Using NBI images for SONiC system on Cisco Platforms

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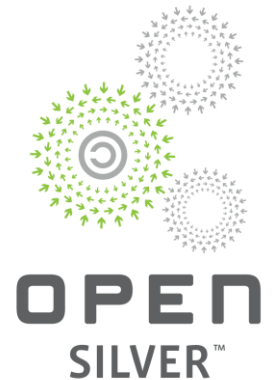
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NBI images for SONiC on Cisco Nexus Platforms

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Cisco Nexus SONiC Support

SONiC

Cisco HW
Merchant ASIC

Nexus 3400-OE
Merchant Fixed
(Tofino)

Shipping

SONiC

Cisco HW
CloudScale ASIC

Nexus 9000
CloudScale Fixed
FX/FX2

Shipping

Cisco Nexus SONiC Support

Shipping	Shipping	Shipping	Shipping	Development
Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019

Cisco SAI 4.1
- SONiC Ver: 201712
- SAI 1.0.4
- Cisco SDK 7.0(3)I4(5)

Cisco SAI 4.2
- SONiC Ver: 201803
- SAI 1.2
- Cisco SDK 7.0(3)I4(5)

Cisco SAI 4.3
- SONiC Ver:201807
- SAI 1.3
- Cisco SDK 7.0(3)I7(3)

Cisco SAI 4.4
- SONiC Ver: 201810
- SAI 1.3
- Cisco SDK 7.0(3)I7(3)

Cisco SAI 4.5
- SONiC Ver: Master Branch
- SAI 1.3+
- Cisco SDK 7.0(3)I7(3)

⭐ Supported Platform

- **Nexus 9232C (Q1CY18)**
- **Nexus 92304QC (Q1CY18)**
- **Nexus 9336C-FX2 (Q3CY18)**
- **Nexus 9364C (Q3CY18)**

- **Nexus 34180YC (Q2CY18)**
- **Nexus 3464C (Q4CY18)**

⭐ On the Roadmap

- **Nexus 9348GC (Q2CY19)**
- **Nexus 9332C (Q3CY19)**
- **Nexus 93240YC-FX2 (Q3CY19)**

SONIC Installation Process NBI or ONIE Detailed Process

Nexus Platforms

Regular Product and OE (Open Environment) Product

Regular Product

1. BIOS menu is disabled.
2. Loader is part of the BIOS firmware.
3. BIOS and Loader are signed.
4. Loader checks signed boot images.
5. Loader expects NBI image format.
6. All NX-OS are tested and shipped under the regular BIOS

OE Product

1. BIOS menu allows PXE/EFI Shell/EFI boot.
2. The Loader in BIOS firmware is also capable of booting NBI image format.
3. EFI boot can boot into grub.
4. Cisco provides ONIE for the OE product.
5. PXE/EFI Shell can be used to install ONIE on hard disk.

Installation Options

Installation using either ONIE or NBI

NBI

1. NBI image can be booted at switch boot loader from local media or network server.
2. There is a command to install SONiC.
3. With one reboot, newly installed SONiC image is automatically booted up.
4. The installation will keep previously installed SONiC versions and its configurations.
5. The installation will not remove NX-OS or its configurations.
6. There is a command to switch back to NX-OS or any other SONiC version.

ONIE

1. ONIE needs to be installed for the first time from network server, or USB.
2. When ONIE is installed, the hard disk is partitioned and everything is removed.
3. ONIE will reboot the switch.
4. ONIE will install the ONIE Image of SONiC on one of the partitions on the hard disk.
5. ONIE will reboot again. Newly installed SONiC is booting up.
6. For the subsequent installation, steps 1-3 can be skipped.
7. Install new ONIE Image requires repeating step 4, and it will remove all previously installed SONiC versions.

SONiC Image Installation Options
Installation using either ONIE or NBI

NBI

1. NBI image self installation method is described in the preceding page. It is called bare-metal install method.
2. NBI image can also be installed directly inside NX-OS. It is called NX-OS install method.
3. NBI image supports sonic_installer install method.
4. The sonic_installer install method will keep previously installed sonic versions.
5. All sonic_installer functions are supported by the NBI image.

ONIE

1. ONIE installation method is described in the preceding page.
2. ONIE image supports sonic_installer install method.
3. The sonic_installer install method will keep previously installed sonic versions.
4. All sonic_installer functions are supported by the ONIE image.

SONiC Image Installation Options
NBI image format and ONIE image format comparison

NBI

1. There are 2 NBI images: installation image and run time image.
2. Run time image has Sonic kernel and initrd.
3. Installation image is the installation archive as well as a bootable image.
4. The installed runtime SONiC image by NBI on hard disk has the run time NBI image. The rest squash fs, dockers and aufs are the same as the installed runtime image by ONIE.
5. NBI installation image is no longer needed at Sonic run time after the installation.

ONIE

1. ONIE installation image basically is an archive file with an installation script.
2. The image is not bootable and requires ONIE to perform the installation.
3. The installed runtime SONiC image by ONIE on hard disk has a Linux Kernel, an initrd and a grub boot loader. The rest squash fs, dockers and aufs are the same as the installed runtime image by NBI.
4. ONIE installation image is no longer needed at Sonic run time after the installation.

SONiC Image Installation Options
Conversion to and from NX-OS

NBI

1. NBI image uses the same hard disk partition layout as the NX-OS.
2. When converting from/to NX-OS, it not only retains the configuration but is also possible to implement and support fast-reboot and warm-reboot in the future.
3. The change of auto boot from NX-OS to Sonic or vice verse uses the same mechanism of changing auto boot from one version of NX-OS to another version.

ONIE

1. ONIE image uses a different disk partition layout from the NX-OS.
2. When converting from or to NX-OS, hard disk repartition is required.
3. The BIOS menu default boot entry has to be changed.

SONiC NBI Image Installation Commands

3 installation methods

Bare-metal Install

- loader> boot sonic-nbi-cisco.bin
- n3000 login: root
- root@n3000:~# /usr/local/install/self_install_on_disk.sh
- root@n3000:~# reboot

NX-OS Install

- nxos-switch> install all network-os bootflash:sonic-nbi-cisco.bin
- nxos-switch> reload (or fast-reload)

sonic_installer Install

- admin@switch:~$ sudo bash
- root@switch:/home/admin# sonic_installer install /host/sonic-nbi-cisco.bin
- root@switch:/home/admin# reboot (or fast-reboot)