VIRTUAL APPLIANCE TOP ISSUES
(VMWARE INFRASTRUCTURE)

Quick Reference
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Mitel®

Virtual Appliance Quick Reference (VMware infrastructure)

ISSUE	SYMPTOMS	PROBABLE CAUSE	RESOLUTION
FILE SYSTEM BECOMES READ-ONLY, CAUSING MITEL APPLICATIONS TO GO OUT OF SERVICE			
	Mitel Applications may cease to function if MSL switches to the file system to "read-only" in an effort to prevent file system corruption. Before concluding that this is the problem, confirm that MSL has switched to read-only by selecting the Mitel Virtual Machine, and clicking **Launch Virtual Machine Console.** Observe the output, which may indicate that the file system has switched to read-only. The console will be the only place you will be able to see the read-only trigger, since logs cannot be written to disk in the read-only state.	Very high disk latency between the ESXi host and the virtual machine's data store over short time period can trigger file system protection and the read-only state in MSL.	To restore service immediately, right-click on the Mitel Virtual Machine, select **Power and Restart Guest**. Use the Virtual Machine Console to confirm that system shutdown and startup occurs before confirming that service is restored. To prevent the problem from recurring, determine whether a SAN connection disruption occurred, and examine **Virtual Machine Disk Configuration and Statistics**. Address any failures or exceptions. It is very important to make sure the system virtual disk can sustain the I/O throughput requirement and the disk latency requirement. Because the physical storage is shared, performance of storage could be momentarily reduced or degraded as the workload increases. Other external factors can also affect storage performance. For example, congestion in the storage network induces network latency that, in turn, increases the I/O latency on storage devices. In general, storage device average latency should not be more than 30 ms. Performance of virtual machine will be affected as storage latency increases. If SSD is used as part of the storage device, the maximum acceptable average latency should be less. Disk I/O latency can be monitored by VMware vCenter Server. vCenter Server can trigger actions (send notification to system administrators, for example) if it sees a degraded or abnormal latency on storage devices. For example, vCenter server can be set up to send warnings if disk latency exceeds 1000 ms for one minute, and send alerts if disk latency exceeds 3000 ms for one minute. The following procedure is required to enable Storage I/O monitoring in VMware vCenter Server from vSphere Client. **Note:** The threshold values are just examples. The administrator of the virtual infrastructure must determine the actual values suitable within the environment. The steps that follow are based on vSphere 5.5 and may be slightly different in other versions.

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			1. Login to vCenter Server from VMware vSphere (Windows) Client. 2. On the left pane, highlight the virtual machine to be monitored. 3. Select the **Alarm** tab on the right hand side pane. 4. Under the row of tabs, select **Definitions view**. 5. Right-click on the empty space on the right pane, and select **New Alarm**. 6. In the **General** tab, fill in the **Alarm name** and **Description**. In **Alarm Type**, select**:** • Virtual Machine • Monitor for specific conditions or state • Enable this alarm 7. In the **Triggers** tab, right-click empty space to **Add Trigger**. A trigger entry is created. Set the following conditions: • **Trigger Type** to **VM Max Total Disk Latency (ms)**. • **Condition** to **Is Above** • **Warning** to **1000** • **Condition Length** to **for 1 minute** • **Alert** to **3000** • **Condition Length** to **for 1 minute** 8. Select **Trigger if any of the conditions are satisfied**. 9. In the **Reporting** tab, enter 0 in both text boxes. 10.In the **Actions** tab, right-click on empty space and select **Add Action**. 11.Change **Action to Send a notification email**: • In the **Configuration** field, enter the e-mail address. • For all condition transitions, select **Once**. 12.Right-click on the empty space to add another action, if needed. 13.Click **OK** to close the dialog box. There may be a popup saying, “vCenter e-mail settings are not configured”. Click **OK** to close all of the dialog boxes.

