



# Convergence and Flash: Reinventing Storage (Again)

Dr. Allon Cohen

VP Products and Business Development, Elastifile

# Two Forces Revolutionizing the Data Center

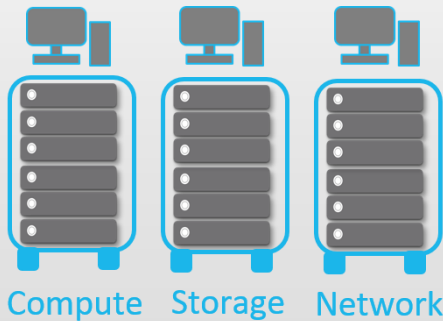
Enterprise  
All Flash  
Zone

Software Defined  
Data Center  
Scale-out



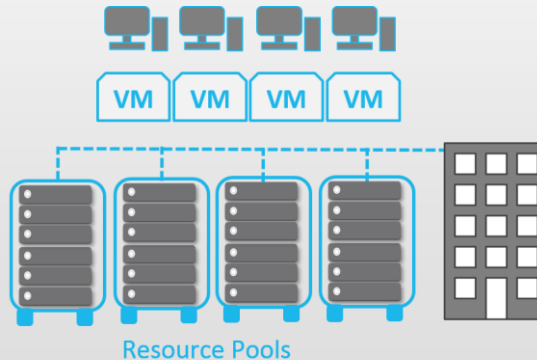
## Physical & Segmented

- Discrete networks
- Discrete Storage
- 1Gb Ethernet



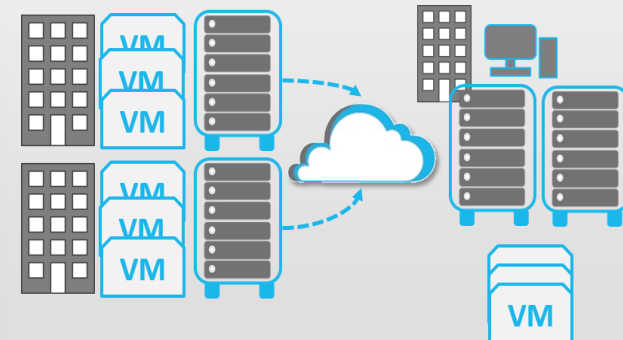
## Virtualized data-center

- Compute virtualization
- Shared storage
- 10Gb ethernet



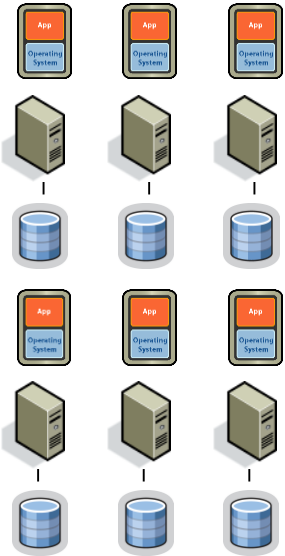
## Private Cloud

- Network virtualization
- Software defined networks
- 10Gb/40GbE Low Latency



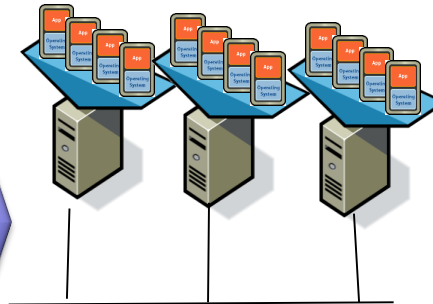
# Storage Silos: There and *Back Again*

Server  
"Storage Silo"s



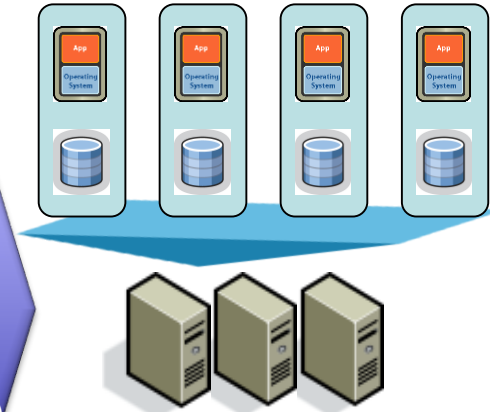
Server  
Virtualization

Virtualized Servers

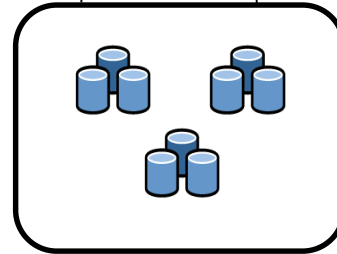


Software  
Defined  
Storage  
(First  
Attempts...)

