



Cisco Support Community Expert Series Webcast:

Nexus 5000/6000/2000 FCoE Important Caveats and Best Practices

Vinayak Sudame

Technical Lead, Data Center Networking Leadership Team

November 12, 2013

Cisco Support Community – Expert Series Webcast

- Today's featured expert is a Cisco Technical Lead in Data Center Networking Leadership Team
- Ask him questions now about Nexus 5000/6000/2000 & FCoE



Vinayak Sudame

Technical Lead in Data Center
Switching Support Team

CCIE #20672 in Routing and Switching

Topic: Nexus 5000/6000/2000 FCoE Important Caveats and Best Practices

Panel of Experts



Carlos Lopez
Technical Leader
Data Center Networking Group



Carlo Schmidt
Customer Support Engineer
TAC – Storage Area Network Team

Thank You for Joining Us Today

Today's presentation will include audience polling questions

We encourage you to participate!



Thank You for Joining Us Today

If you would like a copy of the presentation slides, click the PDF link in the chat box on the right or go to

<https://supportforums.cisco.com/community/netpro/data-center/server-network>

Or, <https://supportforums.cisco.com/docs/DOC-37544>



Polling Question 1

How frequently do you contact TAC?

- a) I work with TAC on a regular basis**
- b) I sometimes contact TAC**
- c) I rarely contact TAC**
- d) I have never worked with TAC**

Submit Your Questions Now!

Use the Q&A panel to submit your questions. Experts will start responding those





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Nexus 5000/6000/2000 FCoE Important Caveats and Best Practices

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Agenda



Welcome

- Work with TAC, what is needed
- Nexus 5000/6000/2000/FCoE
Important Caveats
- Nexus 5000/6000/2000/FCoE Best
Practices

Q&A

TAC and You

How to Work with TAC



Working with TAC - Tech-Supports

- NX-OS provides a large number of very helpful “show tech-support” commands. There are both general and very specific varieties.
- Typically a “show tech-support detail” should be gathered from each switch that may be involved in the problem. Collecting them before opening a Service Request or while waiting to speak to an engineer saves time.
- “Show tech-support detail” contains 15-20 “show tech-supports” on a N5K based on certain enabled features.
- Fabric Manager or DCNM can be used to quickly and easily gather these from the entire fabric or just a subset of the fabric.
- Always try to collect tech-supports as soon as you experience an issue or problem and certainly prior to any recovery actions. Some logs are more verbose than others and data may be lost.

Working with TAC - Tech-Supports

- Once the basic show tech details are obtained see if any other more specific show tech-support applies to the problem type and also get those. Here's a partial list:

```
n5k3# show tech-support ?
```

```
aaa          Display aaa information
aam          Show information for aam technical support
acl          Show information for acl technical support
amm          Gather detailed information for AMM troubleshooting
assoc_mgr    Gather detailed information for assoc_mgr troubleshooting
bootvar      Gather detailed information for bootvar troubleshooting
brief        Display the switch summary
callhome     Callhome troubleshooting information
cdp          Gather information for CDP trouble shooting
cert-enroll  Display certificates information
cfs          Gather detailed information for cfs troubleshooting
cli          Gather information for parser troubleshooting
clis         Gather information for CLI Server troubleshooting
cluster      Show information for cluster technical support
commands     Show commands executed as part of show tech-support commands
dcbx         Gather detailed information for DCBX component
details      Gather detailed information for troubleshooting
device-alias Show device-alias technical support information
```

Working with TAC... Topology diagram

- Topology of the environment

Understanding the data flow and location of switches, hosts and storage in an environment is always key in troubleshooting. It is beneficial to provide diagrams of the environment to the TAC.

- DCNM/FM will produce one for you in Visio format

File -> Export -> Visio -> Map with Link Labels

Working with TAC... File naming

- Please name your files appropriately. The better the files are named, the easier it is to understand what is in them.
- Please include:
 - ✓ Switch name
 - ✓ Date and time
 - ✓ Contents of file
- For example:
 - ✓ Unhelpful names:
putty.log
switch.log
 - ✓ Helpful names
N5k_switch1a_06012012_0800_show_logging_onboard.log
N5K_ABC_010113_1400_fc analyzer.pcap

Working with TAC...

- **Bundling files**

If several files are gathered essentially at the same time for a problem zip them into a single zip file. That ensures TAC understands that they go together.

- **Working with 3rd party and other vendors**

TAC is always willing to join a call with other vendors (partners or competitors). Understanding the roles and analysis of other devices usually provide information that expedites resolution.

- **Email** – In every communication include attach@cisco.com in the CC. Automatically attaches email to SR.

Web Resources Available

The image shows two browser windows side-by-side. The top window displays the 'Server Networking' page, and the bottom window displays the 'Storage Networking' page. Both pages are part of the Cisco Support Community website.

