Managing Data By Objectives

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Primary Data

Today We'll Cover:

- The cost and challenges of storage silos
- An introduction to data virtualization & data orchestration to:
  - Automatically meet evolving data demands with Objective-based management
  - Boost performance by preserving capacity for active data
  - Save significantly by easily integrating the cloud to offload cool data

Who's Behind the Wheel?

Founders & Executive Team

LANCE SMITH

Chief Executive Officer

DAVID FLYNN

Chief Technology Officer
& Co-Founder

RICK WHITE

Chief Marketing Officer
& Co-Founder

STEVE WOZNIAK

Chief Scientist

TEAM EXPERIENCE

Complexity Rising: The Challenge of Storage Silos

You've Got Storage.

FLASH

CLOUD (OBJECT)

SAN (BLOCK)

NAS (FILE)


YOU'VE GOT SILOS.

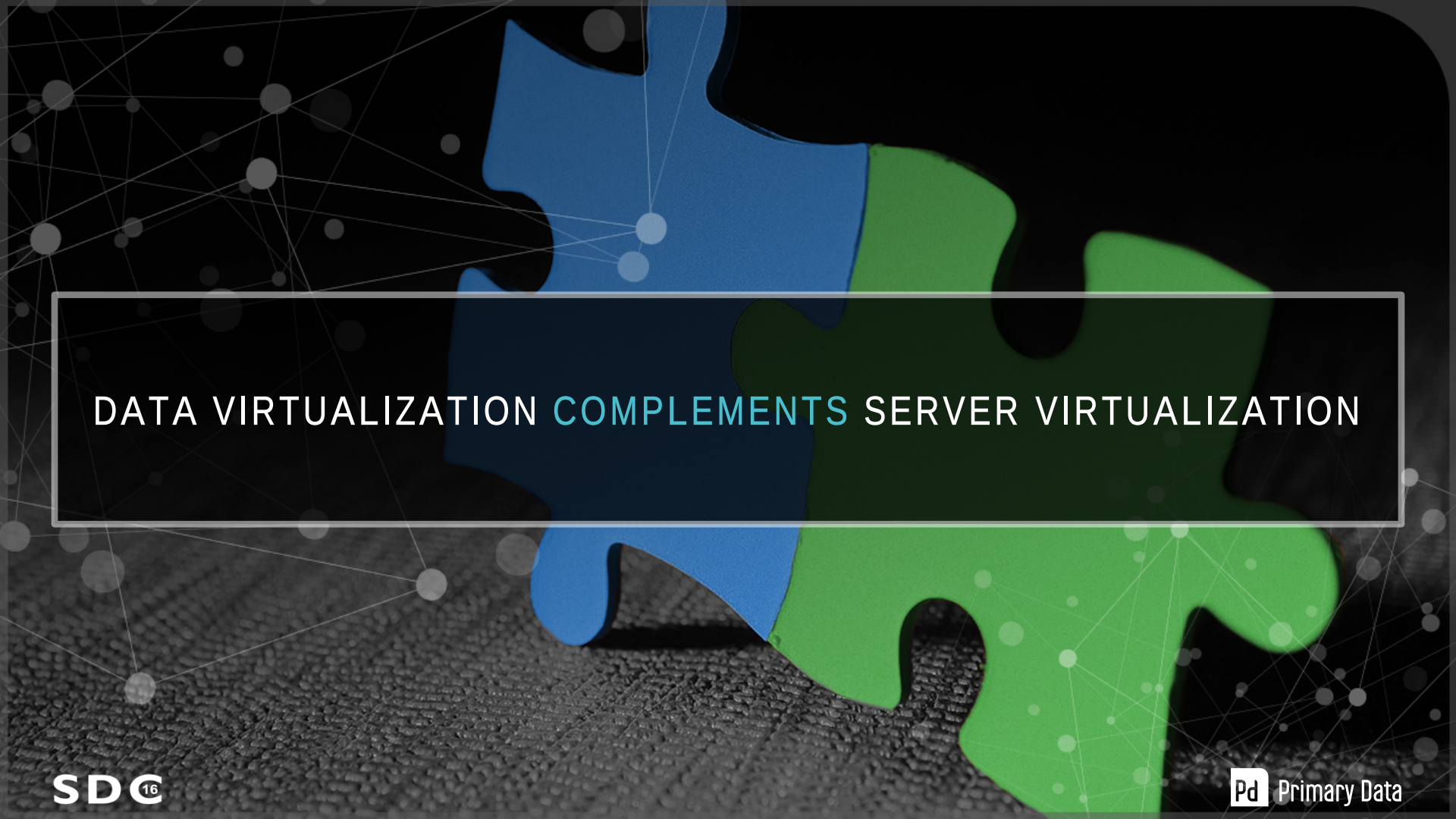

51% OF ENTERPRISES MANAGE 10 OR MORE STORAGE SYSTEMS,
34% MANAGE 20 OR MORE
SDC 16
Source: Primary Data Storage Census, 2016
Primary Data

