

ONOS Development Status, How to Contribute to ONOS Project?

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- ONOS Development Status
 - ONOS release history
 - ONOS development roadmap
- ONOS Open Source Communities
 - How to contribute to ONOS project?
 - Korean ONOS/CORD community



ONOS Development Status

ONOS Release History



Q4/14 **A**vocet

Base Architecture



Q3/15 **D**rake

ONF ATRIUM

Secure Mode ONOS (KAIST)

VxLAN

Device Configuration



Q2/16 **G**oldeneye

CPMan Apps (POSTECH)

Intents using Flow Objectives

P4 DEMO support

YANG tool chain



Q1/15 **B**lackbird

Performance



Q4/15 **E**mu

OPNFV

SONA (SKT)

AARNET

KREONET-S (KISTI)



Q2/15 **C**ardinal

ONS Use Cases

SDN-IP

Packet Optical

R-CORD



Q1/16 **F**alcon

ONS Use Cases

{A, E, M, R} CORD

Disaggregated ROADM

DC Fabric Control

Global R&E Deployment



Q3/16 **H**ummingbird

RabbitMQ, Kafka Message buses

YANG NBI, SBI CODECs

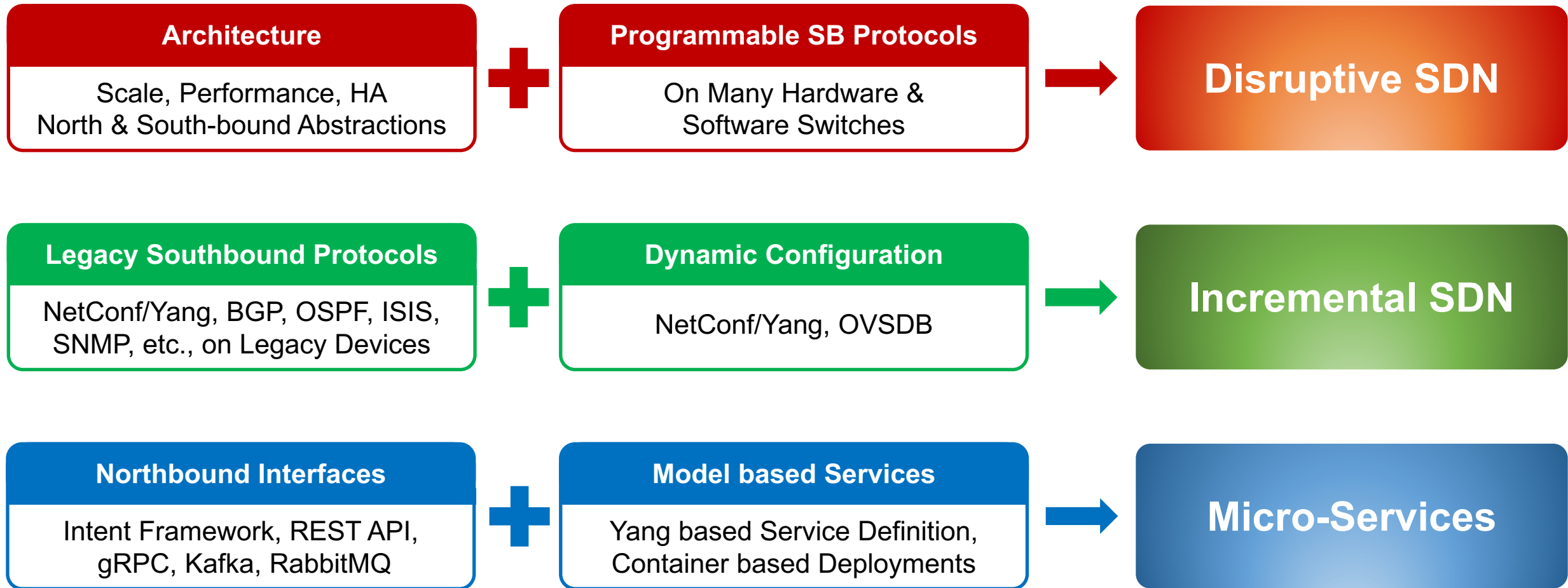
ACTN Traffic Engineering

Distributed system primitives

SB - OSPF, ISIS, REST Client...

Every release: ++ Deployments, Applications, NB, CORE, SB, Test, Community, Performance....

