

# Tegile Intelligent Flash Arrays

One Flash Platform. Any Workload.

Think And not Or.



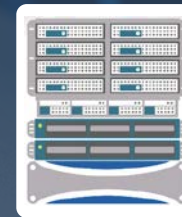
# Tegile IntelliFlash Storage Arrays



# Think And not Or.



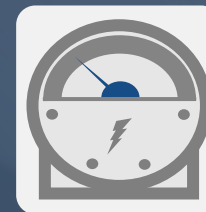
IntelliCare™  
Cloud Analytics & Support



IntelliStack™  
Converged Infrastructure Solutions



IntelliCare™  
Flash 5 Guarantee



Tegile Agility™  
Utility-Based Pricing



# Setting the Stage – Why Flash?

# What is the Digital Transformation?

*“The investment in a movement, technology and business model to more effectively support digital customers, their applications and how those behaviors will change compared to traditional approaches.”*



# Tegile Enables The Datacenter Digital Transformation



IT Infrastructure

Workload Consolidation

Cloud Scale

Cost Reduction



Applications

Accelerating Legacy  
e.g. Relational Databases

Enabling Next-Gen  
e.g. Unstructured Databases,  
Analytics



Business

Process Automation

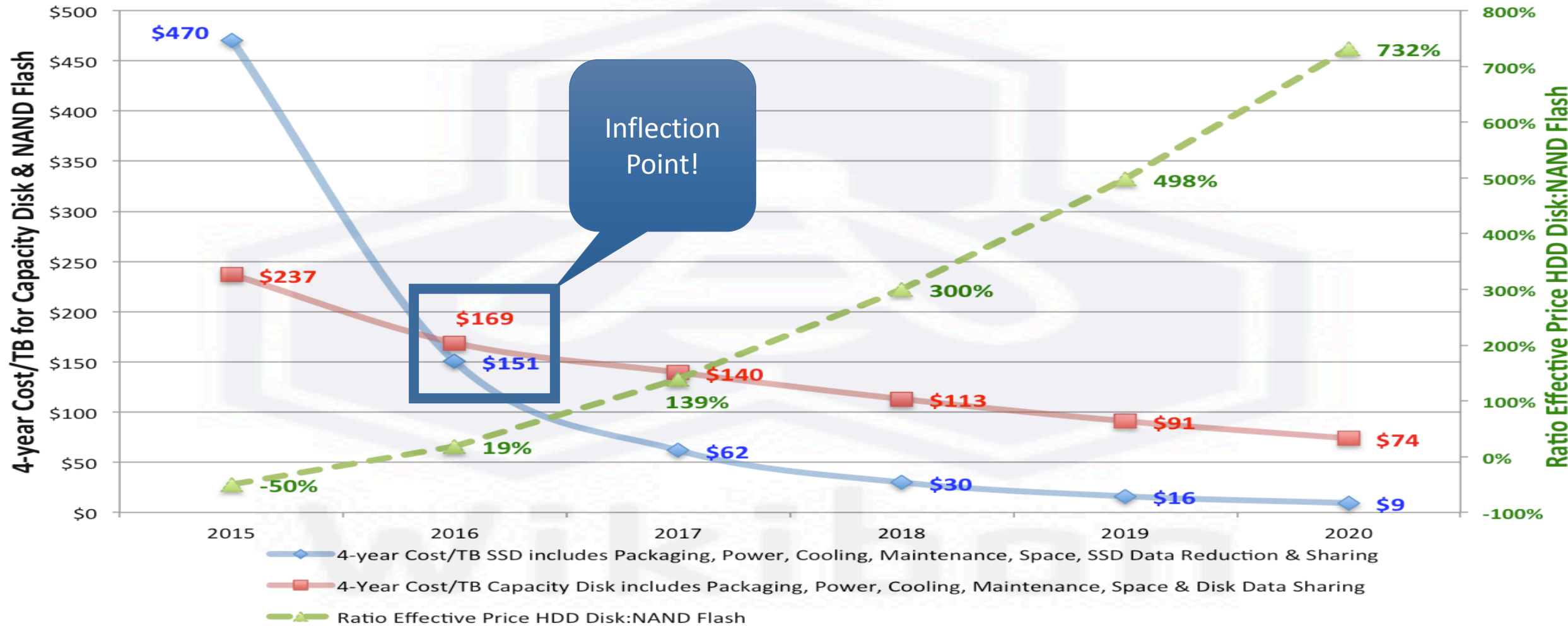
Reduce Complexity

Increase Efficiency

Drive New Models

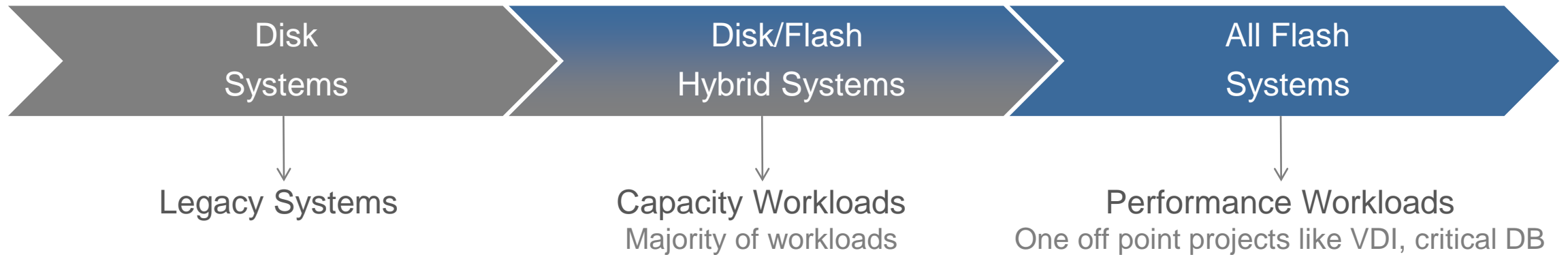
# Setting the Stage: 4 Year Storage TCO Tells the Story

## Projection 2015-2020 of Capacity Disk & Scale-out Capacity NAND Flash

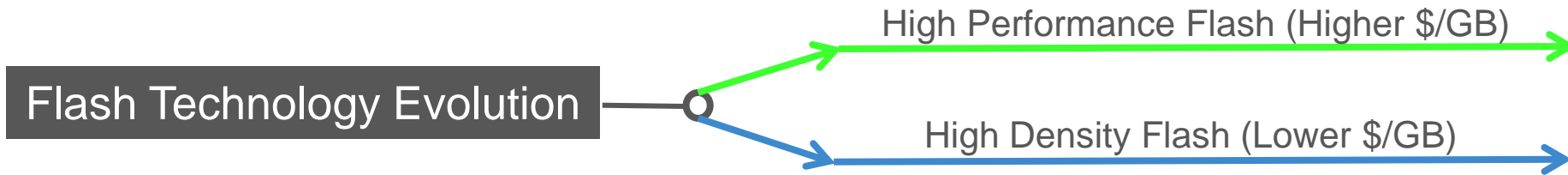


Source: © Wikibon 2015. 4-Year Cost/TB Magnetic Disk & SSD, including Packaging, Power, Maintenance, Space, Data Reduction & Data Sharing