Virtual Server  
"Storage Silo"s

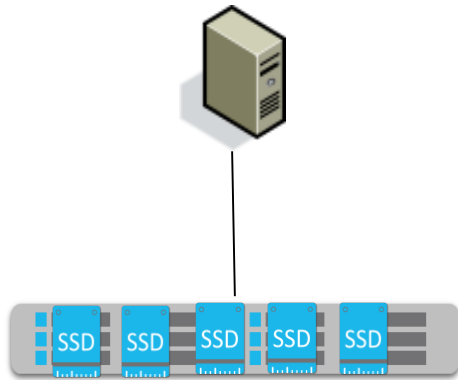


Centralized  
Storage System



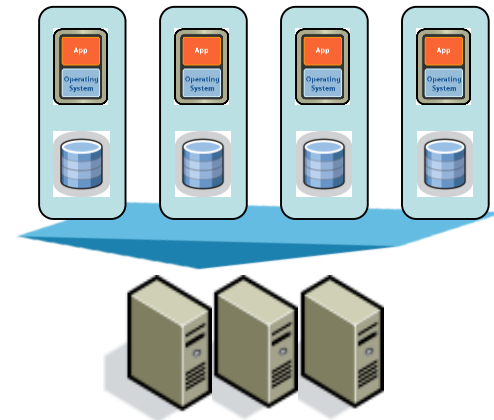
# A Dichotomous Data Center

High IOPS  
Application  
Storage Silo

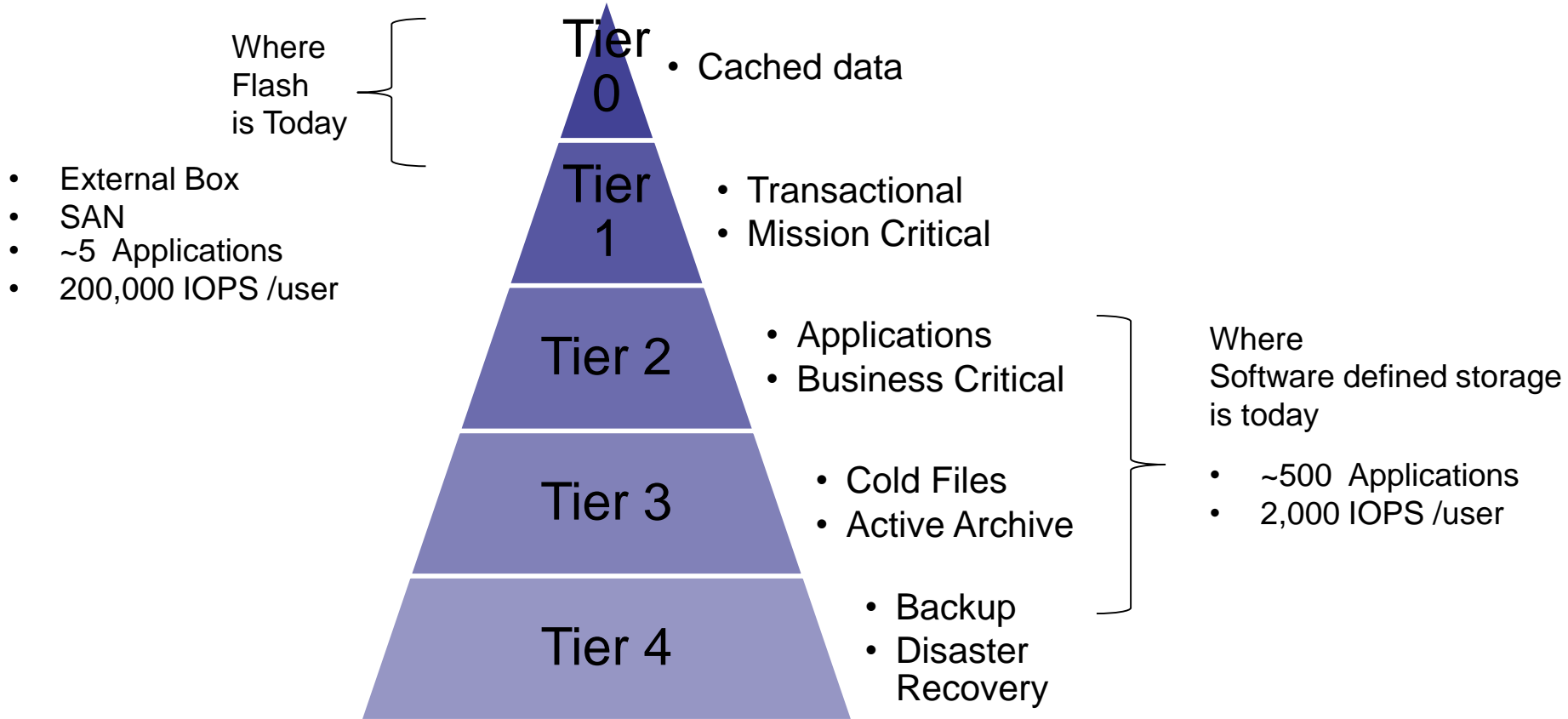


All Flash Array

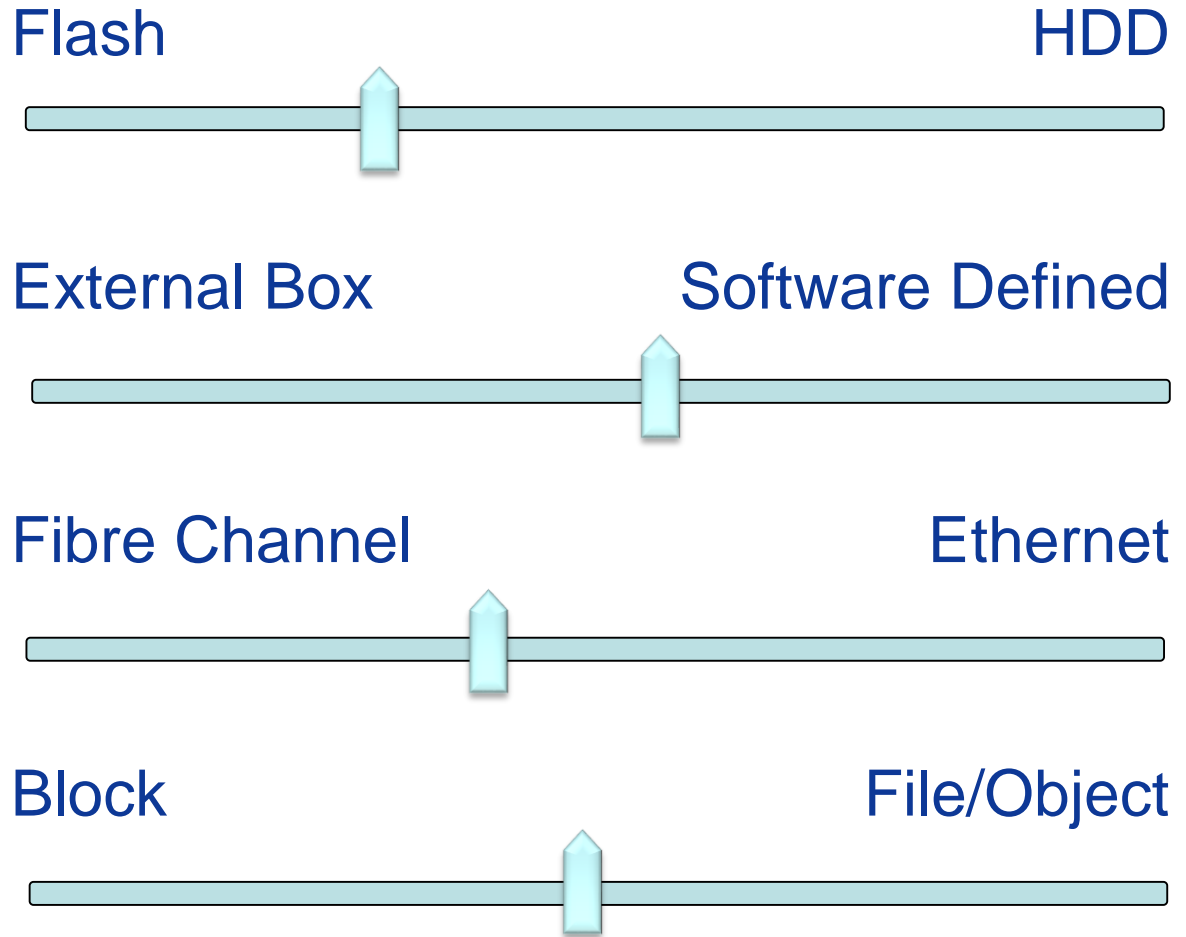
Virtual Server  
"Storage Silo"s



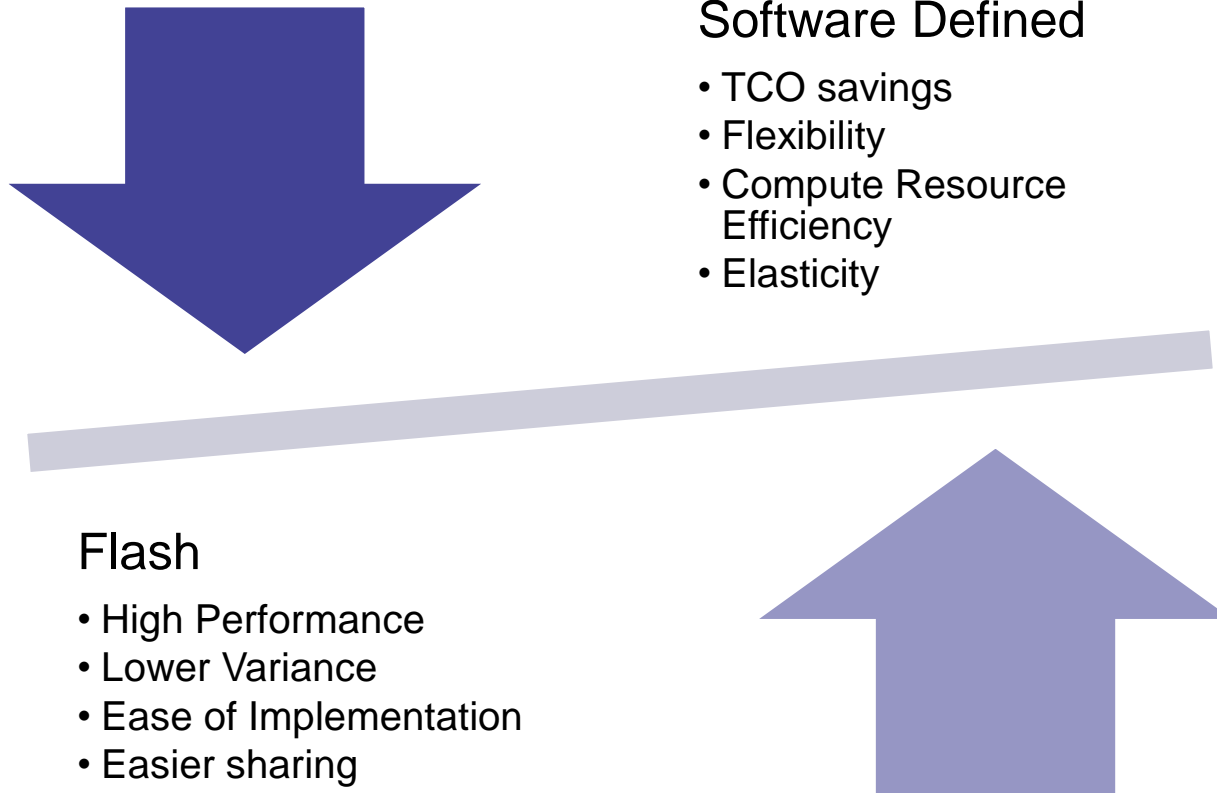
