



WHITE PAPER

Build the Business Case: Using Solid-State Storage to Strengthen Digital Signage Solutions

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The important trends driving the growth of digital signage are creating a compelling business case that solid-state storage devices (SSDs) should be the foundational storage platform for current and future solutions. SSDs deliver greater performance, reliability and durability than rotating hard disk drives (HDDs), all of which are critical factors for digital signage solutions.

In addition, solid-state prices have come down to the point where they can be at least as cost-efficient as HDDs. In many cases, they can deliver savings in total cost of ownership (TCO) through greater uptime, less power consumption and a longer lifecycle, among other benefits.

SSDs are rapidly displacing HDDs in a wide range of devices and systems, such as digital signage, where applications are driven by the need for reliability, durability and longer life spans.

HDDs continue to find use in applications where capacity matters—such as for backup and archiving in data centers—but SSDs are making HDDs obsolete in any application where performance is important criteria. As digital signage solutions add intelligence, the value gap in favor of SSDs versus HDDs will continue to widen.

Overall, the digital signage market reached nearly \$14 billion in 2013, with continued growth in the range of 4.7% to 5.6% expected for each of the next several years, according to research from IHS.¹ Among the most important trends driving this growth is the addition of data-centric information and analytics. As noted by IHS:

As digital signage becomes increasingly intelligent with smart content and dynamic interfaces, the integration of real-time data management into real-world applications will further stimulate revenue growth. In particular, the integration of real-time data and predictive analytics into digital signage is making a big splash among retailers, which are using digital signage solutions to target customers more efficiently, leading to increased dwell time, improved shopping experiences and a rise in sales.

With the rise of big data analytics helping to drive the digital signage industry, users and manufacturers of equipment are finding it increasingly valuable and necessary to incorporate the latest advances in storage technology, in particular solid-state devices. Aside from the performance gains of SSDs—which are considerable when compared with traditional HDDs—the improvements in reliability and durability enabled by SSDs are especially important in the digital signage industry, where every second of downtime turns into potentially lost revenue.

This white paper examines the changes that are taking place in the digital signage market and presents the business case for incorporating solid-state storage in today's solutions. In addition, the paper offers guidelines in what to look for in a solid-state storage and explores how manufacturers of digital signage equipment and their customers can benefit by choosing the right SSD solution.

Deliver Improvements in Uptime and Reliability

Downtime in digital signage can be damaging to revenues, productivity and brand reputation. If your organization is providing signage as an advertising revenue stream, you lose expected revenue if the system is down and you fail to deliver promised services to customers.

¹ "Global Digital Signage Market Nears \$14 Billion, Spurred by Real-Time Analytics in Retail," IHS, Oct. 29, 2013

If your signage solution is tied in with transaction systems, downtime will translate into lost revenue and lost business opportunities. If your solution provides valuable and current information to employees and customers, downtime will cause your organization to suffer setbacks in customer service, employee productivity and brand loyalty.

In short, you want to do everything possible to make sure that your digital signage solutions are up and running without downtime, or glitches in performance or availability.

Storage is one clear area where the choice of one technology platform versus another will provide measurable improvements in uptime and reliability. SSDs use NAND flash memory, which means that unlike HDDs, they have no moving parts that can break down. As a result, they are much less prone to failures. According to one survey, the failure rates of HDDs are more than three times those of SSDs.²

When a storage device fails in a digital signage solution, the system is unable to perform its basic services. In addition, each time the system fails it will likely result in maintenance call, which can be expensive as well. The impact on the business is like a chain reaction: The system fails so there is the immediate downtime; then there is more potential downtime until the system is fixed and/or the drive is replaced, and then there are the incremental costs of a repair.

Drive Cost Efficiencies and TCO Savings

In examining any business case, one of the first questions is always: “How much will it cost.” In the case of companies building digital signage solutions—as well as the customers using these systems—there can be overall improvements in TCO by using SSDs versus HDDs.

One area of improvement is in what we have just described: Increased uptime. If your system is more reliable, you are getting more revenue and spending less money on repairs—not to mention the “soft” benefits of greater customer satisfaction and goodwill.

The direct cost savings can be significant. IDC estimated that using SSDs versus HDDs in personal computers reduced by 86% the annual IT labor costs involved in evaluating, fixing, repairing and recovering lost data. SSDs reduced outsourced repair costs by a similar percentage. In addition, SSDs extended the lifecycle of each PC by an average of 14%.³

In addition, prices on SSDs have come down significantly in the past few years, driven by increased volume and improvements in the technology spearheaded by leading manufacturers such as SanDisk.

The advantages of declining SSD prices are particularly evident in the digital signage market. The most important characteristics for storage in digital signage solutions are reliability, ruggedness and performance. These are all areas where SSDs have major advantages versus HDDs.

While HDDs can offer high-capacity storage, in digital signage applications you are likely paying for a lot of incremental storage capacity that you will never need—while not getting the performance that you will need.

