

RHEV Resilience Tests

PREPARED FOR - Volkswagen IT Group Cloud

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Version 0.0.1

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1. History and Revisions

Version	Date	Authors	Changes
0.0.1	18.11.2015	Adrian Bradshaw adrian@redhat.com	Draft version of test results

2. Preface

2.1. Confidentiality, Copyright, and Disclaimer

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2.2. Additional Background and Related Documents

This document also references additional information that can be found on Red Hat's documentation site at <https://access.redhat.com/knowledge/docs/> and specifically at https://access.redhat.com/documentation/en-US/Red_Hat_Enterprise_Virtualization/3.5/

Documents specific to products covered in this solution include the following Guides

- [RHEV 3.5 Installation Guide](#)
- [RHEV 3.5 Administration Guide](#)
- [RHEV 3.5 User Guide](#)
- [RHEV 3.5 Technical Guide](#)

Additional information can be found on the RHEV upstream projects website (oVirt):

<http://www.ovirt.org/Documentation>

2.3. Terminology

Some of the acronyms using in this document are included in the table below

Table 1. Terminology Table

Term	Definition
RHEV	Red Hat Enterprise Virtualisation
RHEV-M	Red Hat Enterprise Virtualisation Manager
RHEL-H	Red Hat Enterprise Linux Hypervisor

3. Summary

This document contains the details / observations about the first set of RHEV resilience tests performed on 18th November.

3.1. Information

On 18th of November we started the RHEV resilience tests.

Persons involved

- Michael Scheibke
- Eike Holtz
- Sebastian Tharr
- Ben Haubeck
- Adrian Bradshaw

Prior to the tests, a spreadsheet was prepared containing each of the tests to be performed on each server.

Due to time constraints we decided to limit the servers to 1 or 2 servers, so that we could at least try each test

4. Test Results

Tests started at 10:16, Thursday 18th November 2015

4.1. Power Based Tests

4.1.1. Test 1

Removal of power cables one at a time



Test PASSED

Time	Event	Notes
10:16	1 power cable removed, then second - all green. Events were logged in the iLOM, nothing see elsewhere -	Test 1 PASS

ACTION REQUIRED: None

4.1.2. Test 2

Removal of all power cables



Test FAILED

Time	Event	Notes
10:19	Test 2 - all power removed - UI status connecting, then Non Responsive, VMs in unknown status (?)	
10:22	still trying to fence	
10:22	HA VM not restarting (lxf101p003)	
10:24	"no power management configured" message in the RHEVM log	Seems like a bad/misleading message
10:26	HA VM still not migrated	
10:33	HV status "Non Responsive"	Marking Test FAILED as VM stayed in ? mode as it continued to try and verify the host status (endlessly)
10:35	Power restored to HV, to verify the fence will now not complete and allow the VM to fail away to a new HV	
10:38	iLOM reachable but missed the fence, "delaying for 122 seconds"	
10:41	still printing messages about grace period, even though iLOM was reachable - fence opportunity not taken	(unexpected behaviour)
10:44	missed another fence opportunity	fence opportunity not taken (unexpected)
10:47	HV is now starting to boot the OS as POST is completed	
10:47	fence opportunity not taken	(unexpected)

Time	Event	Notes
10:47	we have an OS login prompt - services starting in the background	
10:47	VMs still in ? state	
10:49	RHEVM logs its connection to the HV	
10:49	host is up, HA VM is starting on another HV (lxf102s003)	TEST 2 FAIL - (due to VMs not migrating)
While this result is explainable (RHEV couldn't verify the status of the HV so didnt want to risk starting VMs in 2 places) its not the behavior we desire. This is a known issue, SANlock fencing is required to enable this - see RFE BZ804272		

ACTION REQUIRED:

- VW to raise ticket to add to RFE - DONE
- Red Hat to follow up on RFE

4.1.3. Test 3

Removal of Hot Swap PSU



Test SKIPPED

Time	Event	Notes
Test abandoned as its not possible to remove without removing the cables and this was done in test 2		

