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SHOWCASE

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Brocade Autonomous SAN Self-Learning

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Abstract: IT infrastructure complexity and skill shortage challenges plague modern IT organizations. Greater insights are essential if they wish to keep pace. Brocade offers integrated analytics as part of its storage fabric portfolio, delivering valuable intelligence able to streamline IT operations moving forward.

Overview

In the age of digital business, application availability and consistent performance are vital. According to research from Informa TechTarget's Enterprise Strategy Group, 74% of storage administrators agreed that they are under pressure to accelerate IT infrastructure provisioning/deployment to support developers/line-of-business teams.[1] As the pressure on IT intensifies, short-staffed IT organizations must balance accelerating digital initiatives with delivering better, more optimized, more capable, and less costly environments.

Complexity continues to scale as workload environments become larger and more diverse, with new application types emerging. Increased complexity takes a toll: 68% of organizations agreed that overall complexity is slowing IT ops and initiatives. Traditional tools do not deliver the right results, and traditional methods are unsustainable. IT organizations need superior tools with integrated intelligence to understand how the application environment is behaving in real time, without overburdening IT.

Broadcom's Brocade Gen 7 Autonomous SAN capabilities provide the tools to help IT deliver on digital transformation initiatives. This latest addition to the vendor's switch portfolio delivers an incredible wealth of value that is now integrated into the network.

Superior Insights Are Essential to Keep Pace in Modern IT

For modern business, data and the effective usage of data determine the competitive success of a business. While every business relies on data for internal operations and customer engagement, the majority (55%) of organizations identified that "data is their business," meaning that they derive some portion of their revenue from digital products and services. The essential nature of data to business operations places an increased importance on data storage infrastructure, wherever it resides. In fact, 91% of organizations agreed that data center modernization delivers a strategic competitive business advantage.

Maximizing the value of the data storage environment requires addressing the top challenges of data storage (see Figure 1). As environments scale and as infrastructure becomes more diversified, addressing the challenges of IT management and automation integration (35%) has become increasingly important. Challenges related to the speed of storage provisioning (33%) further illustrate the need for better tools, automation, and insight to reduce the burden on administrators. There are not enough skilled administrators to throw at the mounting complexity. In a

[1] Source: Enterprise Strategy Group Complete Survey Results, *Navigating the Cloud and AI Revolution: The State of Enterprise Storage and HCI,* February 2024. All Enterprise Strategy Group research references in this showcase are from this survey results set.

