TechTarget 20

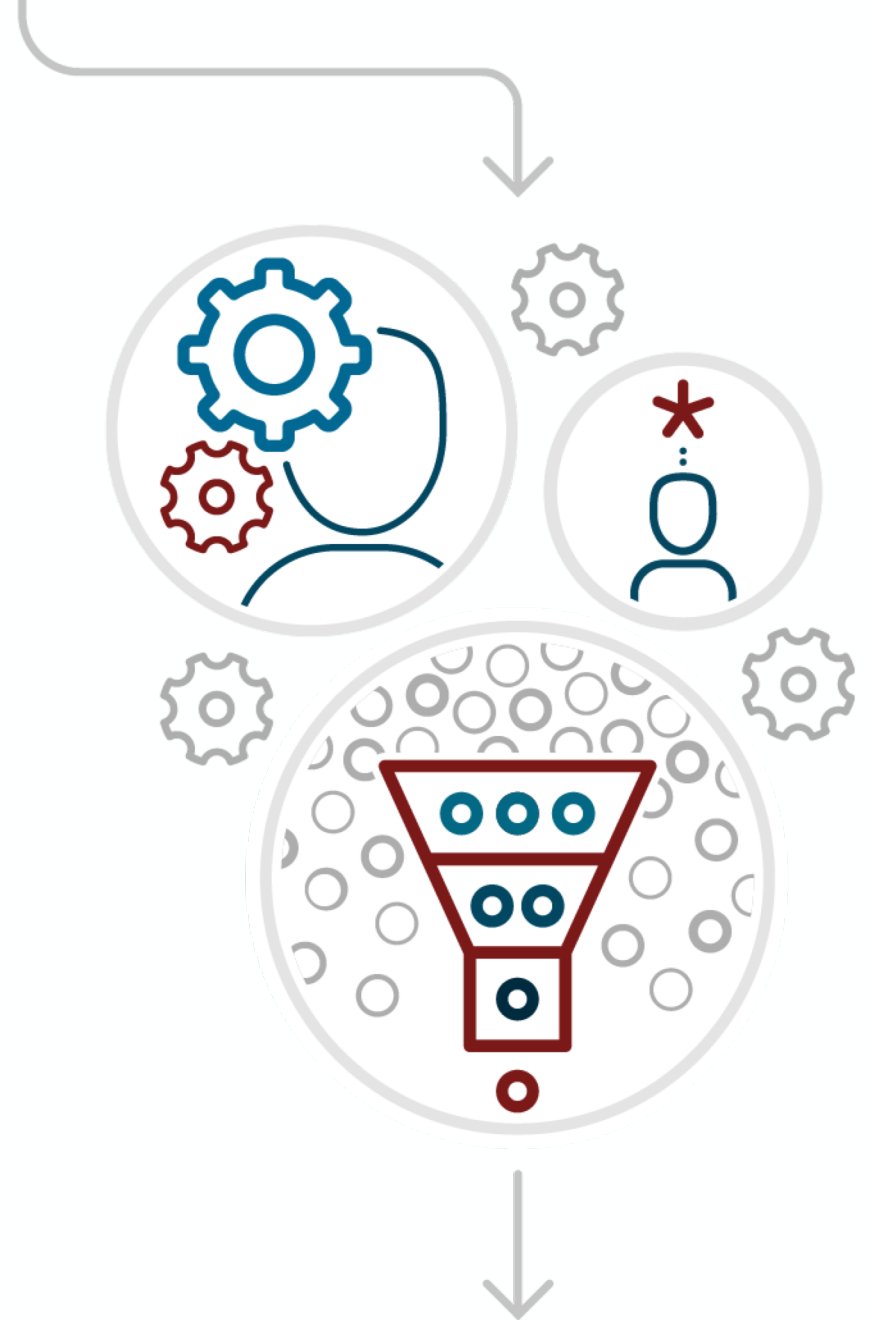**20 YEARS OF CLIENT SUCCESS**

Flash Memory Summit

BMKT-102A-1:

Know What the Flash Customer Wants and Needs

Dave Raffo | Executive News Director, Storage

August 6, 2019

Dave Raffo
Executive News Director, Storage

- Dave joined **SearchStorage** in 2007 after spending three-and-a-half years covering storage for Byte and Switch.

- As editorial director of the Storage Group, he leads TechTarget's coverage of storage, data protection and hyper-convergence.

- Dave also worked as managing editor of EdTech Magazine, as features and new products editor at Windows Magazine, and technology editor at eLearning company WatchIT.

- Before turning to technology, he was an editor and sports reporter for United Press International in New York for 12 years. A New Jersey native, Dave currently lives in northern Virginia.

TechTarget | **SearchStorage**

Session Panelists

Ken Steinhardt
Field CTO

INFINIDAT

Eric Herzog
Chief Marketing
Officer & VP WW
Storage Channels

IBM

Walt Hinton
Chief Marketing
Officer

pavilliondata

Marc Staimer
President, Dragon
Slayer Consulting

Where is the data coming from in today's discussion?

15 million buyers

140+ global sites

Relationships with the worlds largest buyers and users of IT

TechTarget Insights

2019 IT Priorities
- Fielded December 2018
- Respondents: 3,000 + across 140 topics

End User Project Insights
- On-going surveys, quarter over quarter
- Thousands of confirmed projects
- Confirmed project insight

1st Party Observed Intent Data
- Daily organic click-stream data
- Millions of prospects, 200 segments
- Current interest based on behavior

Does TechTarget audience activity reflect flash storage industry trends?

60% growth in NVMe projects since last year[1]

- We continue to see an increase in activity on our network around
    - **All flash related topics** (activity is up 43%)
    - **NVMe specifically** (activity is up 20%)

- Top performing assets included:
    - NVMe enterprise flash storage, new memory mean change in 2018
    - Which NVMe fabric will win out?
    - NVMe SSDs: Is there a need for all this speed?
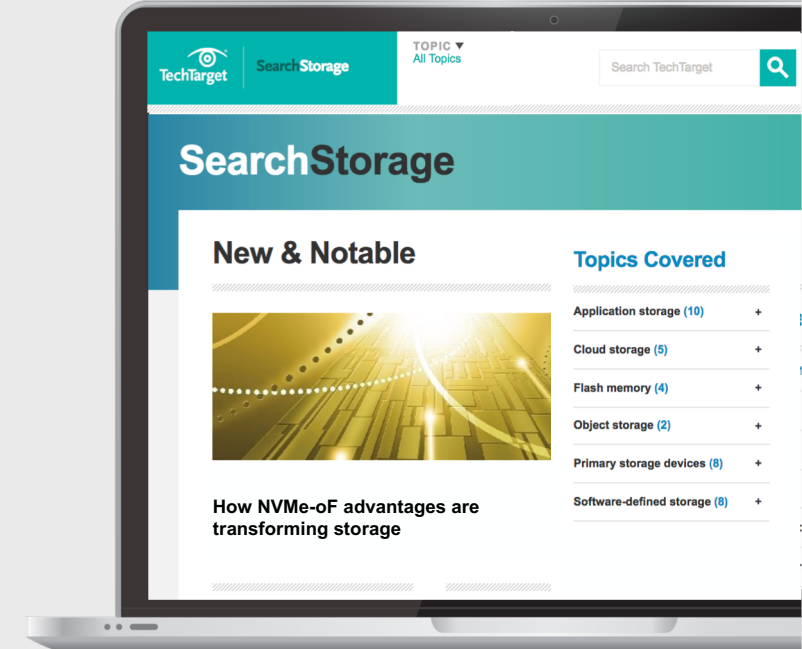
580+

Flash and **NVMe** related pieces of content published on the TechTarget network in the last year alone

Flash Storage Market Update:
2019 is Denser and Cheaper

- **Flash becoming default for pretty much all production systems** & increasingly becoming default for higher % of long-term storage
  - Starting to see the **encroachment of flash into areas where HDDs are still very strong** because of **QLC flash and its TCO and density benefits**

- **NAND surplus changing buyer expectations** who look to capitalize on more affordable options but prices coming down mean less profits for vendor

- Still seeing strong interest in **NVMe and its application/workload-specific performance benefits** (20% growth in activity) while FC-NVMe poised for greater adoption this year due to simplicity of deployment

- **New hardware and memory advancements** reinforcing the important role that "hardware" might play in our Intelligent future and re-shaping storage systems?