ACTION REQUIRED: None**4.2. Storage Based Tests****4.2.1. Test 4**

Removal of 1 OS disk in RAID mirror



Test FAILED

Time	Event	Notes
11:05	TEST 4 - one OS disk pulled	
11:05	nothing in the UI or the logs	
11:05	disk re-inserted	
11:06	Test pass?	From this point of view it passes
	Disk re-inserted, raid status "degraded" -	RAID still degraded, it doesnt seem to have realised the disk is present
11:14	Marking as failed as replacing disk didnt initiate a rebuild and manual intervention was required	This may be expected behavior, needs to be clarified

ACTION REQUIRED: VW will investigate installing Linux RAID management tools, so that the RAID can be rebuilt without a reboot

4.2.2. Test 5

Removal of both OS disk in RAID mirror



Test FAILED

Time	Event	Notes
11:19	Both disks removed	All OS disks now removed
11:19	RHEV "Connecting" and logging a VDS connection error	
11:19	Message in UI "will attempt to fence in 61 seconds"	
11:19	VMs still show as green	
11:22	Still waiting on the fence event to happen	(CSS led blinking in the iLOM)
11:24	VMs still green AND still reachable, HV stayed up and reachable also	
11:27	Still no fence event	TEST FAIL (even if VMs still reachable)
11:29	re-prints same message about it will be fenced in 61 seconds	(same message was printed 10 mins ago)
11:33	Adrian clicks the power management Test button - test passes - seems to be configured correctly	
11:35	disks being replaced	
11:38	Eike choses new start from the power menu	Nothing *seems to be happening
11:39	Eike attempted power off from the power menu - gets message "cant reboot in progress"	Decide to wait longer
11:40	server logs power off request	We just needed to wait, a message in the UI would have been useful
11:40	server coming back up	
11:55	placed into maint mode while RAID recovery is performed	RAID was eventually recovered successfully

ACTION REQUIRED:

- Red Hat to clarify why no fence event happened
- VW (as above Linux RAID tool installation)

As the RAID rebuild will take time to complete - we moved on to **lxf102s003** to perform SAN tests.

4.2.3. Test 6

Partial removal of SAN cables (not all)



Test PASSED

Time	Event	Notes
12:03	SAN cable pulled	
12:04	cable removed - half of paths lost (log on the HV)	
12:05	everything stays green in RHEV	
12:05	reconnecting cables	
12:05	paths back (seen in the HV log)	
12:07	removing other cable	
12:07	paths down as expected - no other effects - all green in the UI	
12:09	cables back in	
12:09	all paths back	TEST PASS

ACTION REQUIRED: None

4.2.4. Test 7

Removal of all SAN cables



Test FAILED

Time	Event	Notes
12:12	All SAN cables removed	
12:12	rhevm logs warning about SD	
12:14	all VMs no in Paused state in the UI and in the log . UI "VM has paused due to a storage IO problem"	
12:15		assume we are in a timeout wait for storage to come back
12:17	server now non operational status	
12:18	message in log of rhevm about failed migration	
12:19	"MIGRATE_PAUSED_EIO_VM IS NOT SUPPORTED" in the RHEV log	
12:20	"Power management not configured" message	(it is configured)
	"no other host to test power management"!!!	This needs to be investigated
12:20	Adrian manually tests power management	Test passes
12:25	TEST FAIL	TEST Marked as FAILED
12:25	re-connect cables	
12:26	VMs up according to log and the UI	HV Still Red/non-operational
12:27	confirmed all VMs can be connected to	
12:30	HV automatically goes back to Up status	This took longer than expected

ACTION REQUIRED: Red Hat to clarify expected behavior in this situation

4.3. Network Based Tests

staying with lxf102s003

4.3.1. Test 8

Removing individual cables in bond1, one at a time



Test PASSED

Time	Event	Notes
12:42	1 cable removed from bond1	
12:43	the UI shows the nic down and logs a message about the loss	no negative impact
12:46	cable back in	
12:46	UI shows nic up, log shows status up	
12:47	Other cable pulled in bond0, ui shows and logs an entry	
12:48	cable put back in	
12:48	UI show back Nic up and logs a message	TEST PASSED

