment (ROI).

If you reimagine this scenario with STaaS, the vendor deploys the new technology into the existing and new data centers. After it's filled with data — which is metered and charged for by how much storage you actually use — the technology is upgraded and expanded. Only the data then moves to the new data center location. The old data center infrastructure is recalled. You only have to pay for the amount of data you store on the platform — all the way through the migration. On top of that, the service vendor is responsible not just for ensuring you have enough capacity but also for maintaining performance, availability, sustainability, energy efficiency, security, and delivery times.



TIP

With STaaS, you're exchanging overpayment and underutilization for a rainy-day fund — with clarity and simplicity in pricing — that you can invest back into the business at the time and place it's most needed. You could spend what you save on new talent, high-priority initiatives, or marketing to counter a specific competitor's campaign.

Trading lock-in for pay for use

The traditional approach to buying storage involves thinking about the amount of capacity needed and purchasing a specific configuration in a specific vendor's model to match. That means high upfront costs and a lot of forecasting risk both for capacity and performance. STaaS turns this tradition on its head because you only focus on the amount of data (with clear unit pricing) you need to save. Instead of locking yourself into the high cost of storage hardware and a specific configuration, you only pay for your storage consumption and enjoy dynamic performance based on workload needs. You not only preserve cash and meet new accounting standards but also you have greater flexibility to support changing business requirements.

BANK MODERNIZES WITH STaaS

Facing new market competition, a leading European investment bank turned to STaaS to drive digital transformation to stay competitive. The bank used to rely on external partners to support its storage platform, resulting in long wait times to complete tasks, increased administrative costs, and reduced agility. Now the bank enjoys faster time to market for new services, simplifies compliance, and supports artificial intelligence. In combination, business and IT transformation resulted in a 94 percent reduction in its storage footprint (from 1,200 rack units to 75), support for sustainability with significant cost and power savings, and more free time for IT resources to spend on innovation.



With STaaS, your business data is the unit of measure, not an amount of capacity nor a portion of capacity available. What you use is equal to the amount of data that's put on the STaaS platform. That way you can align usage with budgets and costs with application performance.

Maintaining Operational Agility

STaaS lets your organization maintain day-to-day operations while offloading all the routine tasks to the STaaS provider. What's your role? Understand your business needs and your app requirements and make recommendations and requests. What's the STaaS provider's role? Availability management. Capacity management. Performance management. Energy efficiency management. Security management.

With a storage cloud your way (a unified private or hybrid cloud deployment subscription), you can uncomplicate your data storage while boosting your operational agility with SLA-driven outcomes. You get metering and monitoring with clear views of usage as well as proactive alerts, notifications, and rates of change tracking so you know the STaaS environment is healthy. It's one subscription and bill to support everything from containers to converged and virtual desktop infrastructure.

By increasing the efficiency of your operations with the as-a-service model, you can leverage your high-value intellectual capital for higher-level, more business-oriented strategic initiatives. Because in the time your people have been performing their technical roles, they've also been learning about all the functions and capabilities of your business and tech estate. They know — and understand — the intricacies between your apps and how a customer journey should go, given the available technologies. STaaS is a way for your employees to grow valuable skills and redirect their talents while offloading time-consuming, repetitive storage management activities to a service provider.



REMEMBER

By moving to STaaS, your enterprise can cash in on the investment you've made in your employees — raising productivity as they work on personally rewarding tasks.

Mitigating Risk

With risky business moves back in the news in such a prominent way, you can't underestimate the importance of risk mitigation. The risks you can mitigate with STaaS include

- » **Risk of change:** Forklift upgrades and data migrations can cause unexpected downtime and data loss, which negatively impact revenue and productivity. With STaaS, there's no risk in scaling infrastructure up or down, scaling out or consolidating, or for the platform to receive updates.
- » **Risk of supply interruption:** With capacity guarantees, you can always consume storage on demand, any time, which isn't the case if you're waiting on hardware delivery.
- » **Risk of overinvestment:** There's greater financial flexibility when you pay for only the data you store instead of the capacity guesstimated your business may need. There's also faster time to value when you cut overinvestment.
- » **Risk of technical debt:** You can adapt quickly to changes in business needs — consumption spikes and valleys — without needing to “park” boxes that may be better off in tech museums.

Protecting Your Data

STaaS makes it easy to address corporate-level IT service risks as well as audit points, vulnerability assessments, and regulatory controls. It also provides a transparent and predictable way to forecast costs and manage budgets.