Storage Networking - Cisco Support Co...
Address bar: <https://supportforums.cisco.com/community/netpro/data-center/storage-network>
Navigation: Home > NetPro > Data Center > Storage Networking
Section: Storage Networking
Sub-sections: Overview, All Content, Discussions, Documents, Blog, Polls, Vi...
Announcement: * ANNOUNCEMENT: Create Service Request from CSC Discussions! Show Det...
Data Center Communities: Data Center (Application Networking, Server Networking)
Recent Activity: Cisco MDS9000 Compatibility (2 hours ago)

Server Networking - Cisco Support Community
Address bar: <https://supportforums.cisco.com/community/netpro/data-center/server-network>
Navigation: Home > NetPro > Data Center > Server Networking
Section: Server Networking
Sub-sections: Overview, All Content, Discussions, Documents, E...
Announcement: * ANNOUNCEMENT: Create Service Request from CSC D...
Data Center Communities: Data Center (Application Networking, Server Networking)
Recent Activity: Nexus 7000 Platform Logging (6 hours ago)

Web Resources Available

The image shows two browser windows. The left window displays the Cisco Bug Search Tool interface. The right window displays the Cisco Nexus 5000 Series Switches support page.

Left Window: Bug Search Tool - Cisco Systems

URL: <https://www.cisco.com/cisco/psn/bssprt/bss?page=bstSearchByProduct&tabnav=true>

Navigation: Home > Support > Tools & Resources > Bug Search

Bug Search Tool

Buttons: Bug Search Home | Search By Product

Search By Product

Keyword:

* Product Category:

* Select Product:

- Cisco Nexus 2000 S
- Cisco Nexus 3000 S
- Cisco Nexus 4000 S
- Cisco Nexus 5000 S
- Cisco Nexus 6000 S
- Cisco Nexus 7000 F
- Cisco Nexus 7000 F
- Cisco Nexus 7000 M

Software Version:

Right Window: Cisco Nexus 5000 Series Switches - Support

URL: www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

Navigation: Products & Services | Support | How to Buy

Cisco Nexus 5000 Series Switches

Introduction

HOME

SUPPORT

PRODUCT SUPPORT

SWITCHES

- Cisco Nexus 5000 Series Switches**
- Software Downloads, Release and General Information
- Reference Guides
- Design
- Install and Upgrade
- Configure
- Maintain and Operate
- Troubleshoot and Alerts

Criteria for a Successful
Transform your IT services with
[Read White Paper](#)

Most Requested Resources

- [Bug Toolkit](#)
- [Cisco Notification Service](#)
- [Command Lookup Tool](#)
- [Error Message Decoder](#)
- [Software Advisor](#)
- [TAC Service Request Tool -- New Request](#)

Search this Category

Software Downloads, Release and

- [Download Software](#)
- [Licensing Information](#) (9)
- [Master Index](#) (1)
- [Release Notes](#) (14)

Reference Guides

- [Command References](#) (31)

TAC's Do and Don't

- **Upgrades**

Engage TAC prior to an upgrade to check procedures and ask questions

TAC does not perform upgrades

- **Service Request Ownership**

Request for a re-queue if immediate help is needed

Request for a re-queue for an update is not helpful to customer

Please do not re-queue or request follow-the-sun for RCA

- **RMA Request**

Allow TAC time to analyze the logs and ask questions

Hardware should not be replaced without a proper analysis

Nexus 5K Important Caveats



Polling Question 2

Do you have Nexus 2000, 5000 or 6000 in your Data Center?

- a) I have 2000**
- b) I have 5000**
- c) I have 6000**
- d) I have all three**

5548/5596 Silent Reload due to reset reason “unknown”

- Most common reason for a switch to reset with reason unknown is loss of power to the switch. Make sure the switch has dual power supplies connected to different power distribution units(PDU) and power to the switch is stable. If this is verified then check the below.
- Make sure power-seq version running is 5.0. Verify using output of ‘show version’. This power seq was bundled in NX-OS software in 5.1(3)N2(1)
- If switch was recently upgraded from older code, please make sure to power cycle the switch. Could also use ‘reload power-cycle’ in the newer code.
- Please contact Cisco TAC before replacing any hardware as they have the procedure to verify if the switch went down because of power seq.

5548/5596 Silent Reload due to reset reason “unknown” - continued

Related CDETS:

- CSCue71612 Nexus 5548 Silent Reload with i2c code 0x0100
- CSCue71274 Nexus 5596 might reset with reset cause of unknown
- [CSCuf57615](#) Nexus 55xx: Silent reload with i2code cause 0x0800
- CSCuh84329 – Nexus 55xx: Silent reload with i2c cause code 0x2
- In the upcoming releases we plan to add the reason in OBFL logs. Related CDETS tracking it is CSCub11616.

