Why All-Flash Storage Is

Critical to Success for SaaS Providers

Companies in the software-as-a-service (SaaS) industry must address IT infrastructure requirements that are different from and, in some ways, more challenging than those in a typical enterprise business. In a SaaS company, the cost of IT is the cost of doing business. IT is how a SaaS provider develops its product, modifies it and ships it; IT is how the company services and supports customers; IT is how the company conducts sales and manages employees and operations.

This bet-your-business reliance on IT infrastructure puts enormous pressure on SaaS IT teams to achieve a variety of critical goals, including:

- **Ensuring reliability and uptime:** If customers can't access the service, then at best customer goodwill will be severely tested and at worst customer churn will result (a costly scenario for any SaaS provider). It is under these relentlessly unforgiving conditions that IT teams must maintain, optimize and scale the infrastructure.

- **Delivering high performance:** High performance translates into more revenue, more satisfied customers and a superior product through accelerated and improved development cycles.

- **Delivering consistent performance:** User experience is critical to SaaS success. Delivering a satisfying user experience isn't just about IOPS and throughput; it's also about delivering consistent low latency across all workloads.

- **Deploying solutions that are agile, secure, simple to manage and simple to scale:** SaaS companies drive revenue through their effective use of technology. They must be able to react quickly to changing customer requirements, and they must rely upon the security of their connections to deliver services to customers without adding incremental risk.

- **Keeping costs down:** For a SaaS provider, every IT dollar saved goes right to gross margin and the bottom line.

Given these difficult and very specific challenges, it should come as no surprise that SaaS companies have been at the forefront in leveraging all-flash storage solutions to drive innovation and achieve their business goals. All-flash arrays are the only storage platform capable of delivering the performance, consistency, reliability, resiliency, simplicity and scalability required for today's demanding SaaS market.

The list of SaaS companies using all-flash storage is long and ever-expanding, including companies across all industries and disciplines, from household names such as The Nielsen Company and SurveyMonkey to companies such as ASE Global in the automotive industry, Return Path in email marketing and Paylocity in online payroll services.

However, even with widespread acceptance of all-flash storage in the SaaS business, IT decision-makers must recognize that there are significant differences in the architectural models for all-flash storage from different vendors. As just one example, IT teams can now utilize all-flash storage arrays that never require forklift upgrades, allowing the organization to easily and cost efficiently stay up to date with the latest technology advances through an Opex model as opposed to a traditional Capex model.

This white paper discusses the business opportunities in the SaaS market and why all-flash storage is a critical enabling technology for SaaS companies. It also looks at several SaaS success stories and describes the all-flash storage features and functions that have made these companies successful. Finally, the paper explores how

solutions from market leader Pure Storage are designed to address the specific needs of SaaS companies.

Supporting SaaS Business Enablement

One of the more interesting maxims of the cloud era is the idea that every company is a software company. This view was well articulated in a popular article in the Harvard Business Review, which said, "In a world underpinned by evermore powerful, affordable, and public technology platforms, software is still king. And its importance as a source of value will only continue to grow."[1]

No one knows this better than SaaS companies, which are, in many ways, the organizations defining and pioneering this concept of software as king. Every aspect of the SaaS business model is dependent on software and, equally important, the hardware technology that provides the platform for software development, dissemination and innovation.

For SaaS IT leaders, that means recognizing the specific challenges of being a software company and deploying modern technologies that support SaaS business enablement. One way of thinking about SaaS business enablement is through this simple "Three As" articulation of what technology should contribute to a SaaS business model:

- **Advance service levels:** The business is software as a service. Customers are buying a service, which means the IT infrastructure must deliver it to them with consistently high performance, security and reliability. If the service doesn't get delivered, recurring revenues suffer. If there are gaps in performance or gaps in security, the customer will go elsewhere.

- **Accelerate time to revenue:** At their core, SaaS providers are software development houses. The faster they get new services or upgrades into the hands of their customers, the more revenue they will be able to generate. In development,

1 "You Don't Have to Be a Software Company to Think Like One," Harvard Business Review, April 20, 2016

it's important to remember that it's not just about speed; it's also about quality. SaaS providers need to use technologies and tools that allow them to test products more efficiently, iterate them more carefully and ensure that they are free of glitches before they get into the hands of customers (at which point the remediation costs are much greater).

- **Achieve operational advantage:** For a SaaS provider, the cost of doing business is the cost of IT. Investing in IT is an investment in the business. By leveraging efficient solutions that protect the investment and scale to easily enable the use of better technology as it comes to market, IT can make a huge contribution to the organization's health and bottom line.

Why All-Flash Storage Arrays?

All-flash storage arrays, particularly those that employ a modular and stateless architecture, fit the specific needs of SaaS companies in allowing them to advance service levels, accelerate time to revenue and achieve operational advantage. In today's environment, it's hard to imagine a SaaS company achieving its business goals without using all-flash storage.

