



Pure Storage Overview

Unveiling Pure Storage: A Journey into Cutting-Edge Data Solutions

Pavel Parchonin
Storage Solution Architect

Pure Storage Fast Facts



Growth

\$2.75 Billion

FY23 Annual Revenue



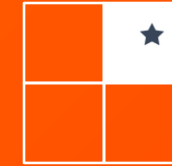
Customers

11,000+

Global Customers



Leadership



Gartner Magic Quadrant

11 x leader!

\$1.10 Billion

Q4 FY23 Subscription Annual Recurring Revenue (ARR)

+\$60 Billion TAM

494

New Customers
in Q4 FY23

~58%

Of Fortune
500 companies

86

Net Promoter Score

Highest in the industry

2009



Founded

2011



Pioneer in All-Flash

2012



Introduction of
FlashArray™

Late
2012



First International
Office Opens in
Europe

Mid
2014



Evergreen™ Non-
Disruptive Upgrades

Early
2015



Pure1® Cloud-Based
Management

Late
2015



IPO (PSTG)

Early
2018



Pure Introduces the First
AI-Ready Infrastructure
(AIRI™)

Mid
2018



Launch of as-a-Service
Model (Pure as-a-service)

2018



Cloud Data Services

2018



\$1B+ in Revenue

2019



Compuverde
Acquisition

2020



Pure as-a-Service
Celebrates 2 Year
Anniversary

2020



Portworx Acquisition

2021



FlashBlade Reaches \$1B
in Sales

2022



\$2B+ in Revenue

2022



Launch of
FlashBlade//S™

2023



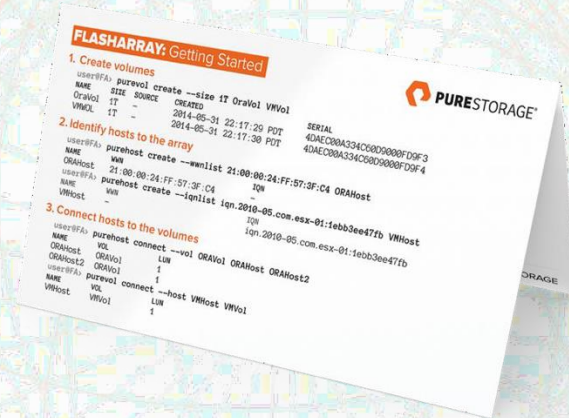
FA R4
Pure //E Family

PURE Pillars

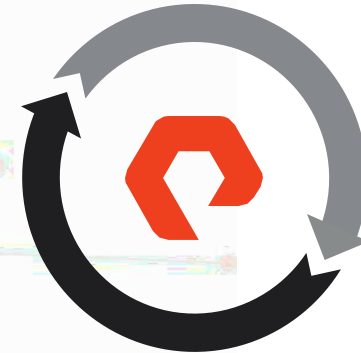
NVME Flash



Simplicity



EVERGREEN



The World's Largest, Most Efficient Flash Drives

Pure-only DirectFlash Modules with outstanding data reduction deliver extreme efficiency

Designed from the ground-up to unlock the full potential of flash

- Proprietary modules replace SSDs that treat storage like hard disks
- Connects raw flash directly via NVMe for maximum performance
- Intelligent management for 3x lifetime of average SSD service lifetime

The industry's largest flash drives

- 75TB QLC drives in FlashArray//C and Pure//E Family
- 36TB TLC in FlashArray//X and FlashArray//XL
- Lower TCO through space and energy savings with higher reliability
- Higher bandwidth with predictable latency

Industry-leading data reduction maximizes storage efficiency

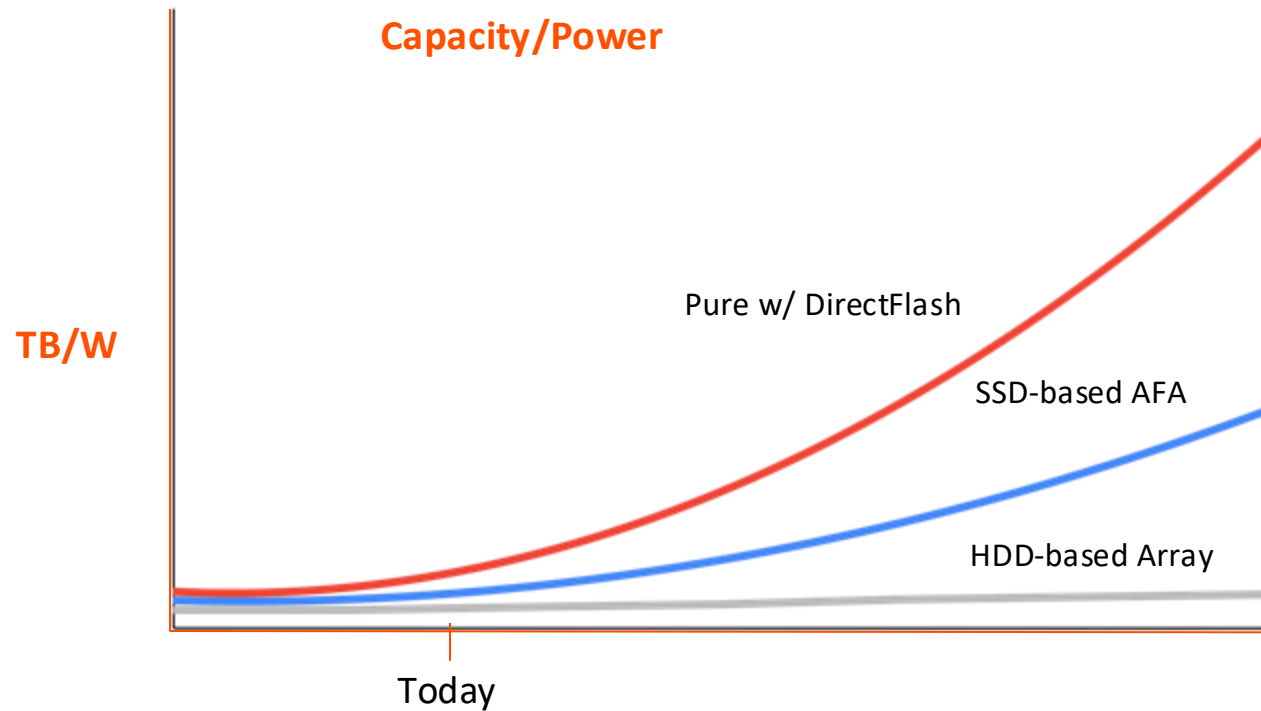
- Industry-leading 5:1 data reduction with deduplication and compression
- Total efficiency of 10:1 when thin provisioning is also included