- **AI/Machine Learning top of mind w/ storage buyers** for 2 reasons: predictive storage analytics and performance for AI/ML workloads

Ranking of topic activity under our Flash Storage Segment offers insights into potential content angles

RANK	TOP 1-10 TOPICS
#1	NVMe
#2	NVMe-oF
#3	Storage efficiency
#4	Storage performance
#5	Hard disk drive
#6	Legacy applications
#7	Digital transformation
#8	IT infrastructure
#9	Big Data
#10	IoT

RANK	TOP 11-20 TOPICS
#11	Regulatory compliance
#12	Scale-out NAS
#13	Storage access speeds
#14	In-memory database
#15	Hyper-converged infrastructure
#16	Cloud based storage
#17	High availability
#18	Data backup appliance
#19	Converged Infrastructure
#20	Object Storage

Key Takeaways

- NVMe dominating user activity and **60% increase** in confirmed projects

- Efficiency & performance are important themes

- Important for Storage vendors to think about related topics and bigger picture items driving interest in flash (DT, IoT, Big Data)

Broader infrastructure changes require marketers to have a broader perspective

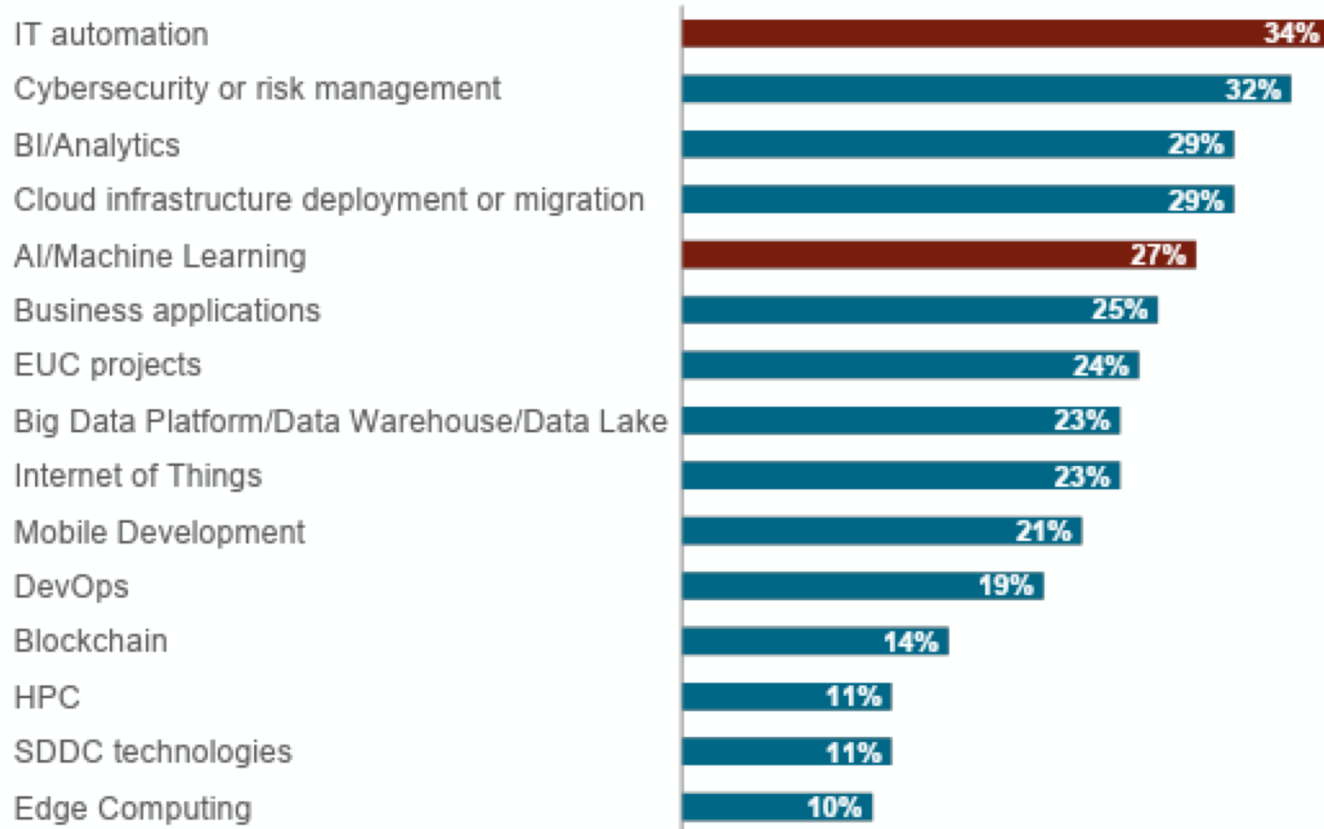**Data Center**

Cloud

Data/Edge AI/IoT

Security
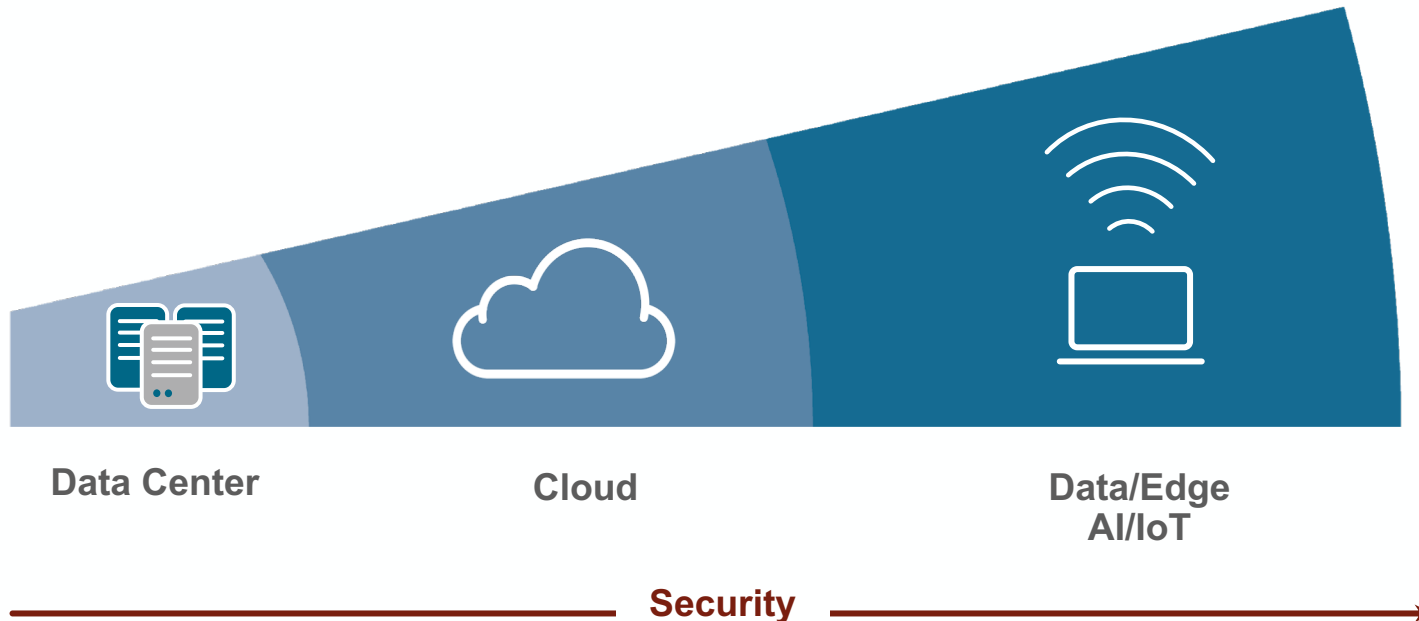
"There is a dramatic evolution happening right now. It's no longer about hardware or software — it's about delivering services that accomplish business needs. The future of infrastructure is everywhere and anywhere, and will be business-driven by nature."

