INTRODUCING ONOS

[SDN Network Operating System for Service Provider networks]

PRAJAKTA JOSHI
DIRECTOR OF PRODUCT, ON.LAB

ONOS
Open Network Operating System

Why are Service Providers interested in SDN and ONOS?

Reduce CAPEX and OPEX

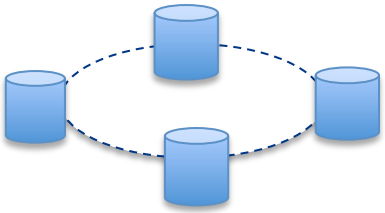
Bring Cloud-style agility, flexibility, scalability to their networks

Roll out services rapidly

Reduce operational complexity, increase visibility

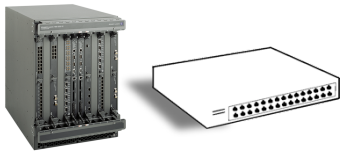
But Service Provider networks place stringent requirements on SDN control plane:

Handle tens of millions of fixed and hundreds of millions of wireless end points



Provide five nines availability, high performance, low latency

Need ease of use, services creation and delivery



Allow seamless migration of existing networks while capitalizing on white boxes

ONOS is a SDN network operating system (control plane platform) designed for these stringent Service Provider requirements.

ONOS Vision for Service Provider Networks

Enabling Service Provider SDN adoption for carrier-grade service and network innovation

FROM

Limited Service Flexibility
Lack of Agility

Proprietary closed control plane

Proprietary hardware

Today's Closed Networks

TO

Service Innovation

APP APP APP

Network Function as a Service

ONOS (Carrier-grade SDN Control Plane)

Migration path for existing networks

White box Network (switches and servers)

Network Innovation

ONOS Overview

ONOS
Open Network Operating System

ONOS Journey so far

"A complex system that works is invariably found to have evolved from a simple system that worked."

– John Gall (1975)

ON.LAB

Founded - 2012

ONOS Prototype 1- 2013

ONOS Prototype 2- 2013

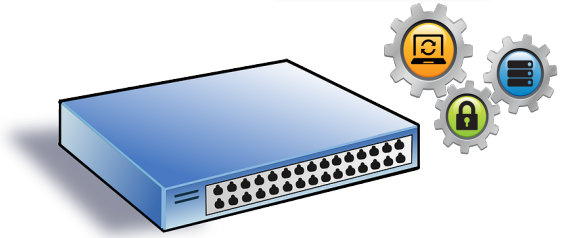
ONOS VERSION 1- OPEN SOURCED ON DEC 5th, 2014

Who created the open source ONOS release?

ON.LAB
at&t
NTT Communications
intel
FUJITSU
ERICSSON
ciena
HUAWEI
NEC
INTERNET2
CREATE-NET
cnit
Consortium GARR
Infoblox
SRI International