 DirectFlash
MODULE

Best in Class Energy Efficiency

Meet your sustainability goals and lower your power-related costs



Environmental Efficiency
More storage with fewer watts
and in a smaller footprint

85%

Less energy compared to other all-flash arrays

A FlashArray for Every Business Need

FlashArray //X



As low As 250µs Latency
Mission-critical applications
Workload consolidation
Virtualized environments

FlashArray //XL



Up to 36GB/s Throughput
Most-demanding critical applications
Extreme workload consolidation
Large-scale virtualized environments

FlashArray //C



Up to 9PB effective capacity
Business-critical workloads
Disaster recovery & data protection Test/dev environments

FlashArray //E



Scales from 1 to 4PB
Unified file and block data
Large-scale data repositories
Data protection snapshots
Log/cold data archives

FlashBlade //E

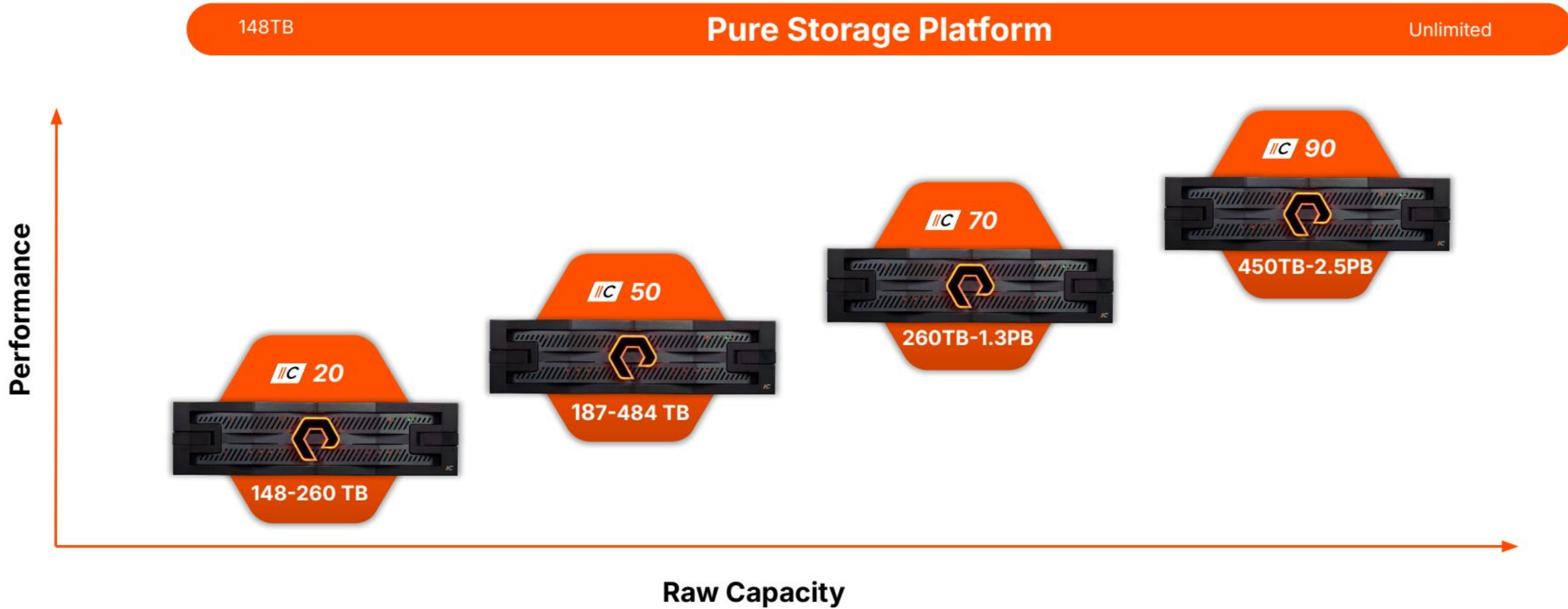


Pure //E Family

Scales from 4PB to 10+PB
Unified file and object data
Largest-scale data repositories
Video content libraries
Healthcare imagery

FlashArray//C – High data density

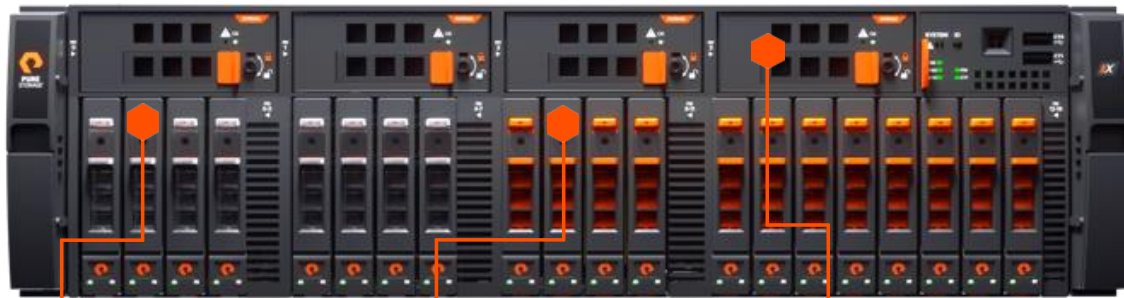
Market leader in QLC-based storage systems