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			14.If vCenter e-mail settings are not configured: • In vCenter, go to **Administration** > **vCenter Server settings** > **Mail**. • Enter the **SMTP Server name** and the **Sender Account name**. System administrators should be notified when storage performance degradation begins. This should allow enough time for them to correct the problem before storage performance falls to an unacceptable level.
MITEL APPLICATION PERFORMANCE ISSUES EVEN THOUGH CPU AND MEMORY REQUIREMENTS ARE SATISFIED			
	There can be cases where even though sufficient CPU and Memory resources are available for Mitel virtual machines, Mitel applications may appear to be performing poorly with symptoms such as poor quality voice streaming, message playback disruptions, or dropped calls.	This can often be attributed to slow, high latency, or intermittent I/O to and from the virtual machine disk (VMDK).	Review the **Virtual Machine Disk Configuration and Statistics** and address any exceptions.
VIRTUAL MACHINE IS NO LONGER RESPONSIVE, AND IS OBSERVED TO BE AT OR CLOSE TO 100% CPU USAGE			
	A Mitel Virtual Machine is consuming CPU reaching nearly 100% continuously, and is no longer responsive. Memory consumption may also increase to near 100%.	The SAN volume hosting the Mitel Virtual Machine's VMDK is no longer available, possibly due to network connectivity or SAN system failure.	Confirm that the SAN volume is no longer accessible from the ESXi host running the Mitel Virtual Machine. You will find this indication next to the data store name in the vSphere client; as shown in these examples: datastore1 (inactive) or datastore1 (inaccessible) Shut down or power-off the Mitel Virtual Machine, if this is possible. If the VM is not responsive, plan and execute a restart of the ESXi host. Investigate and address the issue with the SAN volume.
MITEL VIRTUAL MACHINES EXPERIENCE ISSUES ON POWER UP AFTER POWERING OFF			
	On Power On of a Mitel Virtual Machine after a Power Off, startup delays, file system repairs, or startup failures occur.	The Power Off request disrupted the running applications or system state within the Mitel Virtual Machine.	Always use **Shut Down Guest** to turn off the Virtual Machine. This is a safe, graceful shutdown. Do not use **Power Off,** since this effects an immediate shutdown.
YOU HAVE CHANGED THE CPU OR MEMORY RESERVATIONS, AND YOU ARE NOW EXPERIENCING VOICE QUALITY PROBLEMS.			
	Users report poor voice quality.	vCPU or memory reservations have been reduced or turned off.	Restore vCPU and memory reservations to recommended settings.

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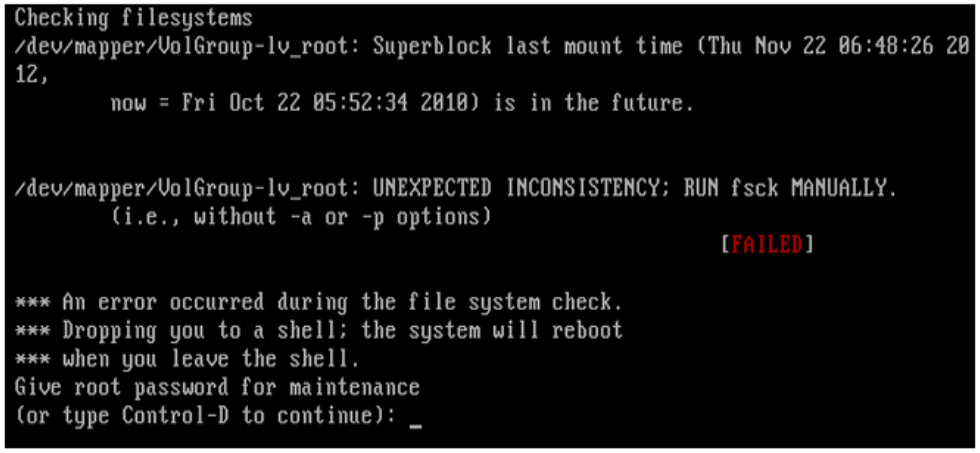
SLOW NETWORK THROUGHPUT FOR STREAMING OR LARGE FILE TRANSFERS			
	Large file transfers to or from a Mitel Virtual Machine may have very slow throughput, or streaming media between Mitel virtual machines may be poor quality or interrupted.	Large Receive Offload (LRO) may be enabled for the VMware VMXNET3 kernel module in MSL. The VMXNET3 kernel module is a software driver used to support all VMXNET3 virtual network cards used within a virtual machine. Some Linux-based operating systems, such as MSL, do not support LRO and will ignore LRO packets. These packets will require re-transmission.	For up-to-date information on this issue, check the VMware knowledge base at http://kb.vmware.com/; for example http://kb.vmware.com/kb/1027511.
USERS ARE EXPERIENCING POOR VOICE QUALITY ON PLAYBACK OF VOICE MAILS, MUSIC ON HOLD, OR ANNOUNCEMENTS.			
	Poor voice quality on voice playback of voice mails, music on hold, or announcements.	The virtual appliance may have been deployed using Thin Provisioning	Migrate the virtual appliance to use storage based on Thick Provisioning, either Lazy Zeroed, or Eager Zeroed.
MITEL RESILIENCY SOLUTIONS NOT WORKING (SUCH AS MIVOICE BUSINESS GATEWAY RESILIENCY OR MIVOICE BORDER GATEWAY CLUSTERING)			
	Mitel resiliency solution is not exhibiting the correct resiliency behavior when an ESXi host or its dependent resources become unavailable.	Mitel Virtual Machines configured for resiliency must reside on different ESXi hosts to ensure that one ESXi-related outage does not affect all Mitel Virtual Machines in a resilient configuration.	Ensure that Mitel Virtual Machines configured for resiliency never run on the same ESXi server. If deploying a resilient solution to one ESXi cluster, ensure that Distributed Resources Scheduler (DRS) Affinity rules are setup for the ESXi cluster to ensure the Mitel Virtual Machines are distributed among ESXi hosts in the cluster. Refer to the VMware documentation for instructions for setting anti-affinity rules.

