



# Getting Started as an Upstream Contributor

**Marc Rapoport**

*Open Source Networking Days, Bay Area  
November 1<sup>st</sup> 2018*



# Project Overview



# Tungsten Fabric Mission



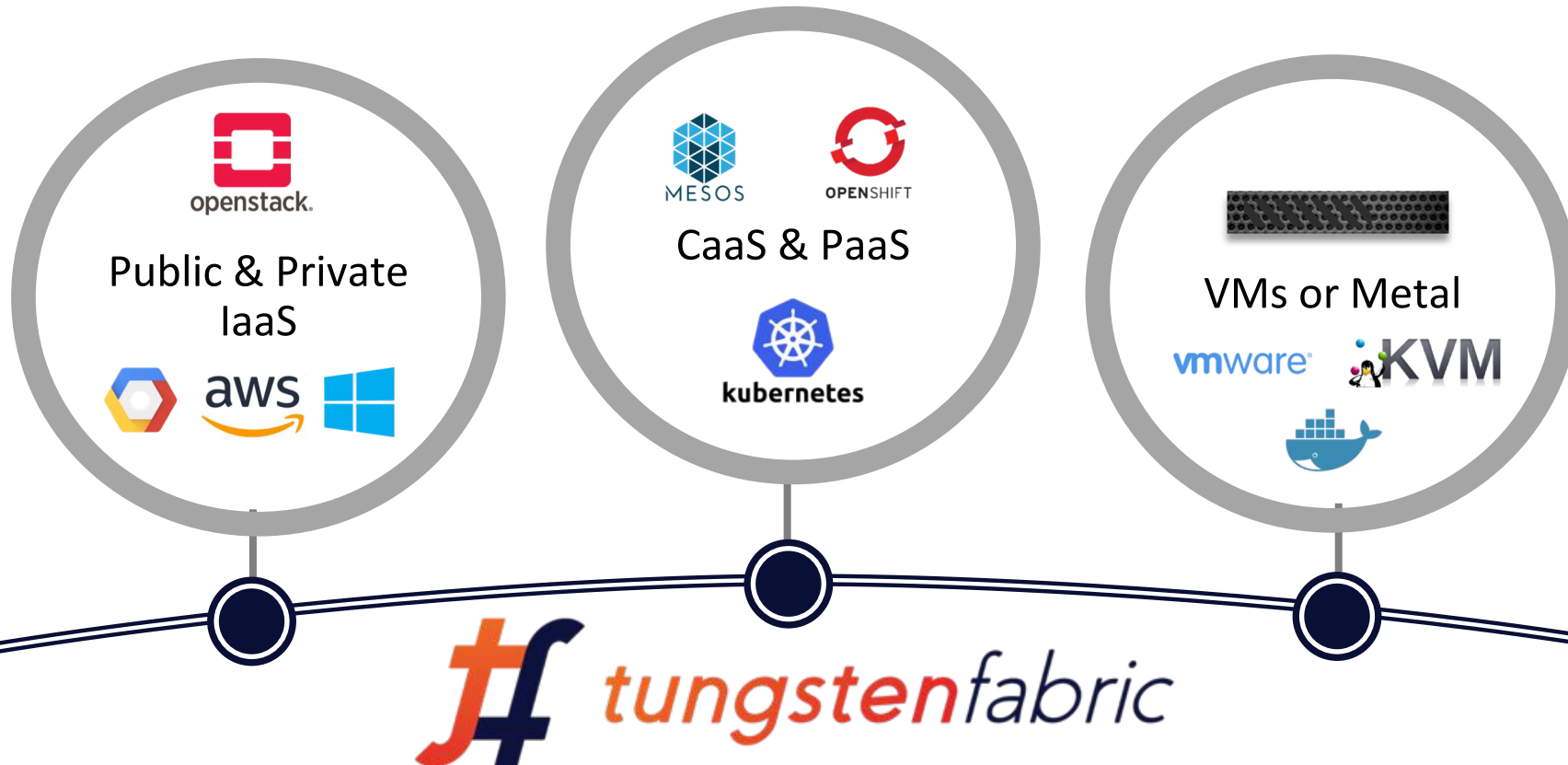
Build the world's most **ubiquitous, easy-to-use, scalable, secure**, and cloud-grade SDN stack, providing a network fabric connecting all **environments, all clouds, all people**.

