

@StarWindSAN

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Max - intro

“One stop virtualisation shop”

Simple, flexible, scalable - scale infrastructure how you like, and not how you're forced to

2009 - Spin off from Rocket Division Software

2011 - First native hyper-converged storage solution for Hyper-V (not inside VM)

2015 - HCI appliances for customers

2016 - added storage and backup appliances

HCI Appliance -

<https://www.starwindsoftware.com/starwind-hyperconverged-appliance>

- Simple and affordable HA/FT virtualisation platform
- Flexible scale-up and scale-out of both compute and storage nodes
- Cluster remains operational with multiple node and disk failures
- Scale up (just adding JBODs)

Start with 2 servers to start, no external witness required

Grid and data locality

- storage performance close to local
- lowest possible latency
- highest possible resiliency

Sweet spot?

most CPU, RAM and disk into minimum possible footprint

After 20TB customers typically go for dedicated storage

StarWind Storage appliance -

<https://www.starwindsoftware.com/starwind-storage-appliance>

Problem

- unpredictable data and performance requirements growth
- legacy storage incompatibility with existing compute / HCI
- untenable licensing cost when scaling out traditional HCI

Fix

- easily scalable, fast, and fault tolerant storage
- seamless integration into any existing CI/HCI
- ability to scale storage independently from compute

Sweet spot?

high performance needed for particular workload at a reasonable cost

fault tolerance with segregated units is required for ability to sustain multiple (up to 4 disks) disk failures for a single LUN

20 - 40TB range

Hybrid and all-flash models

Anton

Discussing Bosch's use of storage appliance

Log-structured filesystem

in the appliance?

- NL-SAS / SAS drives
- SATA SSDs
- RAID Adapter
- Ethernet adapter with RoCE
- DIMM RAM Cards

The magic happens in the software

With tiering there's one copy of the data - difference between caching and tiering - timing

Use dynamic memory caching

Supported protocols

Storage

- iSCSI
- iSER
- SMB3
- SMB Direct
- NFS v4.1
- NVMe (soon)

Management

- Web GUI
- vCenter Plugin
- Thick client
- CLI (Powershell)
- VASA / vVols
- SMI-S

Support Ethernet and InfiniBand, still no FCoE support

Video Demo with Max

Failover and performance comparison

Focused on getting all the IOPS from the underlying platform and giving them to the application

Anton - StarWind SA - Massive Scale-out

Plan to provide uplink protocols and unified management to consumers (Linux, Hyper-V, VMware)

Use either own "storage brick" SPDK/NVMe powered nodes or act as a gateway to

@Ceph and Lustre massively parallel file system
Reason: performance, integration and management layers

Getting to a point with Windows where to do some things they need to change too many things

Global namespace across back-end storage

4K inline dedupe with hybrid, not all-flash

Eliminating I/O Blender
Log structuring
inline deduplication
LSFS Architecture diagram [screengrab or white paper?]

White papers (registration required)
Eliminating the I/O Blender Effect -
<https://www.starwindsoftware.com/eliminating-the-io-blender-by-jon-toigo>
Turning TBs into IOPS - <https://www.starwindsoftware.com/turning-tbs-into-iops>
LSFS: Eliminating "I/O Blender" -
<https://www.starwindsoftware.com/eliminating-io-blender>

Stairway to Cloud [photo]
Hardware cloud storage gateway recognised by a server as an ordinary hard drive
1. SATA interface for host connectivity
2. Proprietary RTOS (no Linux!)
Motorola PowerPC and ARM
3. Gigabit Ethernet: iSCSI and SMB3 for cloud uplink
4. Altera FGPA to accelerate (what software can't do)

Replace spinning disks with cloud storage transparently to any SDS & Hypervisor

<http://aclouda.com> - partner company
StarWind Storage Appliance and AcloudA Use Case -
<https://www.starwindsoftware.com/starwind-storage-appliance-and-aclouda-use-case>

Demo of Windows Server 2016 Storage Spaces Direct cluster

Device starts by getting DHCP address, then can be managed

Demo - VTL + Replication to cloud with Veeam