False transceiver alarm error messages on Nexus 5K

- On a nexus 5000 False positive alarms are reported for interfaces. The alarms for each interface clear shortly after.
- Alarms can also be raised for ports that don't have a cable connected, but can be seen for connected interfaces as well with no actual alarm in "show interface transceiver det".
- In the output of "show interface transceiver det", when the warning threshold is crossed for a value, the system marks it as - (alarm) and not - (warning).
- Example : ETHPORT-3-IF_SFP_ALARM Interface Ethernet1/1, High Temperature Alarm cleared ETHPORT-3-IF_SFP_ALARM Interface Ethernet1/1, Low Temperature Alarm cleared

False transceiver alarm error messages on Nexus 5K

- ETHPORT-3-IF_SFP_ALARM Interface Ethernet1/1, High Tx Power Alarm cleared ETHPORT-3-IF_SFP_ALARM Interface Ethernet1/1, Low Tx Power Alarm cleared
- There is no way to prevent the messages from appearing. If the messages need to be masked out, set the logging level to 2 or lower.
- [CSCug84290](#) – False transceiver alarm messages on nexus 5000
- The issue occurs while running 5.2(1)N1(4). Fixed in Release 5.2(1)N1(5)

Uncompressed Cores Filling Up /var/sysmgr/work

- When some third party process crashes, the cores are saved under /var/sysmgr/work. This directory eventually fills up, making ISSU impossible. Also we have seen cases on nexus 7K where the standby sup goes in 'powered' state because of this directory being at 100% usage.
- The problem can also happen when configuring basic radius and/or tacacs configuration, radiusd process might start crashing. Core files will be exhausting all available space in /var/sysmgr directory.
- To view the files in directory use the 'show system internal dir /var/sysmgr/work' command.
- Use the command 'show system internal flash' to view the usage of /var/sysmgr directory
- CSCui52144 – Uncompressed Core filling Up /var/sysmgr/work directory
- CSCui40707 – TACACSD and RADIUSd writing uncompressed Cores to /var/sysmgr/work
- Seen in release 5.2(1)N1(5) and is fixed in 5.2(1)N1(6) release.

Nexus 5K acting as NTP Client does not sync with NTP Server

- After upgrading Nexus 55xx from 5.2(1)N1(4) to 5.2(1)N1(5) , most of switches could not sync with NTP server.
- "show ntp peer-status" doesn't show anything regardless the counters of sent and receive packets in "show ntp statistics io" increment
- To re-configure NTP setting or disable/enable feature ntp "do not" help to recover this symptom. The following configuration changes help to recover it.
- However, after reloading system, same issue happens constantly.
- #conf t
- #clock protocol none
- #clock protocol ntp
- #copy run start
- CSCui34757 – Nexus 5k acting as an NTP Client does not sync with NTP server
- We see the issue after upgrade to 5.2(1)N1(5). Issue is fixed in release 5.2(1)N1(6) and later.

Multiple FEXes go offline at the same time

- In the field it has been observed that multiple FEXes goes offline at the same time without user intervention. Issue is seen with single homed FEXes straight through FEX.
- The issue happens due to the fact that one the FEX is in a hung state (could be due to hardware problem) which causes other fexes to timeout or go offline.
- For some of the FEXes which have multiple uplinks to the 5K, we can see that few uplinks go down but the fex can stay up in that case.
- Similar issue was observed on UCS Fabric Interconnects as well
- If you suspect this please collect the following logs from affected N5k to verify:
 - sh system internal fex internal errors
 - sh system internal fex log
 - sh hardware internal aipc event-history msgs
 - sh hardware internal aipc event-history errors

Multiple FEXes go offline at the same time

We can see from the log there was a timeout when the switch was trying to contact one of the FEXes, it was timing out. This could be due to the physical L1 problem and which might have effected all other FEXes.

143) Event:E_DEBUG, length:145, at 33003 usecs after Sat May 11 21:22:34 2013

[102] Failed to send alive message to satellite (80e446c70124) err(Device Name:[0x3FF] Instance:[63] Error Type:[(null)] code:[255]) errno : 110

144) Event:E_DEBUG, length:131, at 263011 usecs after Sat May 11 21:22:22 2013

[102] satmgr_mts_hdlr_clock_change: satmgr_mts_send() failed: err(Device Name:[0x3FF] Instance:[63] Error Type:[(null)] code:[255])

145) Event:E_DEBUG, length:145, at 373121 usecs after Sat May 11 21:22:16 2013

[102] Failed to send alive message to satellite (80e446c70124) err(Device Name:[0x3FF] Instance:[63] Error Type:[(null)] code:[255]) errno : 110

In the AIPC error i see timeout for satmgr

86) Event:E_DEBUG, length:48, at 262072 usecs after Sat May 11 21:22:22 2013

[100] Timeout Dst:0x2902, current: satmgr [3182]

Multiple FEXes go offline at the same time

Related CDETS:

- UCS Fabric Interconnect - [CSCuc92523](#) - Multiple IOMs go offline at the same time on a single UCS FI
- Nexus 5k – [CSCug95929](#) - Multiple FEXes can go offline at the same time.
- Issue fixed in upcoming Nexus releases 5.2 and 6.0

Satctrl heartbeat miss messages when polling fex interfaces

- Hundreds of satctrl heartbeat losses are seen when customers poll a dual homed 2248TP with solarwinds and polls fex interfaces
- SYSMGR-FEX100-5-HEARTBEAT_LOSS: Service "satctrl" heartbeat loss 2 ,max 7
- Workaround would be to remove polling fex interfaces.