<https://tungsten.io/>

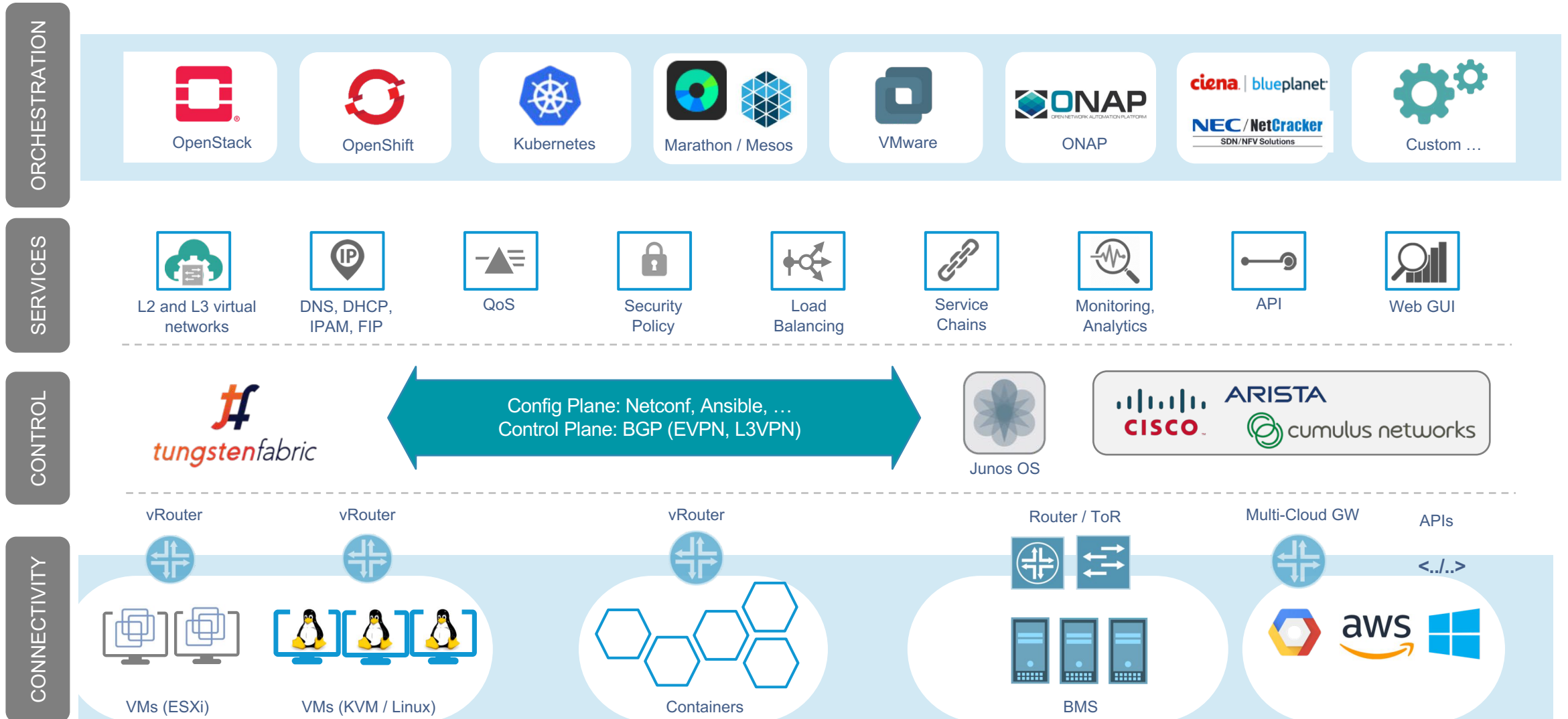
# Tungsten Fabric as SDN controller

## RULE THEM ALL WITH ONE

automated secure open SDN Controller

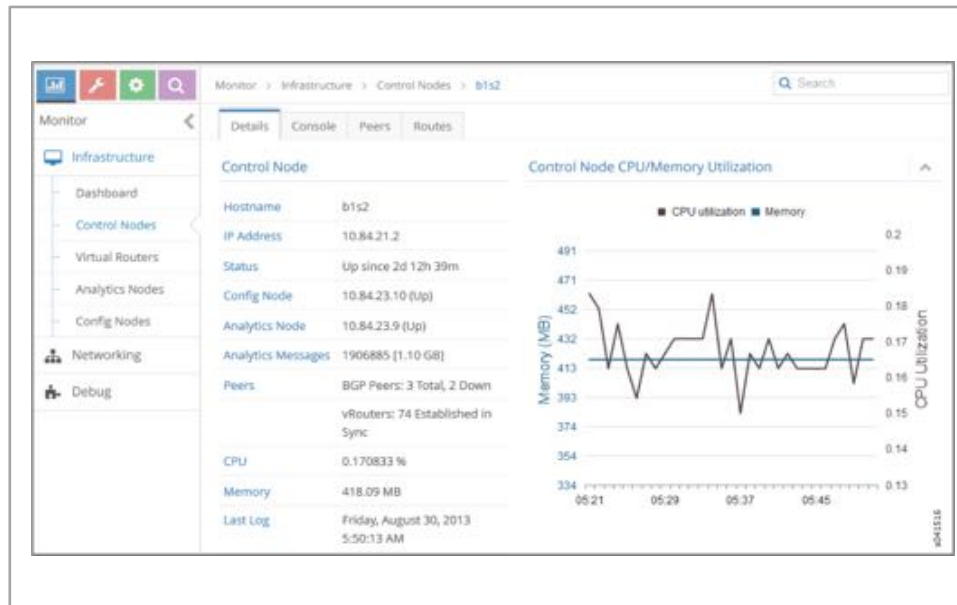


# Tungsten Fabric Overview



# User Experience

GUI