DATA VIRTUALIZATION
CONNECTS STORAGE SILOS

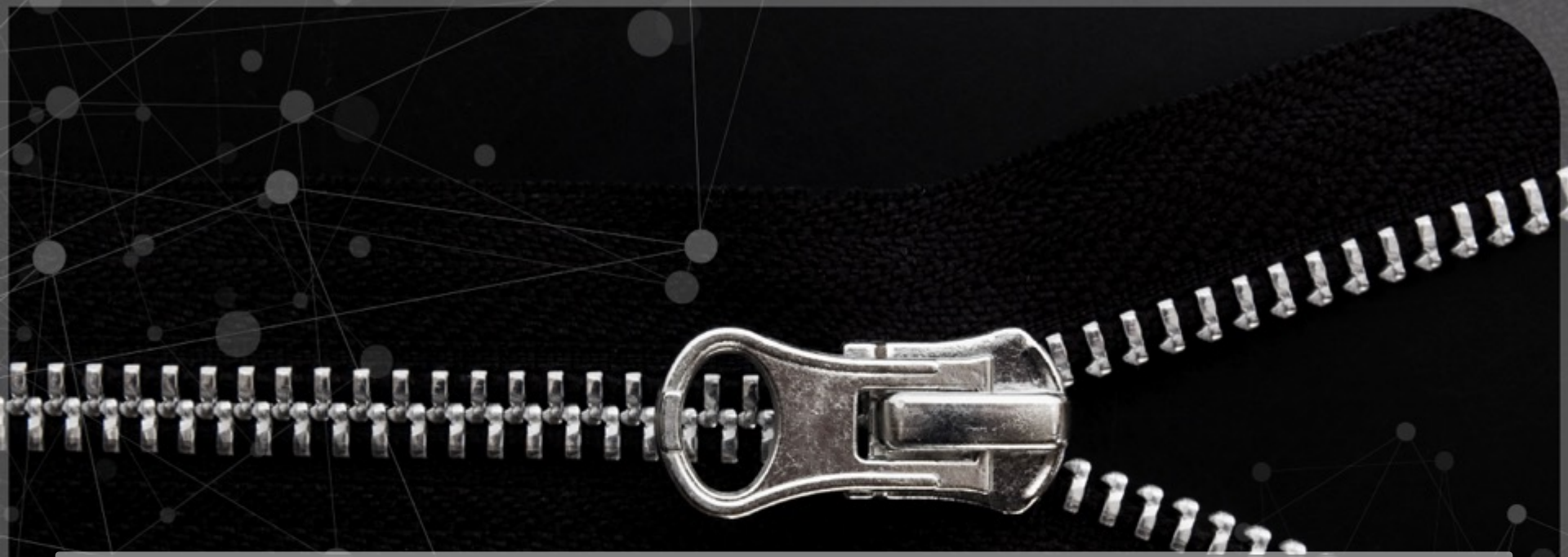
Data Mobility

Storage Agnostic

Manage Horizontally, Not Vertically


DATA VIRTUALIZATION COMPLEMENTS SERVER VIRTUALIZATION

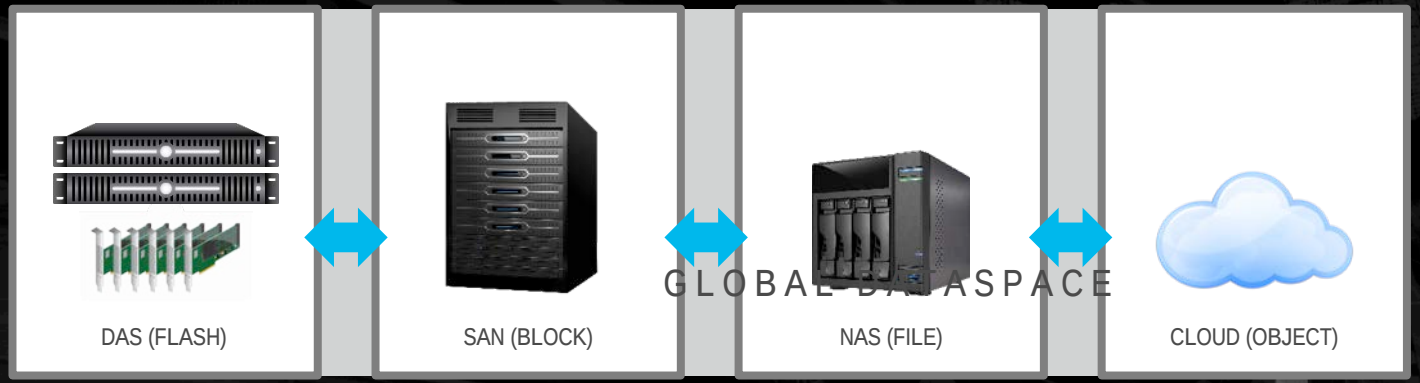

UNITE YOUR EXISTING STORAGE ACROSS
FLASH, SAN, NAS AND CLOUD,
AUTOMATE DATA ORCHETRATION TO MEET
CHANGING BUSINESS NEEDS



HOW DOES DATA VIRTUALIZATION WORK?