Incremental and Disruptive SDN Controller



ONOS is the only SDN control plane that can support all these scenarios

Near-Term Roadmap Items

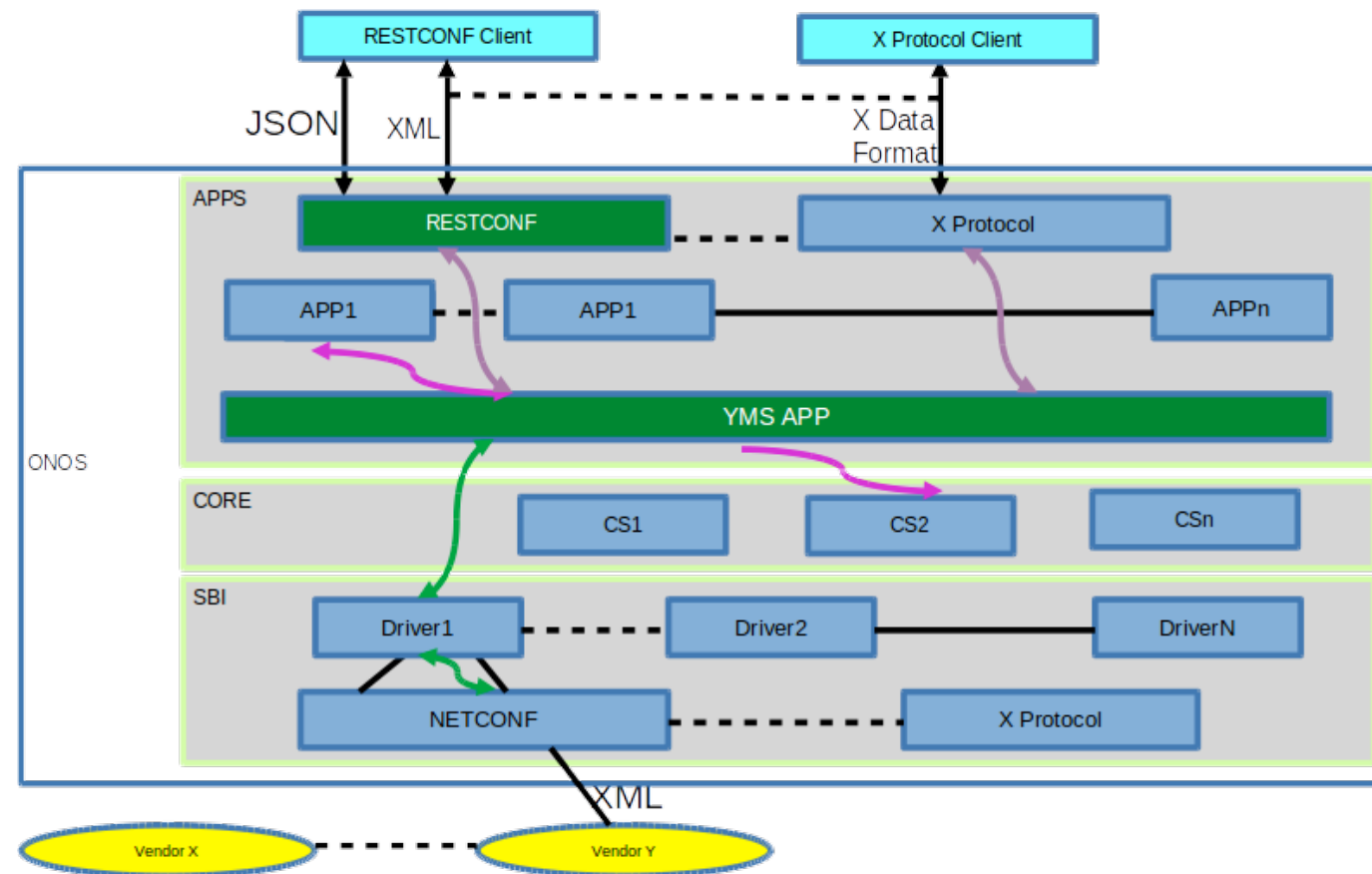


- Dynamic Configuration (WIP)
- Network Virtualization (WIP)
- GUI Scalability (WIP)
- Intent Subsystem 2.0 (WIP)
- In-Service Software Upgrade
- gRPC API
- Federation (hierarchical & peering)
- Distributed Platform & Network Core Separation

Dynamic Configuration



- Introduce model-driven configuration capabilities
 - Service & device configuration via standard & custom models
- YANG Compiler
 - YANG model → Java DTO
- YANG Runtime
 - Registry of Java DTO
- YANG Store
 - Service to distribute & persist
- NETCONF & RESTCONF
 - Interaction with devices



