NIMBUS DATA

OCP SUMMIT

**Exabyte-scale Flash
with OCP and ExaDrive®**

▶ About Nimbus Data

› Our mission is to empower *data-driven innovation*

› Our solutions fully harness the potential of flash memory

  › **ExaFlash**® All-Flash Arrays

  › **ExaDrive**® Solid State Drives

› Over 200 customers

› Privately-held

› Headquartered in Irvine, CA

▶ **The Case for Scalable SSDs**

› Artificial intelligence, big data, technical apps, and rich digital content demand fast, scalable, and reliable storage

› Organizations also must contain escalating data center costs, including CapEx, power, cooling, and rack space

› Widening price/performance/reliability gap between NVMe solid state drives and nearline HDDs creates a massive tiering and data prioritization challenge

› We propose **Scalable SSDs** to meet this challenge

› Capacity, power efficiency, and endurance-focused SSDs

► ExaDrive® DC series

1. *Record-breaking SSD **capacity***
2. *Unmatched **energy efficiency***
3. *Superior **reliability***
4. ***Perfectly-balanced** read/write performance*
5. ***42% lower TCO** than competing enterprise SSDs*

▶ 100 TB (terabytes)

› World's highest capacity SSD

› **3x** more than closest competitor*

▶ What is 100 TB?
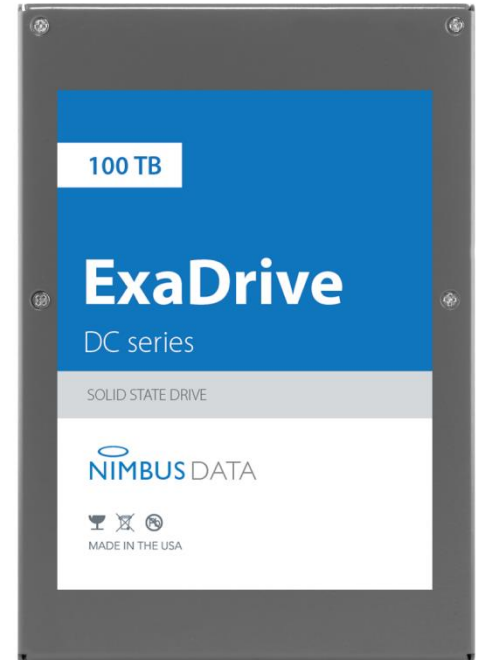
› 20 million songs, or

› 20,000 HD movies, or

› 2,000 iPhones worth of data

› And it fits in your <u>back pocket</u>
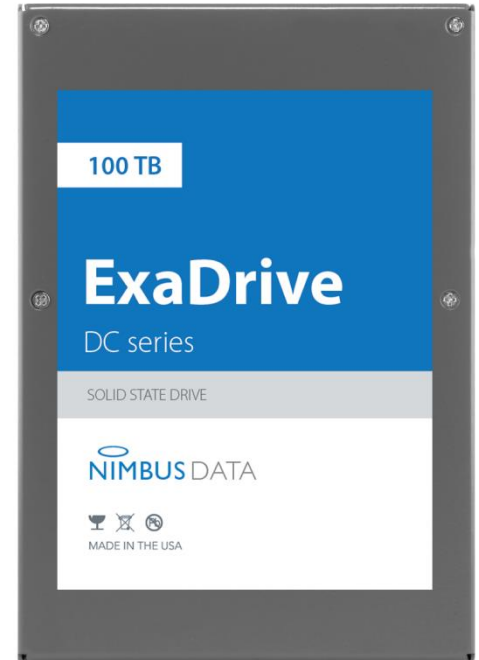
* Samsung PM1643: 30.72 TB

▶ Lowest power / TB

› World's most energy efficient SSD

› As low as 0.1 watts per TB

› **85% lower** than closest competitor*

100 TB

ExaDrive

DC series

SOLID STATE DRIVE

NIMBUS DATA

MADE IN THE USA

* Micron 5100 SATA: 7.68 TB

▶ **Superior reliability**

› Competing SSDs have limited endurance, often less than 3 full drive writes/day

› ExaDrive DC series has **no such restriction**

› **Unlimited write endurance** for 5 year warranty period regardless of workload

› 2.5 million hour MTBF

› Embedded power protection

› Multiple ECC engines for data integrity

› Encryption and secure erase
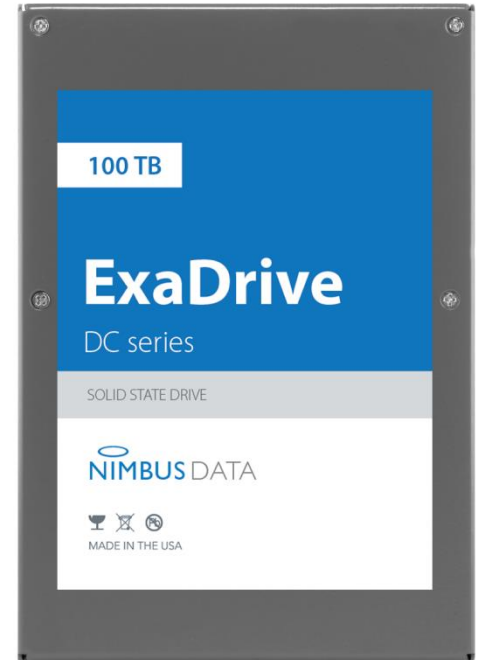
► **Balanced performance**