Separate control and data plane

Leverage Your Storage Diversity Across a Global Data Space



Orchestrating Data Across a Single Global Dataspace

LOGICAL VIEW

Primary Data

PHYSICAL VIEW

VM

COMMERCIAL APPS

AUTODESK

Microsoft Exchange

VM

DATABASE

ORACLE

SAP

VM

VIRTUAL MACHINES

vmware

VM

USER FILES

GLOBAL DATASPACE

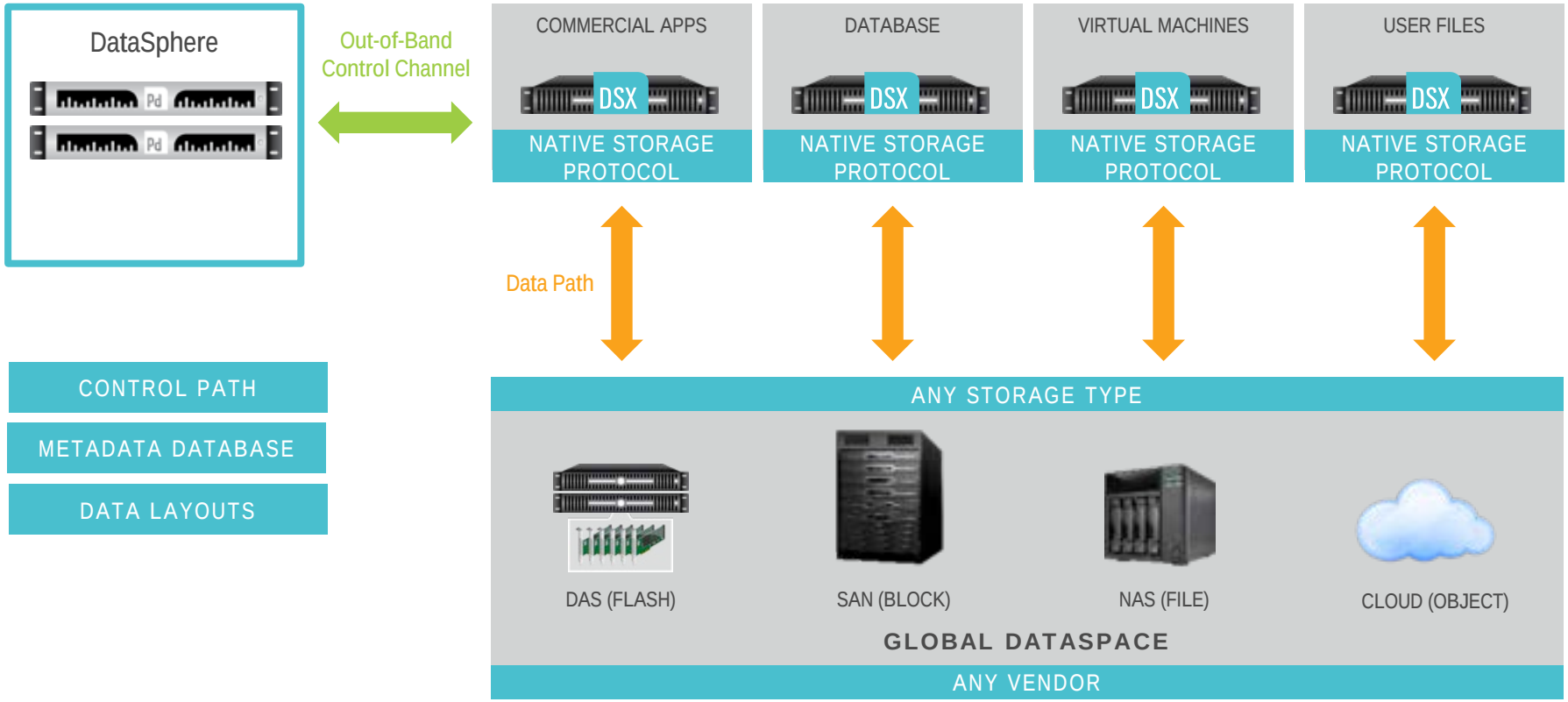
IN-SERVER (FLASH)

SAN (BLOCK)

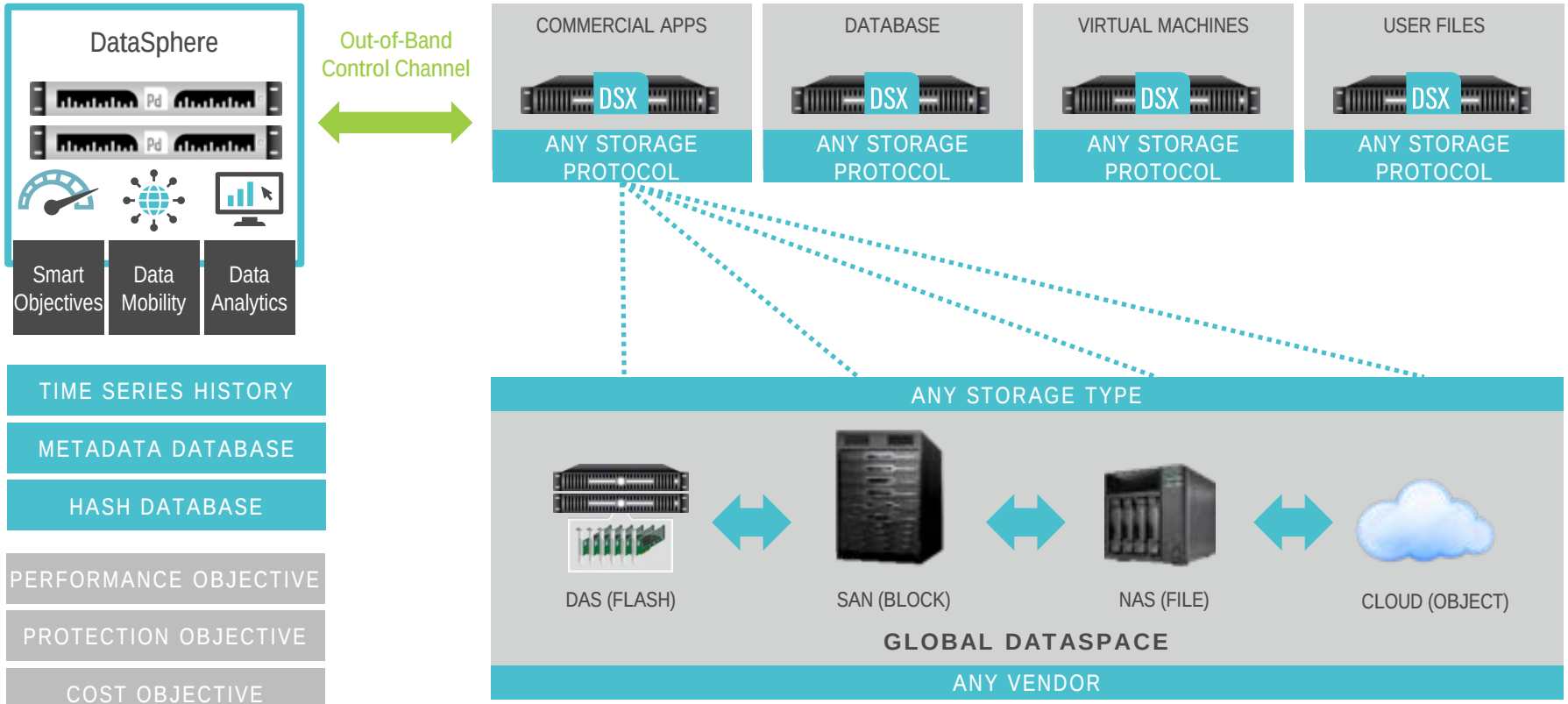
NAS (FILE)

CLOUD (OBJECT)

