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Performance for VMs under VMware

Twitter: [@MVMUG](#) Hashtag: [#MVMUG](#)

Monday 21st March 2016

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Tyson Then MACS (Snr) CP

Virtualisation Technical Specialist at IBM

Melbourne, Australia | Information Technology and Services

Current IBM, Hawk Tiger Pty Ltd

Previous University of Melbourne, GS1 Australia Ltd, Bureau of Meteorology

Education Charles Sturt University

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500+
connections

CPU

- Size Correctly. Or waiters will make you wait. (AKA CPU ready)

General

Manufacturer: IBM
Model: System x3550 M3 -[7944J2...
CPU Cores: 12 CPUs x 2.666 GHz
Processor Type: Intel(R) Xeon(R) CPU X5650 @ 2.67GHz
License: VMware vSphere 6 Standard - Licensed for 2 physical CPU...
Processor Sockets: 2
Cores per Socket: 6
Logical Processors: 24
Hyperthreading: Active
Number of NICs: 5
State: Connected
Virtual Machines and Templates: 19
vMotion Enabled: N/A
VMware EVC Mode: Disabled
vSphere HA State: ? N/A
Host Configured for FT: N/A
Active Tasks:
Host Profile: N/A
Image Profile: (Updated) esxi5.5
Profile Compliance: ? N/A
DirectPath I/O: Supported

Resources

CPU usage: **2359 MHz** Capacity
12 x 2.666 GHz
Memory usage: **51229.00 MB** Capacity
98292.65 MB

Storage	Drive Type	Capacity
HDD RAID 10 - 1...	Non-SSD	1.82 TB
Intel NVMe 1.2TB	SSD	1.09 TB 37%
SSD RAID 0 - 11...	Non-SSD	118.25 GB 10%
SSD RAID 5 - 89...	Non-SSD	892.00 GB 63%

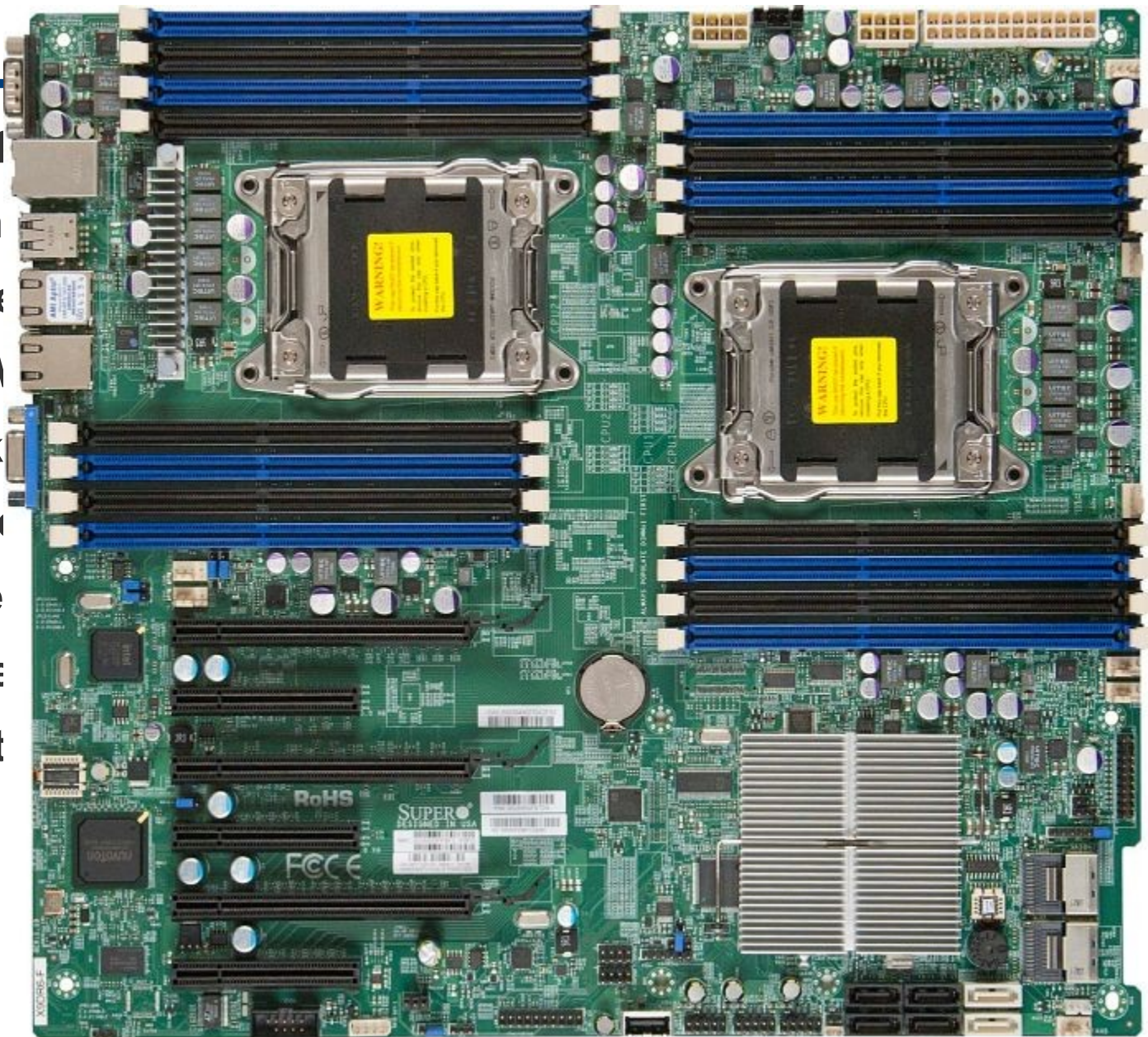
Network	Type
Internal	Standard port group
VIEW GATEWAY	Standard port group
External	Standard port group
GAMMA 2 - DMZ	Standard port group
Lab_Local	Standard port group

