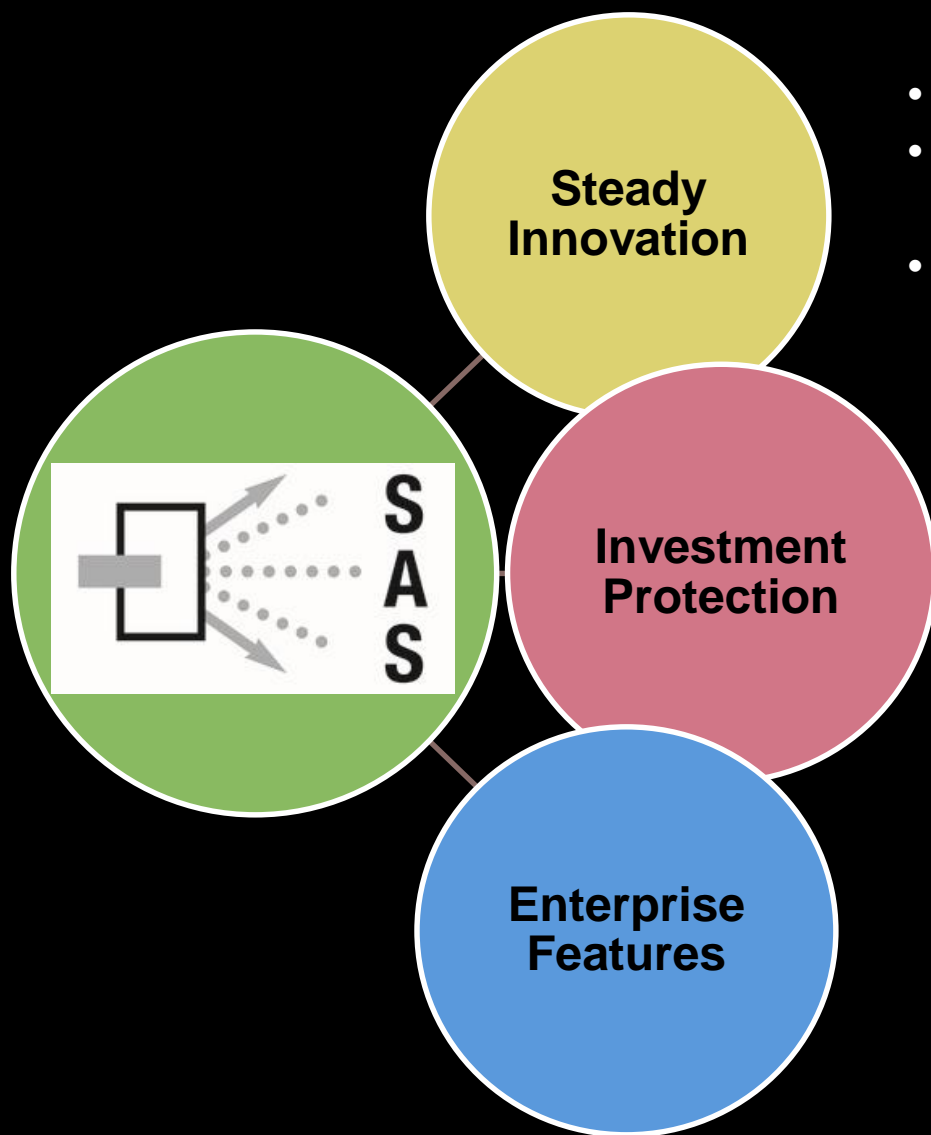




12Gb/s SAS: Ready for Takeoff

Ulrich Hansen
Sr. Director, SSD Product Marketing, HGST

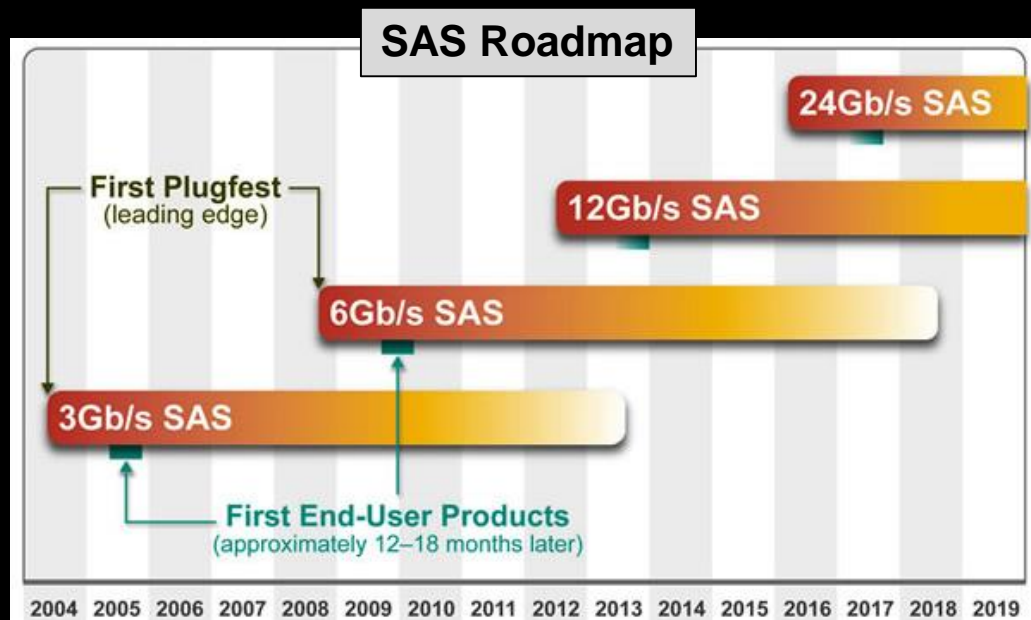


- New technology adoption
- Support for diverse set of platforms and applications
- Broad industry support and investment

- 25 years of SCSI system software
- Preserving device types and data formats

- Reliability
- Scalability
- Performance
- Serviceability

12Gb/s SAS is the next generation of the SAS interface

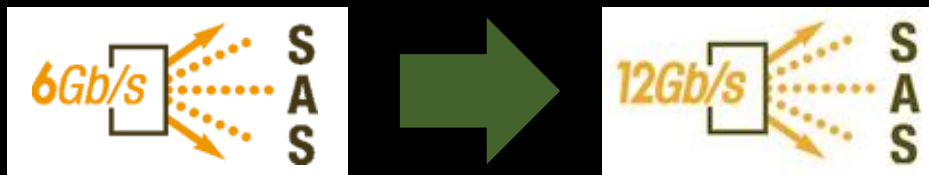


12Gb/s SAS Industry Milestones

- Test Equipment & Protocol Analyzers - available
- Internal & External Connectors – available
- Early Component/HBA Testing - 4Q 2011
- HDDs and SSDs - 1H 2012 technology demos
- STA Technology Showcase – 05/09/2012
- Industry Plugfests - 3Q 2012, 1Q 2013, 4Q 2013
- System Shipments - 2H 2013

