

# SSD Adoption Trends

August 2013

[frank.berry@itbrandpulse.com](mailto:frank.berry@itbrandpulse.com)





**IT Brand Pulse**



**One Year Ago**



**2013 SSD Brand Leaders**



**2013 SSD Adoption Trends**



A trusted source of  
product testing, IT  
pro research, and  
analysis about  
data center  
infrastructure



## END USER RESEARCH

Breaking down walls between customers and you



# Selected IT Brand Pulse Customers





IT Brand Pulse



One Year Ago



2013 SSD Brand Leaders



2013 SSD Adoption Trends

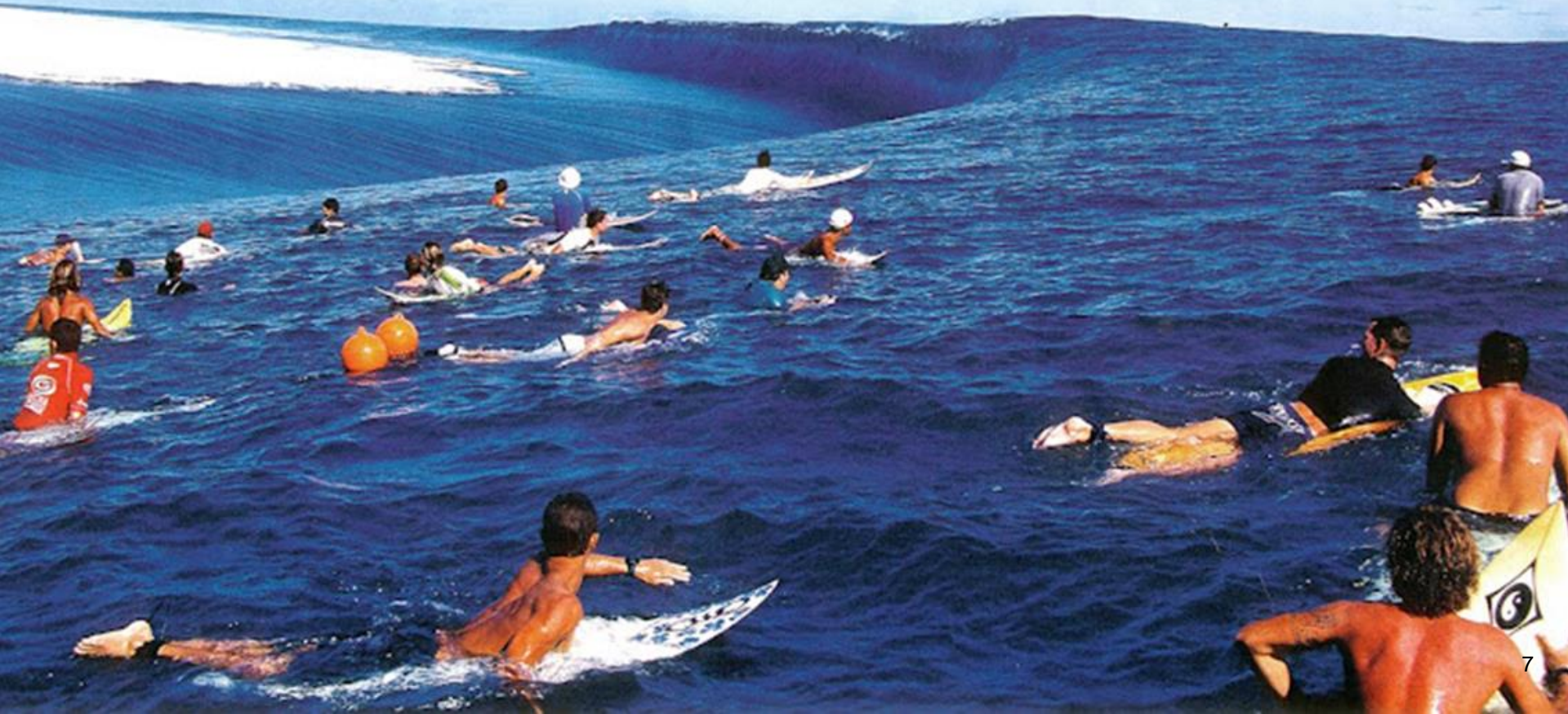


**One Year Ago Today**





**OEMs were lining up, but  
cautious about dropping-in**

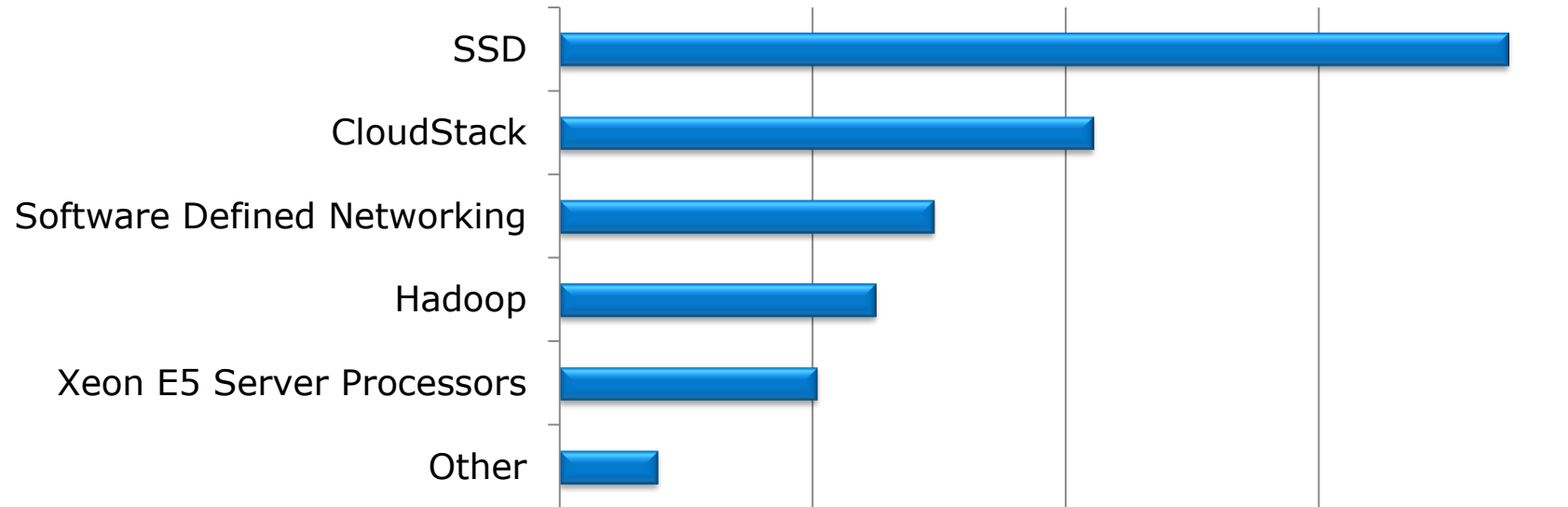




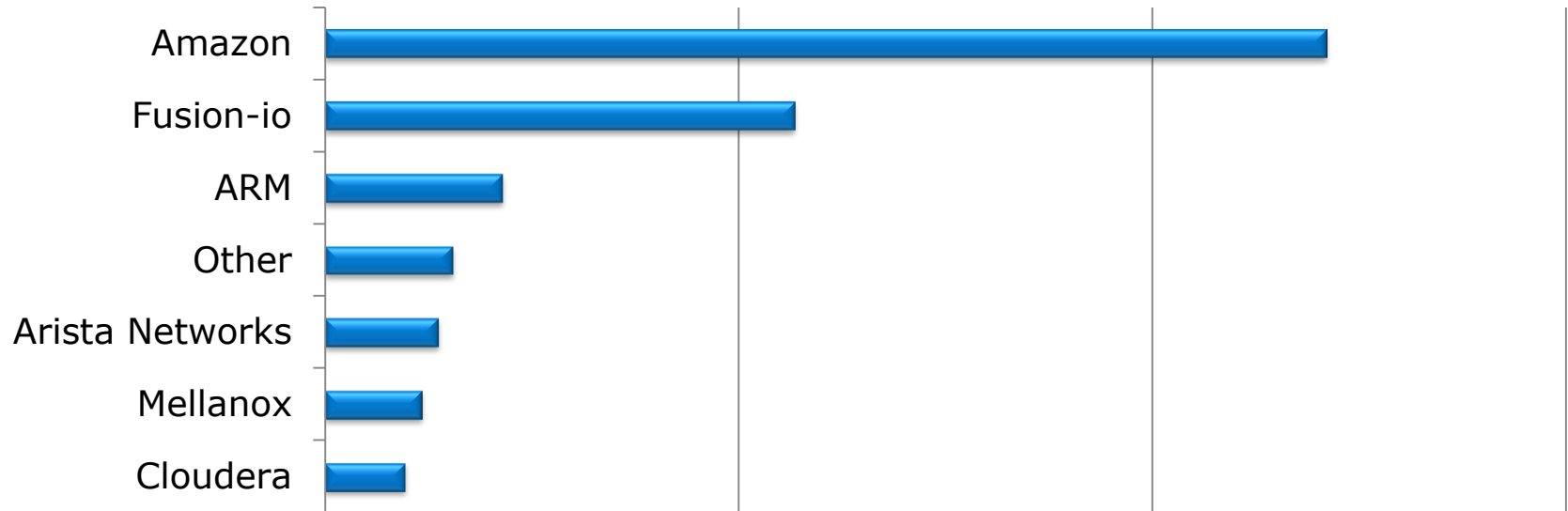
**Big OEM hybrid brands were surrounded  
by start-up all-flash system brands**



# What do you perceive as the MOST GAME-CHANGING ENTERPRISE IT TECHNOLOGY of 2012?



# Who do you perceive as the HOTTEST ENTERPRISE IT COMPANY in 2012?





IT Brand Pulse



One Year Ago



2013 SSD Brand Leaders



2013 SSD Adoption Trends



# IT Brand Leader Program

- Annual surveys covering enterprise infrastructure
- Non-sponsored
- Respondents are IT professionals from large enterprise, SMB and HPC environments

The symbols for IT brand leadership



# 2013 SSD Brand Leader Survey Respondents

Acadient  
ACCi  
Accident Fund Insurance Co.  
Acendex  
Alba Health  
Argonne National Labs  
ARI Fleet Management  
Artesian Water Co (DE State water utility)  
**AT&T**  
AWC  
AXA Rosenberg Global Services LLC  
Baylor College of Medicine  
Berkshire Capital Securities  
**Boeing**  
Case Western Reserve University  
**Chevron Phillips Chemical**  
City of Mount Prospect, IL  
City of Sun Prairie, WI  
CitySquare, Dallas  
Collette Vacations  
CT Economic Resource Ctr (CERC)  
**Daimler AG**  
Dallas Nursing Institute

Delmont Laboratories  
**Deloitte Services LP**  
Deutsche Telekom NA  
**Disney Interactive**  
DT Productions  
Duke University  
Duquesne University  
El Paso County Sheriff  
e-Miles  
Fairfield Residential Company LLC  
**GE Global Research**  
**General Motors**  
Hire-Ability  
Hormel Foods Corporation  
Houghton Mifflin Harcourt  
IDS Raytheon  
Imagitas  
Independence Blue Cross (IBX)  
Institute of Geophysics and Planetary Physics  
InterNexus  
J. B. Hunt Transportation  
Jamaica Hospital Medical Center  
**Kawasaki**  
KLA-Tencor  
LA Dept. of Transportation

**Lockheed Martin**  
**Marriott International**  
Mimeo  
**Monsanto**  
**NASA**  
Nat. Ctr for Atmospheric Research (NCAR/UCAR)  
National Institute of Health (NIH)  
**National Institute of Standards and Technology**  
NAVMISSA - URS Federal Services  
**NBC Universal**  
**New York Life Insurance Company**  
**New York Stock Exchange**  
**Northrop Grumman**  
**Ogilvy and Mather**  
**Owens Corning**  
PA Office of Administration  
Pacific Northwest National Laboratory (PNNL)  
Paramount Consulting LLC  
Pitney Bowes  
Purdue University  
**Raytheon**  
**Reader's Digest**  
Rutgers Univ. Brain Imaging Center

S.F. Public Utilities Commission  
Sonic Healthcare USA  
**Sony Online Entertainment**  
**Sony Pictures**  
South Dakota Board of Regents  
St. Luke's Hospital  
**Stanford University**  
Symcor Inc  
Temco Service Industries  
Transamerica  
Unisys  
United Health Services Credit Union  
University of Florida Health  
University of Minnesota Medical School  
University of Virginia  
University of Washington  
UQM Technologies  
Urban Retail Properties  
USAN  
Utah State Office of Education  
**Verizon Wireless**  
Virginia Tech  
WC Bradley  
**Yale University**  
Zions Bancorporation

## QUANTUM CERTAINTY

### DIGIC is CERTAIN

StorNext enables award-winning graphics studio to stay ahead of competition with fast, flexible and scalable digital workflow processes.

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“The kind of extreme and random workload that we demand is beyond what any ordinary file system can support, but StorNext handles it every day.”

GABOR KALI

Head of Systems Administration for Digic Pictures





## Inside IT Storage

Seagate Enterprise

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## Do IT Professionals care what's under the covers when it comes to their equipment?



**Yes they do!** IT Pros know what drive brands are spinning inside their equipment. OEMs may want all of us drive guys to be strictly vanilla but to IT pros, there is a difference ...especially when it comes to enterprise storage. Each month [IT Brand Pulse](#) selects a handful of product categories and asks IT professionals who they perceive as the leader in these particular enterprise categories in **5** critically important areas including:

### About the Author



**Barbara Craig**  
Senior Product  
Marketing Manager

[Do IT Professionals care what's under the covers when it comes to their equipment?](#)

[Big Foot Sighted in Germany \(with Constellation ES.2 3TB Drives in tow\)](#)

[Busy Bees in Minnesota – Seagate Enterprise Stings the Competition!](#)

Cisco Systems  
Innovation Leader  
Network Operating Systems  
WLAN Controllers/Switches  
Firewalls  
FC Network Monitoring  
Low Latency Switches  
Ethernet Switches

ITBRAND  
PULSE



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ITBRAND  
PULSE

Claudio DeSanti  
Fellow  
Cisco Systems  
Data Center Business Group



0:16 / 1:59





## HP ProLiant Awards and Honors

## » Servers

## HP ProLiant products:

- » ProLiant Servers
  - » BladeSystem
  - » ProLiant DL (Rack-Optimized)
  - » ProLiant ML (Expansion-Optimized)
  - » ProLiant SL (Scalable Systems)
  - » ProLiant MicroServer (Just Right First Server)
  - » ProLiant Solutions
  - » Insight Software
  - » ProLiant storage
  - » Rack & Power
  - » HP Qualified Options

## Related information

- » Why Migrate to HP?
- » HP Customer References
- » Customer and Partner quotes
- » HP Power Advisor
- » ProLiant Training and Education
- » HP BladeSystem, VC/VCEM, Insight Control, Insight Dynamics and BladeSystem Matrix demos
- » ProLiant Advantage
- » Technology communications
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- » Listen to the podcasts
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## Purchasing

» HP ProLiant Awards:  
What the industry  
is saying



Below, please find some of our latest customer case studies for the ProLiant portfolio. HP proudly presents its awards and honors for the ProLiant portfolio. Find the best servers, data centers, blade servers and more here in our HP awards center.

HP ProLiant

Software

Channel Partners



## HP Enterprise Servers

HP Enterprise Servers voted Market Leader in the April 2011 IT Brand Pulse study. Also topped the Performance Leader, Reliability Leader, Services & Support Leader and Innovation Leader categories.

» Read More



Chat Live with an  
HP Sales Expert  
M-F 8am to 8pm ET

- » Got questions?
- » Have an HP sales expert contact you

## » ProLiant Advantage

## What's being said:

- » Awards and Honors
- » Customer case studies
- » Customer quotes
- » News
- » Customer Videos





Themes & Channels

CeBIT 2013

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## 2013 SSD Leaders - IT Brand Pulse

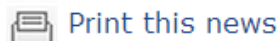
This is a [Press Release](#) edited by StorageNewsletter.com on Thu, August 1st, 2013

**IBM in DRAM SAN SSD systems, Nimbus Data in NAS and unified SSD systems, etc.**

[IT Brand Pulse](#), a source of data and analysis about IT infrastructure, announced the results of the recent *2013 SSD Brand Leader Survey*, as voted by IT pros.

Survey respondents were asked which vendors they perceive as the leader in eleven SSD product categories: All Flash SAN SSD Systems, All Flash NAS SSD Systems, All DRAM SAN SSD Systems, All Flash Unified SSD Systems, PCIe SSD DAS Adapters, PCIe SSD SAN Adapters, SAS/SATA SSD Modules, SSD DAS/SAN Cache, SSD NAS Cache Appliance, SSD Controller Chips, Hybrid

### News Options >



➤ [Systems \(RAID, NAS, SAN\)](#)

➤ [Software](#)

➤ [Hard Disk Drives](#)

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# Trusted by Industry Leaders Worldwide

- **Enterprise Storage Technology** – HGST



## Mission: possible

Ultimate stability, reliability  
and performance for a 24/7 world.

HGST Ultrastar™ Enterprise Storage Drives

**HGST**  
a Western Digital company

- **Cloud**

- **Broad**

**Solutions**

ultra-

15,000 RPM, Small form factor 10,000 RPM, and  
7200 RPM SATA, HGST Ultrastar™ storage drives

deliver solutions for a broad range of mission-critical enterprise storage systems – from high-capacity storage applications to high-performance servers.

- **Award-winning HGST Enterprise Storage Drives** – Listed below are but a few of the accolades that HGST Ultrastar™ storage drives have received to date.



Ultrastar 7K3000  
Editor's Choice Award  
August 2011



Ultrastar SSD400S.B SSD  
"Well-rounded offering ready for  
heavy enterprise use"  
April 2012



IT Brand Pulse  
Market Leader Award  
May 2012



IT Brand Pulse  
Reliability Leader Award  
May 2012



IT Brand Pulse  
Performance Leader Award  
May 2012

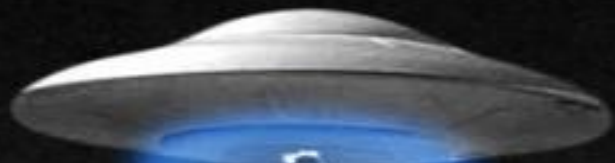
## 2012 SSD Brand Leaders



All Flash SAN SSDs	TMS	TMS & NextIO	TMS	TMS	TMS	Pure Storage, Violin Memory & TMS
All Flash NAS SSDs	Nimbus	Nimbus	Nimbus	Nimbus	Nimbus	Nimbus
All DRAM SAN SSDs	TMS	TMS	TMS	TMS	TMS	TMS
All Flash Unified SSDs	Nimbus	Nimbus	Nimbus	Nimbus	Nimbus	Nimbus
PCIe Adapter SSDs	Fusion-io	Intel	Fusion-io	Intel	Intel	Fusion-io
SAS/SATA SSDs	Intel	Intel	Intel	Intel	Intel	Intel
Cache SSDs	EMC	EMC	EMC	EMC	EMC	Fusion-io
NAS Cache Appliances	Cache IQ	Cache IQ	Violin Memory	Cache IQ	Cache IQ	Violin Memory
SSD Controller Chips	LSI	LSI	Intel	Intel	Intel	LSI
Hybrid HDD/SSD Systems	EMC	EMC	EMC	EMC	IBM	IBM



## Innovation by acquisition



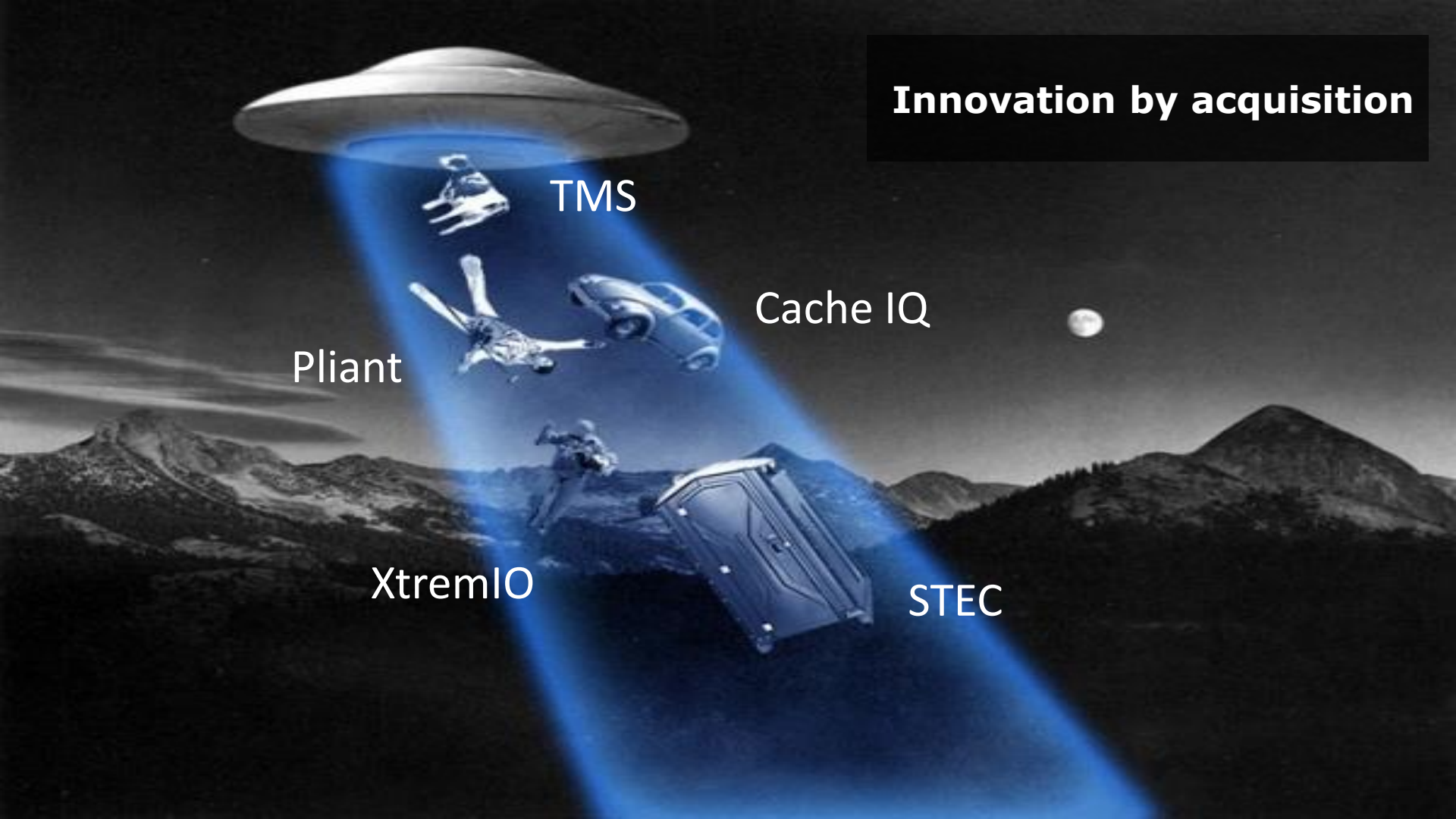
TMS

Cache IQ

Pliant

XtremIO

STEC



A woman with long, wavy blonde hair is seen from the back, looking into a large, dark, and chaotic room. The room is filled with many bodies lying on the floor, some with visible blood. The scene appears to be a aftermath of a violent event. The woman is wearing a yellow top and a dark strap over her shoulder. The room has a high ceiling and some structural elements visible in the background.