Network Virtualization

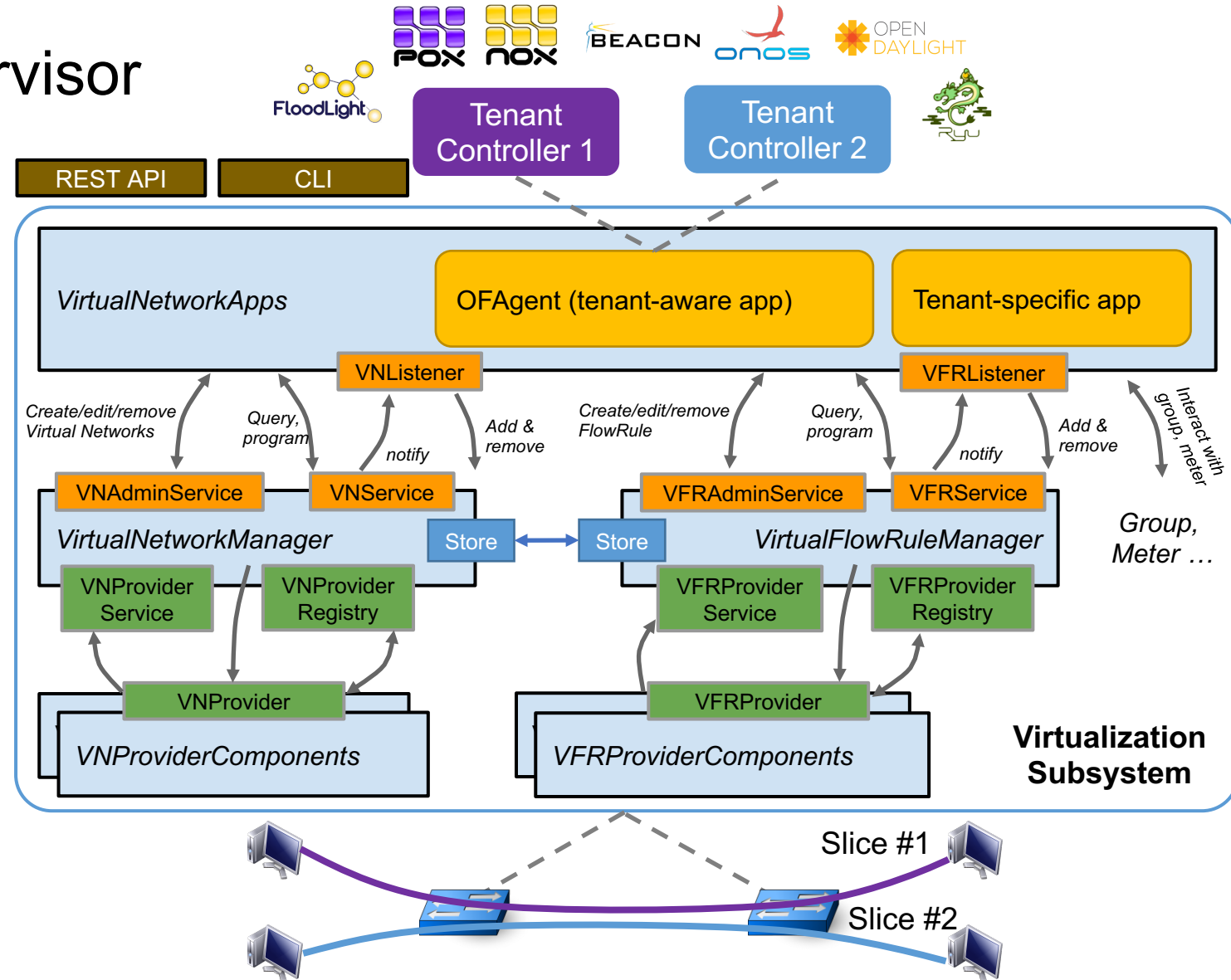


- ONOS as a Network Hypervisor

- OpenVirteX (OVX) model, aimed at virtualization for off-platform apps

- Virtualization

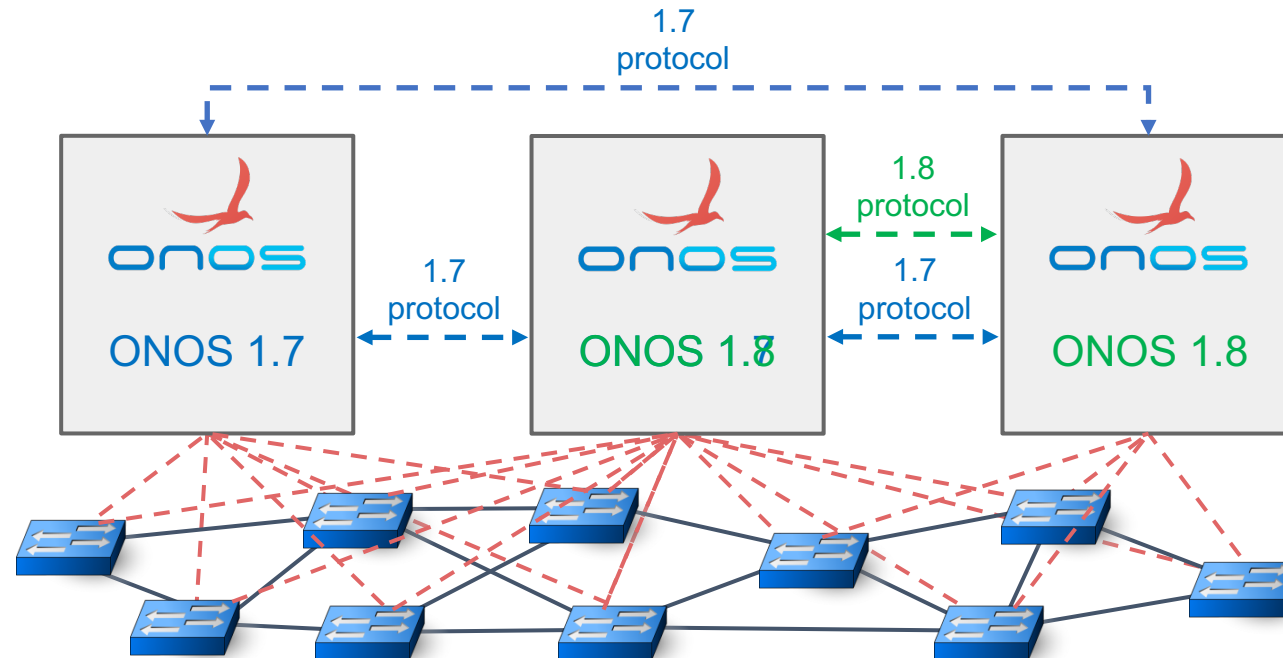
- Topology virtualization
 - Arbitrary topologies from Big Switch to isomorphic
- Address virtualization
 - VLAN, IP rewriting, tunneling
- More...



In-Service Software Upgrade

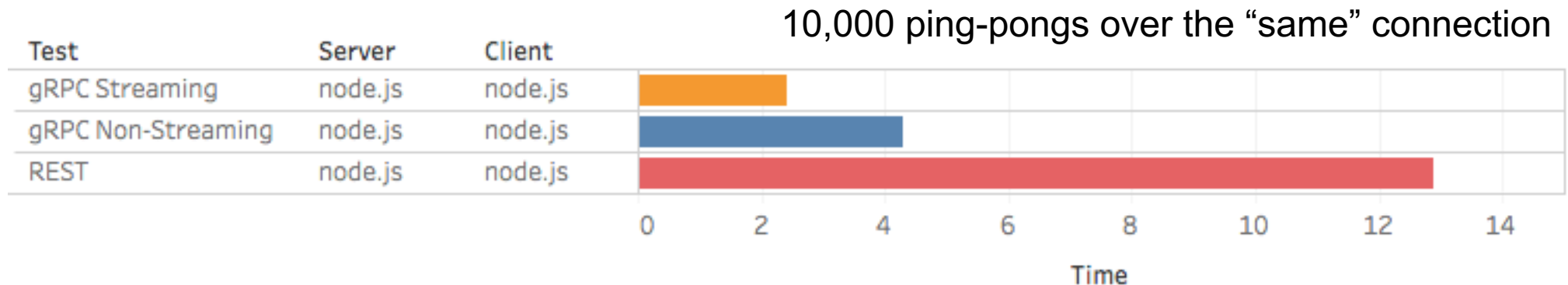


- Mechanism for Gradually Upgrading an ONOS Cluster
 - Upgrades cluster one node at a time without downtime
- Requires Portable Serialization for Cluster Communications
 - Upgraded nodes must be able to speak the “old” language





