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VCAP-DCA Objective 2.4 : Administer vNetwork Distributed Switch Settings

Knowledge

- Identify VMware NIC Teaming policies
- Identify common network protocols

Skills and Abilities

- Understand the NIC Teaming failover types and related physical network settings
- Determine and apply Failover settings
- Configure explicit failover to conform with VMware best practices
- Configure port groups to properly isolate network traffic

Tools

- ESX Configuration Guide
- ESXi Configuration Guide
- vSphere Command-Line Interface Installation and Scripting Guide
- Product Documentation
- vSphere Client
- vSphere CLI
- vicfg-*

Notes

Understand the NIC Teaming failover types and related physical network settings

A great blog below goes over this in detail.

<http://vteardown.com/2009/08/07/vsphere-over-hyper-v-built-in-nic-teaming-support-for-any-nic-with-easy-set-up-directly-from-vsphere-client/>

Determine and apply Failover settings

Configurable from the NIC teaming tab of the vSwitch

From the [ESX\(i\) server configuration guides](#)

Load Balancing Settings

- Route based on the originating port ID — Choose an uplink based on the virtual port where the traffic entered the virtual switch.
- Route based on ip hash — Choose an uplink based on a hash of the source and destination IP addresses of each packet. For non-IP packets, whatever is at those offsets is used to compute the hash.
- Route based on source MAC hash — Choose an uplink based on a hash of the source Ethernet.



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Virtualization

Quote of the Day



Configuration
Maximums for
VMware

vSphere is my favorite VMware document. It answers many of the "How many", "How much" type questions about VI capabilities. This is one of the documents that will most often be updated as new releases of VMware VI are released so it's a good one to keep tabs on.

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- Use explicit failover order — Always use the highest order uplink from the list of Active adapters which passes failover detection criteria.

- NOTE IP-based teaming requires that the physical switch be configured with EtherChannel. For all other options, EtherChannel should be disabled.

Network Failover Detection

- Link Status only – Relies solely on the link status that the network adapter provides. This option detects failures, such as cable pulls and physical switch power failures, but not configuration errors, such as a physical switch port being blocked by spanning tree or that is misconfigured to the wrong VLAN or cable pulls on the other side of a physical switch.

- Beacon Probing – Sends out and listens for beacon probes on all NICs in the team and uses this information, in addition to link status, to determine link failure. This detects many of the failures previously mentioned that are not detected by link status alone.

Notify Switches

- Select Yes or No to notify switches in the case of failover.

If you select Yes, whenever a virtual NIC is connected to the vSwitch or whenever that virtual NIC's traffic would be routed over a different physical NIC in the team because of a failover event, a notification is sent out over the network to update the lookup tables on physical switches. In almost all cases, this process is desirable for the lowest latency of failover occurrences and migrations with VMotion.

- NOTE Do not use this option when the virtual machines using the port group are using Microsoft Network Load Balancing in unicast mode. No such issue exists with NLB running in multicast mode.

Failback

- Select Yes or No to disable or enable failback.

- This option determines how a physical adapter is returned to active duty after recovering from a failure. If failback is set to Yes (default), the adapter is returned to active duty immediately upon recovery, displacing the standby adapter that took over its slot, if any. If failback is set to No, a failed adapter is left inactive even after recovery until another currently active adapter fails, requiring its replacement.

Failover Order

Specify how to distribute the work load for uplinks. If you want to use some uplinks but reserve others for emergencies in case the uplinks in use fail, set this condition by moving them into different groups:

- Active Uplinks — Continue to use the uplink when the network adapter connectivity is up and active.

- Standby Uplinks — Use this uplink if one of the active adapter's connectivity is down.

- Unused Uplinks — Do not use this uplink.

Configure explicit failover to conform with VMware best practices

Recognizing this is a best practice is probably all that needs to be stated here. To configure explicit failover, just go to the NIC teaming tab of the vSwitch properties to configure this. Set Load balancing to 'Use explicit failover order' and configure the appropriate order for NIC's in your environment.

Configure port groups to properly isolate network traffic

Not much to this section, use VLAN tagging and port groups to isolate network traffic on the same vSwitch.

- [VCAP-DCA Objective 2.4 : Administer vNetwork Distributed Switch Settings](#)
- [VCAP-DCA Objective 2.2 : Configure and Maintain VLANs, PVLANs and VLAN Settings](#)
- [Objective 9.3 – Configure vCenter Server Linked Mode](#)
- [Objective 9.2 – Plan and Execute Scripted Installations](#)
- [Objective 8.2 – Administer vCenter Orchestrator](#)
- [VCAP-DCA Brownbag Session #1](#)
- [VCAP-DCA Objective 7.1 : Secure ESX\(i\) Hosts](#)
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