



Storage on Your Terms: Deep Dive Into Software-Defined Storage Technologies and Use Cases

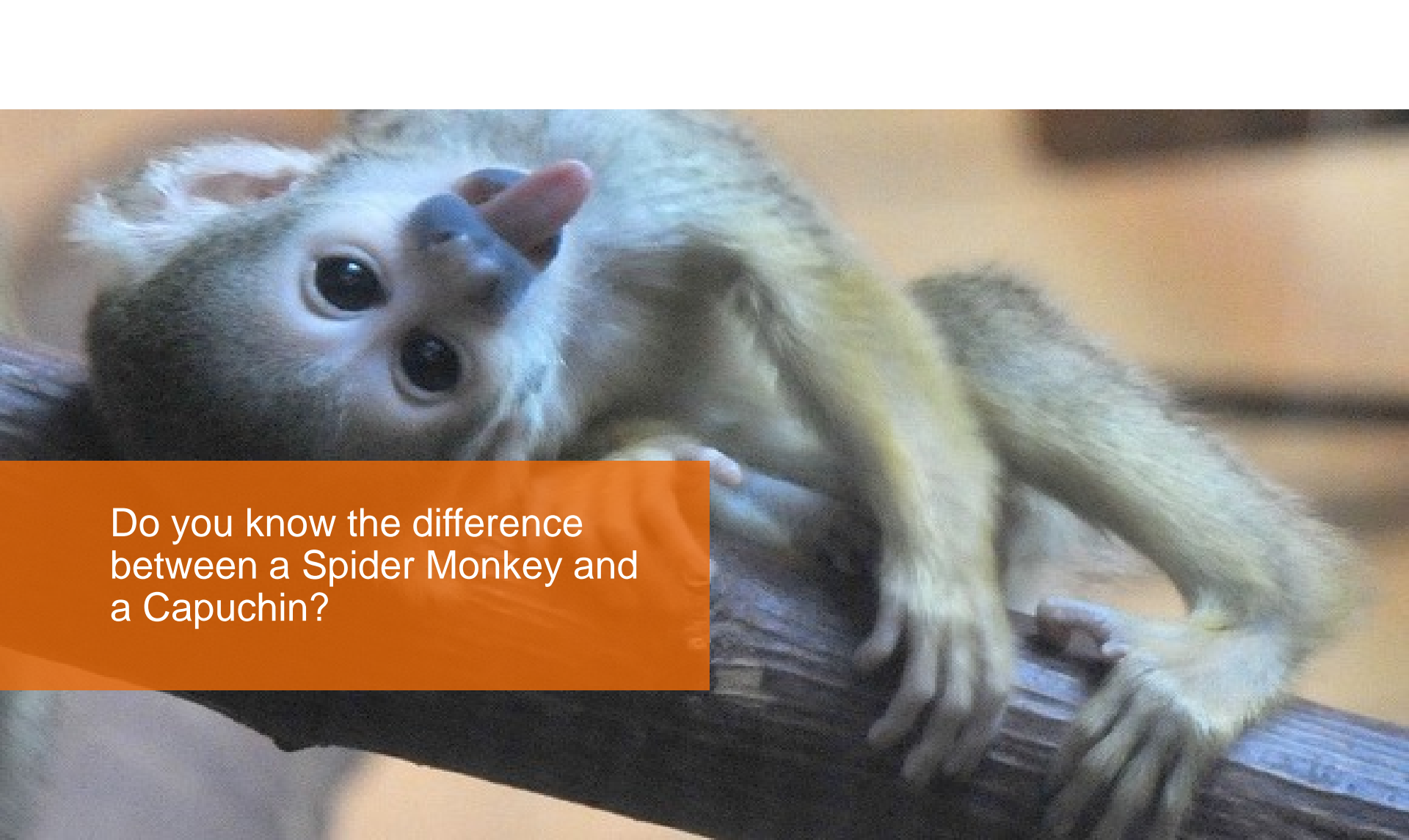
Michael Letschin
Nexenta Systems





260

Species of Monkeys in the
world



Do you know the difference
between a Spider Monkey and
a Capuchin?



30+

Companies claiming to do Software-Defined
Storage just at VMworld

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Software Defined Storage

Software-defined storage (SDS) is an evolving concept for computer data storage software to manage policy-based provisioning and management of data storage independent of hardware.