Fault Tolerance

Fault Tolerance Version: 6.0.0-6.0.0-6.0.0
[Refresh Virtual Machine Counts](#)
Total Primary VMs: 0
Powered On Primary VMs: 0

CPU

- Aim f
- Try n
- Some
- vNUM
- Sock
- Hota
- Rese
- Scale
- What



Memory

- Try not to cross NUMA nodes
- Reserving memory has differences from reserving CPU
- You can overprovision memory but for most production I have seen 1:1 deployments.
- M\$ says add more memory.

Disk

- **Make sure you are using the PVSCSI adapter.**
- **If you have multiple disks then use multiple Disk Controllers**
- **Don't make one big Datastore and stuff all your VMs on there.**
- **For NFS you might need to install a Plugin to ESXi host to make use of VAAI.**
- **Use Thick Eager Zero. Thick on Thick and might be best practice.**
- **Path Selection Policy?**
- **What does your Storage Provider say? (IOPs = 1)**
- **Storage IO Control**
- **Flash makes everything better.**
 - VMware has vFRC and vSAN AFA (IOPs Limiter)
 - Infinio
 - PernixData FVP
- **Hyperconverged storage is changing storage landscape.**

■ Use the VMXNet3 Paravirtual NIC

LAB-dVS Actions

Summary Monitor **Manage** Related Objects

Settings Alarm Definitions Tags Permissions Network Protocol Profiles Ports **Resource Allocation**

System traffic

Network resource pools

0 Gbit/s 0.00 Gbit/s

Total bandwidth capacity	0.00 Gbit/s
Maximum reservation allowed	0.00 Gbit/s
<input checked="" type="checkbox"/> Configured reservation	0.00 Gbit/s
<input type="checkbox"/> Available bandwidth	0.00 Gbit/s

Network I/O Control: Enabled
Version: 3
Physical network adapters: --
Minimum link speed: --

Filter

Traffic Type	Shares	Shares Value	Reservation	Limit
Fault Tolerance (FT) Traffic	Normal	50	0 Mbit/s	Unlimited
Management Traffic	Normal	50	0 Mbit/s	Unlimited
NFS Traffic	Normal	50	0 Mbit/s	Unlimited
Virtual Machine Traffic	High	100	0 Mbit/s	Unlimited
Virtual SAN Traffic	Normal	50	0 Mbit/s	Unlimited
iSCSI Traffic	Normal	50	0 Mbit/s	Unlimited
vMotion Traffic	Normal	50	0 Mbit/s	Unlimited
vSphere Data Protection Backup Traffic	Normal	50	0 Mbit/s	Unlimited
vSphere Replication (VR) Traffic	Normal	50	0 Mbit/s	Unlimited

Miscellaneous and Advanced Settings

The screenshot shows the 'HOME TEST Settings' dialog box in vSphere. The left sidebar lists various settings categories, with 'vSphere DRS' selected. The main area displays the 'Automation Level' settings:

- Manual**: vCenter will suggest migration recommendations for virtual machines.
- Partially automated**: Virtual machines will be automatically placed onto hosts at power on and vCenter will suggest migration recommendations for virtual machines.
- Fully automated** (selected): Virtual machines will be automatically placed onto hosts when powered on, and will be automatically migrated from one host to another to optimize resource usage.