TECHNICAL
STUFF

Modern STaaS incorporates business continuity, disaster recovery, and cyber resilience solutions, including ransomware mitigation. Methods to prevent unauthorized access to data are built into modern STaaS solutions. So, too, is secure data erasure and decommissioning of assets.

Modern STaaS is certified and validated to work in any customer environment, including highly regulated industries. With STaaS, organizations can maintain the cloud availability zones required to comply with industry regulations. They can also take advantage of protections against data loss and downtime.

Aiming for Sustainability

Enterprises today are working with a new set of priorities tied to both business and the human condition, and that's environmental sustainability. Environmental, Social, and Governance (ESG) initiatives focused on sustainable investing, socially responsible engagement, and mission-related investment are having a greater influence on the products and services organizations choose.

With STaaS, you exchange the purchasing of one-off, brittle technologies that accumulate as tech debt for modern, provider-managed resources. Because of the long-term effects (consolidation, upcycling, only powering what you need), STaaS moves you forward, faster toward your energy savings goals. STaaS helps your organization check all the boxes:

- » Gain financial freedom to invest in higher priority efforts.
- » Avoid vendor lock-in while getting intuitive operations.
- » Mitigate risk with robust security against ransomware.
- » Deliver the scale and performance needed for demanding applications while future proofing for ESG objectives.

- » Surging ahead with hybrid and multi-cloud plans
- » Racing toward emerging technology innovations
- » Fortifying data protection
- » Making sure to consolidate data centers
- » Digging into the details

Chapter 4

Excelling with STaaS Initiatives

If your organization could cut the costs and time your team spends managing storage, wouldn't that be advantageous? Wouldn't better aligning storage with business strategy be a win for leaders, too? Storage as a service (STaaS) gives your team simpler, more reliable, higher-performing storage that includes workflow automation, making it easier for the people managing it. STaaS helps you eliminate rigid product configuration, support, and maintenance headaches *and* significantly cuts your organization's power costs for storage infrastructure.

Think of STaaS as a giant catalyst for accelerating your company's business model and data use as well as redirecting your employees' time and resources toward more productive tasks. With storage infrastructure optimized, your transformational journey seems less of a chore and more about achieving possibilities.

No one in IT (or the business for that matter) wakes up one day and announces, "We're going to redo our storage infrastructure!" A business reason exists behind refreshing, updating, upgrading, or completely ripping and replacing systems. The real question is this: Will the effort undertaken be a little-to-no-change in functional requirements (aside from the closing

of vulnerabilities and the inevitable addition of new capacity) or the beginning of a mindset change about how your storage strategy can drive growth and efficiency and mitigate risk? The latter approach certainly makes a more significant contribution to your business as you embark on one (or more) of the transformational scenarios we cover in this chapter.



REMEMBER

In the real world, aligning business strategy and storage infrastructure is different for each company. But whether you're looking to accelerate cloud and cloud-native application adoption, drive business agility with artificial intelligence and machine learning (AI/ML), boost cybersecurity, or modernize your on-premises infrastructure, a proven STaaS provider can help guarantee positive business outcomes.

Speeding Your Hybrid or Multi-Cloud Plans

Enterprise cloud adoption is surging, and few signs show its popularity fading, despite executives expressing concern over unpredictable expenses. But when it comes to opting for cloud, the most successful organizations ascribe to a cloud operating model that optimizes the use of hybrid and multi-cloud resources. Cloud drives up operational agility while helping IT respond faster to lines of business. Modern STaaS, spanning hybrid and private clouds and supporting seamless data migration between them, delivers a consistent storage experience. Cloud operating model-friendly STaaS helps you mitigate the three top complicating factors — time, cost, and risk — associated with cloud adoption.

In practice, you decide what workload or applications requirements you need for your business. The STaaS provider should be able to quickly and securely deliver the appropriate storage capacity (number and types of arrays) to match with guaranteed service-level agreements (SLAs). Then you only pay for your data stored. At that point, the provider not only takes on overall responsibility for the service but also owns the risk.



TIP

The best STaaS providers use integrated AI for operations (AIOps) for efficiently automating workload placement and planning to avoid hotspots or over- and under-provisioning. An AIOps-powered operational experience ensures you always have the secure storage to move data efficiently and meet your application demands. (It's a big boost to agility and IT productivity, too.)