Software-defined storage - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/Software-defined_storage Wikipedia



Steady Internet Growth since 2013 '2014: The Year of SDS'

IDC

Definitions of Software-Defined Storage

“Any storage software stack that can be installed on commodity resources (x86 hardware, hypervisors, or cloud) and/or off-the-shelf computing hardware. Furthermore, in order to qualify, software-based storage stacks should offer a full suite of storage services and federation between the underlying persistent data placement resources to enable data mobility of its tenants between these resources.”

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Definitions of Software-Defined Storage

“The shift away from ASICs to using x86 industry-standard processors; the emerging presence of rich storage software functions that are – or can be – divorced from the underlying hardware and, hence, run in more heterogeneous environments; and the emergence of storage stacks that, to varying degrees, utilize open source software.”

TechTarget

Definitions of Software-Defined Storage

“An approach to data storage in which the programming that controls storage-related tasks is decoupled from the physical storage hardware. Part of a larger industry trend that includes software-defined networking and software defined datacenters”

Wikipedia

Definitions of Software-Defined Storage

“An evolving concept for [computer data storage](#) software to manage policy-based provisioning and management of data storage independent of hardware. Software-defined storage definitions typically include a form of [storage virtualization](#) to separate the storage hardware from the software that manages the storage infrastructure. The software enabling a software-defined storage environment may also provide policy management for feature options such as deduplication, replication, [thin provisioning](#), snapshots and backup.”

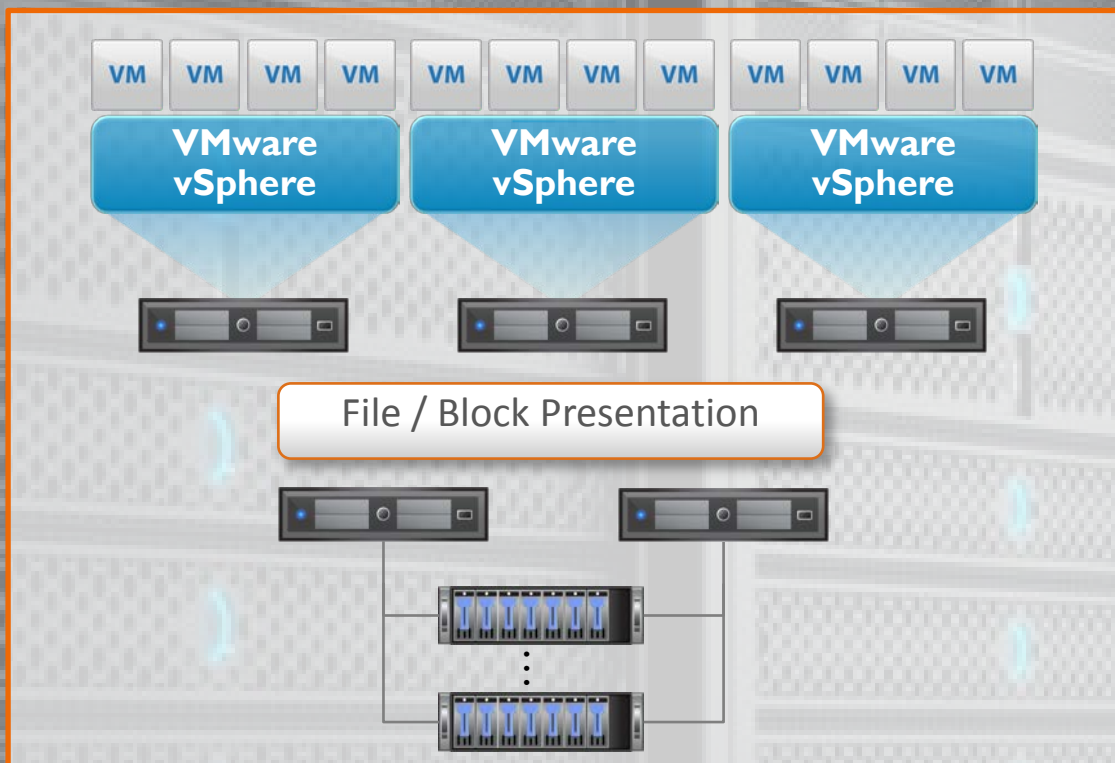
Characteristics of Software-Defined Storage