# Datacenter Storage Today...

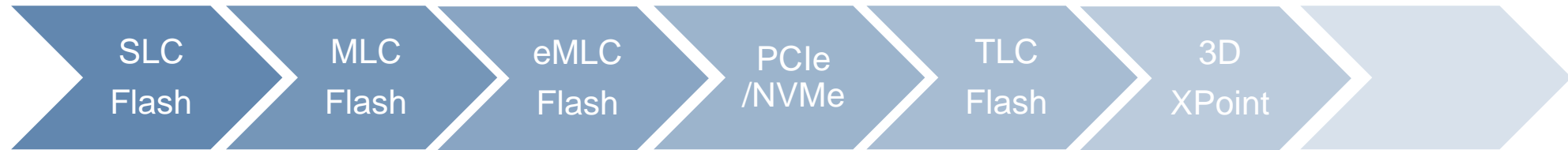


# Flash is Evolving Along Two Vectors





# Flash media is evolving rapidly



# Customer Want to Move to Flash





# Messaging & Value Proposition

# Data Silos Add Cost & Complexity



Backup  
Copies



Communication &  
Collaboration

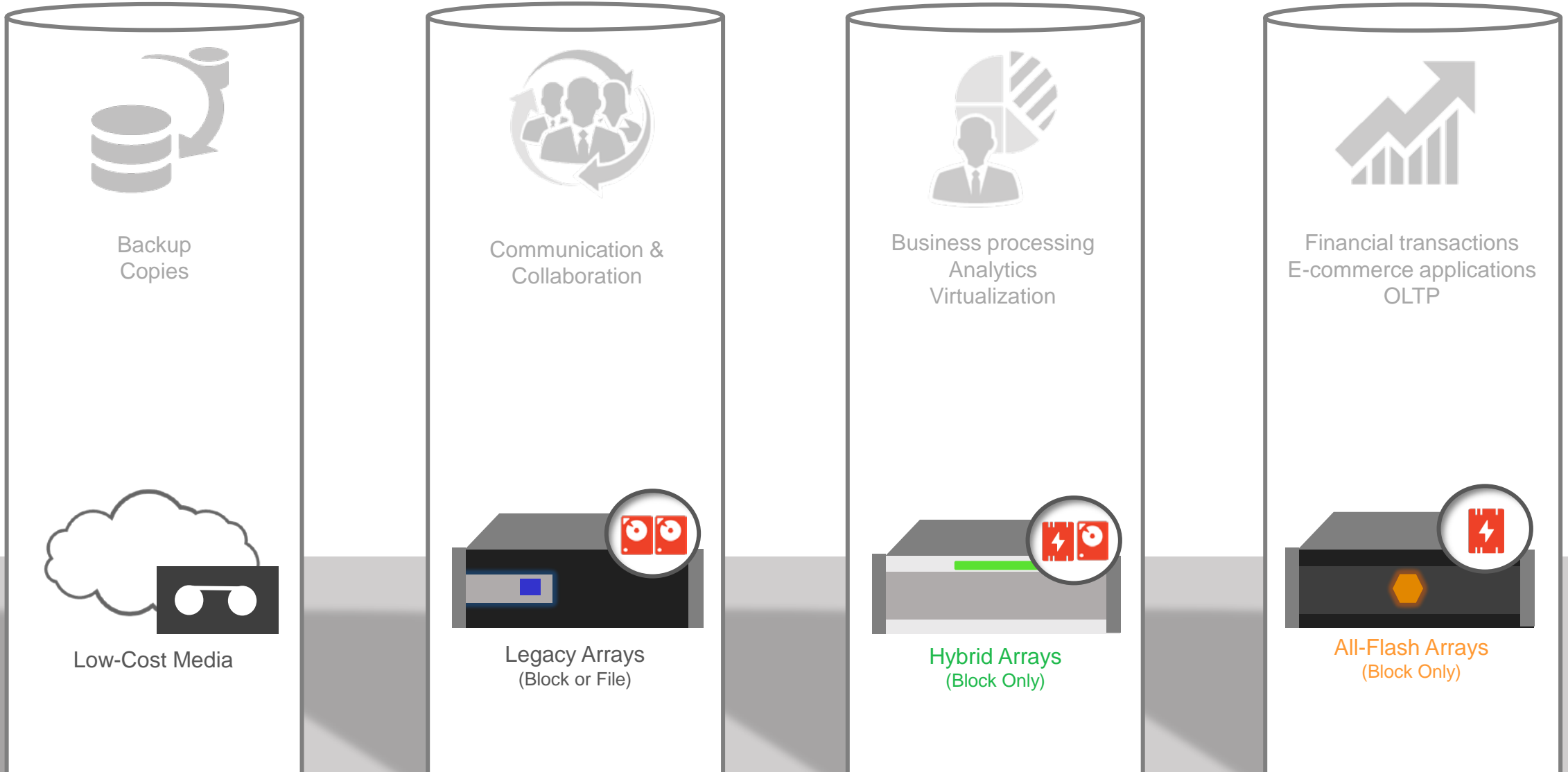


Business processing  
Analytics  
Virtualization



Financial transactions  
E-commerce applications  
OLTP

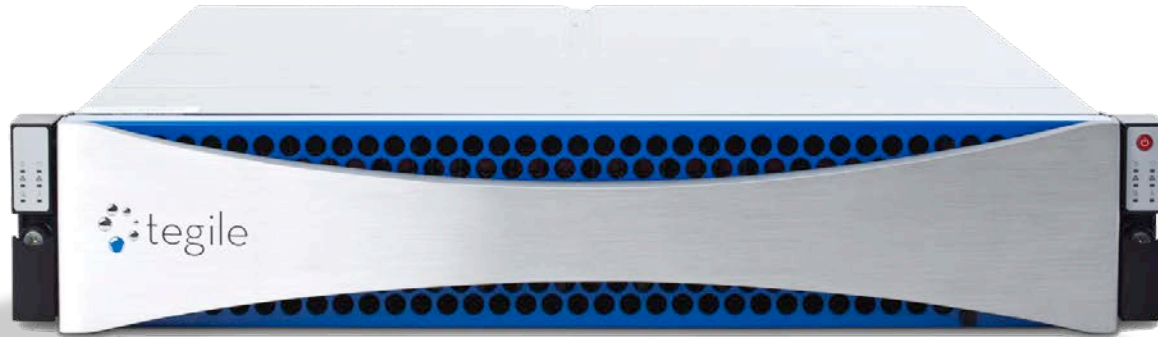
# Other Vendors Only Solve Part of the Problem



# Meet the Needs of Your Entire Business



# One Flash Platform. Any Workload.



Capacity



Performance

Same Operating System | Same Feature Set | Same User Experience

# Why Is Tegile So Popular?

## Enables Workload Consolidation in the Datacenter

- ***\*Achieve consistent, low latency\****
- For individual applications – performance or capacity biased
- For application consolidation at scale

## Achieves the Best OPEX Savings

- Rackspace, Power, Cooling
- Best \$/GB as compared to traditional legacy disk-based storage
- ***IntelliFlash HD is a game-changer --> NAND Flash Density Advantage***

## Prepares Customers to Transition to the Flash Datacenter

- ***Tegile is leading the transition***
- Single Platform that grows with needs
- Future-Proof

