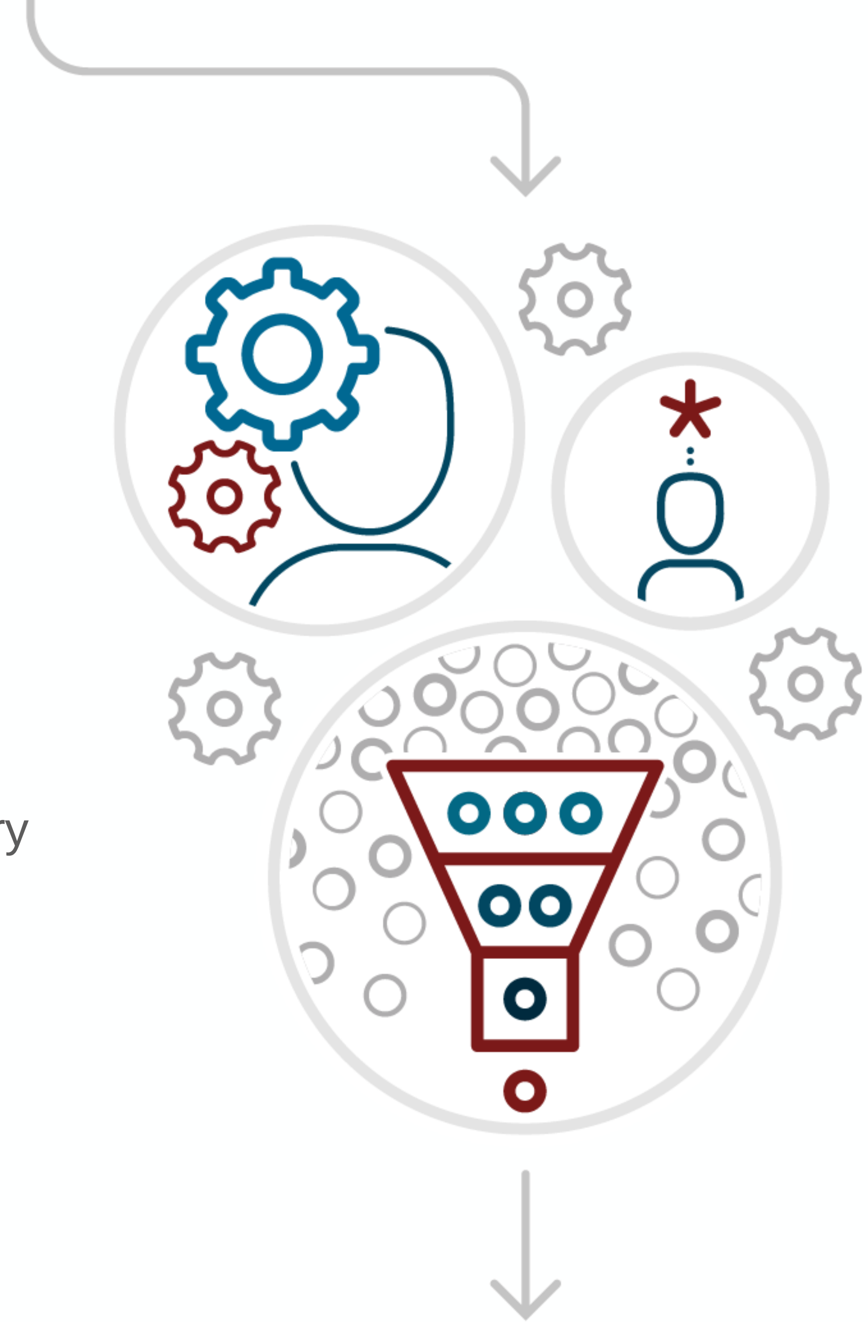
FSOL-302A-1:

Flash Solutions for Analytics



Mike Matchett | Research Advisor & Principal Industry Analyst, Small World Big Data

August 8, 2019

Mike Matchett

Principal IT Industry Analyst, Small World Big Data

- Mike Matchett is **Principal IT Industry Analyst** at **Small World Big Data**, focusing on technology trends and the intersection where IT enterprise meets emerging markets.

- He is also a lead consultant and advisor to **TechTarget's Market Research and Development Group**.

- With more than 25 years of high-tech marketing and product management experience, Mike writes across data center, cloud and big data segments predicting that all data will become big, all clouds hybrid, and the converged data center re-imagined from center to edge.

- Prior to TechTarget, Mike spent 8 years as Senior Analyst role with Taneja Group where he provided expert analysis on emerging IT enterprise infrastructure markets. Mike was also a USAF Intelligence officer and holds a B.S in Electrical Engineering from the Massachusetts Institute of Technology.