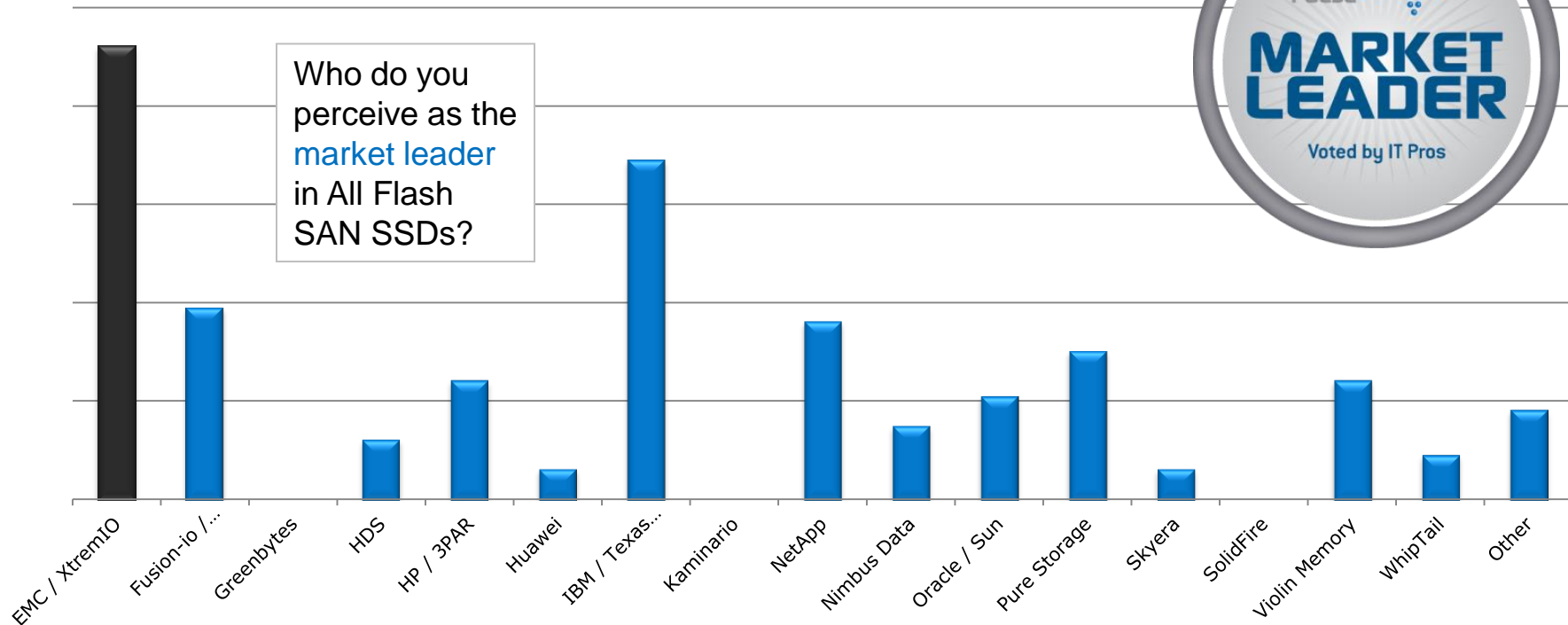
**Brand leadership by acquisition**

## 2013 SSD Brand Leaders



All Flash SAN SSD Systems	EMC/ XtremIO	NetApp	EMC/ XtremIO	EMC/ XtremIO	EMC/ XtremIO	EMC/ XtremIO
All Flash NAS SSD Systems	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data
All DRAM SAN SSD Systems	IBM / TMS	IBM / TMS	IBM / TMS	IBM / TMS	IBM / TMS	IBM / TMS
All Flash Unified SSD System	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data	Nimbus Data
PCIe SSD DAS Adapters	Fusion-io	Fusion-io, Intel, SanDisk	Fusion-io	Fusion-io	Intel	Fusion-io
PCIe SSD SAN Adapters	QLogic	QLogic	QLogic	QLogic	EMC	QLogic
SAS/SATA SSD Modules	Seagate	Western Digital	Samsung	Intel	Intel & Seagate (tie)	Samsung
SSD DAS/SAN Cache	NetApp	NetApp, SanDisk, FlashSoft	Fusion-io/ IO Turbine	Fusion-io/ IO Turbine	EMC, NetApp	Fusion-io/ IO Turbine
SSD NAS Cache Appliance	NetApp / Cache IQ	NetApp / Cache IQ	NetApp / Cache IQ	NetApp / Cache IQ	NetApp / Cache IQ	NetApp / Cache IQ
SSD Controller Chips	LSI/SandForce	LSI/SandForce	LSI/SandForce	LSI/SandForce	LSI /SandForce	LSI/SandForce

# All Flash SAN SSD Systems

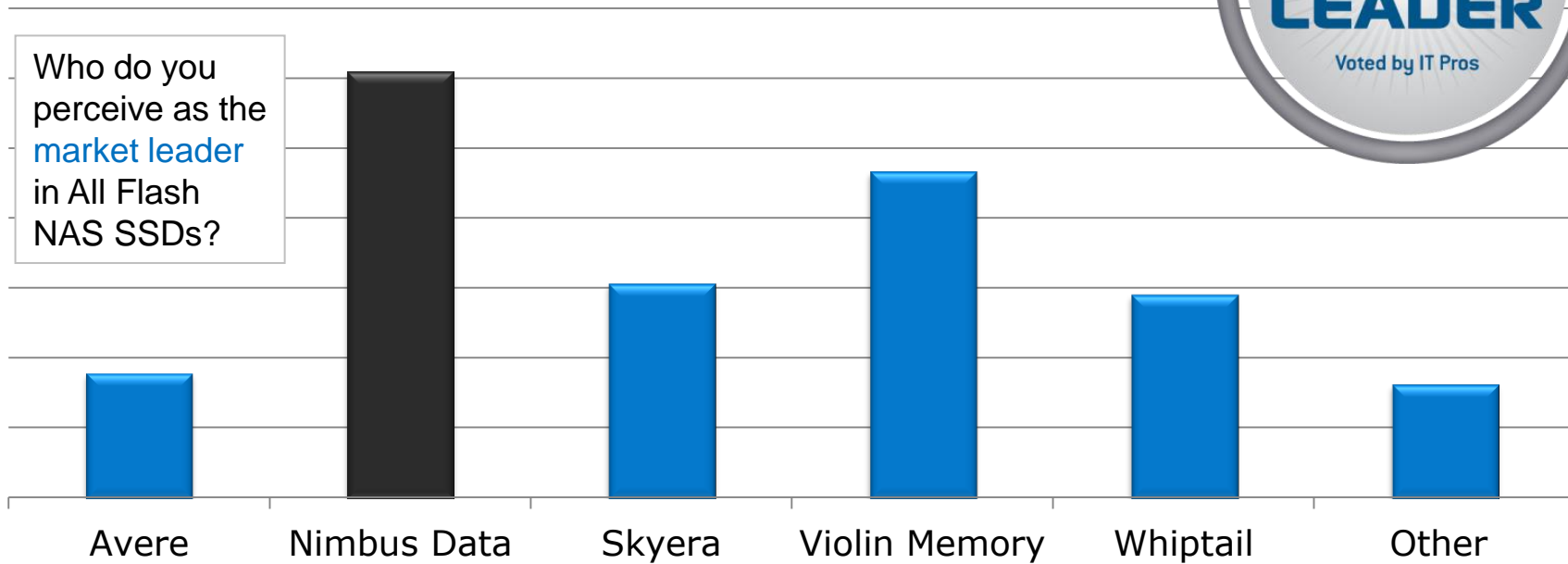




# All Flash NAS SSD Systems



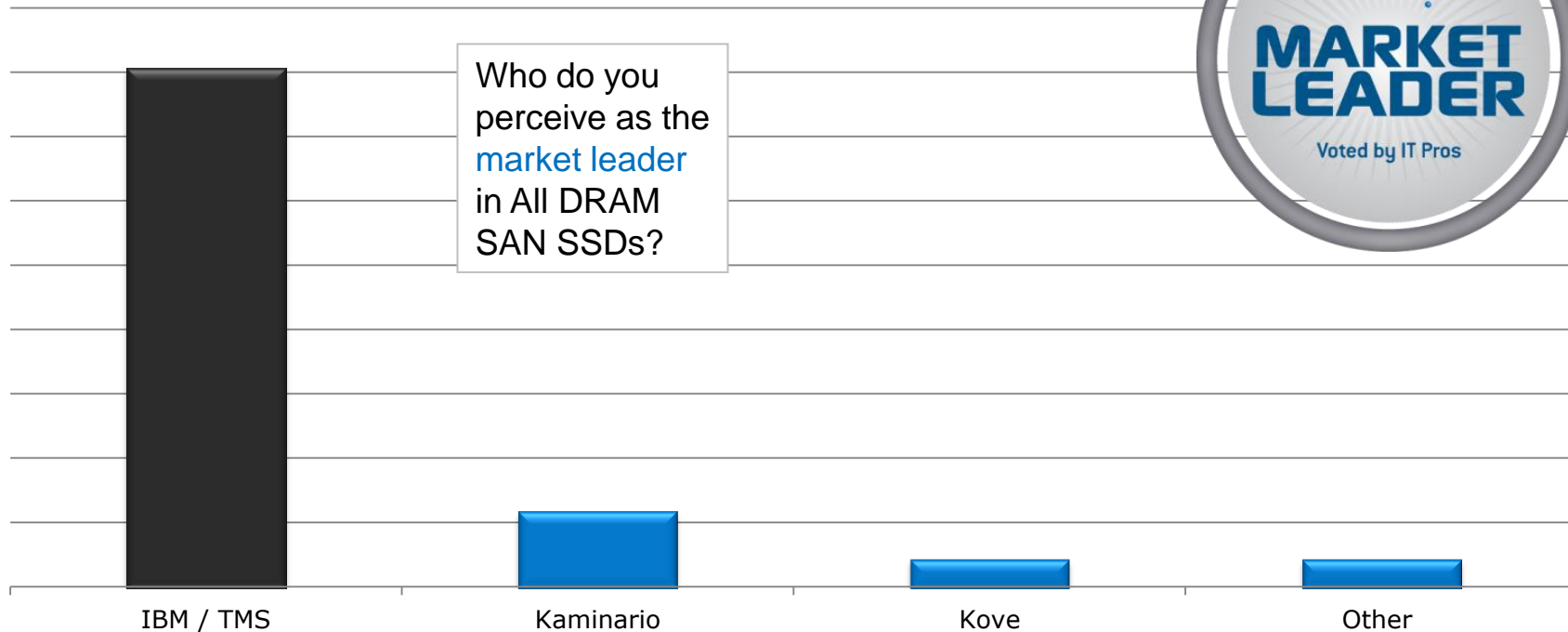
Who do you perceive as the market leader in All Flash NAS SSDs?



# All DRAM SAN SSD Systems



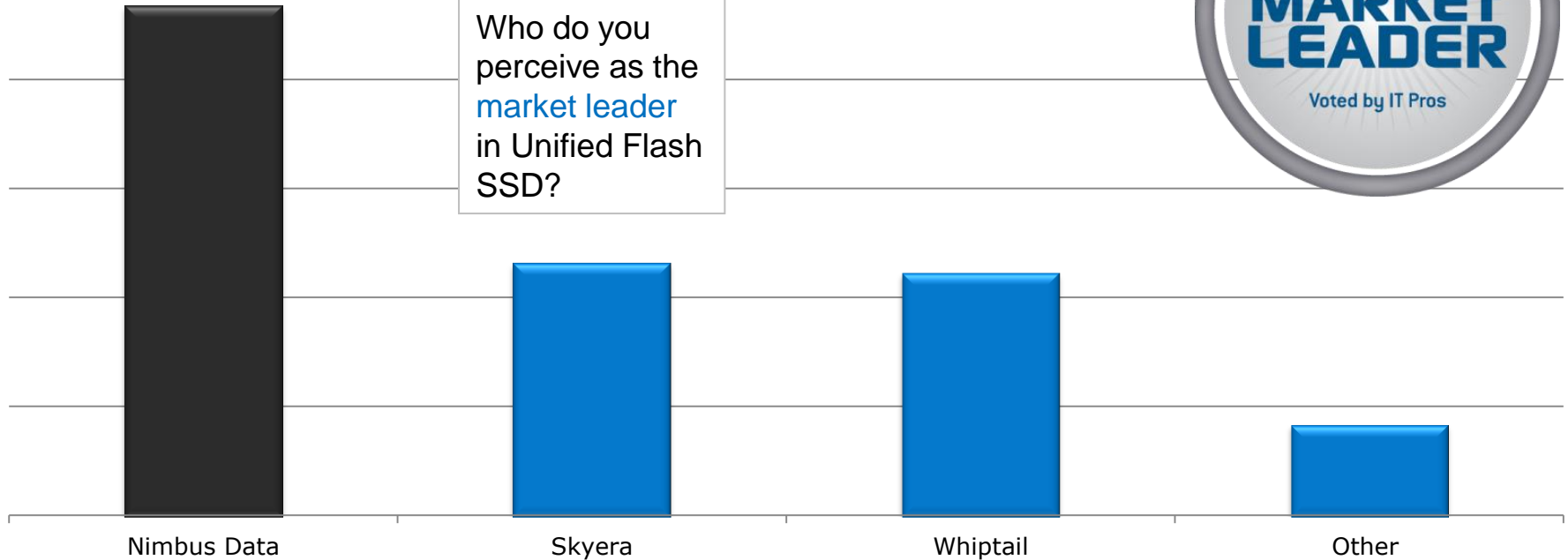
Who do you  
perceive as the  
[market leader](#)  
in All DRAM  
SAN SSDs?



# All Flash Unified SSD System

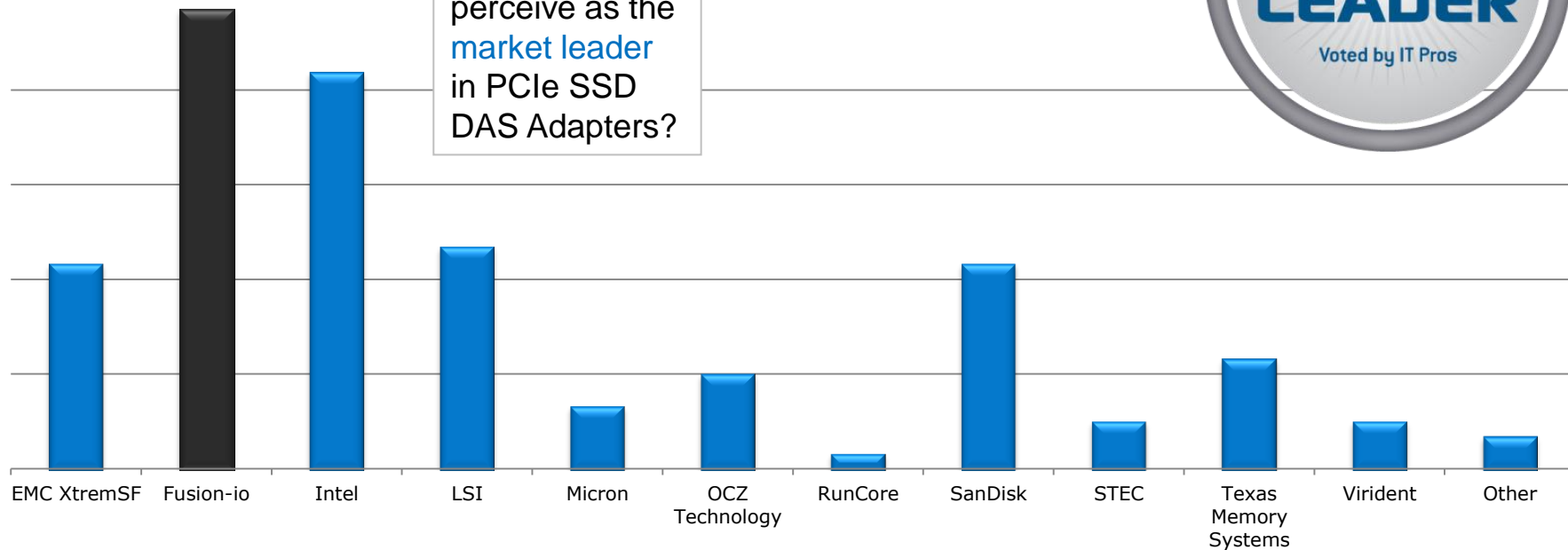


Who do you  
perceive as the  
market leader  
in Unified Flash  
SSD?



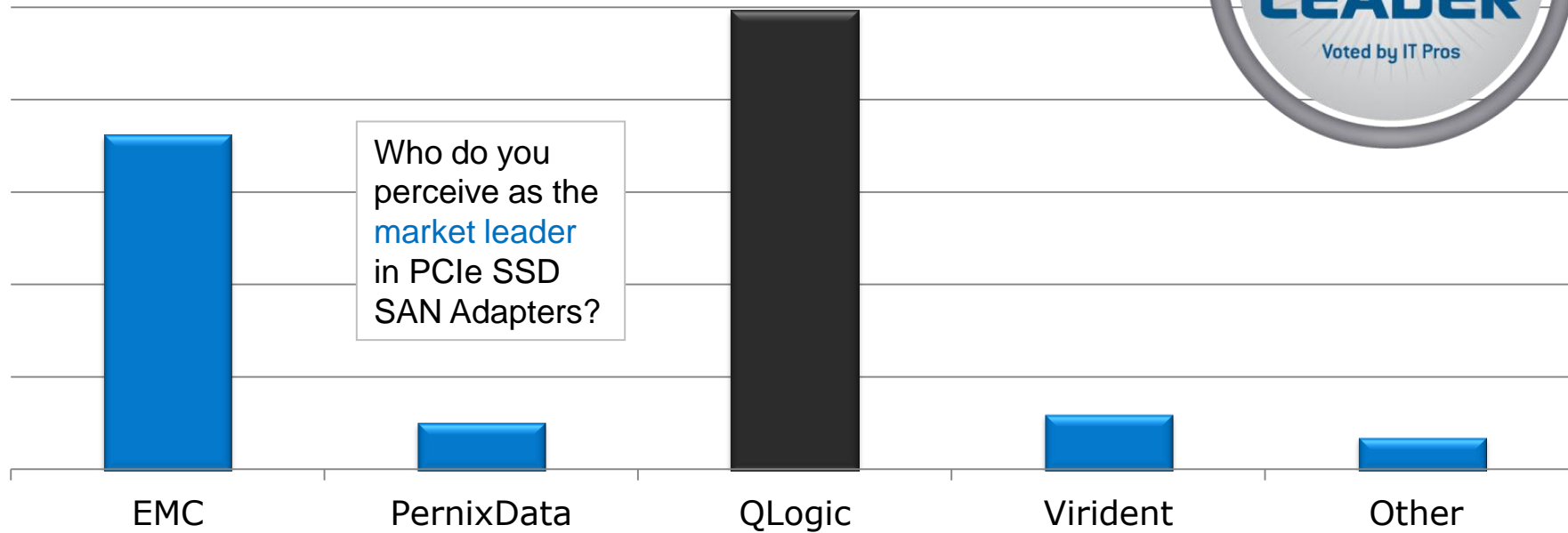
# PCIe SSD DAS Adapters

Who do you  
perceive as the  
**market leader**  
in PCIe SSD  
DAS Adapters?