# Current Market Penetration



# The Storage Manager Balancing Act Circa 2013

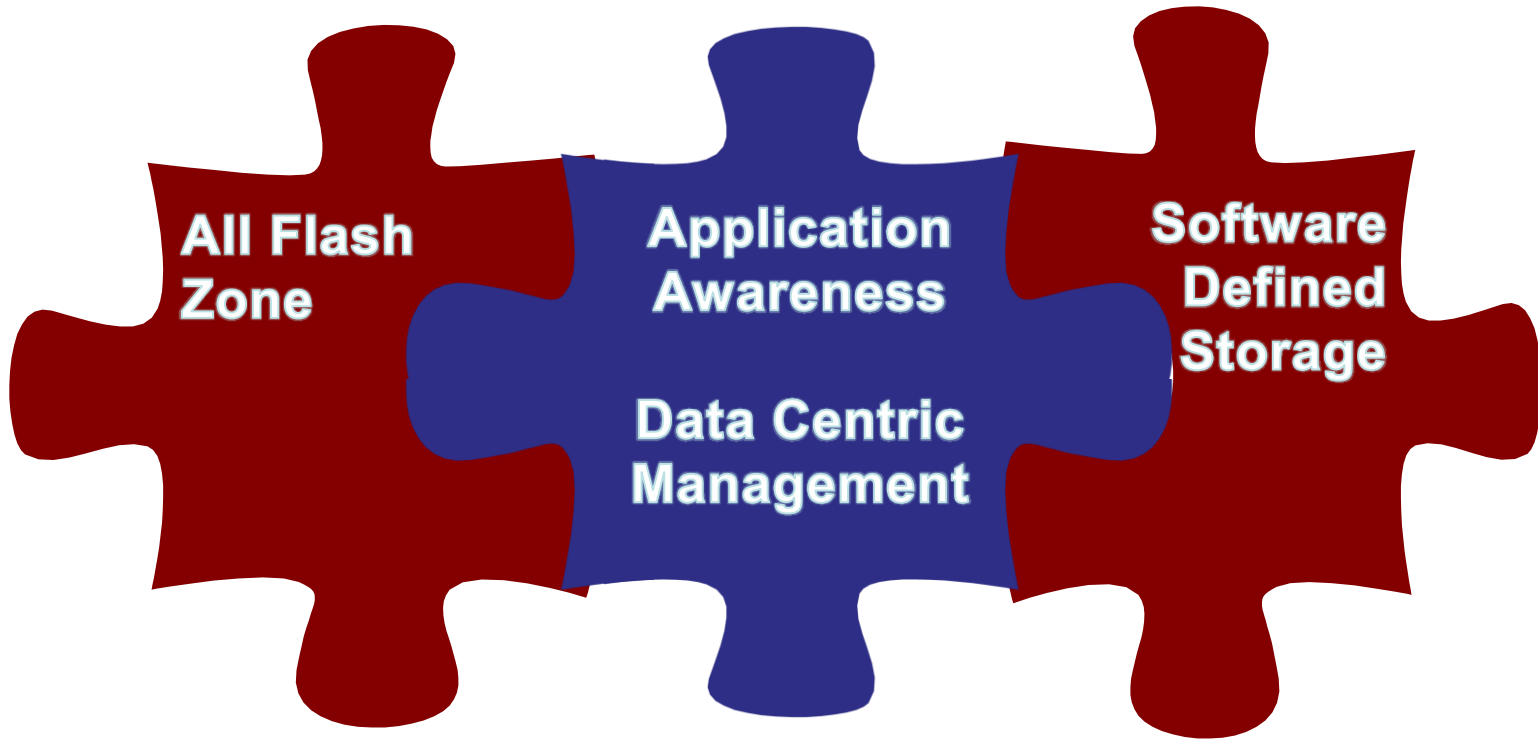


# Can I Have Both?



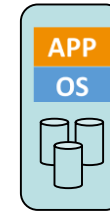


# The Missing Link



# Data Management Approaches

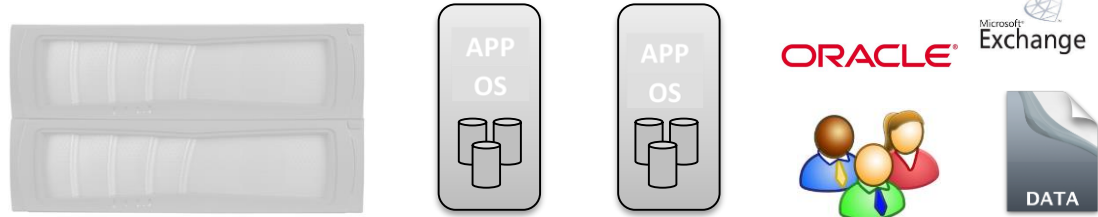
## What we Had



	Storage Centric	VM Centric
What I manage	Storage System LUNs	VMs VM Volumes
Who “owns” the data	The External Array	The Virtual Machine
Capacity Management (Quota/ Provisioning)	LUNs	Virtual Disks
Performance Assurance (Quality of Service)	Servers	Virtual Machines
The Bottom Line	Can Share Can't Scale	Can Scale Can't Share

# Data Management Approaches

## What we Need

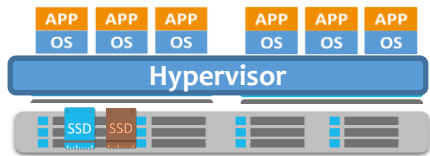


	Storage Centric	VM Centric	Data Centric
What I manage	Storage System LUNs	VMs VM Volumes	Data Files/Objects Users
Who "owns" the data	The External Array	The Virtual Machine	Applications/ Users
Capacity Management (Quota/ Provisioning)	LUNs	Virtual Disks	Applications/ Users
Performance Assurance (Quality of Service)	Servers	Virtual Machines	Users/Data
The Bottom Line	Can Share Can't Scale	Can Scale Can't Share	Can Scale Can Share

