

Open for All.



OCP
GLOBAL
SUMMIT



SONiC & Networking
SW

VENDOR NEUTRAL SUPPORTED SONiC SOLUTIONS

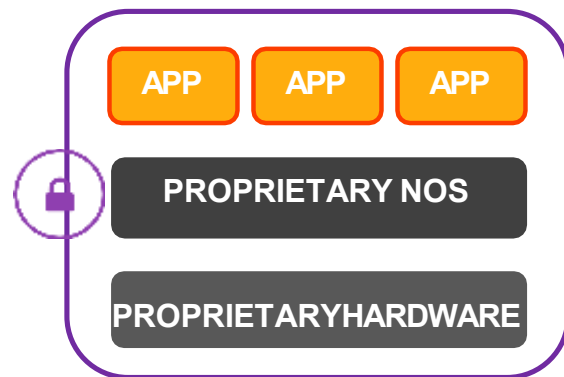


NETWORKING



NOS Market Transition – “The Problem to Solve”

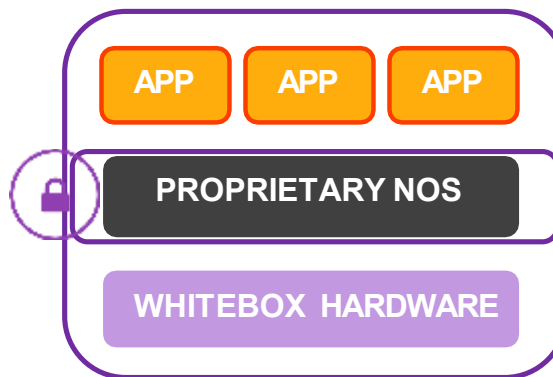
2000's



Proprietary Blackbox NOS Vendor



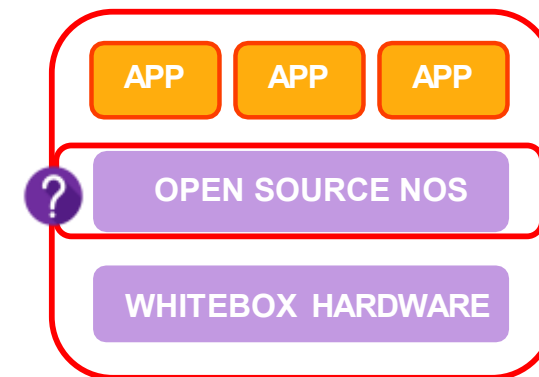
2010's



Proprietary NOS on Whitebox



2020's



The Open Source Problem

Certification and Support

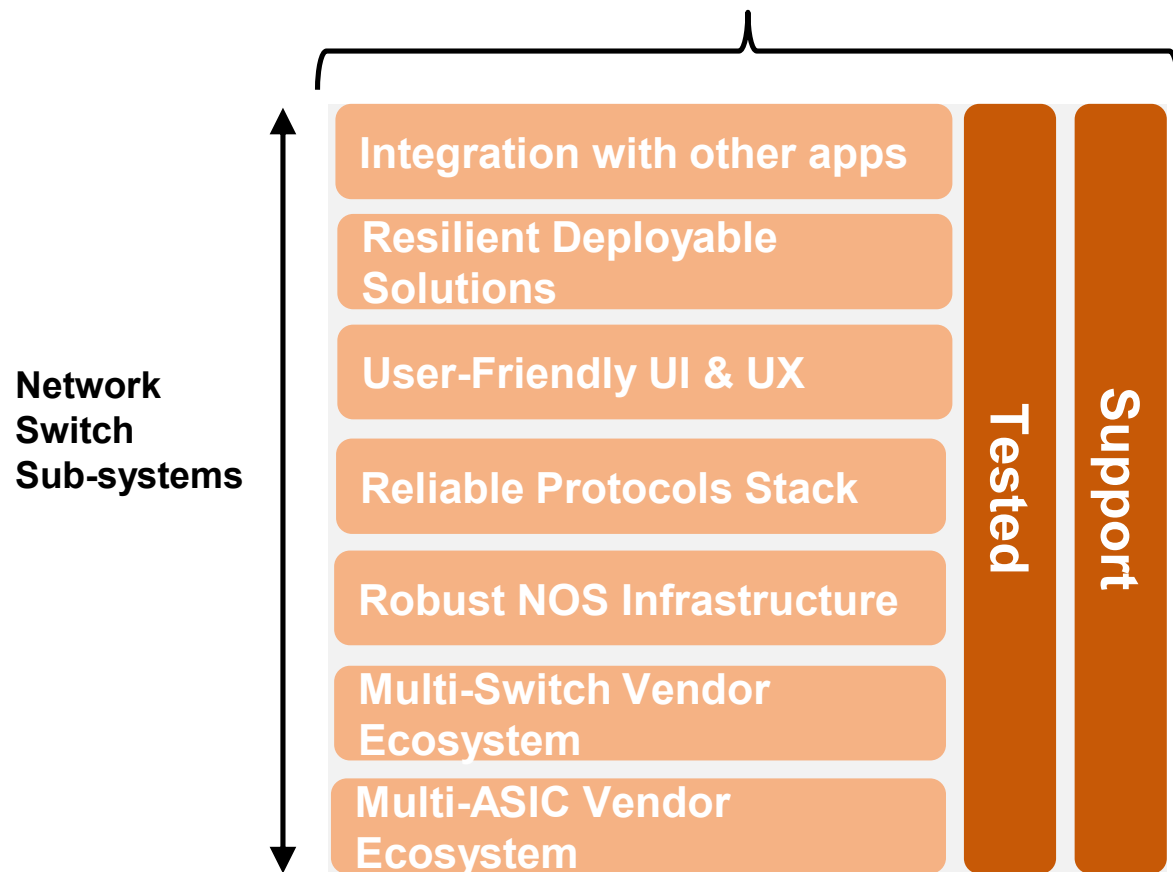
Remains Vendor Neutral

Enterprise Apps Integrated

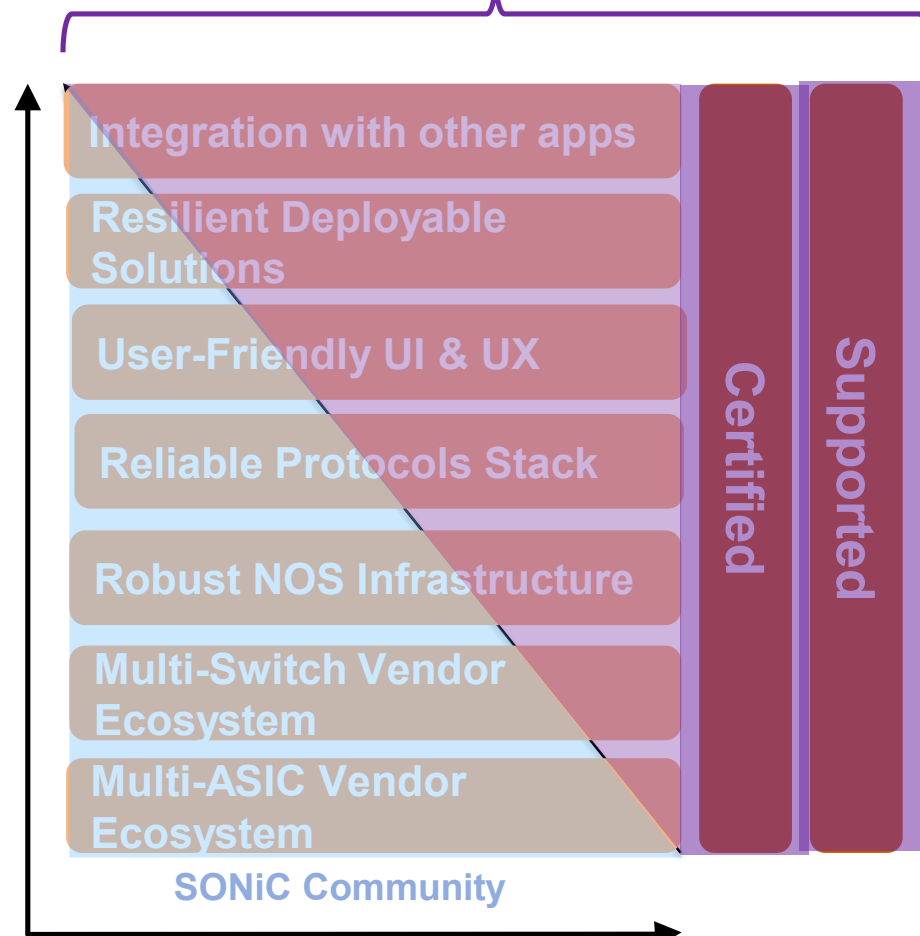
Remains Open Source

Ready to Deploy Open Source Solution

What the Customers are asking



AVIZ Engineering, Test & Support Enablement



Ready to Deploy SONiC Solution

Supported Product - 3 Steps Process

Certify for Deployment (Test & Bug Fixes)

- Vendor Decides on Distro
 - Community
 - Vendor in-house
 - Aviz Networks
- Switch certification with Aviz
- Fix Bugs with Vendor
- Create a deployable SONiC build

Create Solution (Apps Integration)

- Usability Apps Integration
 - ZTP
 - UI/UX – iSCLI & REST
- Productivity Apps