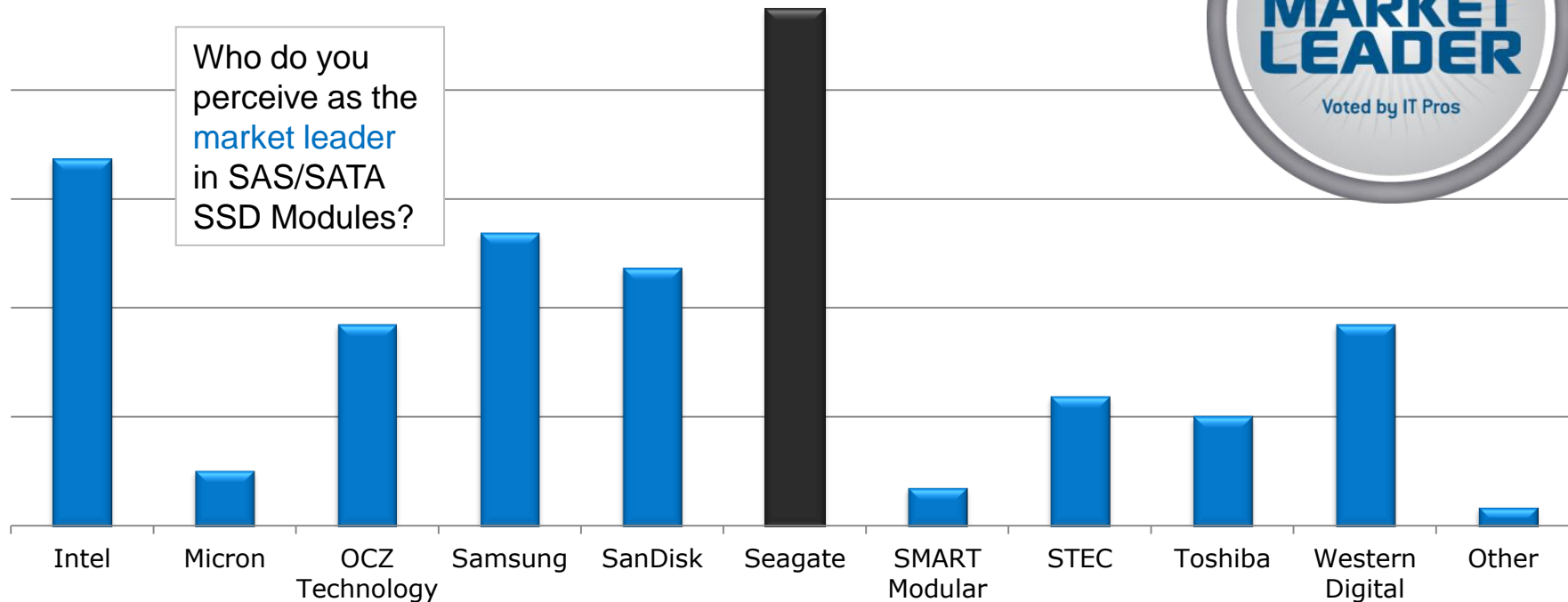
# PCIe SSD SAN Adapters



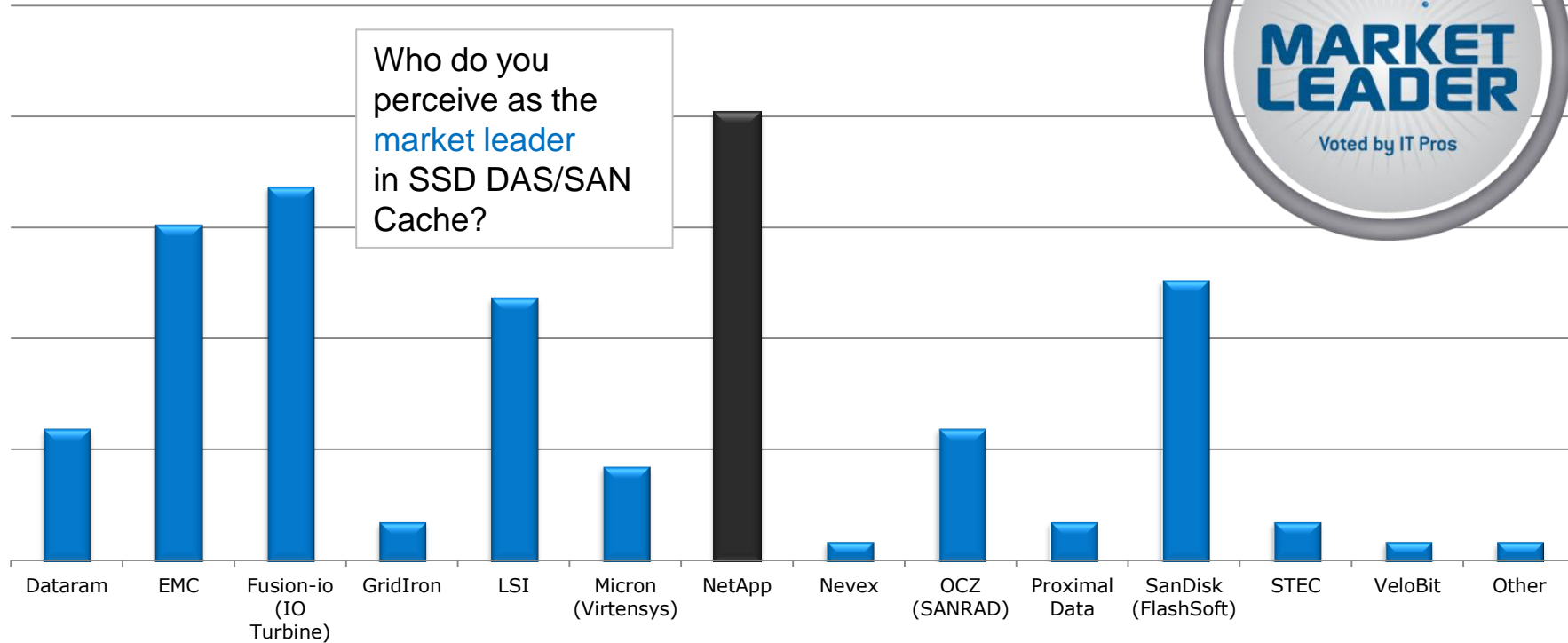
# SAS/SATA SSD Modules



Who do you  
perceive as the  
market leader  
in SAS/SATA  
SSD Modules?



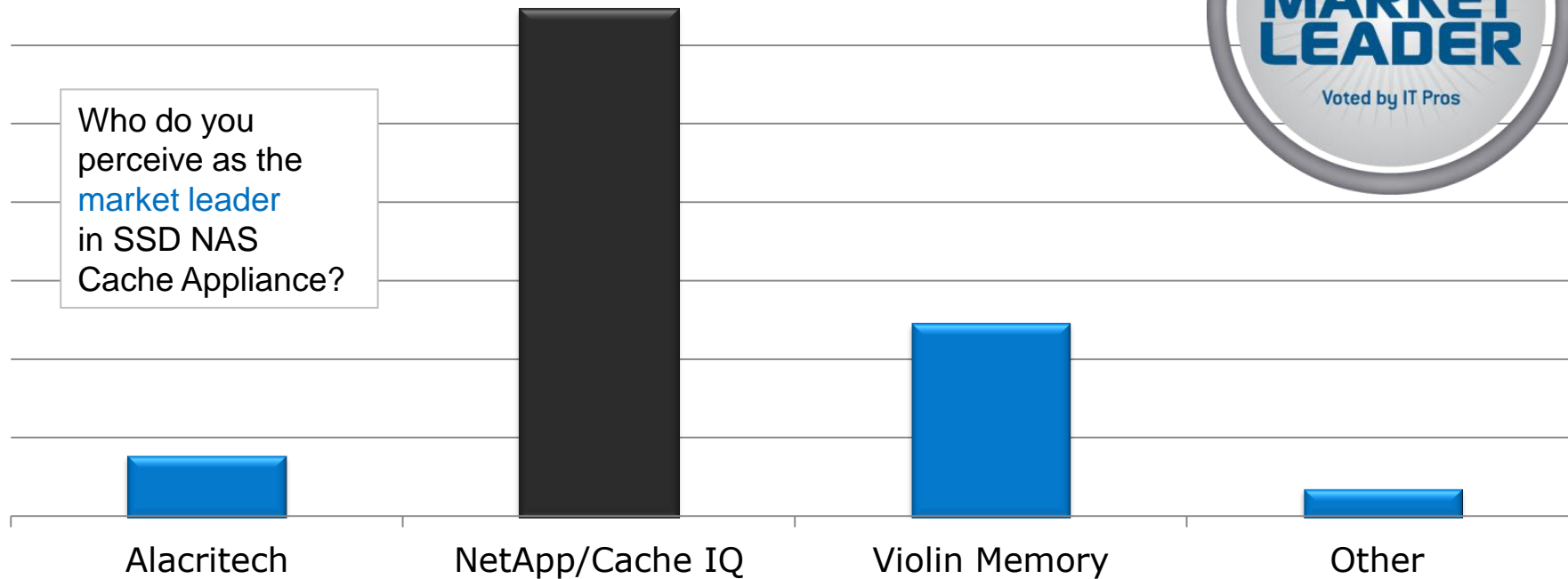
# SSD DAS/SAN Cache



# SSD NAS Cache Appliance

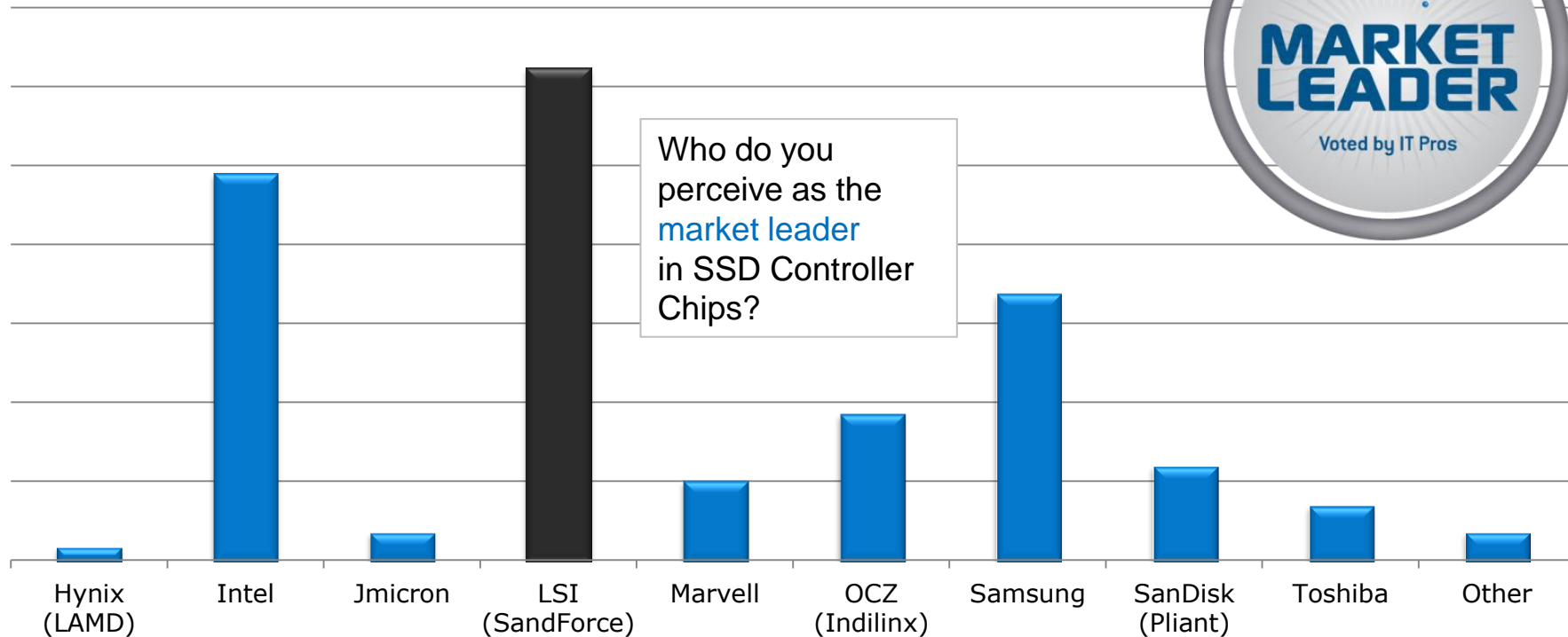


Who do you  
perceive as the  
market leader  
in SSD NAS  
Cache Appliance?

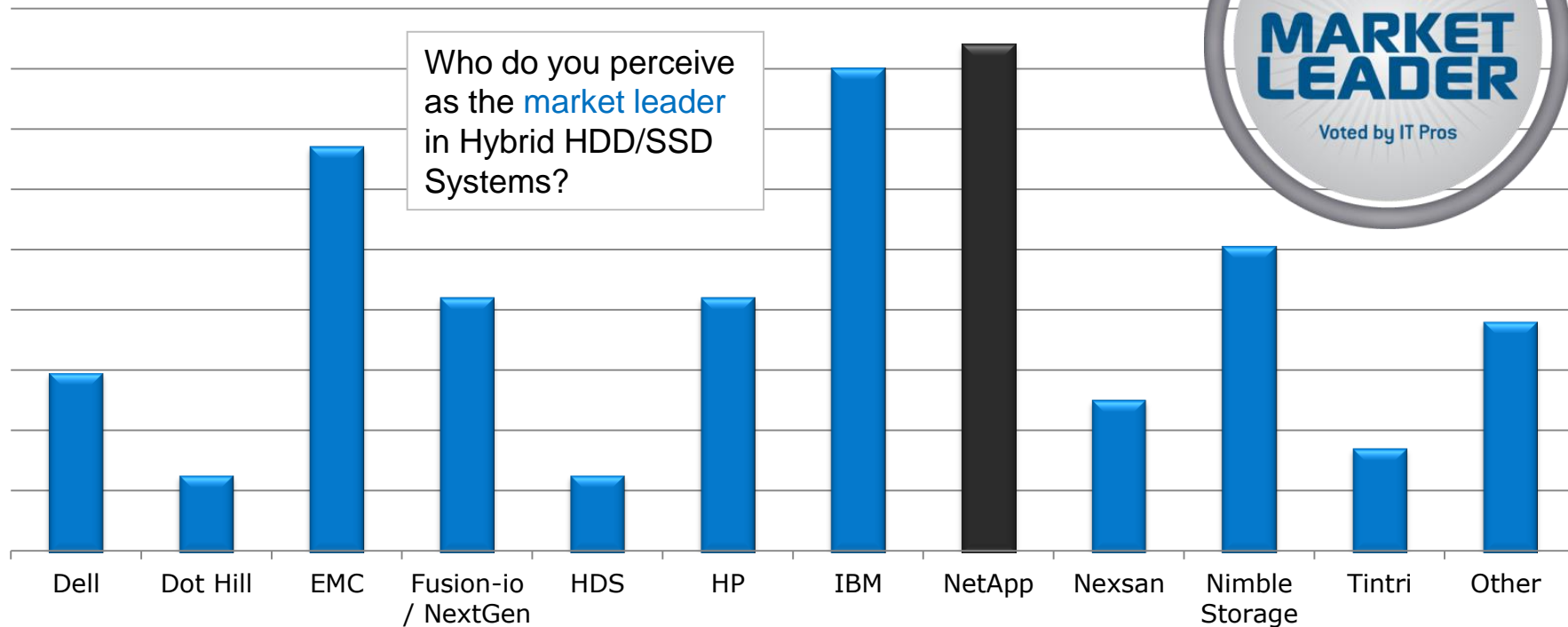




# SSD Controller Chips



# Hybrid HDD/SSD Systems





**IT Brand Pulse**



**One Year Ago**



**2013 SSD Brand Leaders**



**2013 SSD Adoption Trends**



# SOMETIMES YOU CAN'T

If there is not enough supply



The capacity optimized HDD dance

**“If you can't get rid of the skeleton in your closet, you'd best teach it to dance.”**

George Bernard Shaw



# My organization plans to completely replace HDDs and deploy SSD as primary storage:

Never. It will always be more expensive than HDD and be used only for applications which can justify the added cost

When SSDs are the same \$/GB of HDDs

When SSDs are within 50% of the \$/GB of HDDs

When SSDs are within 40% of the \$/GB of HDDs

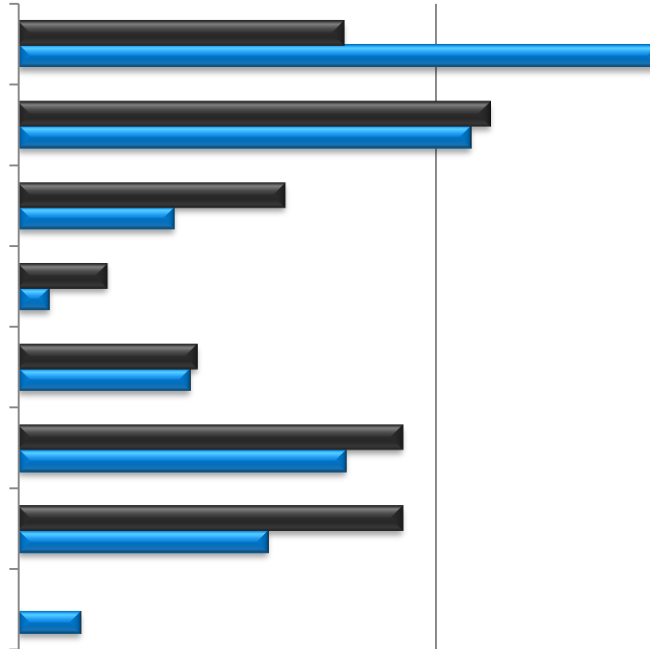
When SSDs are within 30% of the \$/GB of HDDs

When SSDs are within 20% of the \$/GB of HDDs

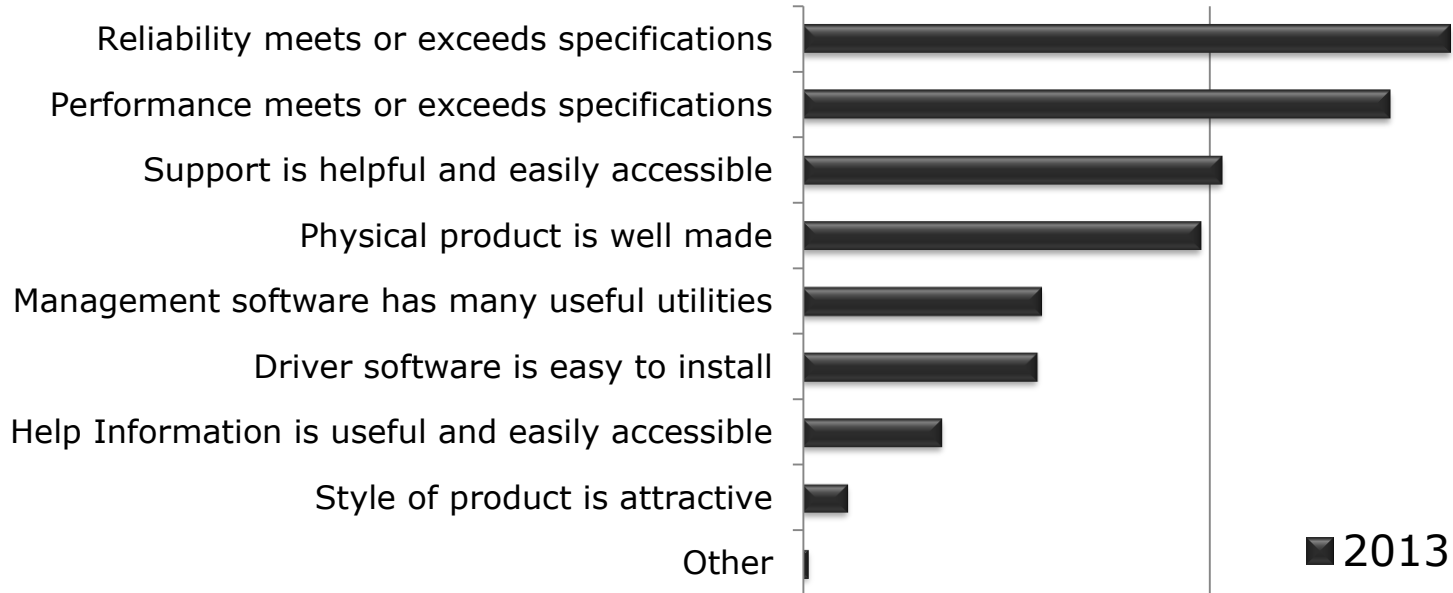
When SSDs are within 10% of the \$/GB of HDDs

■ 2013 ■ 2012

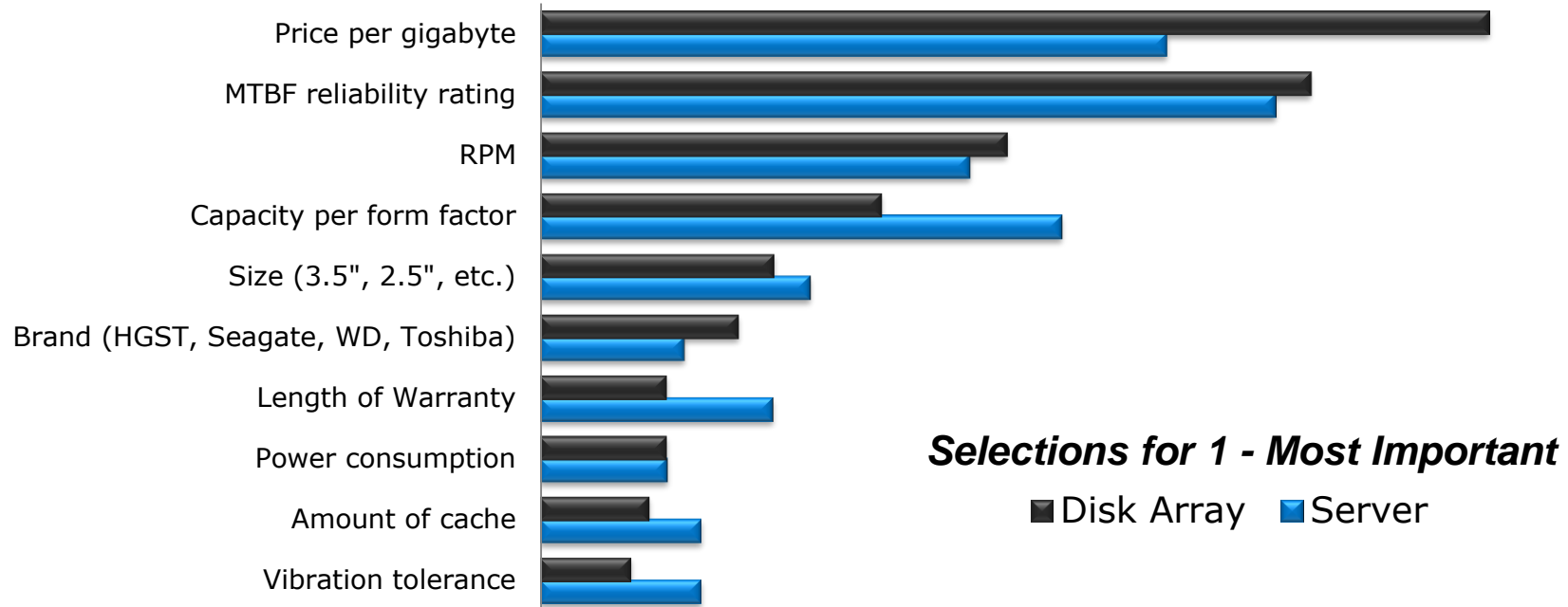
Other



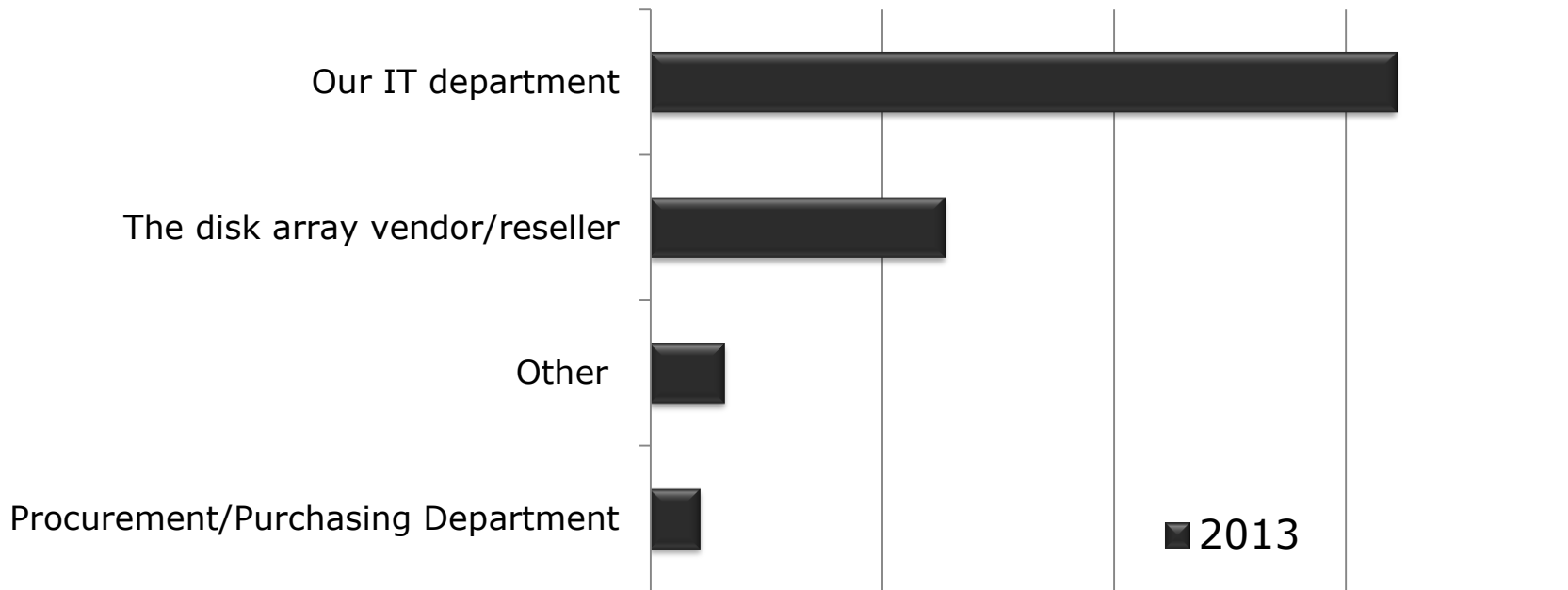
# If QUALITY is defined as the ability to meet or exceed its intended purpose, which of these features are metrics for ENTERPRISE HDD QUALITY (select all that apply):



