Top Five Reasons to
Use Solid-State Drives in POS Systems

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Businesses that rely on point-of-sale (POS) systems are constantly looking for ways to improve performance, stability, accuracy and reliability. Today's POS systems are critical to managing inventory, tracking orders, recording customer information, understanding sales cycles, logging worker hours and myriad other activities that improve customer service and enhance worker productivity. As noted by Payments Source, the POS system "is undoubtedly the single most important device in a store."[1]

Of course, it's not just retailers that rely on POS systems: Businesses in hospitality, restaurant services, transportation and many other industries need their POS solutions to be fast and reliable—particularly in today's environment, where there is growing emphasis on the ability to serve customers quickly while also accessing real-time information to take advantage of new forms of big data analytics. As part of the focus on improved customer service and real-time analytics, businesses are also increasingly looking to add mobile capabilities to their POS solutions.

Solid-state devices (SSDs) present another potential breakthrough in the evolution of POS systems, enabling faster performance, improved quality and higher reliability. While rotating hard disk drives (HHDs) have been the traditional storage medium for POS systems for many years, it is not difficult to envision a time in the near future when HDDs are displaced completely—certainly on new POS systems, and perhaps even older systems that can benefit from an upgrade to the newer, better and more reliable SSD technology. Simply put, SSDs have the potential to make HDDs obsolete in POS systems.

For companies that are building POS systems, as well as the millions of businesses using them, the opportunity is at hand to take another step forward in enhancing the capabilities of their POS solutions. According to one survey, more than 1 million terminals in North America need to be upgraded, and the primary reasons are:
1. The point-of-sale system is outdated; and
2. The high costs of operation.[2]

If you are in the position of upgrading or replacing your POS systems for any reason, now is the time to consider SSDs as your storage medium. Here are the top five reasons why SSDs are displacing HDDs as the storage medium of choice in POS systems:

Reason No. 1: SSDs are more reliable.
For any customer-facing business, reliability and uptime are absolutely essential. According to one survey, every minute of POS downtime costs a retailer $4,700—and nearly 50% of customers will avoid a retailer or brand in the future if they had to wait longer than five minutes.[3]

One of the biggest advantages of SSDs versus HDDs is that SDDs use NAND flash memory and thus have no moving/mechanical parts. This means they are much less prone to failures, which can have an enormous impact on uptime. According to research, the failure rates of HDDs are more than triple those of SSDs.[4]

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[1] "How to Avoid Mobile Point of Sale Pitfalls," Payments Source, July 17, 2014
[2] "The State of POS 2014," Vertical Systems Reseller, Sept. 9, 2014
[3] "The High Cost of Internet Downtime for Retailers," RetailCustomerExperience.com, August 6, 2013
[4] "SSDs do die, as Linus Torvalds just discovered," *Computerworld*, Sept. 12, 2013

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Reliability, or rather the lack of reliability, affects POS systems in a number of ways. First, customer service will be delayed at the point of sale when the system goes down and, in some cases, transactions will simply not be able to take place. This can harm sales as well as customer loyalty.

The other key impact of reliability is the time and cost it takes to repair and/or replace a system. If the system goes down or crashes more frequently, it will be more expensive to repair and will require more maintenance calls, which will also negatively affect costs and uptime.

Reason No. 2: SSDs are faster.

The complex nature of POS systems requires peak-performance storage devices to execute high-volume transactions and reduce bottlenecks. You don't want to keep customers waiting while the system boots up or is searching for files. Research shows that customers become frustrated after 2.5 minutes if there is no progress in line; after five minutes, one out of three customers will actually abandon the checkout line altogether.[5]

SSDs are much faster than HDDs, which means they take much less time to boot up and also deliver less latency and better performance in loading applications and accessing databases. After replacing HDDs with SSDs in 4,600 corporate laptops in 2013, SanDisk noted that boot time with SSDs was 46% faster and file write was more than 400% faster.[6]

As noted by one company that manufactures both SSD-based and HDD-based POS systems:

> *Speed and noise: This is where SSDs shine. An HDD requires time to speed up to operating specs, and will continue to be slower than an SSD. The SSD has no moving parts so you don't have any of the normal spinning noise that the HDD drive makes. A POS with an SSD boots faster, launches apps faster, has higher overall performance and does so with not one click or whirring noise.[7]*

Another important benefit of better performance and faster access to files and databases is apparent in the ability of SSDs to better support the big data solutions that are beginning to change the dynamics of customer service in retail, hospitality, transportation and other customer-facing environments.