 - Day – 2 Operations
- Niche Requirements Apps
- Release Notes & Guides

Support as a Product (NOS Vendor)

- GTM Plans
- POC with End customers
- Deployment services
- Day – 2 operations support
- 24 x 7 support
- Release Management
- Upgrades/updates

Develop



Package

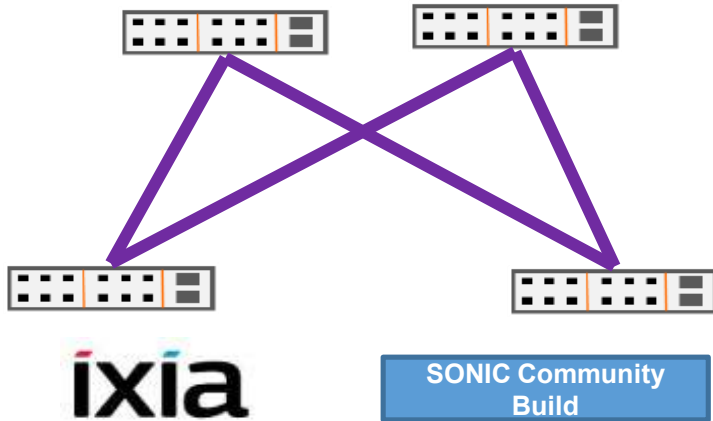


**Support
as a
Service**

AVIZ LABS

Creating SONiC Distributions

Aviz Test Coverage and Sample Report



Sample Issues in AVIZ bug tracker

SONIC+	Layer2	High	[FDB] Switch shows invalid FDB table when having a port-channel configured
SONIC+	Layer2	High	Port counters are not increasing after a warm reload
SONIC+	Layer2	High	[CLI] Port statistics counters are not shown up in the output of show interface counters
SONIC+	Layer2	High	Port counters are not working as expected
SONIC+	CLI	High	CLI - Drop counter aegress capabilities is not displayed as expected
SONIC+	CLI	High	show line is throwing exception
SONIC+	Layer3	High	BGP neighbors is flapping when sending data traffic with 64K routes and 48 BGP neighbors
SONIC+	CLI	High	[PCH] Port-channel commands accept invalid interface name which break some other show command
SONIC+	Platform	High	Config save does not save FRR configurations - config is lost after reboot
SONIC+	CLI	High	CLI - techsupport command abort dumps logs continuously
SONIC+	Layer3	High	Changing loopback as router ID for BGP gets the session stuck in Idle/Active state
SONIC+	CLI	High	SNMP - docker crashing on incorrect SNMP config
SONIC+	Layer2	High	[FDB] Switch does not flush the mac addresses when port link becomes down
SONIC+	Layer2	Normal	LLDP functionality broken with LLDP disabled per port
SONIC+	CLI	Normal	show memu displayed nothing, should provide useful info to user
SONIC+	Layer2	Normal	[FDB] Request some new CLI options to show FDB statistics to work with large FDB table
SONIC+	Layer3	Normal	IP address can be added without specifying the interface ID
SONIC+	CLI	Normal	CLI - show dropcounters capabilities command output with incorrect total drop capabilities
SONIC+	Platform	Normal	Need a way to import and export configuration of the switch as-is
SONIC+	Platform	Normal	Switch should come up with clean configs - should not show ARISTA as IP neighbor