# Rank the importance of these features when you select an Enterprise HDD:

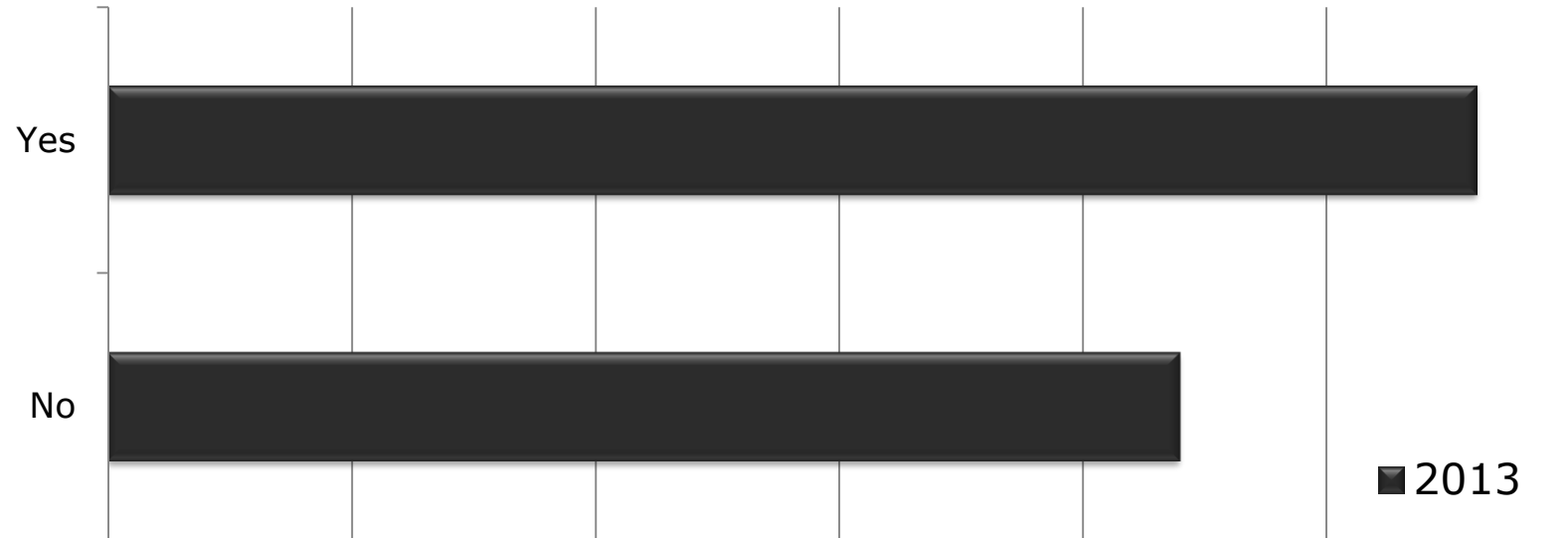


# HDDs inside my organization's DISK ARRAYS were selected by:

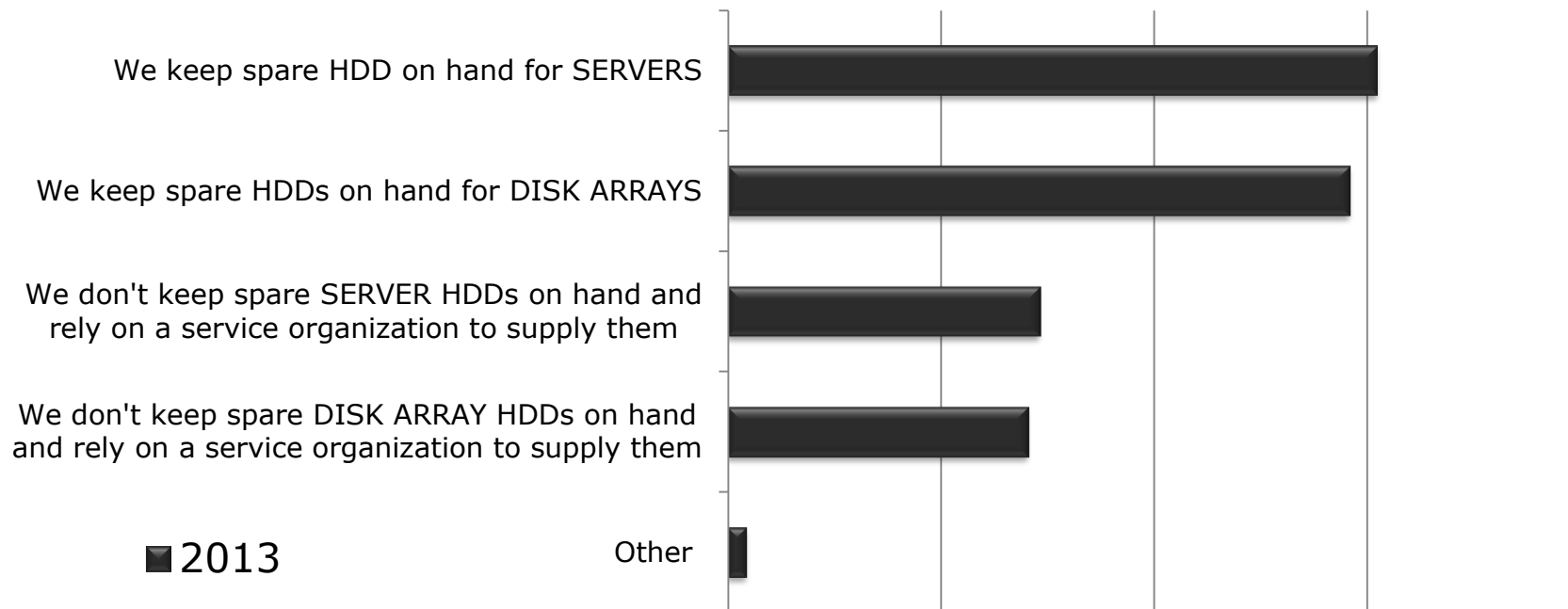




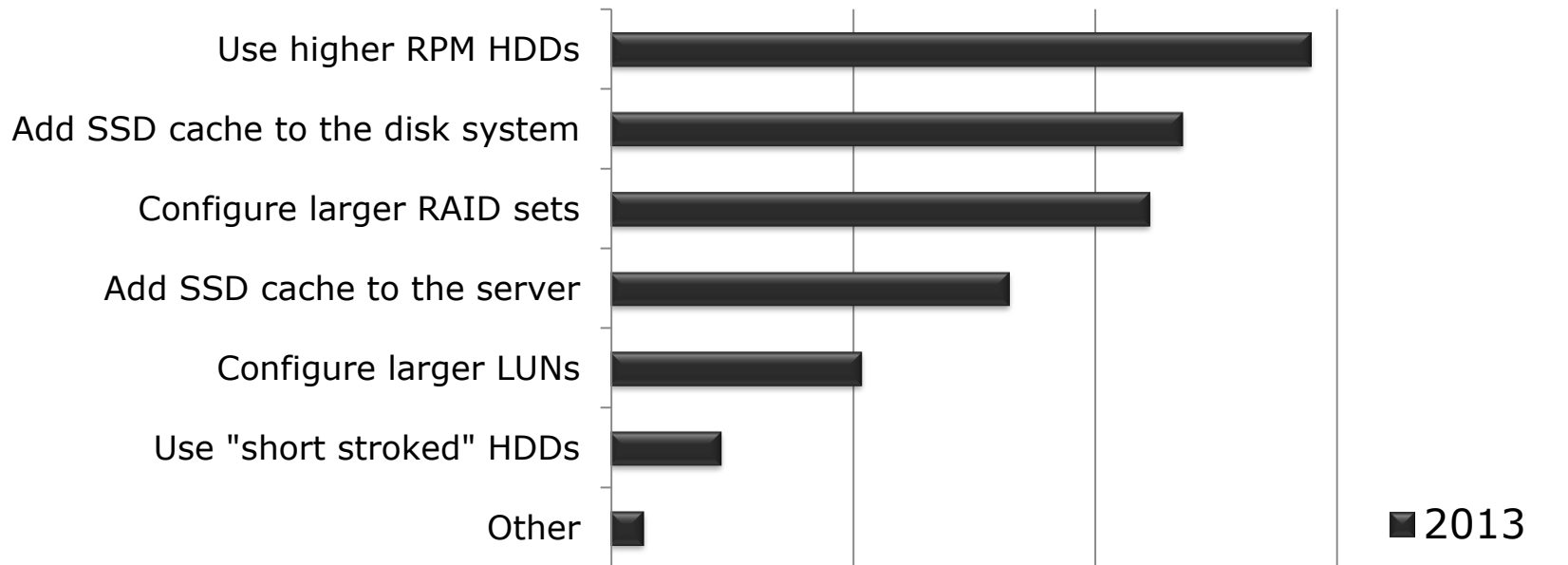
**My organization mixes different types of disk drives in our disk arrays in order to achieve the best cost for the reliability, capacity and performance we require:**



# We use the following strategies for maintaining spare Enterprise HDDs (select all that apply):



# What I do to increase the performance of my disk arrays is (select all that apply):

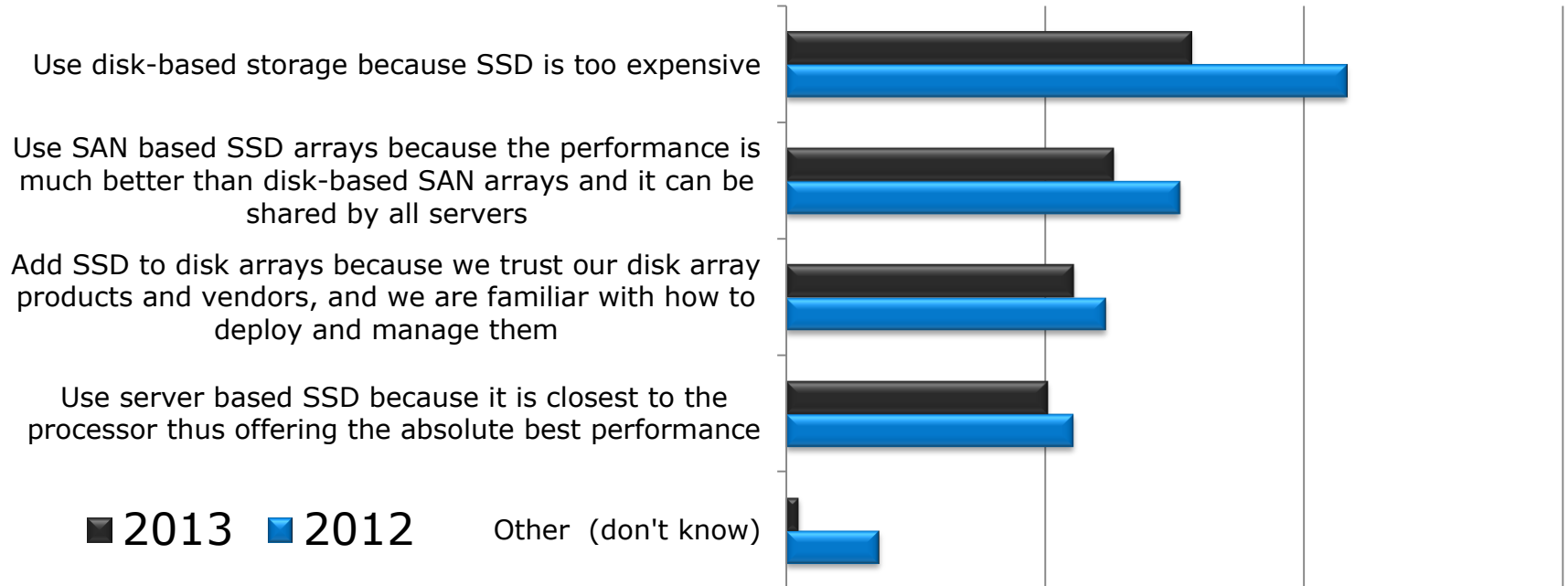




Driving SSD Adoption

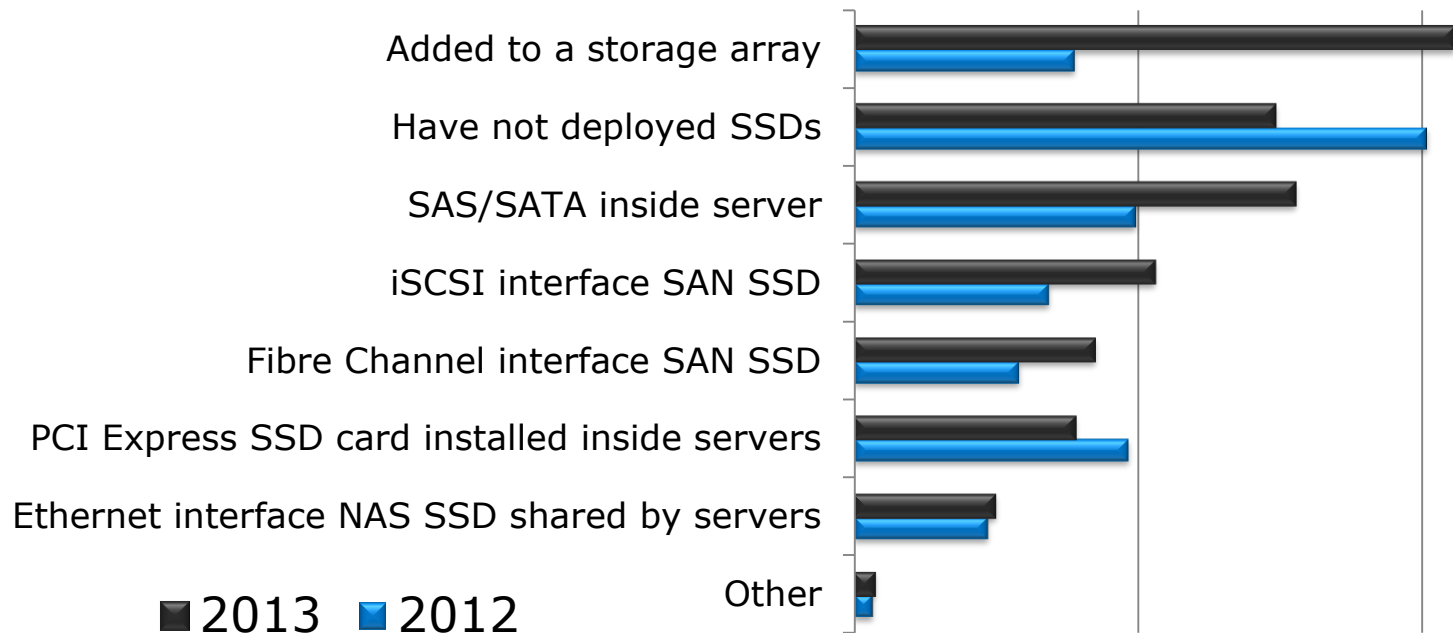
**Trust**

# My organization uses the following SSD strategies (select all that apply):

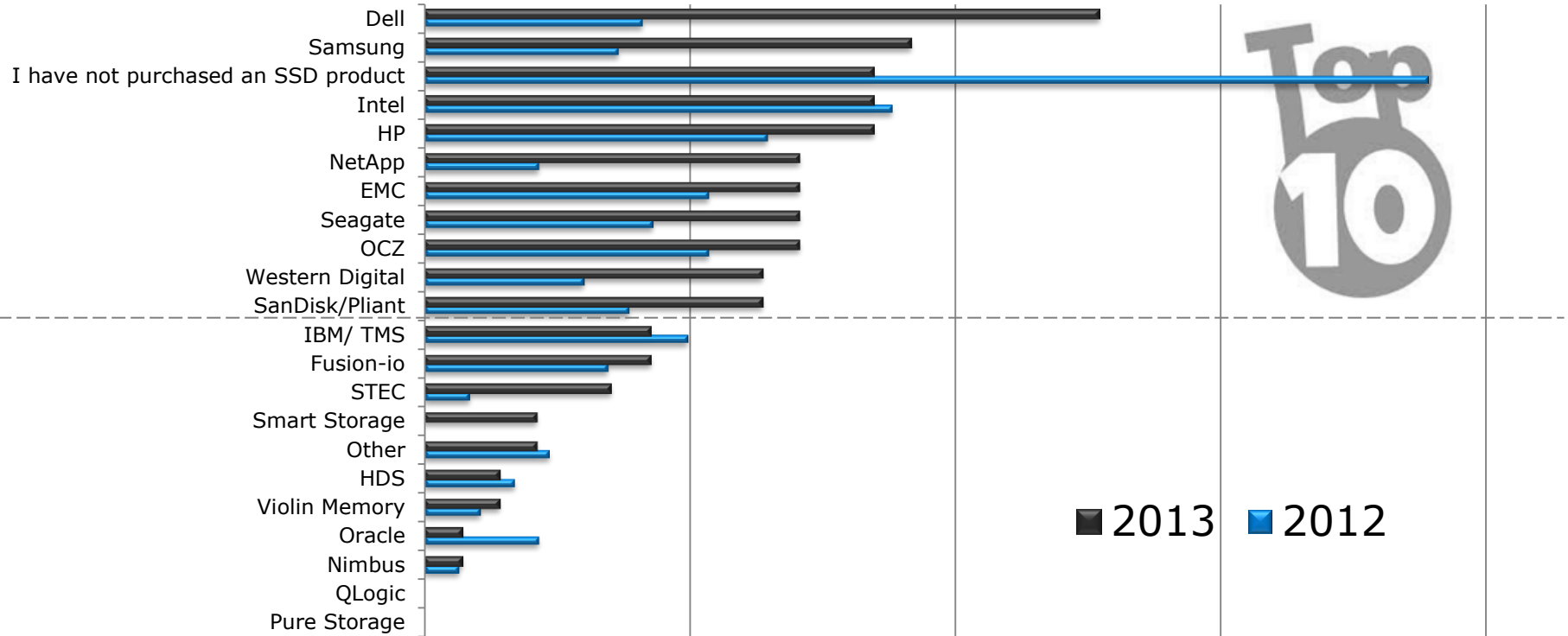




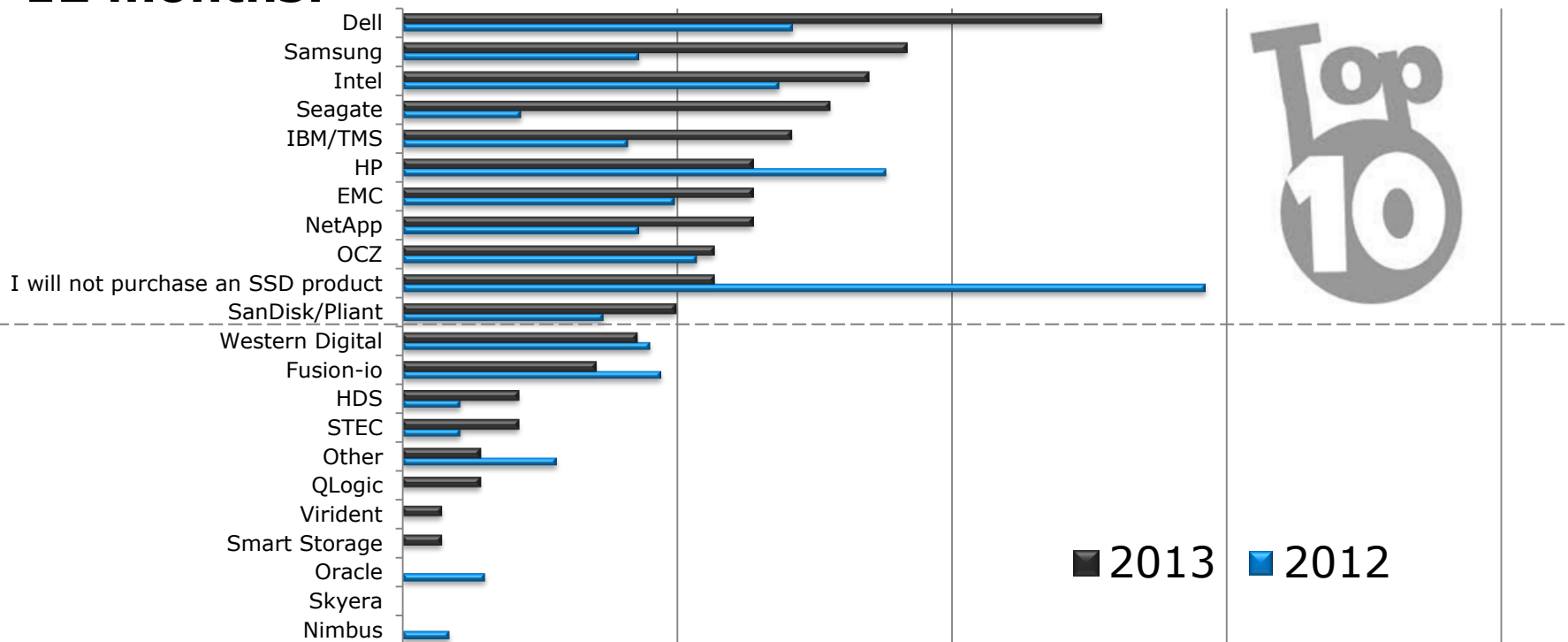
## My organization has deployed the following types of SSD products (select all that apply):