ISSUE	SYMPTOMS	PROBABLE CAUSE	RESOLUTION
MITEL VIRTUAL MACHINES ARE BLOCKED DURING POWER UP DUE TO CHECKING FILE SYSTEMS UNEXPECTED INCONSISTENCY ERROR			
	After deploying a Mitel Virtual Appliance and powering on the Mitel Virtual Machine created, the operating system boot does not finish successfully. When examining the Virtual Machine Console, **Checking file systems** will indicate **FAILED** and report an error similar to the following output:  Checking filesystems /dev/mapper/VolGroup-lv_root: Superblock last mount time (Thu Nov 22 06:48:26 2012, now = Fri Oct 22 05:52:34 2010) is in the future. /dev/mapper/VolGroup-lv_root: UNEXPECTED INCONSISTENCY; RUN fsck MANUALLY. (i.e., without -a or -p options) [FAILED] *** An error occurred during the file system check. *** Dropping you to a shell; the system will reboot *** when you leave the shell. Give root password for maintenance (or type Control-D to continue): _	The system time on the ESXi host that the Mitel Virtual Appliance was deployed to is incorrect. The incorrect time is pushed from the ESXi host to the virtual machine on power up. This time is much earlier than the last one recorded in the MSL file system. This causes interactive file maintenance to be performed, however, this requires a root password. If this is the first boot of the Mitel Virtual Machine, the system password is not yet set.	1. Power off the Mitel Virtual Machine. 2. Change the system time of the ESXi server hosting the Mitel Virtual Machine to the current time. 3. Power on the Mitel Virtual Machine and observe the MSL boot-up in the Virtual Machine Console.

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	The Mitel resiliency solution is not exhibiting the correct resiliency behavior when an ESXi host or its dependent resources become unavailable.	Mitel Virtual Machines configured for resiliency must reside on different ESXi hosts to ensure that one ESXi-related outage does not affect all Mitel Virtual Machines in a resilient configuration.	Ensure that Mitel Virtual Machines configured for resiliency never run on the same ESXi server. If deploying a resilient solution to one ESXi cluster, ensure that Distributed Resources Scheduler (DRS) Affinity rules are setup for the ESXi cluster to ensure the Mitel Virtual Machines are distributed among ESXi hosts in the cluster. In **Virtual Machine Disk Configuration and Statistics**: 1. Select **Edit Settings** for the Mitel Virtual Machine and under the **Hardware** tab, select each Hard disk used, and confirm that **Disk Provisioning Type** is set to set to a **Thick Provision Lazy Zeroed** or **Thick Provision Eager Zeroed**. It should NOT be set to **Thin Provision**. If **Thin Provision** is set ,conversion to one of the Thick provisioning options is recommended. Convert to a Thick Provision method by moving the virtual machine to another data store: • Select **Migrate**, **Change Datastore** option. • Change **Select a virtual disk format** to **Thick Provision Lazy Zeroed**. • Select a different datastore. • Complete the wizard to start the migration. 2. Select the Mitel Virtual Machine, open **Snapshot Manager** and ensure that there are no snapshots. If there are snapshots listed, verify that all snapshots are no longer required; then click **Delete All** to remove them. 3. Select the Mitel Virtual Machine, click the **Performance** tab, select the **Advanced** button and investigate the Datastore and Disk statistics for latency (Write Latency, Read Latency and/or Highest Latency). 4. Examine these values over the time period when issues were experienced. Values should be consistently near 0 ms. Consistent latency responses above 30 ms or peak values over 80 ms can result in many performance problems. If high latency is observed, it is highly recommended that you locate and migrate the virtual machine to a better performing datastore.