AIOps lets you apply AI and ML to traditional IT operations work. With AIOps, your operations teams can better manage the tremendous volumes and complexity of data generated by modern IT infrastructures and keep systems up and running so your business can operate at peak performance. AI-powered analytics and dashboards give you complete visibility into metering for capacity and usage. Curated recommendations drive self-service expansions, simplifying forecasting and procurement as well as updates and upgrades. By automating many of the routine tasks involved in storage management, AIOps helps you scale up your digital operations without hiring more staff as well as better predict potential operational problems for remediation before they've caused your business bigger problems. AIOps automation takes away human error, dramatically improving compliance performance, as well.

If your cloud migration plans unexpectedly accelerate or hit a snag, you should be able to count on your STaaS provider to help you contain costs and stay flexible because you only pay for usage (data), never the equipment itself.



Choose a STaaS provider that offers a unified storage subscription for hybrid cloud and doesn't have exit penalties. That means one bill for all your data, whether it's stored on-premises, in a co-location facility, in your hybrid cloud, or in multiple clouds. A STaaS offering allows you to adopt and advance the cloud operating model continuously and safely at your own pace without being penalized or having to make compromises throughout your cloud journey.

BUILDING THE BANK OF TOMORROW

When City National Bank of Florida recognized digital as the future of banking, it adopted Pure Storage STaaS to support its strategy for centralized storage and hybrid workflows. This solution gives the bank the agility and scale needed to roll out its new digital services quickly. With its next-generation platform, City National Bank can keep up with the pace and technology demands of banking. That includes creating highly personalized banking journeys for customers, improving the delivery of a wide range of financial services, and anticipating and responding to dynamic industry and consumer needs. Rethinking storage helped the bank's customers quickly secure PPP funding early in the COVID-19 pandemic. For more information, visit <https://purestorage.com/city-national-bank.html>.

Going Cloud Native

A cloud construct, containerization underpins next-gen app delivery. It brings new levels of efficiency to traditional IT infrastructure and has ushered in a new age of orchestration (Kubernetes anyone?) that goes far beyond merely hosting virtual workloads in the cloud. Closely aligned to the cloud consumption experience and DevOps adoption, containerization also has a part to play in modernizing applications that aren't designed as cloud native but can still benefit from being run and managed in modern ways.

Experimenting with containers requires a lot of infrastructure and can quickly rack up high-energy consumption costs. It's also not easy to find experienced container experts, and when you do find them, they can be budget-busting to employ. STaaS is attractive in this scenario because it lets you embrace cloud-native approaches to generate more revenue through new apps and services as fast as possible without being penalized by overhead.

Containerized workloads are agile and mobile, which is why trying to use traditional on-premises storage — even if it's acquired in an apparently flexible way as capacity-on-demand or pay-as-you-grow — with these ephemeral packages makes little sense. A robust STaaS offering helps you manage your containers in the way that best suits your business users, without having to make operational, architectural, or commercial compromises.

With STaaS continually making licenses associated with storage for containerization projects available on demand, for instance, you don't need highly experienced cloud experts to know anything about storage let alone optimizing it. Your developers also don't have to pay close attention to security because the STaaS provider has already bolstered the security of your storage infrastructure. You always enjoy right-sized capacity even for ad hoc projects in fast-moving ecosystems.



TIP

Ideally, you'd be able to scale and move containerized applications between environments and storage platforms, within and across various locations (including on-premises and public cloud) without making compromises to security and data protection. This level of agility is necessary to suit business needs but by definition can erode the utilization (and underlying business case) of fixed on-premises technology deployments. A good STaaS offering not only allows you to make these changes without commercial penalties but also enables and facilitates this movement while maintaining your capacity, performance, and availability.

SCALING CLOUD WITH SUBSCRIPTION STORAGE

As demand surged for United Arab Emirates (UAE) organizations to digitize operations during the COVID-19 pandemic, cloud service provider Taeknizon knew its momentum was unsustainable with constant storage upgrades. It switched to Pure Storage STaaS to benefit from flexible consumption. By eliminating frequent, drawn-out storage upgrade cycles and significant routine management tasks, the company saved 12 hours per week, allowing IT to focus on innovation. With STaaS, the provider now delivers high performance and six nines of uptime availability. Taeknizon can now onboard new customers in fewer than four hours. Check out more on this story at www.purestorage.com/customers/taeknizon.html.



REMEMBER

Going cloud native is all about possibilities so you shouldn't feel limited by storage in this area. Instead, STaaS can help your business feel empowered to move forward, faster to the new opportunities cloud native promises.