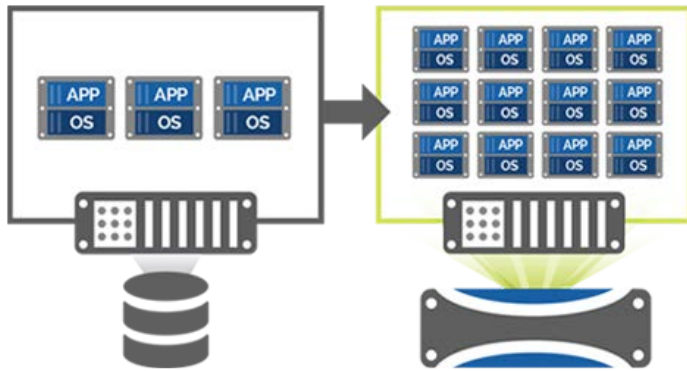




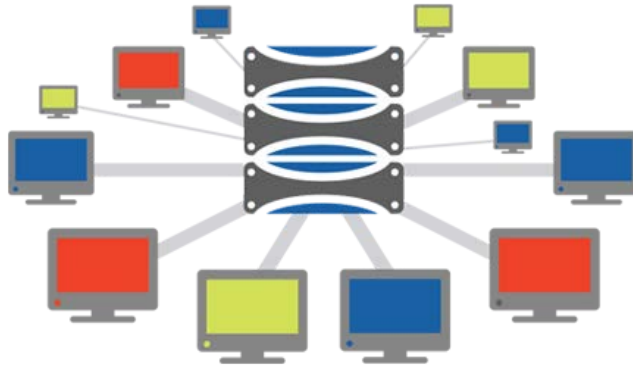
# Product Positioning

# Tegile Use Cases

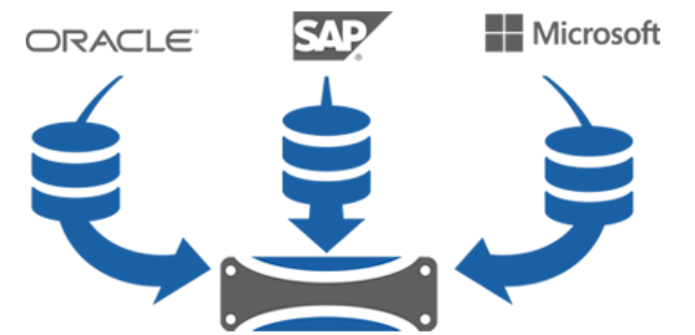
## Server Virtualization



## Desktop Virtualization

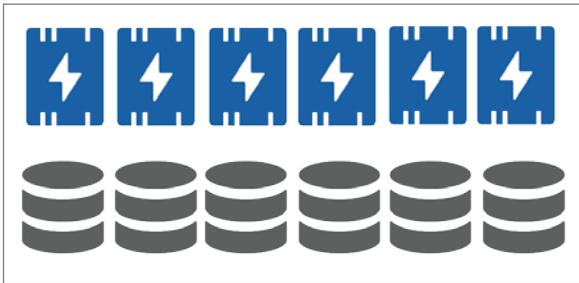


## Databases



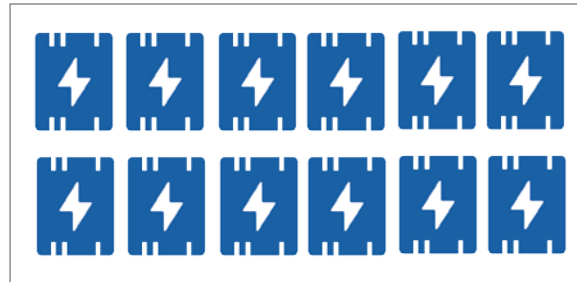
# Tegile Flash Array Architecture

## HYBRID



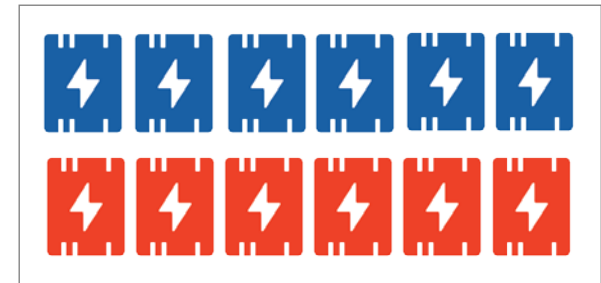
- Multi-Layer Architecture
  - Flash & Disk
  - Flash for Performance
  - Disk for Capacity
- High IOPs
- Lower \$/GB

## ALL FLASH



- Single Layer of Flash
- High IOPs
- Consistent Low Latency
- Higher \$/GB

## MULTI-TIERED FLASH



- Multi-Tiered Architecture
  - Fast & Dense Flash
  - Fast Flash for Performance
  - Dense Flash for Capacity
- High IOPs
- Better Latency than Hybrid
- Lower \$/GB

# Tegile's Portfolio Platform



Hybrid

- T3100
- T3200
- T3300
- T3400

Flash + Hybrid

- T3530
- T3630
- T3730
- T3750
- T3850

All-Flash

- T3500
- T3600
- T3700
- T3800

Highly Dense Flash

- T10KHD-100
- T10KHD-200
- T10KHD-300

One Flash Platform for ANY Workload



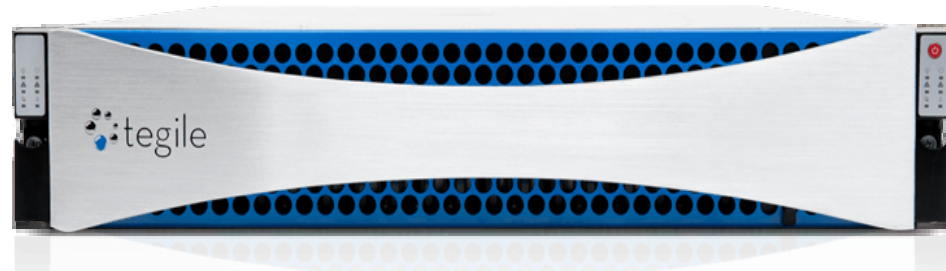
# Entry All-Flash

<\$50K Street  
Price



## T3500 All-Flash Array

- 18TB+ Effective Capacity @ 5:1 (6TB Raw)
- Runs on the IntelliFlash™ Operating Platform
- Customers looking to enter the all-flash platform