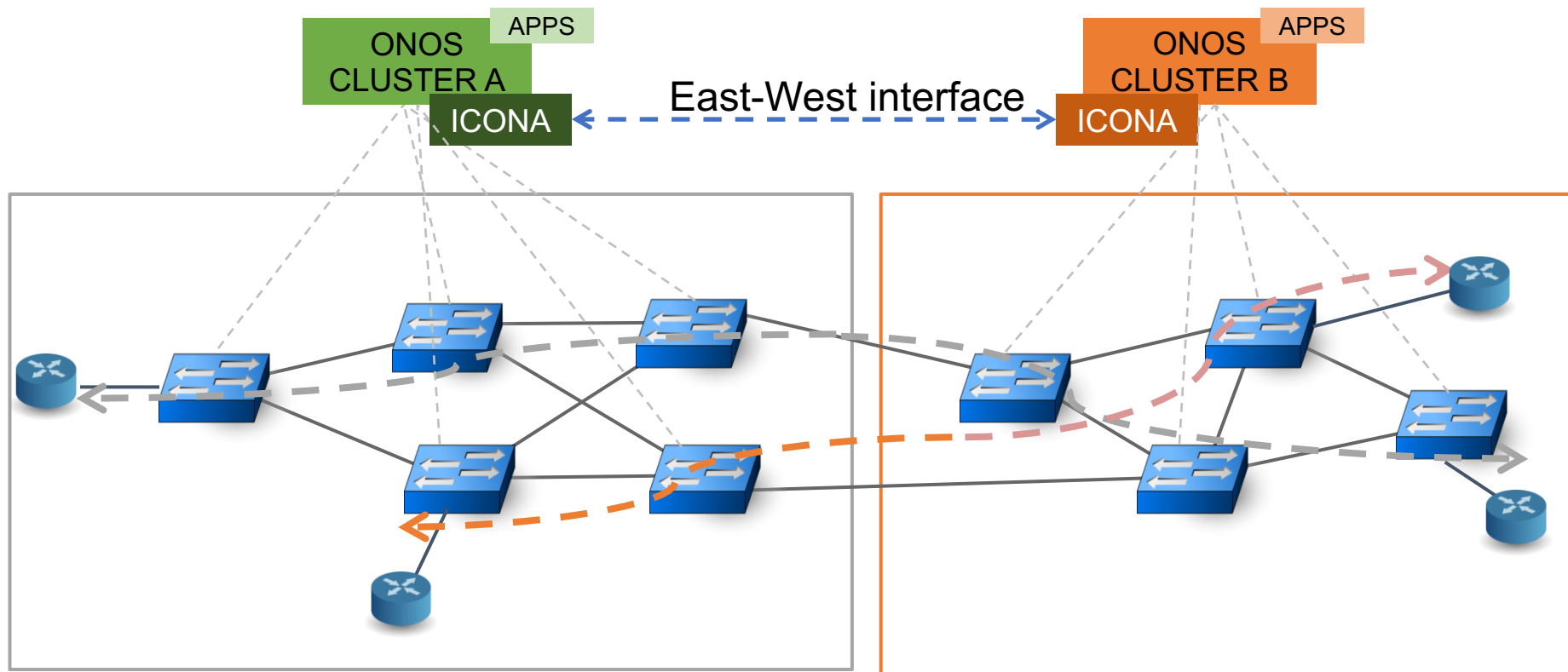
- Allow High-performance Interactions with Off-platform Apps
 - Presently available only for on-platform apps with native API
- Enable Apps to be Run on or off Platform
 - Compute resource isolation
- Allow ONOS Apps to be Written in Other Languages
- gRPC vs. REST
 - gRPC: Protobuf over HTTP/2 POST
 - REST: JSON over HTTP 1.1



Cluster Federation



- Coordination Mechanism for Multiple ONOS Clusters
 - Permits P2P & hierarchical arrangements
 - Aim to support different administrative domains





ONOS Open Source Community

ONOS Partners



Leading service providers make ONOS & SDN/NFV solutions relevant to them

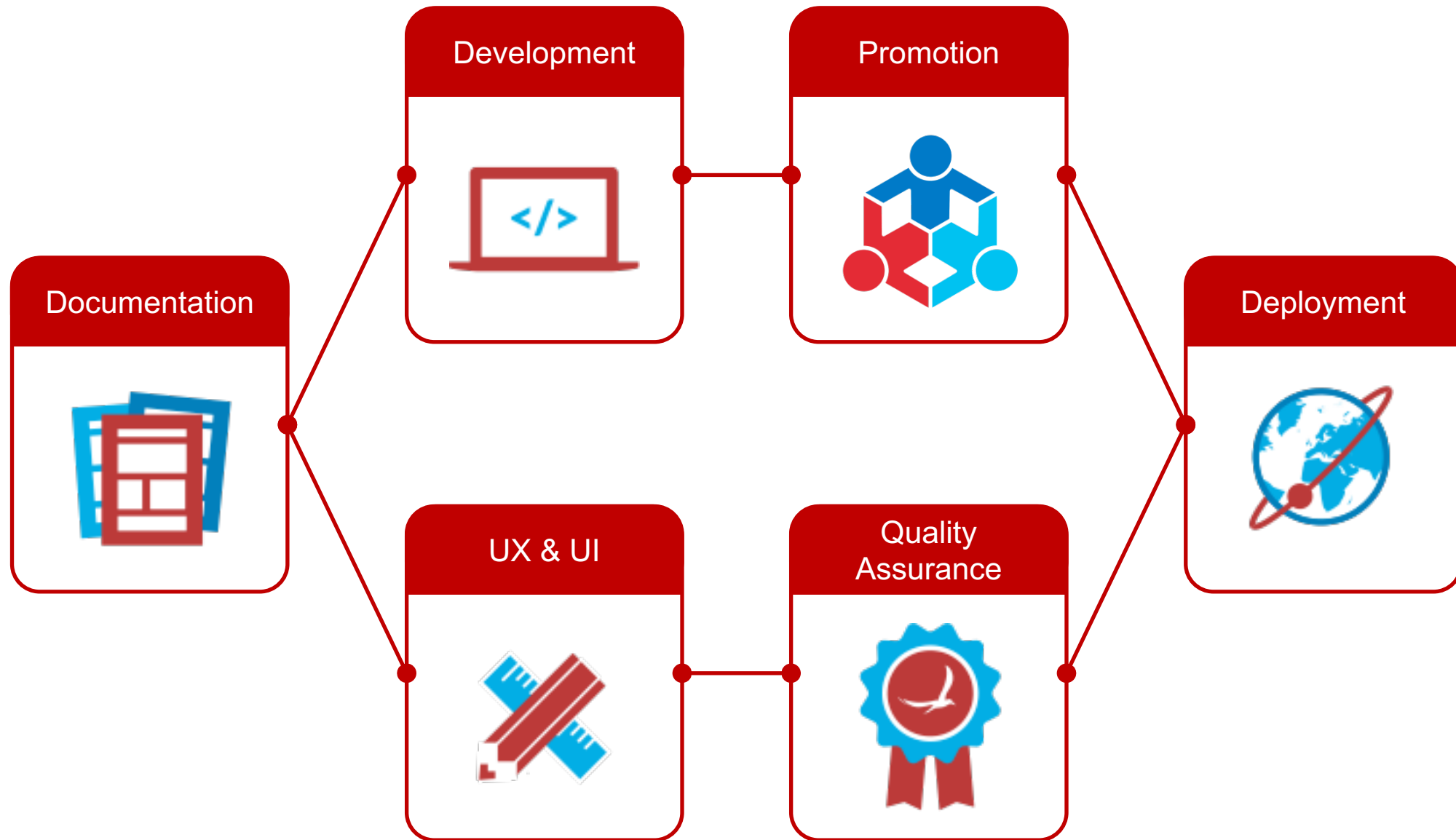
Leading vendors help make ONOS and SDN/NFV solutions real & ready for deployment