100% FLASH-OPTIMIZED HARDWARE

MODULAR & UPGRADABLE DESIGN

FlashArray **IX**



DIRECTMEMORY
MODULE (SCM)



Up to 8 in chassis:
X70 or X90

DIRECTFLASH
MODULE (NVMe)

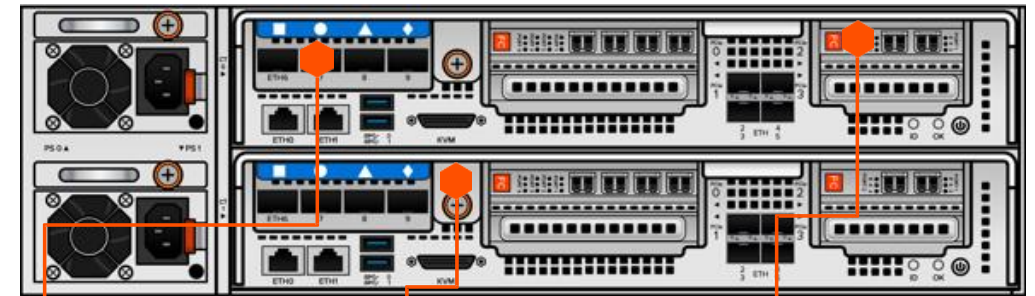


20 in chassis or
28 in shelves:
DFM

NV-RAM
MODULE



2 or 4 HA
NV-RAM



EXPANSION
SHELVES



50Gb/s NVMe

CONTROLLER
MODULES



2 HA Controllers

IO MODULES



6 SLOTS
FC and/or
ETHERNET



FLASH BLADE

True Scale-Out Storage

Disaggregated storage & compute

QLC flash

- Optane (SCM) not required!