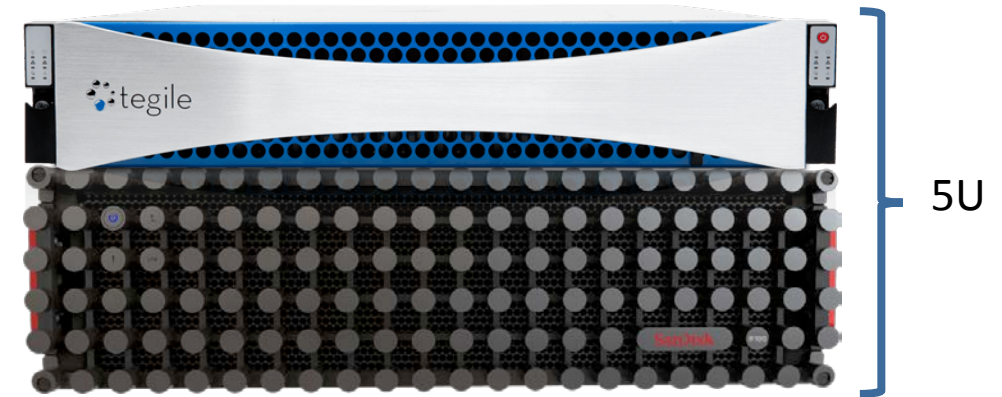


## ESF-5 All-Flash Enclosure

- 18TB+ of Effective Capacity @ 5:1 (6TB Raw)
- Add up to six to any AFA

# IntelliFlash HD

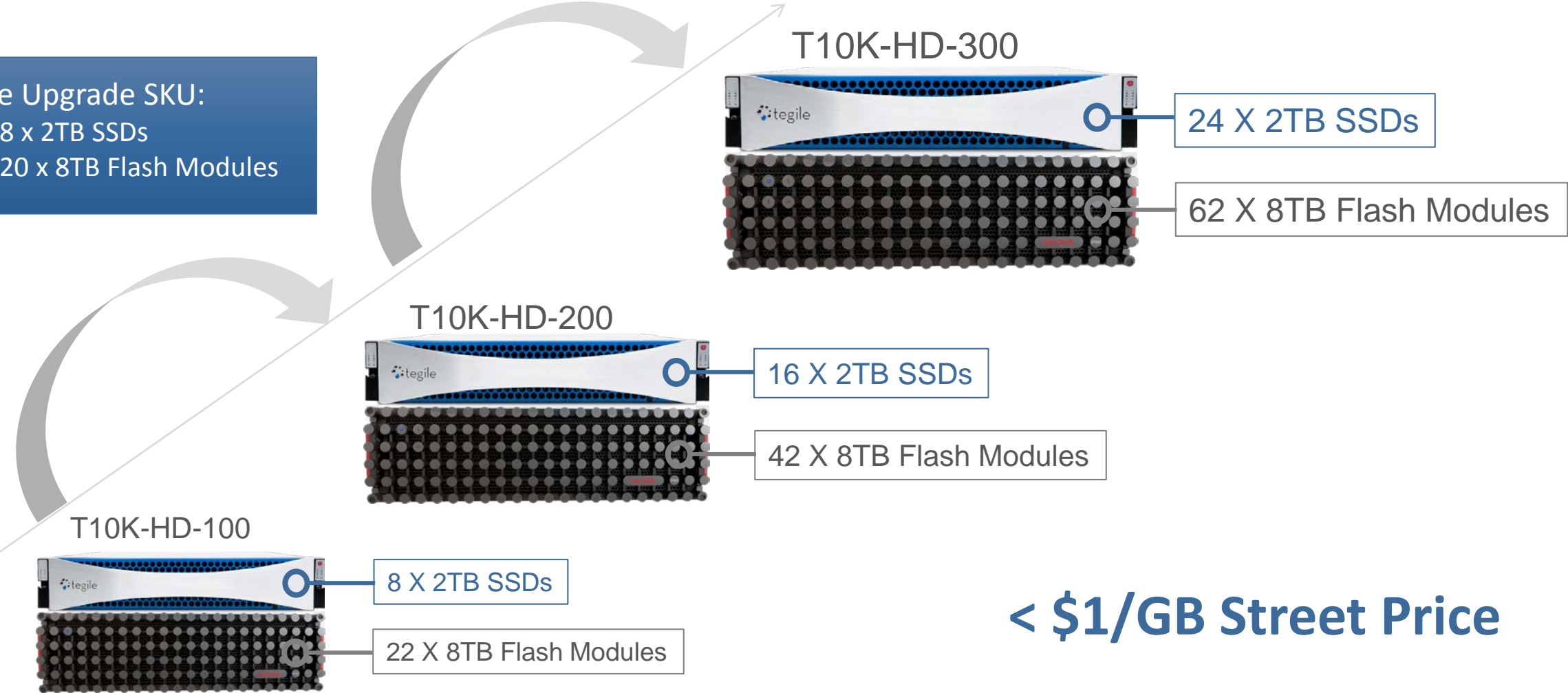
Model	Usable Capacity	Effective Capacity (5:1)
T10KHD-100	95TB	475TB
T10KHD-200	190TB	949TB
T10KHD-300	285TB	1.4PB



- Ideal for 95TB+ of usable capacity
- Runs the IntelliFlash™ Operating Platform
- Designed For:
  - Throughput-Driven Performance
  - Workload Consolidation @ Scale
  - Data Repository for Real-Time Analytics