ONOS Collaborators



Collaborating organizations help grow the community and grow the impact
20 new collaborators so far in 2016 and more are joining every month

Contribution Opportunities



Development Contribution (1/3)



- Scratching Your Own Itch
 - For small fixes
 - submit a patch
 - For larger fixes or for new features
 - submit a proposal to the Technical Steering Team (TST)
 - submit a set of patches
- Helping Core Team with Roadmap
 - Get familiar with our processes by working on a starter bug
 - Start attending sprint planning and sprint DEMO meetings



Development Contribution (2/3)



- Issue Tracking

- <https://jira.onosproject.org>

- Issue types

- Epic, Story, Bug

- Priority

- Blocker, critical, minor

- Code Submission and Review

- <https://gerrit.onosproject.org>

- Roles

- Contributor, reviewer, module owner, project owner

- Code submission

- Code review

- Scoring (-2, -1, 0, +1, +2)

ONOS Scrum Board

QUICK FILTERS: Assigned to Me Open Items Open Bugs Recently Updated Bug Bounty Starters Platform & Core NB SB UI Apps

Test Production ... Show fewer

Backlog 41 of 430 issues visible Clear all filters - [X]

Create Sprint

ONOS / ONOS-3029

Need ARP table aging mechanism

Estimate: 5

Details

Status: OPEN

Labels: Starter

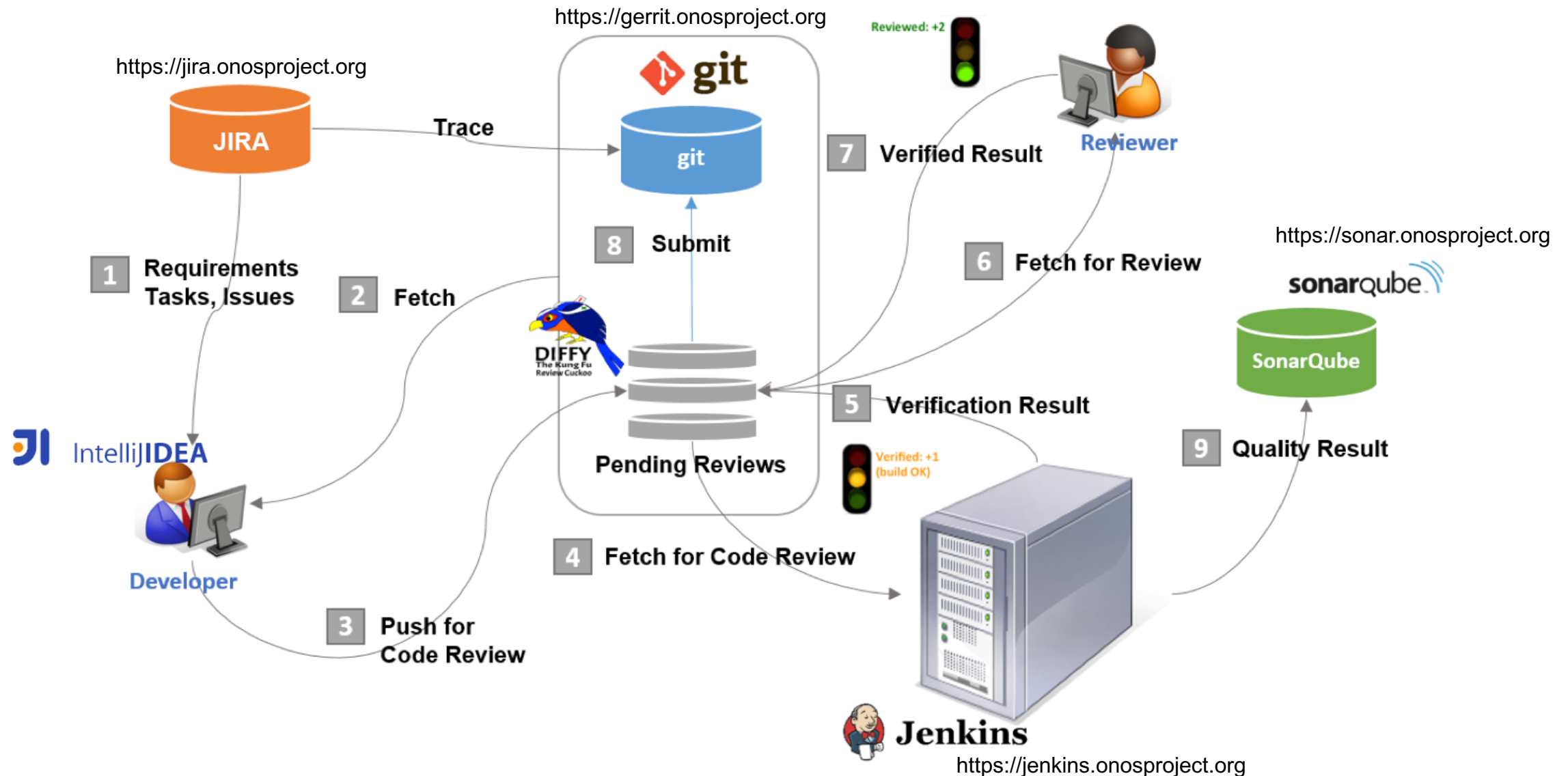
Affects Version/s: 1.4.0

Fix Version/s: None

Epic: Core x

Subject	Status	Owner	Size	CR	MO	V
Creating VlanConfigBehaviour to manage VLANs on devices		Konstantinos Kanonakis		+1	+1	✓
Introducing BandwidthProfileConfig behavior to manage policers/markers		Konstantinos Kanonakis		-1	-1	✓
[ONOS-5264] [ONOS-5242] Intents w/ FilteredConnectPoint		Yi Tseng				✓
[ONOS-5280] Update FUNCIntent		Ming Yan Shu				
Get device add time value from log and change thark capture method		chiyu cheng				
[WIP] Fix ONOS cluster restart test		Pier Luigi Ventre				
WIP: [ONOS-5241] Add CLI to VPLS		Chun Ming Ou				✗
Bump up swagger ui from 2.1.5 to 2.2.4		Jian Li				✓
vRouter doesn't handle config remove event		kishore darapu				✓
ONOS-5236 - Adapt SDN-IP to the new intent framework APIs	Merge Conflict	Luca Prete				✓
retry netconf ports discovery		Michele Santuari				✓
[ONOS-5012] implement RESTconf server	Merge Conflict	cheng fan		+1	+1	✓
OpenFlow message processing for new loxi - Draft for testing	Merge Conflict	Jimmy Jin				✗
DO NOT MERGE HpPipeline driver: Use hardware table 100	Merge Conflict	Steffen Gebert		+1		✓
The first implementation of LISP Encapsulated Control Message (ECM).	Merge Conflict	Yoonseon Han		+1		✓
Fixes for VPLS app		Luca Prete		✓	✓	✓
Parameterize accumulator's variable in AtomixWorkQueue		sangyun han		-1	-1	✓
Adding support for IGMPv2		Luca Prete				✓
WIP: ONOS-5298: New VPLS NeighbourHandler to support multiple VLANs		Yong-hwan Kim		+1	+1	✗
WIP: [ONOS-5283] Support association of arbitrary connect points in vpls, to ...		Huai-Wen Hsu		-1	-1	✗
CORD-413 Implement MPLS Termination in OFDPA3 pipeliner	Merge Conflict	Charles Chan				✓
Initial commit of new Ofdpa3Pipeline		Charles Chan				✓
Fix for ONOS-5035	Merge Conflict	deepa vaddireddy				✗
Key of packet request should include priority, not just selector.		Jonathan Hart		+1		✓
RESTCONF Server outline		Henry Yu		+1		✓

Development Contribution (3/3)



Documentation Contribution



- Documentation
 - <https://wiki.onosproject.org>
- Major Items
 - Tutorials, guides, use cases, projects
- Section Owners
 - Similar to *Module Owner* for ONOS codes
- Procedures
 - Check out JIRA to find any exist tickets
 - If exist, take ownership, proceed it!