Related CDETS:

- [CSCuc39303](#) satctrl heartbeat miss when polling fex interfaces with solarwinds
- Will be fixed in next upcoming release of 6.0

DHCP Relay does not work when Bootp flag is set (to Broadcast)

- On a Nexus 5K series switch a dhcp offer might not be forwarded to the client through dhcp relay when the server/client are on different vlans.
- For this to happen the broadcast/bootp flag needs to be set in the dhcp discover from the client, which means the server would send a broadcast offer.
- DHCP works correctly when the Bootp flag is not set (Unicast).
- Issue is seen on Nexus 5K release 6.0(2)N1(2)

Related CDETS:

- [CSCug46504](#) - DHCP Relay does not work when the Bootp flag is set (Broadcast)
- Issue is fixed in 6.0(2)N2(1) release

Nexus 6000 DHCP Offers with Unicast bootp flag are not relayed

- When Nexus 6000 switch is configured to be DHCP relay agent, if the switch receives DHCP offers with unicast bootp flag, the packet is not relayed to the client.
- Seen when DHCP client/server uses unicast bootp flag and in fabricpath set up. For the problem to be triggered, the DHCP offer with unicast flag has to ingress on CE or FP port and have DHCP clients on FP core ports.
- As a workaround configure DHCP clients/server to use broadcast bootp flag.
- [CSCuj24129](#) DHCP offers with unicast bootp flag not relayed.
- Issue is fixed in NX-OS release 6.0(2)N2(2) and later.

Nexus 6000: 10/40 Gig interface take longer to come up

- In a Nexus 6001, when a 10G interface is initially brought up, it takes 10-15 seconds for the interface to come up. Same delay can be seen in 6004 when 40G interface is brought up.
- Seen during initial bring up of a 10G/40G interface.
- Currently this is expected behavior.
- [CSCuj33493](#) Nexus 600x: 10/40 Gig interface take longer to come up

Incorrect Adjacency for Next Hop

- Have seen issue in the field with multiple customers enabled for L3 on Nexus 5K switch.
- If the switch has a static route pointing to the firewall or some other router from the 5K, the adjacency for that route is incorrect leading to black holing of traffic.
- Problem happens with either ipv4 or ipv6 routes
- Clear route with command ` clear ip route ` or ` clear ipv6 route `

Related CDETS

- CSCuc84658 – Nexus 5000: Incorrect Adjacency for Next Hop
- Fixed in 6.0(2)N1(1) and 5.2(1)N1(3) and later releases.
- Following are the outputs from L3 N5K running 5.2 release which has a default route pointing to a firewall (10.199.2.4) in vlan 2.

Incorrect Adjacency for Next Hop

```
N5k# show system internal forwarding route 10.199.2.4/32
```

```
Routes for table default/base
```

```
-----+-----+-----+-----+-----  
Dev | Prefix | PfxIndex | AdjIndex | LIF  
-----+-----+-----+-----+-----  
3 10.199.2.4/32 0xae1218dc 0x186a5 0x25
```

```
N5k# show system internal forwarding route 0.0.0.0/0
```

```
Routes for table default/base
```

```
-----+-----+-----+-----+-----  
Dev | Prefix | PfxIndex | AdjIndex | LIF  
-----+-----+-----+-----+-----  
3 0.0.0.0/0 0xae132e44 0x1890f          0xfff <<<--Correct Adj Index should be 0x186a5
```

```
N5k# show system internal forwarding adjacency detail entry 0x1890f
```

```
Device: 3 Index: 0x1890f dmac: 0000.0000.0000 smac: ffff.ffff.ffff  
e-lif: 0xfff
```

```
N5k# show system internal forwarding adjacency detail entry 0x186a5
```

```
Device: 3 Index: 0x186a5 dmac: 2c6b.f565.8805 smac: 547f.ee8b.dd41  
e-lif: 0x25
```

After clearing route, everything looks good and no problems with connectivity.

Incorrect Adjacency for Next Hop

```
N5k# clear ip route 0.0.0.0/0
```

```
Clearing 0.0.0.0/0
```

```
N5k# show system internal forwarding route 0.0.0.0/0
```

```
Routes for table default/base
```

```
-----+-----+-----+-----+
Dev | Prefix      | PfxIndex | AdjIndex | LIF
-----+-----+-----+-----+
3   0.0.0.0/0   0xae132e44 0x186a5   0x25
```

```
N5k# show system internal forwarding route 10.199.2.4/32
```

```
Routes for table default/base
```

```
-----+-----+-----+-----+
Dev | Prefix      | PfxIndex | AdjIndex | LIF
-----+-----+-----+-----+
3   10.199.2.4/32 0xae1218dc 0x186a5   0x25
```

Nexus 6000: Loses Static route in hardware after reload

- After a reload of a Nexus 6k, we loose the forwarding in hardware. Traffic can get misrouted or blackholed.
- The issue happens when Static routes are present on the switch with multiple VRFs pointing to Null0 interface
- Nexus6004-A# sh system internal forwarding vrf default ipv4 route
10.34.8.0 Routes for table default/base -----+-----+-----
-----+-----Dev | Prefix | UC/MC Handle (Index) |AdjIdx(nhcount)|
LIF -----+-----+-----+-----+-----
- 1 10.34.8.0/21 0x4002f(0x41f5e)/0xdeadbeef 0xa(0x1)

