SFD17 - StarWind

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3 main directions
- SDS - StarWind Virtual SAN
- HCI and Storage
- VTL

Strict focus on SMB and Enterprise ROBO

Milestones
2002 - iSCSI to Windows
2008 - shift to HCI
2014 - shift to turnkey HCI
2016 - iSER for Windows
2018 - NVMoF to Windows and vSphere

*Max
NVMe over Fabrics - the next big thing in [network] storage

[StarWind_MaxPresents.png]

SAS - designed for disk
NVMe - designed for Flash

[StarWind_SASvsNVMe-oF.png]

Native Target for Windows v1
Windows Server (no HyperV)
High performance I/O
- use CPU for everything
- No Kernel <-> User jumps
- No context switches

CPU is a cheap resource

Problem - no SPDK in Windows, reduced kernel not no kernel
Result - overhead is still high

*Demo 1 with Taras
Native target for Windows v1 (with native Linux initiator)

Without SPDK one NVMe drive performs OK, but it eats 8 CPU cores alive. If we
want to scale we need 100% polling in user mode.

Now with v2 - software moved into a VM (HyperV with Linux NVMf initiator)
100% user mode

*Demo 2 with Taras

(Sneak preview of StarWind Stack mgmt interface)

"We found the elegant way to bring missing SPDK functionality to Windows Server:
Run it in a VM with proper OS!
First benefit - CPU is used more efficiently"

*Demo 3 with Taras
Also on vSphere

*Max
NVMe-oF initiator for Windows
Combined Linux Initiator and stub driver in hypervisor to get properly working initiator
Benefits
- performance
- portability (90% shared code)
- stability through isolation (jails)

Next step is to do the same thing with vSphere

*Vlad - Use Cases
Data Centres (including big ones like AWS and Azure)
Goal: deliver lossless flash storage to the VM or application that needs it

SMB
Goal: Aggregate flash and improve ROI in brownfield environments
Work with Microsoft S2D or VMware vSAN
MS Initiator available mid-October, VMware support planned for December

StarWind HCA and SA
Goal: East-West storage traffic (currently using iSER)

NVMe-oF
What about HA and multipathing?
Want to deliver lossless to initiator (in terms of performance)

Software or appliances

Anton "CPU is the cheapest resource we have right now"