Modular Architecture

- Update CPU, DFMs and FIOMs independently

New chassis

- 5RU Size
- Integrated 100GbE Networking

Up to 4 drives per blade

- 24TB, 48TB DFM



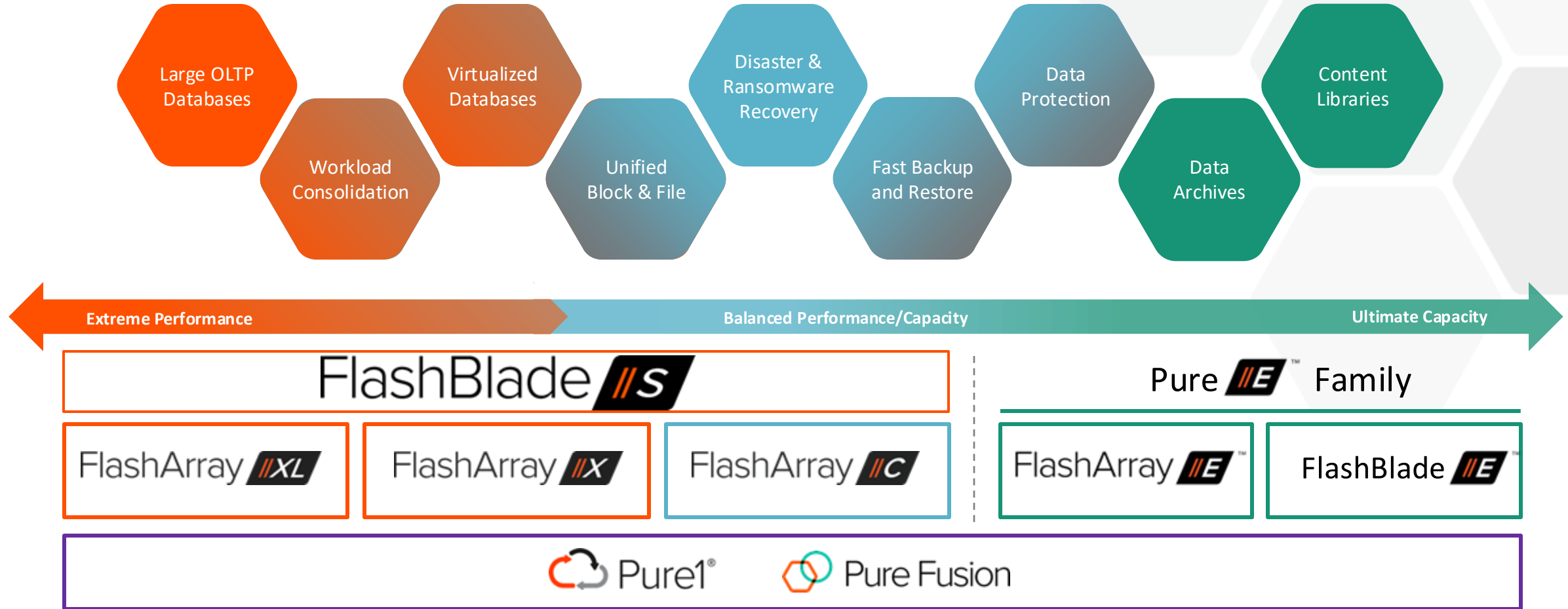
Future-proof midplane

- Connectors are 400GbE-ready

Up to 10 blades per chassis

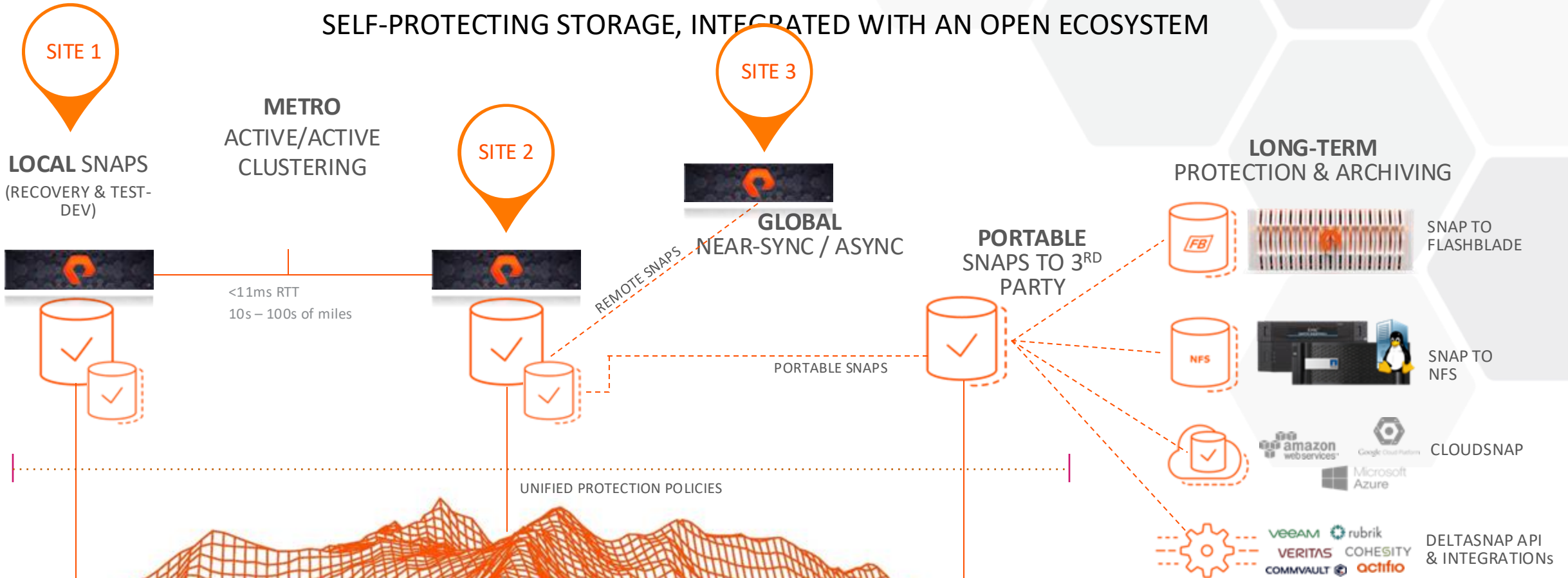
From Extreme Performance to Ultimate Capacity

All-flash storage ranging from primary application platforms to always-on data repositories



PROTECT LOCALLY & GLOBALLY

SELF-PROTECTING STORAGE, INTEGRATED WITH AN OPEN ECOSYSTEM



FlashArray with Array Wide SafeMode™



Snapshot Policy

Authorization

Eradication Timer

Disable Eradication

Immutable Snapshots

Flexible, granular admin-driven snapshot policy with retention lock (FA)

Limits Privileged Users

Up to 5 authorized and no less than 2 contacts, secret PIN

Recommended to not be “day to day storage admins”

Extends Eradication Timer

24 hours - 30 days

Can now be set separately from SafeMode - use to “ease in” to SafeMode

NTP Tampering Protection

Unaltered, Secure Data

Disables manual eradication

Auto-On SafeMode™ for New Arrays

SafeMode protection paired with default protection

SafeMode™ Protected

Protection Groups



Snapshots



- **SafeMode™ protected pgroup** automatically added in **new arrays** with the following snapshot policy
 - Every day 4 snapshots are taken and kept for first 3 days and the retain 1 snapshot a day for next 5 days
- **Volumes** automatically assigned default pgroup protection
 - Opt-out instead of opt-in



Optimize

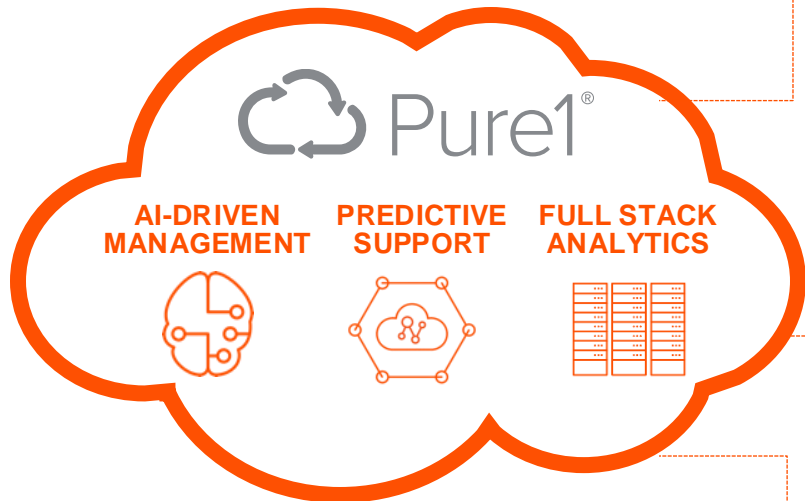
Reduce the time you spend on management and take the guesswork out of storage management.

Recommend

Improve the speed and accuracy of resource planning while enhancing user experiences.