TechTarget | SearchStorage

Session Panelists

Erik Kaulberg

Vice President

INFINIDAT

Denise Shiffman

Chief Product Officer

DriveScale

Matt Miller

Director of Product Marketing

WEKA.IO

Anu Murthy

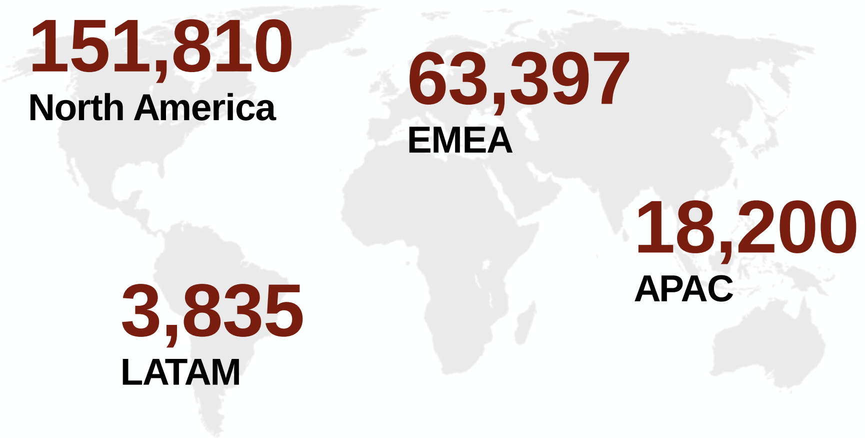
Vice President of Marketing

FADU

TechTarget's Storage audience

1.3 million Storage members globally

Storage and infrastructure buyers active in the last 90 days[1]

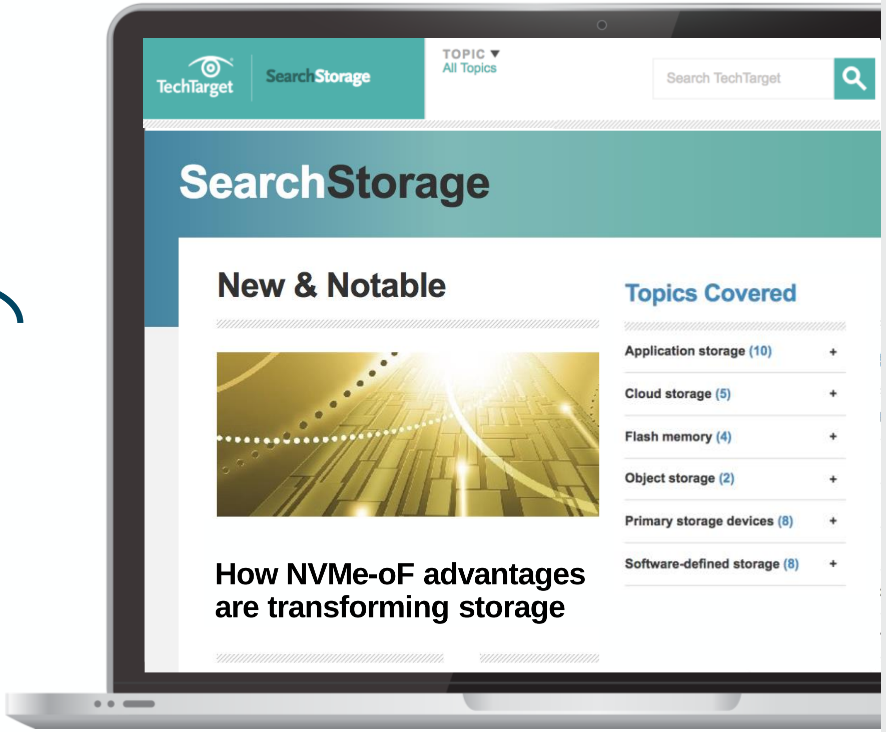


151,810
North America

63,397
EMEA

18,200
APAC

3,835
LATAM



650K+ SearchStorage.com monthly page views

NVMe & NVMe-oF appetites increasing

2.6M+
Activities taken around Flash & NVMe in the past year[2] (up 24% YoY)

