

# OpenSwitch (OPX) NOS Demo



**OpenSwitch (OPX) Network Operating System**  
*Your way to build composable networks...*



# OpenSwitch (OPX) Network Operating System

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Open and Premium  
NetApps choice

**Portability**

Free Open OPX Network  
Operating System Base

**Integratability**

Diversified White Box  
Hardware



# OpenSwitch (OPX) Network Operating System

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## OUR VISION

Production-Ready Grade  
Feature-Rich Robust NOS  
Extensible Control Planes

## OUR DELIVERY

OPX NOS as an Open Code  
Composable System Design  
A Reliable Turnkey Solution

## OUR MISSION

Create Live Community  
Support Eco-System of  
Operators/Vendors/ODM

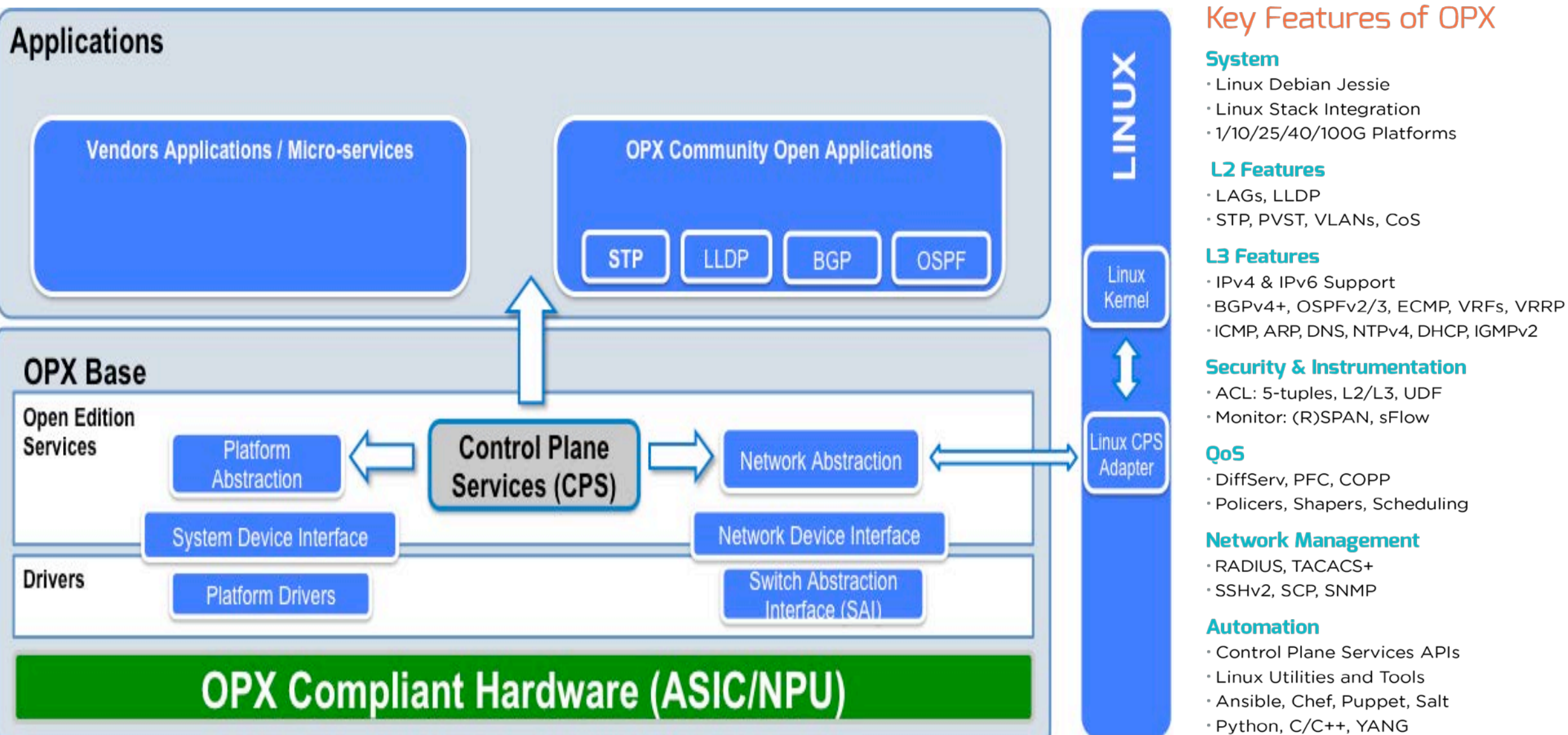
 THE **LINUX** FOUNDATION





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## Example Applications Running on OPX

**Free Range Routing** (FRRouting) – IP routing protocol suite for Linux that provides protocol daemons for BGP, OSPF, etc.



