

Troubleshooting Vmnic Link Failure Proliant BL460c G7 Hypervisor ESXi5.5

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PROBLEM:

The Link state of **vmnic1** on **vSwitch0** is down hence loss of redundancy on the management network.

TOOLS: The **Vsphere Client** is almost useless in troubleshooting this fault; all you can see is a red cross on the nic in question. You need to use the **ESXCLI** interface to get to the root of the problem.

The best place to start for this type of issue is usually **/var/log/vmkernel.log**.

These are some of the commands you can use:

tail -f /var/log/vmkernel.log (real time analysis of the log)

tail -100 /var/log/vmkernel.log |more (this will allow you to page through the last 100 entries of the log)

1. Investigate **/var/log/vmkernel.log** for error – do **tail -100** to grab last 100 entries

Now from the log we see:

```
2014-02-05T18:48:58.516Z cpu1:32852)WARNING: elxnet: elxnet_linkStatusSet:4349:  
VMK_LINK_DUPLEX_HALF is not supported (speed: 0)  
2014-02-05T18:48:58.516Z cpu23:36804)Uplink: 10141: Wait for device vmnic1 async  
call failed.  
2014-02-05T18:49:36.948Z cpu10:36805)Uplink: 10122: Setting speed/duplex to (0 H  
ALF) on vmnic1.  
2014-02-05T18:49:36.949Z cpu3:32852)WARNING: elxnet: elxnet_linkStatusSet:4349:  
VMK_LINK_DUPLEX_HALF is not supported (speed: 0)
```

For some reason the nic is trying to come up in **half duplex mode** - this is not supported in **ESXi5.5**; hence causing the driver to keep it in a **downed state**.

The problem is recognizable how do we solve it ?

Several resources **Google** none of them really explain how to solve this issue specific to the **Flex 10** and **Emulex CNA** on the **BL460c G7**.

Reading this article from VMware Knowledgebase – “**The esxcli network nic down/up commands fail to restart a NIC (2002233)**” provided the best clue.

There is every possibility that a **simple reboot** of the server would have solved the problem, however this problem was seen on live level 2 Vsphere cluster that essentially controls the plant so I decided to fix it with **minimal disruption**.

SOLUTION:

Command to get list of vmnics on server- **esxcli network nic list**

EXAMPLE:

Name	PCI Device	Driver	Link	Speed	Duplex	MAC Address	MTU	Description
vmnic0	0000:002:00.0	elxnet	Up	2000	Full	00:17:a4:77:3c:24	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic1	0000:002:00.1	elxnet	Down	2000	Full	00:17:a4:77:3c:26	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic2	0000:002:00.2	elxnet	Up	6000	Full	00:17:a4:77:3c:28	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic3	0000:002:00.3	elxnet	Up	6000	Full	00:17:a4:77:3c:2a	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic4	0000:002:00.4	elxnet	Up	1000	Full	00:17:a4:77:3c:2c	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic5	0000:002:00.5	elxnet	Up	1000	Full	00:17:a4:77:3c:2e	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic6	0000:002:00.6	elxnet	Up	1000	Full	00:17:a4:77:3c:30	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic7	0000:002:00.7	elxnet	Up	1000	Full	00:17:a4:77:3c:32	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter

We can see that the state of vmnic1 is down, now we have to get as much information on the interface as possible, for that issue the following command: **esxcli network nic get -n vmnic1**

EXAMPLE:

```
esxcli network nic get -n vmnic1
  Advertised Auto Negotiation: false
  Advertised Link Modes: 1000baseT/Full, 10000baseT/Full
  Auto Negotiation: false
  Cable Type:
  Current Message Level: -1
  Driver Info:
    Bus Info: 0000:02:00:1
    Driver: elxnet
    Firmware Version: 4.6.247.5
    Version: 10.0.575.7
  Link Detected: false
  Link Status: Down by explicit linkSet
  Name: vmnic1
  PHYAddress: 0
  Pause Autonegotiate: false
  Pause RX: false
  Pause TX: false
  Supported Ports:
  Supports Auto Negotiation: false
  Supports Pause: false
  Supports Wakeon: true
```



Link state is down

Transceiver:
Wakeon: MagicPacket(tm)

This confirms what we already know except it is now giving you much more information around driver, firmware etc. Will be very useful if you need to escalate call.

PROBLEM SOLUTION:

Had to go with the hunch that the vmnic was failing to **negotiate duplex** setting to go online - decided to try and force the vmnic to renegotiate or auto negotiate the link state.

Command: **esxcli network nic set -n vmnicX -a**

1. /bin # **esxcli network nic set -n vmnic1 -a**
This just comes back with hash prompt#

Now we need to bring the link state Up

2. /bin # **esxcli network nic up -n vmnic1**
This just comes back with hash prompt#

Check the state of the vmnic to verify that it is operational.

3. **esxcli network nic get -n vmnicX**

```
/bin # esxcli network nic get -n vmnic1  
Advertised Auto Negotiation: false  
Advertised Link Modes: 1000baseT/Full, 10000baseT/Full  
Auto Negotiation: false  
Cable Type:  
Current Message Level: -1  
Driver Info:  
  Bus Info: 0000:02:00:1  
  Driver: elxnet  
  Firmware Version: 4.6.247.5  
  Version: 10.0.575.7
```

```
Link Detected: true  
Link Status: Up by explicit linkSet
```

```
Name: vmnic1  
PHYAddress: 0  
Pause Autonegotiate: false  
Pause RX: false  
Pause TX: false  
Supported Ports:  
Supports Auto Negotiation: false  
Supports Pause: false  
Supports Wakeon: true  
Transceiver:  
Wakeon: MagicPacket(tm)
```



Link state is Up

Check on all the vmnics just to make sure that they are all up.

4. /bin # esxcli network nic list

Name	PCI Device	Driver	Link	Speed	Duplex	MAC Address	MTU	Description
vmnic0	0000:002:00.0	elxnet	Up	2000	Full	00:17:a4:77:3c:24	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic1	0000:002:00.1	elxnet	Up	2000	Full	00:17:a4:77:3c:26	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic2	0000:002:00.2	elxnet	Up	6000	Full	00:17:a4:77:3c:28	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic3	0000:002:00.3	elxnet	Up	6000	Full	00:17:a4:77:3c:2a	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic4	0000:002:00.4	elxnet	Up	1000	Full	00:17:a4:77:3c:2c	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic5	0000:002:00.5	elxnet	Up	1000	Full	00:17:a4:77:3c:2e	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic6	0000:002:00.6	elxnet	Up	1000	Full	00:17:a4:77:3c:30	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter
vmnic7	0000:002:00.7	elxnet	Up	1000	Full	00:17:a4:77:3c:32	1500	Emulex Corporation HP NC553i Dual Port FlexFabric 10Gb Converged Network Adapter

CONCLUSION:

This investigation and solution proves that even complex Network faults can be solved using online tools without having to resort to a Host reboot as a first test to see if the problem disappears. In a HA environment this is critical as this process is less invasive and clinical in targeting the problem.