626K+
Activities taken around NVMe/NVMe-oF[2] alone

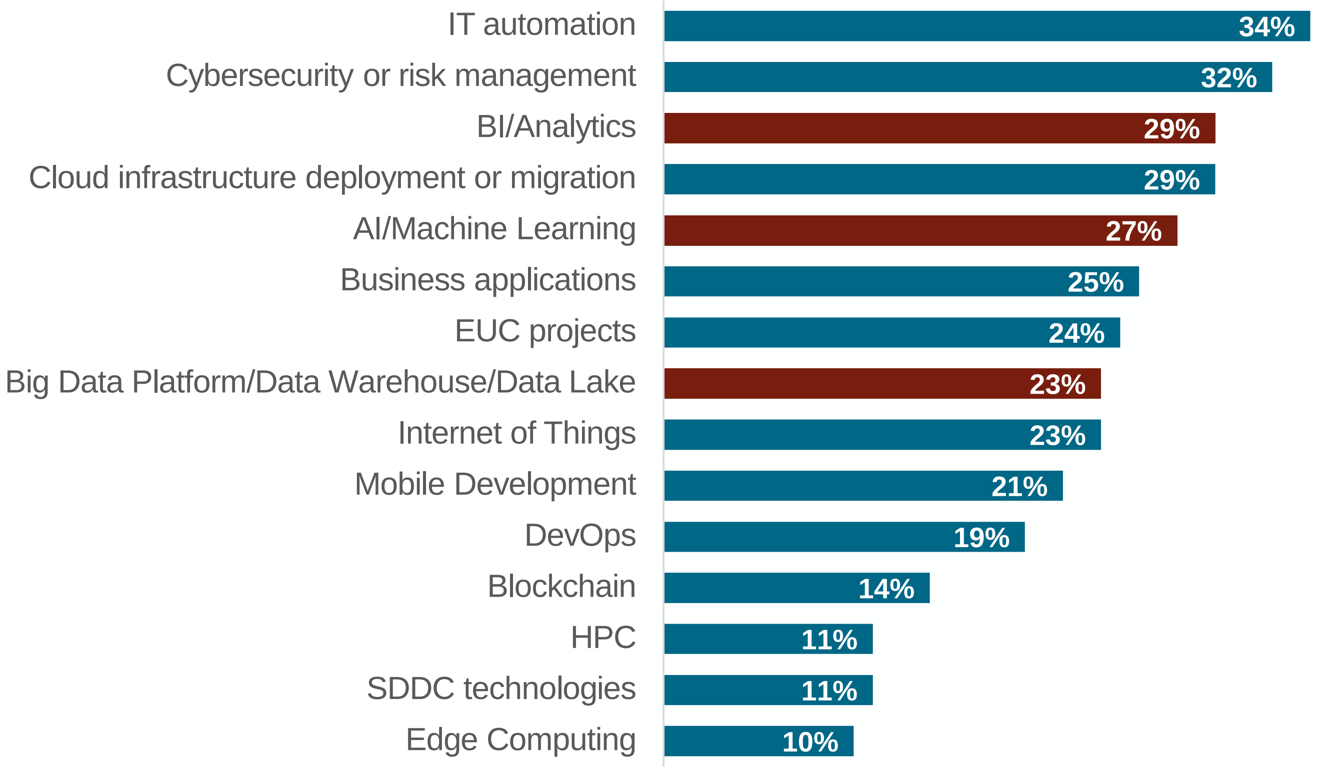
90%
Increase in NVMe/ NVMe-oF activities since last year[2]

245
Articles written around NVMe in the last year

TechTarget Activity & Audience metrics 7/19/19; [1]Priority Engine; [2]Over the past 12 months (WW)

