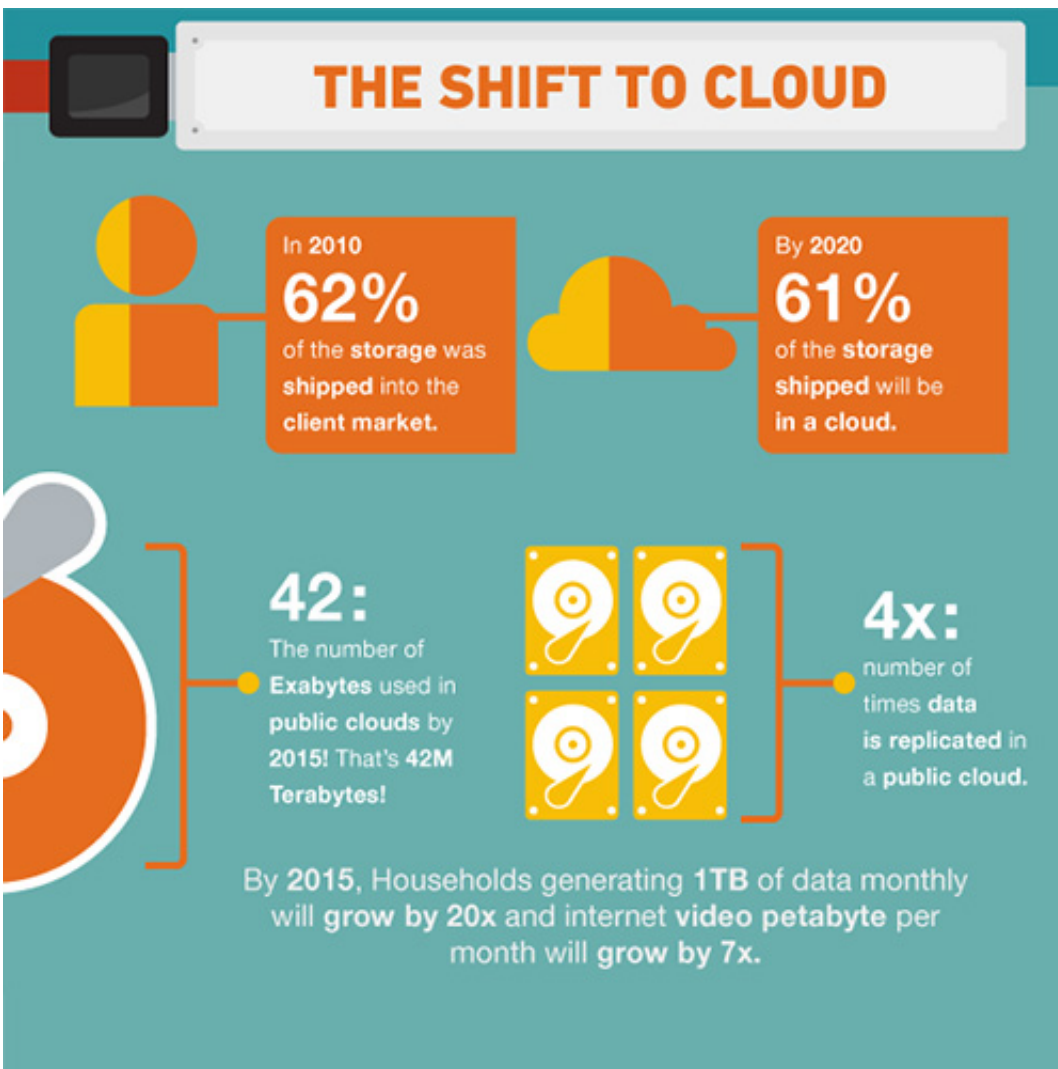


# The demand for storage devices in a connected world of data

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The advent of cloud computing has given rise to trends—such as the consumerization of IT, big data and enterprise mobility—that have created increasingly connected data ecosystems, and this is driving demand for digital storage capacity. The cloud has been regarded as a threat to traditional storage solutions, but that is an incorrect assumption—rising rates of cloud adoption will increase demand for the hard drives and solid state drives that comprise cloud storage, creating more opportunities for storage vendors. The solid state drive (SSD) market has seen a spike in growth, but hard disk drive (HDD) technology is far from dead. As consumers and businesses consider a mixture of high—performance and affordable options, the need to seamlessly transition between these solutions will be even greater.

