不使用USB执行NCS 6000灾难恢复

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简介

本文档介绍在升级失败后不使用USB驱动器恢复网络融合系统6000(NCS6K)的方法。使用USB驱动器恢复需要物理访问设备，而大多数时间都可能是一项挑战和耗时的任务。

本文档中描述的过程将使用Linux计算机作为TFTP和DHCP服务器，通过RP管理以太网端口恢复NCS6K。

先决条件

要求

思科建议您对Linux、TFTP、DHCP和思科XR CLI有基本的了解。

使用的组件

本文档仅限于NCS6K平台。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

分步过程

1. 从思科网站下载所需的XR USB启动文件。

2. 将下载的ZIP文件上传到Linux服务器，并在/tftpboot中解压它：
```
root@xxxr:/tftpboot# unzip ncs6k-usb-boot-5.2.3.zip
Archive:  ncs6k-usb-boot-5.2.3.zip
  inflating: EFI/boot/bootx64.efi
  inflating: EFI/boot/grub.cfg
  inflating: boot/install-image.iso
```
3. 查找NCS6K路由处理器(RP)管理以太网端口的mac地址。可在控制台日志中找到：
```
Press F12 to go to Boot Manager..

Booting System Host OS..
Verifying Image for Secure Boot failed with status 15
```

```
System Host OS boot failed.

Booting Int Network 0 for IPv4 (4C-4E-35-B6-63-33)..
>>Start PXE over IPv4.
  PXE-E18: Server response timeout.

Int Network 0 for IPv4 (4C-4E-35-B6-63-33) boot failed.

Booting Ext Network 0 for IPv4 (4C-4E-35-B6-63-33)..
```

4. 将以下内容添加到dhcpd.conf文件。这将在引导时为RP管理以太网端口分配静态IP地址(例如：10.48.32.160):

```
root@xxxr:/tftpboot/0A3020A0# cat /etc/dhcp/dhcpd.conf

allow bootp;
allow booting;

subnet 10.48.32.0 netmask 255.255.255.0 {

      option routers 10.48.32.1;
      next-server 10.48.32.93;
      host pani0-rp {
              hardware ethernet  4c:4e:35:b6:63:33;
              fixed-address 10.48.32.160;
            filename "EFI/boot/bootx64.efi" ;
   }
}
```

注意：10.48.32.93是TFTP和DHCP服务器地址。

5. 复制grub.cfg（步骤2中生成的文件）。 在IP地址NCS6K从DHCP获取后，将文件命名为：

```
root@xxxr:/tftpboot# cp /tftpboot/EFI/boot/grub.cfg  /tftpboot/10.48.32.160.cfg
```

6. 编辑上面生成的文件，确保从网络中选取ISO（删除前导/）：

```
root@xxxr:/tftpboot# diff /tftpboot/EFI/boot/grub.cfg  /tftpboot/10.48.32.160.cfg
11,12c11,12
<          echo "Booting from USB.."
<          loopback loop /boot/install-image.iso
---
>          echo "Booting from network.."
>          loopback loop boot/install-image.iso
```

对于5.2.3，它看起来像这样：

```
root@xxxr:/tftpboot# cat /tftpboot/10.48.32.160.cfg
set default=0

serial --unit=0 --speed=115200

terminal_input console
terminal_output serial

set timeout=2

menuentry "System Install OS" {
        echo "Booting from network..."
        loopback loop boot/install-image.iso
        root=loop
        echo "Loading Kernel.."
        linux (loop)/boot/bzImage root=/dev/ram install=/dev/sda console=ttyS0,115200
prod=1 crashkernel=192M@0 bigphysarea=10M quiet pci=assign-busses noissu aer=off
pci=hpmemsize=0M,hpiosize=0M
        echo "Loading initrd.."
        initrd (loop)/boot/initrd.img signfile=/boot/signature.initrd.img
}
```

