



# Open Networking Foundation, Year 3: Don't bother trying to catch your breath

Dan Pitt, Executive Director  
Open Networking Foundation

# Where we stand



- We are:
  - Promoting SDN as a whole – its commercialization – for users
  - Standardizing what needs to be standardized by a committee
  - Believers in OpenFlow as the Southbound API standard
  - Advocates of experimentation, coding, open-source
- We are not:
  - Your grandmother's SDO
  - Beholden to any coalition, cartel, cabal of vendors
  - Picking winner and losers (except users are winners)
- To us, SDN is:
  - Physical separation of forwarding and control
  - Simplification of networking devices (digress on electron levels)
  - Of individual value for every deployer

# ONF since last year



- Technical
  - OpenFlow 1.3.0, 1.3.1, 1.0.1
  - OF-Config 1.0, 1.1
  - 1 Plugfest, 2 demos, white papers, tech. reports
- Industry support
  - 3 user-group meetings + NFV
  - 70+ products, 30M+ ports
  - Incumbent support for OpenFlow
  - 3 acquisitions of members by members (+ a few others)
- ONF membership
  - New Board member company
  - Members from 64 to 96 (incl. 3 acquisitions)
  - 22 users (11 new)

# ONF: 2013 Initiatives



- Build out the OpenFlow substrate
- Foster implementation and deployment
- Encourage SDN innovation
- Support services above OpenFlow

# Build Out the OpenFlow Substrate



- OpenFlow Protocol
  - Begin specification of 1.4 & 1.5
  - Key new initiative: prototype every new feature
- Security
  - $\phi$ 1: of OpenFlow;  $\phi$ 2: with OpenFlow
- OF-Config & OAM
  - Event framework, bootstrap, certificate exchange
- Optical Transport
  - OpenFlow to switch optical cross-connects