- Separation of software and hardware
- Based on commodity hardware
- Feature parity across hardware platforms
- Device management
- Works with any or most types of storage
- Offers centralized management of all corporate storage
- Policy based provisioning
- Intelligent tiering
- Scripted storage interaction
- Independent of server hypervisor
- Comprehensive APIs (north and south bound)

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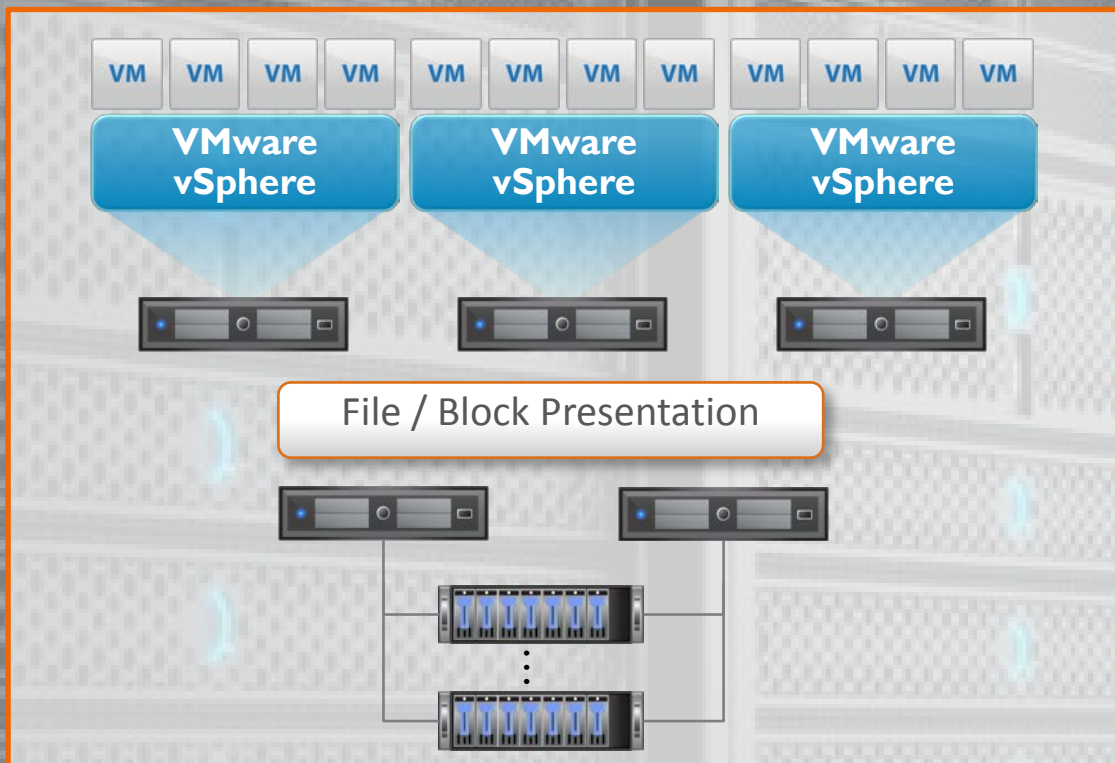
Types of Software-Defined Storage

- Scale Up Vendor Defined
- Scale Up Software Only
- Scale Out
- Hyperconverged
- Virtual Storage Appliance
- Containers