Data Virtualization: Out-of-Band Scalability and Performance



Data Orchestration: The Right Data in the Right Place at the Right Time



We Don’t Sell Storage – DataSphere Manages Data

DataSphere

- Metadata Engine
- Smart Objective Analytics
- Data Quality of Service

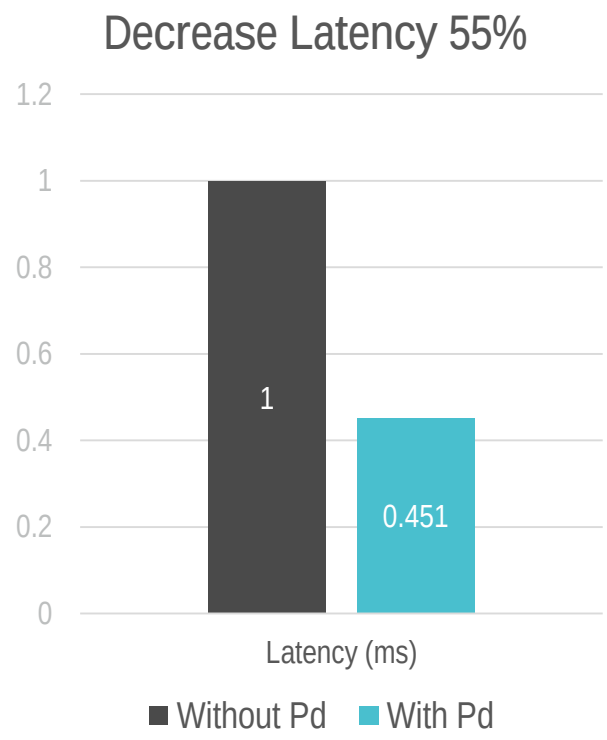
- Annual subscription
- Includes HA license
- Software only

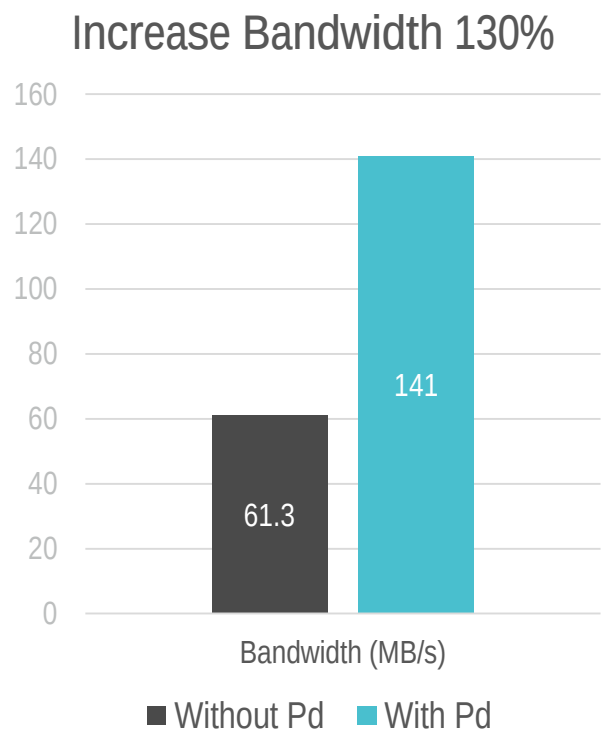
DSX

- Client Data Portal
- Data Mover
- Cloud Connector

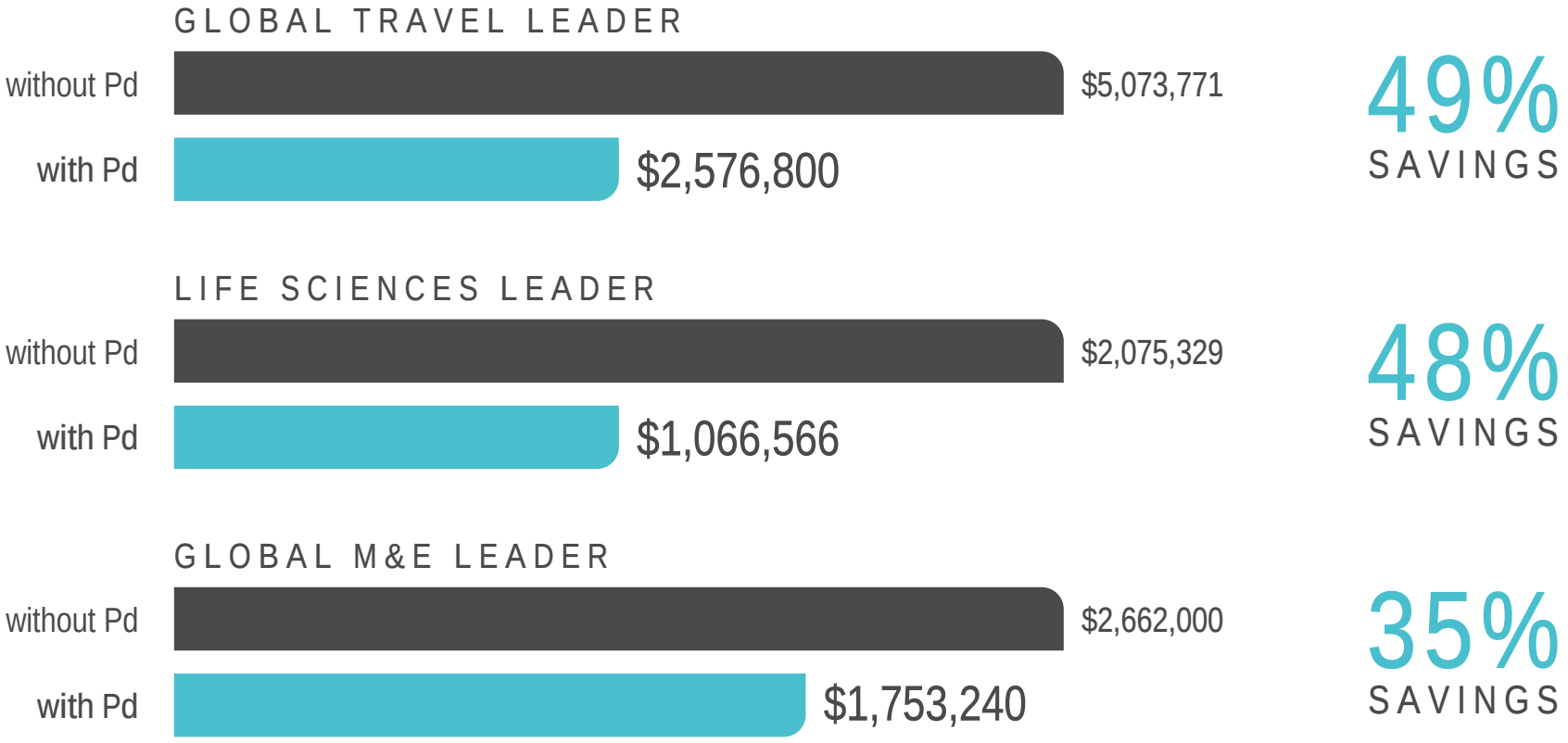
- Annual subscription
- Scale out with environment of choice
- Open sourced client code