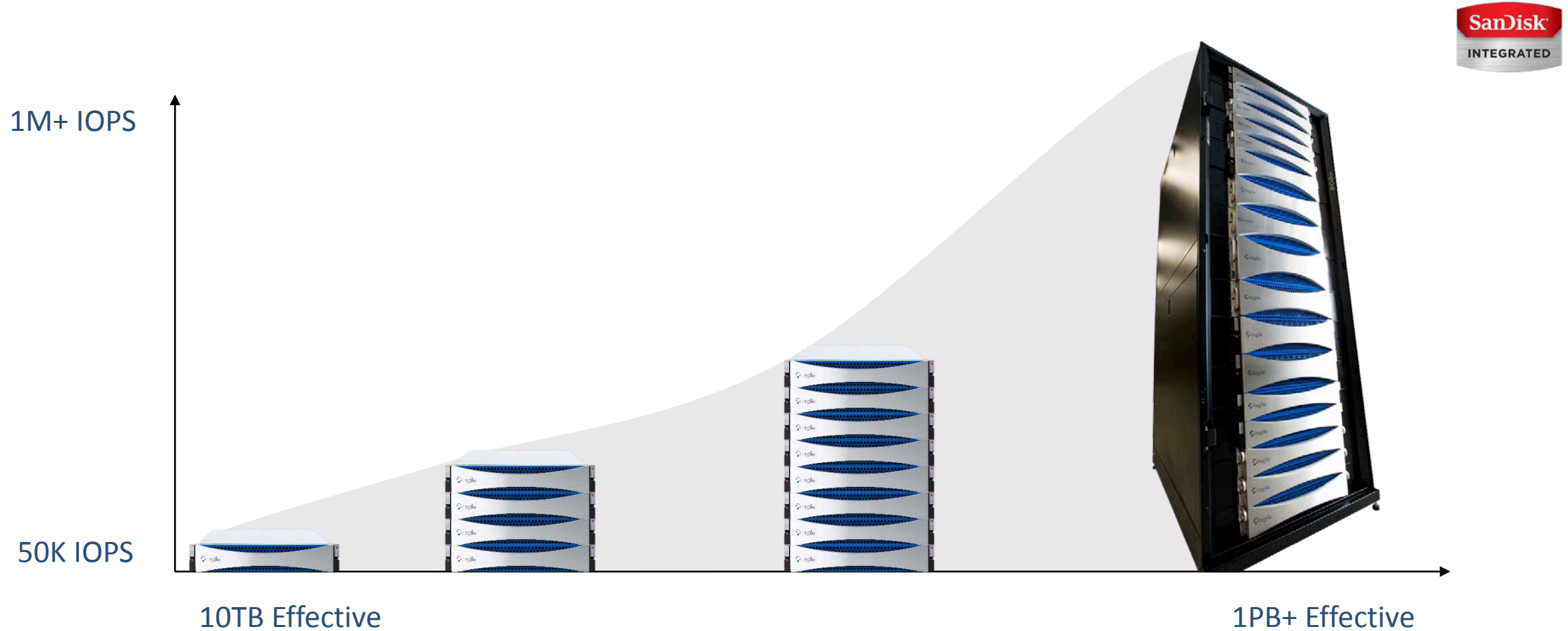
# IntelliFlash HD Models

One Upgrade SKU:  
• 8 x 2TB SSDs  
• 20 x 8TB Flash Modules



**< \$1/GB Street Price**

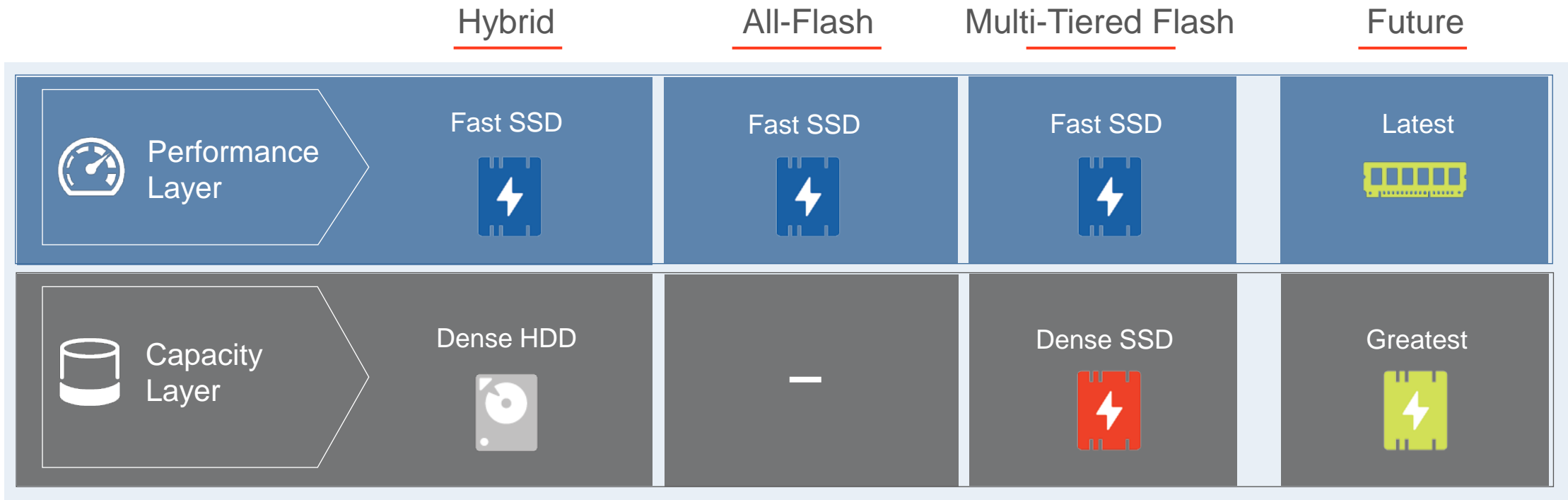
# Hyper-Consolidate to the Flash Datacenter





# Future Proof Your Architecture

As flash evolves...



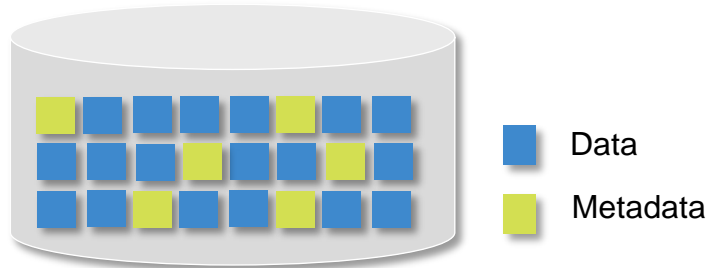
...Tegile IntelliFlash will continue to leverage new media



# Tegile Architecture: Differentiation

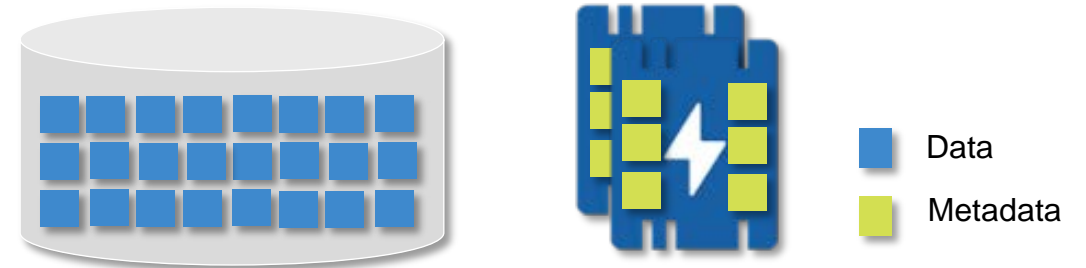
# Tegile Boosts Performance: Metadata Acceleration

## Traditional Storage



- Metadata interspersed with data
- I/O performance gated by metadata access
- Performance penalty for deduplication on HDD

## Tegile Storage



- Metadata abstracted from data
- Aggregated metadata placed on dedicated devices
- Optimal I/O paths
- Inline data reduction without performance impact
- Accelerated storage operations