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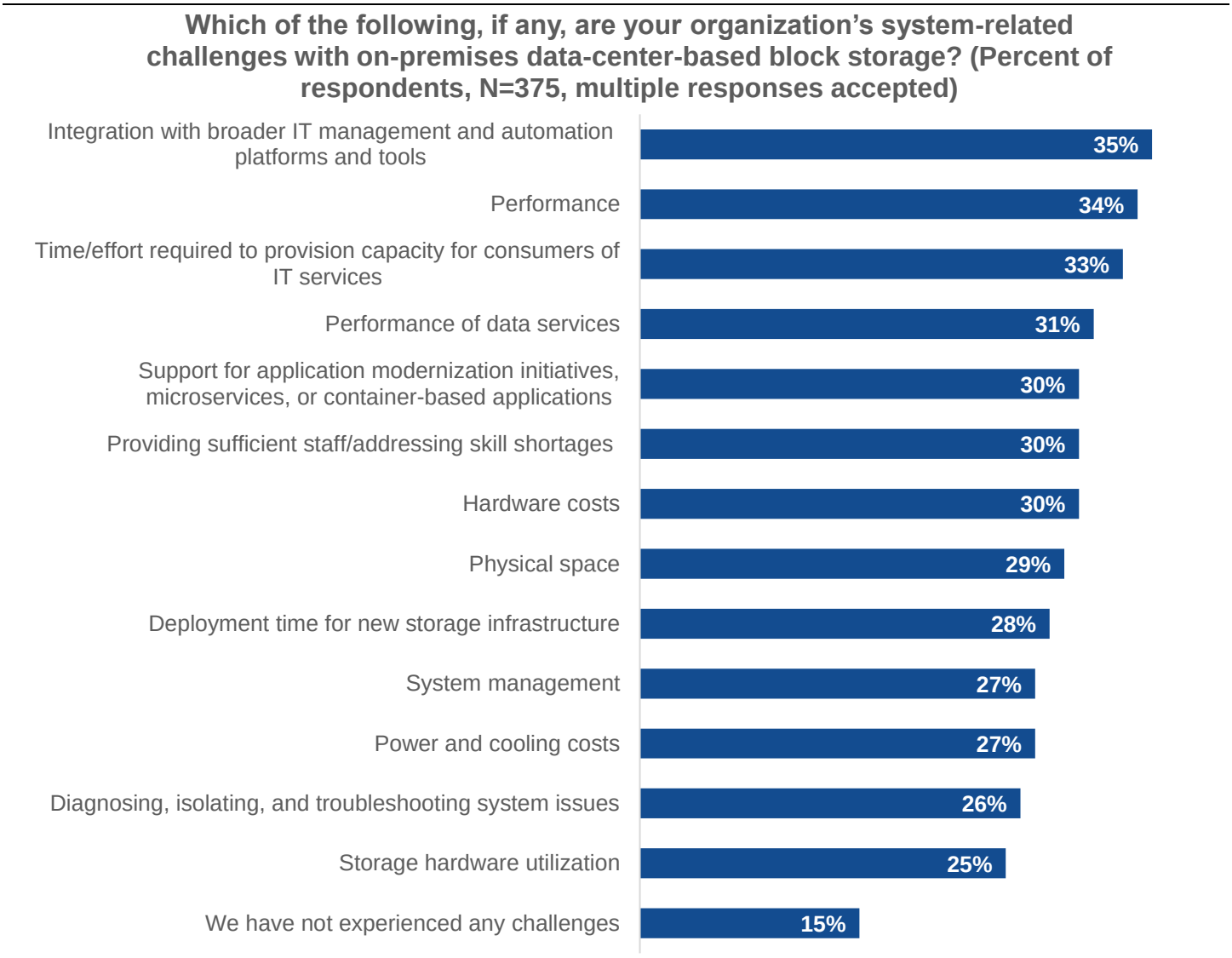
similar fashion, the increased value of data and the rise of data-intensive workloads create more pressure on storage environments to deliver high levels of consistent and predictable performance. Storage performance (34%) was the second most commonly identified SAN storage challenge.

Figure 1. Top Challenges in SAN Storage



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

Teams without enough storage and networking specialists on hand clearly need better insights to help them optimize the management, automation, and performance experience of their storage environment. The storage network is a near-ideal location in the data path for collecting and providing insights to IT about the state of applications and the entire infrastructure environment.

Throughout the typical data path, different tools traditionally have provided different perspectives. That was often due to the silo effect of reports coming from individual components, storage media, hosts, applications, and more. When a problem in the data path occurs, the symptoms are often intermittent and might go unnoticed until they become severe enough to disrupt operations. After the disruption begins, root cause analyses and isolation efforts often consume countless hours as overworked admins scour logs trying to correlate events, figure out what happened, and determine how to fix the issue. Such challenges steal cycles from valuable personnel and add risk to the environment.

Brocade Autonomous SAN Self-Learning—Valuable, Always-on Insights Integrated Into the Network

Part of the Broadcom family, Brocade Autonomous SAN is a component of the Brocade hardware and software solution portfolio. All Brocade solutions are designed to accelerate data access, adapt to evolving requirements, and ensure always-on operations for hyperscale virtualization, private cloud infrastructures, and flash-based storage environments. With analytics functionality added into Brocade switches, the whole fabric becomes better able to serve as an autonomous SAN with self-learning capabilities.