12Gb/s SAS end-user products on track to ship by end of this year

12Gb/s SAS – Performance Improvements

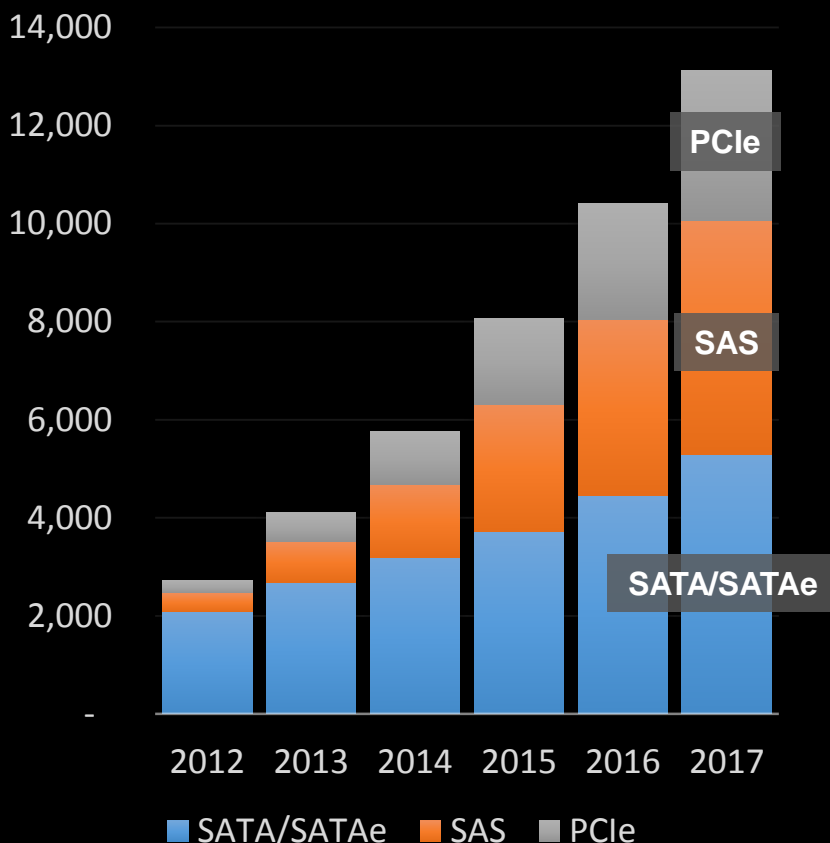


- Doubling of interface speed from 6Gb/s to 12Gb/s
- Resulting total interface bandwidth for 2 port 12Gb/s SAS device:
 - 4.8GB/s – 2.4GB/s in each direction
- Option for dual port configurations, as well as x2 wide-port configurations
 - Dual-port use creates highly available (HA) solutions connecting the SAS storage device to two separate storage controllers (e.g. active / active)
 - ‘x2 wide’ use enables bandwidth aggregation for a single SAS storage device by connecting its two ports to a single storage controller
- Full backward compatibility

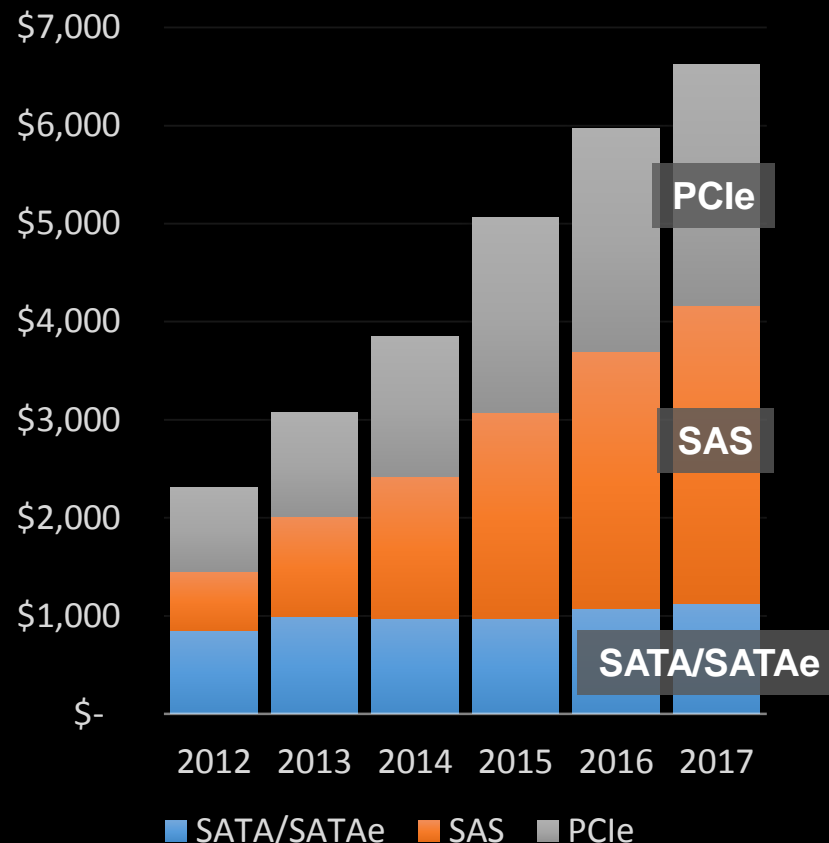
SSDs are in the position to fully take advantage of the performance improvements of 12Gb/s SAS