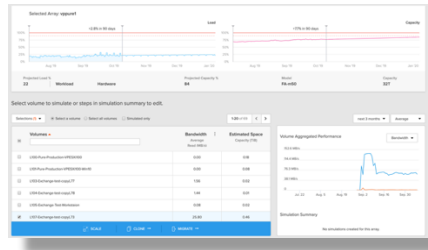
Empower

Build your hybrid-cloud infrastructure your way and on demand without the headaches of legacy purchasing.



Predictive Support
Reporting
Trending
Analysing
Forecasting

WORKLOAD SIMULATION



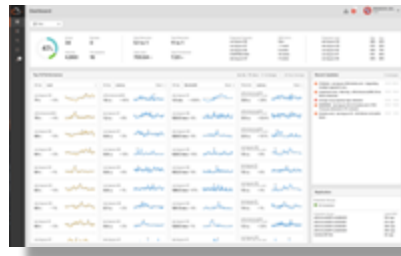
VM ANALYTICS



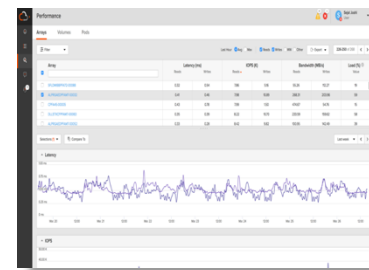
SNAPSHOT CATALOG

Snapshot	Size	Seg Type	Created By	Created
Snapshot1	10 GB	Full	admin@pure1	2023-01-01
Snapshot2	15 GB	Full	admin@pure1	2023-01-02
Snapshot3	20 GB	Full	admin@pure1	2023-01-03
Snapshot4	25 GB	Full	admin@pure1	2023-01-04
Snapshot5	30 GB	Full	admin@pure1	2023-01-05
Snapshot6	35 GB	Full	admin@pure1	2023-01-06
Snapshot7	40 GB	Full	admin@pure1	2023-01-07
Snapshot8	45 GB	Full	admin@pure1	2023-01-08
Snapshot9	50 GB	Full	admin@pure1	2023-01-09
Snapshot10	55 GB	Full	admin@pure1	2023-01-10

GLOBAL DASHBOARD



PERFORMANCE ANALYTICS



EXPANDED ARRAY VIEW



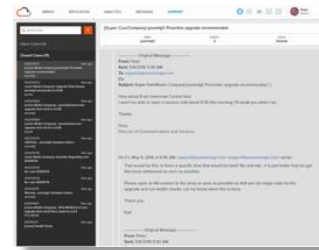
MOBILE DASHBOARD



ACTIVECLUSTER MONITORING



SUPPORT CASES



PREDICTIVE SUPPORT



APIs

>_ REST





DRR Anomaly Detection

Better insights into significant changes to your organization's data.

Easily identify large changes to data structures resulting in sudden changes to data reduction ratios (such as encryption).

Know what volumes are impacted and when anomalies occurred.

Reduce recovery times by quickly identifying recovery time points to restore from. Resulting in less guess work and minimizing lost data.

Assessment ?

Data Protection Sustainability

Appliances (13)

FA-PROD-01

29 Volumes Volume DRR drop (%)

Volume	DRR drop (%)
<input checked="" type="checkbox"/> Volume_1	74%
<input checked="" type="checkbox"/> Volume_15	74%
<input checked="" type="checkbox"/> Volume_2	73%
<input checked="" type="checkbox"/> Volume_7	73%
<input checked="" type="checkbox"/> Volume_24	73%
<input type="checkbox"/> Volume_3	37%
<input type="checkbox"/> Volume_6	35%
<input type="checkbox"/> Volume_8	35%
<input type="checkbox"/> Volume_12	31%

DRR Anomalies detected

Data Reduction Ratio

Volume_2

A significant DRR drop due to a recent workload change or a potential malicious attack.

Anomaly start date: 05/11/2023

Timestamp: 04/27/2023 01:00

Did you find this information useful for this appliance?

Yes No

Selections (5) 1-10 of 29

FA-PROD-01

FA-XSOR2 | 6.1.23

ASSESSMENT Last Assessed: 2023-05-04 06:00:00

Caution Exclude

VOLUME

Capacity 162T

DRR 2.4

Total 7.5% of volumes identified for significant drops wrt DRR in the last week.