Ross Winser
Senior Analyst
Gartner

IT Automation & AI/Machine Learning

Which of these **broad initiatives** will your company implement in 2019?

Initiative	Percentage
IT automation	34%
Cybersecurity or risk management	32%
BI/Analytics	29%
Cloud infrastructure deployment or migration	29%
AI/Machine Learning	27%
Business applications	25%
EUC projects	24%
Big Data Platform/Data Warehouse/Data Lake	23%
Internet of Things	23%
Mobile Development	21%
DevOps	19%
Blockchain	14%
HPC	11%
SDDC technologies	11%
Edge Computing	10%

AI/Machine Learning

continues to grow in both interest and adoption forcing new performance requirements on infrastructure and storage

Trend #6: Data Management emerging as a top concern for storage buyers

Category	Percentage
SAN	18%
Storage virtualization	18%
Data management	16%
Public cloud storage (off-premises)	16%
NAS	15%
Storage for big data analysis	14%
Cloud object storage	14%
Hyper-converged infrastructure	13%
Storage for virtual environments	13%
Private enterprise cloud storage (on-prem cloud storage)	13%
Hybrid storage arrays (with both flash + HDDs)	13%
Software-defined storage	11%
Converged infrastructure	9%
Managed storage services	9%
All-flash arrays	9%
On-premises object storage	8%
Open-source storage technologies	8%
Storage for containers	7%
Implement/expand Ethernet storage network	6%
Scale-out NAS	6%
Implement/expand Fibre Channel storage network	6%
Predictive storage analytics	6%
NVMe-based storage systems	4%
NVMe over Fabrics (NVMe-oF)	3%

Primary Storage for Use Cases

Which of these primary storage initiatives will your company deploy in 2019?

Rank	Initiative	1,000 +
#1	Storage for big data analysis	23%
#2	Storage for virtual environments	23%
#3	Storage for containers	20%

Rank	Initiative	Sub 1,000
#1	Storage for virtual environments	20%
#2	Storage for big data analysis	10%
#3	Storage for containers	8%

Key Takeaways

- **Enterprise** has faster adoption with Big Data and Containers
- **SMBs** are still investing in their virtual environments

Top growth trends among flash buyers

	2H 2018	1H 2019	
Refresh legacy primary storage (driver)	19%	33%	**+74%**
Provide private cloud or cloud-like services (driver)	6%	10%	**+66%**
Policy-based automated tiering (feature)	5%	8%	**+60%**
Built-in storage analytics (feature)	7%	11%	**+57%**
Eliminate storage performance issues (driver)	23%	31%	**+35%**
Workload performance QoS (feature)	13%	15%	**+13%**

	2H 2018	1H 2019	
Refresh legacy primary storage (driver)	20%	35%	**+75%**
Provide private cloud or cloud-like services (driver)	6%	8%	**+33%**
Improve existing application or database performance (driver)	16%	19%	**+19%**
Cloud integration (feature)	12%	14%	**+17%**
Ease of use (feature)	31%	35%	**+13%**
Capacity scalability (feature)	37%	41%	**+11%**

Growth trends represent purchase criteria that are seeing notable growth rates and have **the potential to be top of mind** in the near future
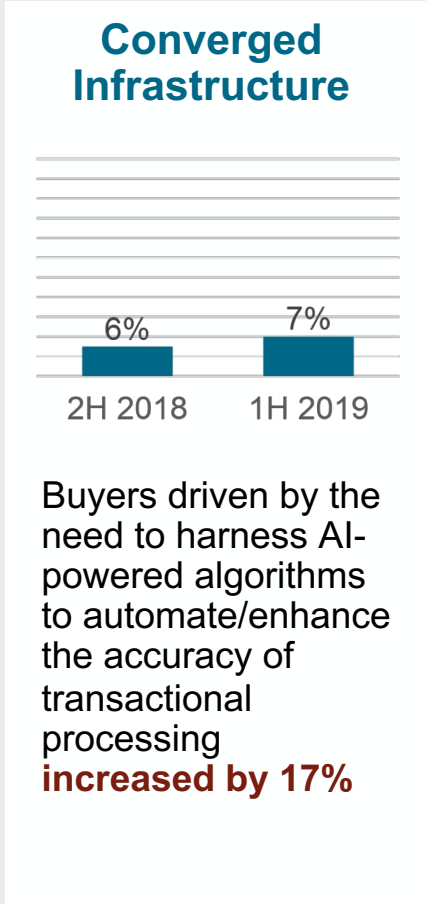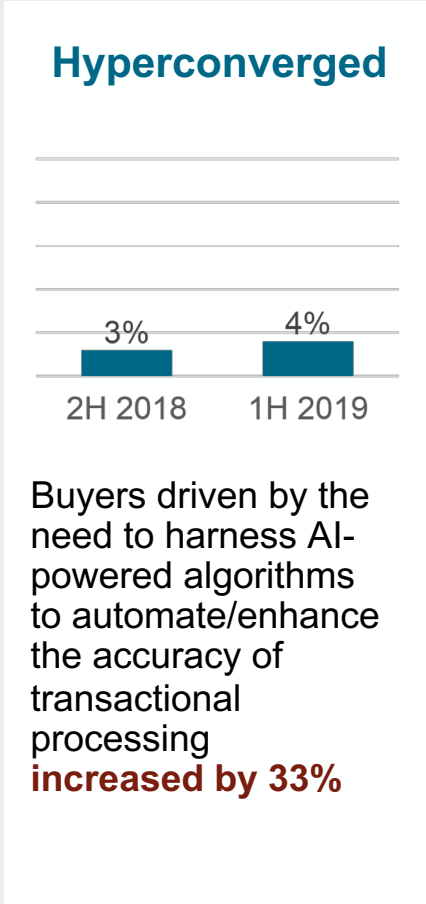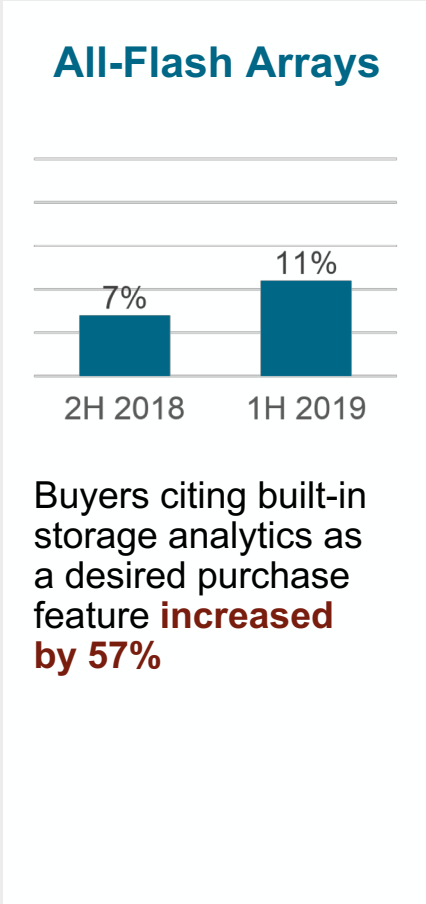
Top growth trends among NVMe-focused all-flash array buyers