From a technology perspective, all-flash storage arrays can be critical to the success of SaaS providers in the following ways:

- **High availability and resiliency:** All-flash arrays have much lower failure rates than traditional spinning disk arrays. In addition, SaaS companies can leverage all-flash arrays that use a stateless controller architecture that provides high availability with non-disruptive operations. These capabilities can be especially critical with respect to rapidly evolving flash technologies. A SaaS provider may want, for example, a non-disruptive and investment-protected path to NVMe.

- **High performance and consistency:** All-flash storage arrays deliver at least 10X greater performance than spinning disks. For SaaS companies, it's not just about performance; it's also about consistency. For example, a Pure Storage FlashArray delivers consistent sub-millisecond latency at hundreds of thousands of IOPS, even in mixed workload environments.

- **Real simplicity:** All-flash arrays can be easy to deploy, scale and maintain. With all-flash storage, SaaS providers can avoid countless configuration and optimization decisions inherent with traditional

storage. Moreover, some all-flash arrays are well integrated into higher level monitoring, provisioning and orchestration platforms (e.g., VMware, OpenStack, Docker, etc.) and may provide APIs and SDKs to facilitate highly automated operations. Still others provide SaaS-enabled analytics for advanced planning and predictive troubleshooting.

- **Lower TCO with predictable costs:** One of the myths about flash storage is that it is more expensive to deploy than spinning disks. While this may be true in some cases, innovative all-flash solutions can deliver fairly significant TCO improvements over spinning disks. The cost of solid-state drives (SSDs) has declined significantly during the past few years due to much higher volumes. Leading all-flash vendors have also developed techniques to reduce the amount of storage required to purchase and hold data. These techniques include data deduplication and compression that serve to reduce the amount of all-flash required by a factor of 5:1 or more when compared with disk-based storage.

- **Support for DevOps:** Certain all-flash storage architectures were designed with cloud computing models in mind. This makes them particularly well suited to support today's development and operations teams, which require agility and higher performance to do their jobs most effectively. For example, storage snapshots in all-flash arrays can be used cost-effectively by DevOps teams for test and development and quality assurance, giving them the opportunity to do more iterations to accelerate development and improve the quality of their products. When these snapshots can be integrated with the applications they support and put safely and directly into the hands of developers, quality and speed are further augmented.

Driving SaaS Success

The myriad benefits of all-flash storage for SaaS companies are not merely theoretical: They have proven their value to the success of SaaS providers all around the world. Here are three notable examples:

- **The Nielsen Company:** Data is the lifeblood for The Nielsen Company—how it is collected, stored, provided, analyzed and protected. The company's legacy hard disk drive infrastructure was a barrier to innovation and limited the timeliness and effectiveness of reports the company was able to deliver to its customers. Nielsen decided to go to all-flash storage arrays for all nine of its core hub data centers. The results have been dramatic. The company has achieved advanced service levels through a 4X improvement in the amount of output delivered to clients; it has accelerated time to revenue with a 6X reduction in the time it takes to generate an analytic report; and it has achieved operational advantage with a 10:1 reduction in data center facility requirements, storing 2 petabytes of data on five racks, as opposed to the previous environment of 50 racks. The company is now using all-flash storage for all workloads.[2]

- **SurveyMonkey:** Low latency is a critical performance criterion for SurveyMonkey. The company operates 24/7 on a worldwide basis, processing 350 survey responses a second. SurveyMonkey has been able to advance service levels with all-flash storage by reducing response time: With all-flash storage, more than 98% of IOPS now perform in under a millisecond; with the previous storage infrastructure, the average response time was several milliseconds. SurveyMonkey is leveraging operational advantage by reducing space and energy costs and achieving data reduction rates as high as 8:1. And with an immediate 20% to 25% gain in performance for key applications, SurveyMonkey has been able to significantly accelerate time to revenue.[3]

- **Paylocity:** Paylocity is a leading provider of cloud-based payroll and human capital management SaaS solutions for medium-size organizations. The company has always stayed ahead of the technology curve in order to accommodate dramatic growth. "We are a 2,000-person startup," says Brian Boos, senior IT manager. Company

2 "The Nielsen Company Goes All Flash at Its 9 Global Datacenters"
3 "SurveyMonkey Pinpoints Preference for Flash Storage from Pure"

growth created infrastructure challenges that are particularly relevant to companies in the SaaS market. Paylocity has about 20 different development teams, each one owning a product and client experience. These teams must meet aggressive rollout schedules for new product releases and functionality improvements. Reliability, uptime, performance and ease of use are critical— which is why Paylocity was early to embrace all-flash storage arrays. "Production uptime is critical to our clients," Boos says. "If we can't get to the data, we can't run the applications. If we can't run the applications, our clients are going to be affected." Paylocity has leveraged a variety of features in its all-flash arrays to drive performance, accelerate development and improve quality assurance (QA). For example, widespread use of Pure snapshots and replication have transformed QA. "Development and testing is more relevant and more applicable," Boos says. "And that leads to better products and better outcomes for our customers."