# Foster Implementation & Deployment



- **Conformance Test Suite & Certification**

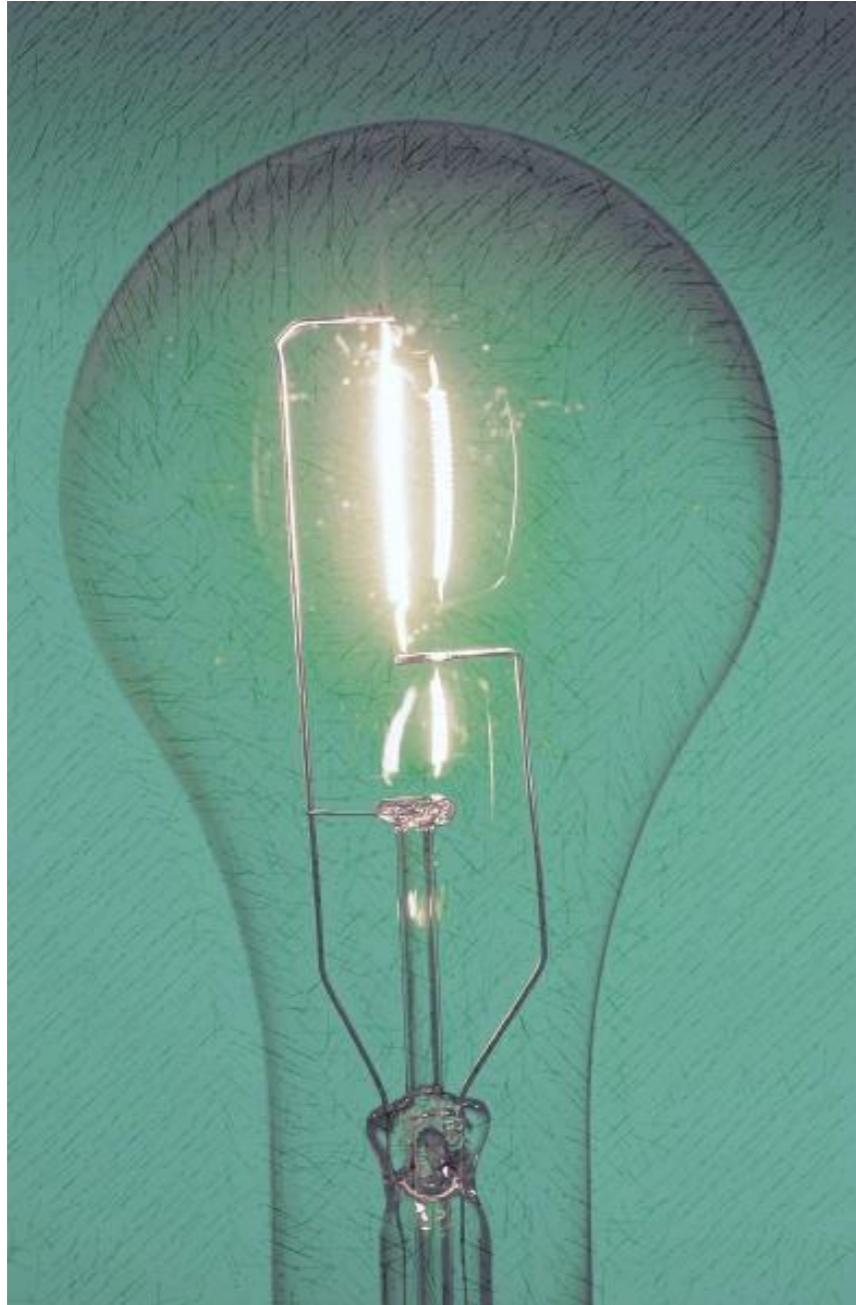
- **PlugFests**

- **Foster Chipset/HW Ecosystem**

- **Migration WG**



# Encourage SDN Innovation



- **OpenFlow driver competition**
- **Research Associates program**
  - Bi, Tsinghua
  - Feamster, U. Maryland
  - Krishnaswamy, Al-Shabibi, ON.Lab
  - Monga, Lawrence Berkeley National Lab
  - Parulkar, Stanford
  - Plattner, ETH Zurich
  - Rexford, Princeton
  - Rothenberg, CPqD
  - Wallace, Milford, Dahlmann, InCNTRE



# OpenFlow Driver Competition

- Benefits: spur development of open-source OpenFlow Driver, track OpenFlow evolution, enable developers to focus on value-add
- The Prize: \$50,000 to an individual or team
- Who can enter: organizations & individuals, profits/non-profits
- Submissions by 15 August 2013
- Winner chosen by 30 September 2013