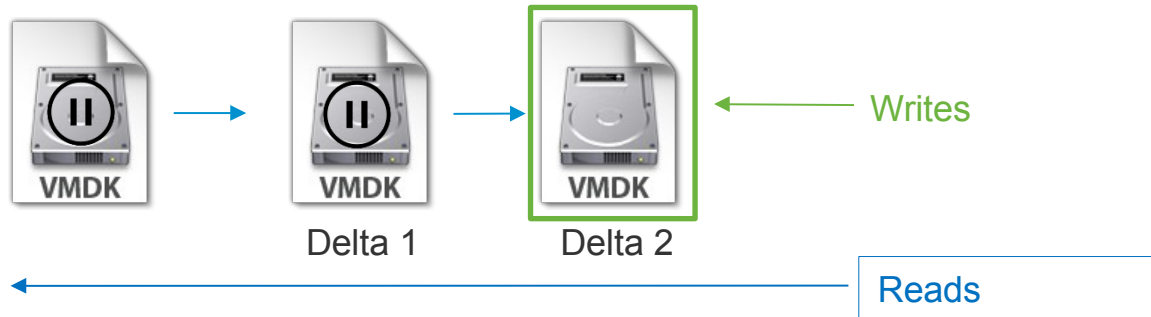
Below the automation levels, there is a 'Migration threshold' slider ranging from 'Conservative' to 'Aggressive'. The slider is currently positioned at the 'Conservative' end.

Text below the slider: Apply priority 1, priority 2, and priority 3 recommendations. vCenter will apply recommendations that promise at least good improvement to the cluster's load balance.

Buttons at the bottom: 'Advanced Options...', 'OK', and 'Cancel'.

Snapshots – Number 1 topic VMware Global Support

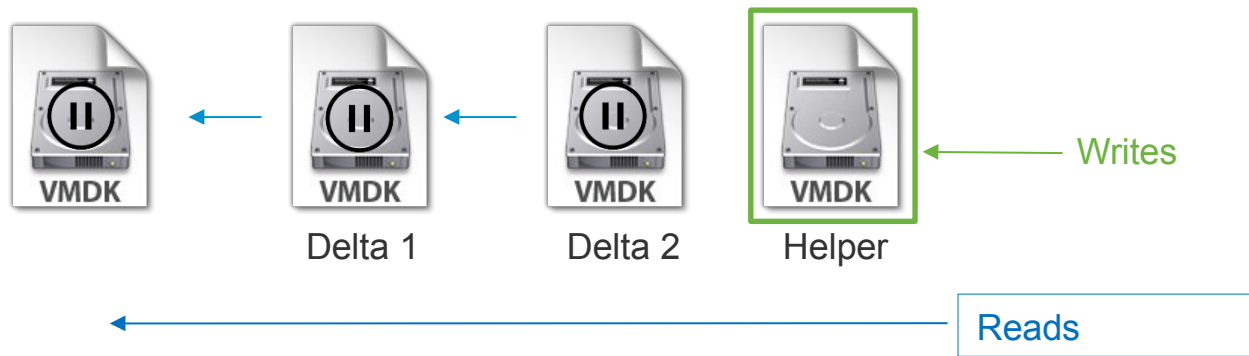
- *Snapshots only store the differences between the current state and the original state.*
- *A snapshot is a point in time.*



- ▶ *Certain operations are unavailable with a snapshot present. (removing or increasing size of disk. ESXi 4.1 and earlier didn't support storage vMotion with snapshot)*
- ▶ *A snapshot can grow to the size of the original base disk.*
- ▶ *You snapshot the whole VM not just a single disk.*
 - ▶ *You can change a disk to be independent persistent but requires VM to be off. And this is hard to track.*