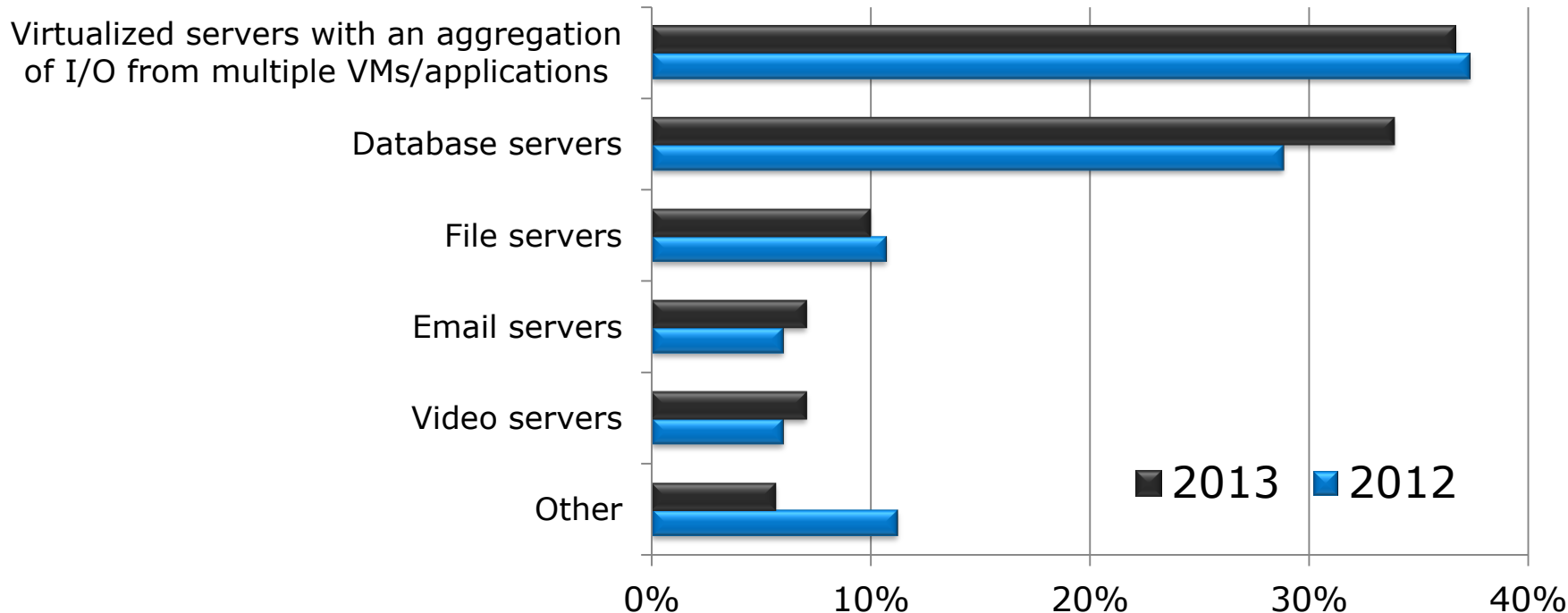
# I have already purchased the following brands of SSD:



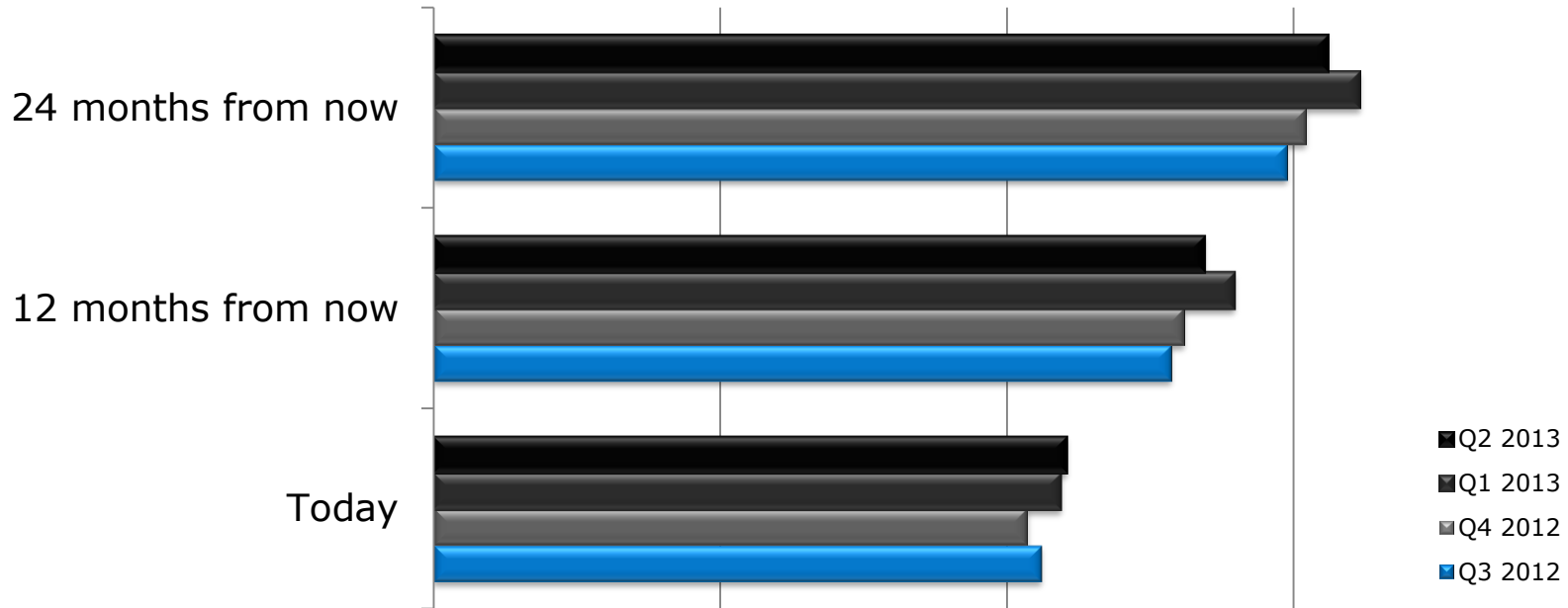
# I will purchase the following brands of SSD in the next 12 months:



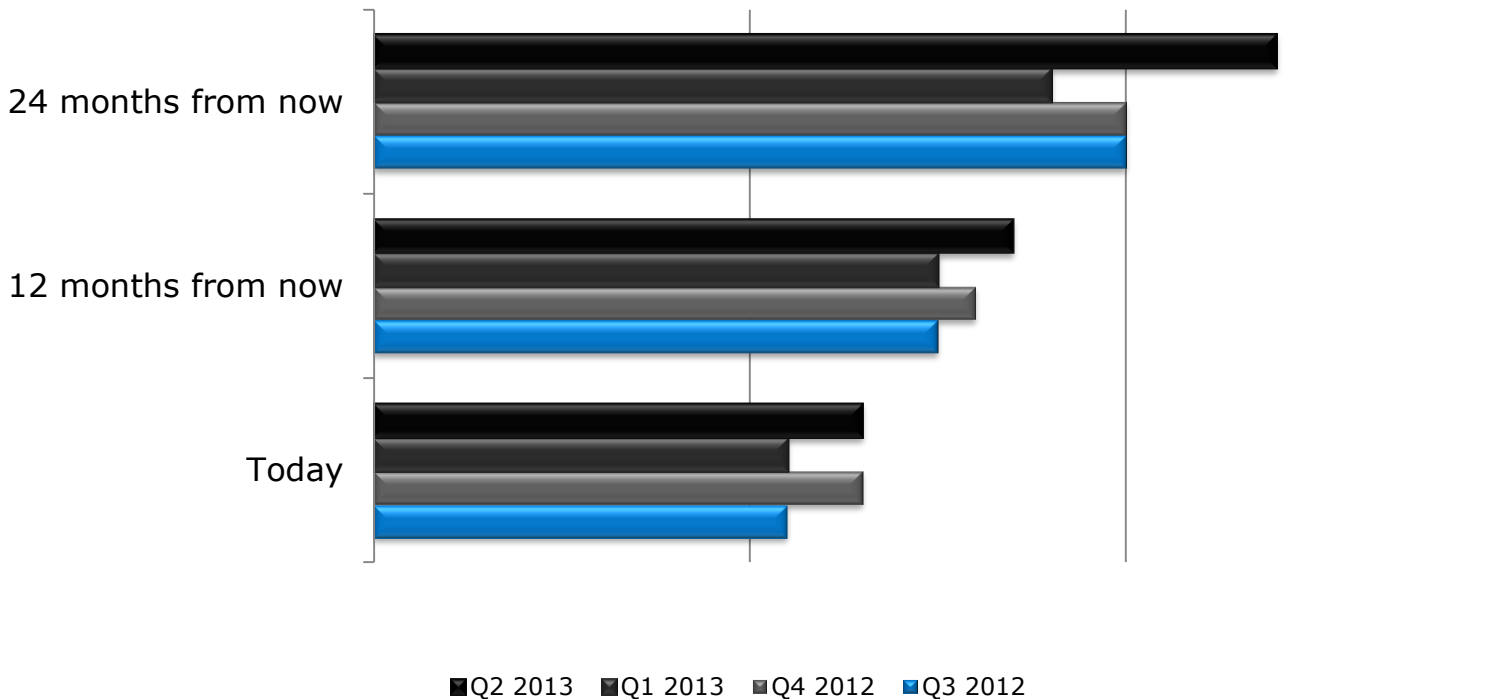
# The following type of server most driving the adoption of SSD in my environment is:



# The percent of physical servers in my environment which are virtualized:

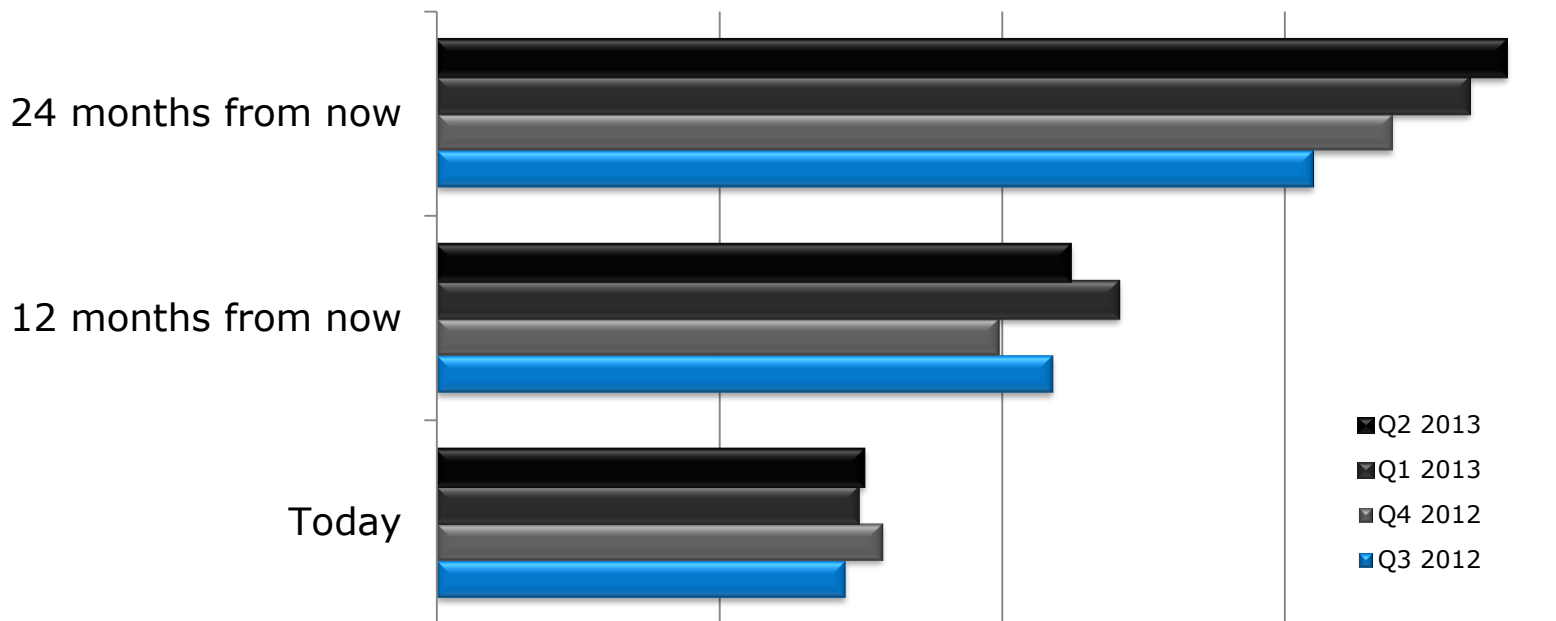


# The average number of VMs per server in my environment:

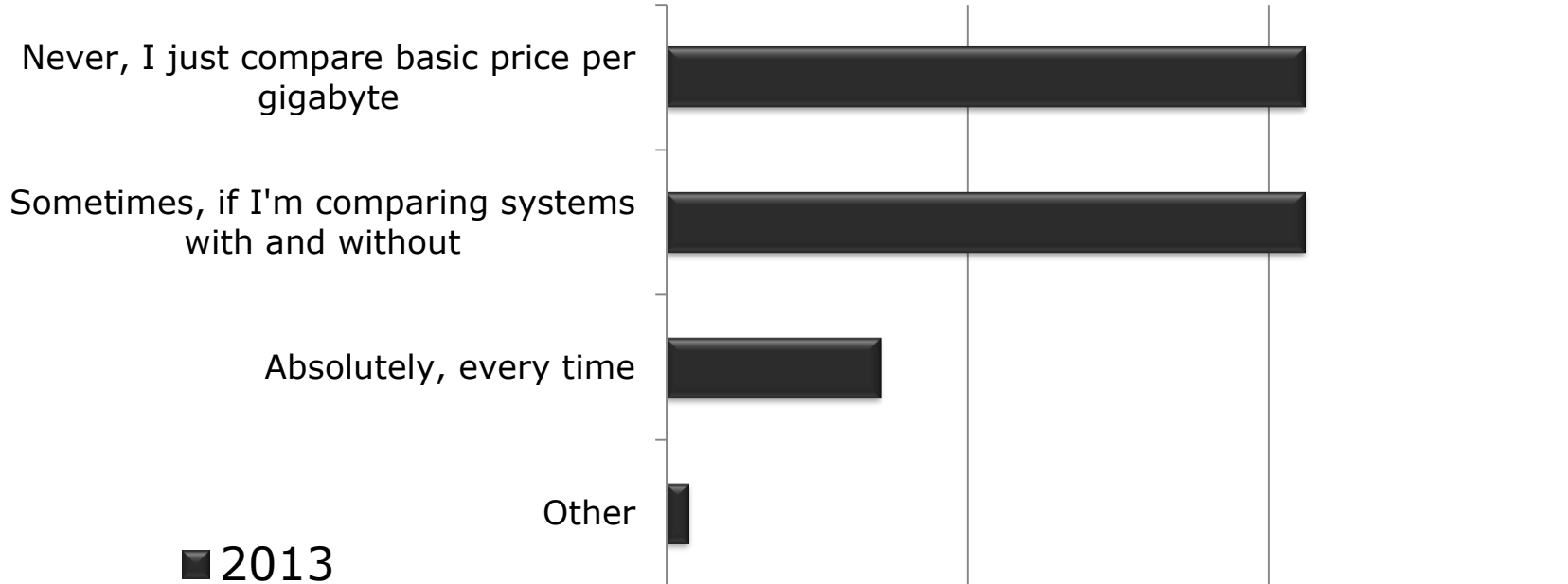




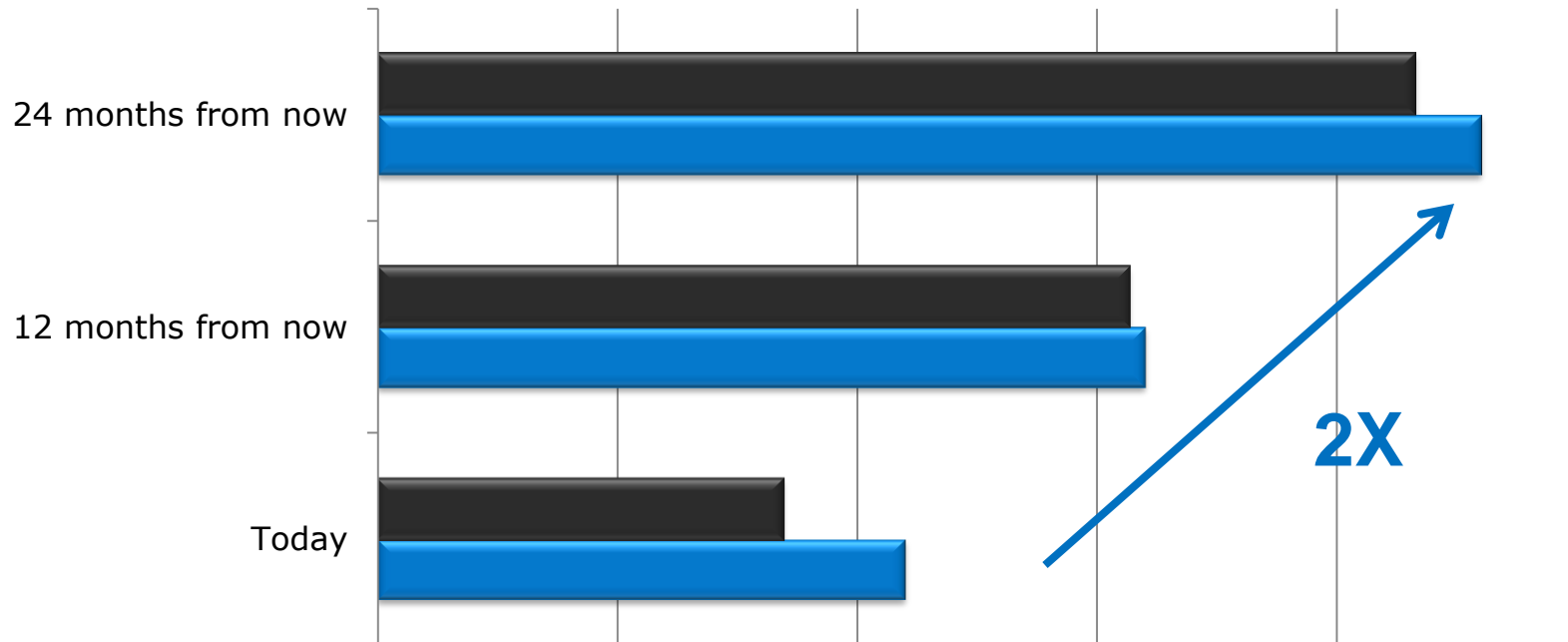
# The percent of clients in my organization using virtual desktops:



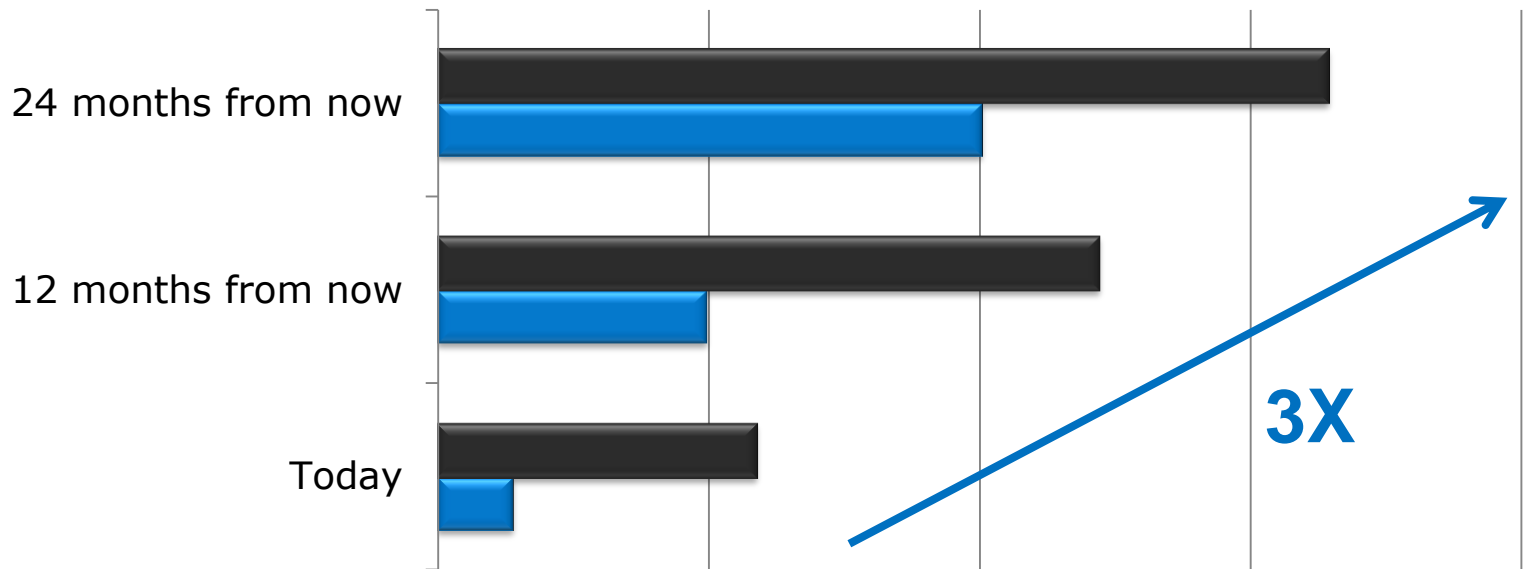
## When I purchase HDD and SSD storage, I factor in compression, de-duplication and thin-provisioning to calculate my price per "usable" gigabyte:



## Percent of servers in my environment accessing some type of SSD storage:



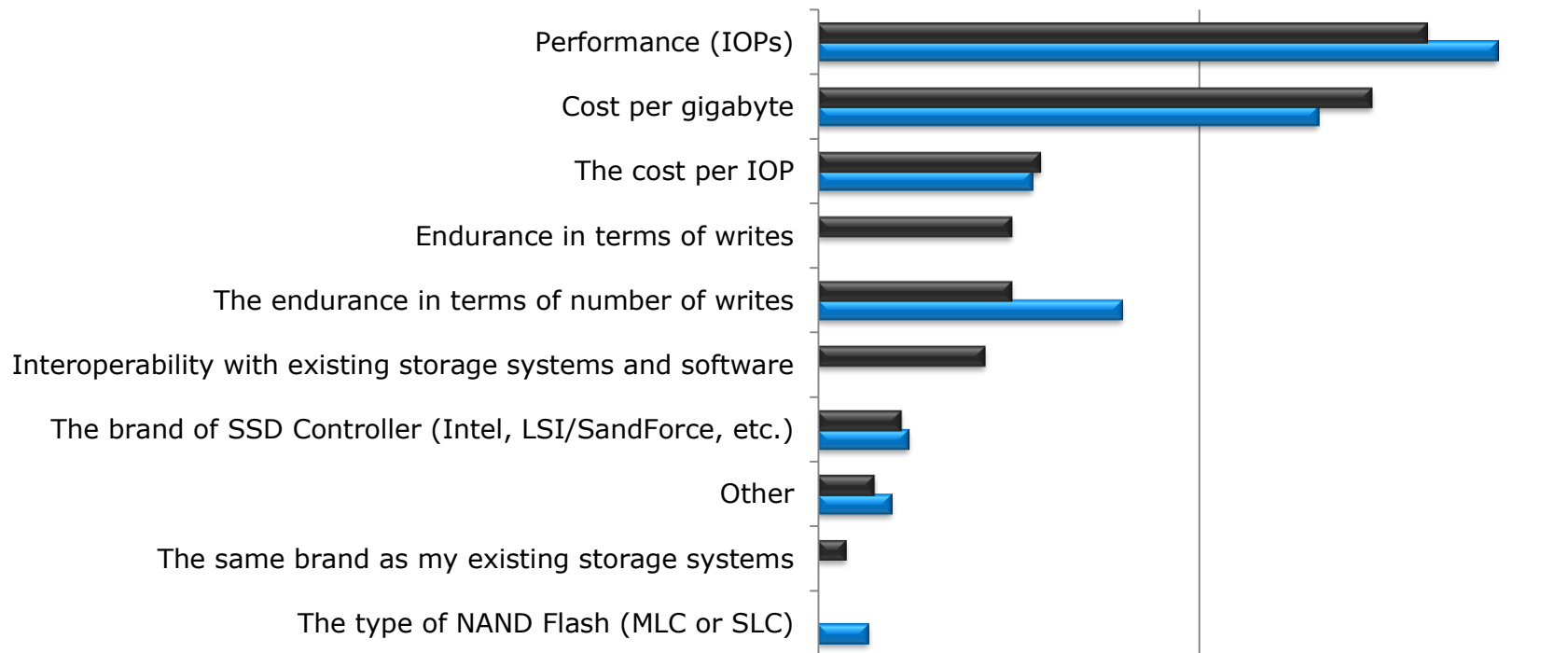
# SSD will comprise approximately this percentage of my organization's combined SSD and HDD disk capacity:



**IT Priorities: Protect  
data and keep it flowing**

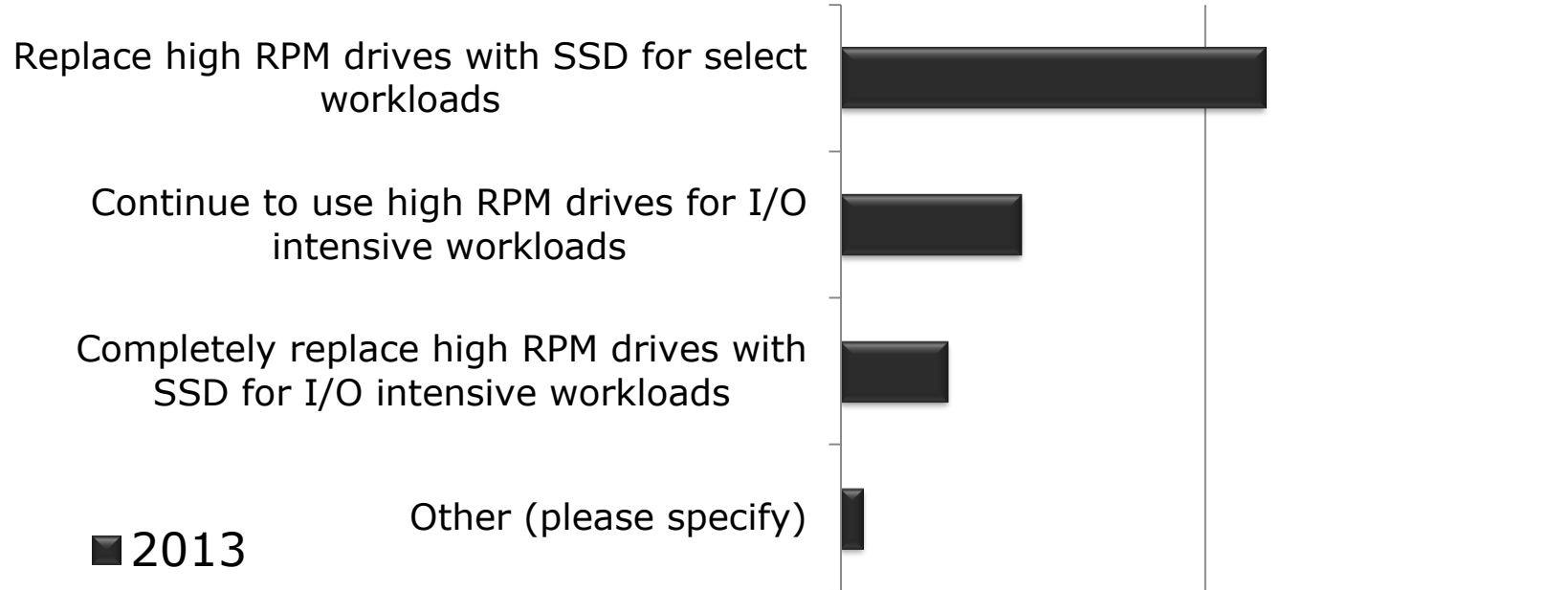


# The most important feature of an SSD for my environment is:

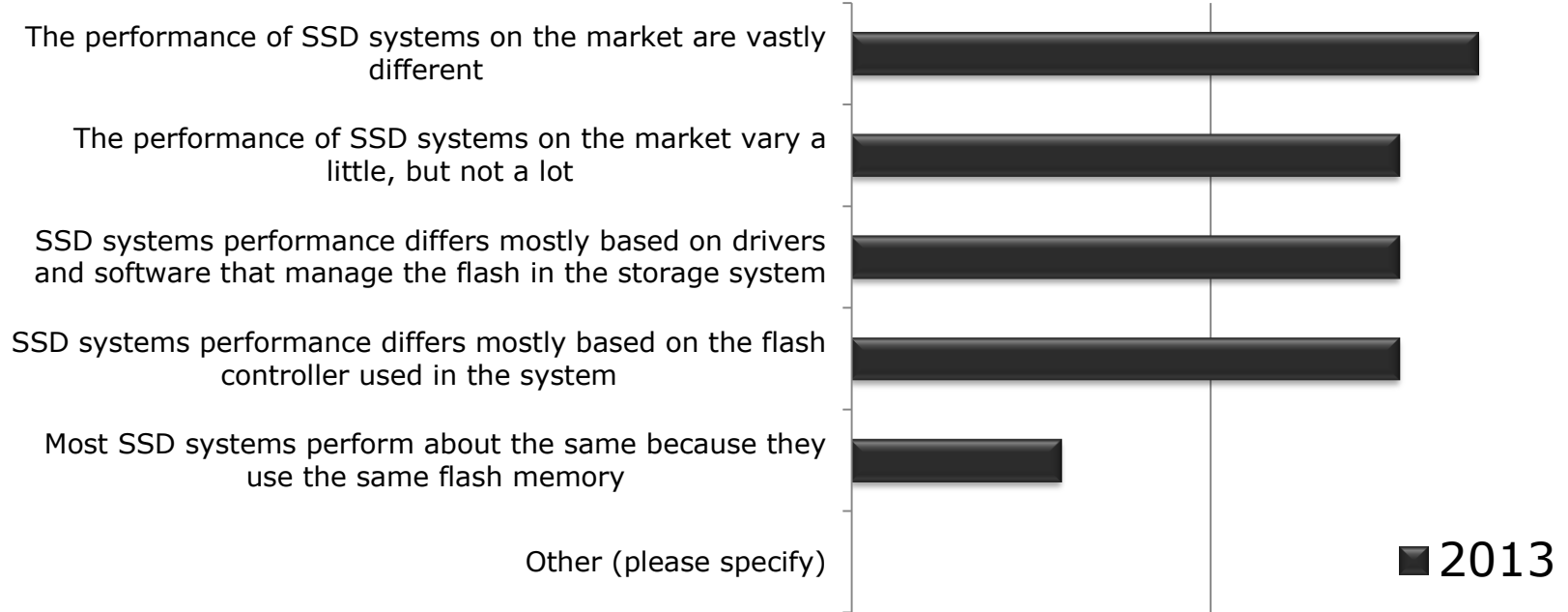




# My organization's strategy for SSDs vs. High RPM Drives:



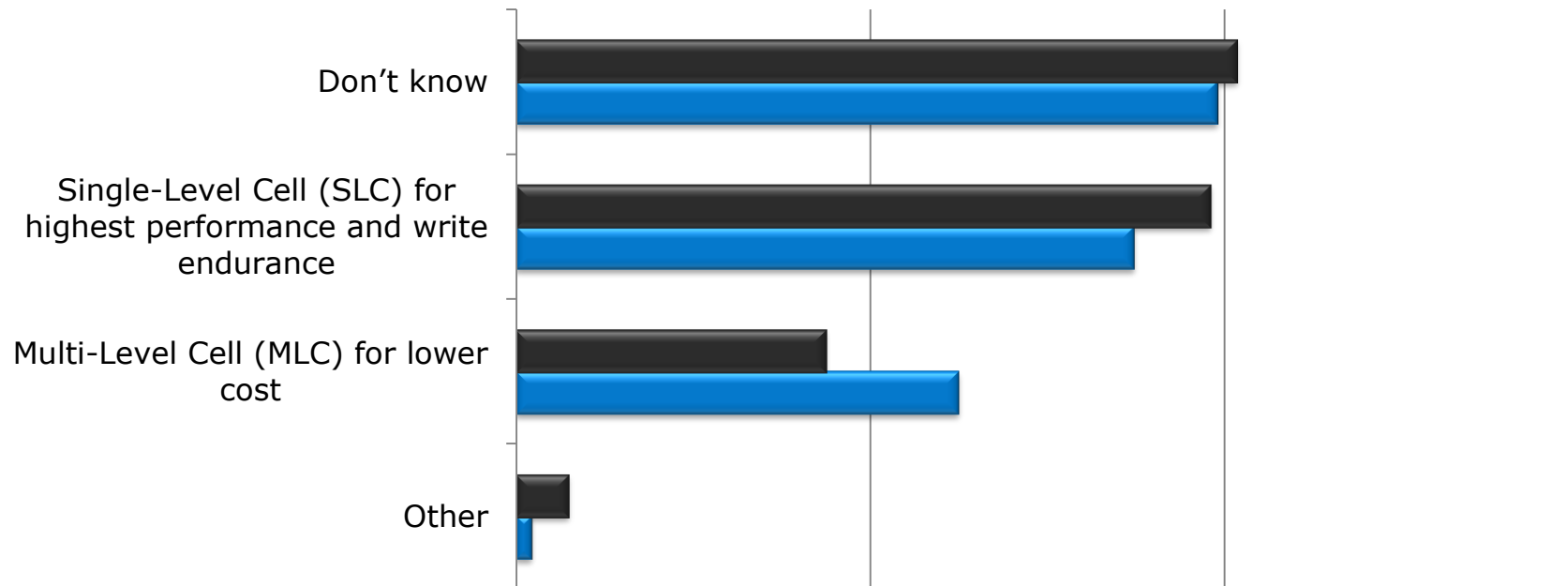
# Regarding the performance of SSD systems, I believe (select all that apply):



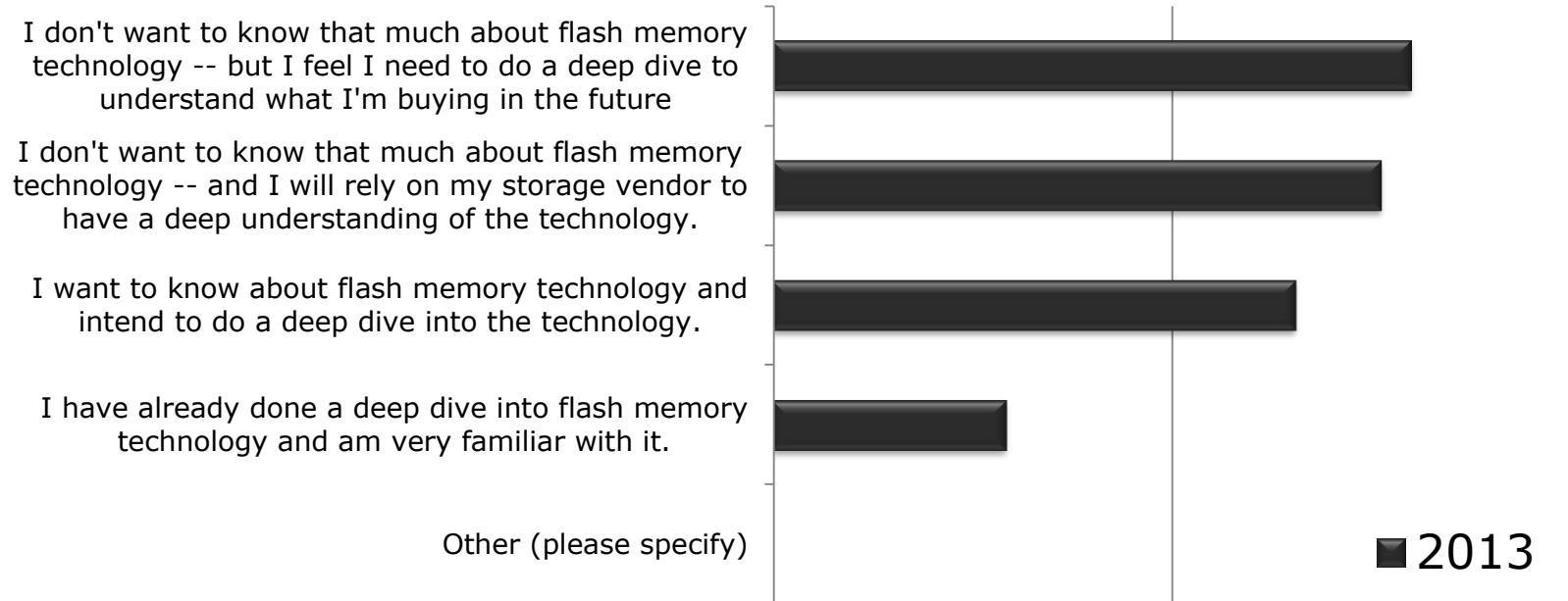
**IT doesn't want to know  
how to build the watch**



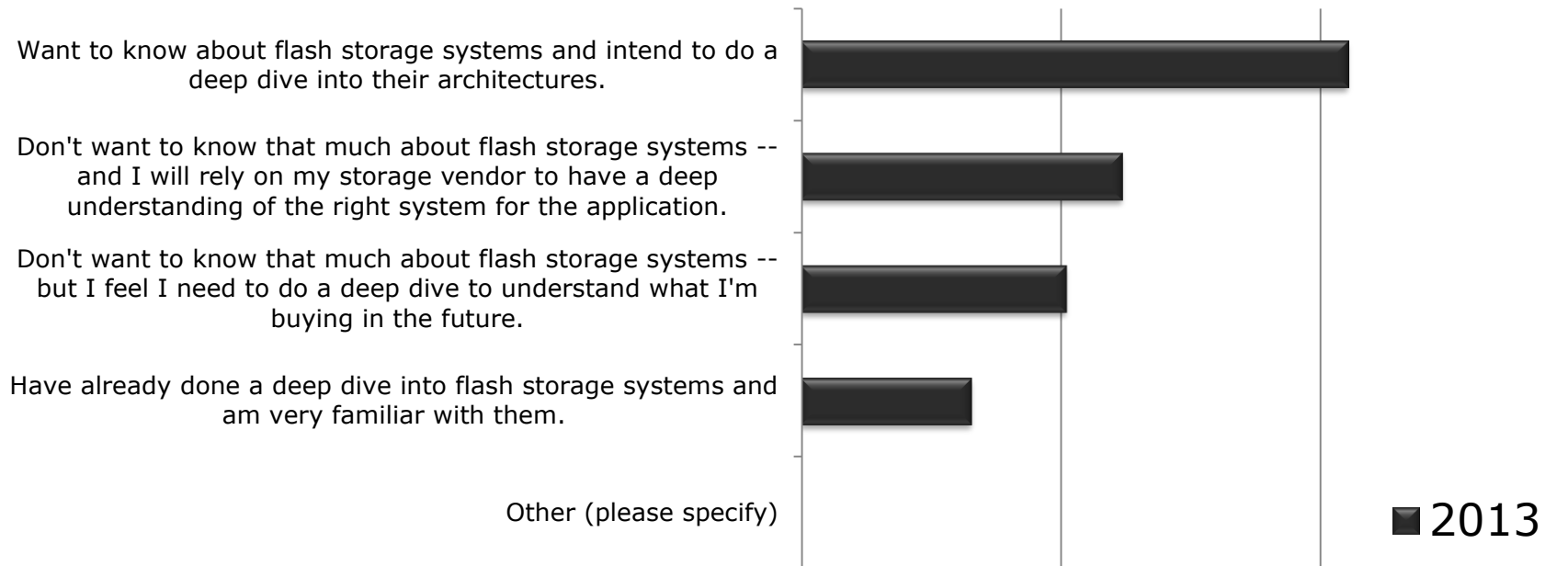
## SSDs with the following type of NAND Flash are best suited for my environment:



# There are different types of Flash Memory (MLC, SLC, TLC, etc.) with new characteristics that define how it works in the data center (wear leveling, write endurance, etc.):

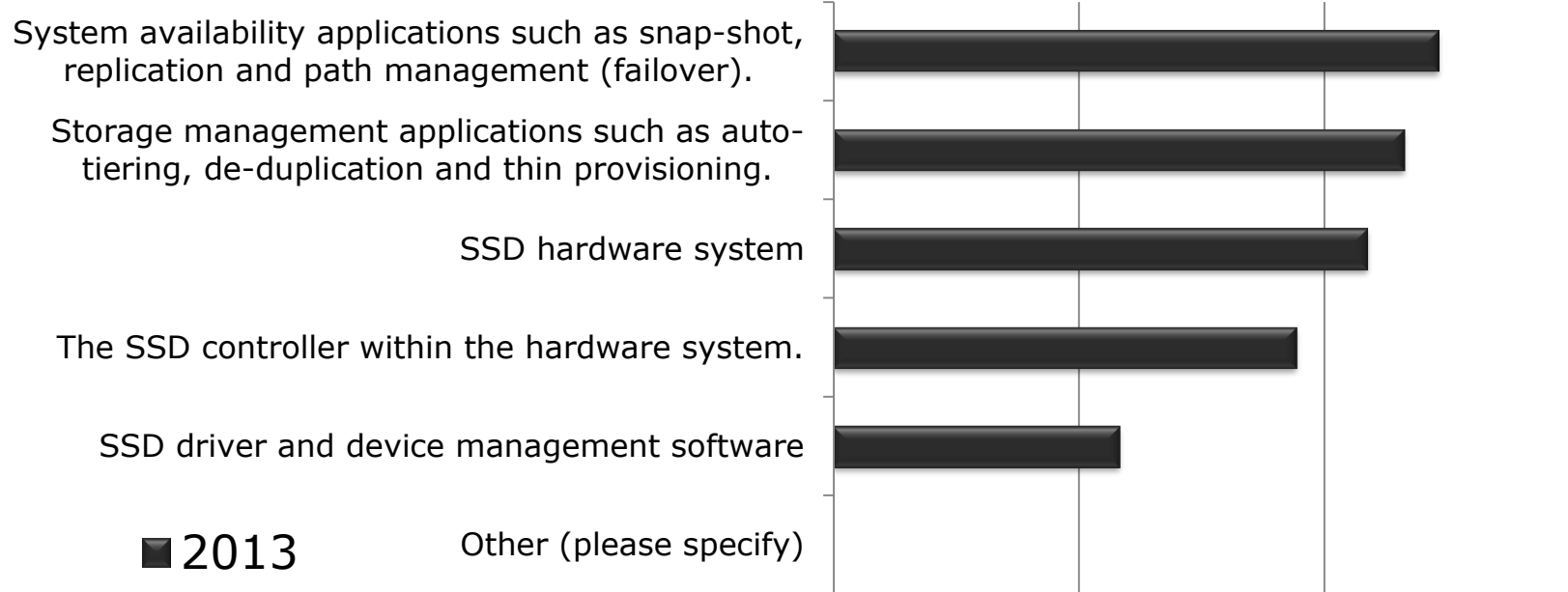


**There are different types of Flash Storage systems (All Flash Arrays, Hybrid Arrays, PCIe cards, etc.) with new characteristics that define how they work in the data center (software defined vs. plug-and-play SSD, captive PCIe vs. shared PCIe SSD, permanent storage vs. cache, etc.). I:**





# The most strategic (irreplaceable) component of a complete SSD storage solution is the:



# Potential blind spots in the future



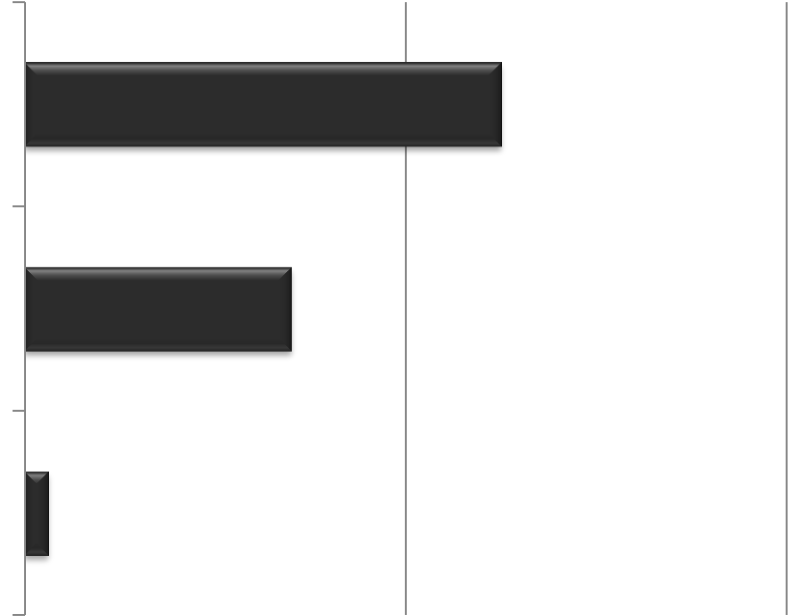
# I see Software Defined Storage as a technology that:

Will emerge as a class of storage virtualization software separate from the storage hardware--and more important than the commodity storage hardware.