7. Linux服务器上的配置已完成。在下次PXE引导尝试时，DHCP将10.48.32.160分配给NCS6K

RP。然后，它将使用TFTP获取grub .efi和.cfg。之后，GRUB将自动启动并使用TFTP加载ISO。

注意：ISO文件通常在700Mb左右。“从网络启动……”后，需要一段时间（最长10分钟）显示。完成活动日志：

```
Cisco BIOS version : SB.Panini.0014.00
BIOS Build Date : 07/10/2014 by lchinnad
System Memory Speed : 1600 MHz
Processor Type : Intel(R) Xeon(R) CPU E5-2448L @ 1.80GHz

Press F12 to goto Boot Manager..

Booting System Host OS..
Verifying Image for Secure Boot failed with status 15

System Host OS boot failed.

Booting Int Network 0 for IPv4 (4C-4E-35-B6-63-33)..
 Start PXE over IPv4.
 PXE-E18: Server response timeout.

Int Network 0 for IPv4 (4C-4E-35-B6-63-33) boot failed.

Booting Ext Network 0 for IPv4 (4C-4E-35-B6-63-33)..
Start PXE over IPv4.
 Station IP address is 10.48.32.160
 Server IP address is 10.48.32.93
 NBP filename is bootx64.efi
 Downloading NBP file...

 Succeed to download NBP file.


GNU GRUB version 2.00
Press F2 to goto grub Menu..
Booting from network..

[    6.338259] i8042: No controller found
Starting udev: [  OK  ]
Actual changes:
large-receive-offload: off [requested on]
ntuple-filters: on
Setting hostname host:  [  OK  ]
Checking filesystems:[  OK  ]
Remounting root filesystem in read-write mode:  [  OK  ]
Entering non-interactive startup
Bringing up loopback interface:  [  OK  ]
Starting system logger: [  OK  ]
Starting kernel logger: [  OK  ]
Starting kdump:[  OK  ]
Starting system message bus: [  OK  ]
Starting smartd: [  OK  ]
Generating SSH1 RSA host key: [  OK  ]
Generating SSH2 RSA host key: [  OK  ]
Generating SSH2 DSA host key: [  OK  ]
Starting sshd: [  OK  ]
Starting xinetd: [  OK  ]
Checking PCI block device /dev/sdb disk space
Thu Jun 25 14:07:13 UTC 2015: Detected /iso/host.iso
mount: block device /iso/host.iso is write-protected, mounting read-only
Thu Jun 25 14:07:13 UTC 2015: Mounted /iso/host.iso to /tmp/isomnt.iV1833
Thu Jun 25 14:07:13 UTC 2015: Found /tmp/isomnt.iV1833/rpm/ncs6k-sysadmin-hostos.all-5.2.3-
```

```
Default.x86_64.rpm in host.iso
Thu Jun 25 14:07:13 UTC 2015: Installing /tmp/isomnt.iV1833/rpm/ncs6k-sysadmin-hostos.all-
5.2.3-Default.x86_64.rpm
Preparing packages for installation...
ncs6k-sysadmin-hostos.all-5.2.3-Default.x86_64
hushd_static: no process killed
hushd restarted
Thu Jun 25 14:07:13 UTC 2015: Did not detect new pxe install script, keep going with old
xrnginstall
Thu Jun 25 14:07:13 UTC 2015: Running in  Data LV support model
/etc/rc3.d/S60xrnginstall: line 239: SIMULATION: readonly variable
Thu Jun 25 14:07:13 UTC 2015: Prepping System with calvados.iso
Thu Jun 25 14:07:13 UTC 2015: Installer will install image on sda
Thu Jun 25 14:07:13 UTC 2015: Running in LVM support model
Thu Jun 25 14:07:15 UTC 2015: Partition creation on /dev/sda took 1 seconds
Thu Jun 25 14:07:15 UTC 2015: File system creation on /dev/sda1 took 0 seconds
Thu Jun 25 14:07:15 UTC 2015: Install host image on /dev/sda1
Thu Jun 25 14:07:23 UTC 2015: Installing host image size of 183M took 8 seconds
Thu Jun 25 14:07:33 UTC 2015: File system creation on /dev/sda2 took 4 seconds
Thu Jun 25 14:08:38 UTC 2015: Copying XR iso to repository took 65 seconds
Partitioning PCI block device /dev/sdb
Added VLAN with VID == 513 to IF -:eth-pf1:-
Thu Jun 25 14:08:40 UTC 2015: Copying boot/install-image.iso from tftpserver 10.48.32.93
Thu Jun 25 14:16:58 UTC 2015: Copying Pxeboot files from tftpserver 10.48.32.93 took 498
seconds
Thu Jun 25 14:17:28 UTC 2015: File system creation on /dev/panini_vol_grp/calvados_lv0 took
5 seconds
Thu Jun 25 14:17:28 UTC 2015: Install sysadmin-vm image on /dev/panini_vol_grp/calvados_lv0
mount: block device /iso/ncs6k-sysadmin.iso is write-protected, mounting read-only
Thu Jun 25 14:17:35 UTC 2015: sysadmin-vm: RP based installation
Thu Jun 25 14:18:22 UTC 2015: Installing sysadmin-vm image size of 444M took 54 seconds
Install EFI on /dev/sda4
Thu Jun 25 14:18:24 UTC 2015: Install finished on sda
Resetting BIOS Boot Mode register ...
Automatic rebooting system after installation ...

Cisco BIOS version : SB.Panini.0014.00
BIOS Build Date : 07/10/2014 by lchinnad
System Memory Speed : 1600 MHz
Processor Type : Intel(R) Xeon(R) CPU E5-2448L @ 1.80GHz

Press F12 to goto Boot Manager..