With big data analytics, organizations can take data from a wide variety of sources, including social media such as Facebook posts and Tweets, to offer customers more targeted products and services. As an example, a customer at a car rental kiosk can get an offer for an upgrade to a particular car he or she has mentioned in a social media comment.

Often, the information from these types of big data analytics will be used in real time and at the point of sale. The faster performance of SSDs in POS systems will be of immense value in making big data more practical and valuable as a tool to drive increased revenue and stronger customer service/brand loyalty.

Reason No. 3: SSDs are cost efficient.

With the rapid expansion of SSDs in desktop and laptop computers, along with growth in related markets such as POS, digital signage and surveillance systems, prices of SSDs have come down significantly during the past few years.

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[5]   Ibid Footnote No. 3
[6]   "The Total Cost of Ownership for an SSD-Enabled PC," SanDisk, 2013
[7]   "A Face-Off: Pinnacle Pal POST – SDDs vs. HDD Benefits and ROI," Pinnacle Corp.

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Savings accrue in a number of areas. With less downtime and fewer repairs, companies are spending less on maintenance and generating more revenue. The performance gains enabled by SSDs improve worker productivity: IDC estimated these gains at about 35%, with workers gaining nearly instantaneous access to applications.[8]

Another important cost factor with SSDs versus HDDs: With HDDs you are typically getting more capacity, which is their main advantage versus SSDs. However, sales transactions typically are not very capacity intensive, so with HDDs you actually wind up paying for extra capacity that you will probably never need.

Reason No. 4: SSDs are more rugged.

POS systems can be subject to more challenges than traditional stationary PCs. They are in a wide range of open environments that can be affected by climate, power, shock, vibration, liquid spills and other elements that can't always be predicted.

SSDs are more rugged and reliable than HDDs because they don't have mechanical moving parts. This makes them not only a better choice for fixed-location solutions, but also particularly suitable for the mobile uses that are becoming an increasingly important factor in POS systems. The use of mobile POS systems in retail alone is expected to triple over the next few years, according to research firm Infogroup.[9]

A large part of the interest in mobile is in enabling businesses to be more agile in servicing customers in a wider range of locations. Another benefit of the increase in mobility is the ability to generate more big data information about customer spending habits and inventory flow.

To this point, most businesses are still learning how to utilize big data analytics. But analytics will become more important in the future. As noted by Infogroup: "The adoption of mobile POS is a great way to capture valuable customer information. Retailers must also invest in analytics to maximize ROI and improve the customer experience."[10]

Reason No. 5: SSDs can be optimized for POS environments.

POS systems are more reliant on performance, accuracy and reliability than on sheer capacity, which plays to the strengths of SSDs versus HDDs. But not all SSDs are created equal, despite the commonly held belief. There are differences in costs and features between SSDs, so in evaluating solutions it is important to look for SSDs that offer a variety of form factors that can be optimized specifically for POS environments.

SanDisk SSDs are available in a wide range of capacity sizes and form factors, including low capacities that make them well suited for POS systems, as well as related vertical markets such as digital signage, kiosks and mobile surveillance solutions. One of the major benefits of using solutions from SanDisk is that the company is vertically integrated and makes its own drives, which gives it much 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 upon the configuration you choose.

[8]   Ibid Footnote 6
[9]   "Mobile Point-of-Sale Systems to Triple Among Retailers by 2018," Business Daily News, Oct. 25, 2013
[8]   Ibid Footnote No. 10

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Taking the Next Step

POS systems have come a long way during the past few years, and they are continuing to evolve. They have moved way past the point of merely replacing cash registers and are now integral components in supporting a wider range of business processes and strategies. With the growth of mobile solutions and the opportunities to deploy big data analytics, businesses with the right POS systems in place can strengthen customer service, bolster worker productivity and improve profitability.

Solid-state storage is an important technology in improving the reliability and performance in POS systems. Because SSDs are more reliable, rugged and faster than HDDs, they are proving themselves to be a great fit in POS environments, particularly as SSD costs have continued to come down. It is only a matter of time before SSDs displace HDDs as the storage medium of choice for POS systems. The question is: Why wait? Particularly now that there are cost-efficient solutions from SanDisk, which can be optimized for a wide range of POS systems and use cases.

Whether you are a vendor/integrator of POS systems, or a user of POS systems, now is the time to learn more about how SanDisk SSDs can drive improvements in your solutions.

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