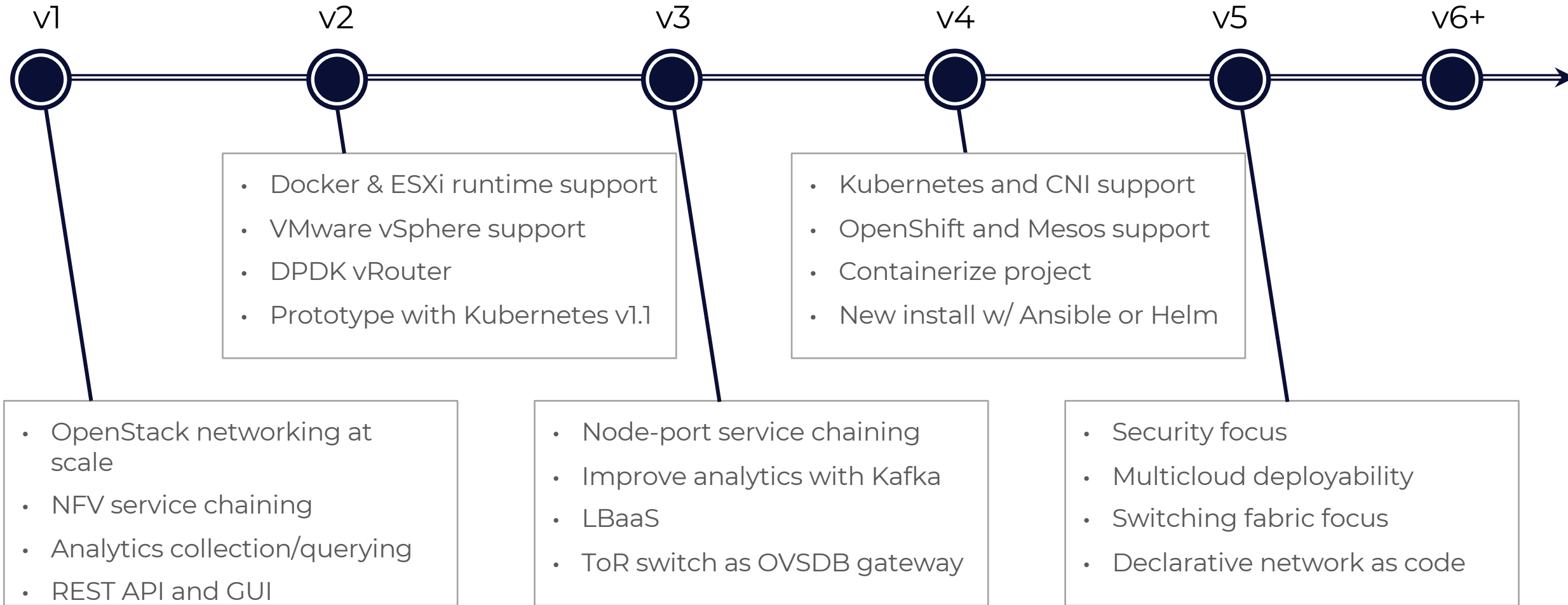


NORTH-BOUND  
API



- REST API
- HTTPS authentication and role-based authorization
- Used for GUI
- Used for declarative configurations as code
- Generated from data model

