OPEN NETWORKING
FOUNDATION

SDN 2014 => 2015 => 2016: Like a Rocket

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- OPEN SDN
- OPEN Source
- OPENFlow

November 19, 2015, Seoul

SDN Value Prop: Excitingly Unchanged!

Making Money
- Revenue acceleration
- Customer provisioning
- Cloud data center

Saving Money
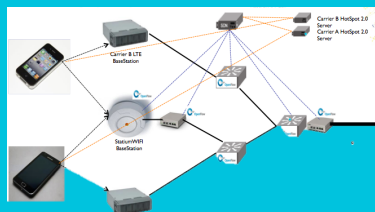- Orchestration
- Automation
- Centralized policy mgt.

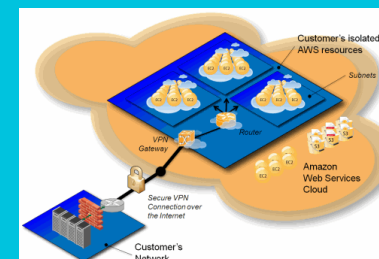COST SAVINGS

Operator Open SDN Deployments
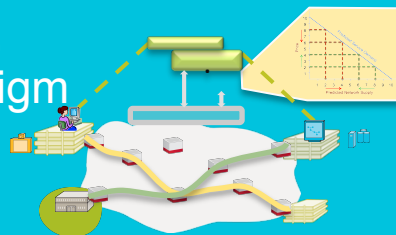

Nearly every trial of ODL, ONOS, Ryu

Telecom Operators
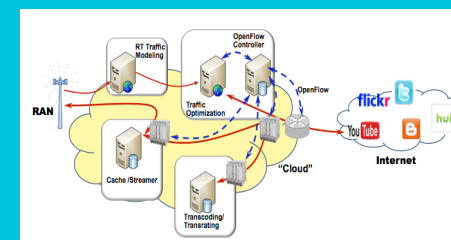
Virtualization & abstraction, layer separation, scaling

Cloud Providers

SFC in hypervisors, match-action paradigm

NFV Trials
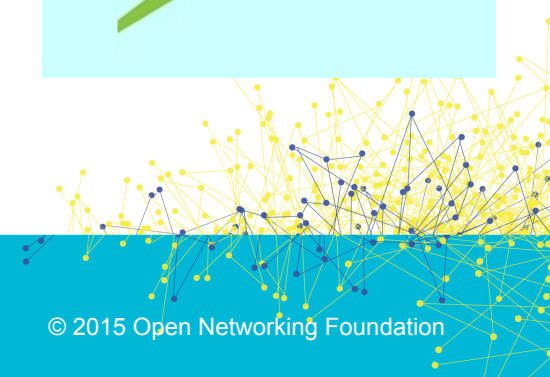
Simplification, OpEx reduction

SMEs

"Open" = published, not controlled by a single party
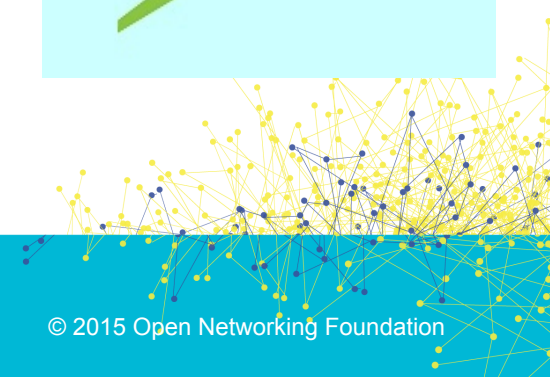
Progress 2014 => 2015:
Open SDN

- Northbound APIs
  - Intent-based framework (into ODL)
  - Flow objectives (into ONOS)
  - Real-time media automating QoS/QoE (into IMTC)
- Information modeling
  - Consistent way to specify APIs: exposed ops, transferred info
  - Essential for end-end services
- Layer 4-7
  - Service Function Chaining Solution Architecture
  - OpenFlow support for SFC header extensions
- Carrier-grade SDN
  - Use cases
  - RFI template for migration
- Instantiations
  - AppFest: medical researchers, NRENs, NSA!
  - 2 SDN Solutions Showcases: next one April 13-14 Beijing
- Skills certification – just launched!
  - ONF-Certified SDN Associate (OCSA)
  - ONF-Certified SDN Engineer (OCSE)

Progress 2014 => 2015: Open Source

- OpenSourceSDN.org
  - ONF coordinates: repository, governance, communities
  - Open to the public
  - Destination for much of our committee work
  - 16 projects
    - Aspen (RT Media NBI)
    - Boulder (Intent NBI)
    - Centennial (Wireless backhaul PoC)
    - Durango (OVS support in OF-Config)
    - Englewood (Transport API)
    - Florence (Security assessment tools)
    - Frontier (SDN "flight data recorder")
    - Telluride (End-End WAN as a Service)
    - PIF (Protocol-Independent Forwarding intermediate repr.)
    - Atrium (open source SDN distribution)
      - BGP, Flow objectives, OpenFlow 1.3, OCP, vendors
      - ONOS in release 2015/A, ODL in release 2016/A
    - …

Progress 2014 => 2015: OpenFlow

- Optical & wireless extensions
  - Packet-optical integration PoC (last winter, major coverage)
  - Wireless transport PoC (Madrid last month; see press release)
- Interoperability
  - TTPs
  - Flow objectives
- 1.3 in hardware
  - Atrium (7 switches)
  - 1.3 conformance spec (basic, single-table)
- Evolution
  - PIF

Remember: OpenFlow is three things:

- An architecture (separation of forwarding & control)
- A model (match-action forwarding plane)
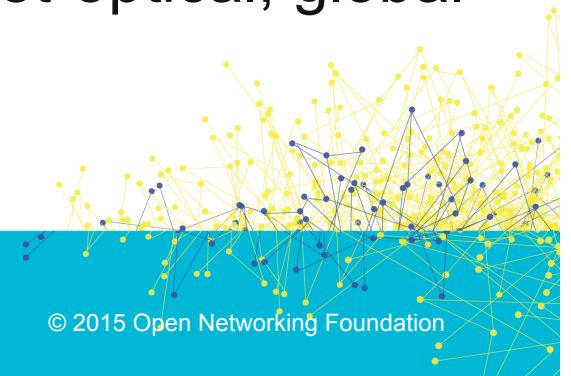- A protocol (our old friend)

Community

Looking out 2015 => 2016

- Northbound APIs: agreement, investment, deployment
- Open Source: embedded, supported, deployed
- Service provider deployments: NFV, packet-optical, global
- SDN & NFV get married
- SDNFV enables 5G

Global takeaway

- Not what

- Not if

- Not when

- *But how*

- ONF: accelerating the adoption of open SDN