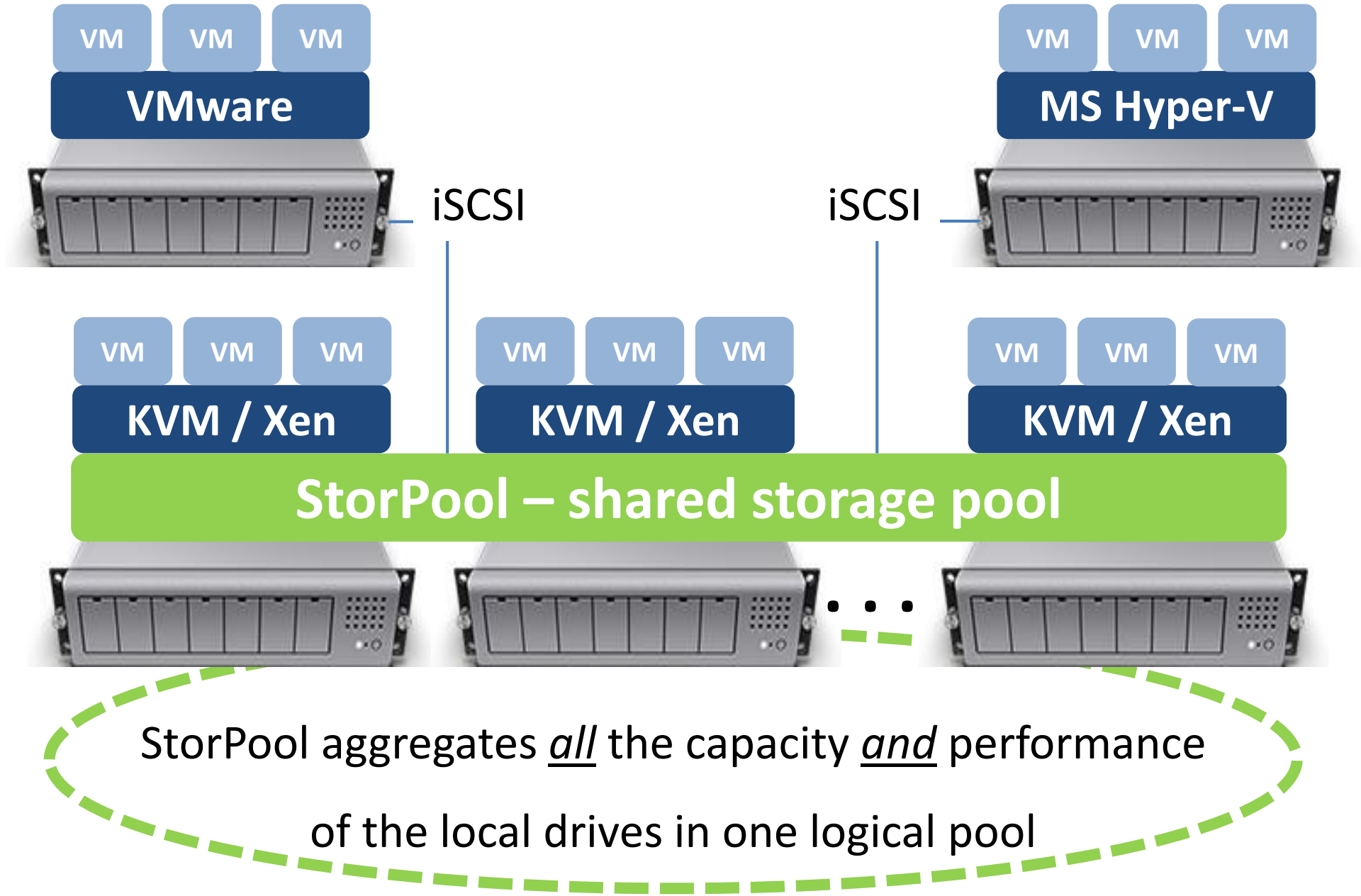
StorPool
DISTRIBUTED STORAGE

The Fastest And Most Efficient Block Storage Software (SDS 2.0)

StorPool: Product Summary

1. Advanced Block-level Software Defined Storage, SDS (SDS 2.0)
   - ✓ Fully distributed, scale-out, online changes of everything, etc.
2. Runs on a number of standard servers (both converged or stand alone)
3. Focus on high-performance primary storage:
   - ✓ Replaces traditional SAN, All-Flash Arrays (AFA)
4. Reengineered the storage stack from the ground up
5. The result: exceptional performance, efficiency, flexibility:
   - ✓ Smallest 3-server SSD system starts at 500K IOPS & 0.2ms latency!
6. Mature SDS technology: running in production for 6+ years; 1PB+ scale systems; 18 major releases; Global list of mission-critical customers
7. **A CLOUD BUILD WITH STORPOOL IS UNMATCHED IN CAPABILITIES**