Enterprise SSD – Forecast By Interface

Enterprise SSD - Units (K)



Enterprise SSD - Revenue (M)



SAS SSDs are expected to enjoy significant growth and represents the largest Enterprise SSD revenue opportunity in 2015-2017



- Founded in 2003 through the combination of the hard drive businesses of IBM, the inventor of the hard drive, and Hitachi, Ltd (“Hitachi”)
- More than 4,200 active worldwide patents
- Acquired by Western Digital in 2012
- Headquartered in San Jose, California
- HGST develops, manufactures and markets hard drives, SSDs and storage sub-systems for consumers, OEMs and datacenters

HGST Enterprise SSD Milestones

- 
- Dec. 2008 HGST/Intel JDP for SAS/FC SSDs announced
 - Nov. 2010 First SAS and FC products announced – 34nm SLC
 - Q1 2011 Initiated SSD volume shipments
 - Aug. 2011 First MLC-based product announced – 25nm MLC
 - April 2013 2nd generation, 12Gb/s SAS SSDs announced
 - June/July 2013 Agreements to acquire sTec and VeloBit, expanding HGST's Enterprise SSD capabilities

HGST is the market leader in SAS & FC SSDs

- Industry's most advanced and highest performing 12Gb/s SAS MLC SSDs
- Delivers on all Enterprise attributes: Reliability, endurance and consistent performance



Endurance	<ul style="list-style-type: none"> • High Endurance (HE) – 25 DW/D / 5 Years • Mainstream Endurance (ME) – 10 DW/D / 5 Years • Read-Intensive – 2 DW/D / 5 Years
Capacity	Up to 1TB (RI); Up to 800GB (ME & HE)
Sustained Performance	<ul style="list-style-type: none"> • Up to 145K IOPS Random Read, Up to 100K IOPS Random Write • Up to 1,200 MB/s Sequential Read, Up to 750 MB/s Sequential Write
Power	Idle: <2W; Max Active: 9W or 11W
Security	SANITIZE / ISE support, TCG-compliant SED with FIPS 140-2 certification

- LSI offers a full line of 12Gb/s SAS, PCIe 3.0 HBAs for those systems requiring high performance, scalability and external storage connectivity.
- LSI 12Gb/s SAS HBA solutions are designed to deliver high performance at 12Gb/s data transfer rates, and bandwidth that can fully utilize PCI Express 3.0 interface with a single controller card.



The LSI HBAs have a low-profile form factor, 8 lanes of PCIe 3.0, and support both SAS and SATA. The product range includes:

- LSI SAS 9300-4i, 4 ports internal
- LSI SAS 9300-4i4e, 4 ports internal, 4 ports external
- LSI SAS 9300-8i, 8 ports internal
- LSI SAS 9300-8e, 8 ports external



HGST and LSI have enabled several reviewers to test 12Gb/s SAS solutions by providing 12Gb/s SSDs and HBAs

Tom's Hardware, June 19, 2013:

'... the star of this show turns out to be HGST's SSD800MM ...'

'... blew past every 2.5" SSD we've ever reviewed ...'