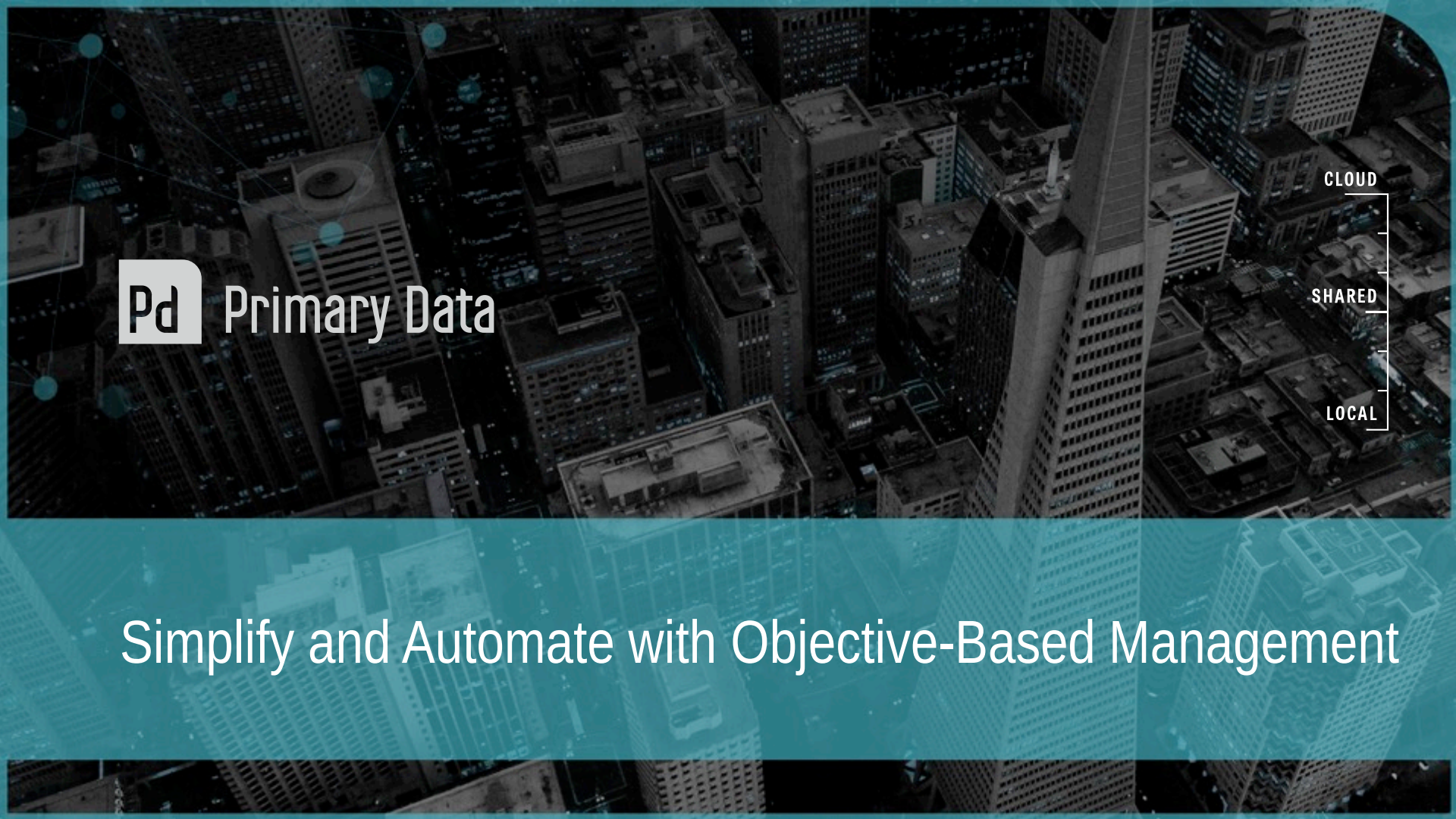
DataSphere Boosts Performance and Bandwidth





Improve Utilization, Reduce Overprovisioning, Reduce Costs





Simplify and Automate with Objective-Based Management

What Applications Want:

PERFORMANCE

IOPS, bandwidth, latency

PROTECTION

Durability, availability, priority, recoverability, and security

Application Services MENU

HOUSE SPECIALS

Customize Any Dish

Fit your application's unique performance, price and protection needs!

MAIN DISHES

Platinum	Highest Performance, Lowest Latency, Low Capacity.....$$$$$
Gold	Highest Performance, Low Latency, Medium Capacity.....$$$$
Silver	Mid-Performance, Some Latency, Large Capacity.....$$$
Bronze	Slower Performance, More Latency, Various Capacity.....$$
Cloud	Slowest Performance, Highest Latency, Huge Capacity.....$

SMART OBJECTIVES

AUTOMATE AND SIMPLIFY RESOURCE UTILIZATION


AUTOMATICALLY DETERMINE WHAT YOUR DATA REALLY NEEDS
AND PLACE IT ON THE RIGHT STORAGE FOR THE JOB.