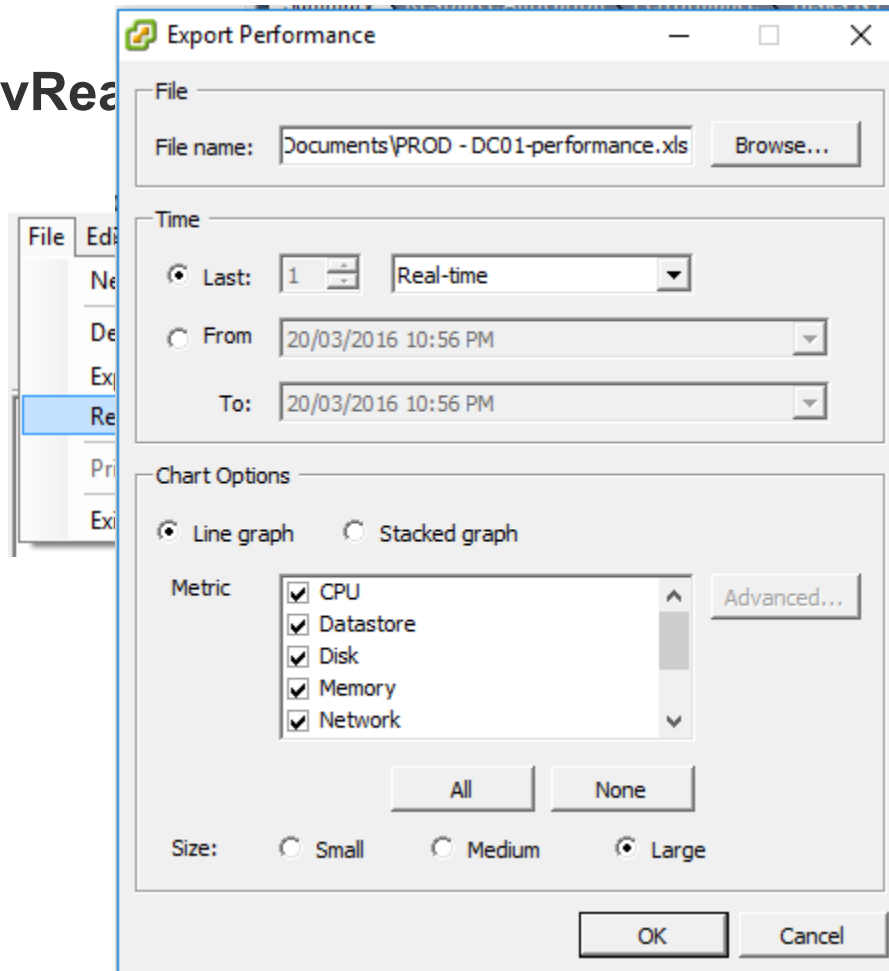
■ Deleting a snapshot

- Differences powered on and powered off.



Monitoring and Utilities

- Log Insight
- vCOPs or vROPs (vRealize)
- RVtools
- vCheck
- VeeamONE
- Opvisor
- VMturbo



Free Learning Resources.

VMware Performance Best Practices 6.0 :

<https://www.vmware.com/files/pdf/techpaper/VMware-PerfBest-Practices-vSphere6-0.pdf>

vBrownbag - <http://professionalvmware.com/brownbags/>

Walkthrough VCP 6 Foundation

<https://www.youtube.com/watch?v=PH0aH-jthsw&list=PL2rC-8e38bUXUxZfAqfsxQHiacuFFm7ZJ>

Vmware VCP5-DCV

<https://www.youtube.com/watch?v=q2y1hGhdKew&list=PL2rC-8e38bUU1ZJrmHbPLkmXwMHjut2VB>

Free Learning Resources.

- Free VMware VCP track training
- No excuses to start learning today

Introduction: http://mylearn.vmware.com/mgrReg/courses.cfm?ui=www_edu&a=det&id_course=189018

Step 1: <http://www.vmwarelearning.com/esxi/>

Step 2: http://www.vmwarelearning.com/vsphere5_0/archive/?&page=1

Step 3: http://www.vmwarelearning.com/vSphere5_1/archive/?&page=1

Step 4: <http://labs.hol.vmware.com/HOL/catalogs/catalog>: HOL-SDC-1410 - Virtualization 101

Step 5: <http://labs.hol.vmware.com/HOL/catalogs/catalog>: HOL-SDC-1402 - vSphere Distributed Switch from A to Z

Step 6: <http://featurewalkthrough.vmware.com/#!/vsphere-with-operations-management>

Step 7: http://mylearn.vmware.com/mgrreg/courses.cfm?ui=www_edu&a=one&id_subject=29801

Step 8: <http://labs.hol.vmware.com/HOL/catalogs/catalog>: HOL-SDC-1404 - vSphere Performance Optimization

- VMware Feature Walk Through : <https://featurewalkthrough.vmware.com/>

Free Learning Resources.

- VMWare Hands on Labs - <http://labs.hol.vmware.com/>



Paid Resources

■ VMUG Advantage (Like Technet) - \$200

What's Included?