Broad initiatives validate the focus on data analytics

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

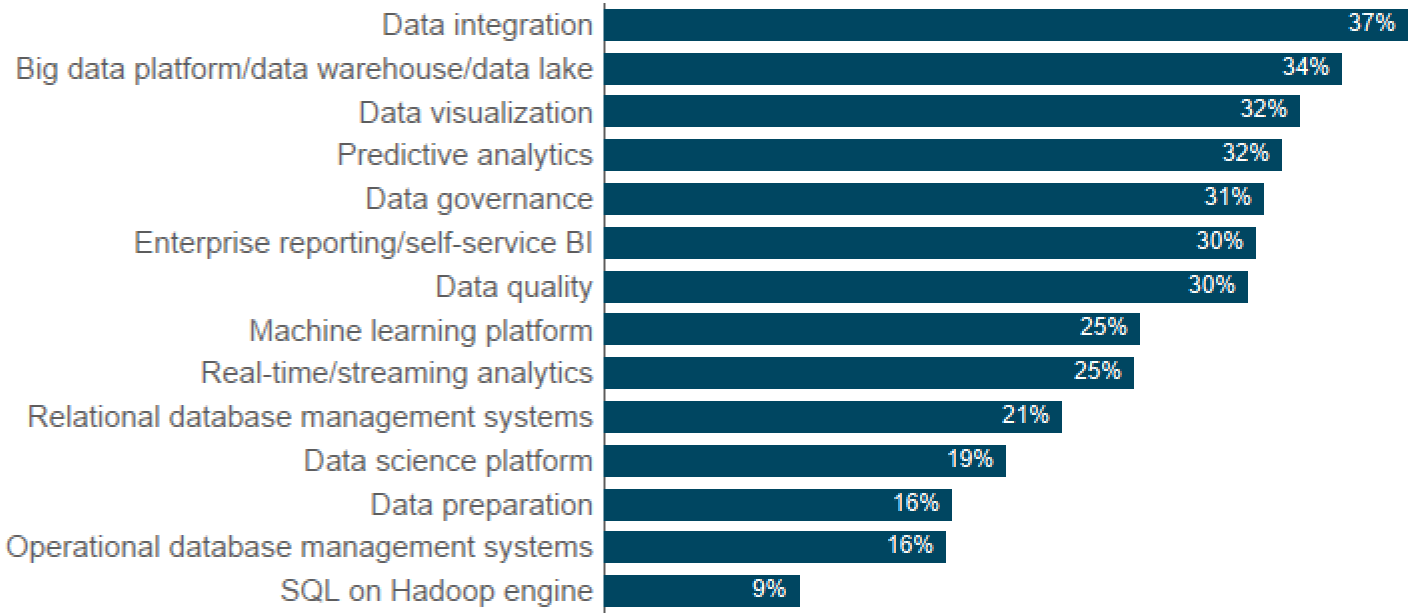


Observations

- **BI/Analytics and Big Data**
- **AI / Machine Learning** is the most widespread *feature* driving interest in software application upgrades, supplanting 'cloud'.
- **Edge Computing** charting.

Information Management

Which of the following information management initiatives will your company deploy in 2019? (Choose all that apply)



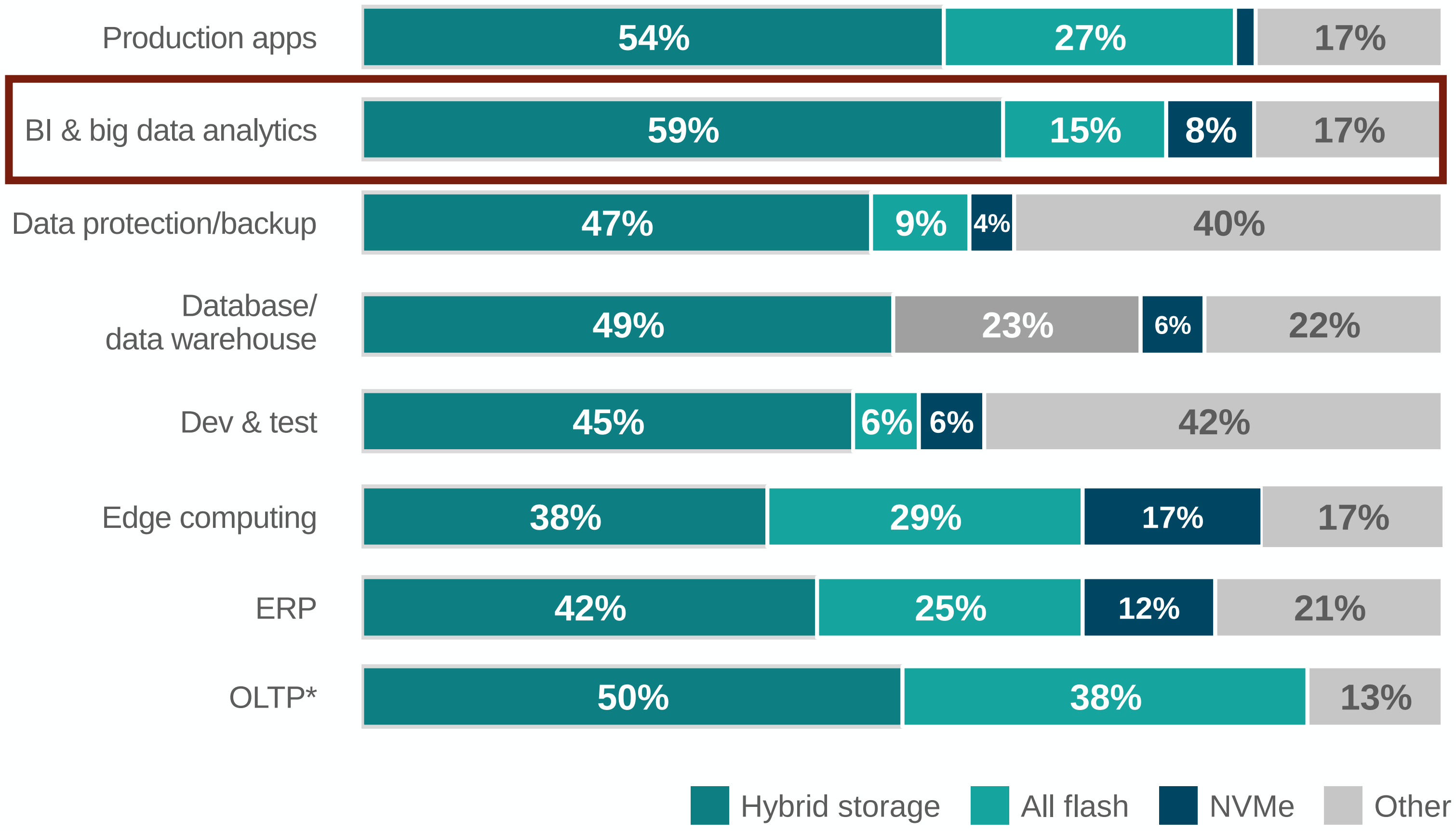
Source: TechTarget | IT Priorities Survey 2019 | Worldwide | n = 1750 | Geo-Balanced: 30% NA, 35% EMEA, 30% APAC, 5% LATAM