Diving into AI and ML

Marc Andreessen's observation years ago that software was eating the world was prophetic. Today's companies are racing to speed software to market and using emerging technology innovations to give them an edge. Everything from analytics to AI/ML to containers is on the table. So are new methodologies like agile, continuous integration and continuous delivery (CI/CD), and DevOps because they've been proven to give teams an advantage. But making better use of the data you already have or trying to integrate new data sources into your analytics environments takes rethinking of current data strategies as well as new tech-led investment to run modern models. These often include complex algorithms that run in real time on large data sets and require sophisticated technology with a lot of capacity to complete them efficiently and effectively.



Traditional storage approaches aren't ideal for the AI/ML world. There are cost, risk, and operational roadblocks — ranging from needing large capital infusions to requirements for specialized hardware to lacking critical skillsets — because how can you run next-gen tech on platforms engineered before the cloud? There's simply no way to easily predict how much storage infrastructure you need to accommodate data surges and spikes in good times — now try to guess in times of economic uncertainty. Impossible!

STaaS is unconstrained by old technology and paradigms so your organization can have flexibility for its data platform with options to scale storage limitlessly during business up and down cycles. STaaS helps contain costs as you navigate unpredictable valleys and spikes because your organization only pays for the data in use. You stay in control of your data but give up the hassles of how much to provision and during what times, which improves your team's productivity.

FAST-TRACKING FINANCIAL SERVICES

Better returns depend on faster performance and deeper insights in financial services. Managed services provider Options Technology focuses on technology to drive value. It relies on Pure Storage STaaS in a new data platform that provides sub-millisecond access to financial data — a game-changer for data scientists. The quantitative platform tuned for financial analysis boosts client compute-intensive analyses and drives efficiencies and savings to reinvest in other areas.

With the new data platform, Options Technology has cut job runtimes by 54 percent. Shorter job runtimes mean the analysts decrease time spent doing this type of work by 50 percent. The platform has eliminated expensive, disruptive upgrade cycles and reduced support tickets by 95 percent. It restores snapshots nightly to protect cloud-native environments. With less hands-on management, the team invests time in keeping up with security accreditations to deliver exceptional client support. Visit www.purestorage.com/customers/options.html for more information.



TIP

Today, almost all industries are embracing AI- and ML-driven, industrial-scale data analytics as a strategic decision-making tool. Be sure the STaaS provider you choose to work with offers both short terms and low commits on one contract for all workload capacity while guaranteeing SLAs. Low commercial or contractual commitments (*low commits*) are ones you make to begin consuming a service. Some STaaS offerings on the market require customers to make substantial commercial commitments, meaning you don't get much, if any, financial flexibility. If uncertainty hit your business, having freedom may be critical.

Strengthening Data Protection

At its core, cyber resilience is about becoming stronger at safeguarding your organization's data and infrastructure against both outside and insider threats. This job is getting harder with every successful ransomware attack. Cyber-resiliency activities span from securing assets and systems to defining and enforcing data compliance and sovereignty policies (information privacy) to protecting data from corruption, compromise, and loss. Enterprise response to cyber threats, such as ransomware, trojans, viruses, and phishing, is also under this umbrella.

Ransomware is a global threat to business, and cyber attackers are only getting bolder. Older storage technology tends to have wider footprints that make attack surfaces larger, which are easier to penetrate. And as cyber threat sophistication increases, the risk of an incident also grows, especially attacks on older products. But it's not all technology's fault.

Humans are also to blame with poor management and maintenance routines. Data backups and patches take time to perform — and they typically aren't a priority when it comes to recovery time objective (RTO) and recovery point objective (RPO) needs. And when breaches happen, they can be hugely damaging to the companies that were supposed to be safeguarding the sensitive information that's gone missing.



WARNING

Many of today's data-protection initiatives are driven by internal audits, security reviews, vulnerability assessments, or new industry-specific regulations when they should be driven by transformational goals. As data security and protection policies are updated, auditing, logging, and reporting systems should be

tuned to reassess the estate and generate new change recommendations. These can range from application configuration changes to old non-compliant systems being replaced/decommissioned, to net-new systems being introduced. After all, when new backup-and-restore technologies are introduced to the environment, new application and data encryption access controls need to be added. All of this takes time and money.

The right STaaS vendor delivers a full-featured, cost-efficient alternative approach. Without your company having to make a large upfront investment, STaaS helps boost data protection, including delivering ransomware mitigation for primary as well as backup (or secondary) data.