Function and Scale	Covered	Pass	Fail
Management and Infra			
Switching			
Routing			
Scale			

System/Deployment Ready	Covered	Pass	Fail
BGP(4)/ECMP/20K Routes Traffic: 100 streams of data, Noise traffic: 1K VLANs/UC/BC/ARP MGMT: SSH and MIB Walk			
Link Failover (Admin and Oper)			
Config Change (VLAN, LACP, SVI)			
Route (Learn/Withdrawal)			

Scale and Performance				
Route Learning (Seconds)	8K	16K	32K	64K
Route learning time (without traffic)				
Time taken to clear all routes (without traffic)				
Route learning time (with traffic)				
Time taken to clear all routes (with traffic)				
Failover and Recovery				
Route Failover (point-to-point)	8K	16K	32K	64K
1-link failure				
2-link failure				
4-link failure				
Link failback (4 Links)				
Route Failover (Indirect)	8K	16K	32K	64K
Withdrawal				

Aviz Sample Results -Snapshot

Route Scaling			
Test Case	Scale	Vendor_A (Seconds)	Vendor_B (Seconds)
Route Learning (without Traffic)	8K	10	11
	16K	12	11
	32K	13	12
	64K	33	31
Route Clear (without Traffic)	8K	2	2
	16K	2	2
	32K	5	3
	64K	23	20
Route Learning(with Traffic)	8K	15	19
	16K	26	26
	32K	43	41
	64K	63	78
Route Clear (with Traffic)	8K	8	14
	16K	18	21
	32K	31	39
	64K	44	71
Unplanned Outages			
1-Link Failure	16K	<1	<1
	32K	<1	<1
	64K	2	<1
2-Link Failure	16K	<1	<1
	32K	<1	<1
	64K	4	<2
Link Failback	16K	6	10
	32K	7	11
	64K	31	21
Planned Outages			
Route Withdrawal (without Traffic)	5K	<1	<2
	16K	<2	<2
	32K	7	<2
	64K	10	6

Applications Integration

SONiC Usable Package

SONiC Ready Applications

ZTP

- ONIE to SONiC
- SONiC to SONiC Upgrade
- Configuration Pull

UI/UX

- iSCLI
- REST APIs
- Networks Visibility

Day – 2

- Day – 2 operations SDK
- Configuration Management with Ansible

Niche

- Product as a Service
- Audio Video Market (AVB)
- Enterprise 4.0 Apps

AVIZ

*Enabling
Open Source
based
Networks with
plug and play
Apps*

Snapshot of Apps - AVB

Audio Video Bridging

The image displays four terminal windows showing AVB (Audio Video Bridging) configuration and status. The top-left window is titled 'Edgeworks AVB - Talker' and shows the configuration for a talker on Ethernet38. The top-right window is titled 'Celestica AVB 1' and shows the configuration for a talker on Ethernet49. The bottom-left window is titled 'Edgeworks AVB - Listener' and shows the configuration for a listener on Ethernet40. The bottom-right window is titled 'Celestica AVB 1' and shows the configuration for a listener on Ethernet48. Each window displays the output of 'show avb' commands, including 'talker', 'listener', and 'stream' commands. The 'stream' command output includes a table with columns for Stream Id, DMAC, Port, Dec, Vlan, Class, and Bandwidth. Arrows point from the 'Talker' and 'Stream' labels to the corresponding sections in the top-left terminal window.