Observations

- Analytics are core to most of these initiatives
- Different initiatives with analytics may have unique storage requirements (e.g. ingestion v.s. interactive visualization v.s. nosql database)

Primary storage by workload

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



Observations

- Hybrid Arrays are popular today, but if and how fast are we moving to all-flash architecture?
- Where would a flash investment today make the most impact?

Breakout of primary storage buyers looking to deploy BI/Analytics workloads

Percent of buyers by market planning to deploy a BI/Analytics workload

Market	% of Total
Software-Defined Storage	30%
Converged Infrastructure	30%
Hyperconverged	30%
Hybrid Arrays	28%
NVMe-focused All-Flash Arrays	27%
Object Storage	24%
All-Flash Arrays	22%

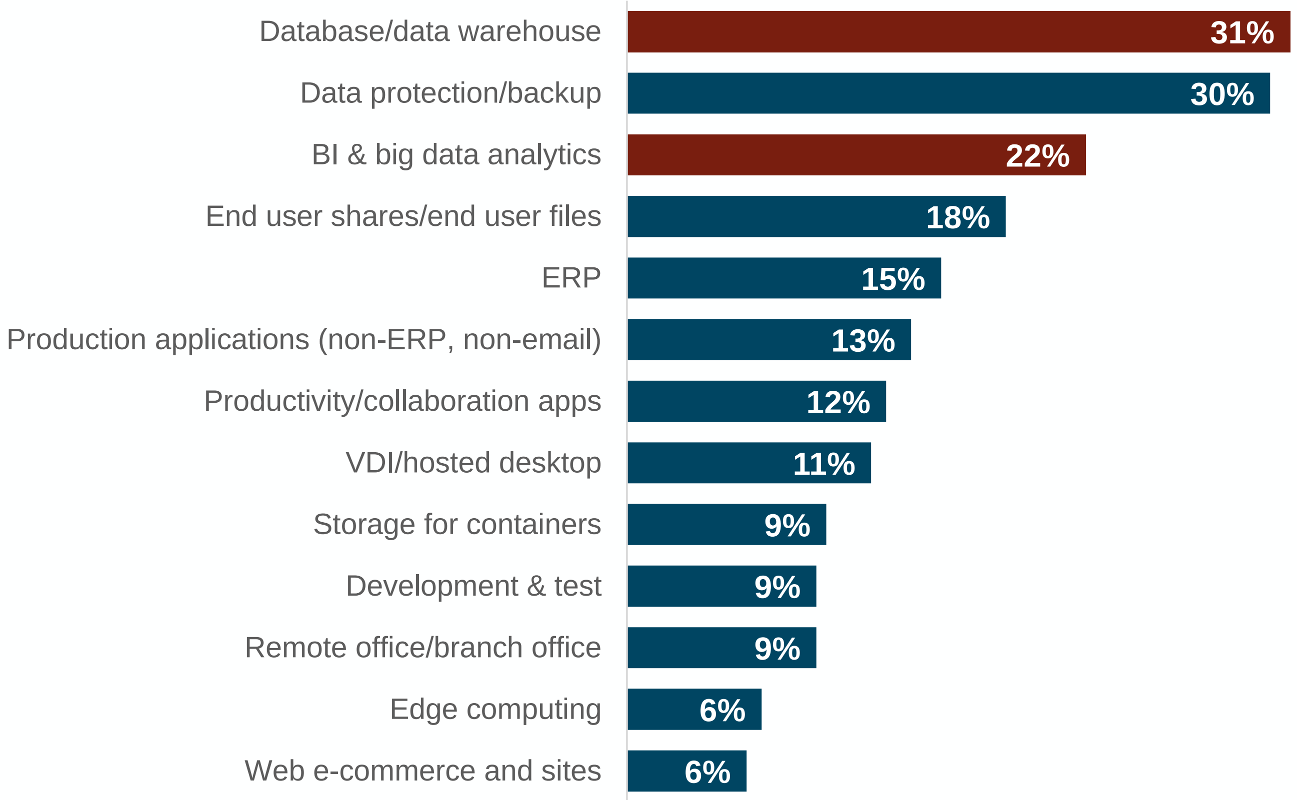
Storage buyers for analytics are turning to a range of software defined, converged and flash/NVMe powered solutions and architectures