A partnership comprising of ON.LAB and leading

SERVICE PROVIDERS

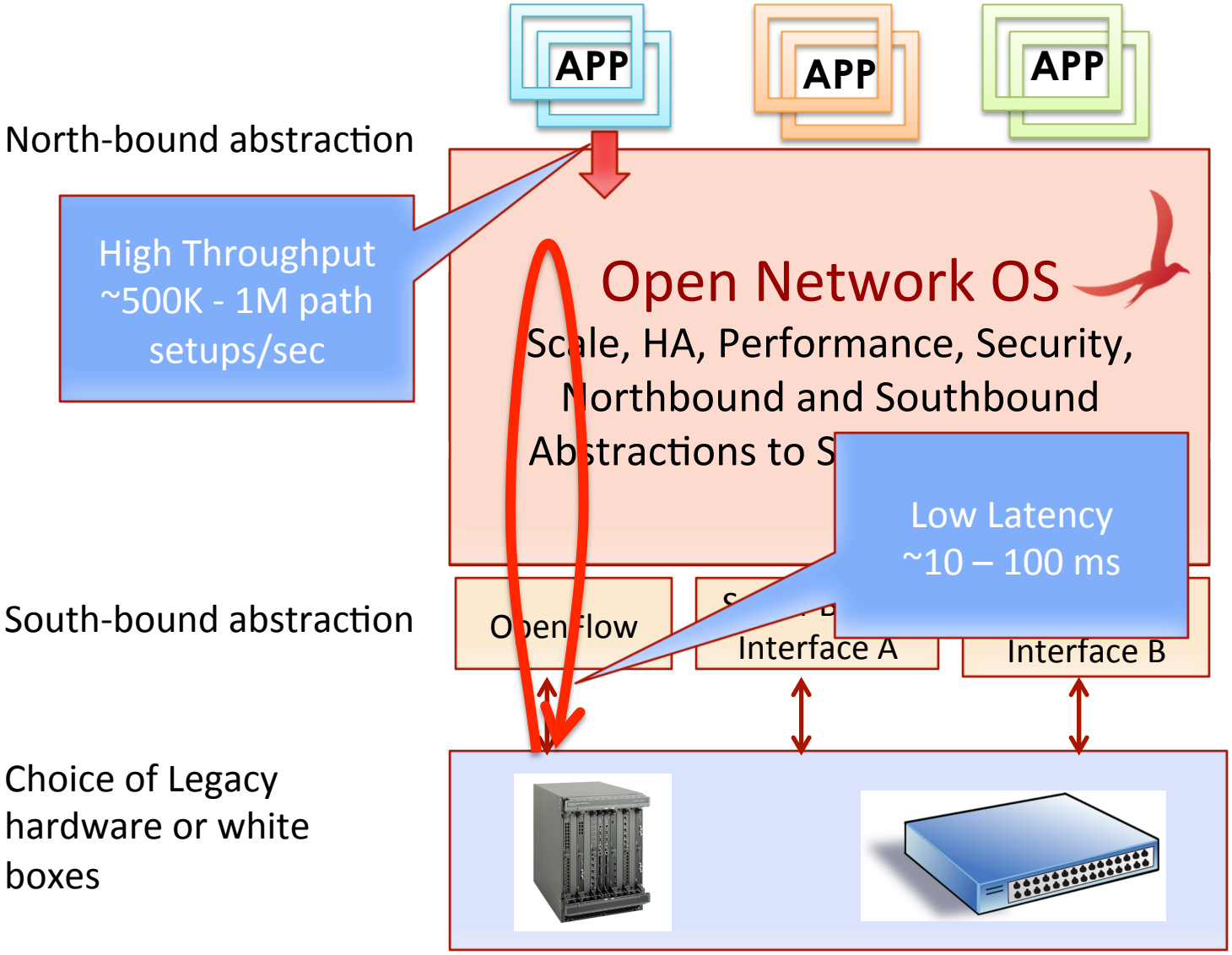


VENDORS

RESEARCHERS

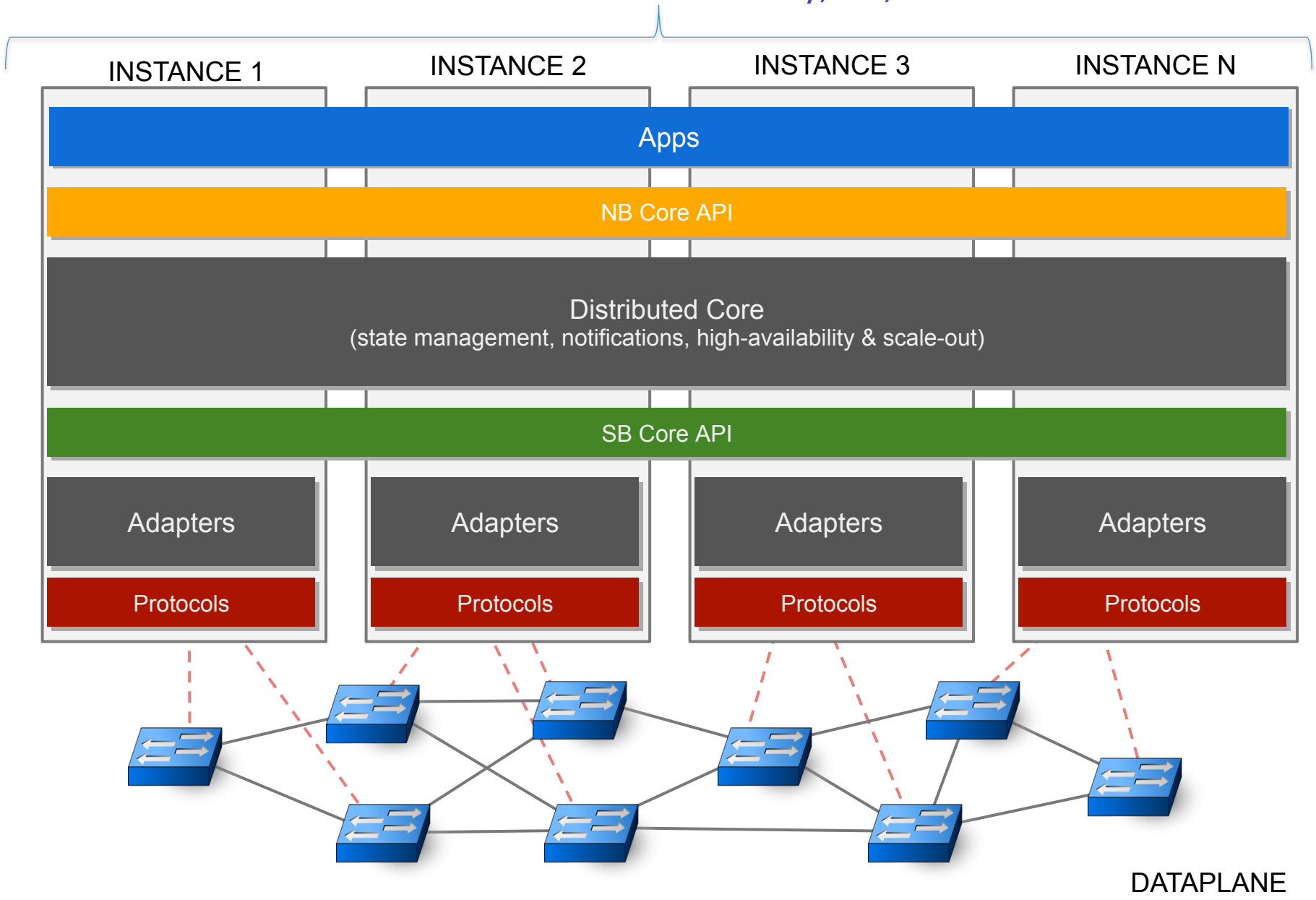
Key Elements of ONOS