REMEMBER

You want STaaS where all hardware and software are developed, deployed, and operated with security in mind. You want this service to protect you from a ransomware-caused outage, but if you're hit, you want it to help you recover and get back to business fast. From a practical perspective, that means your STaaS offering has capabilities that give you

- » Anomaly detection to identify rare occurrences
- » A clear and proactive vulnerability assessment
- » Features such as alerts and immutable snapshots that help you recover from a breach
- » Availability of clean storage systems with expert help to get you back up and running

The best STaaS offerings are built on a platform that's hardened and developed using modern DevSecOps processes. Because paying ransom is painful, it will be designed to prevent unauthorized access through secure application programming interfaces (APIs), role-based access controls, multi-factor authentication (MFA), audit and session logs, and more.



TIP

Check whether data is encrypted at rest by default (which can't be changed) and whether there's the automatic erasing of data on decommissioned assets. You absolutely also want to inquire about whether the STaaS vendor's releases have frequent common vulnerabilities and exposures (CVE) updates. These measures ensure that none of your data is accessible by unauthorized parties, and they help your business stay compliant with corporate policies and relevant industry regulations.

DIGGING IN FOR DATA GROWTH

ConsMin Australia needed to shed a legacy system that couldn't support its email backups, so the mining company built a modern storage environment on the scalable Pure Storage STaaS platform that delivered new levels of speed, simplicity, and safety to the company's operations. The as-a-service platform improved backup retention from 14 days to 7 years, helping the company achieve 100 percent retention of Microsoft Office 365 data. The platform also cut backup recovery time from 12 hours to just 50 minutes. Not only has the STaaS exceeded the company's performance requirements, but also it freed up the team to do what it does best — innovate. Discover more at www.purestorage.com/customers/consmin.html.



REMEMBER

Your storage infrastructure should be working with you — not against you — in defense of your data. Be sure you're engaging with a STaaS provider that offers secure and mature access controls, telemetry data gathering, and usage reporting for data safekeeping.

Consolidating Data Centers

If you're thinking big — like reducing the total number of physical facilities you own or lease — STaaS can be like jumper cables, quickly and seamlessly powering then cutting storage between locations at low cost and risk. With fewer locations and more efficient distribution, you can now better align your business strategy with your storage infrastructure. There's no busywork either for your teams with STaaS compared to all those tasks they would've done replacing obsolete machines and adjusting space as business demands with traditional storage. Moreover, STaaS is good for the planet because it boosts sustainability by using less power, yet it's bad for cybercriminals because there's more security built in. Flip back to Chapter 3 to find out more about sustainability, compliance, and protecting your data.

Even as you configure storage as hybrid or private cloud infrastructure, you drive down risk with STaaS by lowering the number of places vulnerable to physical security threats and

disasters — hurricanes, flooding, and the like — without having to worry about how you scale. STaaS removes capacity constraints and other infrastructure limitations that raise uncertainty about whether you can meet your business and technical growth forecasts.



REMEMBER

Don't forget moving your data, too! This factor is the most important — and trickiest — part of transformation. Teams migrating data typically use host-based or application-specific tooling. But this can cause complications that result in data loss or other negative outcomes. Look for a STaaS solution with built-in capabilities to facilitate and accelerate migrating data between old and new storage infrastructures. It should be reliable, giving you seamless, transformation-driven modernization — focused on outcomes and with a clear strategy and vision — that produces positive outcomes, including constraining costs.



TIP

Many vendors promise certain outcomes, and you may have little recourse if they fail to deliver on them. Data consolidation efforts are tremendous undertakings so be sure to partner with a STaaS provider that offers guarantees. You want SLA levels of performance, capacity, availability, security, and efficiency that you can live with, and you need the provider to uphold your agreements when dealing with the dueling demands of supporting both business-critical workloads and migration activity.

MAKING EXCEPTIONAL SERVICE LOOK EASY

With five data centers across Canada and customers across industries, TeraGo delivers reliability, performance, and scalability for customers' storage needs. In the past, that meant keeping extra disk capacity for unexpected growth and absorbing the cost of those unused resources. Scaling up in size and performance required significant back-end work.

By using Pure Storage STaaS, TeraGo consolidated multiple storage tiers and now delivers seamless hybrid cloud solutions to its customers up to four times faster in baseline performance with the ability to scale on demand. The company has aligned storage operational costs with incoming revenue and responds faster to customers. TeraGo

also has eliminated big capital expenditures and only pays for what it uses, which allows TeraGo to create a simpler, more competitive customer pricing model while driving its own business forward. For more on TeraGo's story, check out www.purestorage.com/customers/terago-networks.html.