Where is the market sweet spot between performance and capacity for analytics today?

Source: Qualified Sales Opportunities | World Wide | Last 12 Months | 7/23/19

Workload change

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



Observations

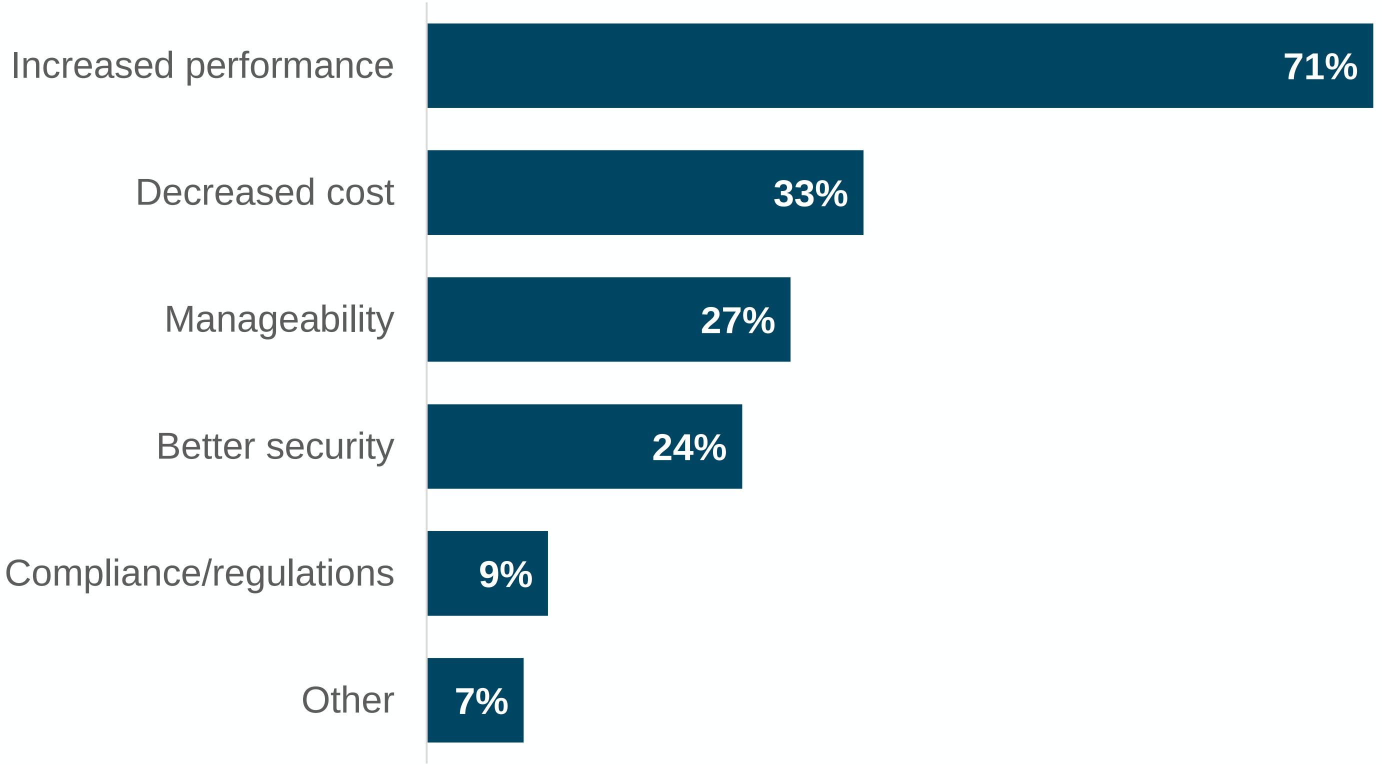
- Storage needs are shifting for analytics…
  - Data Protection could also be changing with converged “active” archive analytics
- What will storage need to provide to the workloads of the future?

Source: TechTarget Flash Pulse Survey 2019 (WW) | n=427

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?