What to Look for in a Solution

A common theme among these SaaS providers, as well as dozens more, is the use of all-flash storage arrays from Pure Storage. The architectural model developed by Pure Storage makes it ideally designed to meet three critical business objectives of SaaS providers:

1. **Advance service levels:** Pure reliability, consistently high performance and security features such as encryption at rest enable SaaS providers to maintain or improve industry-leading service-level agreements. With this they can retain and expand their customer base. A Pure Storage FlashArray delivers consistent sub-millisecond latency at hundreds of thousands of IOPS, even in mixed workload environments. Pure Storage all-flash arrays utilize a stateless controller architecture that separates the I/O processing plane from the persistent data storage plane. This provides

high availability with non-disruptive operations. SaaS companies can update their hardware and software and expand capacity without reconfiguring applications, hosts or I/O networks, and without disrupting applications or sacrificing performance.

2. **Accelerate time to revenue:** Pure Storage FlashArrays accelerate time to revenue in a number of ways. Because they are simple to deploy and manage, they are up and running much faster than legacy arrays. They are extremely beneficial to DevOps teams, supporting a host of development tools such as storage snapshots, APIs, PowerShell and Python SDKs, VMware orchestrations and others. Development teams can access the infrastructure's highest performing storage resources as part of their agile test and development environments. Time to productivity for developers can be dramatically reduced, with development and testing environments spinning up and down in near real time. Multiple projects and environments can coexist on the same all-flash array, reducing the need to file requests with IT to purchase a new array. Development and test environments also won't impact the existing applications that may already be running on the all-flash array. Test and development operations can create new features faster and capture more bugs earlier by leveraging thousands of instant, application-integrated snapshots.

3. **Achieve operational advantage:** Pure Storage FlashArrays allow SaaS companies to reduce costs through less energy and floor space consumption. They significantly reduce the storage footprint through inline deduplication and compression, along with thin provisioning, space-efficient snapshots and clones. Pure Storage all-flash arrays are virtually plug-and-play solutions that can be installed in less than hour. They are so simple to deploy that storage administrators typically don't have to worry about configuration tuning and tweaking.

A further advantage of working with Pure Storage is the availability of a unique deployment and pricing model called Evergreen Storage. With this model, SaaS providers can eliminate the need to repurchase, redeploy and migrate capital-intensive equipment. This model significantly extends the lifecycle of the storage solution and minimizes costs involved in upgrades, maintenance and migrations. In addition, IT can take advantage of much more predictable storage costs for now and the future.

The concept of Evergreen Storage is that customers can upgrade with new controllers and capacity without any disruptions, performance degradations or expensive (and risky) migrations. Costs are more predictable because the pricing model uses a subscription-like maintenance contract, eliminating the need for a forklift upgrade every three or four years.

In SaaS environments, the business benefits of this model can be significant: lower TCO, easier and more accurate budgeting, greater agility, less downtime, lower risk, the ability to free up IT resources, and faster time to value in deploying new applications and services. In addition, using the Evergreen model enables SaaS companies to make their entire infrastructures more cloud-like, while still maintaining the control and security of an on-premises solution.

Conclusion

SaaS providers are in a unique position: Their business models are wholly dependent on the successful and innovative use of information technology. If there are any gaps in performance, any security breaches, any delays in developing new services, any issues with customer service, it all comes down to the IT infrastructure.

Because these companies tend to be at the leading edge of IT, they have also been at the forefront of using all-flash storage arrays to empower business success. All-flash arrays are critical in enabling SaaS providers to address the "Three As", aspects that are critical to their business: advancing service levels, accelerating time to revenue and achieving operational advantage. Only all-flash arrays can deliver the performance, consistency, reliability, resiliency, operational advantages and overall TCO benefits to meet the challenges of today's quickly changing business environment.

In the all-flash storage array market, there are many options. Pure Storage offers advantages that simply can't be matched by other vendors. Because Pure Storage was born of the virtualization and cloud era, its solutions are designed to support and leverage modern technologies. Pure Storage all-flash arrays feature a modular stateless design and industry-leading technologies for deduplication and compression. Pure Storage is also the first vendor to offer an Opex pricing model in Evergreen Storage, which reduces costs, reduces risks and enables organizations to always stay up to date with current technology in a cost-efficient manner.

If your company is in the SaaS business—remember the maxim that every company is a software company—it is time to ensure that your all-flash storage solution can allow you to advance service levels, accelerate time to revenue and achieve operational advantage.

For information on how your organization can meet the "Three As" of SaaS success, please visit pure storage at PureStorage.com/SaaS.