**Inocybe** – Open Networking solution using OpenDayLight as a CPS interface



**hsflowd** – sflow daemon adapted by InMon to get data from the NPU via CPS



**Webmin** – web-based system configuration tool on OPX



**Broadview** – software suite to offer programmable access to Broadcom switch internals



**Looking Glass** – system monitoring tool that displays platform info using information from kernel *and* CPS



**Packet Trakker™** – Cavium programmable telemetry software suite (S5148-ON only)





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## OPX Key Features

- **Open Source:** [github.com/open-switch](https://github.com/open-switch)
- Based on **Debian Linux** (Jessie) which makes it easy to integrate and leverage existing native Linux tools
- Provides abstraction for Network Switch hardware and switching ASIC
  - **Switch Abstraction Interface (SAI)** makes it easy to integrate NPU extensions
- **Control Plane Services (CPS)** makes it easy to port applications



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## OPX + Native Linux Applications

- OPX runs on Debian Linux without any kernel modifications
- OPX makes it easy for Linux networking applications to function without modification

### DEMO TERMINAL

[Webmin](#) – web-based system configuration tool on OPX





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## OPX + Control Plane Service (CPS)

- OPX makes it easy for applications to work with switch platform drivers and ASIC/NPUs through a common interface called Control Plane Services (CPS).
- CPS provides an API expressed in YANG to expose and control both platform and network abstraction elements. Using the Netlink API, OPX can listen for events and propagate changes to the ASIC/NPU.

### DEMO TERMINAL

**Free Range Routing** (FRRouting) – IP routing protocol suite for Linux that provides protocol daemons for BGP, OSPF, etc.



**hsflowd** – sflow daemon adapted by InMon to get data from the NPU via CPS



**Looking Glass** – system monitoring tool that displays platform info using information from kernel *and* CPS



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## OPX + Switch Abstraction Interface (SAI)

- OPX makes it easy for silicon vendors to integrate switching ASICs via the SAI. By supporting a common set of functionality in an API like SAI, OPX can be adapted to work on a variety of commodity hardware platforms.
- Additionally, via Network Device Interface plugins, OPX can work with various forms of switch abstraction.

### DEMO TERMINAL

#### HW PLATFORMS

Dell EMC S4148T-ON  
Dell EMC S6010-ON  
Dell EMC Z9100-ON



Dell EMC S5148F-ON  
EdgeCore AS7512-32X



#### Telemetry Application



Software suite to offer programmable access to switch internals



Cavium Telemetry software



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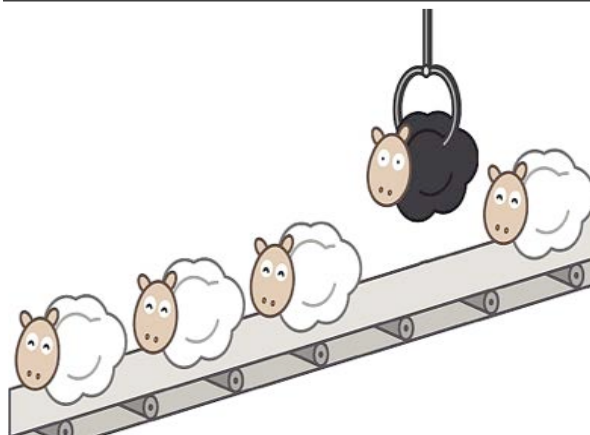


**Comprehensive Suite for  
Network Observability,  
Analytics & Telemetry on  
XPliant Switches**

**Monitor**

**Detect**

**React**





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## Applications Quality of Experience

Microburst Detection

Latency Fluctuations

Early Congestion  
Alarming

New  
SDN  
Use  
Cases  
Will  
Emerge  
...