Refresh legacy primary storage (driver)	13%	32%	**+146%**
Provide private cloud or cloud-like services (feature)	8%	17%	**+113%**
Eliminate storage performance issues (driver)	24%	35%	**+46%**
Transition to all-flash data center (driver)	15%	19%	**+27%**
Assure performance for a new application	16%	20%	**+25%**
Improve existing application or database performance (driver)	28%	29%	**+4%**

Key Takeaways

- NVMe's strong consideration as part of storage refresh points to its growing maturity/adoption

- Consideration growing more for database and other new applications

AI and data analytics grow in importance among primary storage buyers

NAS

2H 2018	1H 2019
2%	4%

Buyers citing built-in storage analytics as a desired purchase feature **increased by 100%**

SAN

2H 2018	1H 2019
3%	5%

Buyers citing built-in storage analytics as a desired purchase feature **increased by 67%**

All-Flash Arrays

2H 2018	1H 2019
7%	11%

Buyers citing built-in storage analytics as a desired purchase feature **increased by 57%**

Hyperconverged

2H 2018	1H 2019
3%	4%

Buyers driven by the need to harness AI-powered algorithms to automate/enhance the accuracy of transactional processing **increased by 33%**

Converged Infrastructure

2H 2018	1H 2019
6%	7%

Buyers driven by the need to harness AI-powered algorithms to automate/enhance the accuracy of transactional processing **increased by 17%**

Total storage capacity

What is the total capacity of (on-prem & off-prem) storage managed by your organization?

Category	On-prem	Off-prem
10 PB or more	7%	10%
1-9 PB	8%	9%
100-999 TB	17%	31%
10-99 TB	31%	24%
Less than 10 TB	36%	27%

Sweet Spot
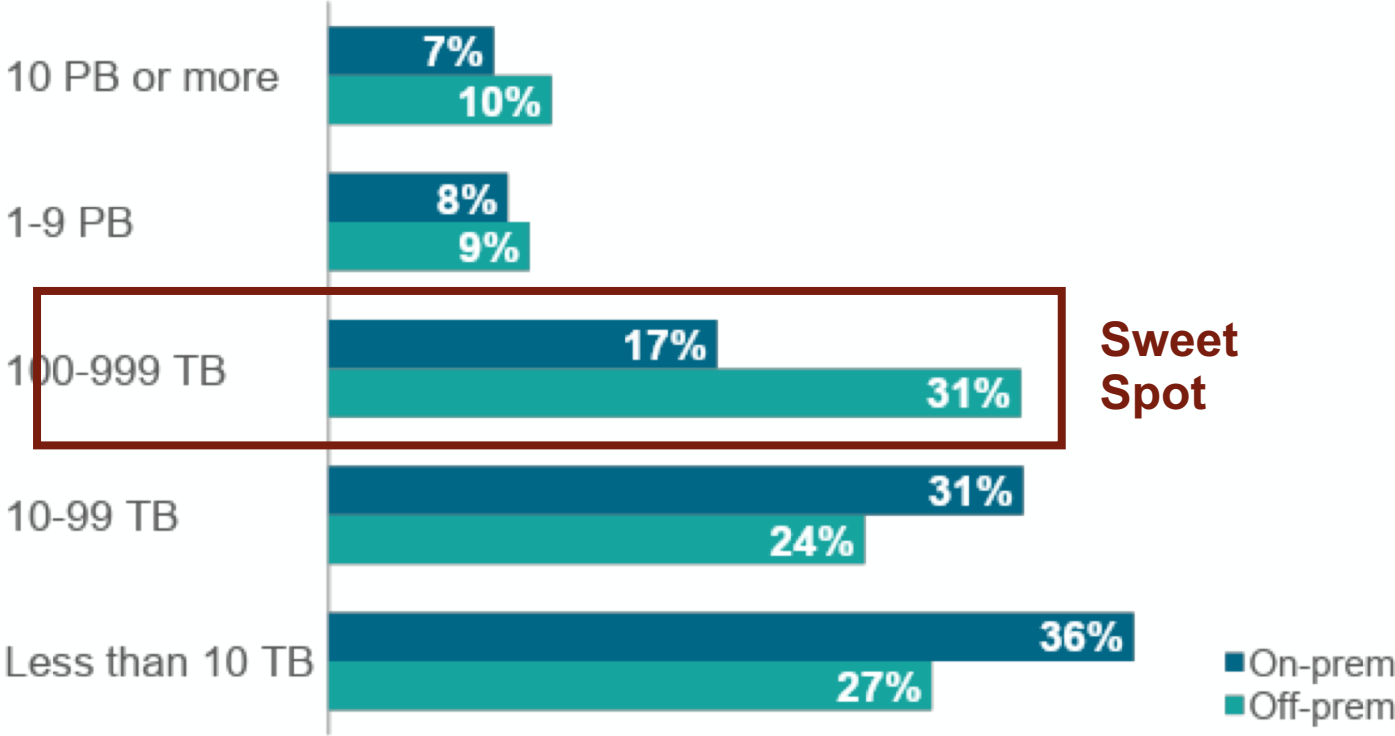
Key Takeaways

67%
Are managing over 100TB of total storage capacity

37% Off-prem

63% On-prem
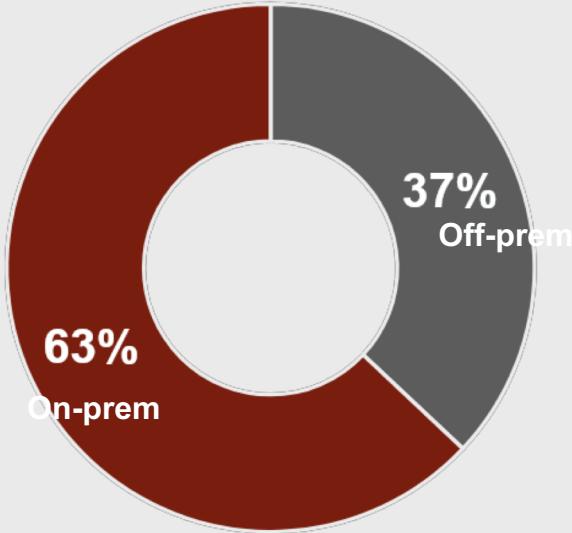
Technologies status

What is the current status of the following technologies at your organization?