ACTION REQUIRED: None

4.3.2. Test 9

Removing both cables in bond1



Test INCONCLUSIVE

Time	Event	Notes
12:48	both cables pulled	
12:49	log & rhev both show the the whole bond down	expecting a fence event
12:50	VMs still green - not expected - cant login into VM (expected)	we expected a fence event after a wait period
12:53	host still green, VMs green but not reachable - bond shows as down	non migration of VMs may be expected as HV is "Up"
12:56	Test INCONCLUSIVE	marking test as "INCONCLUSIVE"
12:56	reconnecting network cables	
12:57	log entries on RHEVM	
12:57	RHEV UI shows green	

ACTION REQUIRED: Red Hat to clarify if this is expected

4.3.3. Test 10

Removing individual cables in bond2 (HeSyMo), one at a time



Test PASSED

Time	Event	Notes
12:58	pulled first cable from bond2	rhev UI shows cable down
12:58	cable re-inserted	UI shows up and logs entry
12:59	now pull 2nd one	UI shows it down
12:59	cable re-inserted	UI shows up and logs entry
13:01	(VMs unaffected)	TEST PASSED

ACTION REQUIRED: None

4.3.4. Test 11

Removing both cables in bond2 (HeSyMo)



Test PASSED

Time	Event	Notes
13:01	both cables removed	
13:01	UI shows bond down	
13:01	..will wait to see if anything happens, not expecting..	
13:04	test migration attempted	
13:04	Migration worked	Migration over the admin network, unexpected !!
13:06	attempt to migrate VM back	
13:08	completed without issue	
13:08	both cables back in	UI shows bond back up

While its great that this worked, we need to be aware of it as our migration bandwidth limit is based on a dual 10G migration network, not a single 1G interface

ACTION REQUIRED: None

4.3.5. Test 12

Removing the iRMC/iLOM Cable



Test PASSED

Time	Event	Notes
13:09	the iRMC cable removed - nothing logged - no impact	(fencing would not work during this time)
13:09	Cable re-added	Test PASSED

ACTION REQUIRED: None

4.3.6. Test 13a

Removing individual cables in bond0 (Admin), one at a time



Test PASSED

Time	Event	Notes
13:14	Removed first cable	
13:15	logs and UI reflect change	No adverse effects
13:15	cable plugged back in	
13:16	removed 2nd cable	UI shows it down
13:18	cable back in	UI shows up
13:18		TEST PASSED

ACTION REQUIRED: None

4.3.7. Test 13b

Removing both cables in bond0 (Admin)



Test FAILED

Time	Event	Notes
13:19	both cables removed	expecting a fence event
13:20	Lost ssh connection	UI no sign of any problem (!?!?)
13:23	VMs are still reachable	no UI change to reflect total lost of RHEVM bond0
13:28	crashed one of the HA VMs on the HV to see if it will be moved	
13:29	VM crash also un-noticed	
13:30	both cables replaced	
13:30	NOW the UI shows the host as Red "Connecting"	
13:31	HV recovers - Status UP	
13:28	Marking Test as FAILED as it didnt show bond0 as down - or or give any hint of an issue	TEST FAILED

ACTION REQUIRED: Red Hat to investigate why the complete loss of the RHEVM bond on a HV did not show up in RHEVM

4.4. Hypervisor Tests

4.4.1. Test 14

Crash of a non-SPM HV



Test FAILED

Time	Event	Notes
13:35	Crash HV 102s003	
13:35	VDS network error on rhevm in the log	
13:36	host is red in the UI "Non responsive"	
13:37	decides to fence - didnt kdump !!!	needs investigation
13:38	VMs restarted on a different host	
13:38	"not responding, will stay in connecting state for 120 seconds" (as its in POST)	
	Server eventually comes backup and goes green	Test FAILED as it didnt perform a Kdump

ACTION REQUIRED: Red Hat to investigate why no kdump was performed

4.4.2. Test 15

Unresponsive HV, overload disks with lots of simultaneous disk writes



Test SKIPPED

Time	Event	Notes
Test was abandoned as, even with a load of 15,000, the server would still VMs migrated to/from it at a normal speed		

ACTION REQUIRED: None