# Past, Present & Future



# CODE & COMMUNITY



*tungstenfabric*





# Community



## Principles:

- Open and inclusive
- Provide strong technical and architectural oversight
- Competitive ideas welcome
- Rough consensus and running code will always win
- Iterate and evolve

# Community Members



# Community Members



# Community Members



# Community Members



# Governance

## Technical Steering Committee: Overall Project Governing Body

*This primary interface to LF and LF-N for project-wide issues is divided into two permanent working groups:*

- 11 members in the TSC: 5 from CWG, 5 from TWG, 1 from ARB

### Community Working Group

*Focused on business governance, the CWG handles policy, marketing, and budget*

- Meets every Fri 11am PT
- Members are AT&T, Juniper, CloudOps, Intel, SDNessentials

### Technical Working Group

*Focused on technical governance, the TWG handles use cases, architecture, lifecycle, and subprojects*

- Meets every Tue 9am PT
- Members are Intel, AT&T, Juniper, Aricent, Yandex

Working groups within the TWG outlined on the next slide

Community Calendar: <https://tungstenfabric.io/community/>

# TWG Working Groups

## Architecture Review Board (ARB)

### *Architecture consistency*

- Define detailed Architecture
- Review Design Specs and Code
- delegated by Tech WG
- Members: AT&T, Intel, Juniper

## Infrastructure Working Group (IWG)

### *Technical backlog*

- Build a community CI
- Define documentation and test requirements
- Meets every other Tue at 5am or 11am PST
- Members: Tech TrueUp, Aricent, AT&T, Codilime, Juniper

## Marketing Working Group (MWG)

### *Interface to LF-N Marketing Adv. Council (MAC)*

- Marketing plans and outreach
- Cross Community coordination
- Members: Juniper, Intel

## Documentation Working Group (DWG)

### *User and developer documentation*

- Release Note - Lenovo
- Feature Docs – Juniper/Lenovo
- Developer Docs - General Community
- Meets every other Thu at 9am PST
- Members: AT&T, Lenovo, Juniper



# GETTING STARTED



*tungstenfabric*

# Getting started

Carbide Quick Start — <https://tungsten.io/start>

Deploy a sandbox with Tungsten Fabric cluster orchestrated by Kubernetes in AWS

Standalone Ansible deployment — <https://github.com/Juniper/contrail-ansible-deployer>

## Installer integrations

Helm — <https://github.com/Juniper/contrail-helm-deployer>

Kolla Ansible - <https://docs.openstack.org/kolla-ansible/latest/>

RDO TripleO/RedHat OSD - <https://contrail-tripleo.readthedocs.io/en/latest/>

Canonical Juju/Charms

Mirantis MCP

# 0-60 in 15 Minutes w/Carbide (TF+k8s on AWS)

The screenshot shows the AWS CloudFormation console interface. At the top, the AWS logo and navigation menu are visible, including 'Services', 'Resource Groups', and user information for 'Randy L Blas' in 'N. California'. The main heading is 'CloudFormation Stacks'. Below this, there are buttons for 'Create Stack', 'Actions', and 'Design template'. A filter dropdown is set to 'Active' and a search box contains 'By Stack Name'. A table lists one stack: 'tungsten-carbide-eval', created on '2018-08-23 15:55:34 UTC-0700', with a status of 'CREATE\_COMPLETE' and a description of 'Tungsten Fabric Sandbox'. Below the table, there are tabs for 'Overview', 'Outputs', 'Resources', 'Events', 'Template', 'Parameters', 'Tags', 'Stack Policy', 'Change Sets', and 'Rollback Triggers'. The 'Outputs' tab is active, showing a table with one output: 'MasterNodeURL' with a value of 'https://ec2-54-183-143-157.us-west-1.compute.amazonaws.com' and a description of 'URL for Master node of Sandbox (u...'. The 'Export Name' column is empty for this output.