After reload:

- Nexus6004-A# sh system internal forwarding vrf default ipv4 route
10.34.8.0 Routes for table default/base -----+-----+-----
-----+-----Dev | Prefix | UC/MC Handle (Index) |AdjIdx(nhcount)|
LIF -----+-----+-----+-----+-----

Nexus 6000: Loses Static route in hardware after reload

- As a workaround do a “Clear ip route * “ for that vrf.
- [CSCui74708](#) **Nexus 6000: Loses Static route in hardware after reload**
- Issue is fixed in 6.0(2)N2(2) and later releases.

Config Sync Session Database Locked

- One switch in VPC pair gets locked.
- Show run, config t and config sync all display 'session database locked'
- Problem could happen because of missing to commit on the switch.
- "show system internal csm info trace" output would show,
- (CSM_T) csm_peer_rch_int_q_eval(3870): returning FALSE as global_lock is already taken
- ssnmgr_ssn_db_lock: Failed to lock the DB 0x418e0013
- DB Already locked by Client:1 ID:1
- Recieved lock request by Client:1

Related Bug:

- **CSCue03528** Session Database / Config Sync / CFS locked on one side without a commit
- [CSCui79701](#) Config Sync / Verify Failed / Lock already taken by another session
- Fixed in 5.2(1)N1(6) release out on CCO now.

Problem bringing up SAN PortChannel Between NPV and NPIV Switch

- An update on the MAC OUI done on the recent release of the UCS FI, N5K or MDS software can create a problem when trying to create a san-port-channel between one of those components and another component running older software release.
- New OUI were allocated for the UCS, N5K and MDS products. If a newer product uses one of those new OUI while talking to an older product it can result in a failure in the port-channel negotiation, due to different TLVs being used.
- New OUIs being added: 00:24:F7, 00:26:51, 00:26:98, 00:2a:6a, 00:30:19, 00:30:24, 00:30:40, 54:7F:EE, 64:00:F1, 68:BD:AB, 8C:60:4F, 8C:B6:4F, A8:B1:D4, B4:14:89, 00:D0:D3, 00:D0:E4, 00:D0:FF, 00:DE:FB
- When there's a san port-channel, even if it's made up of just one link, the port-channel won't come up
- Links comes up when it is not part of port channel

Problem bringing up SAN PortChannel Between NPV and NPIV Switch

- Show flogi internal event-history errors will show flogi rejected, waiting for the port mode
- Nexus/MDS port can go into "errDisabled" state.
- Show interface will show interface as down (Error disabled - port reinit limit reached)
- Each time the port tries to come up the OLS, NOS, LRR counters increment.

Related Bugs:

- [CSCta97375](#) GLDN:SABRE:Sabre oui is not recognized as cisco oui 547FEE.
- [CSCtr01652](#) Add New OUIs to liboui's list of recognized Cisco OUIs
- [CSCty04686](#) Add MAC OUI "002a6a", "8c604f", "00defb" for 5k/UCS-FI

Feature fcoe-npv support for native FC interfaces

- After upgrading a 55xxUP switch with feature fcoe-npv from either 5.0 or 5.1 image to either 5.2 or 6.0 image, all the Unified FC ports configuration is lost and we can no longer see FC ports in the configuration. The issue is only seen in UP chassis.
- The behavior in newer release is expected but in the older release this is a bug.
- fcoe-npv feature was intended to be used in all fcoe interface deployments, so having fcoe to servers as well as fcoe uplinks via vnp ports only.
- feature fcoe-npv is not intended to enable any native FC switching features or functions, including native fc interfaces
- To enable for native FC interfaces always try to use Storage Protocols License and use 'feature fcoe' and if we need to do npv then use 'feature npv' alongwith that. Enabling feature npv will write erase the switch.

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LOGOUT requests with non-FCF MAC from NPV 5K to NPIV 7K silently dropped

- Issue is seen in following topology:

FCoE between 5K and host.

5K in FCoE-NPV mode (E-NPV)

Upstream switch N7K running NPIV

- When FCoE host port on Nexus 5000 switch acting as NPV is shut down, it takes about 100-200 secs for the port to shut down. This happens because N5K sends FIP LOGO request to NPIV switch (7K) with incorrect FCF MAC. Upstream NPIV switch silently drops those FIP LOGO request packets. The upstream switch dropping the packets is expected as per the standard because the request is coming in on incorrect FCF MAC on the upstream switch.

