ENG. WORKSHOP:
OpenSwitch (OPX) Introduction

Cliff Wichmann – Dell EMC - OpenSwitch TSC Chair
What is OpenSwitch Today

• Full-Featured Linux-based platform for Open Networking
• Fully open source support by the Linux Foundation
• Modular design: Protocol and application choice of software components
• Runs a fully-open, unmodified Linux distribution
• Rich programming model through C/C++/Python/Go/REST
• Supports a variety of automation tools
• Based on open software already deployed: Dell EMC OS10 Open Edition & SnapRoute’s network stack
• Choice of network processor (Broadcom, Cavium, Mellanox, others)
• Hardware choice of multiple ODM Platforms

Time To Reshuffle Your Software Deck: Open Fully-Featured Deployable NOS Becomes A Reality
OpenSwitch Architecture

**OPX Base**
- Common Programmability Service
  - PAS
  - System Device Interface
- NAS
  - ACLs, Bonding, dot1q, SVI, Linux Networking, ARP, Port Mgmt, ECMP, etc.
  - Network Device Interface

**OPX Control**
- BGP
- OSPF
- LLDP
- LACP
- STP
- Infra
- Management (REST)

**OPX Apps**
- CLI
- Telemetry
- Container Solutions
- Ansible
- Community Driven Apps

**Hardware**
- Network Processor/ASIC
- Fans/Power/Led/SFP/QSFP

**Standard Linux Distribution (Debian Jessie)**

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Introducing the OpenSwitch Contributors

• OPX Applications
  - Linux community provided applications through the distribution (e.g. Dockers,)
  - Application echo-system evolving by OpenSwitch community

• OPX Control
  - Contributed and supported by SnapRoute
  - REST interfaces for providing API based configuration
  - Routing protocols written entirely in Go

• OPX Base
  - Contributed and supported by Dell EMC
  - Provides the layered base with plugins for NPU and platform components
  - Rich programming through the Centralized Programming System in C/C++/Python and Go

• NPU/ODM/Platform Providers
  - Providing drivers and SDKs
Why OpenSwitch

- Designed for Operators Usability
  - Modular, Designed for Scale and Performance Open-Source Fully-Featured Modern NOS

- Network Agility
  - Application-Focused Control allows tailoring the networks and accelerating features velocity

- TCO Savings
  - CapEx Savings via Open-Source OpEx Savings via Automation & DevOps Tools Integration

- Use with Confidence
  - Based on Field-Deployed Code from Dell EMC and SnapRoute with Major Silicon Vendors Support
OpenSwitch Industry Leaders Driven Community

- **Linux Foundation Project**: vendor-neutral

- **Echo-system contributions by some of the networking industry leaders**
  - Operators
  - Solutions and Systems Providers
  - ASIC Vendors
  - ODMs
  - Technical Services Providers
  - Systems Integrators
  - Academic Institutions

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OpenSwitch Roadmap - 2017

• First Quarter
  • Initial delivery of a NOS platform for a data center environment
  • Initial VM for application development purposes with basic networking support
  • Initial delivery on Dell EMC S6000

• Second Quarter
  • Focus on ODM platforms and silicon vendors including Mellanox, Marvell, Cavium and Broadcom
  • Focus on application development
  • Testing Infrastructure

• Third Quarter
  • To be published
Github and Documentation

• OpenSwitch Github
  - [https://github.com/open-switch](https://github.com/open-switch) - contains the code
    - Want help? Email ops-dev@lists.openswitch.net
  - All new REPOS have the “opx” prefix indicating OpenSwitch 2.0
    - Eg.. opx-build
  - Working to integrate documentation – Existing documentation at:
    - OPX Base Documentation - [https://github.com/open-switch/opx-docs/wiki](https://github.com/open-switch/opx-docs/wiki)
    - OPX Snaproute - [https://open-switch.github.io/flx-docs/](https://open-switch.github.io/flx-docs/)
• How to start - [https://github.com/open-switch/opx-build](https://github.com/open-switch/opx-build)