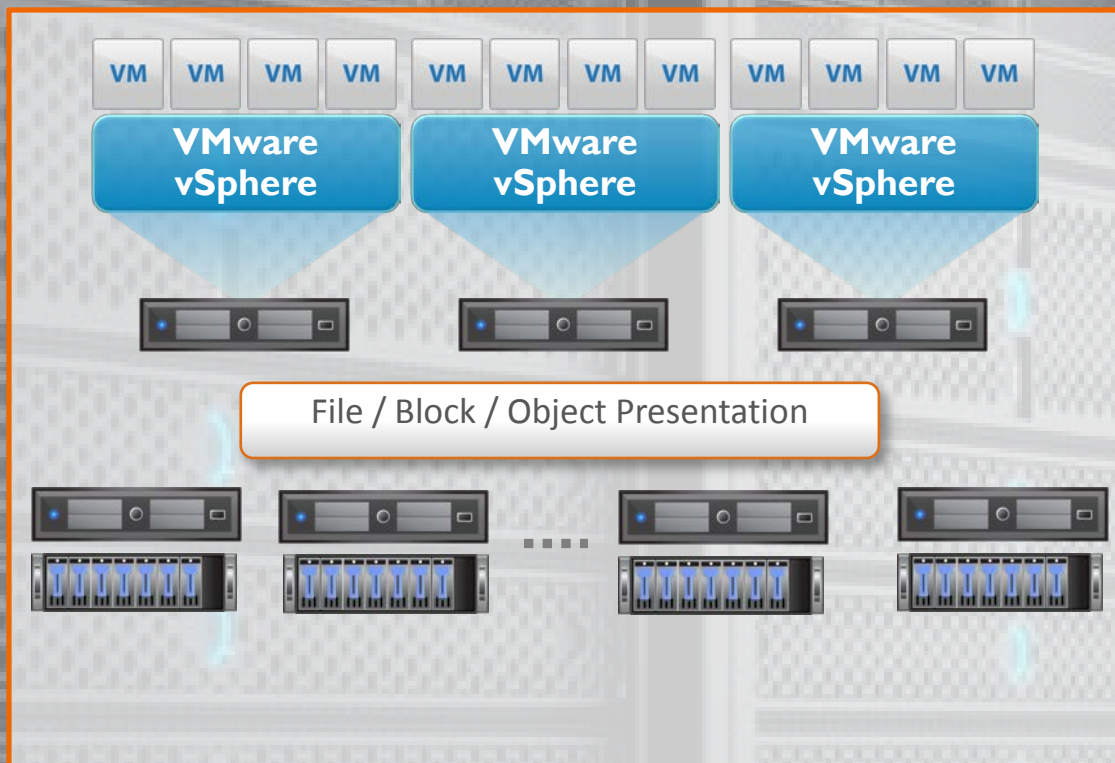
SCALE-UP VENDOR DEFINED

Flexibility	F	Vendor Option Only
Scalability	C	Scale within model
Performance	A-	Built for legacy
Cost Efficiency	F	Highest price points
Use Case	Legacy Apps, Virtual	
Vendors	EMC, NetApp, HDS...	