Modular, Scalable, Resilient with Abstractions



ONOS Distributed Architecture

Scalable Distributed Core for Scalability, HA, Performance



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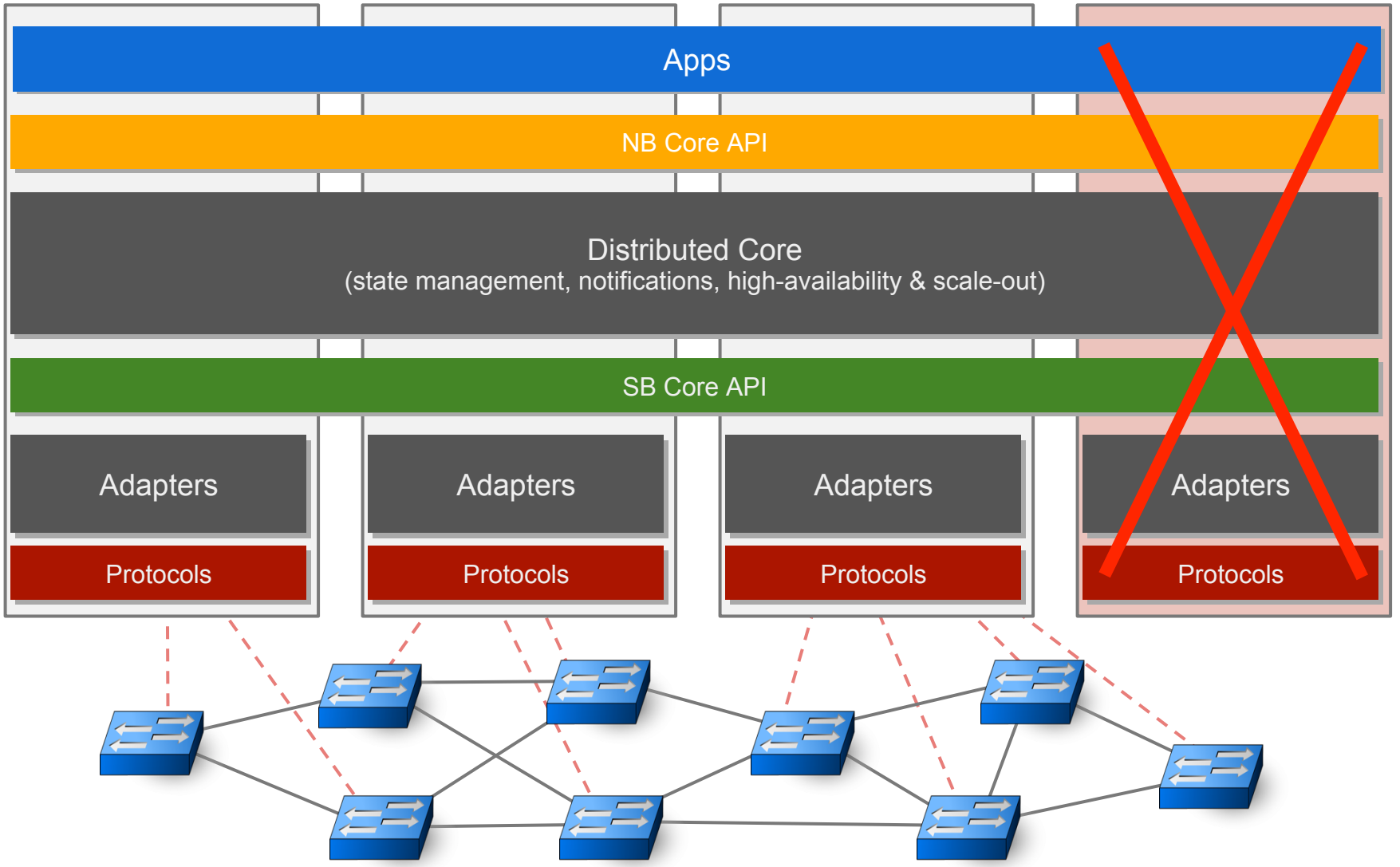