Technology	In use	In pilot	In plan < 24 mos.	Not in plan
Hard disk arrays	80%	3%	5%	11%
Hybrid arrays	43%	10%	15%	31%
Public cloud storage service	39%	11%	19%	31%
All-flash arrays	34%	10%	19%	37%
Converged infrastructure	33%	11%	19%	38%
HCI* (primary)	30%	10%	22%	39%
HCI* (secondary / DR)	24%	7%	28%	41%
NVMe	16%	11%	26%	46%

Legend: In use · In pilot · In plan < 24 mos. · Not in plan
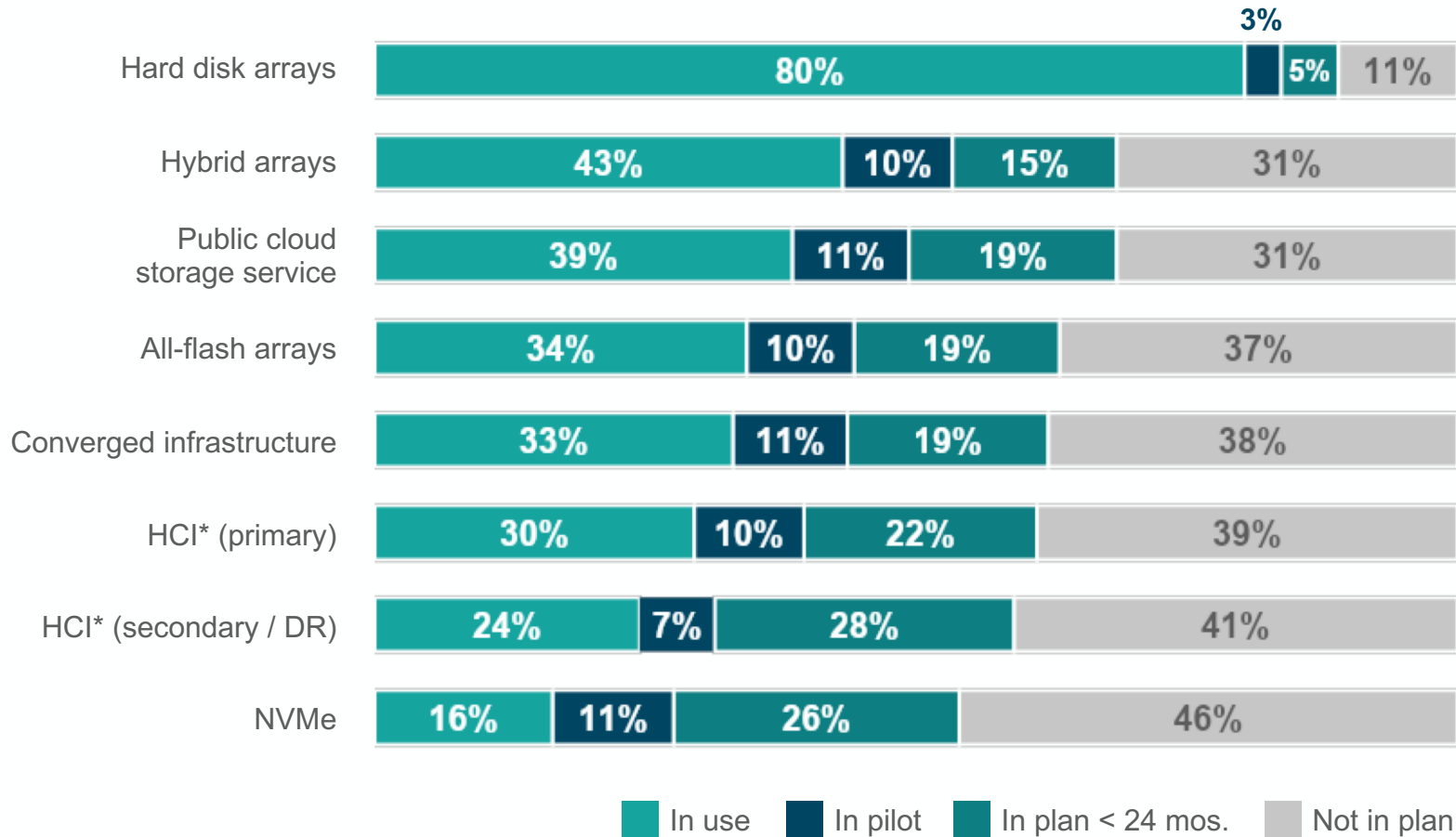
Forecasted capacity changes

How do you expect the storage capacity for each these technologies [shown on left] to change over next 24 months?

- 16% — **Increase** by 50% or more
- 62% — **Increase** by less than 50%
- 19% — Stay the same
- 3% — Decrease
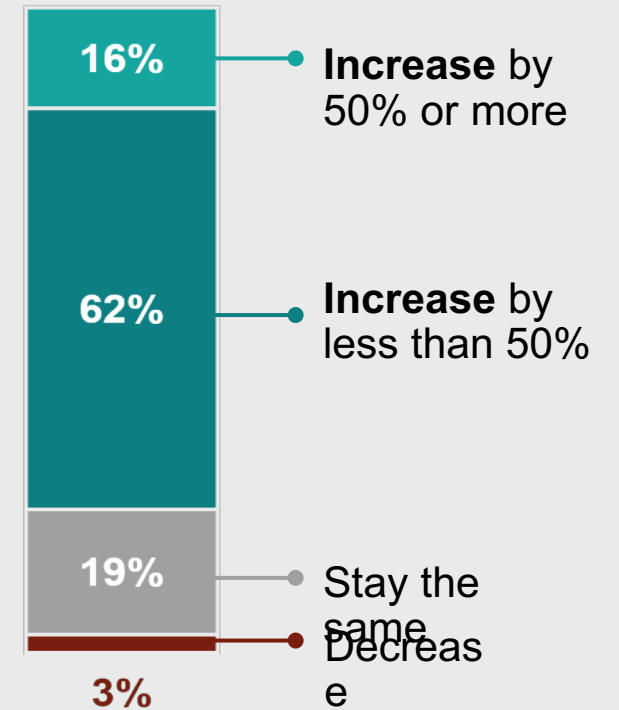
Spending change for storage

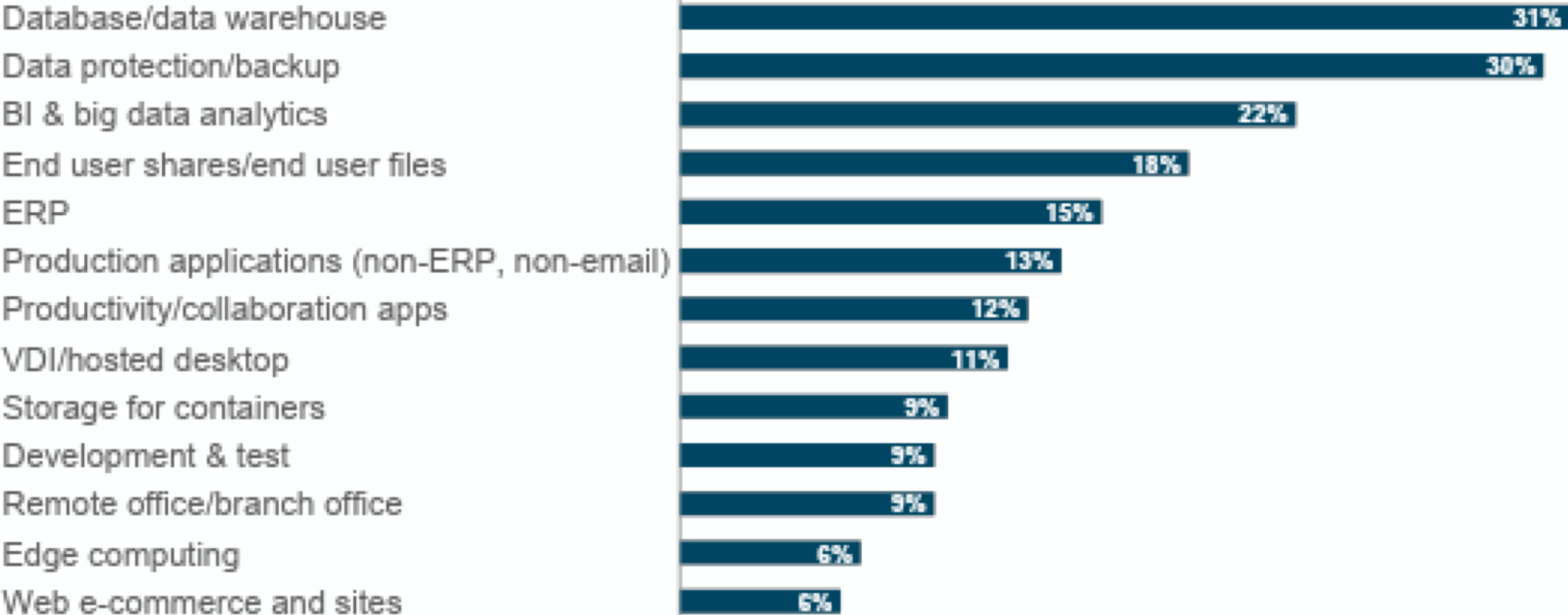**Over the next 12 months, how do you expect your organization's spending on storage to change?**