 - If not, write up the detailed plan in JIRA and proceed documentation in wiki

The screenshot shows the ONOS Wiki interface. The top navigation bar includes 'Wiki', 'Spaces', and 'Browse'. A search bar is on the right. A sidebar on the left lists various guides and documents, including 'Downloads', 'Administrator Guide', 'Welcome to ONOS!', 'Getting ONOS', 'Installing and Running ONOS', 'Configuring ONOS', 'Interacting with ONOS', 'Distributed ONOS', 'Monitoring and Instrumentation', 'Appendix A : CLI commands', 'ONOS & Apps Deployment Guidelines', 'Southbound protocols', 'Flow Rule Criteria', 'Flow Rule Instructions', 'Hardware Switches Tested', 'Developer Guide', 'Architecture and Internals Guide', 'Contributor Guide', 'System Testing Guide', 'Tutorials', 'Community Information', 'Release Model', 'System Test Plans and Results', 'Use Cases', 'Projects', 'FAQ', and 'Useful Links'. The main content area displays the 'Welcome to ONOS!' page for the Administrator Guide, created by Bob Lantz. It includes a brief description of ONOS as an Open Network Operating System and a list of bullet points explaining its benefits and target audience.

Have questions? Stuck? Please check our [FAQ](#) for some common questions a

This wiki documents the current development version of ONOS (master). Refer to [Archives](#) for documentation for all previous versions of ONOS.

[ONOS / ... / Administrator Guide](#)
Welcome to ONOS !
Created by Bob Lantz, last modified on Dec 07, 2015

ONOS stands for **Open Network Operating System**. ONOS provides the control plane for a software-defined network (SDN), managing network components, such as switches, and running software programs or modules to provide *communication services* to neighboring networks.

- If you are familiar with *server operating systems*, you will find that ONOS provides analogous types of functionality, including APIs and abstractions, resource allocation, permissions, as well as user-facing software such as a [CLI](#), a [GUI](#), and system applications.
- If you are familiar with traditional "inside the box" *switch operating systems*, you will find that ONOS manages your *entire* network rather than a single device, which can dramatically simplify management, configuration, and deployment of new software and services.
- If you are familiar with *SDN controllers*, you should feel right at home because the ONOS platform and applications act as an extensible, modular, distributed SDN controller.

The most important benefit of an operating system is that it provides a useful and usable platform for software programs designed for a particular application or use case. ONOS applications often consist of customized communication routing, management, or monitoring services for software-defined networks. Some examples of things which you can do with ONOS and software written to run on ONOS, may be found in [Monitoring and Instrumentation](#).

ONOS can run as a [distributed system](#) across multiple servers, allowing it to use the memory resources of multiple servers while providing fault tolerance in the face of server failures and potentially supporting live/rolling upgrades of hardware and software without interrupting network traffic.

The ONOS kernel and core services, as well as ONOS applications, are written in Java and are bundled together into a single OSGi container. OSGi is a component system that allows modules to be installed and run dynamically in a single JVM. Since ONOS runs on a JVM, it can run on several underlying OS platforms such as Ubuntu or CentOS.