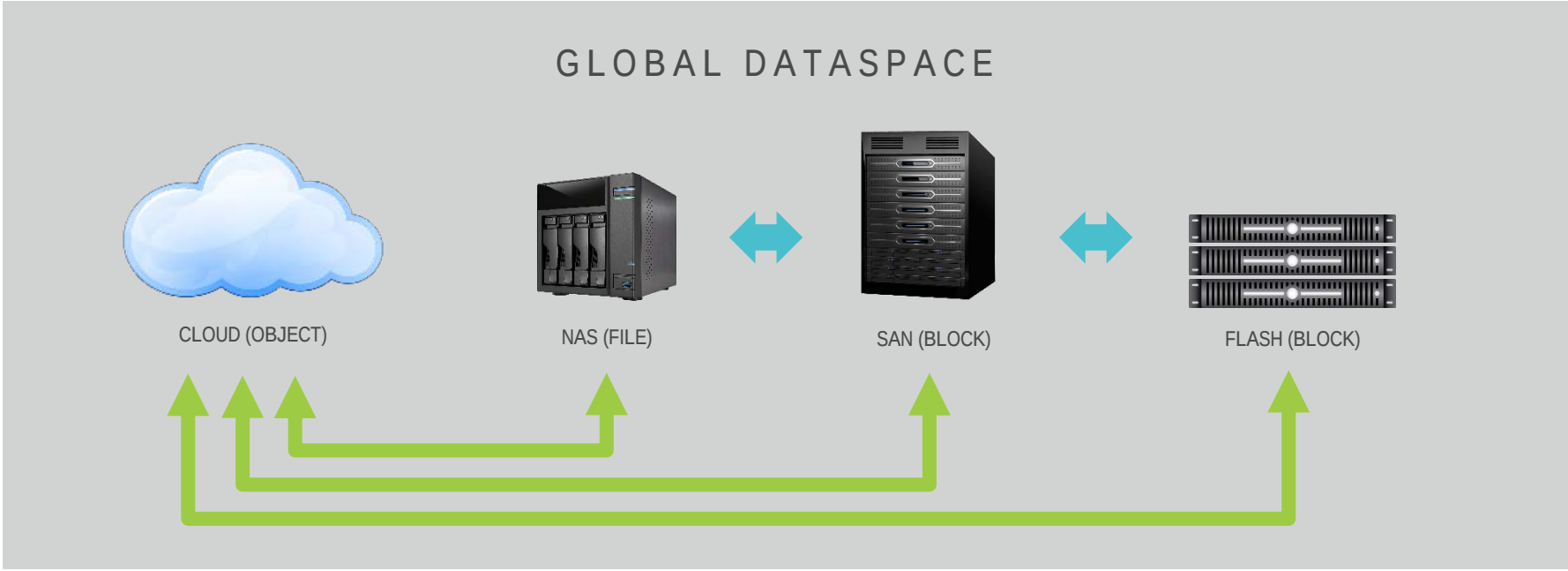

ENSURE YOUR FASTEST STORAGE
SERVES YOUR HIGHEST PERFORMANCE DATA DEMANDS
SDC 13
Pd Primary Data

Automatically Archive Cool Data to the Cloud

INTELLIGENTLY INTEGRATE CLOUD STORAGE

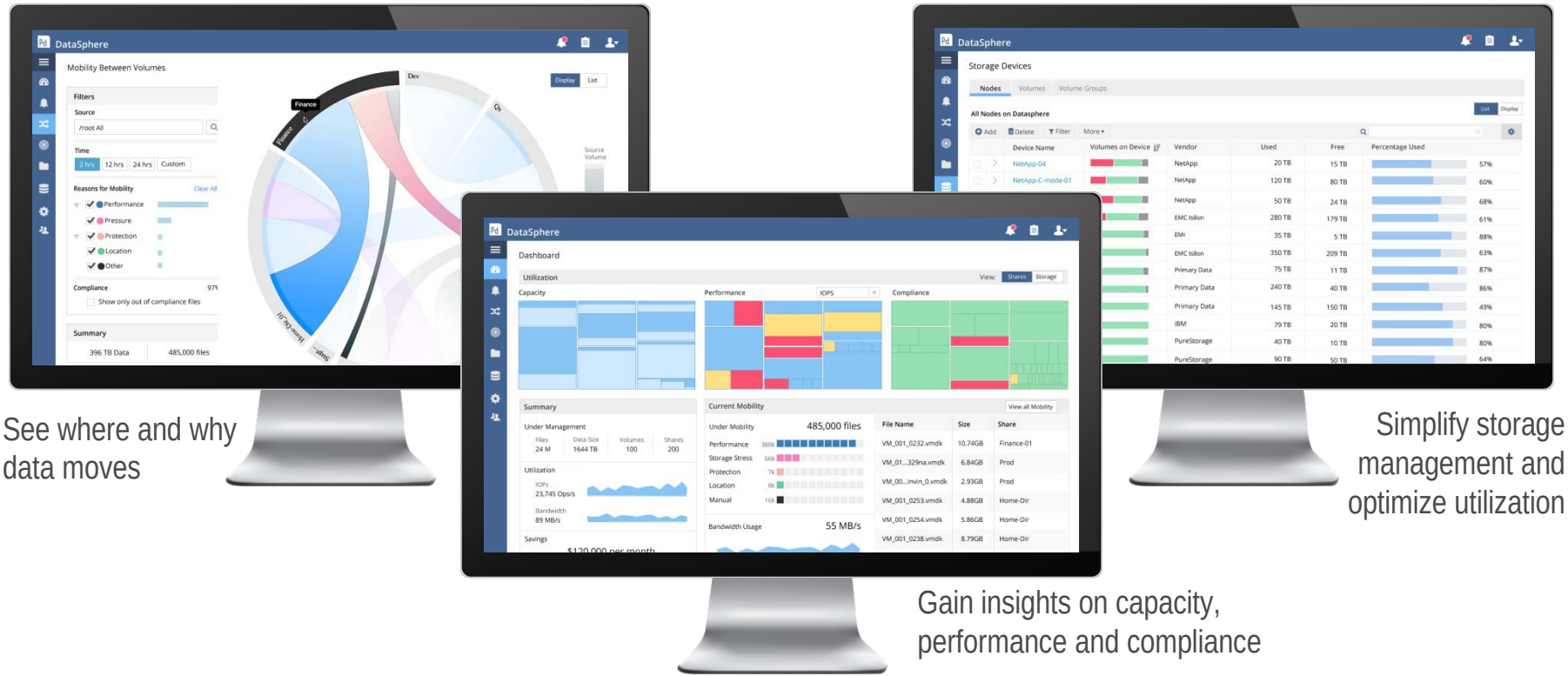
Move Data to Hybrid or Public Clouds According to Policy, Free Up On-Prem Capacity & Save Budget

