Open. Together.
SONiC + ONL
Open Source NOS with Broader Platform Support

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Mission: Delivering SDN solutions based on hyperscale networking principles

Founded in 2010

Has roots in the original Stanford research team that invented Software Defined Networking (SDN)

Open Philosophy
- OpenStack contributor and user
- Open Compute Project
- Open Networking foundation
- NTT (Japanese Telco) Group Company
- Founded in 1982
- Products: Network LSI (Coherent DSP), Video codec LSI, Photonics hardware
- Recent Activity: Adapting open networking technology for optical transport network
  - e.g) leading TAI (Transponder Abstraction Interface) project in TIP OOPT

**Open Optical & Packet Transport**

- Voyager
- Cassini
- TAI
- CNby
What is ONL

- The first fully open source platform OS used by many organizations as a base for their Network Operating System (NOS)

- Flexible/Structured build system (onlpm) : Easy to modify, add packages, change kernels, add drivers

- ONLP : built-in platform API to control PSUs, fans, leds, eeproms etc...

- No dataplane API : users need to get SDK from ASIC vendors (further info later)

- Many users : The base OS for the ONF Stratum, Facebook FBOSS etc...
SONiC + ONL

- ONL is used by many NOS as a base OS
  - e.g) ONF Stratum, Facebook FBOSS

- building a solid base OS in the open source community benefits everyone
  - ODM only needs to port their hardware to ONL
  - SONiC gets wider hardware support
SONiC + ONL

- No one-shot transition needed
  - we can add ONL build option in sonic-buildimage
  - adding ONL as a submodule of sonic-buildimage repo
  - users can choose from new ONL based SONiC or keep using pure SONiC
ONLP the Open Network Linux Platform library manages platform peripherals, FRUs, etc:

- SFP’s
- Fans
- Temp sensors
- Power supplies
- System details
How to put SONiC on ONL (1/2)

1. add SONiC kernel as one of the kernel option for ONL
   - ONL build system supports easy kernel switching

2. ONLP and sonic-platform-common integration
   - implement a shim layer between ONLP and new platform API
   - https://github.com/Azure/sonic-platform-common/pull/19
3. add built-in SAI support in ONL
   - FBOSS is also trying to add SAI support
     - [https://github.com/facebook/fboss/pull/38](https://github.com/facebook/fboss/pull/38)

4. integrate SONiC build system and ONL build system
   - add `SONIC_BASE_OS` option in rules/config
SONiC + ONL Demo Video

- **Controller-based Zero Touch Provisioning**
  - Switch boots into ONIE Install Mode
  - Switch does ONIE request for image
  - Controller provides SONiC+ONL image
  - Switch installs image
  - Controller & Switch CLIs to validate image installation
    - `show platform summary - SONiC`
    - `onl pdump -s - ONL`
SONiC+ONL testbed topology

- **Zero-Touch Networking via Controller Demonstration Testbed**
  - Fixed topology (2 super spines, 2 spines, 2 leafs)
  - Switches loaded with (SONiC/ONL) build
  - Controller installed on a VM (Ubuntu 14.04)

- **Topology**
  - S-Spine1
  - S-Spine2
  - Spine1
  - Spine2
  - Leaf1
  - Leaf2
  - Controller VM
  - Management Network
  - host1
  - host2
Controller Based Functions

● Controller-based Visibility via CLI
  ○ show switch <name> environment
  ○ show switch <name> version

● Controller-based Visibility via GUI
  ○ Switch Overview
  ○ Switch Environmentals
  ○ Switch Port Status
Call to Action

Demo Code Available Today

Supports Edge-Core AS7712, AS7312x (not xs) and AS5712

Where to find additional information (URL links)

Information: https://www.bigswitch.com/solutions/technology/open-network-linux/onl-sonic
Website: https://www.opennetlinux.org
Mailing list: https://groups.google.com/forum/#!forum/opennetworklinux
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OCP Global Summit | March 14–15, 2019