

# HyperFlex和网络控制策略

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## 简介

本文将介绍UCS中的网络控制策略，以及它如何与HyperFlex集群在各种场景下的运行相关。

## HyperFlex和网络控制策略

网络控制策略是什么？网络控制策略(NCP)定义以下功能和操作：

思科发现协议(CDP): 启用或禁用

MAC寄存器模式: 仅本征VLAN或所有主机VLAN

上行链路失败时的操作: 链路关闭或警告

MAC安全 — 伪造: 允许或拒绝

LLDP — 传输/接收: 已禁用或已启用

HX安装程序将在LAN /策略/根/子组织/ <HX集群名称> /网络控制策略/

## HyperFlex基础设施

LAN / Policies / root / Sub-Organizations / hx-1-sjs / Network Control Poli... / HyperFlex-infra

General Events

Actions	Properties
Delete	Name : <b>HyperFlex-infra</b>
Show Policy Usage	Description : Network Control policy for infrastructure vNICs Hype
Use Global	Owner : <b>Local</b>
	CDP : <input type="radio"/> Disabled <input checked="" type="radio"/> Enabled
	MAC Register Mode : <input checked="" type="radio"/> Only Native Vlan <input type="radio"/> All Host Vlans
	Action on Uplink Fail : <input checked="" type="radio"/> Link Down <input type="radio"/> Warning
	<b>MAC Security</b>
	Forge : <input checked="" type="radio"/> Allow <input type="radio"/> Deny
	<b>LLDP</b>
	Transmit : <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled
	Receive : <input checked="" type="radio"/> Disabled <input type="radio"/> Enabled

# HyperFlex-vm

LAN / Policies / root / Sub-Organizations / hx-1-sjs / Network Control Poli... / HyperFlex-vm

General

Events

## Actions

Delete

Show Policy Usage

Use Global

## Properties

Name : **HyperFlex-vm**

Description : Network Control policy for VM vNICs on HyperFlex s

Owner : **Local**

CDP :  Disabled  Enabled

MAC Register Mode :  Only Native Vlan  All Host Vlans

Action on Uplink Fail :  Link Down  Warning

## MAC Security

Forge :  Allow  Deny

## LLDP

Transmit :  Disabled  Enabled

Receive :  Disabled  Enabled

上述定义的网络控制策略由HyperFlex安装程序创建的vNIC模板使用。vNIC模板位于LAN /策略/根/子组织/ <HX集群名称> / vNIC模板/

LAN / Policies / root / Sub-Organizations / hx-1-sjs / vNIC Templates / vNIC Template hv-m...

General VLANs VLAN Groups Faults Events

**Actions**

- Modify VLANs
- Modify VLAN Groups
- Delete
- Show Policy Usage
- Use Global

**Properties**

Name : **hv-mgmt-a**

Description :

Owner : **Local**

Fabric ID :  Fabric A  Fabric B  Enable Failover

Redundancy

Redundancy Type :  No Redundancy  Primary Template  Secondary Template

**Target**

Adapter  VM

Template Type :  Initial Template  Updating Template

CDN Source :  vNIC Name  User Defined

MTU :

Warning

Make sure that the MTU has the same value in the QoS System Class corresponding to the Egress priority of the selected QoS Policy.

**Policies**

MAC Pool :

QoS Policy :

**Network Control Policy :**

Pin Group :

Stats Threshold Policy :

**Connection Policies**

Dynamic vNIC  usNIC  VMQ

Dynamic vNIC Connection Policy :

以下vNIC模板使用NCP **HyperFlex-infra**:

- hv-mgmt-a
- hv-mgmt-b
- hv-vmotion-a
- hv-vmotion-b
- storage-data-a
- storage-data-b

以下vNIC模板使用NCP **HyperFlex-vm**:

- vm-network-a
- vm-network-b

让我们深入了解一下NCP策略名称HyperFlex-infra和上行链路故障操作。默认情况下，Action on Uplink Fail（上行链路故障操作）设置为Link Down（链路关闭）。这意味着当相应的上行链路（逻辑或物理）断开时，vNIC将被指示进入关闭状态。如果我们转到“设备/机架安装/服务器/服务器号”下的服务器的VIF选项卡，我们可以看到vNIC正在利用的上行链路：

Equipment / Rack-Mounts / Servers / Server 4

Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions **VIF Paths** Power Control Monitor Health Diagnostics Faults Events FSM Statistics T >

Name	Adapter Port	FEX Host Port	FEX Network Port	FI Server Port	vNIC	FI Uplink	Link State	State Qual
▼ Path A/1 1/2 A/1/8								
Virtual Circuit 1556					hv-mgmt-a	A/PC- 1	Up	
Virtual Circuit 1557					storage-data-a	A/PC- 1	Up	
Virtual Circuit 1558					vm-network-a	A/PC- 1	Up	
Virtual Circuit 1559					hv-vmotion-a	A/PC- 1	Up	
▼ Path B/1 1/1 B/1/8								
Virtual Circuit 1560					hv-mgmt-b	B/PC- 2	Up	
Virtual Circuit 1561					storage-data-b	B/PC- 2	Up	
Virtual Circuit 1562					vm-network-b	B/PC- 2	Up	
Virtual Circuit 1563					hv-vmotion-b	B/PC- 2	Up	

发往交换矩阵互联A的vNIC被固定到端口通道1。发往交换矩阵互联B的vNIC被固定到端口通道2。如果端口通道1关闭，则发往交换矩阵互联A的vNIC会被指示下楼。如果我们登录vCenter，我们会看到相应的VMNIC关闭。