Often, the traditional way to modernize storage in data-center consolidation initiatives results in a perpetual cycle of solution irrelevance, product obsolescence, technical debt, erosion of the business case for migrating, and increased risk. Avoid this by working instead with a STaaS provider that supports your continuous path of evolutionary change with an efficient service capable of effortless course corrections. This choice keeps operations humming while mitigating your risk.

Drilling Into Details



WARNING

Depending on how much and how long you need to keep data, your organization can get stuck in a perpetual cycle of upgrading and over-provisioning storage infrastructure you don't actually need. That's not only time-consuming for your people to maintain, it's costly to your business. If you're trying to imagine some specific examples of how you may use STaaS, we give you two in this section.

Optimizing databases

Most organizations founded before the cloud are running databases from large vendors. Because you want to innovate and keep up, you're likely adding cloud capabilities as well as open-source databases. All that means that your organization has to store data from an increasingly wide variety of database infrastructure, and that can get costly, quickly. Downtime risks are high, and not only do the manual development processes for the copying or cloning of data take longer, but also bottlenecks put SLAs at risk.



REMEMBER

With STaaS, you trade all the risk for the reward of maximum performance and availability of your databases and business apps. You get intelligent monitoring and management, and placement and planning, too.

With the right STaaS vendor, you're guaranteed performance and capacity SLAs, as well as six nines of uptime availability. You eliminate bottlenecks that negatively impact performance while improving mean time to recovery, allowing you to preserve critical data and production time.

Scaling business apps

STaaS can also deliver maximum performance and availability of your business applications — from customer relationship management to enterprise resource planning — with non-disruptive updates and upgrades as well as uptime and capacity guarantees. The right STaaS offering gives you all the same benefits of optimizing as you get for your databases, as well as the ability to de-risk at scale. You never run out of capacity so production halts and application crashes are nonexistent. You enjoy the same performance and capacity guarantees for scaling up and down that you get if you're working with emerging technologies like AI/ML.

With STaaS capabilities, you simplify how data is stored, mobilized, migrated, and protected so you can get it back quickly if ransomware finds its way in. You can scale workloads while removing rigidity. You can also embrace innovative cloud-ready solutions with the ease of a unified subscription and pay as you go for only the data you use.

INNOVATING PATIENT CARE

A leader in accredited private healthcare, Pederzoli Group aims to better serve by modernizing IT infrastructure. When traditional storage began to underperform, causing operational slowdowns that increased patient wait times, the company looked to replace its solution. Specifically, with more than 120,000 medical imaging files created daily by patient diagnostic imaging services, systems struggled to keep up. Although additional storage was required, hospital space was at a premium and related energy consumption wasn't sustainable.

After moving to STaaS, Pederzoli Group significantly reduced read/write speed, gained a 1.5:1 deduplication and compression ratio for medical imaging files, and built a leaner data center (reducing 66 server and storage units to 14). Head to www.purestorage.com/customers/pederzoli.html to find out more.

- » Understanding an always up-to-date architecture
- » Looking to a leader for help
- » Boosting your productivity
- » Going at your own pace

Chapter 5

Ten Reasons to Use Pure Storage Evergreen//One for Your STaaS Solution

Imagine having the peace of mind that comes with subscribing to a storage infrastructure service that aligns with the way your business works and meets all the varying data service needs across your organization. Your service never goes down, it grows and shrinks when you need it to, it's sustainable and secure, and it never accrues any technical debt. In fact, someone else is on the hook for guaranteeing its high quality of service and you only pay for what you use. That service is Pure Storage Evergreen//One.

Uncomplicate your storage with consumption-based storage as a service (STaaS). Evergreen//One is storage in an as-a-service model that delivers

- » The agility and flexibility of public cloud storage
- » The security and control of on-premises infrastructure
- » The performance and energy efficiency of an all-flash infrastructure

We cover STaaS benefits in Chapter 3, and this chapter gives you additional reasons to choose Evergreen//One for your STaaS needs. If you align your digital transformation projects with business outcomes — based on service-level agreements (SLAs) — not hardware, you don't have to plunk down bags of cash for capacity you'll never use.

Evergreen Architecture

The Pure Storage architecture is designed to be deployed and then scaled and upgraded in place — totally non-disruptively with no downtime while systems stay online and business processes continue to run. Because of these capabilities, the Pure Storage architecture is named Evergreen. The nature of the software and hardware architecture that Pure Storage technology uses allows these continuous non-disruptive changes to be made, and it sets the Pure Storage offering apart from the rest of the industry's offerings.