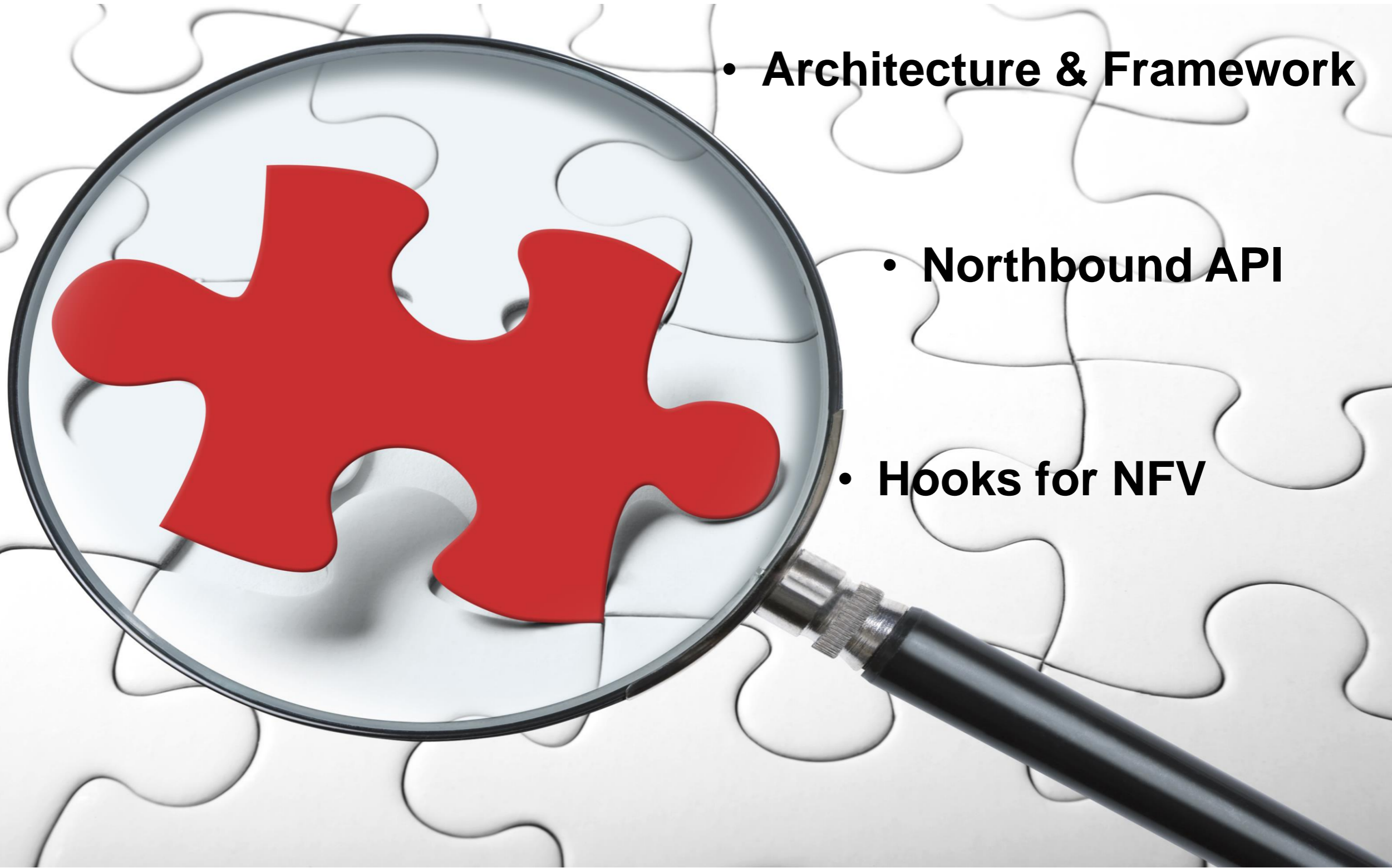




# Support Services Above OpenFlow



- **Architecture & Framework**
- **Northbound API**
- **Hooks for NFV**

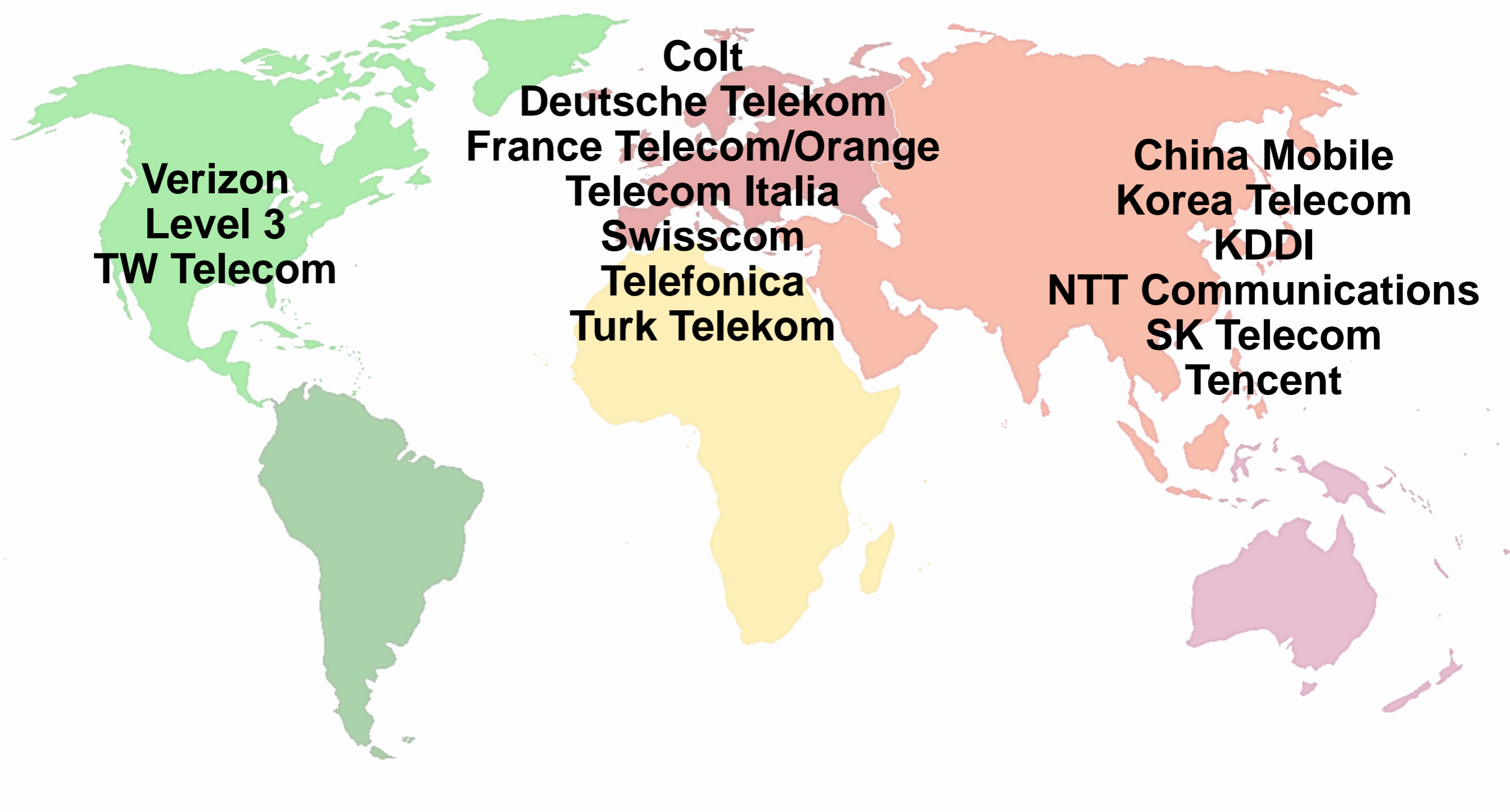


# Board of Directors



- Urs Hölzle (Sr. VP, Engineering, Google), chairman 
- Najam Ahmad (Director, Network Engineering, Facebook) 
- Axel Clauberg (VP, IP & Optical, Deutsche Telekom) 
- Stuart Elby (VP, Network Architecture, Verizon) 
- Albert Greenberg (Partner Devt., Windows Azure Networking, Microsoft) 
- Yukio Ito (Sr. VP, Services & Infrastructure, NTT Communications) 
- Curtis Rogers (Director Network Engineering, Yahoo) 
- Steven Schwartz (M. D., Technology Infrastructure, Goldman Sachs) 
- Nick McKeown (Professor, EE and CS, Stanford)
- Scott Shenker (Professor, EECS, UC Berkeley and ICSI)