# Example 1

## Data Centric Flash Tiering

ORACLE®



Read Intensive – High Resiliency

-> 3-way - 3D flash



Write Intensive – High Resiliency

-> 3-way - eMLC



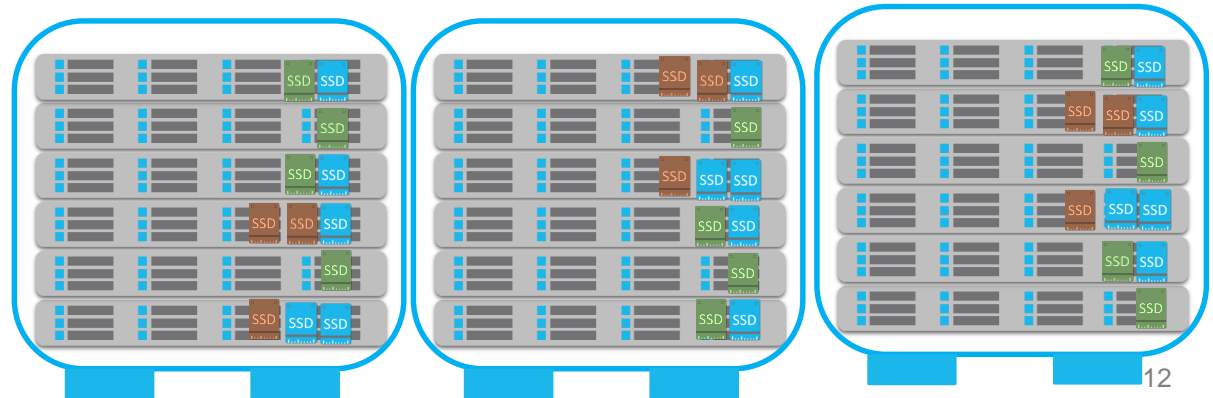
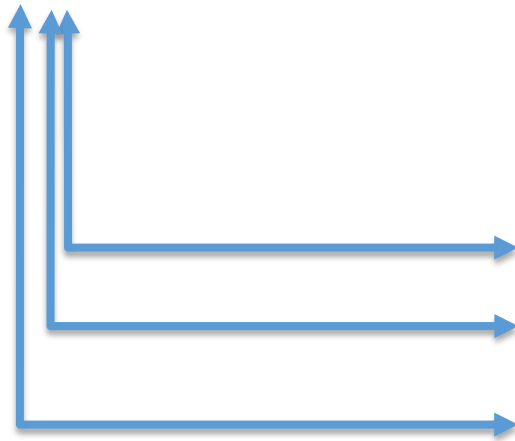
Read/Write Intensive – Medium Resiliency

