SOLUTION BRIEF

Enterprise Data Platform
Intel® Data Center Builders

Transformative, Unified, Scalable, Open Software-Defined Storage

XSKY is redefining enterprise storage with an open software-defined storage platform that works with any data type, any application, any Intel® architecture–powered hardware, and any cloud.

Summary

Data is growing exponentially. In mid-2017, an estimated 2.5 quintillion bytes of data were created every day—that is 2.5 million terabytes (TB).[1] And the ever-growing volume of data leaves businesses with a massive amount of information to analyze and use as part of their digital-transformation efforts. Keeping up with this explosion of data can be costly—especially if so much effort is spent managing the data that opportunities are lost to make innovative use of the data.

Traditional solutions for storing and analyzing data haven't kept up with data growth or the needs of businesses to harness data. Traditional, hardware-based approaches to storage can require individual solutions for different types of data, which can increase costs and management needs. These approaches can slow performance, when what businesses really need is real-time performance. Among other drawbacks, traditional solutions also often require manual data-lifecycle management and must be upgraded regularly.

Newer solutions solve some of these deficiencies, but not all of them. Software-defined storage (SDS), for example, offers a better solution, but it can still have limitations and be complicated to configure and deploy.

XSKY is changing the SDS paradigm with X-EDP*, an open SDS data platform. X-EDP works with any data type, any application, any cloud, and any hardware powered by Intel® Xeon® processors. The XSKY* open architecture also supports all virtualization platforms, containers, and traditional physical platforms. In addition, X-EDP not only makes it easier for businesses to store and manage data, it makes it easier for businesses to consume data and use it for innovation.

X-EDP*: A Cost-Efficient, Open Architecture for Data Storage

X-EDP provides an open architecture for enterprise data storage. It can deliver enterprise-level agility and be run on practically any hardware powered by Intel Xeon processors. Enterprises can use existing and new servers side-by-side to optimize infrastructure roadmaps and budgets. Not only can X-EDP use a mix of Intel Xeon processor–powered hardware, it can be scaled up or out by simply adding another server to give businesses a highly cost-effective storage solution.

X-EDP supports block, file, object, structured, semi-structured, and unstructured data on one platform. Businesses can eliminate the need to buy and manage multiple solutions for different types of data. X-EDP is also agnostic in that it supports almost any application and works with any virtualization platform. And it can integrate with on-premises infrastructure and private, hybrid, and public clouds.

The platform not only offers broad data, application, and cloud support, it also simplifies data management with comprehensive intelligent data services, service-level agreements (SLAs), quality of service (QoS) settings, and data-lifecycle-management capabilities. With these needs handled for the business, IT and data teams are free to focus instead on innovative uses of the data.

Availability, Simplicity, and Visibility for Business Data

Data can't be used for innovation if it is not available. X-EDP keeps data available with consistent 99.999 percent availability.[2] An intelligent data-distribution algorithm and a decentralized design are built into the software layer, combined with erasure coding (EC) and replication, which helps ensure that data remains consistent and available. These capabilities also enable the platform to process millions of input/output operations per second (IOPS).[3] And availability zones, redirect-on-write (RoW) snapshots, consistency groups, online migration, synchronous replication, and asynchronous replication capabilities all work together to help ensure a business's data remains accessible when needed.

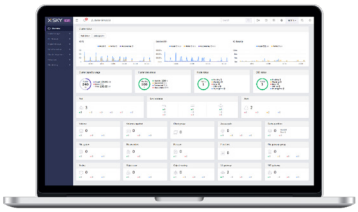

Figure 1. With XSKY X-EDP*, enterprises can manage block, file, and object workloads from a single dashboard

Enterprises can use X-EDP to manage block, file, and object workloads from a single dashboard, as shown in Figure 1. The dashboard is an easy-to-use, intuitive graphical user interface (GUI) that supports visual workflow management. And a variety of capabilities make integrating and managing the platform itself simple. A RESTful API enables enterprises to integrate the platform into existing environments. X-EDP can also integrate with VMware* and OpenStack* environments to enable enterprises to manage SDS and virtualization platforms with a single interface. The VM-centric design helps enterprises reduce operational complexity and gain insight into infrastructure performance.

