

Toshiba Outlines Key Data Storage Trends for 2021

Düsseldorf, Germany, 05th January 2020 – Toshiba Electronics Europe GmbH (TEE) has a longstanding reputation as a leader in data storage technology, and its team of experienced professionals possess a deep understanding of the fundamental dynamics that define the market. In the following text, Rainer W. Kaese - Senior Manager for HDD Business Development of the company's Storage Products Division - gives his insight into what the year ahead holds.

Through a broad cross section of use cases, each with their own particular nuances, the expectations currently being placed on data storage technology are proving to be greater than ever. Our society's data consumption is already way beyond what could have even been imagined in the past. Projections from IDC suggest that our annual data generation levels will have exceeded 175 Zettabytes by 2025. Furthermore, the expansive array of new applications that are now starting to emerge mean that the exponential growth rate we are already experiencing is only going to continue.

As we go into 2021, dramatically heightened data access activity is going to start being witnessed at the edge, as well as at the core. Thanks to the huge production volumes supported, coupled with characteristically attractive price points plus ongoing innovations, hard disk drives (HDDs) are certain to continue to have an important role to play.

Although solid state drives (SSDs) seem to get the vast majority of media attention, the value of HDDs should never be underestimated - especially as data storage demands are getting more and more intense. It must be acknowledged that even the most ambitious estimates about future SSD production output would still only allow this storage medium to constitute a mere fraction of the total capacity that will be needed.

Market Developments Driving Demand

Changes to working culture over the last 9 months, with a much greater percentage of the population now working from home with all-digital connections, has accelerated the migration to cloud based services. This is putting more strain on existing data center infrastructure. At the same time, the landscape supporting all this activity is changing too. Cloud-based IT, often located in co-location (colo) sites, is set to become increasingly commonplace, enabling the requirements of numerous customers to be attended to using shared resources. This sets new challenges when it comes to storage technology that forms the foundation of data center operations - requiring optimized solutions that match the access pattern as well as performance and reliability requirements.

Alongside what is occurring in the data center sector, the roll-out of Internet of Things (IoT) technology is now starting to scale up considerably. Estimates on the number of connected nodes being put into operation over the course of the next few years vary, with Juniper Research even predicting that this figure could actually pass 83 billion by the middle of the decade. What is definitely assured is that, if IoT is to be truly prevalent, the costs involved need to be as low as possible - especially from a data storage perspective.

Closely interrelated to IoT roll-out, increased interest in Industry 4.0 will be an impetus for deployment of greater storage capacity in relation to the manufacturing arena. IoT will also be leveraged by utilities and municipal administrations to enable various smart city functions to be benefited from (thereby combatting congestion, air pollution, etc.). As with Industry 4.0, this will result in huge quantities of data being generated by sensors. With only limited on-site storage reserves and processing capabilities available, this data will generally be sent back to cloud servers for subsequent analysis - where cost-effective data storage resources will once again be required. More widespread use of surveillance systems is also destined to have a major impact on data capacity requirements, as will the move towards greater vehicle autonomy in the years to come.

Cost Considerations

For all the use cases just discussed a substantial ramping up of data capacity will be mandated, while still keeping the financial investment involved to a minimum. Admittedly, a single SSD may be able to outperform a single HDD. However, the applications we are talking about here don't deal in single discrete units - they need large scale solutions. For such implementations, multiple configured HDDs are able to achieve very high IOPS figures, while still being extremely economically viable too.

When looking at what is the most suitable storage medium to utilize, the price/GB is usually the primary concern. Though the costs associated with SSDs have fallen, they remain close to an order of magnitude higher than their HDD equivalents. Moreover, advances in HDD design are translating into further cost savings. It should be noted that tape will have to play a role as well, as it's definitely the cheapest way to store data when it comes to cost per capacity, but tape is not directly competing with HDD and flash, as all data storage mentioned so far is on-line, while tape is not an on-line media.

From an engineering standpoint, continued progression is being made with regard to helium-filled drives. Next generation technologies like heat-assisted magnetic recording (HAMR) and microwave-assisted magnetic recording (MAMR) are also in the pipeline. Through these there is the prospect of storage capacities being boosted without calling for any cost premium. The gap between HDD and SSD implementation outlay will therefore remain sizable for a very long time yet, as will HDD's overall market dominance in terms of deployed online storage capacity.

For a full overview over TEE's storage portfolio please visit:

<https://toshiba.semicon-storage.com/eu/storage.html>

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About Toshiba Electronics Europe GmbH

[Toshiba Electronics Europe GmbH](#) (TEE) is the European electronic components business of [Toshiba Electronic Devices and Storage Corporation](#) ("Toshiba"). TEE offers European consumers and businesses a wide variety of innovative hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. Next to HDDs, the company's broad portfolio encompasses power semiconductors and other discrete devices ranging from diodes to logic ICs, optical semiconductors as well as microcontrollers and application specific standard products (ASSPs) amongst others.

TEE has its headquarters in Düsseldorf, Germany, and branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistic services. The company's president is Mr. Tomoaki Kumagai.

For more company information visit TEE's website at www.toshiba.semicon-storage.com and <https://www.toshiba-storage.com/>

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