View Volume DRR

Today

Close



Virtual Machine Analytics

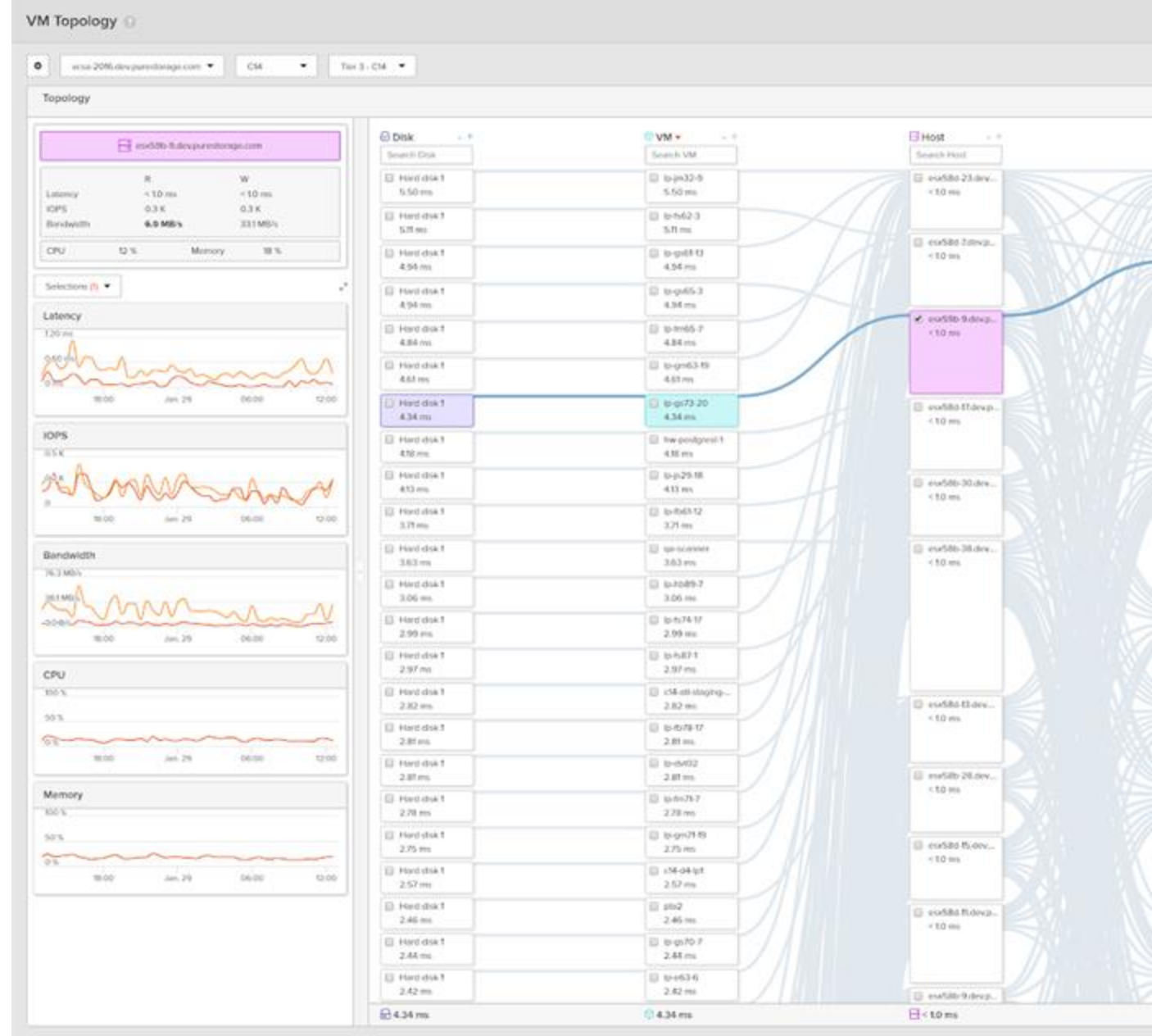
Simplify troubleshooting of VM-based workloads

Easily navigate large / complicated VM environments to find problem areas

Identify in seconds what resources a VM is using to map storage concerns to specific workloads

Review performance consumption across VMs to see if a noisy neighbor is causing issues

Leverage resource monitoring charts to find spikes and pinpoint problems in less time



Evergreen: It All Starts With the Architecture

Upgradeable Software
Purity

Long-Life Chassis
10+ Year Lifespan

**Always-Upgradeable
Controllers**
Across Generations

**Upgradeable, expandable
flash**
For capacity & density

Upgrade Everything Online

With no downtime, performance loss or data
migration



Evergreen: It All Starts With Architecture

The modular, software-defined, renewable architecture of FlashArray & FlashBlade//S

Upgradable Controllers & Blades

For performance

FlashArray **//X**



FlashBlade **//S**



S500
S200

FlashArray **//XL**



XL170
XL130

FlashArray **//C**



C60
C40

Long-life Chassis

10+ year lifespan



FlashArray



FlashBlade **//S**

Upgradable, Expandable Flash

For capacity & expansion



3D TLC, QLC, NVME
Flash Modules

Upgradable Software

Purity **FA** Purity **FB**

Upgrade Everything While Online

With no downtime, performance loss, or data migration



Partner Tools

Introducing: PUREACADEMY




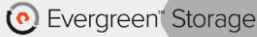





Learn more about Pure's new Learning Platform [LEARN MORE HERE](#)










Partner Academy

<https://partneracademy.purestorage.com/student/catalog>

All Topics

 Certifications	 FlashArray	 FlashBlade
 Evergreen	 Portworx	 Cloud Block Store
 Pure1	 Pure Fusion	 Pure Partner Program

October 2023

	Pure Certified FlashArray Storage Professional Certification Prep Virtual - FlashArray™ Storage Professional Prep Monday, Oct 9, 2023 at 3:00 AM to 9:00 AM CEST Instructor: Alex Yong More Details	Full
	Pure Certified FlashBlade® Implementation Specialist Certification Prep Virtual - FlashBlade® Implementation Specialist Certification Prep Monday, Oct 9, 2023 at 10:00 AM to 4:00 PM CEST Instructor: Matt Nicholls More Details	Full
	FlashBlade® Architect Associate Training - FlashBlade® Architect Associate Training [APJ 10-11 October] Tuesday, Oct 10, 2023 at 7:00 AM to 12:00 PM CEST Instructor: Markus Zerda More Details	Read disclaimer
	FlashArray™ Architect Associate Training - FlashArray™ Architect Associate Training [EMEA 10-11 October] Tuesday, Oct 10, 2023 at 11:00 AM to 4:00 PM CEST Instructor: Adam Weeks More Details	Join Waitlist Waitlist Total: 0
	FlashBlade® Architect Associate Training - FlashBlade® Architect Associate Training [AMER 10-11 October] Tuesday, Oct 10, 2023 at 5:30 PM to 10:30 PM CEST Instructor: Victor Masciarelli More Details	Full
	FlashArray™ Architect Associate Training - FlashArray™ Architect Associate Training Megapalooza [AMER-EMEA 12-13 OCTOBER] Thursday, Oct 12, 2023 at 2:00 PM to 7:00 PM CEST More Details	Read disclaimer
	Pure Certified FlashBlade® Storage Professional Certification Prep Virtual - FlashBlade Storage Professional Certification Prep Thursday, Oct 12, 2023 at 5:00 PM to 11:00 PM CEST Instructor: Ryan Oler More Details	Full