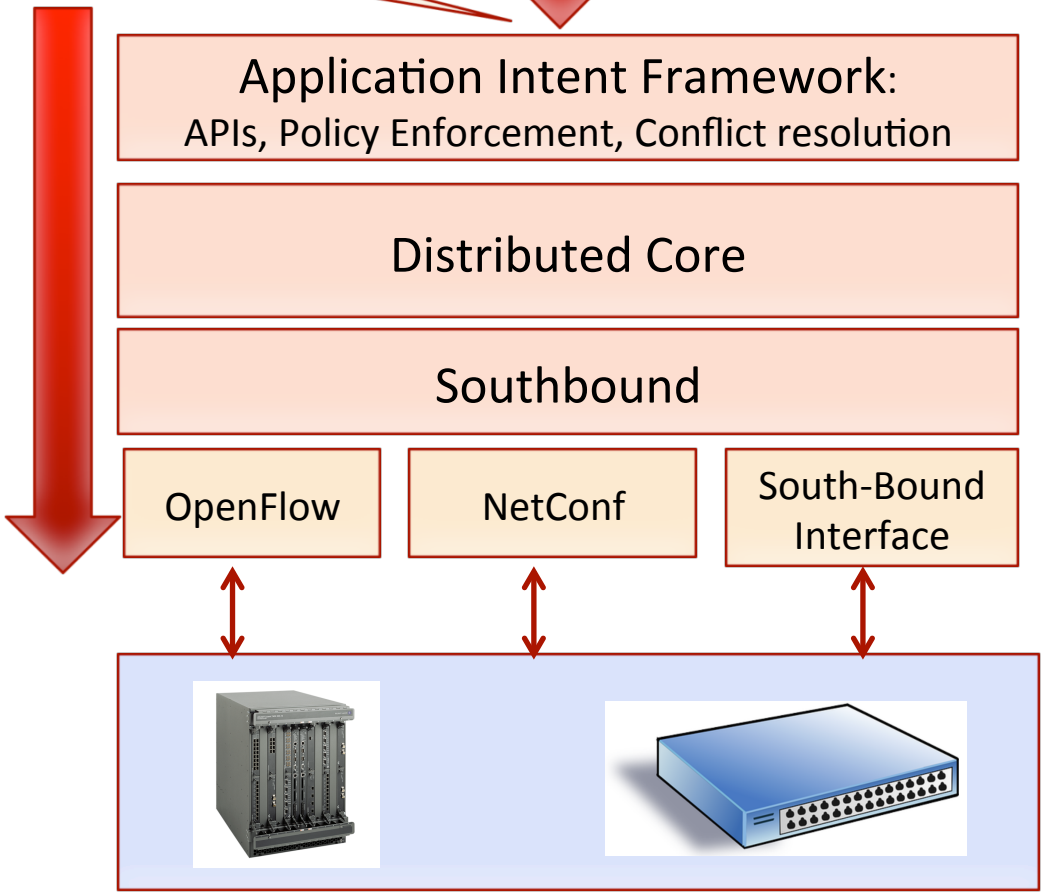
ONOS Application Intent Framework

Flexible and intuitive northbound abstraction and interface for DevOps person to define what they need without worrying about how.