# ONF Operator Members



# 96 Members, the IT/Net Spectrum

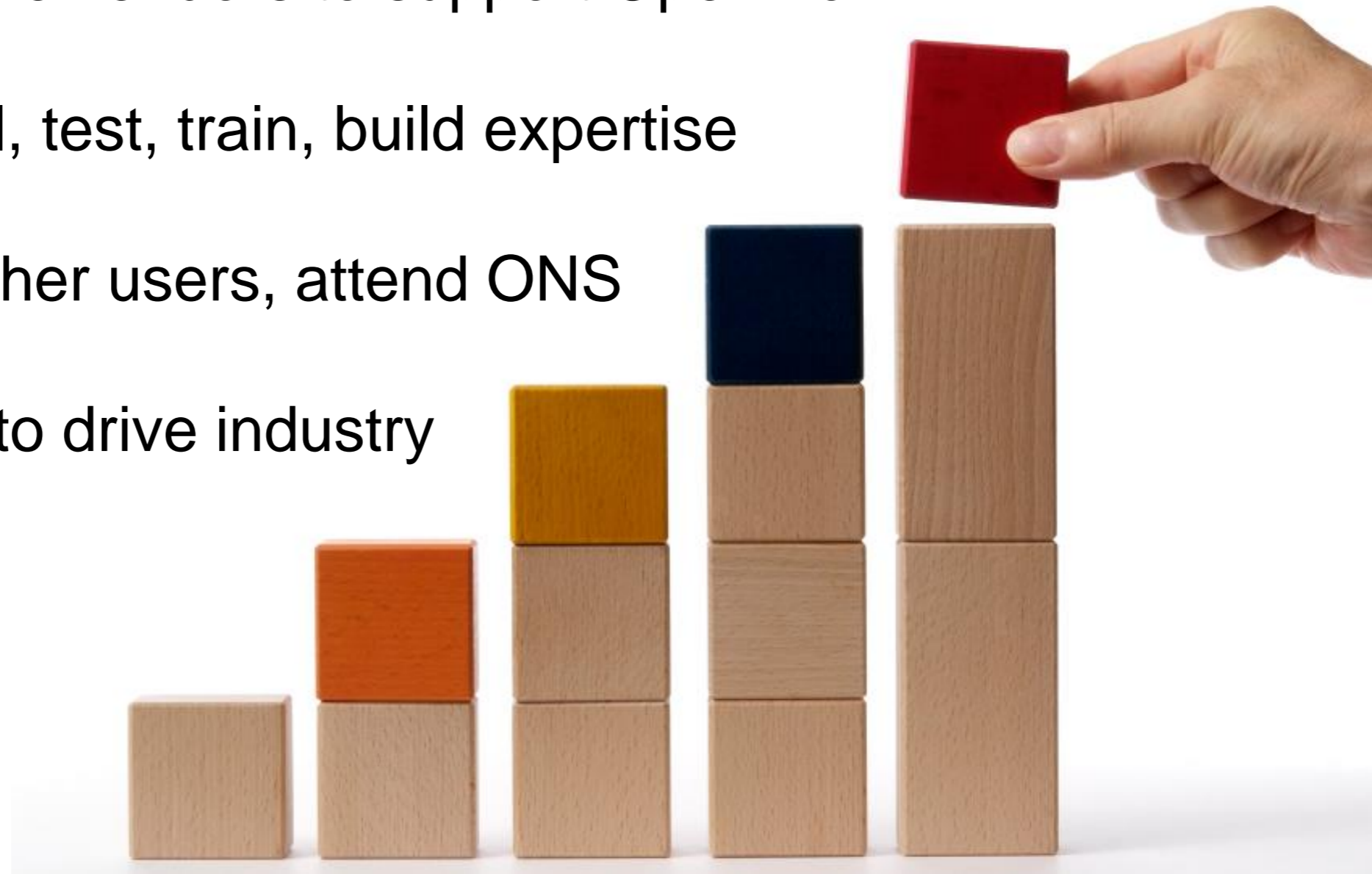


- 6Wind
- A10 Networks
- Active BB Networks
- ADVA Optical
- Alcatel-Lucent/Nuage
- Aricent
- Arista Networks
- Big Switch Networks
- Broadcom
- Brocade
- Centec Networks
- Ceragon
- China Mobile
- Ciena
- Cisco
- Citrix
- CohesiveFT
- Colt
- Cyan
- Dell/Force10
- Deutsche Telekom
- Ericsson
- ETRI
- Extreme Networks
- F5/LineRate
- Facebook
- France Telecom/Orange
- Freescale
- Fujitsu
- Gigamon
- Goldman Sachs
- Google
- Hitachi
- HP
- Huawei
- IBM
- Infinera
- Infoblox
- Intel
- Initune Networks
- IP Infusion
- Ixia
- Juniper Networks
- KDDI
- Korea Telecom
- Lancope
- Level3 Comms
- LSI
- Luxoft
- Marvell
- MediaTek
- Mellanox
- Metaswitch Networks
- Microsoft
- Midokura
- NCL Comms K.K.
- NEC
- Netgear
- Netronome
- Netscout
- Nokia Siemens Netw.
- NoviFlow
- NTT Communications
- Oracle
- Overture Networks
- Pica8
- Plexxi
- Qosmos
- Rackspace
- Radware
- Riverbed Technology
- Samsung
- SK Telecom
- Spirent
- Sunbay AG
- Swisscom
- Tail-f Systems
- Tekelec
- Telecom Italia
- Telefonica
- Tellabs
- Tellac Networks
- Tencent
- Texas Instruments
- Thales
- Tiler
- Transmode
- Turk Telekom/Argela
- TW Telecom
- Vello Systems
- Verisign
- Verizon
- Vmware/Nicira
- Xpliant
- Yahoo!
- ZTE