› Competing SSDs typically have 80% lower write performance than read performance

› ExaDrive DC series has perfectly **balanced read and write performance**

› Up to **100,000** read IOps

› Up to **100,000** write IOps

› Up to **500** MBps read throughput

› Up to **500** MBps write throughput

100 TB

ExaDrive

DC series

SOLID STATE DRIVE

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MADE IN THE USA
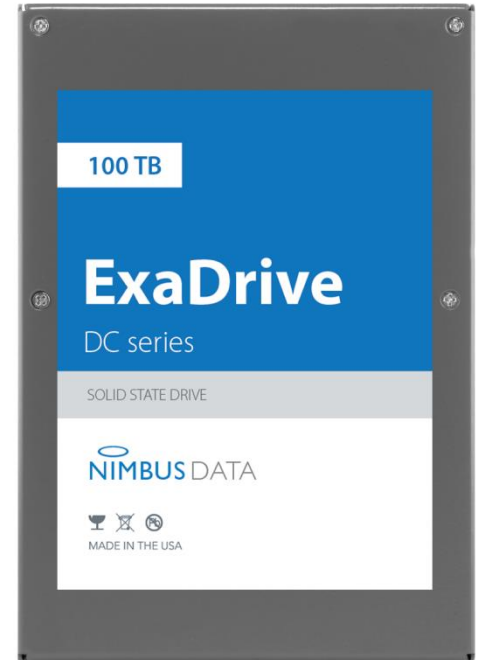
► Easy HDD → SSD Transition

› Same 3.5" form factor as nearline HDDs

› Same SATA interface as nearline HDDs

› Plug-and-play with hundreds of storage and server enclosures

› Compatible with OCP storage designs that leverage 3.5" and SAS/SATA
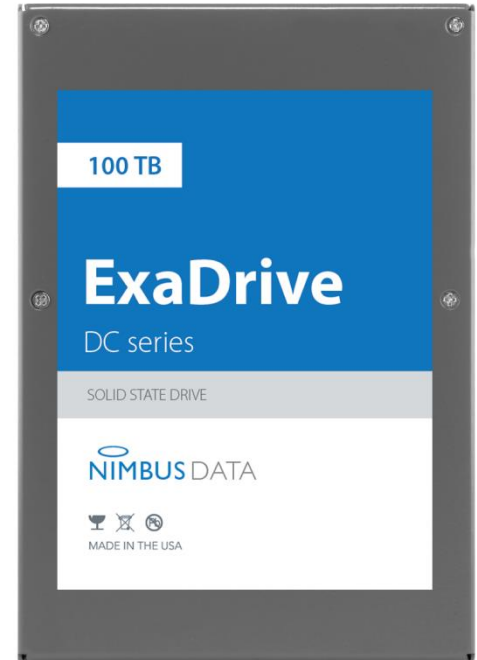
▶ **42% lower TCO per terabyte**

› Similar cost/TB as enterprise SSDs, but…

› Unlimited endurance for 5 years

› Up to 85% lower power costs

› Up to 85% lower rack space costs

› Up to 85% lower cooling costs

› Reduced storage enclosure costs

› Reduced administrative costs

› Reduced cabling costs

› Reduced HW refresh costs

	HGST	Micron	SAMSUNG	SEAGATE	TOSHIBA	NIMBUS DATA	Advantages
Max Capacity	15.36 TB	7.68 TB	30.72 TB	15.36 TB	30.72 TB	100.0 TB	3x-12x
Power per TB	0.9 W	0.6 W	0.5 W	0.9 W	0.5 W	0.1 W	80-90% lower
Endurance over 5 Yr	3 DWPD	3 DWPD	1 DWPD	3 DWPD	3 DWPD	Unlimited	No restrictions
PB per Rack	8.1 PB	4.1 PB	16.2 PB	8.1 PB	16.2 PB	99.0 PB	6x-24x
Form Factor	2.5"	2.5"	2.5"	2.5"	2.5"	3.5"	Compatible with Nearline HDDs
Interface	SAS-only	SATA-only	SAS-only	SAS-only	SAS-only	SATA/SAS	Flexibility
Warranty	5 years	5 years	5 years	5 years	5 years	5 years	–

► **Demonstration in Booth A22**

›   2OU 45-drive OCP chassis from Flex

›   ExaDrive DC100 solid state drives

›   4.5 petabytes in 2OU

›   Nearly **100 petabytes**
in one OCP rack