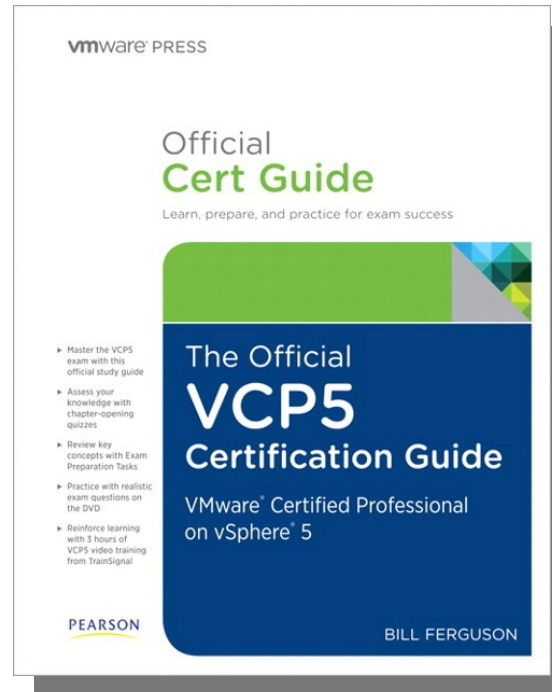
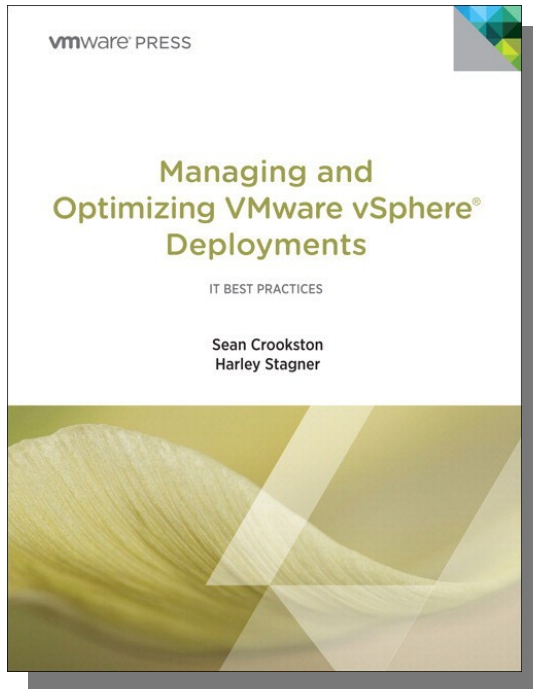
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- VMware vSphere® with Operations Management™ Enterprise Plus
- VMware vCloud Suite® Standard
- VMware vRealize™ Operations Insight™
- VMware vRealize Operations™
- VMware vRealize Log Insight™
- VMware vRealize Operations for Horizon®
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Thursday 25th February 2016

8:45 a.m. – 7:00 p.m.

NEW LOCATION!

Crown Promenade

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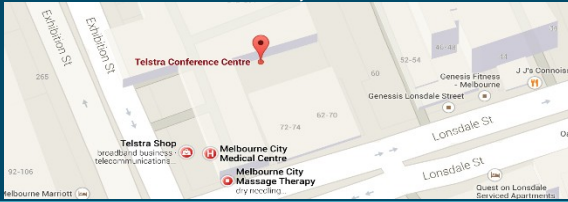
Make plans now to interact with other VMUG members and industry leaders to improve your knowledge and stay on the cutting edge of virtualisation.

Seize the Day! Highlights Include:

- VMware Keynote by [Scott Lowe](#): The Future of Network Virtualisation with VMware NSX
- Keynote by [Keith Townsend](#): Adding a Business Skill to Your Toolbelt
- Live [#vBrownBag](#) Tech Talk recordings hosted by Alastair Cooke
- Technical sessions by the Community, VMware and VMware Partners on vSphere, Hybrid Cloud, Network and Security, Virtual Storage, End User and Mobility solutions, and much more
- Exhibit space to meet with partners to learn the latest product news and usage tips
- Prize draw with fantastic giveaways from VMUG and partners
- **View the complete agenda [here](#)**

Join in Our Quarterly Meetings

Telstra Conference Centre
1/242 Exhibition Street
Melbourne, VIC 3002



**Community
Speakers Wanted!**

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Full Day UserCon

Thu 25th February

**Quarterly Meetings &
#vBeers**

Thu 7th April – #vBeers

Thu 12th May – Meeting

Thu 23rd June – #vBeers

Thu 4th August – Meeting

Thu 15th September – #vBeers

Thu 17th November - Meeting



**KEEP
CALM
PRESENTATION IS OVER
ANY
QUESTIONS?**