# Contemplating Deployment?



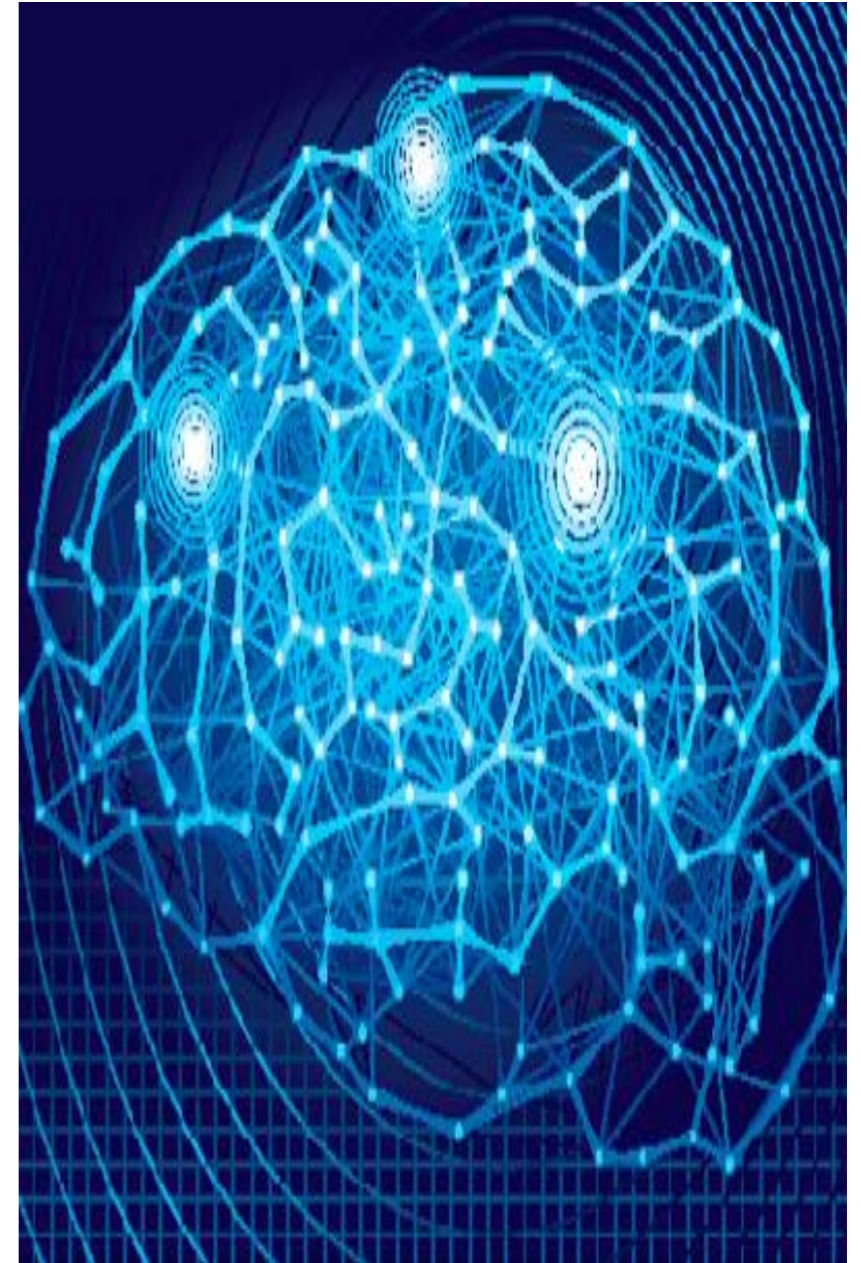
- **Expectate:** require vendors to support OpenFlow
- **Experiment:** trial, test, train, build expertise
- **Engage:** meet other users, attend ONS
- **Excel:** join ONF to drive industry



# Summary



- SDN: the future of networking
  - open, programmable, vendor-neutral, standard where it needs to be
- Industry: investment everywhere
  - even where you might not expect it
- ONF: driving the global commercialization of open, standards-based SDN
  - for the benefit of users



[www.OpenNetworking.org](http://www.OpenNetworking.org)