Building a SONiC-VS Image

Jan 7, 2022

Revision History

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1.0	Building a SONiC-vs Image	Hamza Iqbal	Jan 7, 2022

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Introduction

SONiC is an open source network operating system based on Linux that runs on switches from multiple vendors and ASICs. SONiC offers a full-suite of network functionality, like BGP and RDMA, that has been production-hardened in the data centers of some of the largest cloud-service providers. It offers teams the flexibility to create the network solutions they need while leveraging the collective strength of a large ecosystem and community.

The document presents the steps to set up a test bed, where one can test the functionality of the SONiC. For this purpose the 202106 release of SONiC has been used. It has all the latest features. Reason of choosing the 202106 version is due to the SAI version, which is supported by this version.

Environment

OS= Ubuntu 20.04

Device= Dell Poweredge R620

RAM= 128GB (At least 8GB should be available)

Storage= 1.6TB (300GB should be free)

CPU Core= 32 (8 Cores must be free for SONiC)

Dependencies

1. Install git, pip and jinja in host build machine, execute below commands if j2/j2cli is not available:
   sudo apt install git
   sudo apt install -y python3-pip
   sudo pip3 install j2cli
2. Install Docker and configure your system to allow running the 'docker' command without 'sudo':
   I- Add current user to the docker group: sudo gpasswd -a ${USER} docker
   II- Log out and log back in so that your group membership is re-evaluated
3. To clone the code repository recursively, assuming git version 1.9 or newer:
   git clone --recurse-submodules https://github.com/sonic-net/sonic-buildimage.git

Compiling the Image

To build SONiC installer image and docker images, run the following commands:

I- Ensure the 'overlay' module is loaded on your development system
sudo modprobe overlay

II- Enter the source directory
cd **sonic-buildimage**

III- (Optional) Checkout a specific branch. By default, it uses the master branch. I'm using the 202106 version due to the availability and its stability. Also, It has the full support of SAI (Software Abstraction Interface). For all the releases you can check them on this https://github.com/Azure/SONiC/wiki/Sonic-Roadmap-Planning
git **checkout** **202106**

IV- Execute make init once after cloning the repo, or after fetching remote repo with submodule updates
make **init**

V- Execute make configure once to configure ASIC
make **configure** **PLATFORM=vs**

For reference there are different PLATFORMS available
The supported ASIC vendors are:

- PLATFORM=broadcom
- PLATFORM=marvell
- PLATFORM=mellanox=4
- PLATFORM=cavium
- PLATFORM=centec
- PLATFORM=nephos
- PLATFORM=innovium
- PLATFORM=p4
- PLATFORM=vs

VI- Build SONiC image with 4 jobs in parallel.
Note: You can set this higher, but 4 is a good number for most cases and is well-tested.

make SONIC_BUILD_JOBS=4 all

NOTE: You can follow all the same steps described above to compile images for other platforms.

Conclusion

These steps will help you successfully build sonic-vs image version 202106. You can make sonic images for different ASIC vendors by just changing the field.