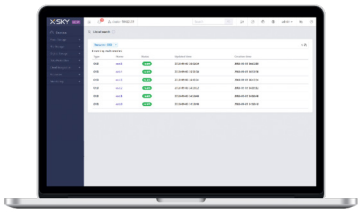

Figure 2. The XSKY X-EDP* web-like search engine enables users to quickly find data to use in gaining actionable insights

Once X-EDP is deployed, enterprises can use the platform's policy-driven storage management to simplify and automate formerly manual management tasks, enabling them to more deeply classify data, including indexing data based on SLAs.

About XSKY

XSKY is headquartered in Beijing, China, and was founded in 2015. XSKY specializes in bringing enterprise-scale SDS to organizations worldwide using an open architecture and underlying infrastructure powered by Intel® architecture. By delivering an open architecture solution, XSKY helps customers innovate, stay agile, reduce total cost of ownership (TCO), and economically handle growing volumes of data using existing budgets and resources. Enterprises rely on the XSKY platform for SDS for resource pools, mass-media data, image data, intelligent manufacturing data, and more. XSKY also:

- Holds 15 patents for its software and software-defined solutions[4]
- Was selected as a national high-tech enterprise by the Ministry of Science and Technology of the People's Republic of China[4]
- Is a director in the China Open Source Cloud League (COSCL) under the Ministry of Industry and Information Technology[5]
- Was ranked in 2017 among the top three for all SDS vendors, first in the object-storage segment, and third in the block-storage segment in the IDC report "China Quarterly Provincial Software-Defined Storage Tracker"[6]

X-EDP also helps make it simple to use data to create actionable insights that drive business transformation and innovation. A standard, web-like search engine (as shown in Figure 2), with support for wildcard searches, enables users to efficiently find what they're looking for in the platform.

Tier-1 and Scale-Out Storage Capabilities

X-EDP gives enterprises the ability to balance price and performance by offering an agile, comprehensive substitute for costly legacy storage-area network (SAN) solutions—one that provides a software-defined platform that can be used for big-data analytics and as a foundation for a data lake. With petabytes of capacity, that same platform can be used for secondary data and for backup, archiving, business continuity, and disaster-recovery needs, which gives enterprises an economical, flexible solution for data protection and long-term data retention.

In addition to SAN capabilities, X-EDP offers scale-out network-attached storage (NAS) functionality with native Server Message Block (SMB)/Common Internet File System (CIFS), Network File System (NFS), and File Transfer Protocol (FTP) support. And it can be used to manage a virtual desktop infrastructure (VDI) and to virtualize servers.