Related CDETS:

- [CSCug54169](#) LOGOUT requests with non-FCF MAC from NPV 5K to NPIV 7K silently dropped
- Fix coming in next release of 6.0

LOGOUT requests with non-FCF MAC from NPV 5K to NPIV 7k silently dropped

- Following are the logs which proves 7K is silently dropping the FIP LOGO requests destined with incorrect FCF MAC. N7K FCoE Mgr silently dropped these packets.
- This output is taken from Nexus 7K FCoE Mgr event history.
- 8) Event:E_DEBUG, length:130, at 96557 usecs after Mon Apr 22 15:15:12 2013 [102]
fcoe_mgr_net_rx_data(3087): Unicast FIP pkt on if_index Po13 (0x1600000c) with mac_da not same as fcf_mac d8:67:d9:70:02:81
- 9) Event:E_DEBUG, length:130, at 97107 usecs after Mon Apr 22 15:14:22 2013 [102]
fcoe_mgr_net_rx_data(3087): Unicast FIP pkt on if_index Po13 (0x1600000c) with mac_da not same as fcf_mac d8:67:d9:70:02:81
- 10) Event:E_DEBUG, length:130, at 75855 usecs after Mon Apr 22 15:13:32 2013 [102]
fcoe_mgr_net_rx_data(3087): Unicast FIP pkt on if_index Po13 (0x1600000c) with mac_da not same as fcf_mac d8:67:d9:70:02:81
- 11) Event:E_DEBUG, length:130, at 73198 usecs after Mon Apr 22 15:12:42 2013 [102]
fcoe_mgr_net_rx_data(3087): Unicast FIP pkt on if_index Po13 (0x1600000c) with mac_da not same as fcf_mac d8:67:d9:70:02:81

Nexus 5K Best Practices



Polling Question 3

How familiar are you with FCoE?

- a) I do not know what FCoE means
- b) I know about FCoE but have not deployed it
- c) I am interested in FCoE
- d) I have deployed FCoE

Preparing for an Upgrade

- Read the Release Notes. Note the Caveats and New Features section.
- Recommended releases: 5.1(3)N2(1c) and 5.2(1)N1(4)
- Refer to ISSU Upgrade downgrade guide on Cisco.com for Nexus 5000 and Nexus 2000 Fabric Extenders for single homed and dual homed FEXes.
- Sometimes BIOS and power sequencers get upgraded during image upgrade. The summary displayed by the installer during the installation process indicates the current version of the BIOS and power sequencer and the target version.
- ISSU not supported with L3 module.
- Make a backup of the system.
- Review the Compatibility Matrix.
- Be familiar with the upgrade procedure.

VPC L2 Best Practices

- If using double-sided vpc, ensure unique domain ids are used with only two switches in each domain.
- All VLANS on vpc ports must be present on peer-link
- Peer-keepalive traffic should never be carried over peer link
- Use LACP between Cisco Devices while port channeling
- Use vpc auto-recovery feature in case of dual switch failure
- If we have orphan port traffic going to vpc ports, then enable for vpc orphan port suspend feature in case if one of the vpc switch fails.
- Monitor for Consistency checks, 'show vpc consistency-parameters global'
- Form a VPC between a pair of 50x0 switches or 55xx switches. VPC between 50x0 switch and 55xx switch is not allowed.

VPC L3 Best Practices

- Ensure to have LAN Base License for L3 module to come up. Needed to enable for RIPv2, OSPF, HSRP, VRRP, IGMP, PIMv2, RACLs.
- Configure 'peer-gateway' under vpc domain on both switches, this enables the switch to be the gateway for packets destined to vpc peer device's mac address.
- Configure 'delay restore' to prevent black holing of traffic after vpc switch reloads and comes back up and until the time routing protocols converge which is when L3 connectivity is fully re-established.
- Configure 'ip arp synchronize' to perform bulk sync over CFSOE to peer switch after peer-link comes up.
- Configure HSRP priorities as usual, both peers forward Layer-3 traffic active-active.

FCoE Best Practices

- Configure a unique dedicated VLAN at every converged access switch to carry traffic for each VSAN in the SAN (for example, VLAN 1002 for VSAN 1, VLAN 1003 for VSAN 2, and so on). If you enable Multiple Spanning Tree (MST), you must use a separate MST instance for FCoE VLANs.
- Configure the Unified Fabric links as trunk ports. Do not configure the FCoE VLAN as a native VLAN. Configure all FCoE VLANs as members of the trunk links to allow extensions for VF_Port trunking and VSAN management for the VFC interfaces.
- Configure the trunks going to C.N.A as spanning tree edge ports
- Do not configure the FCoE VLANs as members of Ethernet links that are not designed to carry FCoE traffic
- If two nexus switches carrying FCoE traffic are vpc peer switches, then please make sure to prune FCoE Vlan from vpc peer link.

FCoE Best Practices

- Use separate FCoE Vlans for SANs across VPC peer switches.
- For 55xx switches in order to bring VFC up, configure FCoE Default Policies as part of system qos.

```
service-policy type qos input fcoe-default-in-policy
```

```
service-policy type queuing input fcoe-default-in-policy
```

```
service-policy type queuing output fcoe-default-out-policy
```

```
service-policy type network-qos fcoe-default-nq-policy
```

FCoE Best Practices

- If configuring FCoE with Jumbo MTU, please configure the following

```
policy-map type network-qos fcoe+jumbo-policy
```

```
class type network-qos class-fcoe
```

```
mtu 2158
```

```
class type network-qos class-default
```

```
mtu 9216
```

```
multicast-optimize
```

```
system qos
```

```
service-policy type network-qos fcoe+jumbo-policy
```

FCoE Limitations

- FCoE on Cisco Nexus 50x0 devices support the Gen-1 (pre-FIP) and Gen-2 (FIP) CNAs.
- FCoE on Cisco Nexus 55xx devices and Nexus 2232PP fabric extender supports Gen-2 CNAs only.
- Enabling FCoE on VLAN 1 is not supported.
- Do not support more than one link in port channel for direct connect FCoE.