"Provision 10G path from DC1 to DC2 optimized for cost"

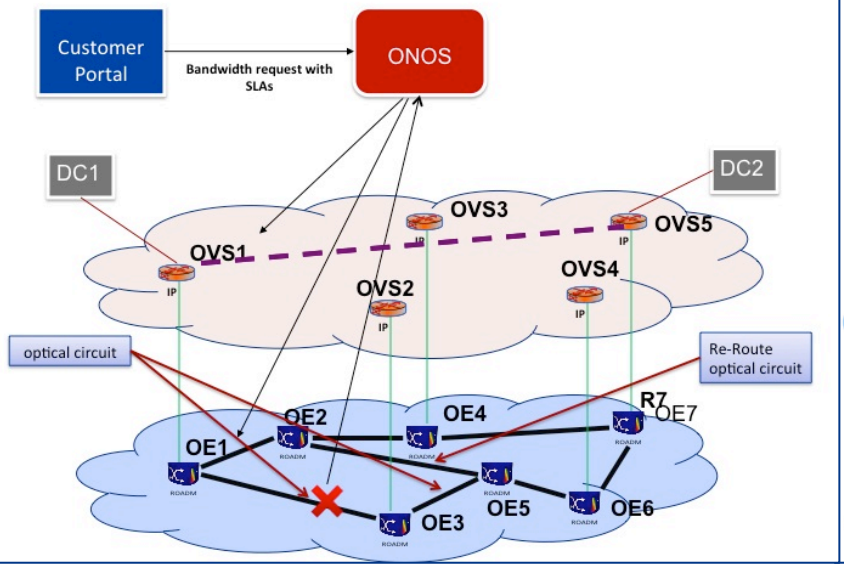
Network Agnostic,
Highly available, Scalable

Intents translated and Compiled into specific instructions for network Devices.