Spreading the Word Offline



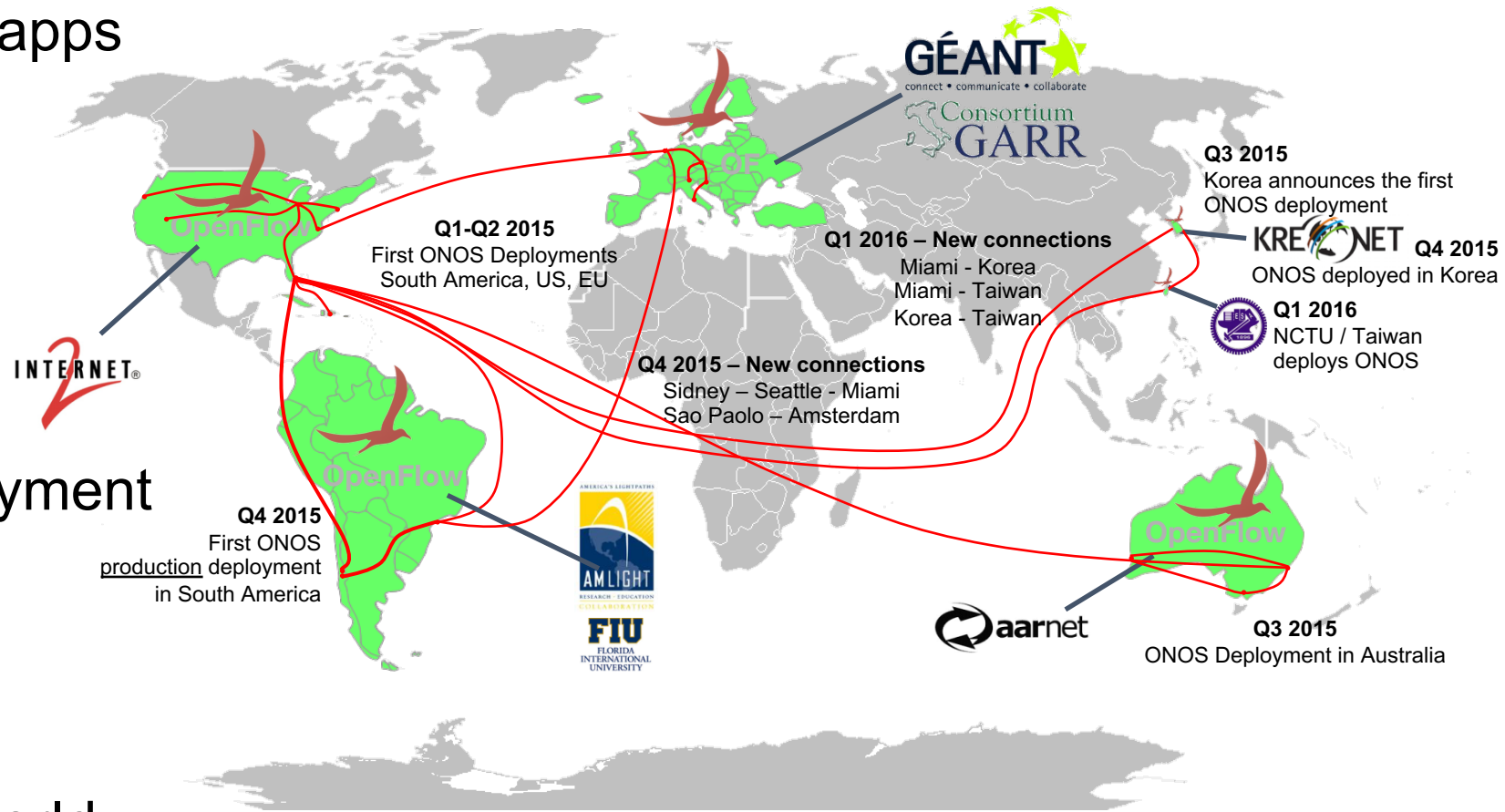
- Share and subscribe
 - #ONOSProject, twitter, facebook, etc.
- Ambassador Program
 - Empower anyone who is passionate and knowledgeable about ONOS, who want to build a strong local community
 - Ways ON.Lab supports Ambassadors
 - Provide guidance on organizing local events
 - Order and customize swag and business card
 - Provide relevant slides, templates, videos
 - Produce specific materials (posters, flyers, etc.)
 - Application steps
 1. Submit application form
 2. Interview with A-team member
 3. On-boarding!



Deployment Contribution



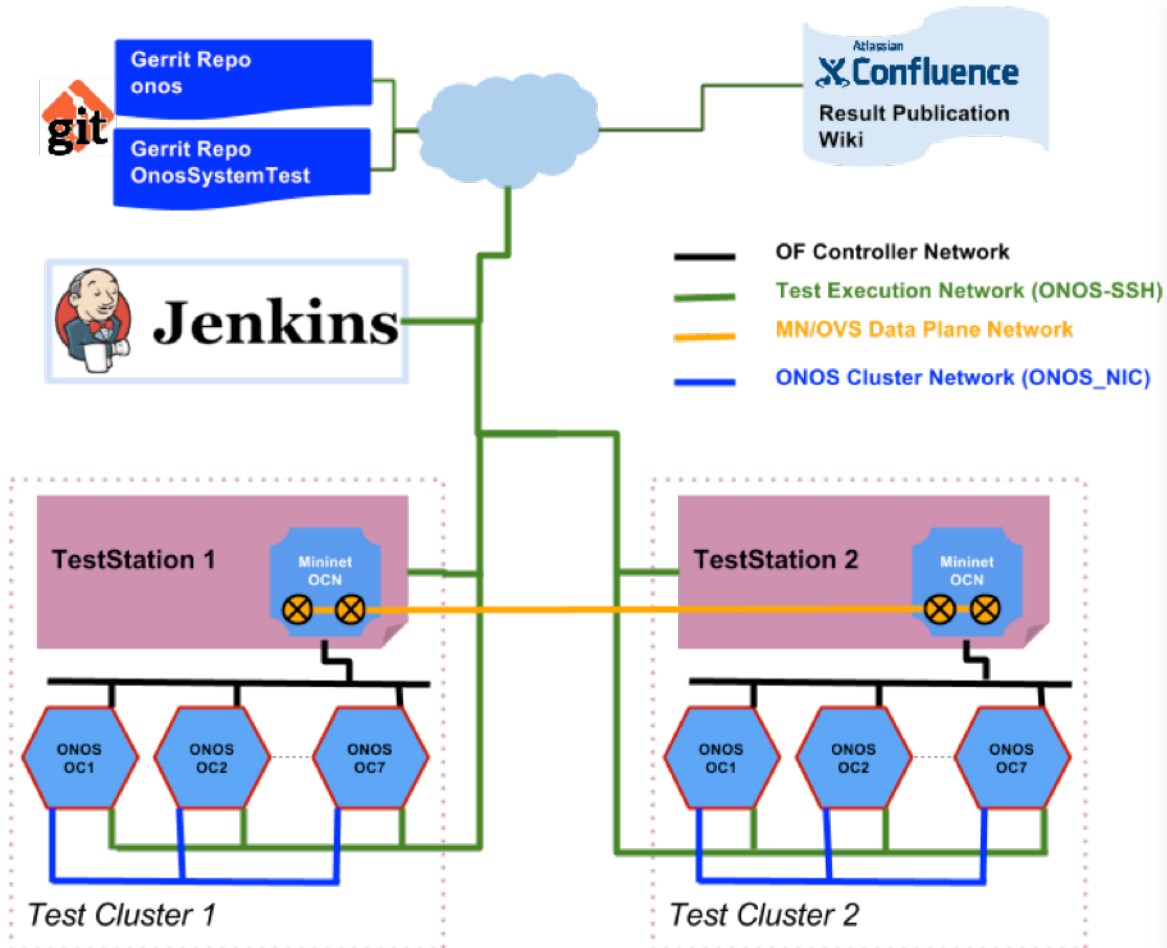
- Expand
 - Deploy ONOS and its apps on your network
- Guide
 - ON.Lab provides resources, guides and tips to help your deployment
- Share
 - ON.Lab shares your deployment with the world