References

Data Center Switching

- http://www.cisco.com/en/US/products/ps9441/Products_Sub_Category_Home.html
- <http://www.cisco.com/en/US/products/ps9670/index.html>
- <http://www.cisco.com/en/US/products/ps10110/index.html>

Fibre Channel over Ethernet

- http://www.cisco.com/en/US/prod/collateral/switches/ps9441/fcoe_switch_report.pdf

Submit Your Questions Now!

Use the Q&A panel to submit your questions. Experts will start responding those



Ask The Experts Event

(with Vinayak Sudame)



If you have additional questions, you can ask Vinayak. He will be answering from November 12 – November 22, 2013

<https://supportforums.cisco.com/thread/2249901>

You can watch the video or read the Q&A 5 business days after the event at

<https://supportforums.cisco.com/community/netpro/ask-the-expert/webcasts>



Trivia Question (select the correct answer)

What do Cisco Nexus and BMW have in common?

- A.** The BMW data center infrastructure was modernized using Nexus 2000, Nexus 5000 and Nexus 7000 from Cisco.
- B.** Cisco provided support to BMW in the architecture approach, in compiling the desired configuration and in the selection of the final optimum design.
- C.** A and B

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\$50 Amazon Gift Card

To complete the evaluation, please click on link provided in the chat or in the pop-up once the event is closed.

November Expert Series Webcast - Spanish

Topic: Routing and Switching, IOS Architecture - Introduction and Operation



Tuesday, November 26, 2013

9:00AM Mexico City

10:30AM Caracas

12:00PM Buenos Aires

4:00PM Madrid

Join Cisco Expert:

Arturo Morales

During this live event, the expert Arturo Morales will provide an introduction and focus on the function of routing and switching on IOS architecture.

Register for this live Webcast at:

http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=S&SEMINAR_CODE=S19403&PRIORITY_CODE

December Expert Series Webcast - Portuguese

Topic: Cloud Collaboration – Hosted Collaboration Solution (HCS)



Wednesday, December 4, 2013

11:00 a.m. Brasilia City

1:00 p.m. WEST Lisbon

5:00 a.m. San Francisco

8:00 a.m. New York City

Join Expert:

Pedro Mauri

During this live event, you will learn about some concepts offered by cloud collaboration, known as the Hosted Collaboration Solution (HCS), with Cisco expert Pedro Mauri. He will cover important topics such as supported unified communications technologies and their potentials and benefits to partners, providers, and end customers. Specific topics of this solution will be presented such as data center, security, unified communications, video, and management.

Register for this live Webcast at:

[http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=P
&SEMINAR_CODE=S19374&PRIORITY_CODE=](http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=P&SEMINAR_CODE=S19374&PRIORITY_CODE=)

December Expert Series Webcast – English

Topic: PowerVu Network Control System



Tuesday, December 10, 2013

9:00 a.m. PDT San Francisco

12:00 p.m. EDT New York

5:00 p.m. BST London

6:00 p.m. CEST Paris

Join Expert:

Ron Weaver

During this live event, Cisco expert Ron Weaver will cover basic PNC operation focusing on Decoder management and service creation using a lab system. He will go through the steps of authorizing and managing decoders, how to create services and to scramble the service, and allow decoders to access the service.

For more information visit:

[http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=E
&SEMINAR_CODE=S19401&PRIORITY_CODE=](http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=E&SEMINAR_CODE=S19401&PRIORITY_CODE=)

December Expert Series Webcast – Russian

Topic: FabricPath Technology Overview



Tuesday, December 17, 2013

12:00 p.m. Moscow Time

9:00 a.m. Brussels Time

Join Expert:

Aleksandr Blusenkov

During this live event, Cisco expert Aleksandr Blusenkov will cover data-forwarding concepts and fabric path features. This session will also touch upon several important concepts such as L2/L3 design approaches and scalability.

Register for this live Webcast at: TBD

http://tools.cisco.com/gems/cust/customerSite.do?METHOD=E&LANGUAGE_ID=R&SEMINAR_CODE=S19427&PRIORITY_CODE=

Ask the Expert Events – Current English



Topic: IPv6 Routing Protocols

Join Cisco Designated VIP Peter Palúch

Learn and ask questions about how to plan, design, implement, and troubleshoot IPv6 routing protocols in your network infrastructure.

Ends November 15



Topic: Integrating Cisco ISE 1.2 for BYOD

Join Cisco Experts: **Eric Yu and Todd Pula**

Learn and ask questions about integrating Cisco Identity Service Engine (ISE) 1.2 for BYOD.