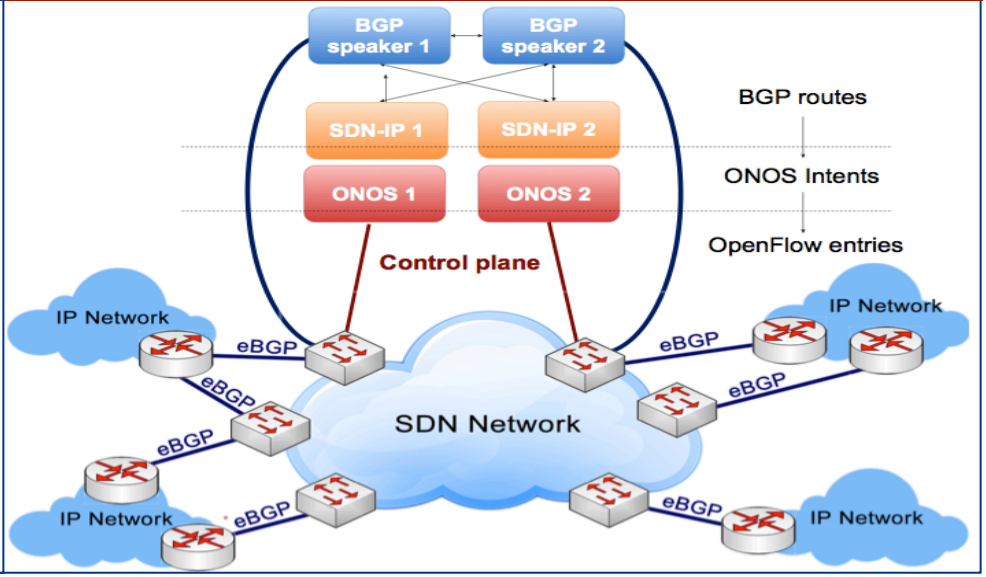


ONOS- Initial Service Provider Use Cases

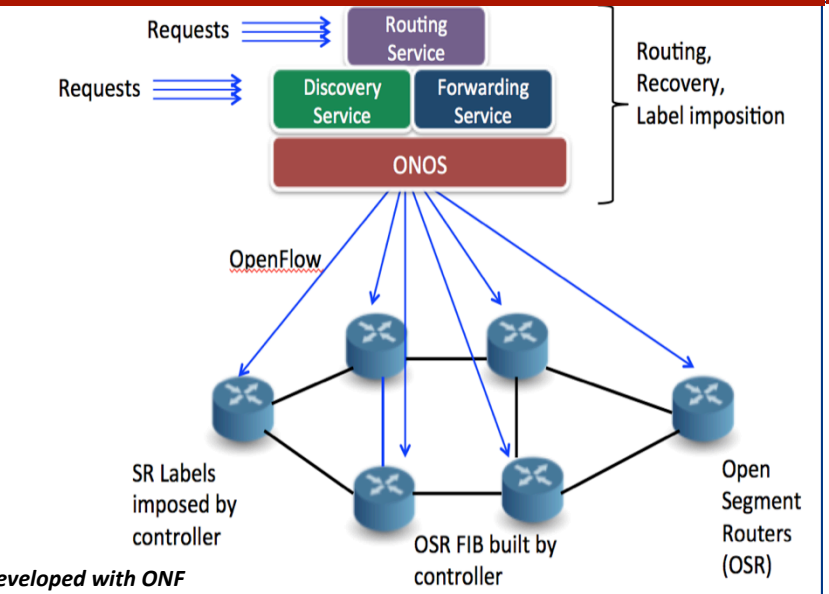
1. Multi-layer SDN control



2. SDN-IP

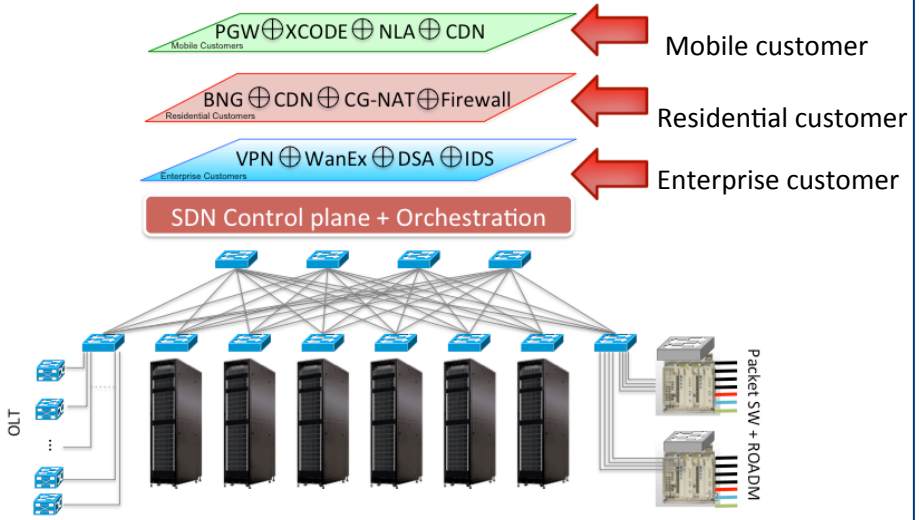


3. Segment Routing



Developed with ONF

4. NFaaS



But Open Source ONOS is just the beginning…

ONOS: Solid Foundation, Initial Use Cases
Open Sourced on Dec 5th

ONOS: Full functionality, hardened, ready-to-deploy
Built by the community

Images: NASA

Community (i.e. YOU) will be instrumental in helping ONOS realize its potential by:

Strengthening core platform

Building on ONOS

Evolving NB Abstractions, APIs, interoperability

Adding SB adaptors for existing devices, enabling whiteboxes

Doing trials and deployments

ONOS is an ideal SDN innovation platform for Vendors

ONOS
Open Network Operating System

Vendors - Differentiating with ONOS

Industry moving towards openness and interoperability.
Great opportunity for vendors to participate and lead

$$

Value in complete solutions

$$ $$ $$

SDN Control Plane (ONOS)

$$ $$ $$

Value in apps and services

Strategic but difficult to monetize

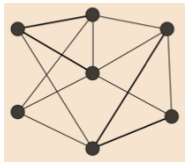
Value in network and devices

Vendors can help harden ONOS into a true carrier-grade platform and differentiate with:

New features, apps, services

Commercial-grade solutions

Service integration, support



Complete ecosystems- Services, support, apps

Disruptive innovation

Building and evolving ONOS with the community

[ONOS will be Open Sourced on Dec 5th, 2014]

ONOS

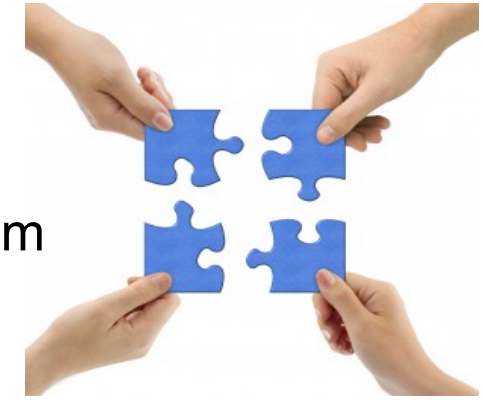
Open Network Operating System

OPEN SOURCE ONOS PROJECT

ONOS Ecosystem

ON.LAB

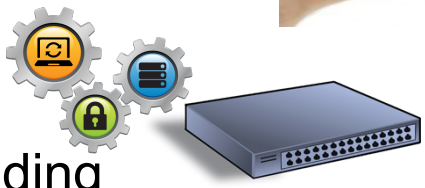
- Non-profit, Carrier and vendor neutral
- Build core platform
- Provide technical shepherding, core team
- Build community