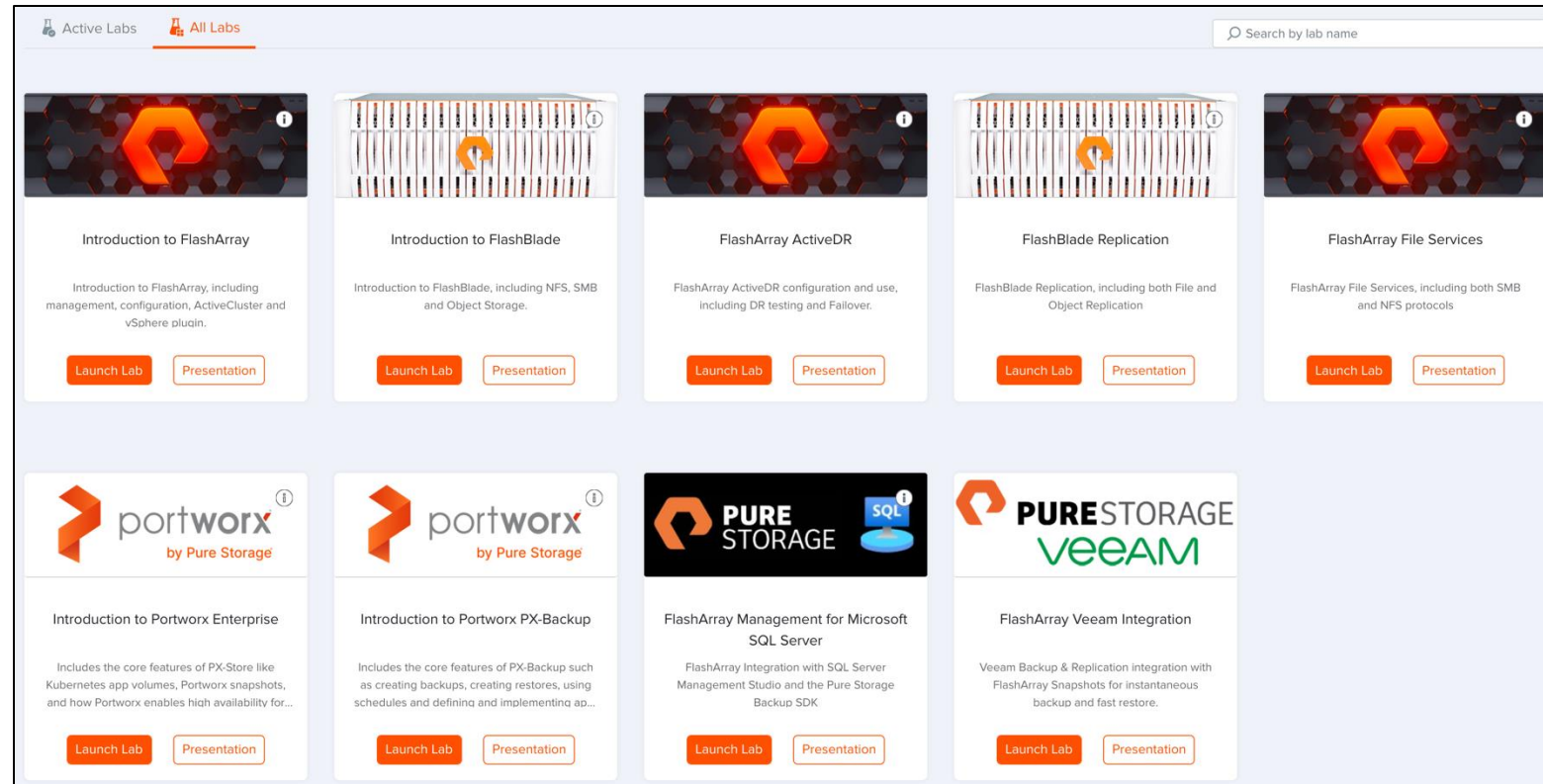
Partner Tools

Pure Test Drive

This is a virtual, on-demand environment that can be used for customer demos, self-training, or pretty much any other purpose!

The labs cover everything from FlashArray to FlashBlade, File Services to VMware, and even backup integration.

Go to <https://testdrive.purestorage.com> or access via Partner Portal as follows:



Partner Tools

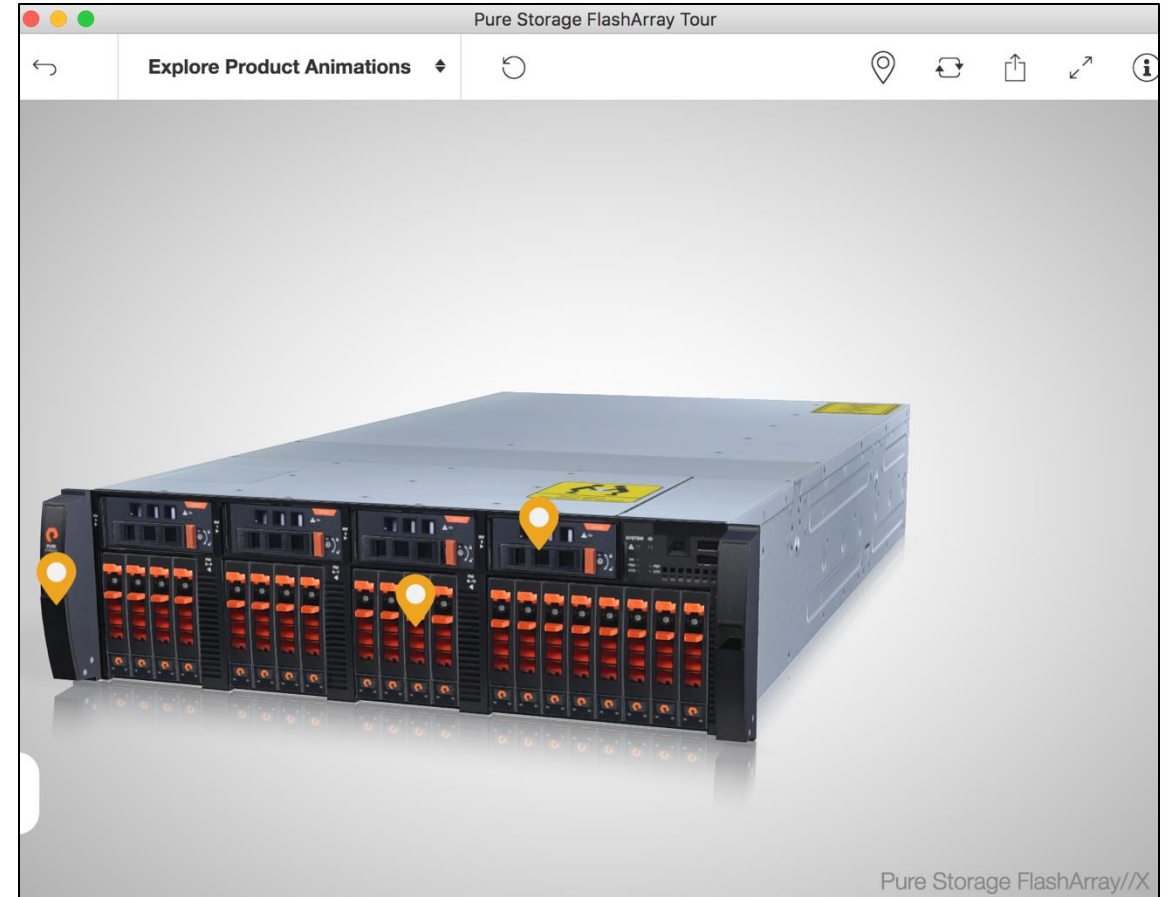
Pure Storage FlashArray 3D Tour

Download the Pure Storage Array App from here:

Chrome/desktop install: <http://m.kaon.com/c/ps>

Android: <https://play.google.com/store/apps/details?id=com.kaon.android.lepton.purestorage>

iOS: <https://itunes.apple.com/us/app/pure-storage-flasharray-tour/id964925778?mt=8>



Partner Tools

Sizing Tool

Go to <https://sizer.purestorage.com/>

Full training video at

<https://purestorage1ms.litmos.com/course/1962484/module/4910501?LPId=90868>

Capacity Decoder
Sizings
i
Max Brown ↗

Customer
Unknown

Sizing Name *
test1

[Export to XLSX](#) [Clone Sizing](#) [Delete Sizing](#)

Scenario Name *
Scenario 1

Purity Version *
5.1.1

[Clone Scenario](#) [Delete Scenario](#)

Sites

Arrays

Capacity Parameters ▲

Datasets
Async Replication
ActiveCluster

Enabled	Array	Dataset	Type	Guaranteed DRR i	Size (TiB)	Annual Growth (%)	Years To Size For	Snapshots		
								Daily Change (%)	Days Retained	
<input checked="" type="checkbox"/>	Array 1	sql-prod	SQL Server	3.5	40	0	1	0		⬆️ ↔️ ✖️
<input checked="" type="checkbox"/>	Array 1	VM-prod	Generic VSI	4.2	80	0	1	0		⬆️ ↔️ ✖️
<input checked="" type="checkbox"/>	Array 1	VDI-prod	VDI	7.1	20	0	1	0		⬆️ ↔️ ✖️

[Add Dataset](#)

Results Latency Constraint

Array 1

Recommended Arrays













	Configuration	Type	Est Max IOPS	% of Max IOPS	Usable Capacity	Capacity Fullness	AC Rep Bandwidth	Limit
<input type="radio"/>	x90R2 75TB 22/22 31	DFM			46.02 TiB	72.33%	0%	Capacity
<input type="radio"/>	x70R2 75TB 22/22 31	DFM			46.02 TiB	72.33%	0%	Capacity
<input type="radio"/>	x50R2 75TB 22/22 31	DFM			46.02 TiB	72.33%	0%	Capacity
<input type="radio"/>	x20R2 76TB 38/38	SAS			43.37 TiB	76.77%	0%	Capacity
<input type="radio"/>	x70 91TB 91	DFM			49.8 TiB	66.85%	0%	Capacity

Partner Tools

Support Knowledge Base

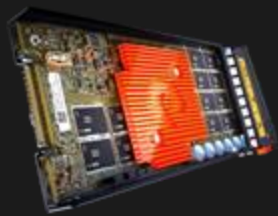
<https://support.purestorage.com/>

This is where you'll find the largest resource of technical knowledge base information.

 <p>FlashArray</p>	 <p>FlashBlade</p>	 <p>Pure1</p>	 <p>FlashStack</p>
 <p>Pure Cloud Block Store</p>	 <p>Evergreen//One</p>	 <p>Pure Fusion</p>	 <p>Portworx</p>
 <p>Pure Security</p>	 <p>Solutions</p>	 <p>Pure Storage Technical Services</p>	 <p>Sales Central</p>

Why Pure?

100% NVME



Simplicity



Efficiency



Availability 99.9999%



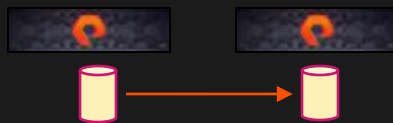
AI&ML Management



Integration



Security



Encryption



Data Reduction



Market Leader