Accelerate all data operations and services

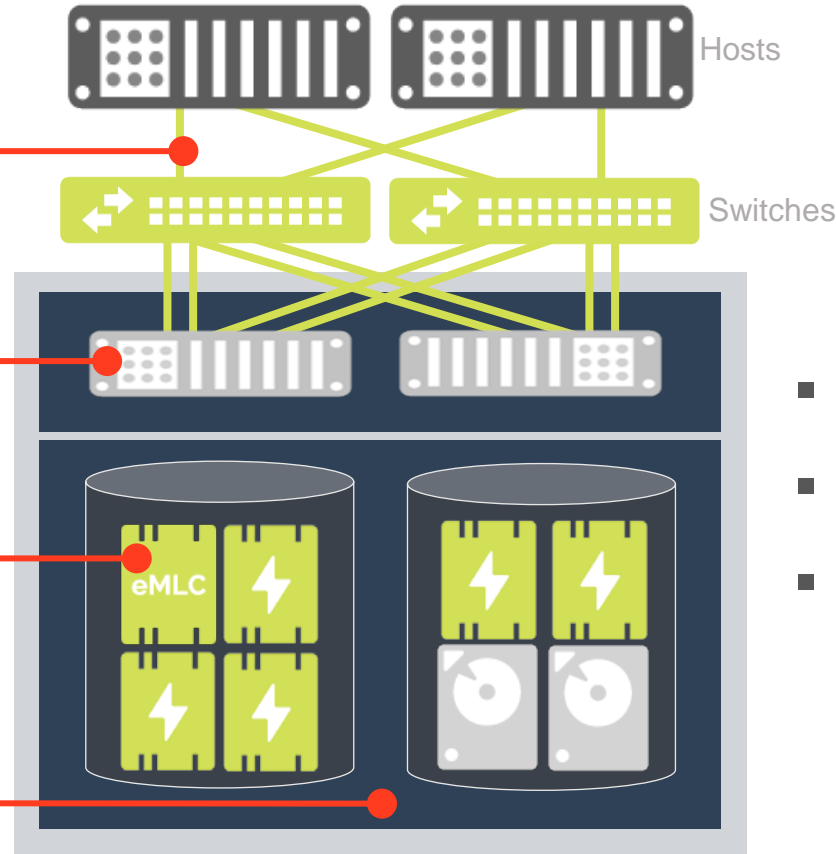
# Active/Active Hardware Design

Multiple Paths to Hosts

Active/Active Controllers

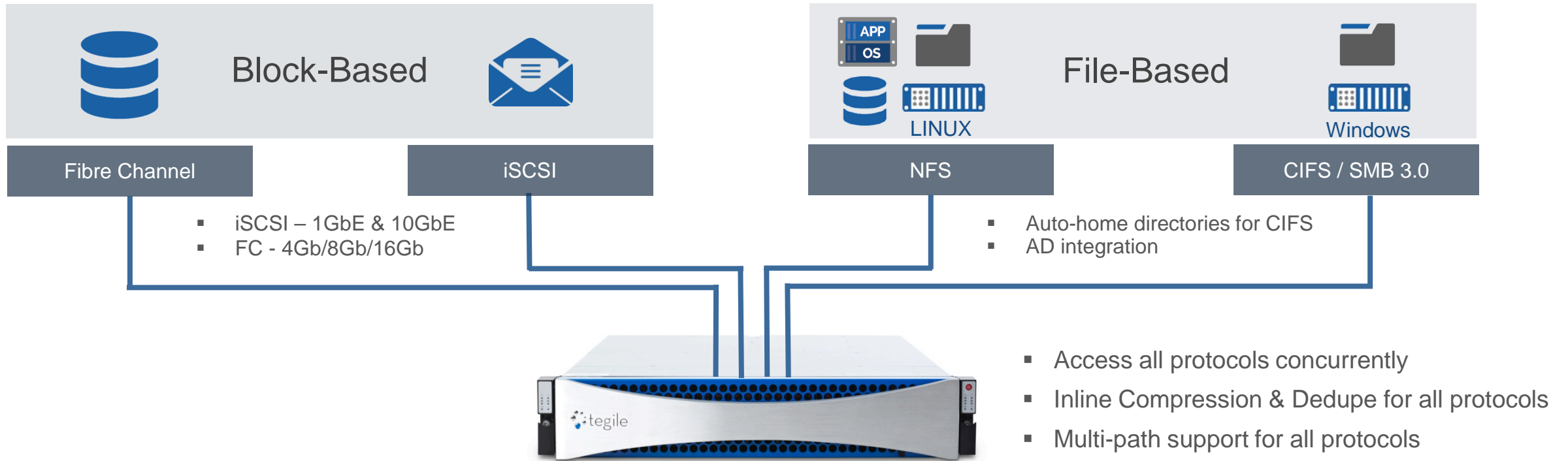
Enterprise-Grade SSDs

All-Flash & Hybrid Pools



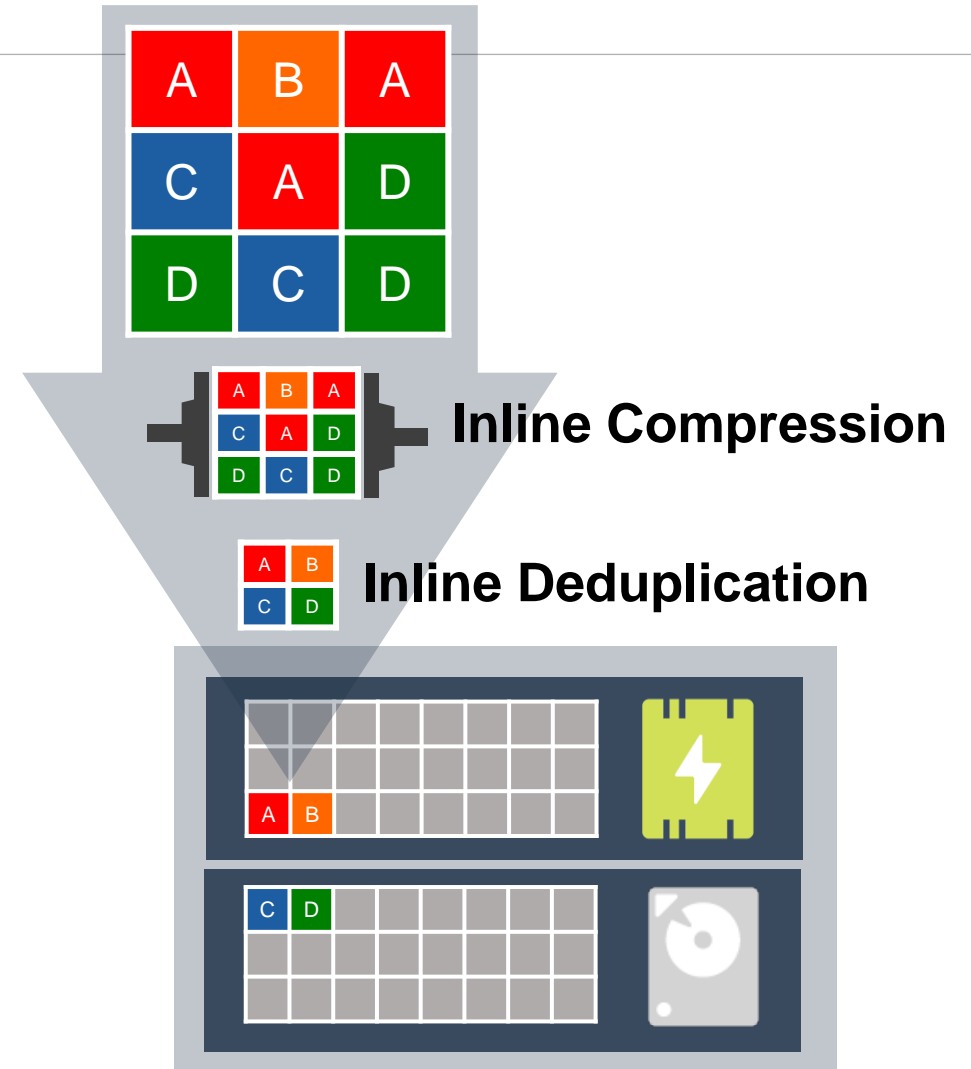
- No single point of failure
- Non-disruptive software upgrades
- Five 9s availability... Guaranteed.

# Native Multi-Protocol (SAN & NAS)

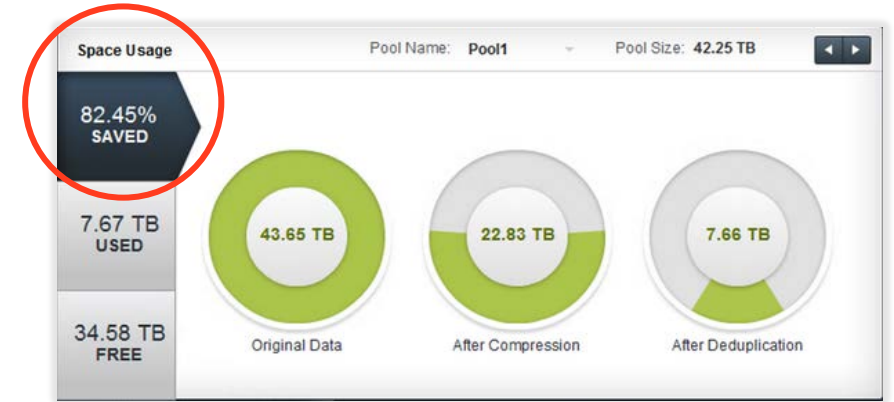


# Data Reduction Technologies

- Acts as performance multiplier
- Only unique blocks stored in cache
- Maximizes the amount of data kept in flash
- Increases cache hit ratio



# Save on Rack Space, Power & Cooling



# Easy Storage Administration



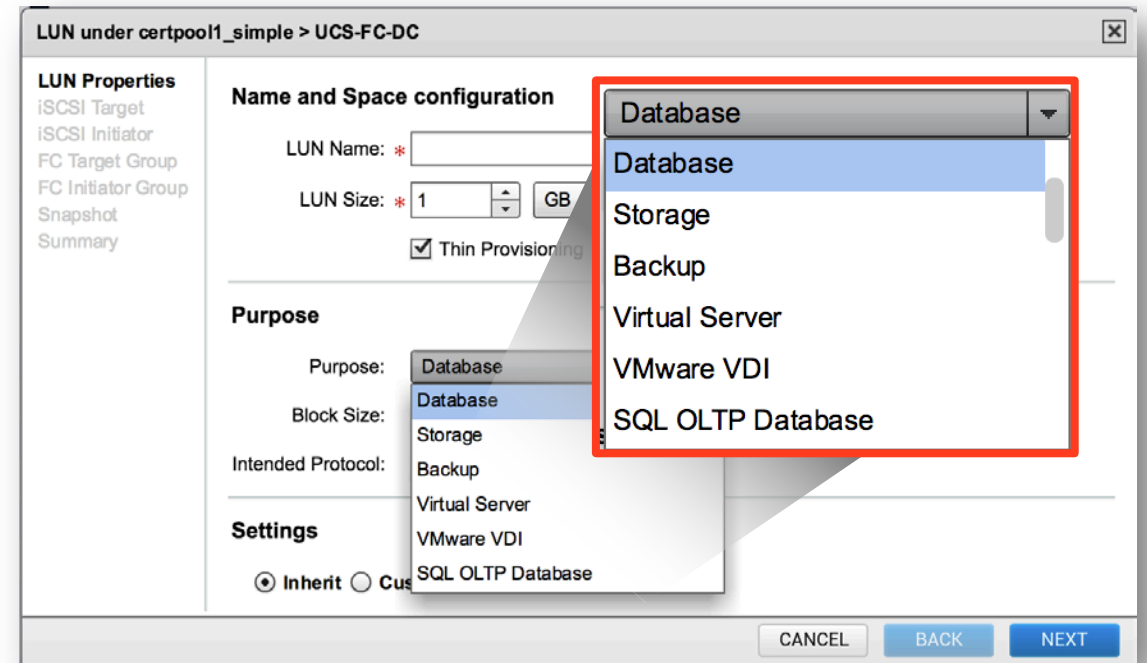
- Simplify configuring, managing, and monitoring your Tegile arrays
- Dashboard let's you quickly and easily monitor space usage, performance, cache hits, CPU hits, and network throughput
- Wizards guide you through you common storage tasks
- Advanced settings available for those who wish to fine tune their storage