| 69% | 24% | 7% |

Increase

Stay the same

Decrease

Fabric transport plans

Which fabric transport did you adopt for NVMe over Fabric?

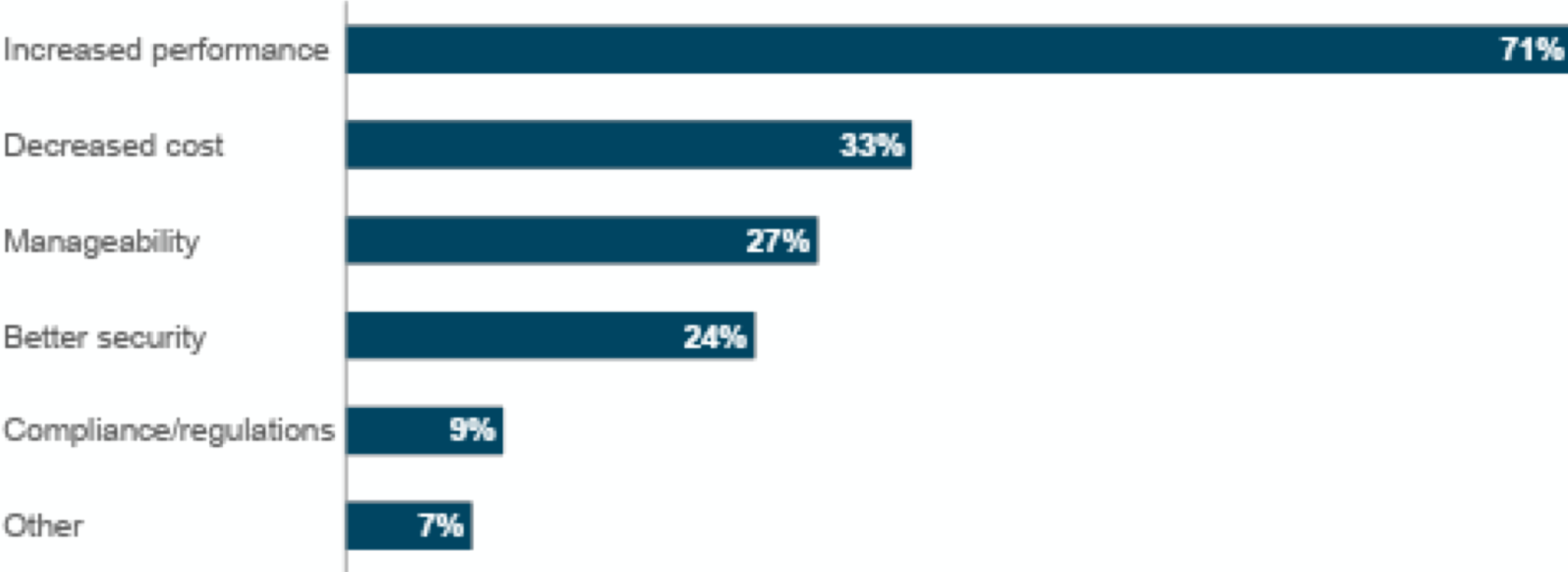**Which fabric transport do you plan to adopt for NVMe over Fabric?**

	Did you adopt	Do you plan to adopt
Fibre Channel	53%	51%
TCP	25%	25%
Other	12%	8%
InfiniBand	6%	7%
ROCE*	3%	6%
iWARP	1%	3%
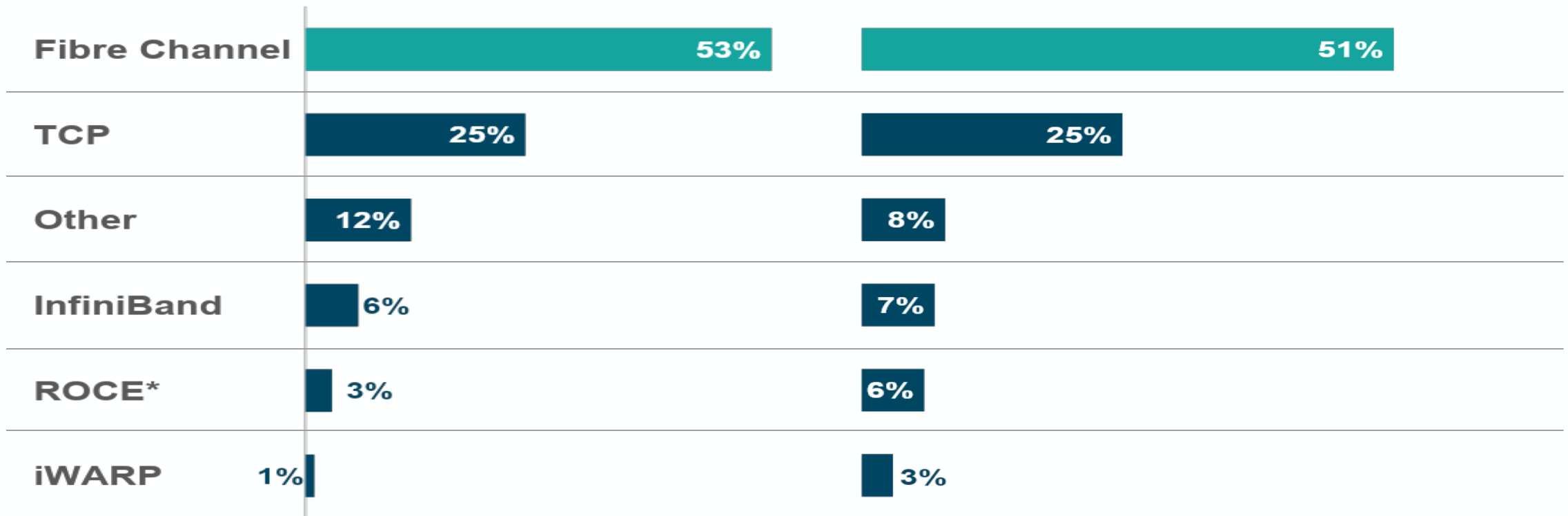
Workload change

Which of the following workloads are most likely to undergo a change in their underlying storage? (Choose up to 3)

Workload	%
Database/data warehouse	31%
Data protection/backup	30%
BI & big data analytics	22%
End user shares/end user files	18%
ERP	15%
Production applications (non-ERP, non-email)	13%
Productivity/collaboration apps	12%
VDI/hosted desktop	11%
Storage for containers	9%
Development & test	9%
Remote office/branch office	9%
Edge computing	6%
Web e-commerce and sites	6%

Primary factor driving change in underlying storage workloads

Which of the following workloads are most likely to undergo a change in their underlying storage?*
What is the primary factor driving this change?