Brocade Self-Learning automatically learns normal device behavior by measuring time to first response, exchange completion time, read/write IOPS, pending or outstanding I/Os, and many other parameters. It then leverages that baseline data to ensure predictable performance and flag unusual behavior or potential problems. It also can make incremental changes to optimize the environment. Additionally, data feeds into other tools, such as SANnav Management Portal, and is available for northbound streaming and consumption in customer analysis frameworks or applications.

Brocade's Gen 7 portfolio includes the Brocade X7 Director, G730 Enterprise Switch, G720 Midrange Switch, G710 Entry Switch, and the Brocade 7850 Extension Switch. These solutions are equipped with high-performing application-specific integrated circuits that automatically discover and produce comprehensive telemetry data across the fabric. Based on automatic analysis, along with adaptive actions when needed, the fabric is optimized.

Features and benefits of Brocade Gen 7 advanced SAN telemetry include:

- I/O traffic performance monitoring with zero downtime—continuously understanding the traffic without impacting or disrupting the data path.
- Telemetry capability across large-scale environments without additional cost, which increases the return on IT's investment. Brocade automatically monitors hundreds of thousands of initiator/target and initiator/target/LUN pairs in a fabric, including individual VM traffic flows on shared data stores.
- Customizable reports for stakeholders, such as developers and line-of-business teams, that correlate metrics and events and summarize trends for behavior analysis. These reports can encourage more collaboration and help accelerate and optimize digital initiatives.
- Self-learning capability, which is a must if the goal is to create a SAN that can autonomously self-optimize as well as self-heal.

Broadcom included these features and benefits in this latest generation of the Brocade Gen 7 portfolio to address real-world business challenges and pain points. Consider that:

- Automated monitoring, alerting, and troubleshooting will save admins' time while reducing risk. Everything is always monitored. When symptoms of a problem start to appear, automated analysis is performed, and insights are provided to aid in mitigating the impact, offering a solution to avoid disruption to the production environment.
- The SAN telemetry data also feeds into other Brocade support tools, such as Brocade Support Link with Fabric Analytics, making those tools even more valuable. Broadcom simplifies and accelerates issue resolution, as the right insights are automatically collected and delivered to the right support experts. This capability also enhances the proactive support experience, which eliminates much of the risk, the worry, and the effort required when maintaining a production SAN environment.
- When a disruption occurs, issue identification and troubleshooting happen faster. This solution saves personnel time, reduces risk, and improves performance consistency. The telemetry insights can be leveraged by Brocade's Autonomous SAN capabilities to automatically address and mitigate performance slowdowns immediately, without burdening IT resources or putting the business at risk.

The actionable intelligence the SAN is collecting and reporting on makes all parts of IT smarter. Support ticket teams, for example, will know where to focus their attention prior to engaging. In fact, actionable intelligence not only ensures better outcomes, but it also eliminates finger-pointing.

Conclusion

Digital business initiatives are here to stay. Businesses depend on consistent application performance for revenue, operational efficiency, and customer experience. Analytics technologies such as this one deliver incredible value, helping ensure the delivery of an optimal and consistent application experience.

Integrating the analytics into the switch makes those analytics much more easily accessible to IT admins and other stakeholders, helping them to address business challenges that were previously difficult to resolve. This functionality represents a huge win for Brocade customers and partners. Even a few seconds or minutes of downtime can result in losses that total in the millions for some large enterprises. Broadcom reduces the risk and the operational burden placed on IT.

To deliver a truly autonomous SAN environment, the infrastructure must be able to self-optimize and self-heal. And then, when issues *do* occur, they must be resolved as fast as possible, in a manner that makes inefficient activities like finger-pointing a thing of the past. To accomplish this, the technology must collect the right data points, extract actionable intelligence, and then automatically deliver insights for a consistent and accurate picture of what is happening to the right experts and the right tools. Broadcom, with its Brocade autonomous SAN technology, checks each of those boxes.

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