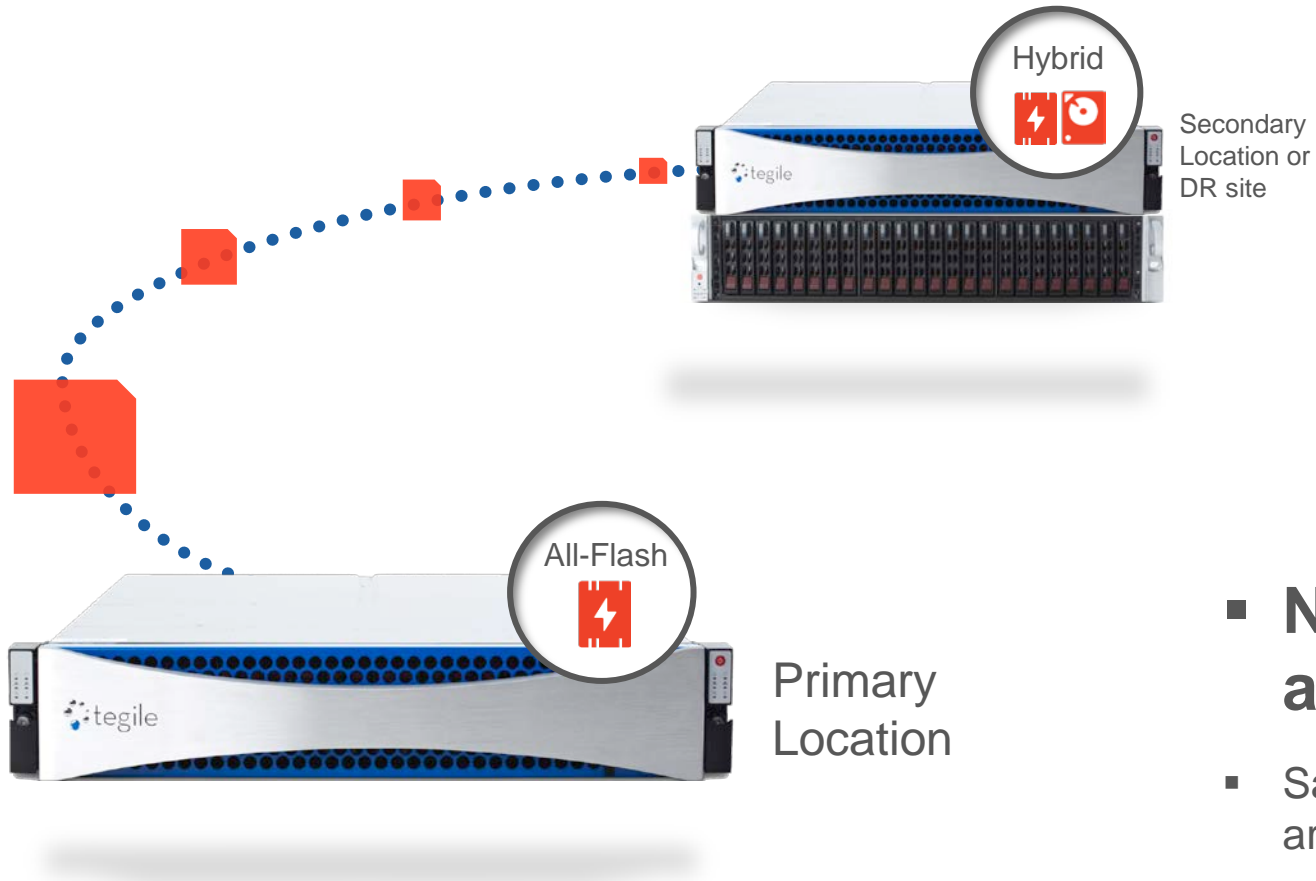
# Simplified Provisioning & Ease-Of-Use

- Application-optimized templates simplify provisioning
- Choose the type of workload and IntelliFlash will preselect the optimum configuration properties for LUN/Share
- Templates based on best practices
- Advanced configuration options also available

## Application-Optimized Provisioning



# Affordable Disaster Recovery



- **Natively replicate between all-flash and hybrid arrays**
- Save money by buying a more affordable secondary array

A close-up, low-angle photograph of a blue perforated metal mesh, likely part of a server rack or cooling system. The mesh is composed of a grid of oval-shaped holes. The lighting creates a strong sense of depth and perspective, with the mesh receding into the distance. The overall color palette is a range of blues, from light to dark.