Observations

- Performance is clearly the key!
- But data growth, cost, footprint, and security concerns are all important to some workloads!

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

Source: TechTarget Flash Pulse Survey 2019 (WW) | n=23-121 | *Online transaction processing

PERFORMANCE matters for BI/Analytics workloads

Comparison of drivers of overall storage market buyers to those deploying BI/Analytics workloads

+31% All Flash

All Flash Array buyers deploying BI/Analytics workloads are 31% more likely to be driven by the need to **eliminate storage performance issues**

+50% SAN

SAN buyers deploying BI/Analytics workloads are 50% more likely to be driven by the need to **improve performance for new applications**

+34% Hybrid Array

Hybrid Array buyers deploying BI/Analytics workloads are 34% more likely to be driven by the need to **improve performance for new apps**

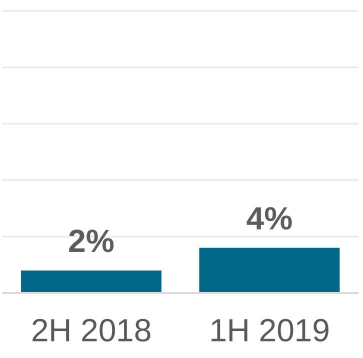
+54% NAS

NAS buyers deploying BI/Analytics workloads are 54% more likely to be driven by the need to **improve performance for new applications**

Source: Qualified Sales Opportunities | World Wide | Last 12 Months | 7/23/19

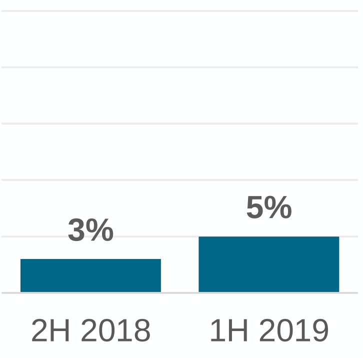
AI and data analytics grow in value among primary storage buyers

NAS



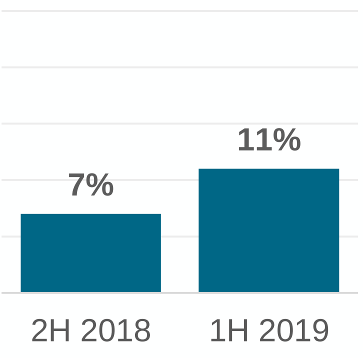
Buyers citing built-in storage analytics as a desired purchase feature **increased by 100%**

SAN



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

All-Flash Arrays



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

Observations

- Meta use of analytics for systems management doubles in six months!
- Will we also see storage as a platform for business analytics on the data inside?

Source: Qualified Sales Opportunities | Worldwide | 7/22/19

Top growth trends among all-flash array buyers

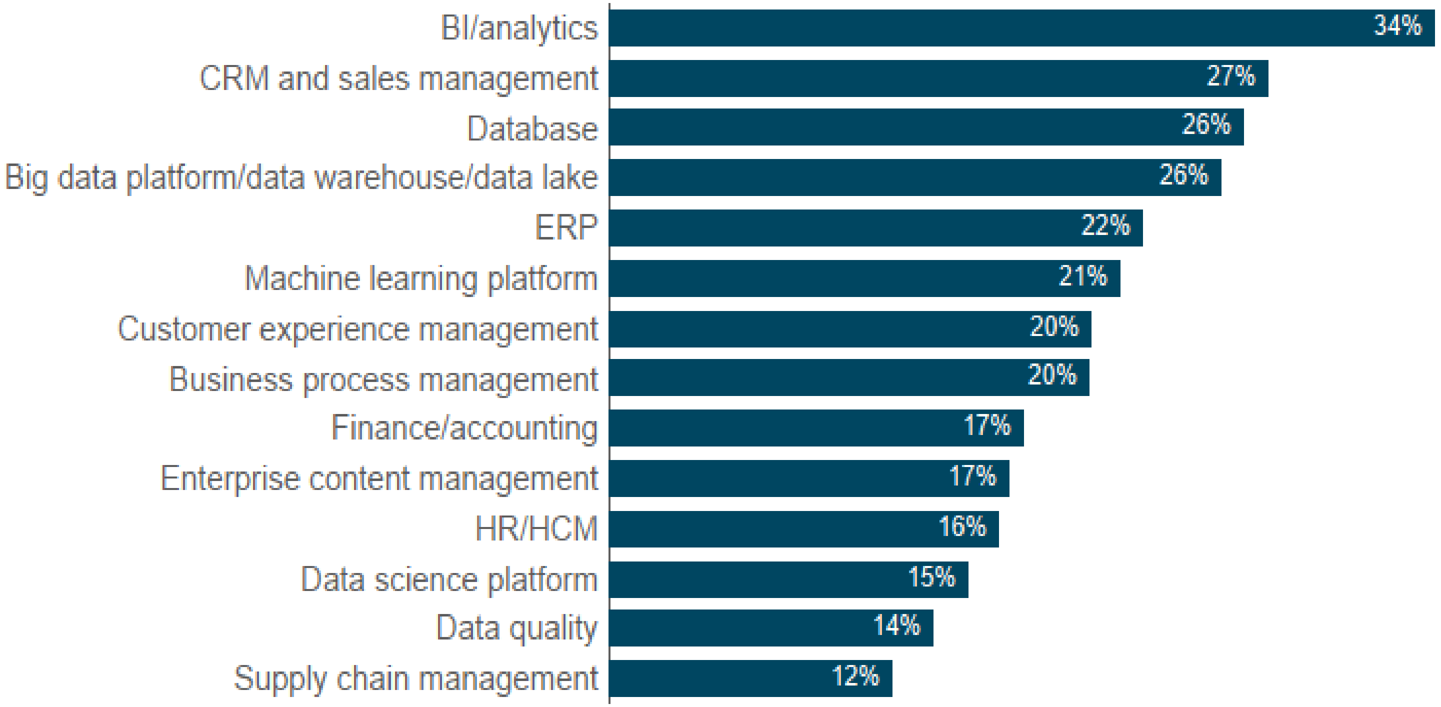
Purchase Criteria	2H 2018	1H 2019	Change
Refresh legacy primary storage (driver)	19%	33%	74%
Eliminate storage performance issues (driver)	23%	31%	35%
Workload performance QoS (feature)	13%	15%	13%
Built-in storage analytics (feature)	7%	11%	57%