Evergreen//One — the STaaS offering from Pure Storage — delivers your business outcomes faster because it's built on the deeply integrated Evergreen architecture with unique operations and capabilities. You get a true unified cloud operating model experience as each component complements and facilitates the next. The operational experience is simple, practical, and agile because the underlying architecture is designed that way. The commercial experience is efficient and effective because what you pay is linked directly to the operational experience.

Evergreen//One non-disruptively adapts and evolves customers' solutions in line with their business needs. The architecture is safe and secure, and life cycle actions are easily automated, which accelerates time to value while removing the risk of human error. Having an experience where the underlying platform is always current gives you predictability and low risk because operations are easy to measure and forecast. Billing flexes down as well as up, which creates significant adjacent savings, and the unit of measure — data — makes it simple for your organization to forecast costs and manage budgets accordingly. You only get one bill, and you can start with a short-term commitment and exit without penalty.



Pure Storage has deployed many arrays over the years, and to this date, 97 percent of them are still in service. Pure Storage has performed around 10,000 non-disruptive controller upgrades. The Evergreen architecture is foundational to Pure Storage STaaS, and it works. Pure Storage's Net Promoter Score is in the top 1 percent of all B2B organizations. The Pure Storage Evergreen architecture gives your team predictability, which allows you to forecast accurately, mitigate risk, and optimize productivity.

Industry Accolades

In 2022 for the ninth consecutive year, Pure Storage was named a Gartner Magic Quadrant leader for primary storage. When Gartner evaluated and compared products and services that enterprises trust, Pure Storage was positioned alongside competitors in the primary storage chart highest for Ability to Execute and furthest for Completeness of Vision. For more information, visit www.purestorage.com/resources/gartner-magic-quadrant.html.

Works in Every Cloud

You shouldn't have to choose just one cloud or stay with a certain cloud model for your storage infrastructure to work. Evergreen//One works well in private clouds on premises, in hybrid clouds, in managed provider clouds, and in public clouds. This seamless environment brings the benefits of the cloud operating model — superior economics, operations, and customer experience — to application and database workloads instead of requiring heavy lifting, such as refactoring, virtualization, containerization, and so on.

For teams with public and hybrid cloud adoption strategies, the pairing of cloud block storage with on-premises technology within an Evergreen//One subscription greatly de-risks adoption. The service substantially removes the timing risk and greatly improves the public cloud business case by introducing cost benefits related to thin provisioning, deduplication, data compression, zero-footprint snapshots, clones, and other features that are unattainable in a native cloud-only adoption approach. (Check out Chapter 4 for more on hybrid and public cloud adoption strategies.)

Productivity Boosting

When your north star is data, everything lines up accordingly. Evergreen//One is a service based around your data. You offload operational tasks and risk to Pure Storage and in return get peace of mind and free time for your full-time staff to focus on more strategic activities.

Evergreen//One is optimized operationally, architecturally, commercially, and sustainably around usage patterns. It delivers optimal productivity regardless of term, tier, location, or consumption volume. You get the storage data services you need — block, file, object — to match your business requirements and elevate your experience by monitoring your subscription with one set of artificial intelligence for IT operations (AIOps) tools for orchestration, storage management, virtual machine analytics, and AI predictive support.

Guaranteed SLAs

Evergreen//One ensures that SLAs and commitments are continually met, and if they're not, you receive service credits. This includes managing and evolving the deployed solution as required without service disruption. After all, you have to meet your business SLAs to meet the SLAs you promise to your customers.

Evergreen//One also uses the Pure Storage portfolio of products, all validated and certified to operate in any architectural scenario, including highly regulated and secured environments. Operational processes and tooling are integrated into your IT service management (ITSM) ecosystem with minimal time and effort, and receiving additional technology to your site doesn't cost extra, only your usage. Pure Storage technology can be deployed in compliance with your architecture and security standards, and Evergreen//One reporting, alerting, and operational procedures can be integrated into your Ops team's structure.

Pay-as-You-Use Optimization

STaaS is a usage-based model. You pay only for the storage you use, when you use it. And let's face it, more of us could use this kind of certainty and flexibility in the current economy. An

Evergreen//One subscription minimizes your cash out the door and preserves your capital while not influencing any other financial instrument, your earnings before interest, taxes, depreciation, and amortization (EBITDA), and your capital adequacy.

