HOW TO OPTIMIZE MICROSOFT HYPER-V FAILOVER CLUSTER AND DOUBLE PERFORMANCE



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- Clustering evolution: from application clusters to a fully virtualized datacenter
- Hyper-V Cluster Setup
- Storage component
- Management component
- Agentless Antivirus
- Implementation scenarios
- Q&A



STARWIND SOFTWARE

- **Ownership**: Privately held with VC backend since 2008, spin-off from Rocket Division Software
- Investors: VEEAM, Almaz Capital, AVentures
- **Product**: StarWind Virtual SAN[™] storage virtualization software
- Users: More than 250,000 paying and playing customers
- Headquarters: Boston, MA, USA
- Number of employees: 50+
- Customer care: Worldwide, 24x7x365 support
- Global Alliance Partners: Microsoft, VMware, Citrix, Dell, IBM, HP, VEEAM



5NINE SOFTWARE

Leading solutions provider of management & security applications for Windows Server & Microsoft Hyper-V environments:

- Products built **exclusively** for Hyper-V ecosystem
- Hyper-V Management for SMB
- Powerful agentless and multi-tenant security for Hyper-V
- Easy conversion from VMware to Hyper-V

Headquartered in Chicago with offices in New Jersey, Boston and St. Petersburg.

More than 50,000 clients worldwide.

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CLUSTERING EVOLUTION



Virtualized architecture





WHAT DOES FREE HYPER-V OFFER OUT OF THE BOX?





HYPER-V CLUSTER SETUP

- 1. Make sure the Hyper-V role is enabled on all hosts
- 2. Install the Failover Clustering feature on each Hyper-V host
- 3. Install the MPIO feature on each Hyper-V host
- 4. Configure and provision shared storage
- 5. Configure an external virtual network switch on each Hyper-V host
- 6. Run cluster validation tests
- 7. Create a new cluster
- 8. Provision Cluster Shared Volumes from the available cluster storage



STORAGE COMPONENT

Zero hardware footprint O Dramatically reduced CapEx and OpEx O Complete storage fault tolerance with just 2 servers O No specialized staff required for management O Can run on Free & Core Windows Server editions







WHY HYPER-CONVERGED

- Native Windows application
- High performance for Microsoft Hyper-V due to reducing I/O path: reads and writes go locally and server side running RAM and flash cache

dramatically increases the performance





VM-CENTRIC STORAGE (LSFS)

- Increases storage performance by eliminating "IO blender" effect
- Resurrects parity RAID use for write-intensive workloads
- Accelerates IO using distributed RAM and Flash cache
- Preserves flash lifecycle





DEDUPLICATION

- In-Line IO deduplication engine
- Doesn't hurt flash by doing double IO like it is with offline deduplication
- Accelerates storage since less IO goes to the disks and more IO goes to RAM
- Combined with LSFS makes SATA RAID₅ perform as good as SAS RAID₁₀





SNAPSHOTS AND INTER-NODE STORAGE TIERING

- Preserves space on the primary storage system
- Snapshot storage now works as additional DR source





ASYNCHRONOUS REPLICATION

- Works with any WAN connection faster than 2 Mb/s
- Doesn't require dedicated physical hardware on DR site
- DR instance can run as a VM





MANAGEMENT COMPONENT

- Dramatically simplify and save money on Hyper-V management
- Manage your Hyper-V clusters
- Get a user-friendly management GUI for Windows Server Core and Microsoft Hyper-V Server
- Manage different Hyper-V versions (2012 R2/ 2012/ 2008 R2 SP1) from a single console
- Use any client 64-bit system starting from Windows 7, to access and manage your Hyper-V hosts remotely

Turn PowerShell into GUI





VM'S RESOURCES MONITORING

[Enter text to search												
		Name 🔺	Host	State	IP address	CPU Usage	Assigned Memory	Memory Demand	Memory Status	Uptime	Heartbeat Sta	Replication Health	
	5	5Nine-Service	DEMO-NODE1	Running	192.168.5.101;1	0%	856 MB	720 MB	OK	0.19:14:39	OK (Applicatio	NotApplicable	
۲	5	DEMO-DC1	DEMO-NODE1	Running	192.168.5.1;108	0%	1240 MB	1030 MB	OK	2.14:41:37	OK (Applicatio	NotApplicable	
	5	SCVMM-Storage	DEMO-NODE1	Running	192.168.5.100	0%	1024 MB	584 MB	OK	2.14:40:15	OK (Applicatio	NotApplicable	
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	5	Windows2012-3	DEMO-NODE1	Saved						0.00:00:00	Disabled	NotApplicable	

All important real-time information in one table

• Customizable columns – select what matters the most for you. Extra columns include: vCPU, IPv6 address, Guest OS, Notes, VM Id, RDP IP address, RDP IPv6 address, FQDN, Status

Use Replication Health Monitoring and Replication Failure notifications to support DR scenarios



VM'S RESOURCES MONITORING

- Performance graphs for Virtual Machines and Hosts
- Top resources users
- Real-time alerts based on Warning and Critical thresholds
- Hosts: CPU, Memory, Disk Time, Network
- VM's: CPU and Memory





AUTOMATIC DYNAMIC OPTIMIZATION

- Automate VMs migration process to get the max performance out of your environment
- Create Cluster, Shared storage and Mixed Dynamic Optimization Groups
- Keep desired VMs distribution via "Simultaneous Migration" or "Store on Different Hosts" rules
- Optimal level of capacity for each Hyper-V host





AGENTLESS ANTIVIRUS

Direct Access to VHD/VHDX files

- Incremental Scan technology based on CBT (Changed Blocks Tracking) – up to 70x faster
- Scans Virtual Machines even in OFF state
- NO antivirus storms
- VMs performance boost
- 30% more resources available for VMs
- Immediate or scheduled AV jobs
- 2-7 minutes full system scan time on average



Antivirus Jobs | Create Job - Scheduled Jobs Settings Show -

Label	Туре	Object Name	Started	Status	Progress	Finished	Duration
🕅 Al V	Scan VM	5Nine-Service	2/7/2015 6:3	Completed	100%	2/7/2015 6:40:43	00:07:39
🕅 Al V	Scan VM	SCVMM-Storage	2/7/2015 6:3	Completed	100%	2/7/2015 6:38:40	00:05:36
🕅 Al V	Scan VM	Win2012R2-tmpl	2/7/2015 6:3	Completed	100%	2/7/2015 6:33:15	00:00:10
🕅 Al V	Scan VM	DEMO-DC1	2/7/2015 6:3	Completed	100%	2/7/2015 6:33:53	00:00:49
🕑 Al V	Scan VM	Windows2012-3	2/7/2015 6:3	Completed	100%	2/7/2015 6:33:12	80:00:00
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🕅 Al V	Scan VM	5Nine-Service	2/7/2015 4:3	Completed	100%	2/7/2015 4:40:22	00:10:17
🕅 Al V	Scan VM	DEMO-DC1	2/7/2015 4:3	Completed	100%	2/7/2015 5:05:38	00:35:33
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IMPLEMENTATION SCENARIOS







GOING HYPER-CONVERGED IN ROBOs







Feel free to ask the presenters any questions



CONTACT US

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