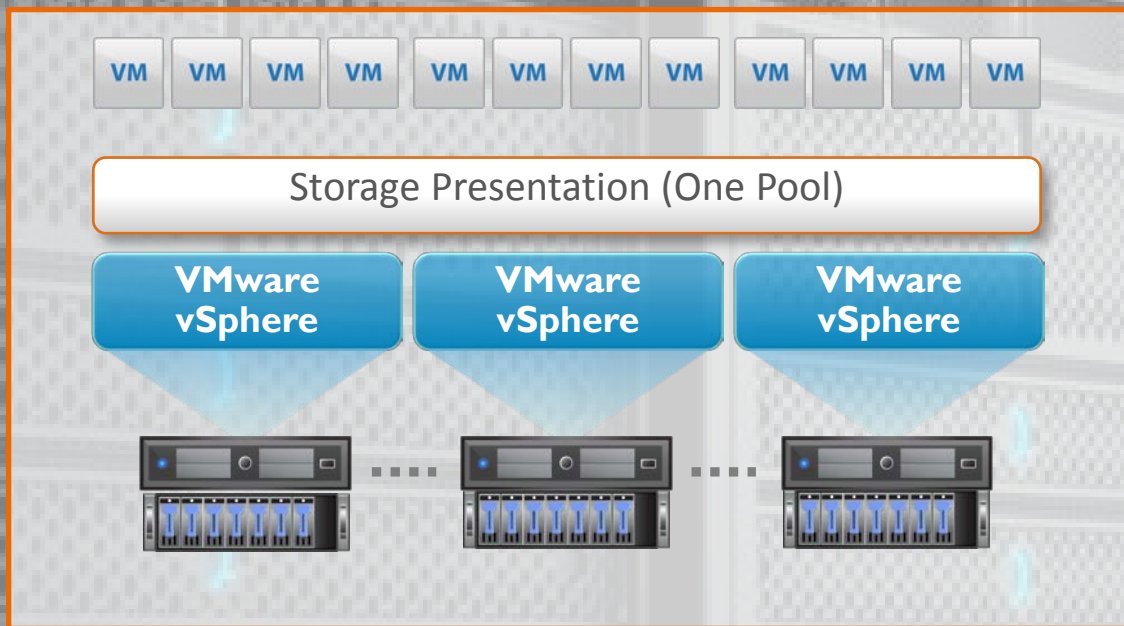


SCALE-UP SOFTWARE ONLY

Flexibility	A	Design as needed
Scalability	B	Limited to headnodes
Performance	A-	Built for legacy
Cost Efficiency	A	Commodity Priced
Use Case	Legacy Apps, Virtual	
Vendors	Nexenta, Datacore	

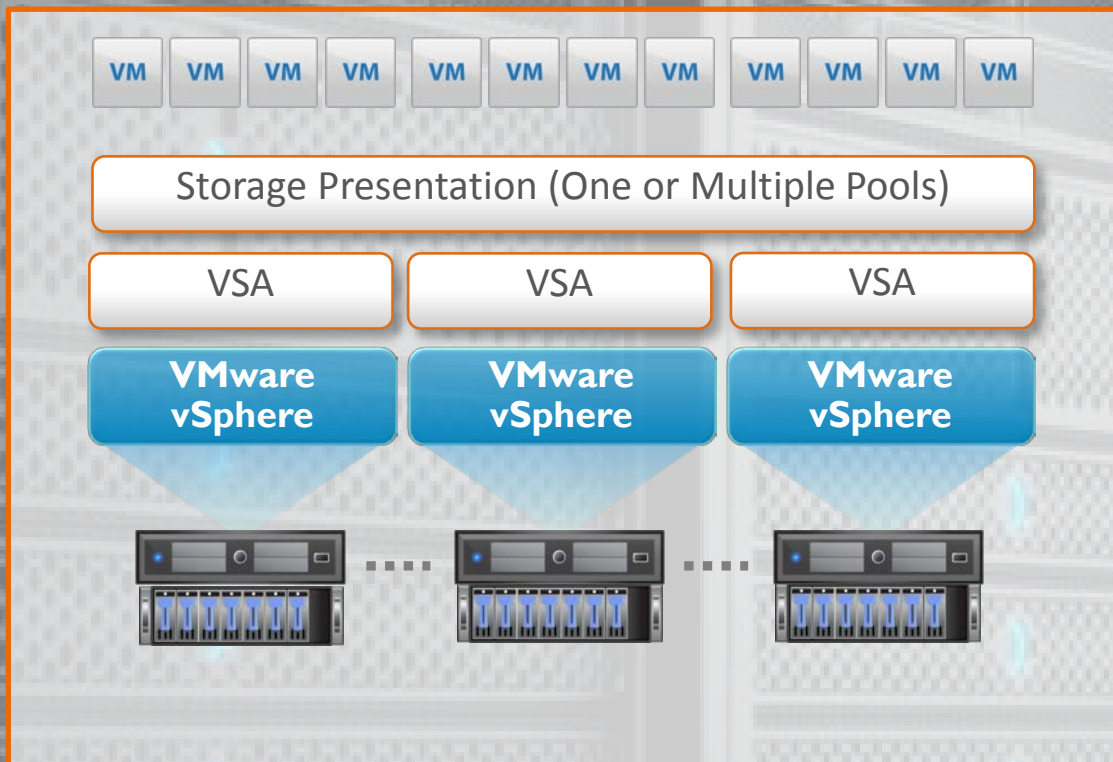


SCALE-UP (Some Software Only)		
Flexibility	B	Limited protocols
Scalability	A	Large scale
Performance	B	YMMV
Cost Efficiency	C	Fluctuates on protocol
Use Case	Archive, Web 2.0	
Vendors	Nexenta, Isilon	