Service Providers

- Provide funding
- Provide requirements
- Develop use cases
- Drive POCs, deployments
- Bring vendors along

Vendors



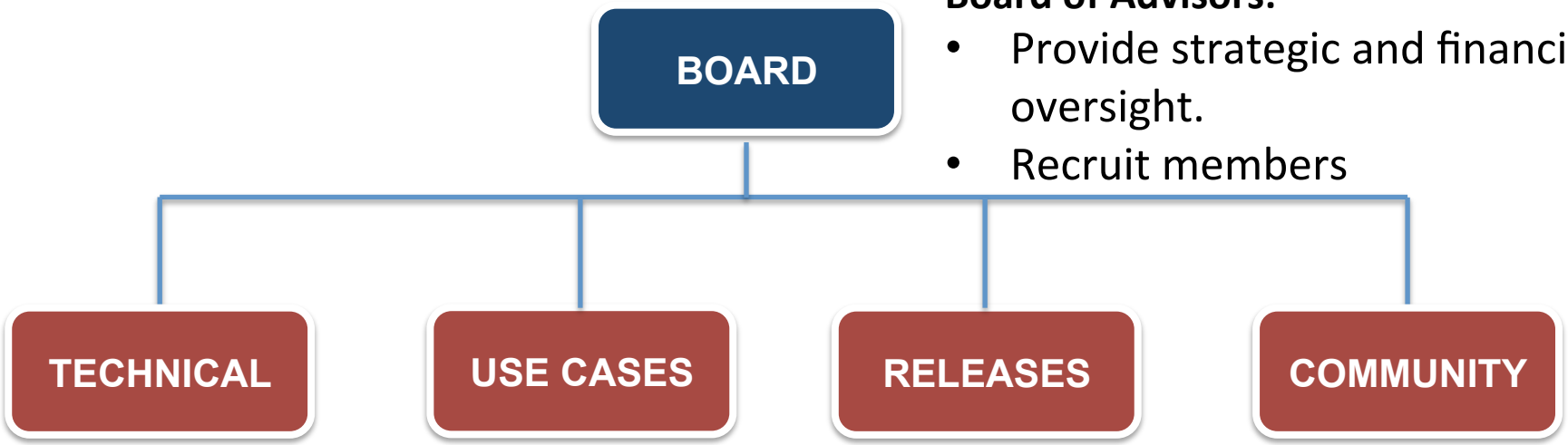
- Provide funding
- Provide engineering resources
- Build products and solutions
- Provide integration, test and support services

Community

- Drive every aspect- technical, process, roadmap, deployments
- Bring in diversity
- Help ONOS evolve and thrive

OPEN SOURCE ONOS PROJECT

Governance



Board of Advisors:

- Provide strategic and financial oversight.
- Recruit members

Technical Steering Team:

- Define and steward technical direction
- Elected by Active Technical Contributors

Use Cases and Solutions Team:

- Drive requirements, POC, deployments

Roadmap and Releases Team:

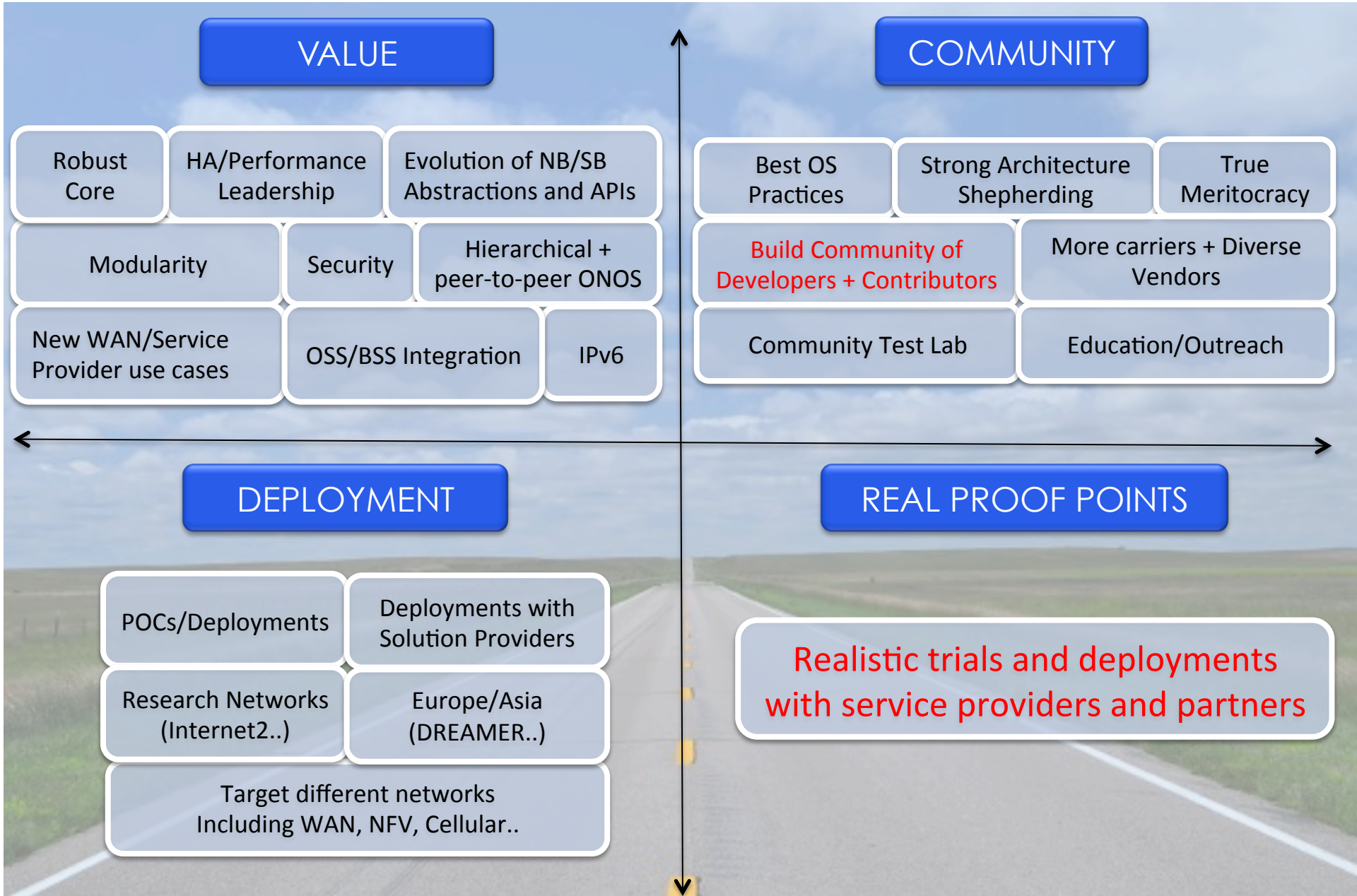
- Drive Releases
- Plan roadmap

Community Team:

- Build, support, represent community

Open Source ONOS project is a Meritocracy

ONOS in 2015


VALUE
Robust Core
HA/Performance Leadership
Evolution of NB/SB Abstractions and APIs
Modularity
Security
Hierarchical + peer-to-peer ONOS
New WAN/Service Provider use cases
OSS/BSS Integration
IPv6
COMMUNITY
Best OS Practices
Strong Architecture Shepherding
True Meritocracy
Build Community of Developers + Contributors
More carriers + Diverse Vendors
Community Test Lab
Education/Outreach
DEPLOYMENT
POCs/Deployments
Deployments with Solution Providers
Research Networks (Internet2..)
Europe/Asia (DREAMER..)
Target different networks Including WAN, NFV, Cellular..
REAL PROOF POINTS
Realistic trials and deployments with service providers and partners

OPEN SOURCE ONOS PROJECT

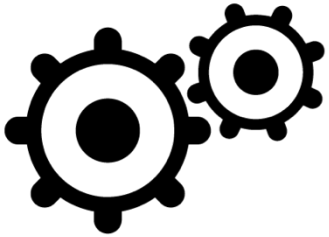
Success Metrics - 2015

Delivering quality code, releases, value

Service Provider and Vendor Sponsorship and participation

Open-ness, transparency, meritocracy

Community support and contributions



Industry and end user buy-in, trials, adoption

Please send your feedback on ONOS and join ONOS community at
join@onlab.us

"Software-defined networking can radically reshape the wide area network. The introduction of **ONOS** provides another open source SDN option designed for service provider networks with the potential to deliver the performance, scale, availability and core features that we value"

John Donovan
Senior Executive Vice President
AT&T Technology & Operations

at&t

BUILD

USE

CHAMPION