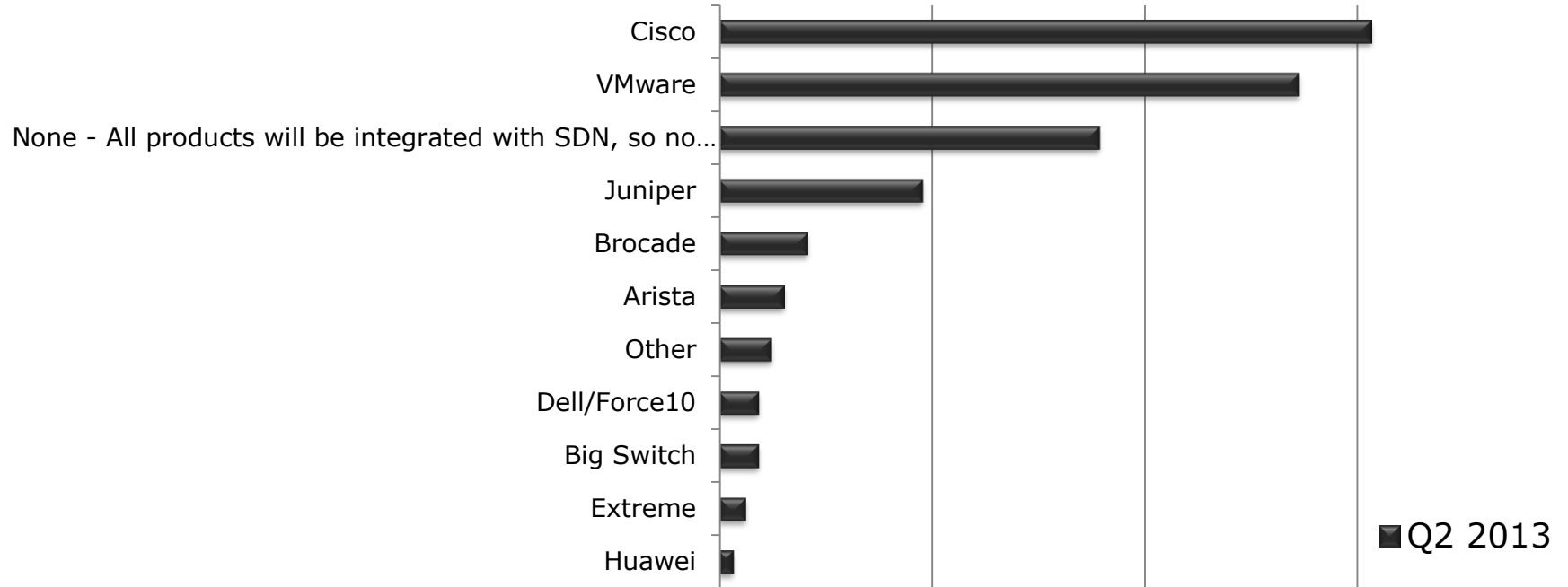
Is an inseparable feature of an enterprise storage "solution"

Other (please specify)

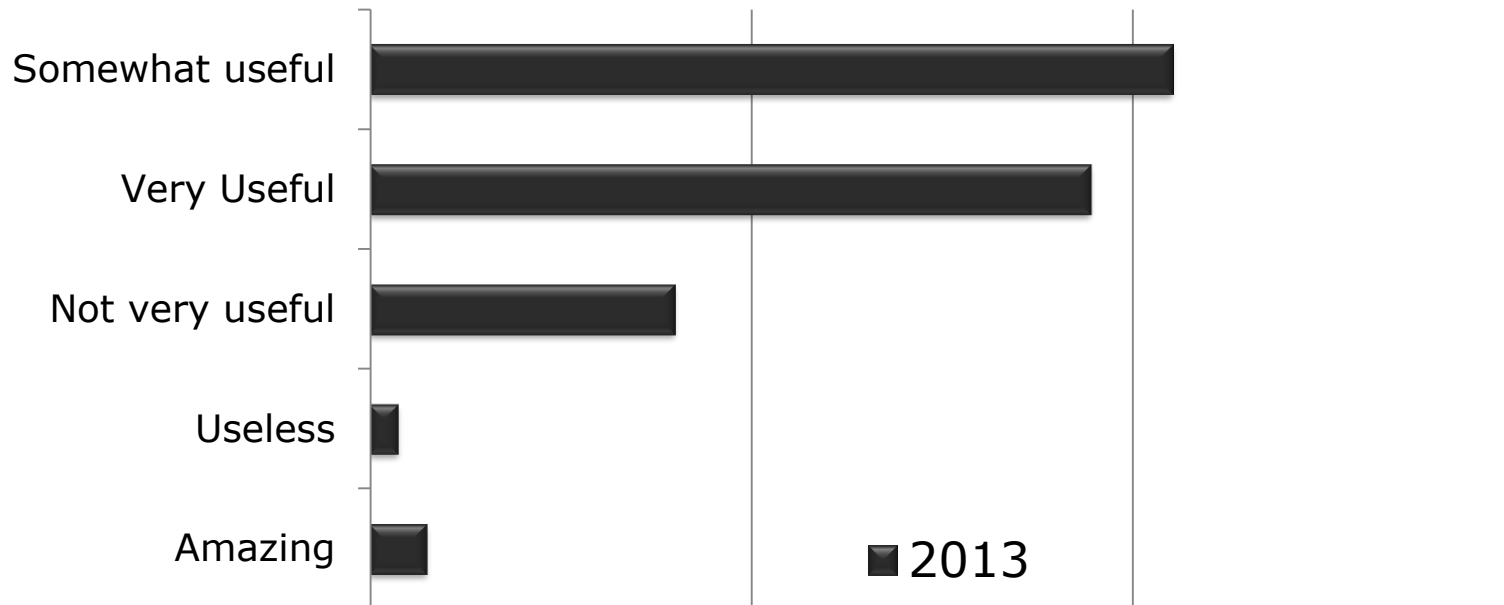
■ 2013



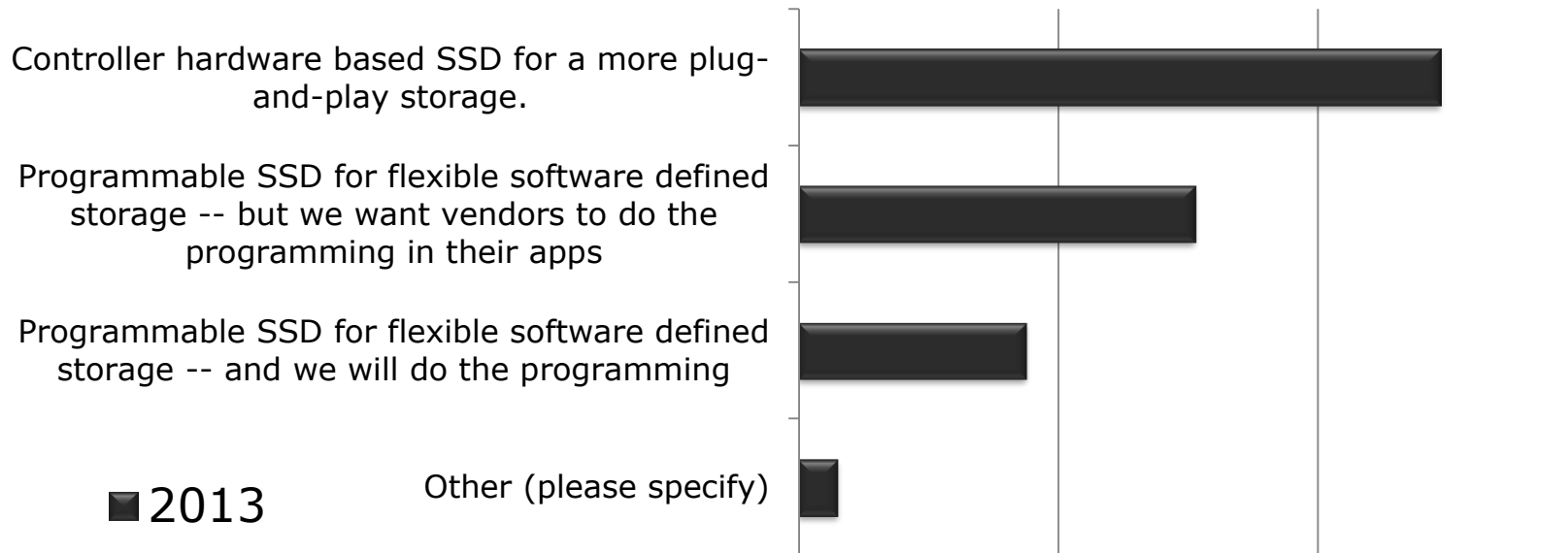
# The following company is most likely to gain significant market share as a result of the transition to software defined networking (SDN):



**Technology is emerging which allows cache across PCIe SSD cards in different servers to be pooled in a SAN, and provisioned as needed in LUNs. Pooling PCIe SSD cache across servers. I consider this technology:**

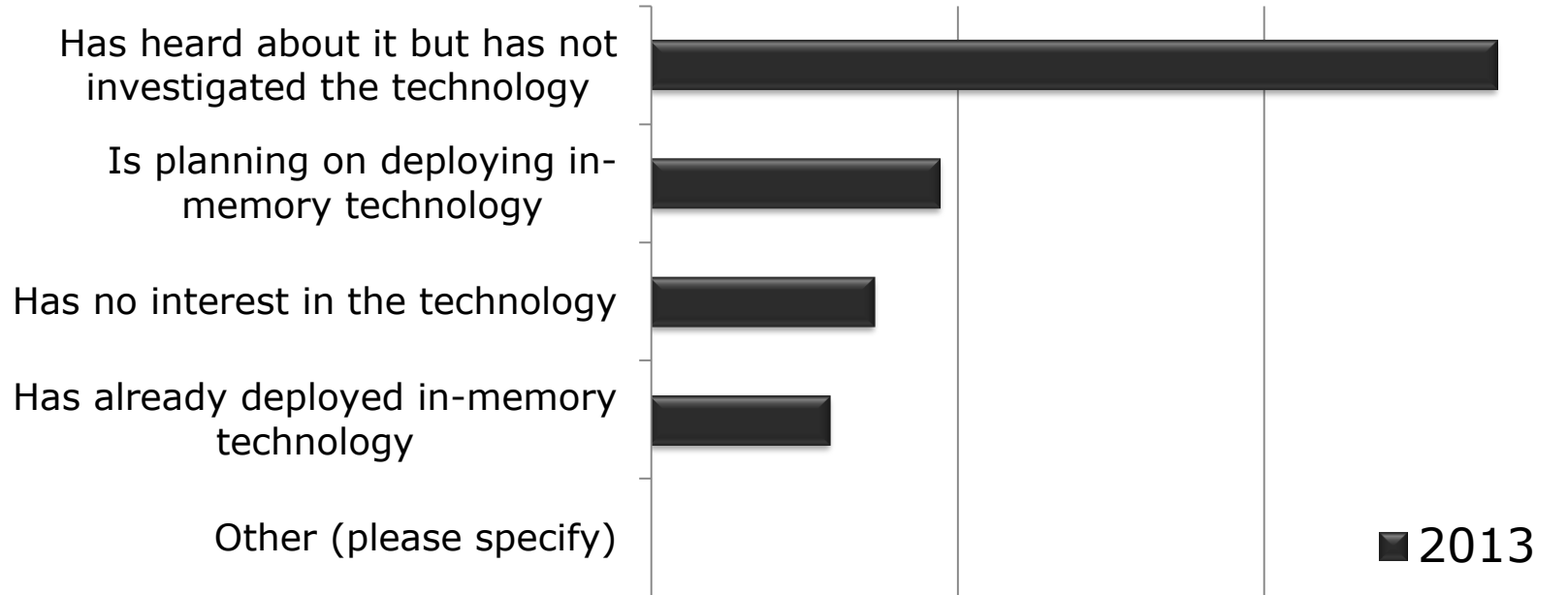


**Some SSD products are "programmable" so they fit into a software defined storage environment. Other SSD products have most functions embedded in the controller hardware. What is best for my organization in the future is:**

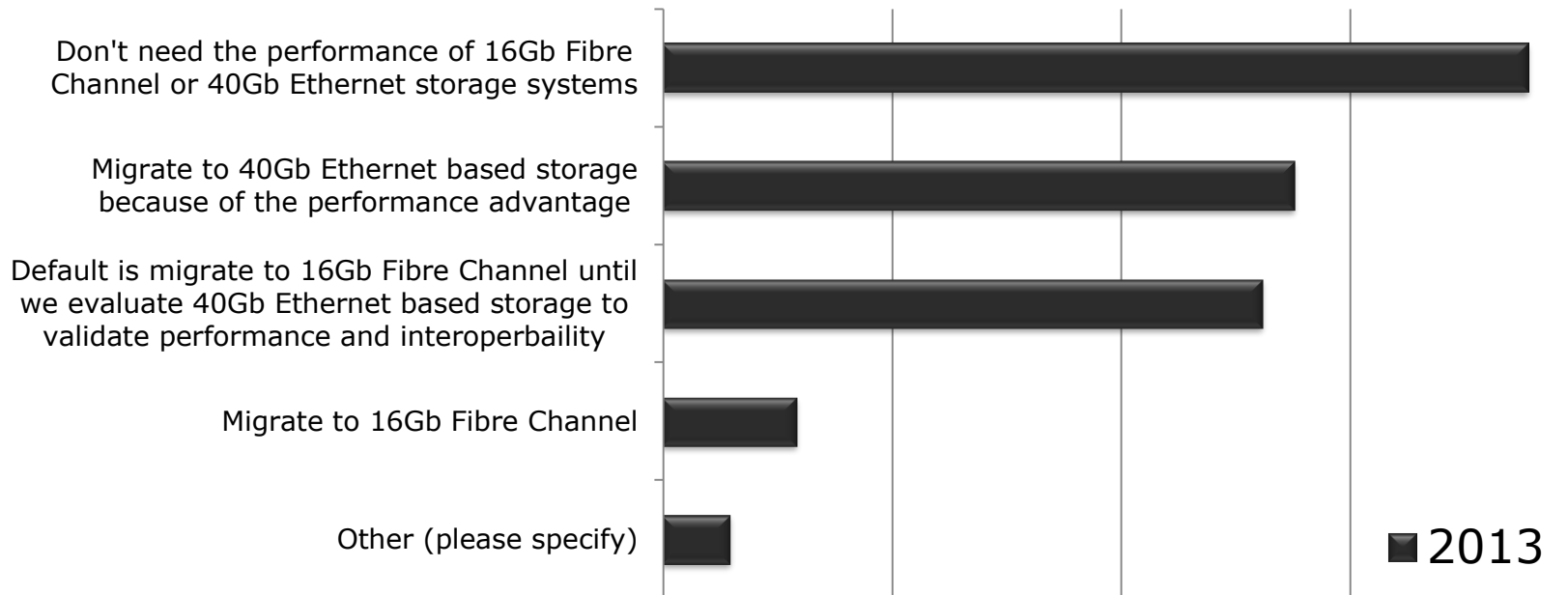




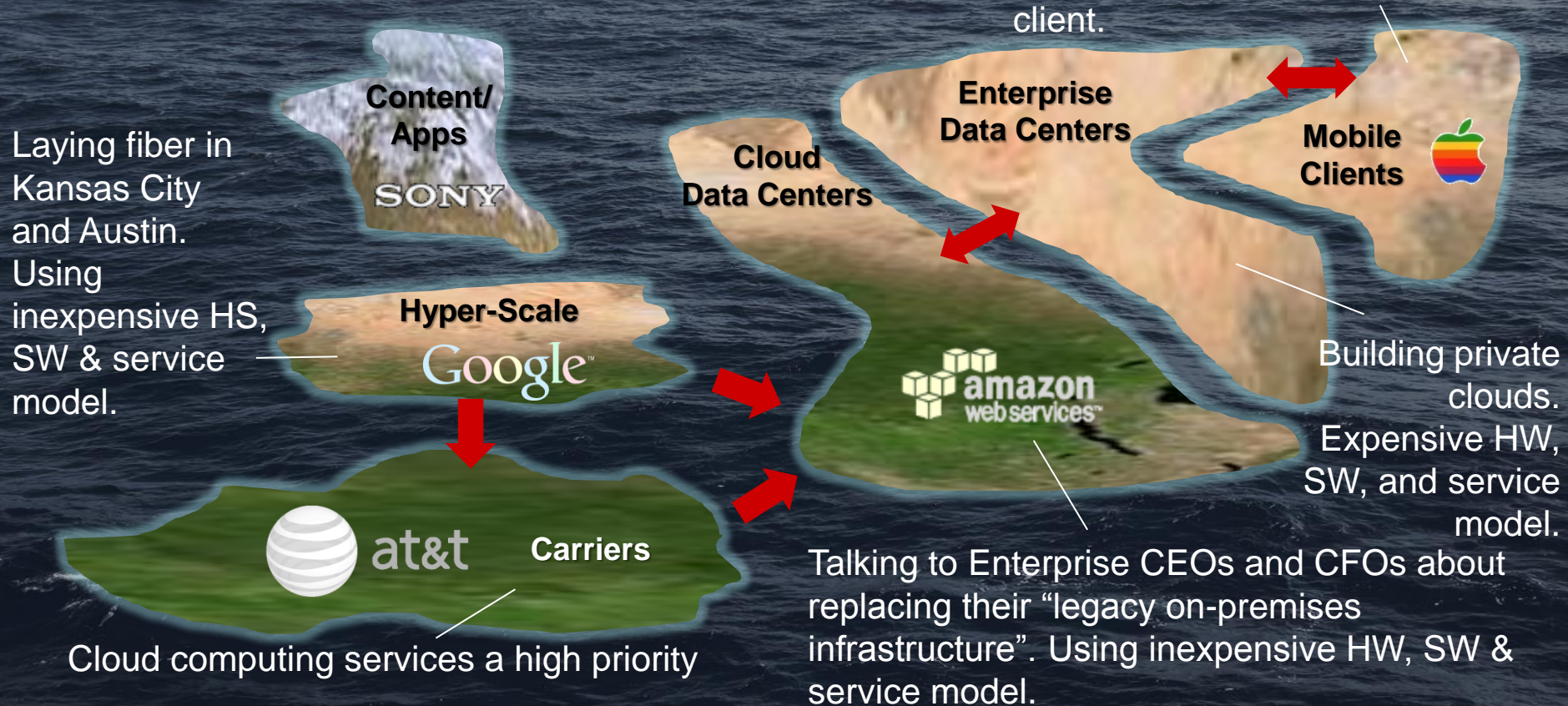
**In-memory processing is where data is loaded into DRAM (or flash memory) instead of hard disks so IT spends less time on data modeling, query analysis, cube building and table design. My organization:**



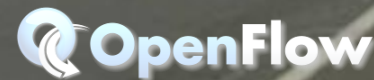
**Storage system network interfaces are making speed jumps in the next year to 16Gb Fibre Channel and 40Gb Ethernet (NAS, iSCSI and FCoE). I would describe my organization's strategy for next generation storage to be:**



# Enterprise Market Tectonics



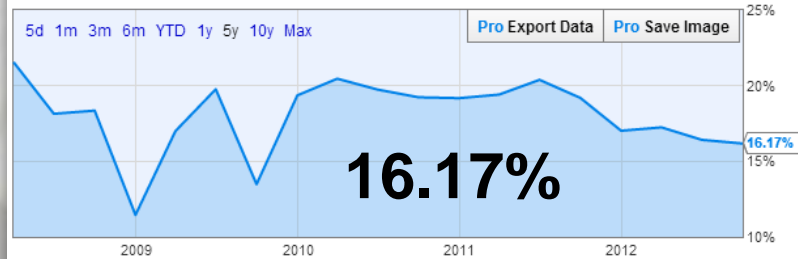
# IT sees they're paying a higher toll



# Mature Global Industries

The Boeing Company Gross Profit Margin Quarterly Chart

[View Full Chart](#)



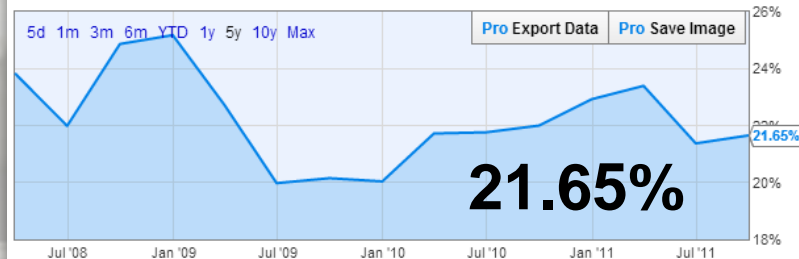
Toyota Motor Corporation Gross Profit Margin Quarterly Chart

[View Full Chart](#)



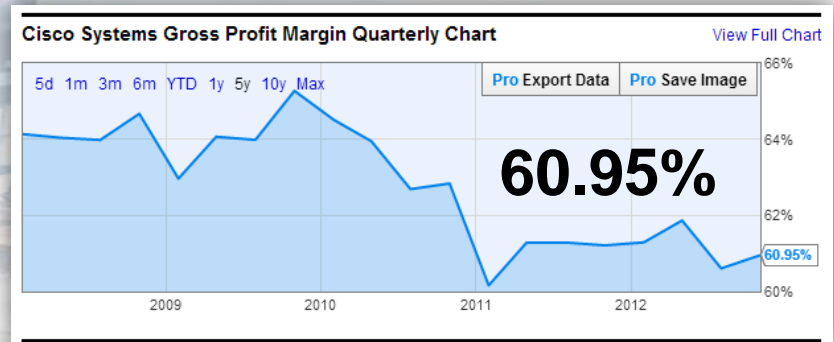
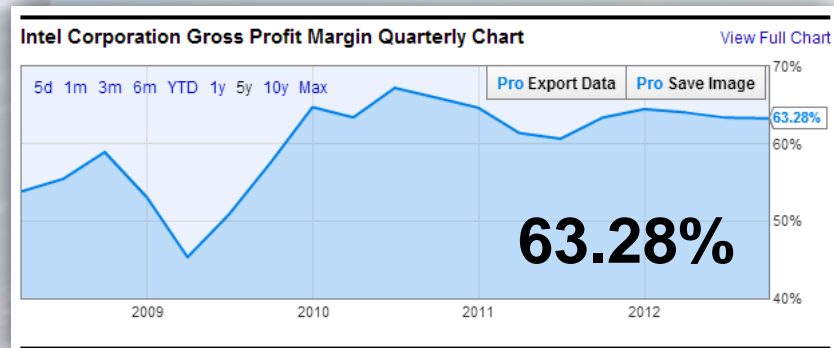
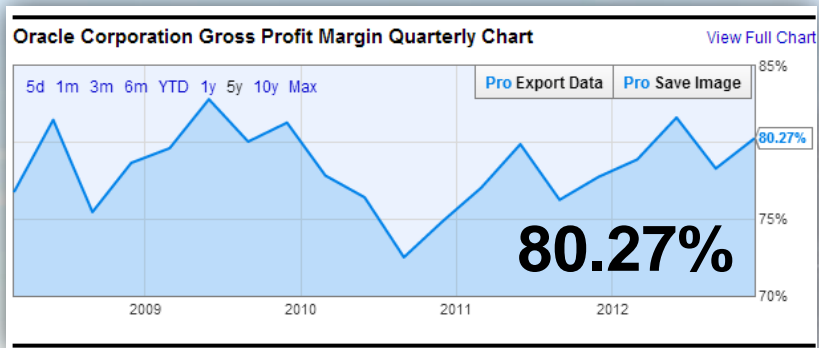
Exxon Mobil Corporation Gross Profit Margin Quarterly Chart

[View Full Chart](#)





# Enterprise IT Industry



# Inflection Point

**Business goes on  
the new heights**

ICT  
Cloud  
Big Data  
Globalization

10x change in an element of the business.  
What worked before doesn't work now.  
The executives are the last to know.