-> 2-way - eMLC



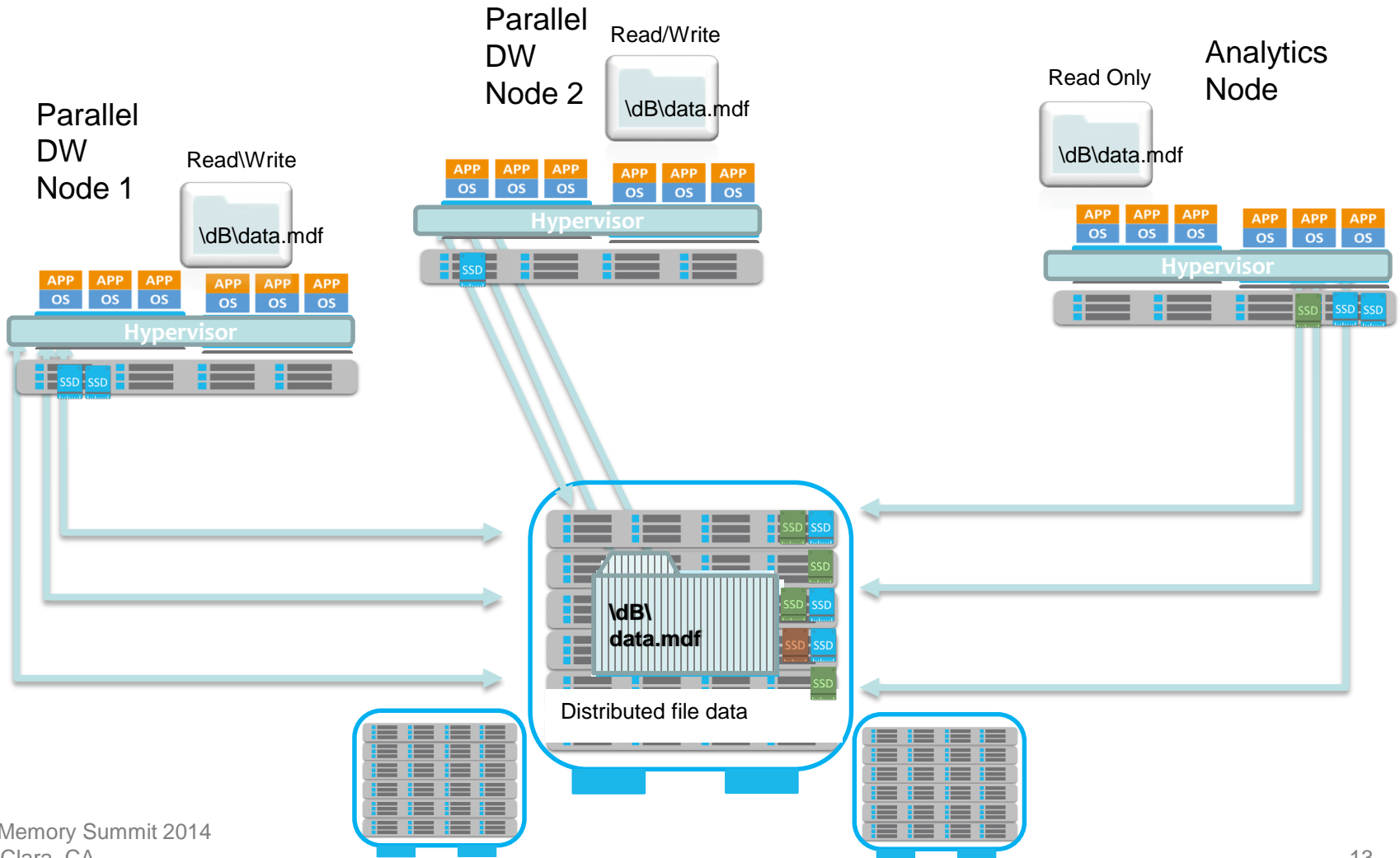
Read/Write – Low Resiliency

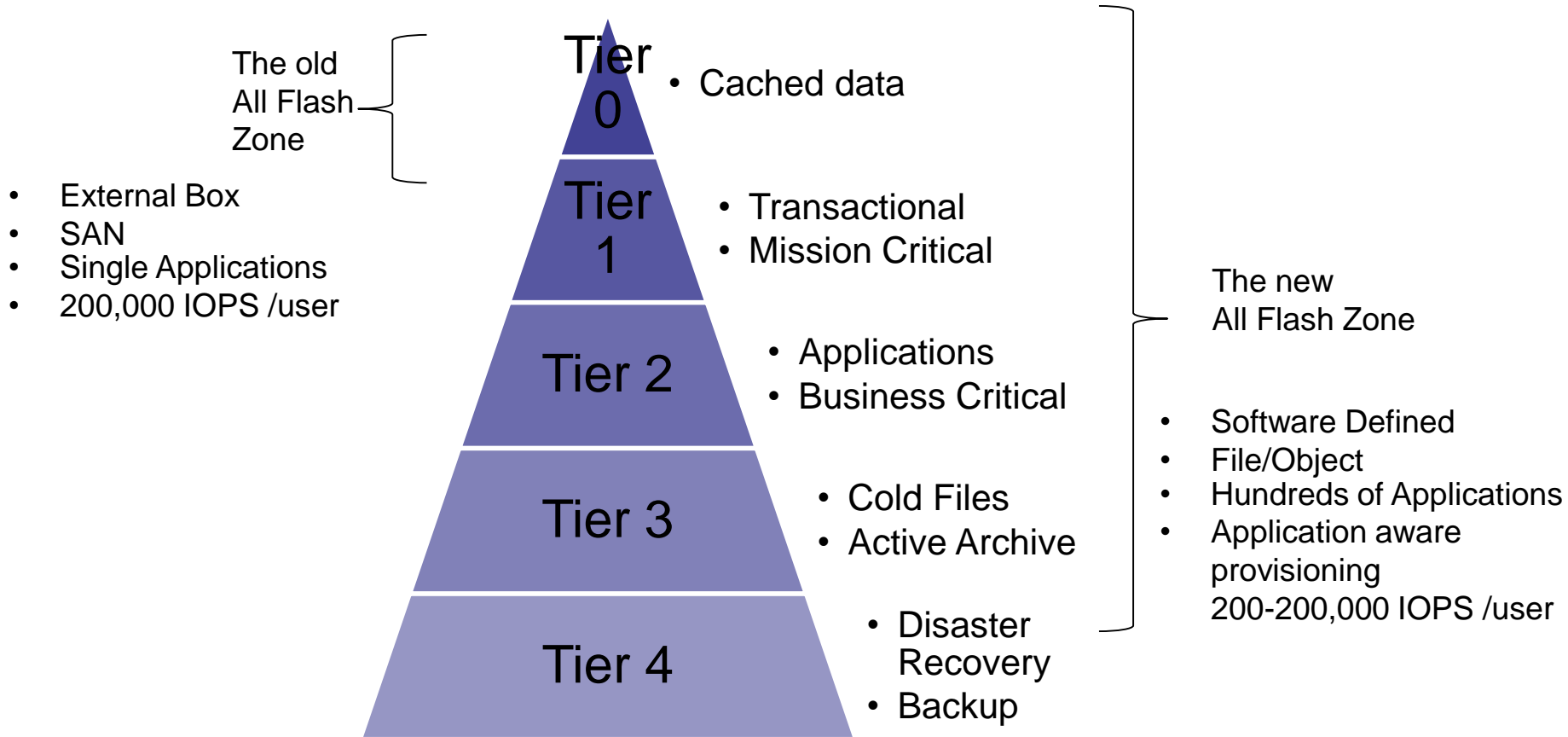
-> 1-way - MLC



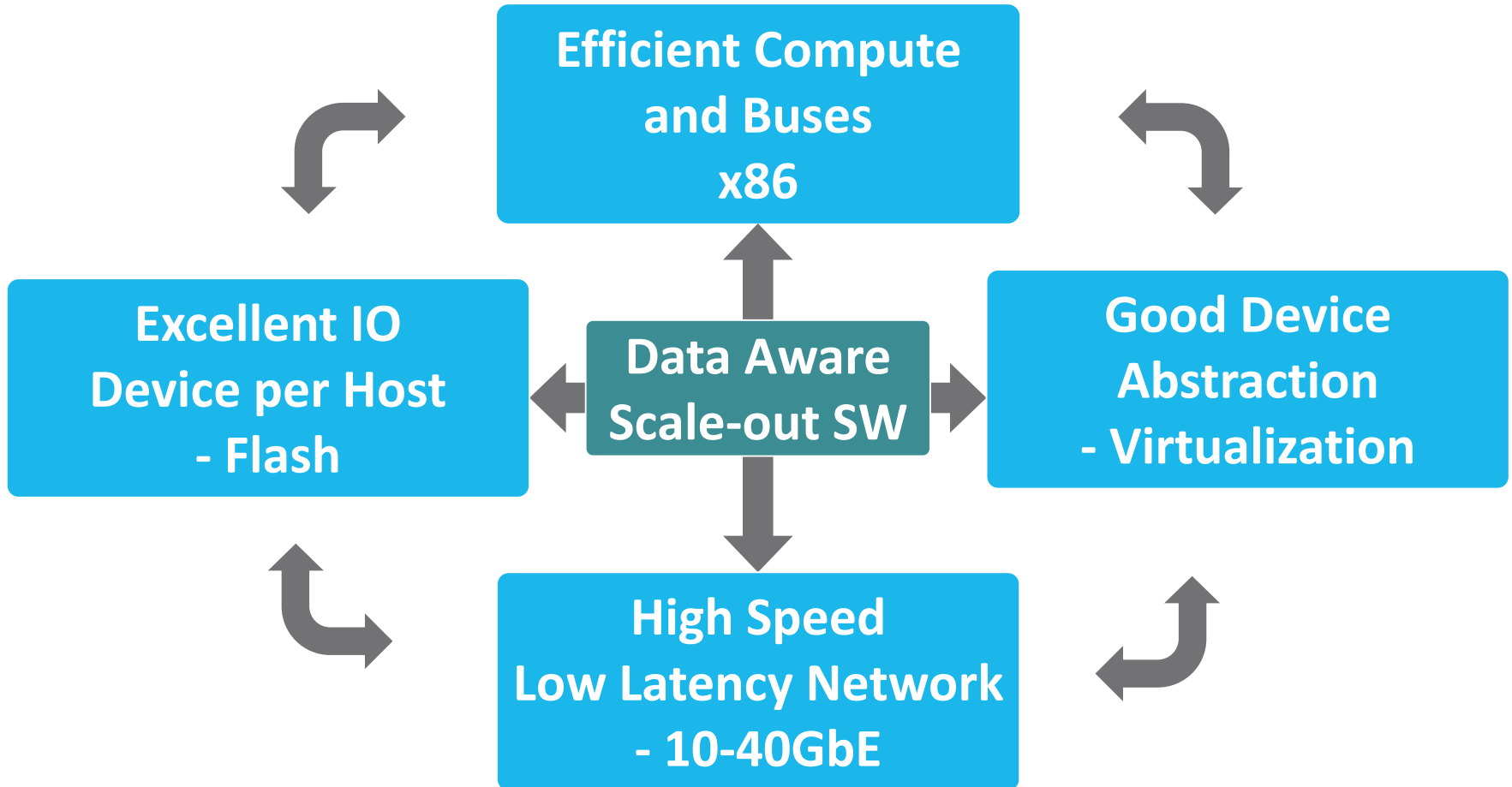
# Example 2

## Shareable Data at Web Scale





# Change Enablers



# Elastifile's Solution

Distributed, Truly Scale-out  
File System & Object Store

Converged &  
Software Only



Flash/SSD Only

High-Performance  
(Millions usable IOPS @ < 2ms)

Cloud Scale, Software Only, All Flash,  
Scale-out File & Object Storage Services





Thank You!