Not only is Evergreen//One a cost efficient, consumption-driven (not capacity-driven) model, it eliminates labor-intensive refresh events. You get ease of operation service infrastructure and a service-oriented offering that come together to significantly improve manageability with the benefit of being able to redirect internal staff to higher value activities. You don't even lose your ability to automate and integrate the Pure Storage environment into your preferred technology service management architecture.

Modernization at Your Pace

Evergreen//One delivers the lowest total cost of ownership (TCO) of all Pure Storage's offerings. Purchasing is simple. You don't have to make a large upfront investment, and you control the level of commercial commitment. That way, you can strike the right balance between flexibility (on demand) and price efficiency (commitment).

The intrinsic flexibility of Evergreen//One adapts to changes with speed and agility, supporting data services and continuous integration/continuous delivery (CI/CD) initiatives with demanding and evolving requirements. Application and database workloads enjoy unparalleled levels of performance, availability, and modernity.



REMEMBER

Pure Storage walks the walk on AIOps. The AI-driven storage management platform included in the Evergreen//One subscription revolutionizes how IT acquires, manages, and optimizes infrastructure. Pure Storage Pure1 provides a single view to monitor, analyze, and optimize your Evergreen//One subscription from anywhere. You enjoy predictive insights into capacity, performance, energy consumption, and ransomware recovery capabilities to model workloads. These insights are used to model workloads, assessments for sustainability and data protection, plus curated self-service actions like capacity expansions and Purity upgrades, which elevate your STaaS Day-2 operations.

Going Green

Pure Storage helps your business move closer to achieving your Environmental, Social, and Governance (ESG) goals because it delivers more than 80 percent lower CO₂ emissions. With Evergreen//One, you get better data storage and smaller energy bills. The service optimizes the hardware capacity you need and reduces your power consumption. Pure Storage technology is long lasting, and within the Pure Storage Pure1 management console, you get transparency into your storage's energy consumption through the Pure Storage Sustainability Assessment.

Pure Storage has an energy-efficiency SLA to deliver the greenest data storage technology. Evergreen//One helps you benefit from continuous innovation, financial flexibility, and operational agility.

Experts at the Ready

Pure Storage has technical support, professional services, and education professionals standing by to help keep your data systems and applications running, up to date, and delivering value. Those pros work side-by-side with your team to assess, plan, and execute strategic plans or help your team build skills. Evergreen//One can be deployed quickly and painlessly, and seamlessly integrate into your systems and environment. Pure Storage manages the end-to-end journey using an implementation and change framework, with optional additional professional services.

Growing Ecosystem

Evergreen//One is hybrid, and Pure Storage has built relationships with a wide range of global technology leader partners to help you meet your business and technology goals. Evergreen//One is a unified subscription across on-premises storage and Pure Storage Cloud Block Store that enables Pure Storage's data service in public clouds. Cloud Block Store provides seamless data mobility with simple, efficient replication from on-premises to cloud or from cloud to cloud. There's also integration with AWS Migration Services, Azure Migrate, and Azure Site Recovery for reliable data replication and migration. Channel partners? Check. GSIs? Check. MSPs? Check. Tech alliance partners? Check. And you get open application programming interfaces (APIs) for all these ecosystem partners to integrate products and create new solutions.



Uncomplicate Data Storage, Forever

Storage as a service (STaaS) enables you to achieve the financial flexibility and operational simplicity to sustainably meet your business needs today and tomorrow. Evergreen//One™ combines the agility of public cloud storage with the security and performance of an all-flash infrastructure—delivering the STaaS solution that offers a true hybrid cloud experience.

www.purestorage.com/evergreen-one



Achieve transformational business outcomes

Storage as a Service (STaaS) empowers your organization to achieve all the benefits of cloud — economic, operational, architectural, and experience — while transforming business operations to be more agile, less risky, financially flexible, and sustainable. Simplify and save by eliminating the guesswork of storage utilization and investment. Deliver insights and adapt faster to ad hoc requests and new models of business without long procurement cycles — all while allowing your employees to focus on what matters most.

Inside...

- Paying only for the storage you use
- Aligning your business and cloud goals
- Moving to cloud-based consumption
- Discovering the benefits of STaaS
- Getting started with key initiatives
- Choosing the right STaaS partner



Abraham Barnes, a 20+ year veteran of enterprise organizations, GSIs, and MSPs, is a thought leader on as-a-service solutions and transforming business. **Ellie Ruano** is a technology author on topics about the cloud operating model, cloud management, SaaS, storage, and mobile security.

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