Observations

- Time to refresh into all-flash and attack storage performance

Applications: SaaS Deployments

Which of the following applications are you most likely to deploy in the cloud (SaaS) in 2019?



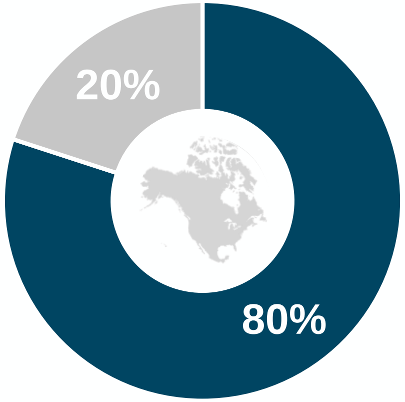
Source: TechTarget | IT Priorities Survey 2019 | Worldwide | n = 1909 | Geo-Balanced: 30% NA, 35% EMEA, 30% APAC, 5% LATAM

Observations

- With increasing BI/analytics apps being deployed in cloud, what does this mean for flash vendors?
- What does this mean for all-flash architectures, specifically all-flash in the cloud?

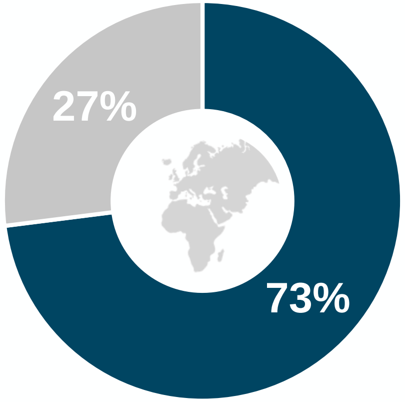
Off-premise cloud storage use in NA, EMEA, & APAC

North America



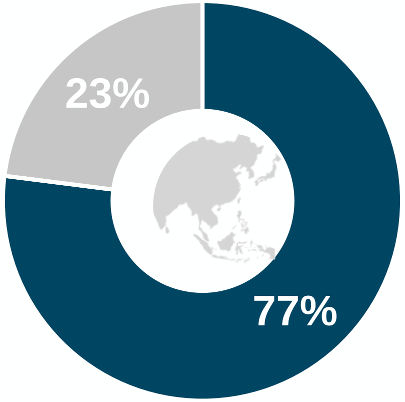
80%
Of storage buyers in NA are utilizing **off-premise cloud storage**

EMEA



73%
Of storage buyers in EMEA are utilizing **off-premise cloud storage**

APAC



77%
Of storage buyers in APAC are utilizing **off-premise cloud storage**

Including primary and secondary storage, approximately how much storage capacity does your organization maintain on premises?
How much primary and secondary storage, including for backup and disaster recovery, does your organization have stored off premises in cloud storage services?

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.

Mike Matchett
Research Advisor & Principal
Industry Analyst,
Small World Big Data