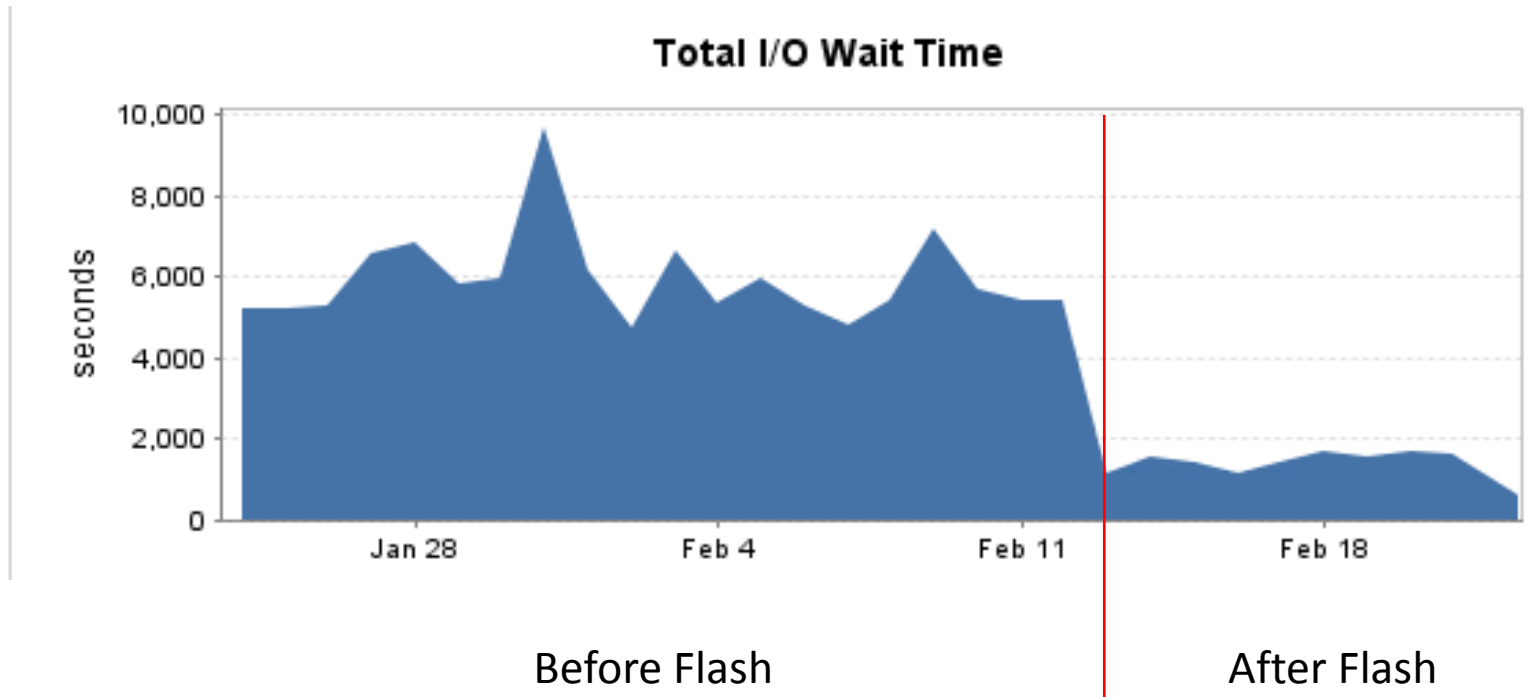
# Real-Life Customer Examples

# 10TB Database: Flash Impact

## Virtualized ERP Database

### Average I/O Wait Time

- Before Tegile: ~6 seconds
- After Tegile: ~1 second



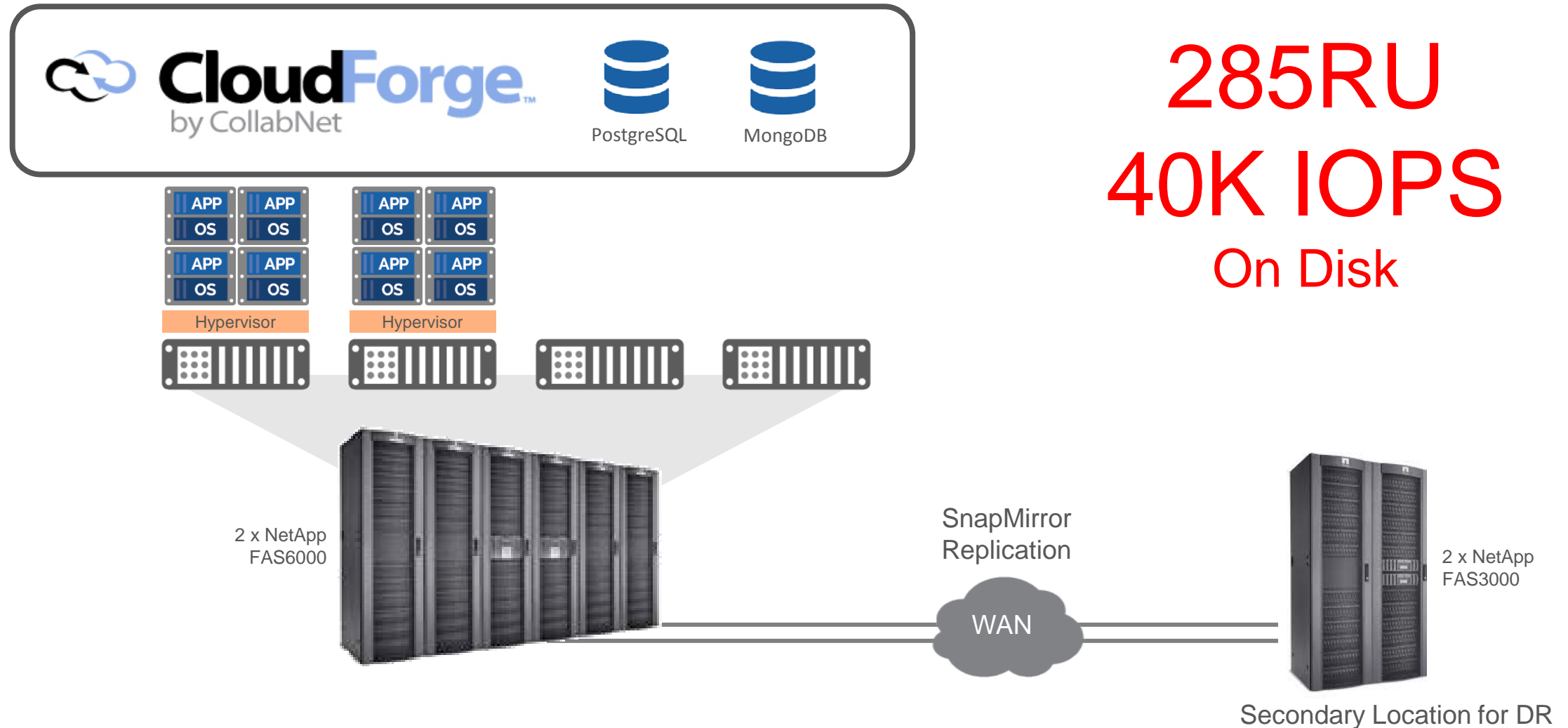
# 100TB Analytics: Flash Impact

## Market Close Analytics

- Before Tegile: 22 Hours
- After Tegile: 4 Hours

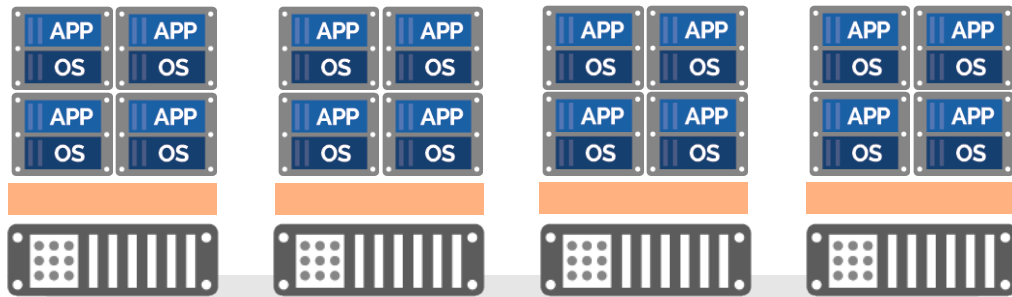


# Development Platform-as-a-Service (dPaaS) Before Flash



**285RU**  
**40K IOPS**  
**On Disk**

# Storage Topology – After Flash



Tegile Hybrid & All-Flash Arrays



~~285RU / 40K IOPS~~  
On Disk

**135RU**  
**200K IOPS**  
On Flash

Replication



Tegile Hybrid Array



Secondary Location for DR

# How Is Tegile Different?

## Hybrid, All-Flash & Multi-Tiered Flash

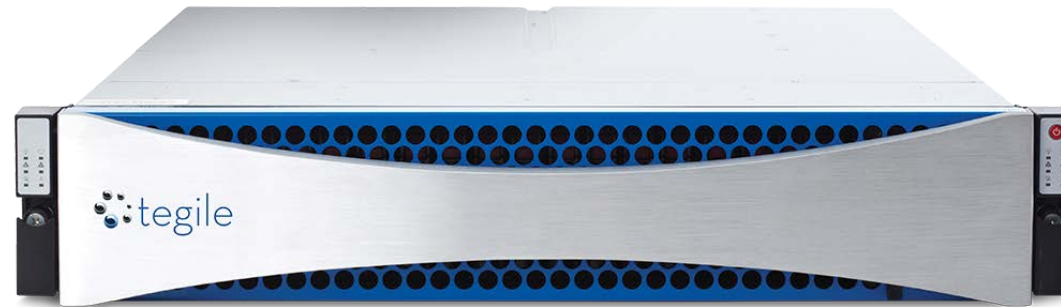
Dial up performance AND capacity to accommodate your future needs

## Multi-Protocol Support

Native support for block AND file protocols (iSCSI, FC, NFS, CIFS/SMB 3.0)

## Superior Data Reduction

Inline compression AND deduplication



## Simple Administration

Intuitive web UI, app integration AND cloud analytics

## Enterprise Resiliency

Fully redundant hardware AND active/active controllers

## Affordable Disaster Recovery

Replicate between all-flash AND hybrid configurations





Thank You