Talker

Stream

Stream Id	DMAC	Port	Dec	Vlan	Class	Bandwidth
0011.0100.0001.0001	91:e0:f0:00:fe:00	Ethernet38	Adv	0002	B	1
0011.0100.0001.0002	91:e0:f0:00:fe:01	Ethernet38	Adv	0002	A	1

Stream Id	DMAC	Port	Dec	Vlan	Class	Bandwidth
0011.0100.0001.0001	91:e0:f0:00:fe:00	Ethernet49	Adv	0002	B	1
0011.0100.0001.0002	91:e0:f0:00:fe:01	Ethernet49	Adv	0002	A	1

Stream Id	DMAC	Port	Dec	Vlan	Class	Bandwidth
0011.0100.0001.0001	91:e0:f0:00:fe:00	Ethernet40	Adv	0002	B	1
0011.0100.0001.0002	91:e0:f0:00:fe:01	Ethernet40	Adv	0002	A	1

Stream Id	DMAC	Port	Dec	Vlan	Class	Bandwidth
0011.0100.0001.0001	91:e0:f0:00:fe:00	Ethernet48	Adv	0002	B	1
0011.0100.0001.0002	91:e0:f0:00:fe:01	Ethernet48	Adv	0002	A	1

Snapshot of Apps - iSCLI

iSCLI

```
[ 11.789950] rc.local[447]: + cat /proc/cmdline
[ 11.809939] rc.local[447]: + grep -Eo console=ttyS[0-9]+,[0-9]+
[ 11.829925] rc.local[447]: + cut -d , -f2