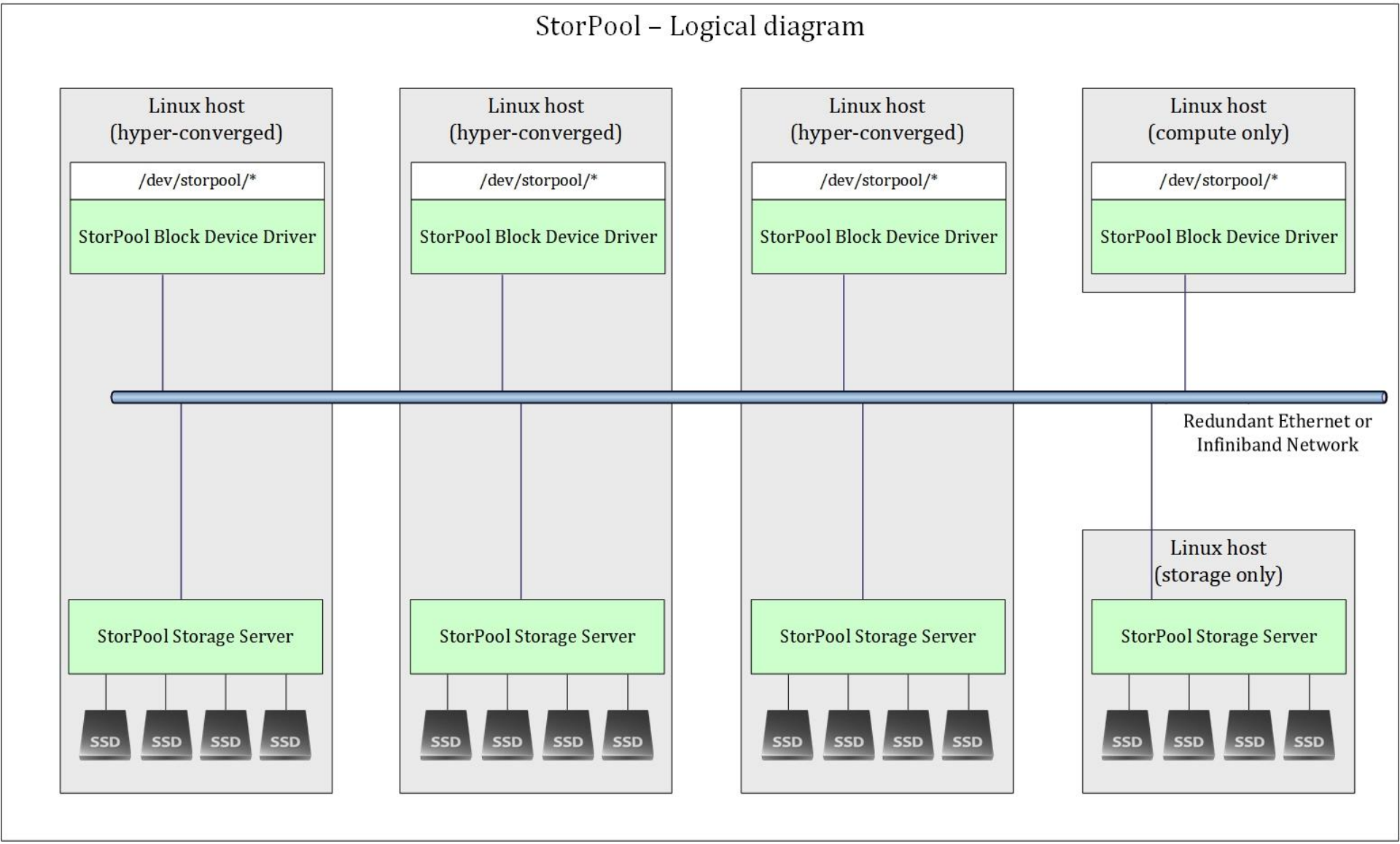
Where StorPool is in the IT stack



Functionality

- Access through StorPool initiator (Linux driver) or iSCSI (HA & scale-out version).
- Delivers 150,000+ IOPS and 1,500+ MB/s **per storage server** on SATA SSD drives with **just 3 CPU cores and 16 GB RAM; 0.15-0.3 ms latency.** Supports SAS, NVMe & RDMA.
- Scale-out. 10 servers will have 10 times the performance.
- Quorum-based, consistent cluster of 3+ storage nodes. Flat structure, no dedicated metadata nodes, no dedicated monitor nodes, no dedicated access nodes.
- Own copy-on-write on-disk format developed from scratch for reliability/performance.
- Can run converged/hyper-converged, thanks to low CPU and memory usage (50x better overall utilization/performance compared to solutions like Ceph).
- Redundancy guaranteed by copies (2 or 3, configurable) in different servers or racks.
- Integrated/supports almost everything in the Linux stack - KVM, LVM, OpenStack, CloudStack, OnApp, OpenNebula, LXC, Kubernetes and more.
- VMware, Windows and other stacks are supported through iSCSI
- Enterprise level feature set (full list of features at the end of the slides)