The TechNavio report [Global Hard Disk Drive Market 2011-2015](#) predicted an 8.1% compound annual growth rate for the global HDD market through 2015. An IDC release from January 2012 predicted the market for SSDs to experience a CAGR of 51.5% from 2010 through 2015. IDC attributed the significant growth in the SSD market to several factors, including:

- SSD prices are expected to fall below US\$1 per gigabyte in the second half of 2012
- Increased popularity of caching solutions, such as dual drives (systems containing both an SSD and an HDD)
- Enterprise adoption of SSD [storage](#) to complement HDD solutions

While it is not the only storage market that has seen significant growth, the report cited the demand from large enterprises as a significant contributing factor to the market's projected CAGR.

## **Data centers: Public cloud storage**

The large enterprise public cloud arena demonstrates the rapid pace of cloud adoption and highlights some of the crucial factors that will determine which [storage solutions](#) will be best in class.

Worldwide public cloud spending is expected to grow from US\$91 billion in 2011 to US\$207 billion in 2016. Although [business process](#)-as-a-service (BpaaS) currently represents the largest area of enterprise cloud spending, platform-as-a-service (PaaS), software-as-a-service (SaaS) and infrastructure-as-a-service (IaaS) are growing faster. One point of value that can be gleaned from this is that the potential of the cloud is increased with interoperability. Storage vendors that offer multiple modes of delivery and enable customers to easily migrate between platforms can take advantage of this trend toward customization.

Richard Villars, vice president of storage systems and executive strategies at IDC, said big data will represent a crucial new marketplace for enterprise storage providers in the next decade. IDC also highlighted the role public cloud applications and infrastructure have played in the storage market. The market research and analysis firm outlined several requirements cloud storage service providers will have to meet in order to satisfy growing demand, including:

- Provide more efficient information and application delivery
- Reduce upfront investments
- Minimize internal IT infrastructure investments associated with unpredictable workloads
- Lower the ongoing costs associated with long-term archiving
- Enable near-continuous, real-time analysis of large volumes of data

Although the cloud currently represents 30% of total enterprise drive

capacity, that number is expected to increase to 39% by 2013, according to Seagate Market Research and IDC's report Worldwide Enterprise Storage for Public and Private Cloud 2011-2015. The demands at the enterprise level will be to deliver highly interoperable solutions at low costs while ensuring reliability, speed and resiliency.

As cloud data centers continue to evolve, so will the demand for different types of storage devices, including SSD, 15K-RPM, and 10K-RPM performance drives, in addition to the highest-capacity drives. The magic comes in being able to deploy the right drives or mix of drives to meet service level agreements (SLAs).

SSDs have enabled a faster, more efficient cloud, and as these solutions are more widely adopted, demand will continue to snowball. Seagate Senior Marketing Manager Mark Wojtasiak says faster data flows enabled by [SSD](#) deployments in the cloud will lead to the creation of additional data that will need to be stored, creating a win-win situation for Seagate and its solution-provider partners.

## **Small business: Private cloud storage**

As is the case in the large enterprise space, small businesses' demand for digital storage is rising, and this has created a need for more efficient solutions, according to a TechNavio report. Another crucial element TechNavio analysts identified relates to interoperability, as storage systems, even at the small-business level, must increasingly accommodate various operating systems.