[ 11.845906] rc.local[447]: + speed=115200
[ 11.860755] rc.local[447]: + [ -z 115200 ]
[ 11.872722] rc.local[447]: + CONSOLE_SPEED=115200
[ 11.888832] rc.local[447]: + sed -i s|\\-\\-keep\\-baud .* %I| 115200 %I|g /lib/systemd/s
system/serial-getty@.service
[ 11.908828] rc.local[447]: + systemctl daemon-reload
[ 11.924821] rc.local[447]: + [ -f /host/image-master.0-dirty-20191207.003133/platform/
firsttime ]
[ 11.946246] rc.local[447]: + exit 0

Debian GNU/Linux 9 spinel ttyS1

spinel login: aviz
Password:
Last login: Fri Nov  4 04:38:57 UTC 2016 on ttyS1
Linux spinel 4.9.0-9-2-amd64 #1 SMP Debian 4.9.168-1+deb9u5 (2015-12-19) x86_64
You are on

SONiC

-- Software for Open Networking in the Cloud --

Unauthorized access and/or use are prohibited.
All access and/or use are subject to monitoring.

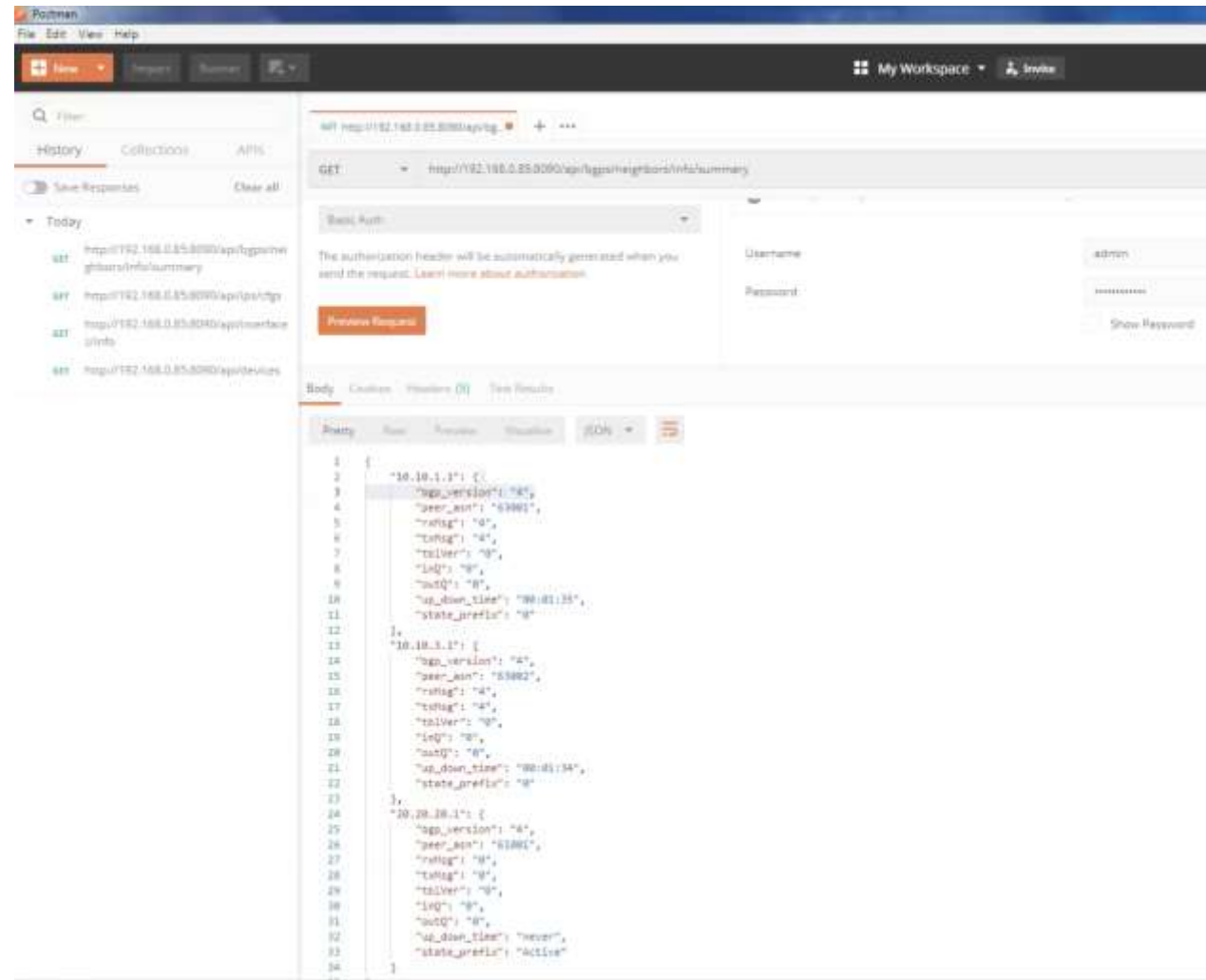
Help:    http://azure.github.io/SONiC/

iscli> enable
iscli# show version
```