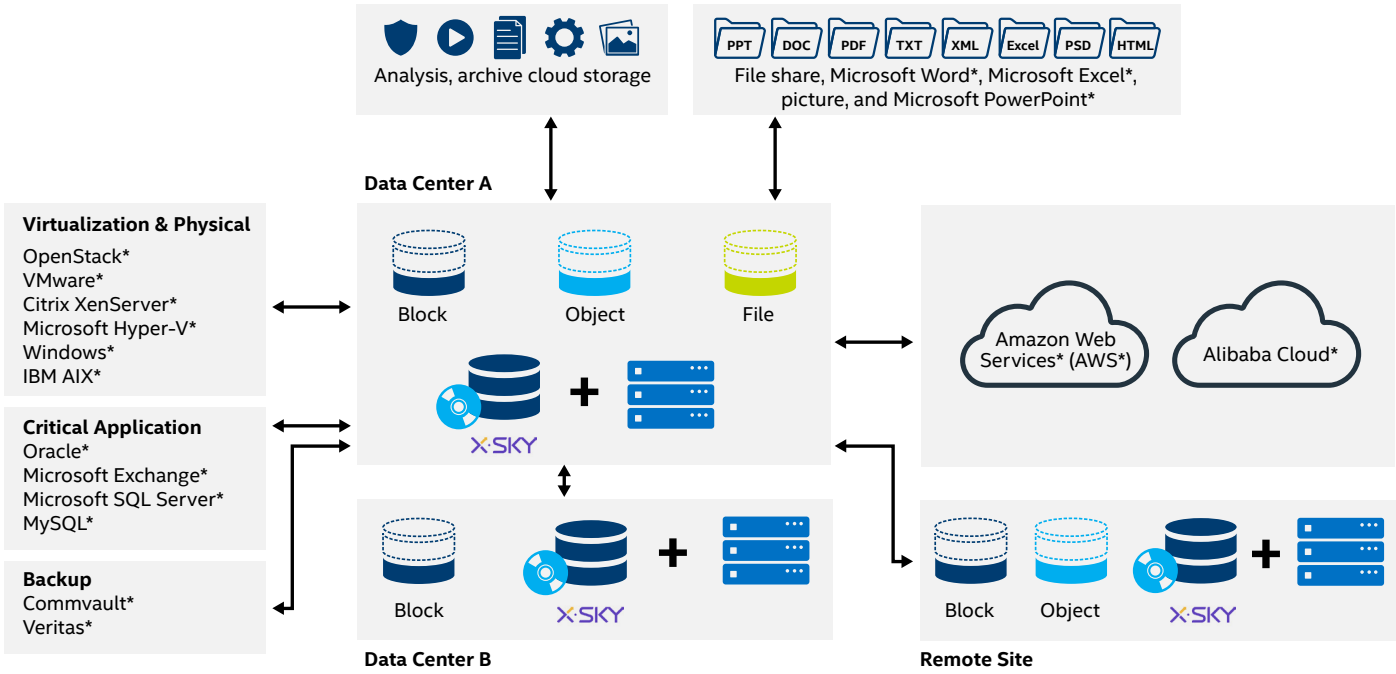

Figure 3. The XSKY X-EDP* architecture

Inside X-EDP

The breadth of X-EDP compatibility includes:

- **Hypervisors**: VMware vSphere* (VMware Ready*), Microsoft Hyper-V*, Kernel-based Virtual Machine* (KVM*), Citrix XenServer*, and Citrix XenDesktop* (Citrix Ready*)
- **Containers**: Docker* and Kubernetes*
- **Physical platforms** running Internet Small Computer System Interface (iSCSI)/Fibre Channel (FC) protocol, Windows, Linux*, or IBM AIX*
- **Unstructured data**: Built-in file- and object-storage service
- **Manageability**: The X-EDP cloud viewer, the XSKY plug-in for vSphere, a RESTful API, and a command-line interface (CLI)

Powered by Intel Hardware and Technologies

XSKY uses Intel® technologies in the X-EDP open architecture, including servers powered by Intel Xeon Scalable processors. The large ecosystem of server manufacturers who choose Intel processors ensures X-EDP users have a broad range of servers to choose from. The higher number of cores in Intel Xeon Scalable processors—and the improved performance of those cores—compared to previous-generation Intel Xeon processors gives customers more performance, lower latency, and greater power efficiency, which makes running the X-EDP SDS solution on a single platform possible.

Intel® Solid State Drives (SSDs) with NVM Express* (NVMe*) further support X-EDP storage capabilities and optimize performance for both the hardware and software layers. They provide the capacity to enable more work per server, along with low latency and high endurance to handle large—and growing—volumes of available data.

In developing the X-EDP solution, XSKY used the Storage Performance Development Kit (SPDK). SPDK is a set of drivers and an end-to-end reference storage architecture that can be used to achieve millions of IOPS utilizing the capabilities offered by Intel Xeon Scalable processors and Intel SSDs with NVMe for storage. XSKY was among the first companies to take advantage of SPDK, which enabled it to bring the industry leading X-EDP solution to market faster when compared to developing a solution from the ground up.

X-EDP also benefits from Intel® QuickAssist Technology (Intel® QAT), which is integrated into Intel Xeon Scalable processor–based platforms. Intel QAT assists performance by accelerating security and compression.

Discover the Future of Storage Today with XSKY and X-EDP

Discover X-EDP and discover a single, unified data-storage platform that can help your business lower TCO and that is scalable, vendor-neutral, and can free your IT and data teams to innovate instead of maintaining multiple storage solutions.

Learn More

Find reference architectures, white papers, and solution briefs that can help you build and enhance your data infrastructure in the solutions library on the Intel® Builders home page at **https://builders.intel.com/solutionslibrary**.

For more details about XSKY, visit **xsky.com**.

Learn more about Intel Xeon Scalable processors at **intel.com/xeonscalable**.

Follow Intel Builders on Twitter by using **#IntelBuilders**.

[1] Domo. "Data Never Sleeps 5.0." 2017. domo.com/learn/data-never-sleeps-5.

[2] XSKY. Product web page. xsky.com/en/products/. See also Storage Systems Research Center, University of California, Santa Cruz. "CRUSH: Controlled, Scalable, Decentralized Placement of Replicated Data." November 2006. ssrc.ucsc.edu/Papers/weil-sc06.pdf.

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[4] Source: XSKY.

[5] China Open Source Cloud League. coscl.org.cn/about/86368/.

[6] IDC. "China Quarterly Provincial Software-Defined Storage Tracker." 2017. idc.com/getdoc.jsp?containerId=IDC_P37267.

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