Ends November 15

Join the discussion for these Ask The Expert Events at:

<https://supportforums.cisco.com/community/netpro/expert-corner#view=ask-the-experts>

Ask the Expert Events – Upcoming English



Topic: 3GPP Mobility

Join Cisco Expert: **Gilles Dufour**

Learn and ask questions about how to configure and troubleshoot Cisco 3GPP Mobility solutions, specifically the Cisco ASR 5000

Starts November 18



Topic: Carrier Routing System (CRS) Hardware Architecture

Join Cisco Experts: **Vinay Kumar, Sudhir Kumar and Raj Pathak**

Learn and ask questions about CRS single and multi-chassis routers hardware design and architecture

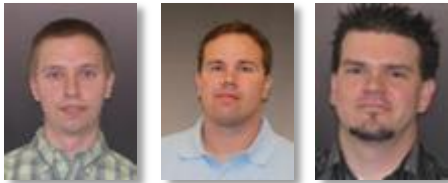
Starts November 18

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Ask the Expert Events – Upcoming English

Topic: Understanding, Configuring, and Troubleshooting a Converged Network Using the Cisco Catalyst 3850 Series Switch



Join Cisco Experts: **Nicholas Tate, Luke Primm and Colby Beam**

Learn and ask questions about converged networks using the Cisco Catalyst 3850 Series Switch

Starts December 2



Topic: Configuring and Troubleshooting 802.1X

Join Cisco Expert: Javier Henderson

Learn and ask questions about how to configure and troubleshoot 802.1X

Starts December 2

Join the discussion for these Ask The Expert Events at:

<https://supportforums.cisco.com/community/netpro/expert-corner#view=ask-the-experts>

Community Tech-Talk Series

Topic: Virtual Port Channel (vPC) Operation and Design Best Practices

Join Cisco Experts:

Vinay Kumar, Vivek Ruhil and Pradeep Malik



This Tech-Talk episode covers Virtual Port Channel operation and design. Our experts provide an overview of operation, configuration and show commands, failure recovery and general recommendations to ensure stable operation of virtual port channel topology

View the video at:

<https://supportforums.cisco.com/community/netpro/data-center/server-network/blog/2013/10/25/community-tech-talk-virtual-port-channel-vpc-operation-and-design-best-practices>

Google Hangout

Topic: Enabling Your Network for IPv6

Thursday, December 5, 2013

9:00AM San Francisco

12:00PM New York City

5:00PM London

6:00PM Paris

Join Cisco Expert:

Harpreet Singh, Solution Architect

Join Cisco expert Harpreet Singh for a live Google Hangout that will cover the key business drivers for IPv6 and the various technical aspects related to enabling IPv6 on a network. He will also elaborate on various touch-points along with a planned and tested approach for migrating to IPv6, followed by a case study.

RSVP at:

<https://plus.google.com/events/cetk74mq01den1i9n80a4cp5ubs?hl=en&partnerid=gplp0>



Meetup

Topic: Simplify Your Data Center with Cisco Unified Computing System (UCS)

Wednesday, November 13, 2013

11:00AM – 2:00PM *San Clara, CA*

Join Cisco Experts:

Drew Iacone and Vidhya Srinivasan

Join us to find out how Cisco Unified Computing System (UCS) can help you to simplify your data center architecture, reduce the number of devices to purchase, deploy, and maintain, so that your data center become faster and more agile.

RSVP at:

<http://www.meetup.com/csc-sv/events/146765922/>



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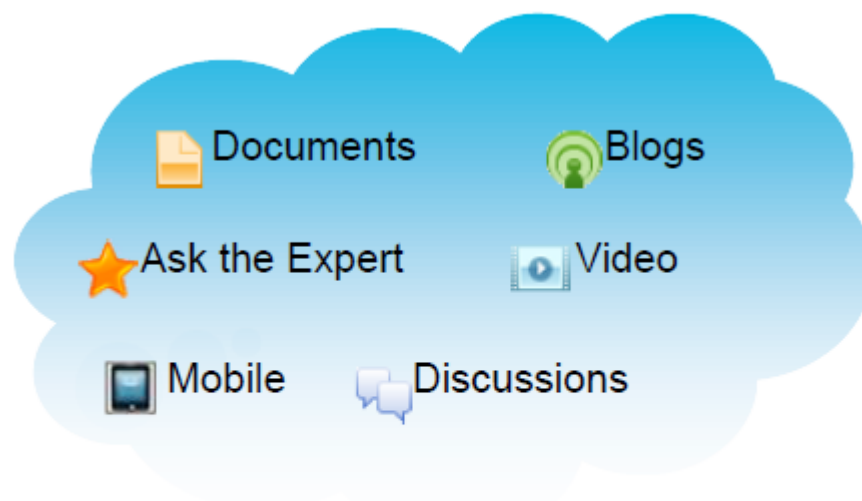
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Trivia Question (select the correct answer)

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Your Time

Please Take a Moment to Complete the Evaluation



Thank you.