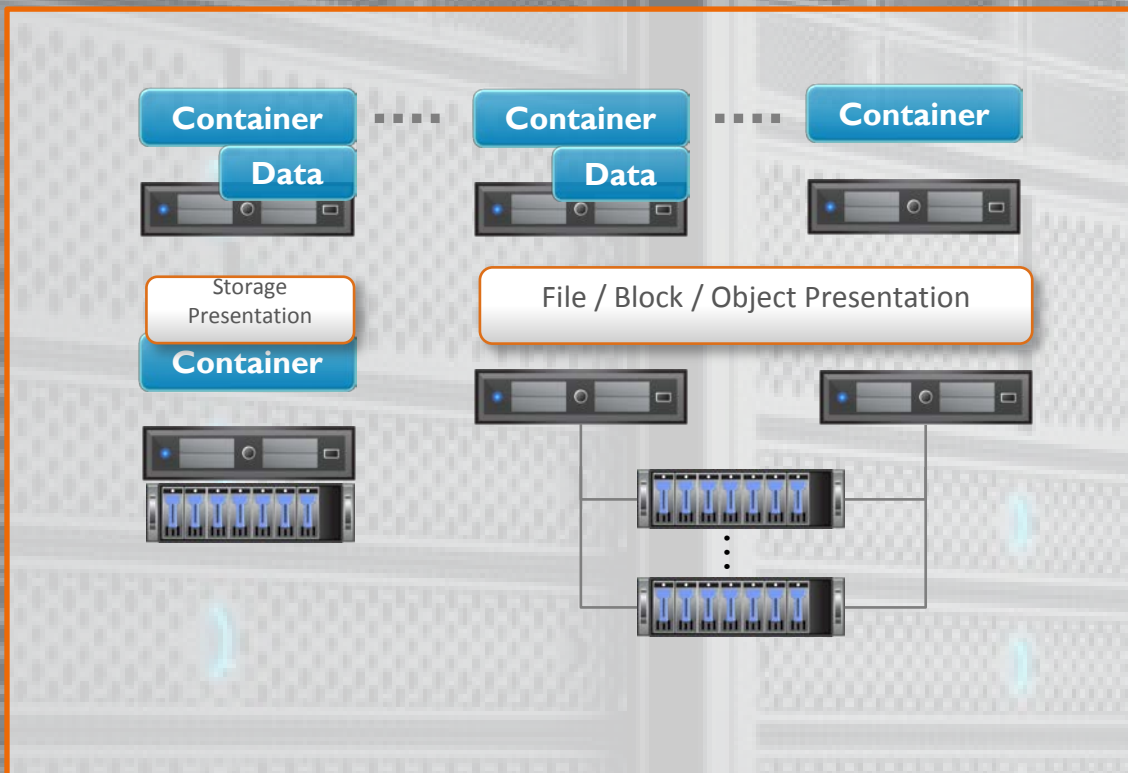


HYPERCONVERGED

Flexibility	D	Building Blocks only
Scalability	C	YMMV
Performance	B	Perf scales with nodes
Cost Efficiency	C	Depends on vendor
Use Case	Greenfield Virt, Branch Office	
Vendors	VMware, Nutanix	



VIRTUALIZED STORAGE		
Flexibility	A-	Hypervisor only
Scalability	C	Limited to VM size
Performance	B	Minimal Perf. Impact
Cost Efficiency	B	No added HW
Use Case	ROBO, SMB	
Vendors	VMware, Nexenta	



CONTAINERIZED STORAGE

Flexibility	A	Portability
Scalability	D	Containerized
Performance	N A	Unknown
Cost Efficiency	N A	Unknown
Use Case	App Only - ?	
Vendors	Flocker, Software Only solutions	

Are they all Software-Defined?

* Answers always vary by product

	Scale Up Vendor Defined	Scale Up Software Only	Scale Out	Hyperconverged	Virtual	Container
Separation of software and hardware	✓	✓	✓		✓	✓
Based on commodity hardware		✓	✓	✓	✓	✓
Feature parity across hardware platforms		✓	✓			✓
Works with any or most types of storage	✓	✓		✓	✓	
Centralized management of all corporate storage	✓	✓	✓	✓		
Policy based provisioning	✓	✓	✓			
Intelligent tiering	✓	✓		✓	✓	
Scripted storage interaction (Ex. Cinder, Chef, Puppet)	✓	✓	✓		✓	✓
Independent of server hypervisor	✓	✓	✓			✓
Comprehensive APIs	✓	✓	✓			



Questions?

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