⁴ “SSDs do die, as Linus Torvalds just discovered,” *Computerworld*, Sept. 12, 2013

⁵ “The Total Cost of Ownership for an SSD-Enabled PC,” IDC, July 2011

Improve Performance, Accelerate Access Time and Prepare the Organization to Take Advantage of Big Data Analytics

The explosive growth of SSDs in business applications is typically driven by the performance gains enabled by the technology. SSDs are much faster than HDDs in key areas such as IOPS and access times, which are critical in a wide range of applications, such as online transaction processing. IDC notes that boot time with SSDs in PCs is 46% faster than PCs with HDDs, and file writes are more than 400 times faster.⁴

Retailing is one area where the performance gains of SSDs can positively affect business performance and customer satisfaction. Using real-time information, retailers can quickly make adjustments in prices, merchandising and other activities to immediately affect sales.

IHS notes that retail continues to be the strongest source of revenue for the digital signage industry, “with plenty of stores using digital signage systems to promote brands or merchandise, while also being able to simultaneously entertain or educate customers.”⁵

But retail is not the only industry that stands to gain from the improved performance of digital signage solutions and the incorporation of business analytics. IHS also pinpoints quick-service restaurants, universities, transportation and others in its research. A few examples cited by IHS are:

- In restaurants, live data feeds allow managers to conduct automated interactions that review real-time sales data and make adjustments locally to manipulate in-store marketing messages to affect the customer’s purchasing decisions and ultimately benefit sales figures.
- Corporations using digital signage networks throughout their organizations improve efficiency in the workplace, increase the company’s bottom line, promote brand awareness and unity, display performance indicators and allow for easier connectivity across large organizations.
- Digital signage has likewise become increasingly prevalent throughout many universities to show upcoming event details, as well as display building directories, way-finding maps and emergency messages to increase student and faculty safety.
- Additional examples of live data feeds for digital signage displays include news updates, weather, traffic highlights, stock-quote feeds or local event material. Similarly, live data feeds can be useful in programming networked content management software to provide real-time information on a broad range of material, including sales data, emergency notifications, public-transit schedules and service warnings.⁶

Enhance Agility with Storage That Is More Rugged and Durable

Digital signage solutions are used in a variety of locations that can be affected by weather, shock, vibrations and other factors that can limit their ability and effectiveness. Some manufacturers offer ruggedized digital signage solutions designed specifically for outdoor locations.

⁴ Ibid Footnote No. 3

⁵ Ibid Footnote No. 1

⁶ Ibid Footnote No. 1

Because SSDs don't have mechanical moving parts, they are much more durable and rugged than HDDs and can be used effectively in a wider variety of locations and use cases. For example, the more rugged nature of SSDs makes them more suitable for outdoor solutions, as well as mobile digital signage solutions such as kiosks.

What to Look for in an SSD Solution

Because the storage requirements of digital signage solutions are oriented more toward performance, accuracy and reliability as opposed to capacity, SSDs are more effective and suitable for most environments and use cases. But despite the commonly held belief, not all SSDs are created equal. There are differences in costs, capacity, performance and feature sets among different SSDs.

In evaluating SSDs, whether you are a manufacturer of digital signage solutions or a customer, it is important to look for SSDs that offer a variety of capacities and form factors that can be optimized for digital signage environments. One example is SanDisk, which offers SSDs in a range of capacity sizes and form factors, including low capacities that make them well suited for digital signage solutions. A benefit of using SanDisk solutions is that the company is vertically integrated and makes its own drives, giving it more control over costs and supply.

SanDisk SSDs deliver high SATA 6Gbps performance at great value, supporting a diverse feature set that also satisfies performance and power requirements for POS systems. Options are available in a range of capacities and form factors: 32, 64, 128 and 256 GB capacities for 2.5-inch 7mm and mSATA form factors, depending on the configuration you choose.

Conclusion

Digital signage has come a long way since the days, not very long ago, of static, prerecorded content. The technology has evolved quickly, as have the applications and use cases. Digital signage is now an integral solution for delivering real-time information and services in a wide range of industries. And the future is extremely bright, with the potential for expansion of business services that can be enhanced by big data analytics.

For vendors of digital signage solutions, as well as their customers, it is important to have the right technology in place to support today's needs and tomorrow's challenges. Digital signage solutions that incorporate solid-state drives can provide advantages in speed, reliability, durability and total cost of ownership. They are also a more effective and powerful platform for transforming the power of analytics into competitive business advantage.

If you are looking at next-generation digital signage solutions, or if you want to upgrade what you have in place, now is the time to consider SSDs as your storage platform of choice.

⁶ "Understanding the State of Data Security and Privacy: 2013 to 2014," Forrester Research, Oct. 1, 2013

⁷ "How to balance maintenance and IT Innovation," *Computerworld*, Oct. 21, 2013

⁸ Ibid, Footnote No. 4.