Seamlessly Orchestrate Data Across Platforms and Archive to Cloud




Pd
Primary Data
CLOUD
SHARED
LOCAL
A User's View

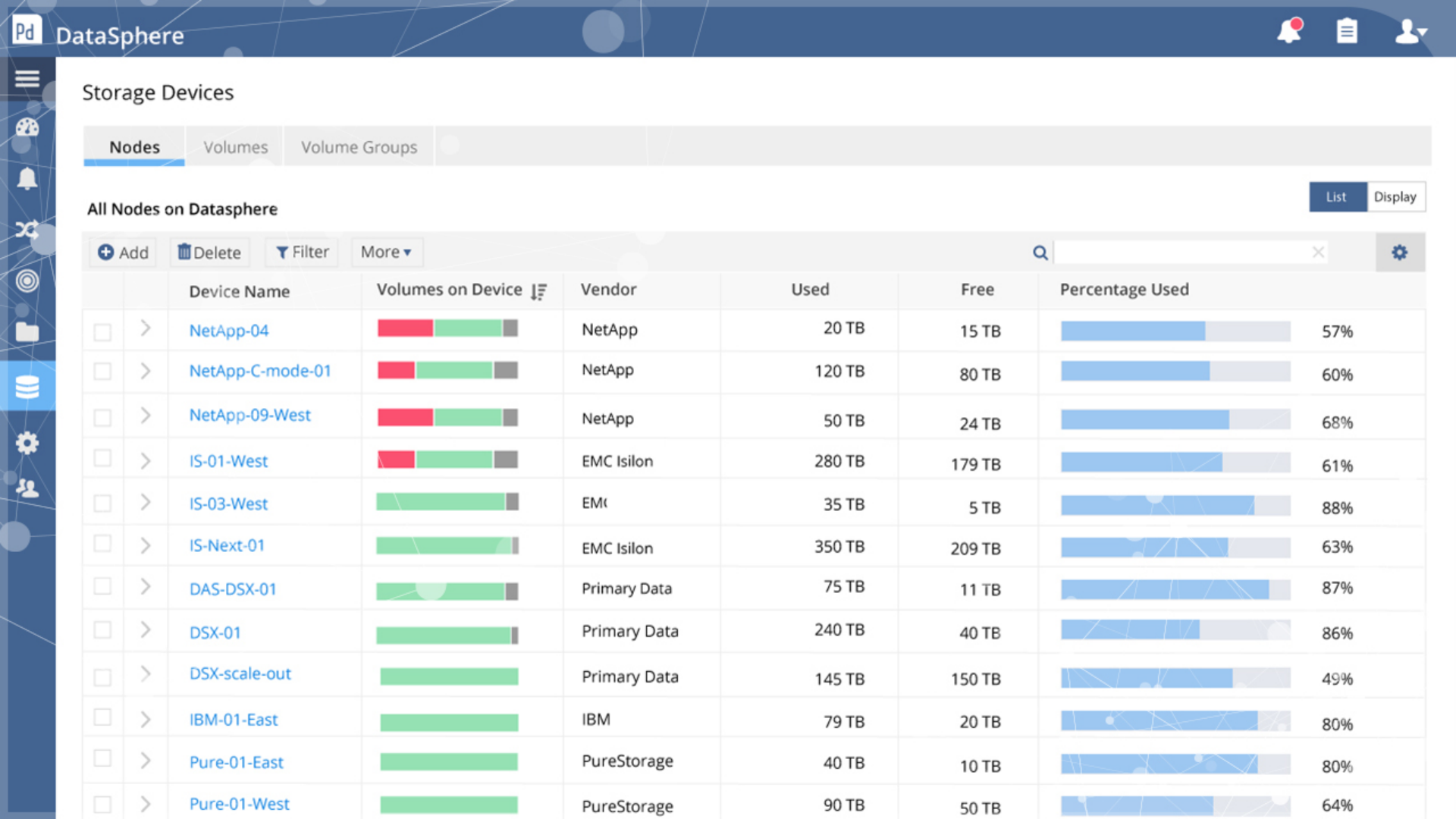
Insight, Visibility and Automation with DataSphere



See where and why data moves

Gain insights on capacity, performance and compliance

Simplify storage management and optimize utilization


DataSphere
Storage Devices
Nodes
Volumes
Volume Groups
All Nodes on Datasphere
List
Display
Add
Delete
Filter
More
Device Name
Volumes on Device
Vendor
Used
Free
Percentage Used
NetApp-04
NetApp
20 TB
15 TB
57%
NetApp-C-mode-01
NetApp
120 TB
80 TB
60%
NetApp-09-West
NetApp
50 TB
24 TB
68%
IS-01-West
EMC Isilon
280 TB
179 TB
61%
IS-03-West
EM
35 TB
5 TB
88%
IS-Next-01
EMC Isilon
350 TB
209 TB
63%
DAS-DSX-01
Primary Data
75 TB
11 TB
87%
DSX-01
Primary Data
240 TB
40 TB
86%
DSX-scale-out
Primary Data
145 TB
150 TB
49%
IBM-01-East
IBM
79 TB
20 TB
80%
Pure-01-East
PureStorage
40 TB
10 TB
80%
Pure-01-West
PureStorage
90 TB
50 TB
64%