Equipment / Rack-Mounts / Servers / Server 4

Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions **VIF Paths** Power Control Monitor Health Diagnostics Faults Events FSM Statistics T >

Name	Adapter Port	FEX Host Port	FEX Network Port	FI Server Port	vNIC	FI Uplink	Link State	State Qual
▼ Path A/1 1/2 A/1/8								
Virtual Circuit 15...					hv-mgmt-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					storage-data-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					vm-network-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					hv-vmotion-a	unpinned	Down	ENM source pinning fai...
▼ Path B/1 1/1 B/1/8								
Virtual Circuit 15...					hv-mgmt-b	B/PC- 2	Up	
Virtual Circuit 15...					storage-data-b	B/PC- 2	Up	
Virtual Circuit 15...					vm-network-b	B/PC- 2	Up	
Virtual Circuit 15...					hv-vmotion-b	B/PC- 2	Up	

hx-1-esxi-04.sjs.local | ACTIONS ▾

Summary Monitor **Configure** Permissions VMs Datastores Networks

Storage Adapters Storage Devices Host Cache Configur... Protocol Endpoints I/O Filters

Networking Virtual switches VMkernel adapters **Physical adapters** TCP/IP configuration

Virtual Machines VM Startup/Shutdo... Agent VM Settings Default VM Compati...

Physical adapters

Add Networking... Refresh Edit...

Device	Actual Speed	Configured Speed	Switch	MAC Address	Observed IP Ranges	Wake on LAN Sup...	SR-IOV Status	S
vmnic0	Down	Auto negotiate	vswitch-hx-inba...	00:25:b5:99:a1:02	172.16.671-172.16.67...	No	Not supported	--
vmnic1	Down	Auto negotiate	--	00:25:b5:99:a3:02	No networks	No	Not supported	--
vmnic2	Down	Auto negotiate	--	00:25:b5:99:a5:02	0.0.01-255.255.255...	No	Not supported	--
vmnic3	Down	Auto negotiate	--	00:25:b5:99:a7:02	No networks	No	Not supported	--
vmnic4	10000 Mb	10000 Mb	vswitch-hx-inba...	00:25:b5:99:b2:02	No networks	No	Not supported	--
vmnic5	10000 Mb	10000 Mb	--	00:25:b5:99:b4:02	No networks	No	Not supported	--
vmnic6	10000 Mb	10000 Mb	--	00:25:b5:99:b6:02	No networks	No	Not supported	--
vmnic7	10000 Mb	10000 Mb	--	00:25:b5:99:b8:02	No networks	No	Not supported	--

由于交换矩阵互联B上仍有Port-Channel 2，因此HyperFlex集群将保持正常运行。因此，如果交换矩阵互联B上的端口通道2也丢失了。

Equipment / Rack-Mounts / Servers / Server 4

< General Inventory Virtual Machines Hybrid Display Installed Firmware SEL Logs CIMC Sessions VIF Paths Power Control Monitor Health Diagnostics Faults Events FSM S>

+ - Advanced Filter Export Print

Name	Adapter Port	FEX Host Port	FEX Network Port	FI Server Port	vNIC	FI Uplink	Link State	State Qual
▼ Path A/1	1/2			A/1/8				
Virtual Circuit 15...					hv-mgmt-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					storage-data-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					vm-network-a	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					hv-vmotion-a	unpinned	Down	ENM source pinning fai...
▼ Path B/1	1/1			B/1/8				
Virtual Circuit 15...					hv-mgmt-b	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					storage-data-b	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					vm-network-b	unpinned	Down	ENM source pinning fai...
Virtual Circuit 15...					hv-vmotion-b	unpinned	Down	ENM source pinning fai...

如您所料，所有vNIC都处于Down Link状态，相应的VMNIC也处于Down状态。

```
The ESXi Shell can be disabled by an administrative user. See the
vSphere Security documentation for more information.
[root@hx-1-esxi-04:~] esxcli network nic list
Name      PCI Device  Driver  Admin Status  Link Status  Speed  Duplex  MAC Address  MTU  Description
-----
vmnic0    0000:05:00.0  nenic  Up            Down         0      Half    00:25:b5:99:a1:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic1    0000:06:00.0  nenic  Up            Down         0      Half    00:25:b5:99:a3:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic2    0000:07:00.0  nenic  Up            Down         0      Half    00:25:b5:99:a5:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic3    0000:08:00.0  nenic  Up            Down         0      Half    00:25:b5:99:a7:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic4    0000:09:00.0  nenic  Up            Down         0      Half    00:25:b5:99:b2:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic5    0000:0a:00.0  nenic  Up            Down         0      Half    00:25:b5:99:b4:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic6    0000:0b:00.0  nenic  Up            Down         0      Half    00:25:b5:99:b6:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
vmnic7    0000:0c:00.0  nenic  Up            Down         0      Half    00:25:b5:99:b8:02  1500  Cisco Systems Inc Cisco VIC Ethernet NIC
[root@hx-1-esxi-04:~]
```

由于所有VMNIC都已关闭，因此与ESXi管理的连接将丢失，HyperFlex群集将脱机，因为存储控制器虚拟机无法再相互通信。

使用虚拟端口通道vPC将为HyperFlex提供最佳冗余。目前，我们不支持使用警告而不是链路中断。流量可能会被列入黑名单并影响HyperFlex的网络冗余。