Switch Starting in iSCLI

Snapshot of Apps - REST

REST
APIs



Snapshot of Apps - ZTP

ONIE
To
SONiC

SONiC
To
SONiC

```
root@chid-home:avisInstaller#
root@chid-home:avisInstaller# cat cfg.yaml
spinel:
  ip: 192.168.0.4
  onie_user: root
  onie_passwd: root
  sonic_user: admin
  sonic_passwd: YourPa$eWoRd
  image: /tmp/sonic-brcm-std_201807-25.bin
  config: /tmp/config_db.json
  avb: /tmp/avbcontainer.tgz
  iscli: /tmp/iscli.tgz
  appEna: True
root@chid-home:avisInstaller# python onie_to_sonic.py
({'spinel': {'iscli': '/tmp/iscli.tgz', 'onie_user': 'root', 'ip': '192.168.0.4', 'image': '/tmp/sonic-brcm-std_201807-25.bin', 'onie_passwd': 'root', 'sonic_user': 'admin', 'sonic_passwd': 'YourPa$eWoRd', 'appEna': True, 'config': '/tmp/config_db.json', 'avb': '/tmp/avbcontainer.tgz'}})
spinel
({'iscli', '/tmp/iscli.tgz'})
({'onie_user', 'root'})
({'ip', '192.168.0.4'})
({'image', '/tmp/sonic-brcm-std_201807-25.bin'})
({'onie_passwd', 'root'})
({'sonic_user', 'admin'})
({'sonic_passwd', 'YourPa$eWoRd'})
({'appEna', True})
({'config', '/tmp/config_db.json'})
({'avb', '/tmp/avbcontainer.tgz'})
('192.168.0.4', 'root', 'root', 'admin', 'YourPa$eWoRd', '/tmp/sonic-brcm-std_201807-25.bin', '/tmp/config_db.json', 'AVB', '/tmp/avbcontainer.tgz', 'ISCLI', '/tmp/iscli.tgz', True)
# Host 192.168.0.4 found: line 6
/root/.ssh/known_hosts updated.
Original contents retained as /root/.ssh/known_hosts.old
('192.168.0.4', 'root', None, '/tmp/sonic-brcm-std_201807-25.bin')
Connecting 192.168.0.4 ...
Warning: Permanently added '192.168.0.4' (RSA) to the list of known hosts.
ONIE:- #
Successfully Connected 192.168.0.4
Connecting 192.168.0.4 ...
Warning: Permanently added '192.168.0.4' (RSA) to the list of known hosts.
ONIE:- #
Successfully Connected 192.168.0.4
Downloading image /tmp/sonic-brcm-std_201807-25.bin ...
scp -o StrictHostKeyChecking=no /tmp/sonic-brcm-std_201807-25.bin root@192.168.0.4:/root/sonic-brcm-std_201807-25.bin
Warning: Permanently added '192.168.0.4' (RSA) to the list of known hosts.
sonic-brcm-std_201807-25.bin                               100% 372MB  9.7MB/s   00:38
Installing SONiC on 192.168.0.4
Download complete
chmod 777 /root/sonic-brcm-std_201807-25.bin
ONIE:- #
cd /root/
ONIE:- #
Installing SONiC
```

Config File

ONIE to SONiC

Vendor Neutral Support

Ready to Deploy

AVIZ NETWORKS – Support Coverage

TECHNICAL SUPPORT

- PROOF of CONCEPT BUNDELS
- 24 HOURS / 7 DAYS A WEEK
- UNLIMITED INCIDENTS
- MULTI-VENDOR CASE OWNERSHIP
- MULTI-CHANNEL
- DEVOPS SERVICES

ONGOING DELIVERY

- PRODUCT LIFE CYCLE
- PATCHES
- UPDATES
- UPGRADES

EXPERTISE

- CUSTOMER PORTAL
- FORUMS
- ACCESS LABS
- TRAINING

COMMITMENTS

- HARDWARE CERTIFICATION
- SOFTWARE CERTIFICATION
- SOLUTIONS CERTIFICATION
- SOFTWARE ASSURANCE

AVIZ Offerings – Pragmatic & Future Proof

Services

Enable ASIC/OEM/ODM

- Engineering
- Certification
- Deployment
- Custom Design

ENABLE SONIC

Distributions

Standardize NOS

- Subscription based NOS
- Aviz, Partner or community version of SONiC

STANDARDIZE SONIC

Applications

Apps driven networks

- Audio Video
- Software Defined Infra
- Enterprise 4.0
- Telemetry with ML

APPS ECOSYSTEM

AVIZ Networks: Summary / Call to Action

Experts from



- www.aviznetworks.com
- Vision
 - Commoditize NOS
 - Enable deployments for DC, Web2.0/3.0 & Enterprise 4.0
- Founding Team
 - Networks & Cloud Experts
 - 50+ Patents
 - Engineering, Product and Sales
- Introduced in OCP 2019
- Established ASIC & Switch vendor Partnerships in industry
- Lab - multi vendor switches and Ixia

Partners





AVIZ[®] NETWORKS

Enable Open Source Networking

Thank You!!

Open for All.



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