DataSphere

Mobility Between Volumes

Filters

Source

/root All

Time

2 hrs | 12 hrs | 24 hrs | Custom

Reasons for Mobility Clear All

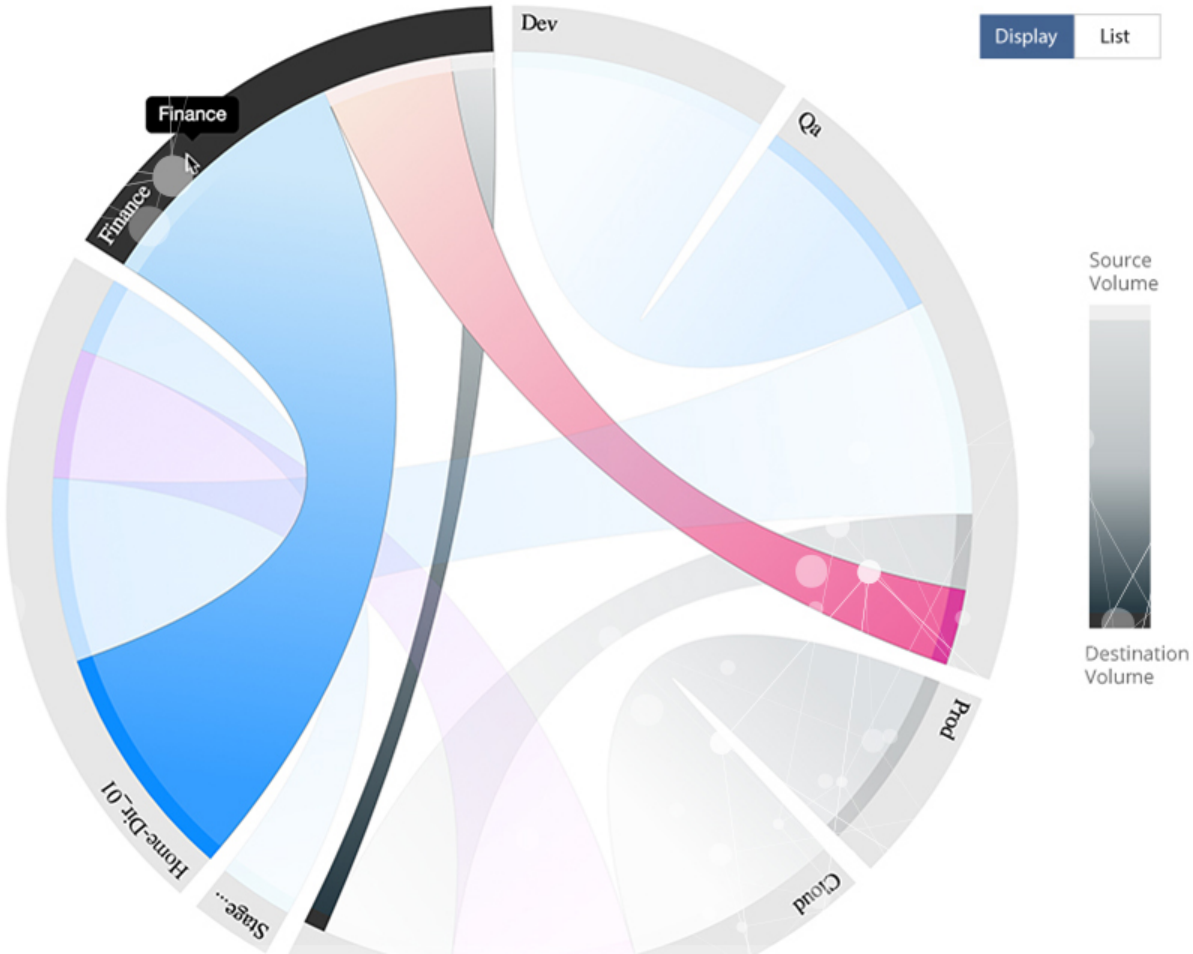
- Performance
- Pressure
- Protection
- Location
- Other

Compliance 97%

Show only out of compliance files

Summary

396 TB Data	485,000 files



DataSphere

Dashboard

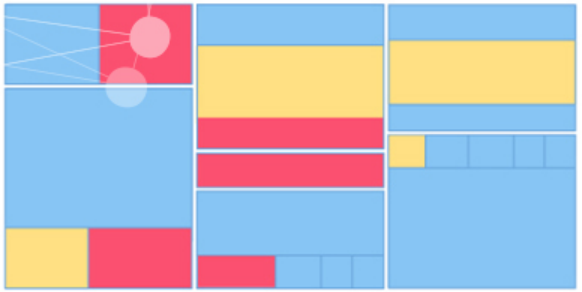
Utilization

View: Shares | Storage

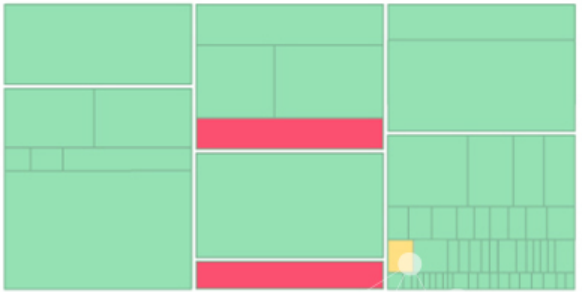
Capacity

Performance

IOPS



Compliance



Summary

Under Management

Files	Data Size	Volumes	Shares
24 M	1644 TB	100	200

Utilization

IOPs
23,745 Ops/s

Bandwidth
89 MB/s

Savings

$120,000 per month

Current Mobility

View all Mobility

Under Mobility 485,000 files

Performance	388k
Storage Stress	66k
Protection	7k
Location	8k
Manual	16k

Bandwidth Usage 55 MB/s

File Name	Size	Share
VM_001_0232.vmdk	10.74GB	Finance-01
VM_01...329na.vmdk	6.84GB	Prod
VM_00...invin_0.vmdk	2.93GB	Prod
VM_001_0253.vmdk	4.88GB	Home-Dir
VM_001_0254.vmdk	5.86GB	Home-Dir
VM_001_0238.vmdk	8.79GB	Home-Dir

Demo: Setting Objectives in DataSphere

VISIT PRIMARYDATA.COM/CONTACTUS
to set a time to discuss your needs

- Automatically align changing data demands with storage resources with Objectives
- Maximize performance and simplify management
- Save budget with seamless archiving of cold data to object/cloud


Q & A
Visit us at PrimaryData.com