**Business  
declines**

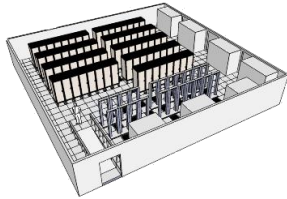
Source: Only the Paranoid Survive, by Andy Grove





# Wanted: A New Class of Enterprise Infrastructure

Traditional  
Enterprise IT



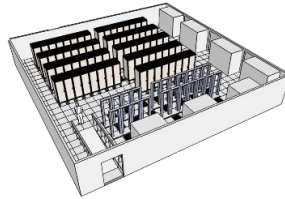
EMC<sup>2</sup>



CISCO

ORACLE<sup>®</sup>

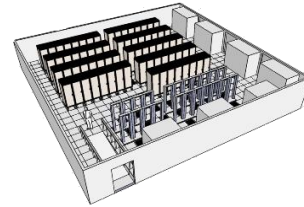
Private Cloud  
IT



Enterprise Ready  
Cost Competitive  
Forward Looking

<Your name here>

Public Cloud  
Open-Source



**Customers will figure it out**



The bottom line

**Want**



**Need**



# Media player customers recognize the added value of solid-state and pay a premium up to 10x (1,000%)

## CD Player (~\$40)



**Sony DEJ011 CD Walkman« Portable CD Player** by Sony

~~\$39.95~~ **\$38.94**

Order in the next **30 hours** and get it by Tuesday, Aug 21.

More Buying Choices

**\$38.94** new (3 offers)

**\$19.95** used (11 offers)

★★★★☆ (131)

Eligible for **FREE** Super Saver Shipping.

**Electronics:** See all 17,594 items

## Solid State Media Player (~\$400)



**iPod shuffle**  
**\$49**



**iPod nano**  
**From \$129-\$149**

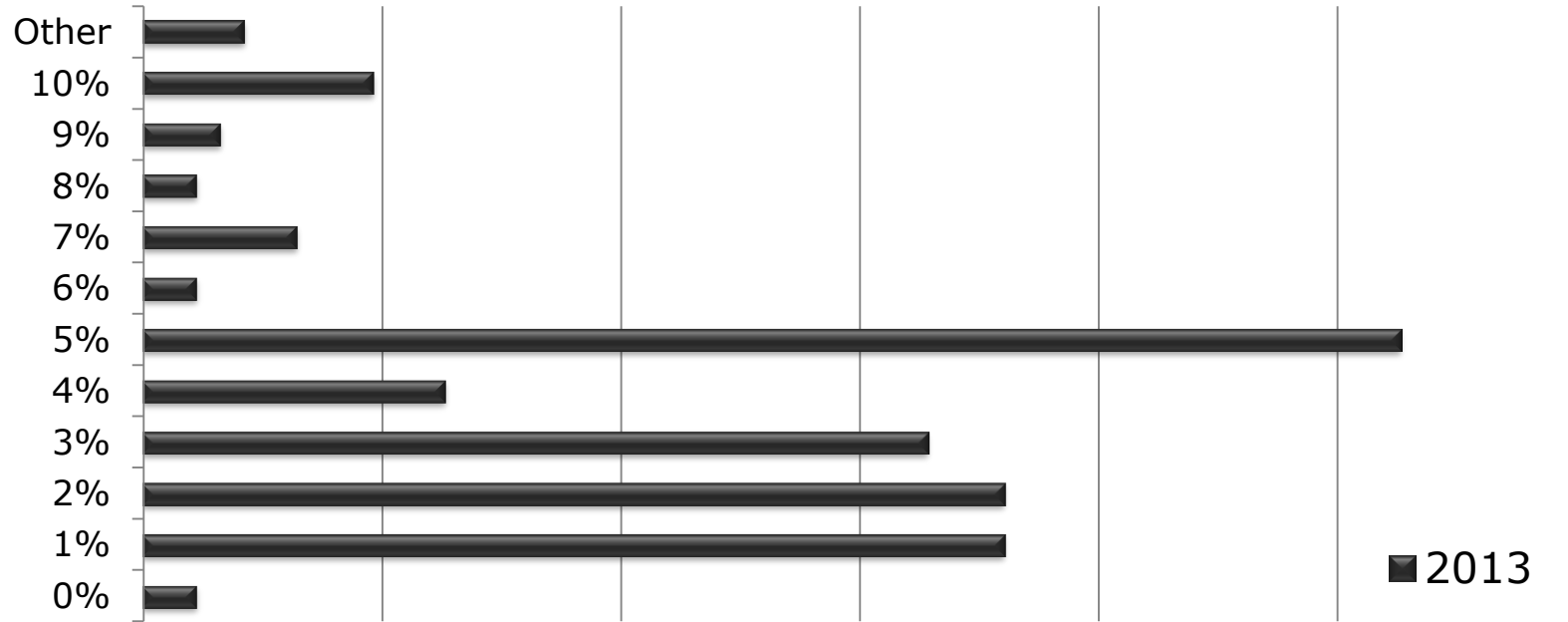


**iPod classic**  
**\$249**



**iPod touch**  
**From \$199-\$399**

**I estimate approximately this percentage of Enterprise HDDs in my organization's SAN arrays and servers will FAIL every year:**



# Describe the "perfect" HDD for your Enterprise server and storage systems:

- One that **doesn't fail** in say 8 - 10 years and create less heat for the server room.
- **24 hour up time**, low heat, highest throughput
- high rpm, medium capacity (so i can get more read-write h
- Both high capacity capacity SSDs.
- cheap, fast, good, to only two of these
- zero latency, low power, **high mtbf**, low cost, high capacity.
- **Reliable**, ease to manage and price sensitive
- Included in a server or a SAN
- Free, fast, and big
- All SSD's!
- **High MTBF**
- Low cost/GB
- Small form factor
- Low power consumption"
- **Highest reliability in a high temp environment** with a cost effective deployment
- fast, huge, power thrifty and **reliable**
- Not sure
- **High MTBF**, low price, state of art capacity
- Fast, **reliable**, inexpensive
- **never fails**
- Reasonable price and fast that can be used for tiering data on storage arrays
- **Very reliable**
- Inexpensive
- high capacity, large cache, low power, **great reliability**, medium speed
- High rpm, **high mtf** and low cost
- Fast, **reliable**, inexpensive per GB
- full SSD san and nas
- Fast, **reliable**, cheap
- Fast, **Reliable** and Inexpensive

## NEVER FAILS

ailures and longer warranty ity, low power consumption, like SATA - good luck

- All 100% SSD when the prices are reasonable.
- Fast, large and reliable.
- High performance SSD for those applications that would benefit the most. HDD for those applications that are not disk heavy and can do very well with slower low cost
- It should be scalable and sustainable
- **Reliable** with good warranty.
- High performance, **high MTBF**.
- Good performance, high capacity, **never crashes**
- Fast, **reliable**, and cheap.
- None
- Fast, Ch
- High per
- speed & HDD
- No comment
- **never fail**
- Fast, cheap and reliable.
- Don't know
- ultra fast, high capacity, extremely high throughput
- The perfect HDD would be fast, **reliable**, and self-monitoring to allow for proactive maintenance.
- "Infinite space. infinite reliability.
- My concerns are really SMART predictive drive failure, low power, medium high performance, medium high reliability. My systems are redundant, so a blown drive is not a big hiccup, as long as I don't lose to many at once. Predictive failure via SMART has really changed how I feel about drives and drive maintenance."
- Low cost, high capacity, low MTF
- high rpm, lots of cache
- Meets the criteria listed above.
- Low cost, high cap, SSD
- Integrates with our current storage architecture.
- one that is fast and **never fails**

## NEVER CRASHES

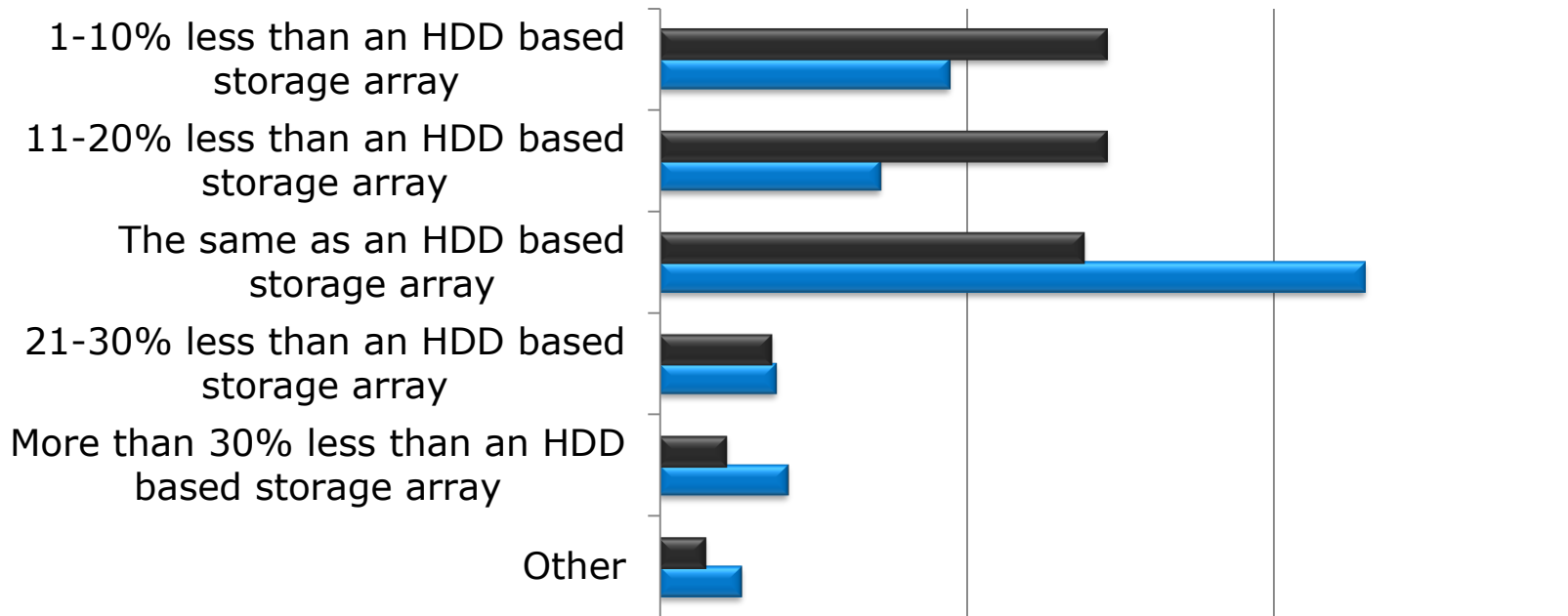
- 10K 900GB SAS 2.5"
- Large SSD, Low Price
- **Reliable** and self-healing.
- Largest capacity, fastest, highest cache, lowest price, **reliable**.
- Cheap and **lasts forever**.
- One that is donated, and support is provided as well, and works well for us.
- WD has a **high reliability** for us and is a solid brand that our vendor carries.
- Fast, **reliable** and inexpensive
- One that you put into the device and **never have to worry about**.
- Faster
- SSD drive form factor 2.5 inch. low power , highest IOPS, **largest**
- fast
- and price with a **long MTBF**.
- **High tolerance**
- Replace all HDD with SSD
- high performance and low price
- **Long lasting**, inexpensive, fast, stable.
- Fast, cool, **reliable**
- **Reliable**, adequate performance (seek time and transfer

## NEVER HAVE TO WORRY

st of a spinning

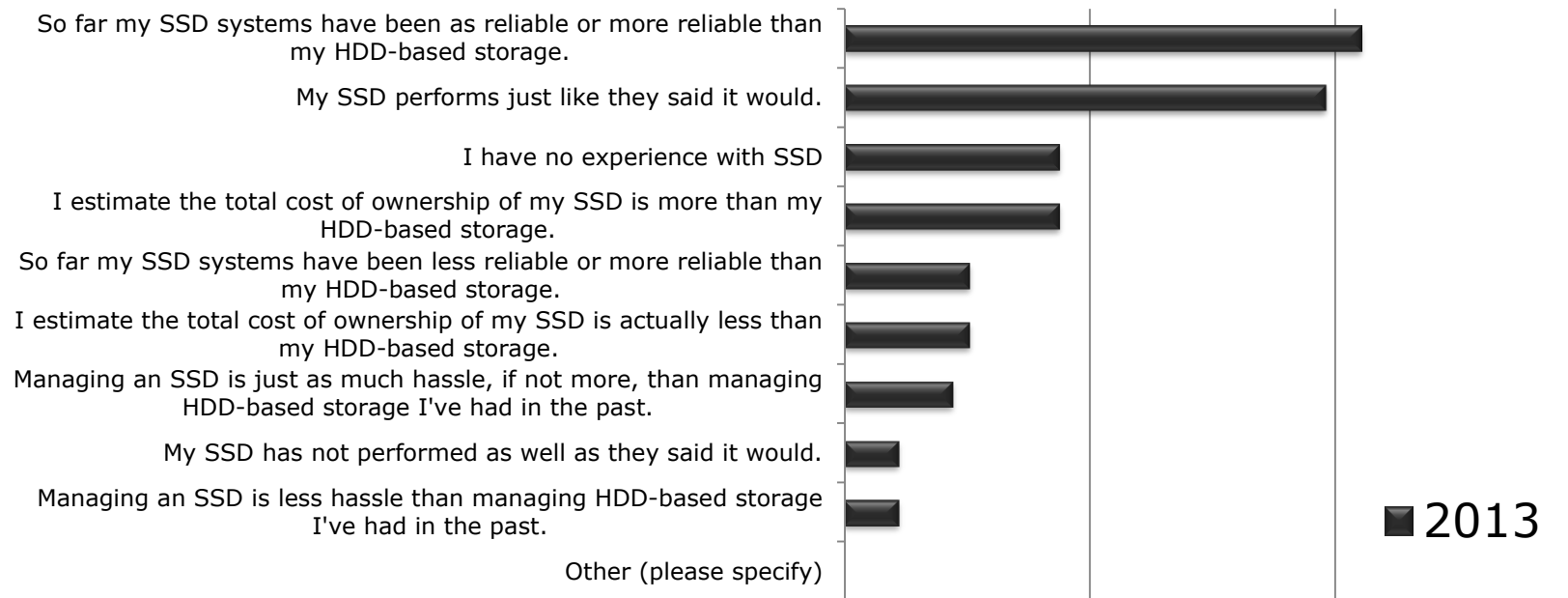
- A low cost, high capacity SSD
- Adaptable hybrid
- None.
- fast and **reliable**!
- 15k RPM, 2.5" form factor, 900G, 16G cache
- NA
- Cheap and **never fails**, no latency, 25K RPM
- High bandwidth, IOPS and **MTBF**
- Fast and **reliable**.
- Not sure
- high performance
- Fast, large, **reliable**, inexpensive application to allow for my department to acquire the five (9's).
- **reliable** and cheap
- Fast I/O, cheap price per GB, reliability

## By eliminating HDD crashes, I expect the operating costs of SSD based storage arrays to be:

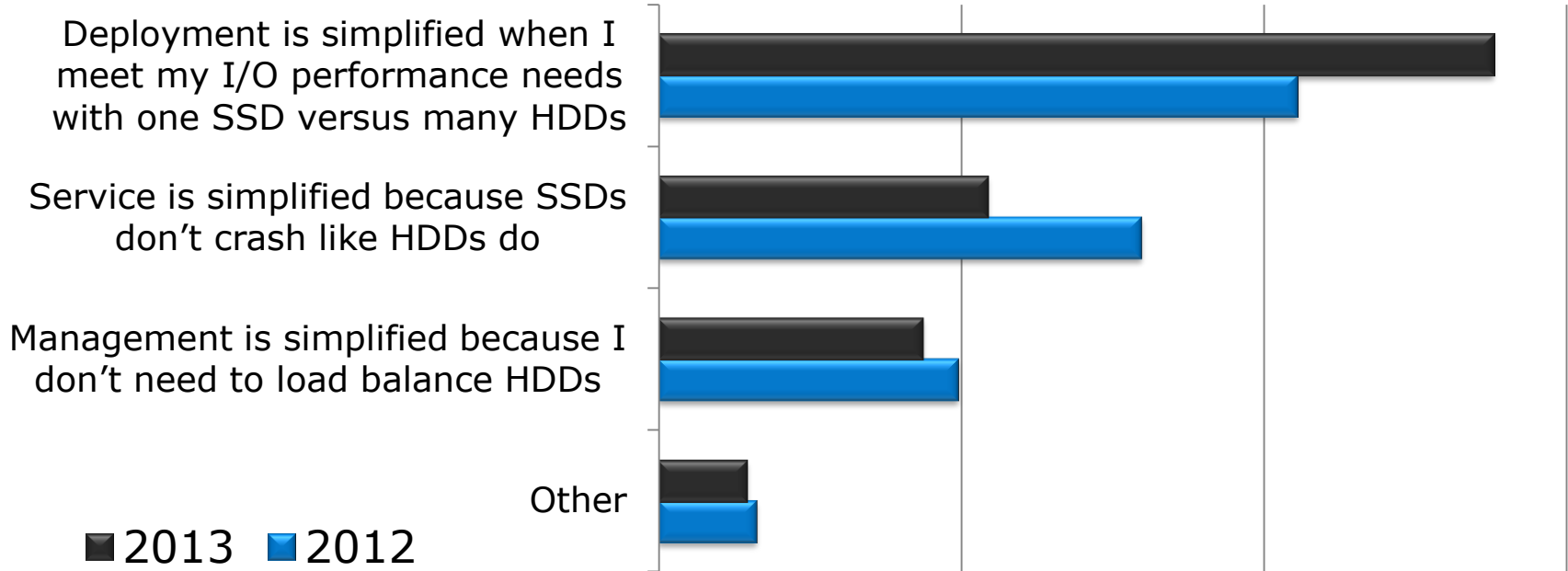




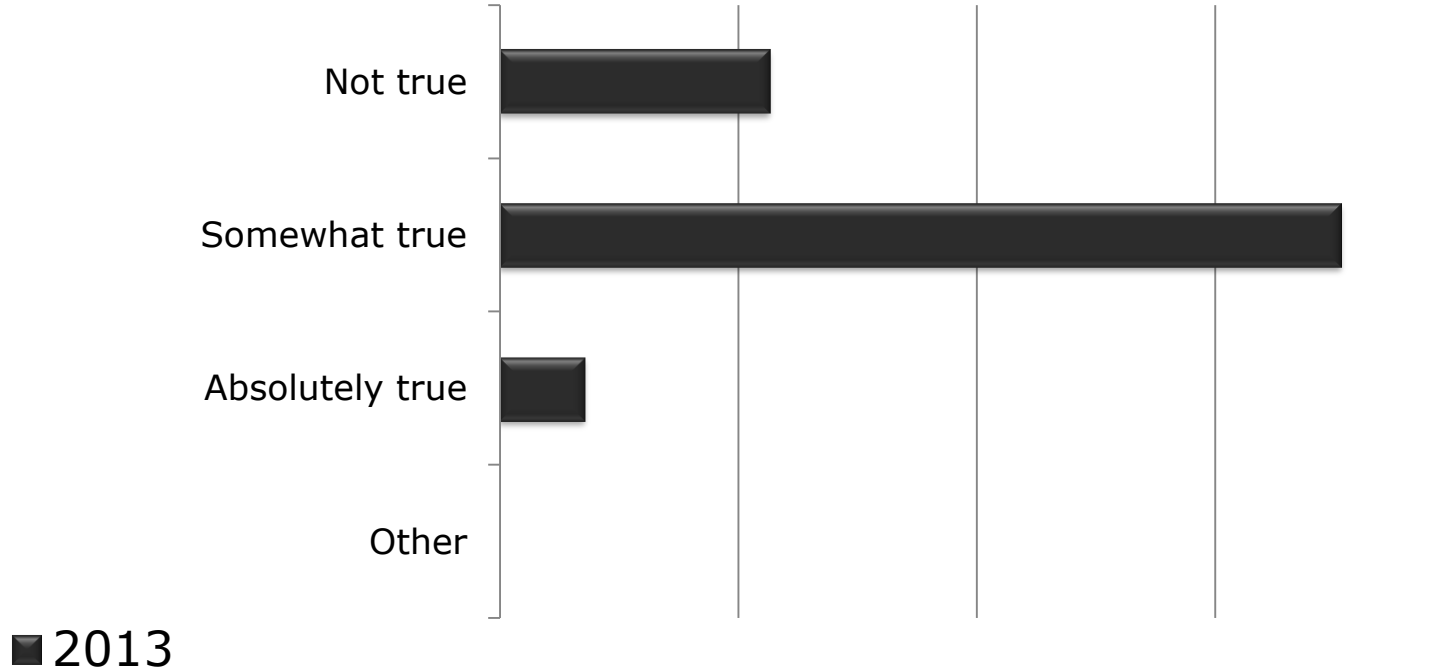
# My experience with SSD so far (all that apply):



## What I value most from SSDs is:



**A substantially longer warranty period for SSD storage systems is a strong indicator that SSD technology is more reliable than HDD storage systems. I believe this is:**





X  
HDD

# The Magic Number

This report includes charts without numbers. The report with numbers is available for \$1,500. Contact [cheryl.parker@itbrandpulse.com](mailto:cheryl.parker@itbrandpulse.com) to order.

# About the Authors



**Frank Berry**  
**CEO and Senior Analyst**

Frank Berry is a senior analyst with IT Brand Pulse. Prior to founding IT Brand Pulse, Frank was vice president of product marketing for QLogic, vice president of corporate marketing for QLogic, and vice president of worldwide marketing for Quantum.

[frank.berry@itbrandpulse.com](mailto:frank.berry@itbrandpulse.com)



**Cheryl Parker**  
**Director and Senior Analyst - End User, Channel, and OEM Research**

Cheryl Parker oversees the End User Research practice for IT Brand Pulse. Cheryl and her team conduct IT Brand Leader Surveys, Technical Product, Customer Satisfaction Surveys, Focus Groups and custom research, as well as compile Product Databases. Cheryl has more than 20 years in sales/marketing/research, and is a former reporter/sportswriter for the *Los Angeles Times*.

[cheryl.parker@itbrandpulse.com](mailto:cheryl.parker@itbrandpulse.com)

**IT BRAND**  
**PULSE™**

The logo features the text "IT BRAND" in a large, bold, sans-serif font, with "IT" in light blue and "BRAND" in white. Below it, "PULSE" is written in a smaller, bold, white sans-serif font, followed by a trademark symbol (TM). A series of approximately 20 grey, 3D-rendered spheres are arranged in a dotted path that starts near the "PULSE" text and curves upwards and to the right, ending near the "ND" of "BRAND". The background is a solid dark blue with some lighter blue curved shapes.