Network-attached storage (NAS), which is essentially multiple bundled hard drives and associated software and services, represents an attractive solution given the needs of small businesses, according to a TechNavio report released in July, 2012. The NAS market is expected to experience a 51.1% CAGR from 2011 through 2015. In addition to a significant

number of features added to NAS devices, advances in NAS technology have allowed for high-performance servers that handle an increasingly large number of client requests.

"The service capability of the servers increases considerably, and a reduction in the latency period is observed," the report said. "The responses are received more quickly, and high-performance computing is supported across the network.

Using NAS, smaller businesses have access to more capacity and more flexible features than they would have otherwise. Even an entry-level NAS solution like the [Seagate BlackArmor NAS 220](#) server provides support for as many as 20 PC and Mac workstations. The features of a NAS solution of this type provide small businesses with the advantages of cloud computing, including remote access to files via Web browser and the ability to easily back up or migrate files to a secondary storage device. Couple these capabilities with a low cost, and it stands to reason that NAS represents the future of private cloud storage for small businesses

## **Consumers: Personal cloud storage**

Consumers represent an influential factor in the growth of cloud storage. Gartner forecasts that 36% of all consumer digital content will be stored in the cloud by 2016. Additionally, worldwide capacity demands will increase significantly from 329 exabytes in 2011 to 4.1 zettabytes in 2016.

Gartner also predicts the average household's storage capacity will increase significantly within the next several years, going from 464GB in 2011 to 3.3 terabytes in 2016. The growing popularity of camera-equipped devices such as smartphones and tablets has allowed consumers to create a large amount of digital content, leading to rising capacity

demands to store that content. Gartner expects cloud storage and syncing service providers to become more popular as demands outpace the capabilities of social networking websites, which are currently used to house a large amount of digital content.

Automated syncing will play a critical role in the consumer storage market as users transition from on-premise to cloud storage solutions. Gartner expects the on-premise market to fall to 64% in 2016, down from 93% in 2011. However, another Gartner forecast predicted 90% of all connected consumer devices will feature cloud services for accessing content. This increase in cloud-connected data will not only drive the demand for [storage capacity](#), but also increased functionality among solutions.

Seagate contends that even with the growth of public cloud storage, personal cloud storage in the form of direct-attached and network-attached storage in the home will make up a significant part of personal [clouds](#). Storing 3.3 terabytes in the home augmented by public cloud storage will remain the preferred method mostly due to costs. Like small-business NAS solutions, home NAS has many of the same cloud connected features, making multi-terabyte personal cloud storage a reality.

"The shift to the personal cloud will accelerate rapidly in 2012, as consumers learn how to use new services on their devices," said Andrew Johnson, managing vice president at Gartner. "As cloud services become part of people's lives, device vendors and platform providers must integrate cloud services in order to win customers in 2012 or risk being [displaced] by those that offer these services. Brands must stretch across multiple devices, platforms and services."

## **How to add value: Personalized IT**

The demands for storage are multi-pronged in both the business and consumer sectors. It is not enough to simply deliver more capacity due to rising expectations surrounding performance. Both businesses and consumers need highly interoperable platforms so that initiatives such as big data and virtualization can be undertaken regardless of the storage infrastructure.

The *TIME Magazine* article "The Future of Personal Computing: Cloud-Connected Screens Everywhere" said it best when it described the consumer computing market as shifting toward personalized computing, but that trend is not just for the personal cloud. Personalized computing has made its way into the world of consumers, small businesses and the enterprise. The cloud plays a critical role in the future of storage in that it allows for the concept of personalized computing, but the cloud is not the end of traditional storage. Instead, the cloud allows users to optimize many connected storage solutions in a world filled with data.

The current direction the market is headed demands flexibility; Seagate is investing in the cloud in multiple areas—at the storage-device level, the systems level and the services level—to ensure the pieces will fit together. Enabling partners to expand their cloud business is critical to Seagate's success.

Source: Seagate

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