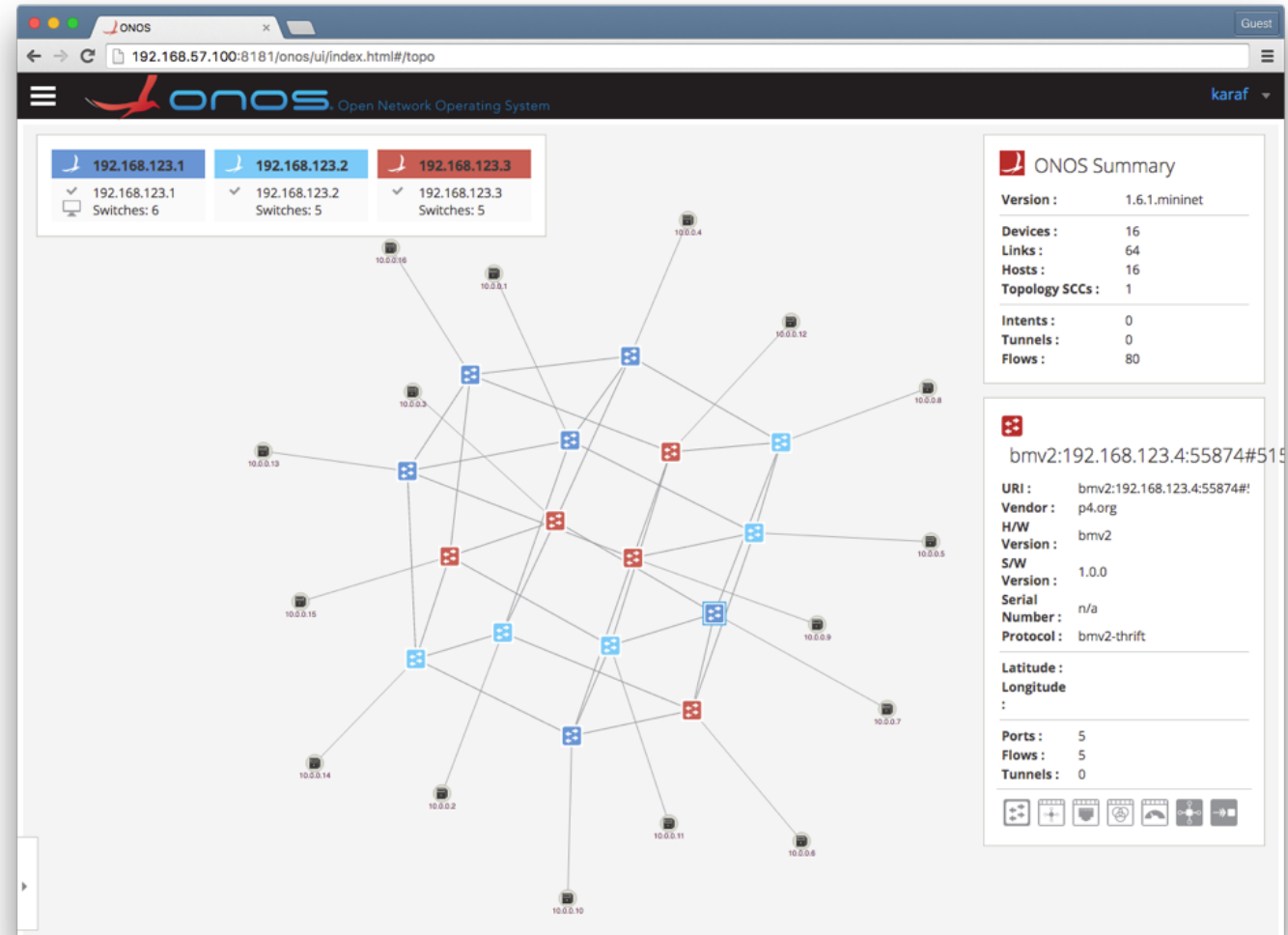
Other Contributions



- Quality Assurance Contribution



- UX & UI Contribution





- Korea ONOS/CORD Community
 - Officially launched at 5th, Sept., 2016
 - ONOS/CORD working group
- Facebook Group
 - ONOS Korea Group: <https://www.facebook.com/groups/onos.kr/>
- Slack
 - Access: <https://onoskr.slack.com>
 - Registration: <https://onos-kr-checkin.herokuapp.com>