'... performance ... comes closer to the PCI Express-based cards ...'

TweakTown, July 8, 2013:

'... provides PCIe-like performance in a much smaller form factor that scales well in an enterprise setting'

'... class-leading performance, consistency, ... efficiency'



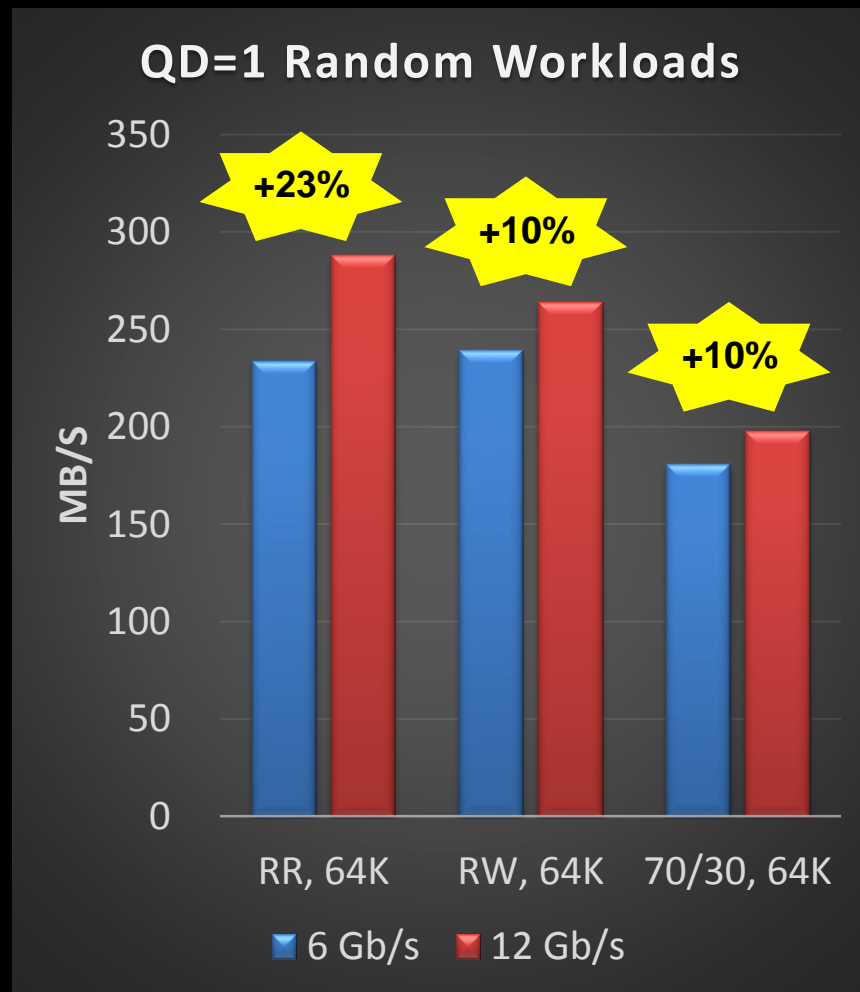
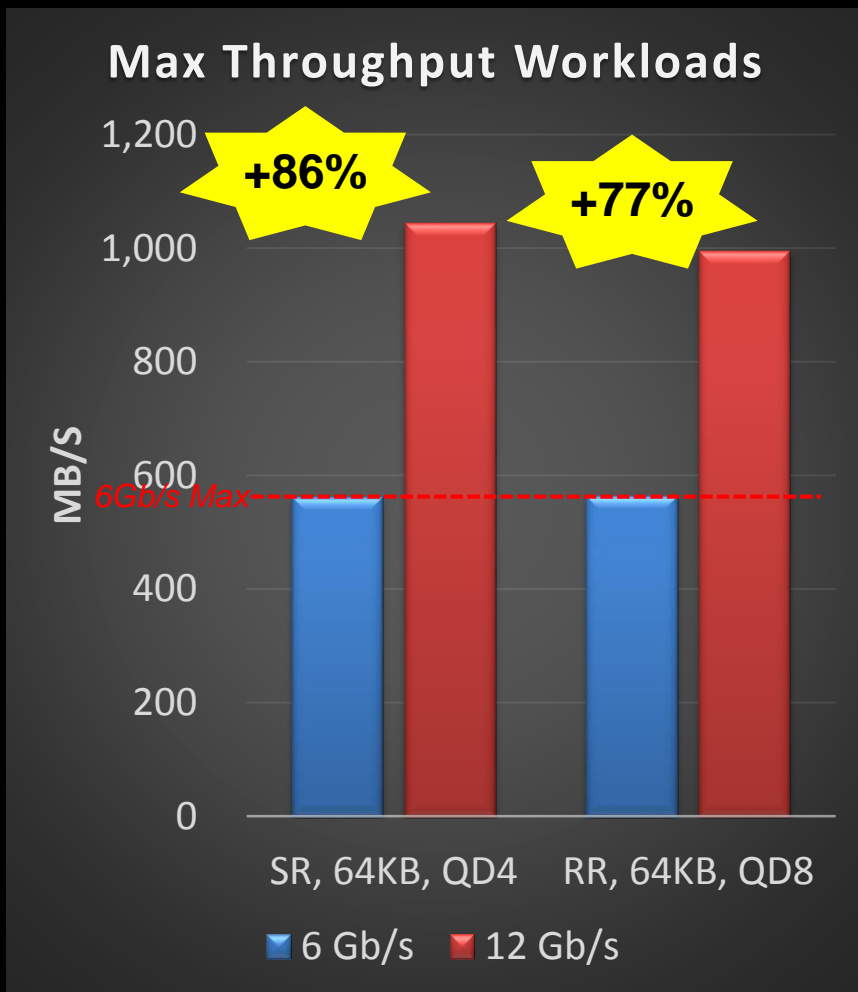
The SSD Review,
June 20, 2013:

'... performance was out of this world ...'

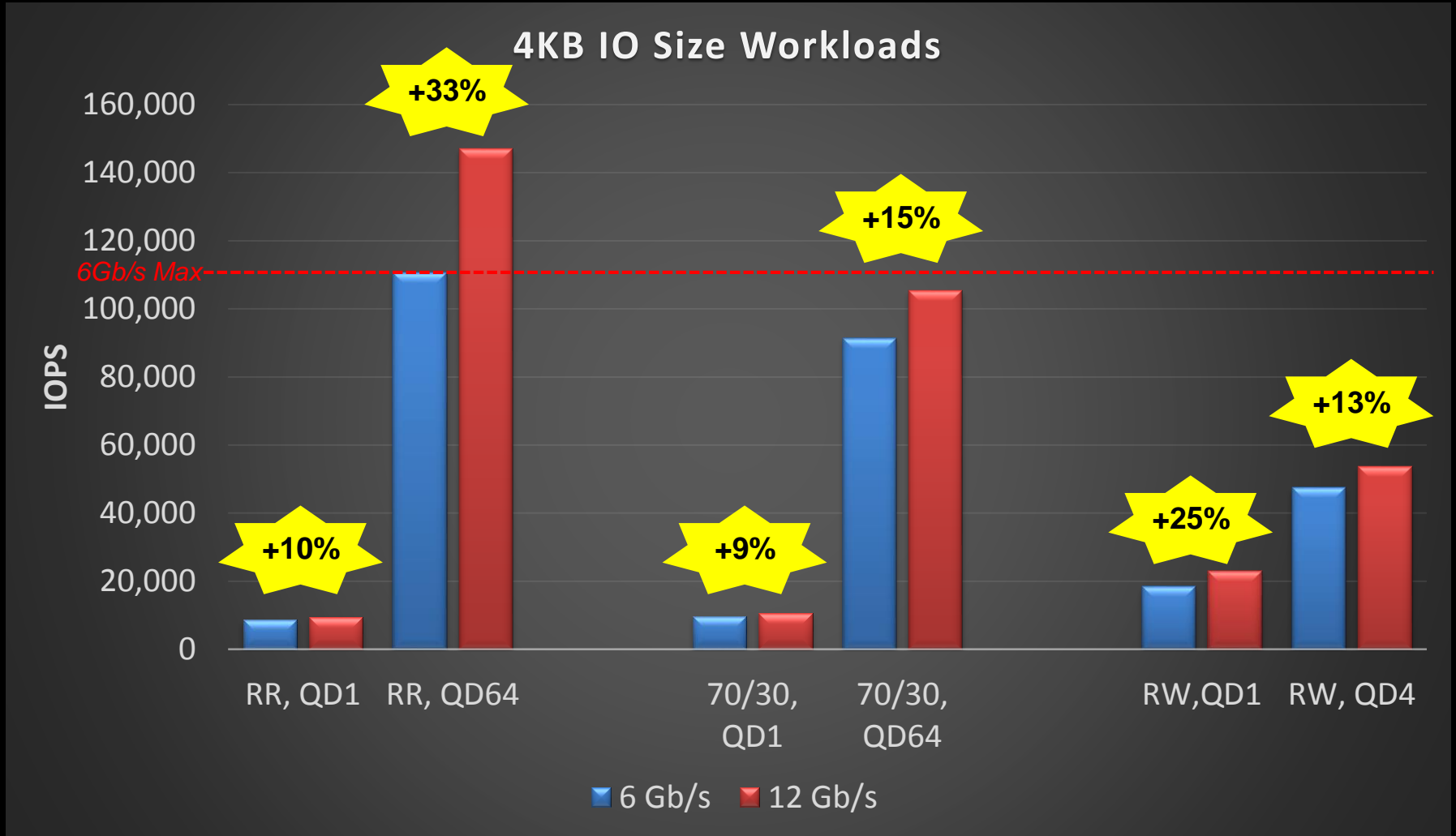
'... blown away by the consistent write performance ...'