## Network Reliability and Efficiency

Paths Tracking Metrics

Exceptions Detection

Troubleshooting  
Observability

### S5148F-ON switch

Programmable high-performance open networking top-of-rack switch with native 25GbE server ports and 100GbE network fabric connectivity

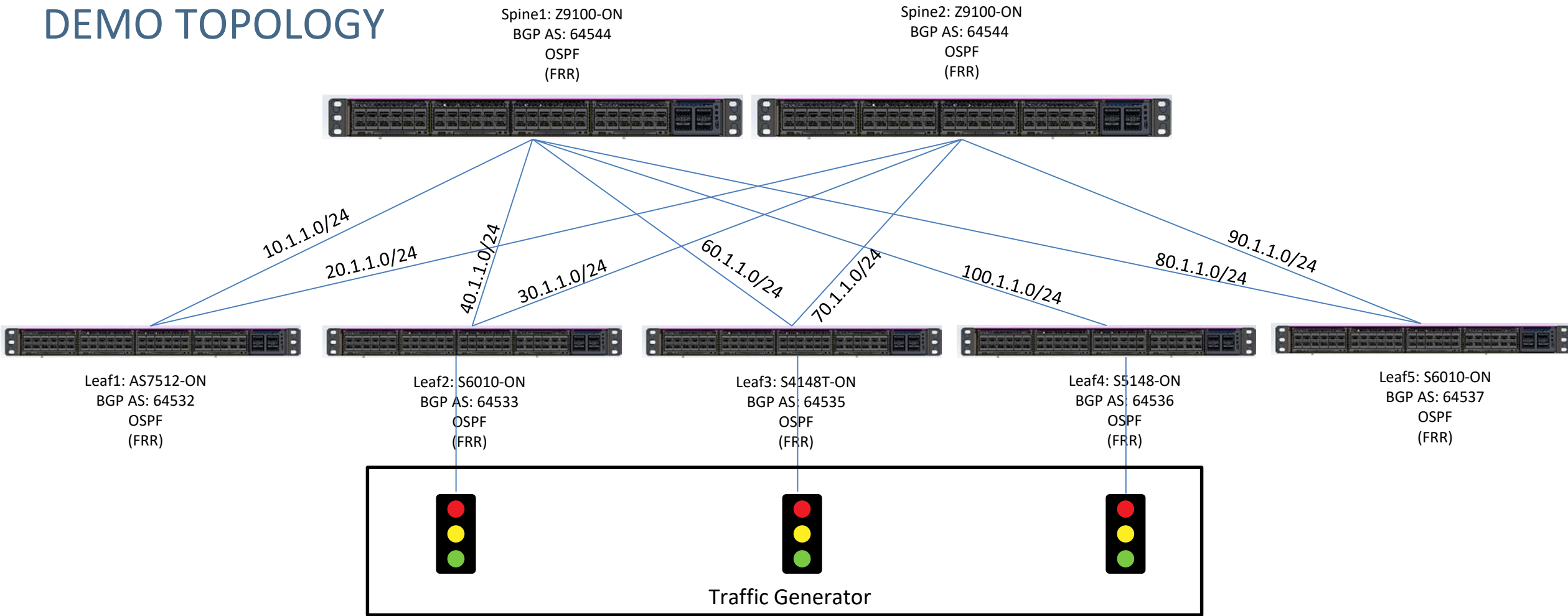




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## DEMO TOPOLOGY





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Web	<a href="https://openswitch.net"><u>openswitch.net</u></a>
Contribute	<a href="https://github.com/open-switch"><u>github.com/open-switch</u></a>
Email	<a href="mailto:ops-dev@lists.openswitch.net"><u>ops-dev@lists.openswitch.net</u></a>
Chat	<a href="https://chat.openswitch.net"><u>chat.openswitch.net</u></a>
Docs	<a href="https://github.com/open-switch/opx-docs/wiki"><u>github.com/open-switch/opx-docs/wiki</u></a>