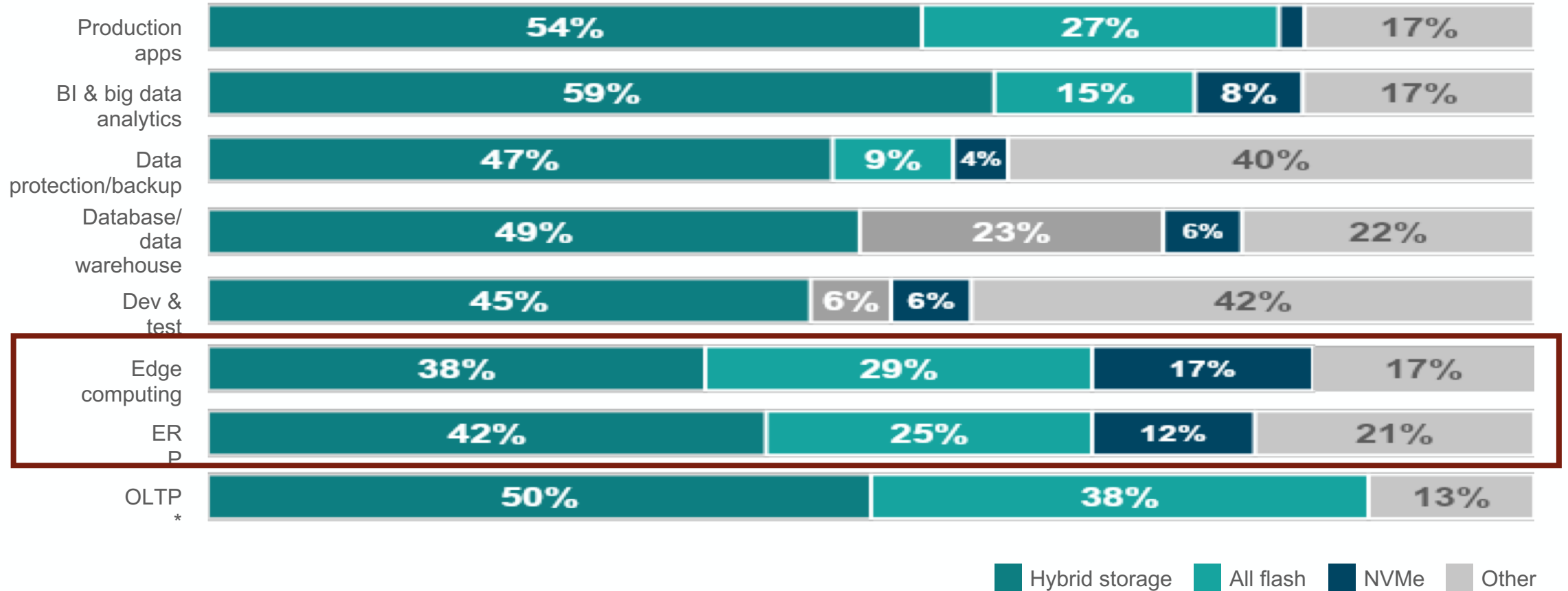| Factor	Percentage
Increased performance	71%
Decreased cost	33%
Manageability	27%
Better security	24%
Compliance/regulations	9%
Other	7%

Workloads: Primary factors driving change

	Increased performance	Decreased cost	Manageability	Better security	Compliance /regulations
BI & big data analytics	64%	7%	12%	7%	7%
Industry specific apps	57%	4%	14%	14%	7%
Edge computing	54%	8%	17%	4%	4%
OLTP	50%	19%	9%	13%	6%
Production apps	48%	10%	15%	12%	12%
Database/data warehouse	47%	8%	15%	16%	8%
ERP	47%	7%	7%	12%	11%
End user shares/files	38%	17%	13%	20%	10%
Storage for containers	38%	26%	21%	12%	3%
Remote/branch office	36%	15%	9%	33%	3%
VDI/hosted desktop	36%	11%	18%	31%	2%
Productivity/collab apps	33%	15%	15%	28%	2%
Development & test	30%	21%	15%	12%	9%
Web e-commerce and sites	30%	13%	22%	30%	4%
Data protection/backup	16%	25%	18%	19%	19%

HIGH

LOW

Primary storage by workload

For these workload(s), which of the following is primary storage.

	Hybrid storage	All flash	NVMe	Other
Production apps	54%	27%		17%
BI & big data analytics	59%	15%	8%	17%
Data protection/backup	47%	9%	4%	40%
Database/ data warehouse	49%	23%	6%	22%
Dev & test	45%	6%	6%	42%
Edge computing	38%	29%	17%	17%
ERP	42%	25%	12%	21%
OLTP*	50%	38%		13%

Primary storage by workload (continued)

For these workload(s), which of the following is primary storage.

Workload	Hybrid storage	All flash	NVMe	Other
Remote/branch office	45%	9%	12%	33%
Productivity/collab apps	50%	17%		33%
Storage for containers	38%	32%	12%	18%
VDI/hosted desktop	49%	29%	4%	18%
Industry specific apps	46%	21%		32%
Web e-comm & sites	57%	22%	4%	17%
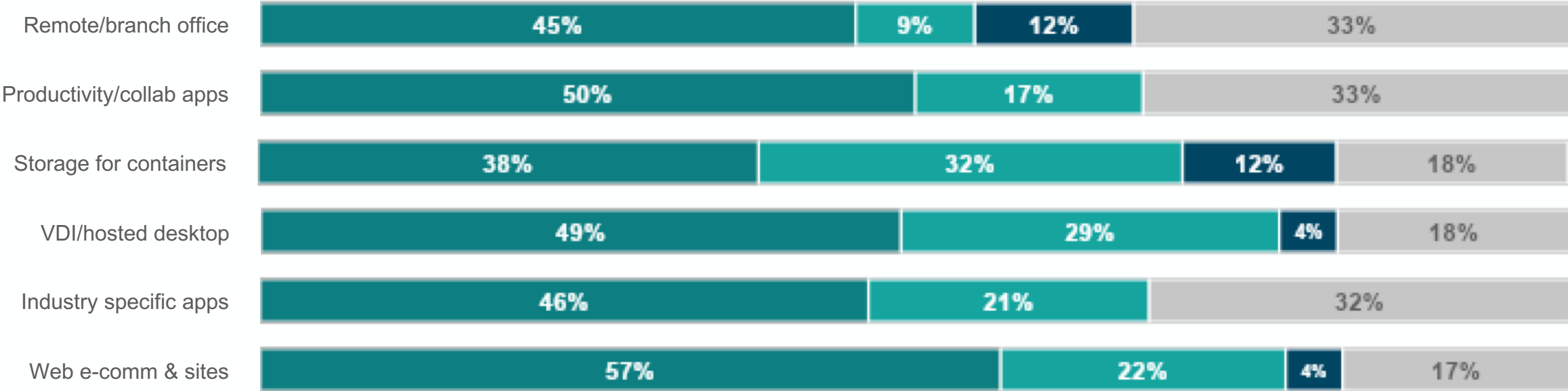
Legend: Hybrid storage | All flash | NVMe | Other

Storage by workload

For the below workload(s), please select which of the following will be used.