HGST Ultrastar 800MM, 400GB ME Model, Single Port



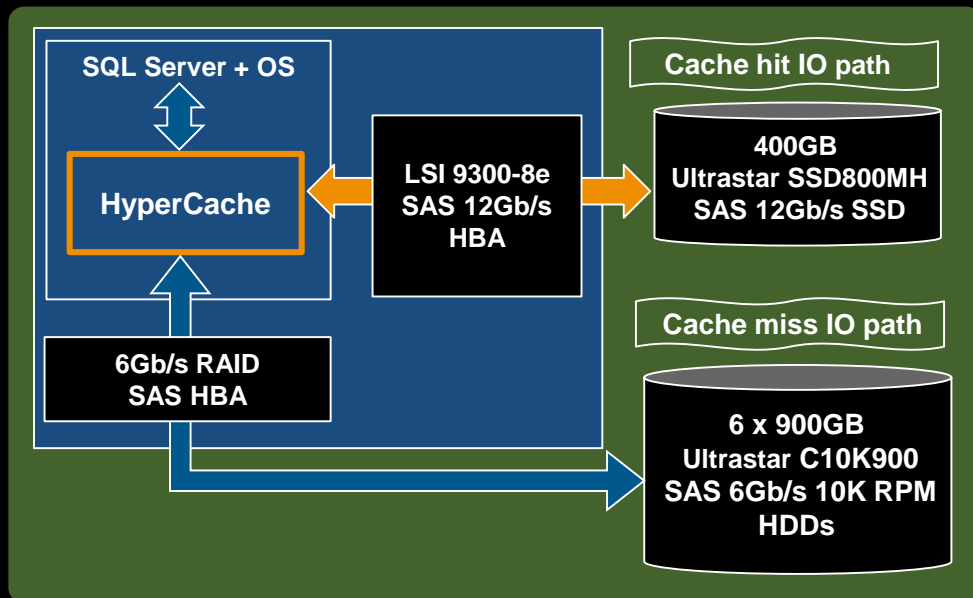
HGST Ultrastar 800MM, 400GB ME Model, Single Port