Logical Diagram – Using Native StorPool Driver, HCI



How StorPool compares to: SAN/AFA

Traditional SAN	All-flash or hybrid arrays	StorPool
Dell/EMC NetApp IBM HPE, etc.	SolidFire (NetApp) Nimble Storage (HPE) Pure Storage Tintri/DDN, etc.	Distributed Storage software (SDS 2.0)
(-) Large CAPEX cost (-) hard to scale (-) inflexible (-) vendor lock-in (-) complex (-) limited in performance (-) single point of failure	(-) Large CAPEX cost (-) limited scalability (-) storage only device (-) vendor lock-in (-) single point of failure	(+) affordable, pay-as-you-go (+) linear scale-out (+) storage & Compute (HCI) (+) no vendor lock-in (+) simple to setup & run (+) performance: ***starts*** at 500,000 IOPS and 0.2 ms! (+) reliable: fully distributed, end-to-end data integrity

How StorPool compares to: other storage software

Not all storage software is created equal: looking similar, very different capabilities

ZFS, Ceph, etc.
(SDS 1.0)

(-) limited performance and/or
(-) not-scale-out and/or
(-) resource hungry
(-) rigid, inflexible
(-) no support

StorPool
(SDS 2.0)

(+) shared storage faster than local SSD
(+) scale-out
(+) extremely efficient / lightweight
(+) unmatched flexibility
(+) 24/7/365 Mission Critical Support + Fully Managed Services

Why StorPool?

1. **A Fully Managed Storage:** we manage, support and monitor your storage. So we free your engineers to focus on core business and provide the best possible storage service uptime for your customers.
2. **Unmatched performance:** 150,000+ random read IOPS and 1.5 GB/s sequential reads **per server; 0.2 ms latency** of the entire Cluster/System
3. **Extreme efficiency:** uses 2 cores of server's CPU and 16 GB RAM, while delivering 150,000+ IOPS. Can deliver 300k+ IOPS per node with more cores
4. **Beats competition:** in terms of price/performance and price/functionality
5. **Scalability:** can scale with just one drive or server at a time. Linear scale-out: 10 servers do 10x the performance of 1 server; 20 servers – 20x more
6. **Simplicity & flexibility:** easy to manage. JSON API. Online reconfiguration, in-service updates with no downtime. Hyper-converged, stand alone, mixed.

Target Markets & Use cases

Target markets

Public & Private clouds:

Service providers, IT companies & Enterprises.

Use cases

Any block-storage workload:

VM disks (Virtualized IT), databases, VDI, etc.

Selected Customers & Users

Leading global Enterprises like ***NASA, CERN, SIEMENS, Deutsche Bourse, NASDAQ Dubai, European Space Agency, Samsung, SiteGround, NameCheap, CarGurus*** and many others have workloads running on StorPool

All logos owned by the respective companies

Features List

- Distributed, scale-out storage cluster
- Own copy-on-write on-disk format and networking protocol
- End-to-end data integrity: the most extensive on the market
- Thin provisioning
- Data Tiering
- Self-healing
- Automatic data balancing
- Data locality
- Instantaneous copy-on-write Snapshots & Clones
- Storage QoS (Quality of Service) - IOPS & MB/s limits, per volume
- On-line everything – reconfiguration, hardware replacement, scaling
- Non-disruptive, in-service software upgrades
- Advanced Volume management – online resize (expand, shrink) of volumes
- RESTful JSON API with API failover
- Space saving: TRIM/discard, zeroes detection, thin provisioning, snaps & clones
- Integrated Backups & DR (Disaster Recovery) functionality between sites
- Multi-attach
- iSCSI support with HA (High Availability) and scale-out
- Full list here: https://storpool.com/features

Resources & Contacts

1. **Concept video**
2. **Technical demo video**
3. **StorPool at Storage Field Day 2019**
4. **Storage Newsletter: Fastest Growing Storage Company in 2016**
5. **Review: Gestalt IT**
6. **Review: Storage Switzerland**
7. **Customer references**
8. **Performance tests & other resources:**
   - ✓ https://storpool.com/blog/storpool-storage-performance-test-3-nvme-storage-servers-0-06ms-latency
   - ✓ https://storpool.com/blog/the-iops-challenge-is-over-storpool-holds-the-new-world-record-13-8-mln-iops
   - ✓ https://storpool.com/pdf-materials

info@storpool.com | storpool.com

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