Workload	On-prem	Hybrid cloud	SaaS	Other
Production apps	58%	19%	17%	6%
BI & big data analytics	34%	33%	29%	5%
Data protection/backup	48%	36%	8%	7%
Database/data warehouse	54%	26%	10%	9%
Dev & test	61%	21%	9%	9%
Edge computing	33%	29%	33%	4%
End user shares/files	48%	34%	14%	4%
ERP	65%	16%	18%	

Legend: On-prem · Hybrid cloud · SaaS · Other
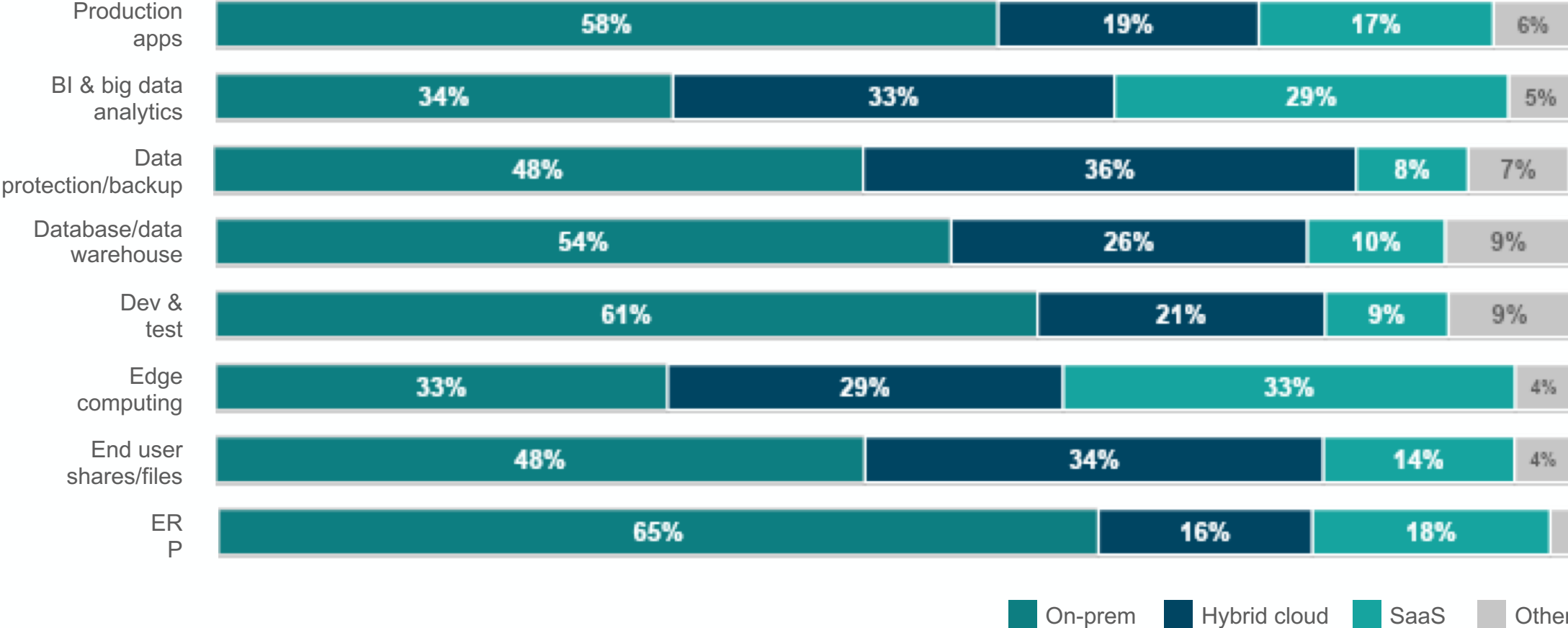
Storage by workload (continued)

For the below workload(s), please select which of the following will be used.

Workload	On-prem	Hybrid cloud	SaaS	Other
OLTP*	47%	16%	28%	9%
Remote/branch office	39%	39%	15%	6%
Productivity/collab apps	43%	28%	28%	
Storage for containers	47%	24%	26%	
VDI/hosted desktop	67%	16%	18%	
Industry specific apps	46%	39%	11%	
Web e-comm & sites	35%	22%	35%	9%
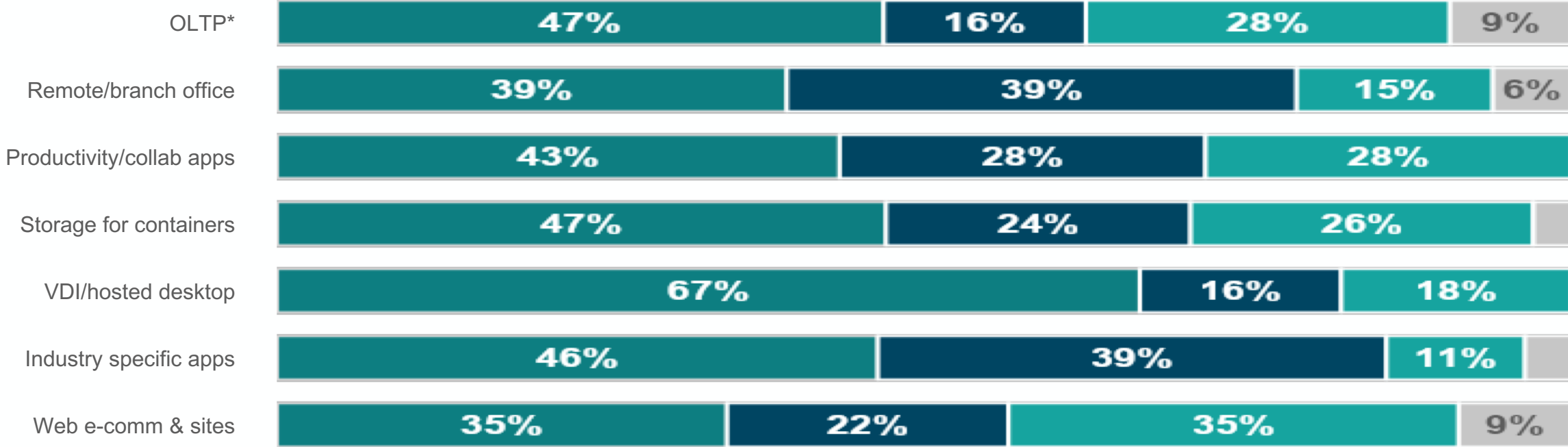
Legend: On-prem · Hybrid cloud · SaaS · Other

Upcoming sessions

Tuesday August 6th

BMKT-102A-1:
Know What the Flash Customer Wants and Needs

Track: Business/Marketing

Presented by: Dave Raffo

Time: 3:40pm to 4:45pm

BMKT-102B-1:
Data Growth and a future with Zettabytes

Track: Business/Marketing

Presented by: Mike Matchett

Time: **4:55pm-6:05pm**

Thursday August 8th

FSOL-301A-1:
Flash Solutions for Oracle

Track: Flash Solutions

Presented by: Dave Raffo

Time: 8:30am-9:35 am

FSOL-302A-1:
Flash Solutions for Analytics

Track: Flash Solutions

Presented by: Mike Matchett

Time: 2:10pm to 3:25pm

FSOL-301B-1:
Flash Solutions for SAP

Track: Flash Solutions

Presented by: Jillian Coffin

Time: 9:45am to 10:50am

FSOL-302B-1:
Flash Solutions for AI/ML

Track: Flash Solutions

Presented by: Jillian Coffin

Time: 3:40pm to 5:00pm

Thank you.

Dave Raffo
Executive News Director, Storage
TechTarget