HGST Demo at FMS – Putting it All Together

HGST's HyperCache software and 12Gb/s SAS SSD accelerate your database application

... by up to **20x**



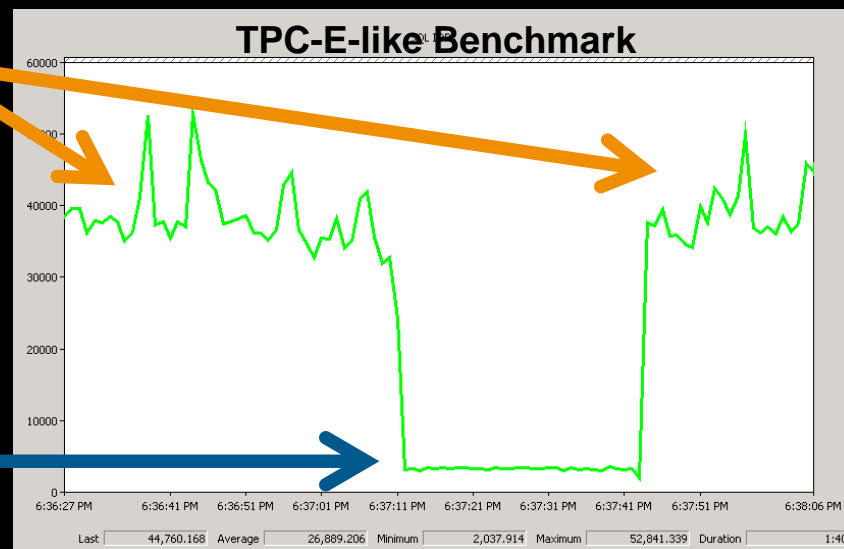
Enabled: 37K IOPS



Disabled: 3K IOPS

'As easy as flipping a switch'

Come by booth #606



- 12Gb/s SAS is the next speed step for the Enterprise interface technology of choice - SAS
- 12Gb/s SAS is ready to deliver significant SSD performance improvements for both
 - Bandwidth-intensive, large IO applications like business intelligence / Big Data
 - Small IO, transaction-oriented applications and virtualized environments
- End-user solutions are expected to be widely available by end of this year
 - SSDs, HBAs, RAID Controllers
- See HGST's 12Gb/s SAS demo in booth #606

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, including statements concerning: growth opportunities in the various storage markets as well as the industry as a whole, including growth in units shipped, areal density and content stored; HGST's position within the industry; the increasing diversity of storage demand; and the outlook for the storage industry, HGST and its customers. These forward-looking statements are based on management's current expectations and are subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in the forward-looking statements, including the impact of continued uncertainty and volatility in global economic conditions; supply and demand conditions in the hard drive industry; uncertainties concerning the availability and cost of commodity materials and specialized product components; actions by competitors; unexpected advances in competing technologies; uncertainties related to the development and introduction of products based on new technologies and expansion into new data storage markets; business conditions and growth in the various hard drive markets; pricing trends and fluctuations in average selling prices; and compliance with regulatory conditions imposed on us by the Chinese Ministry of Commerce. More information about the other risks and uncertainties that could affect our business are listed in our filings with the Securities and Exchange Commission (the "SEC") and available on the SEC's website at www.sec.gov, including our Quarterly Report on Form 10-Q filed with the SEC on February 1, 2013, to which your attention is directed. The forward-looking statements speak only as of the date hereof. We do not intend, and we undertake no duty, to update these forward-looking statements to reflect subsequent events or circumstances.