Booting System Host OS..

GNU GRUB version 2.00
Press F2 to goto grub Menu..
Booting from Disk..
Loading Kernel..
Loading initrd..
Starting udev: [  OK  ]
Setting hostname sysadmin-vm:  [  OK  ]
Checking filesystems:[  OK  ]
Mount /dev/vdd at /misc/disk1
Entering non-interactive startup
Bringing up loopback interface:  [  OK  ]
Starting system logger: [  OK  ]
Starting kernel logger: [  OK  ]
Starting system message bus: [  OK  ]
Starting smartd: [FAILED]
Generating SSH1 RSA host key: [  OK  ]
Generating SSH2 RSA host key: [  OK  ]
Generating SSH2 DSA host key: [  OK  ]
Starting sshd: [  OK  ]
```

```
Starting xinetd: [  OK  ]
Starting crond: [  OK  ]
Starting libvirtd daemon: [  OK  ]
Starting NCS6k programs for RP on sysadmin-vm: [  OK  ]
starting pm
sysadmin_startup: Starting Cisco Login Program on ttyS0
sysadmin initialized
sysadmin_startup: Starting Cisco Login Program on ttys1
sysadmin initialized

0_0_0Jun 25 14:19:32 : Send To Helper Failed - Msg : aaad[2600]: %MGBL-AAAD-7-DEBUG : AAA
Init successful
0_0_0Jun 25 14:19:33 : Send To Helper Failed - Msg : vm_manager[2628]: %INFRA-VM_MANAGER-4-
INFO : Info: VM Manager started. arguments  -W
0_0_0Jun 25 14:19:34 : Send To Helper Failed - Msg : sdr_mgr[2619]: %SM-SDR_MANAGER-4-INFO
: Info: SDR Manager started.

SYSTEM IS NOT READY FOR LOGIN

!!!NO root-system username is configured. Need to configure root-system username!!!

--- Administrative User Dialog ---


Enter root-system Username: 0_0_0Jun 25 14:20:58 : Send To Helper Failed - Msg :
plx_fpd[2616]: %INFRA-FPD_Driver-1-UPGRADE_ALERT : Driver missing fpd obfl log function for
fpd PLX-8748, FPD init continues but debugability impacted
0/RP0/ADMIN0:Jun 25 14:20:58.410 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT0-PM0:
0/RP0/ADMIN0:Jun 25 14:20:58.417 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT0-PM1:
0/RP0/ADMIN0:Jun 25 14:20:58.418 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT0-PM2:
0/RP0/ADMIN0:Jun 25 14:20:58.434 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT3-PM0:
0/RP0/ADMIN0:Jun 25 14:20:58.445 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT3-PM1:
0/RP0/ADMIN0:Jun 25 14:20:58.451 : envmon[2609]: %PKT_INFRA-FM-4-FAULT_MINOR : ALARM_MINOR
:Unsupported power module detected :DECLARE :0/PT3-PM2:
0/RP0/ADMIN0:Jun 25 14:20:58.517 : zen[2630]: %INFRA-FPD_Driver-1-UPGRADE_ALERT : Driver
missing fpd obfl log function for fpd CPU Complex FPGA, FPD init continues but debugability
impacted


Enter root-system Username: root

Enter secret:

Enter secret again:


 Successfully created root-system user


System Admin Username: root

Password:

root connected from 127.0.0.1 using console on sysadmin-vm:0_RP0

sysadmin-vm:0_RP0# show platform
Thu Jun  25 14:21:33.150 UTC
Location  Card Type               HW State      SW State      Config State
------------------------------------------------------------------------------
```

```
0/1       NC6-60X10GE-M-S          POWERED_ON    SW_INACTIVE   NSHUT
0/7       NC6-10X100G-M-P          POWERED_ON    SW_INACTIVE   NSHUT
0/RP0     NC6-RP                   OPERATIONAL   OPERATIONAL   NSHUT
0/RP1     NC6-RP                   POWERED_ON    SW_INACTIVE   NSHUT
0/FC0     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/FC1     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/FC2     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/FC3     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/FC4     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/FC5     P-L-FC-S                 POWERED_ON    N/A           NSHUT
0/CI0     NCS-CRFT=                OPERATIONAL   N/A           NSHUT
0/FT0     NC6-FANTRAY              OPERATIONAL   N/A           NSHUT
0/FT1     NC6-FANTRAY              OPERATIONAL   N/A           NSHUT
0/PT0     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
0/PT1     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
0/PT2     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
0/PT3     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
0/PT4     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
0/PT5     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
```

一段时间后，其他RP和线卡也将开始启动。