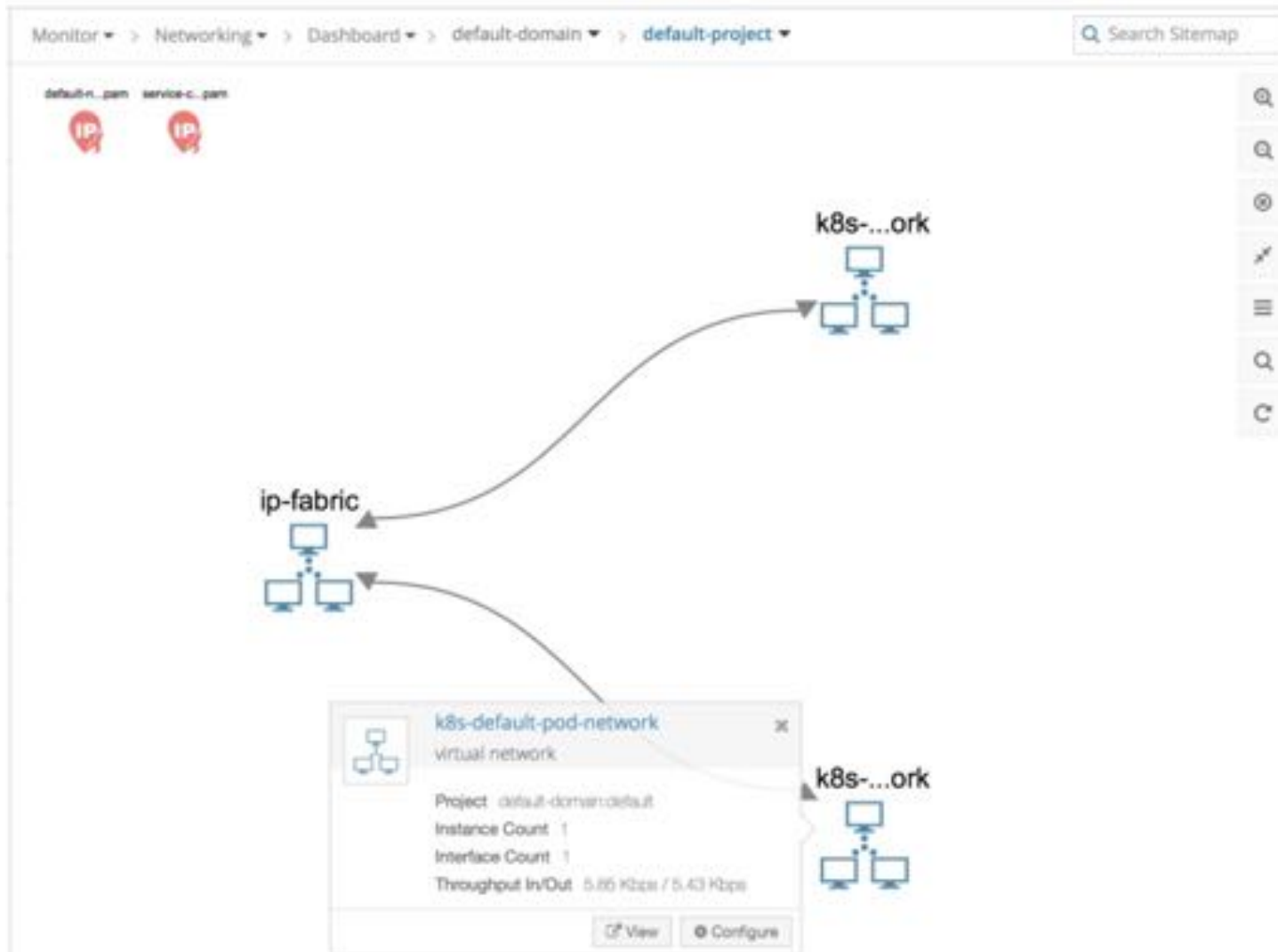
Stack Name	Created Time	Status	Description
✓ tungsten-carbide-eval	2018-08-23 15:55:34 UTC-0700	CREATE_COMPLETE	Tungsten Fabric Sandbox

Key	Value	Description	Export Name
MasterNodeURL	https://ec2-54-183-143-157.us-west-1.compute.amazonaws.com	URL for Master node of Sandbox (u...	



# 0-60 in 15 Minutes w/Carbide (TF+k8s on AWS)



# Community resources

- Slack — [tungstenfabric.slack.com](https://tungstenfabric.slack.com)
  - #Dev – developer focus
  - #Documentation – software documentation
  - #General – general discussion
  - #Users – user focus
- Mailing Lists — <https://lists.tungsten.io>
  - Main – everybody needs to subscribe
  - Dev – developer focus
  - Discuss – general discussion
  - ARB – architectural review board
  - Marketing – events and other outreach
  - Security – Security bug escalations
  - TSC – Governance

# Slack Channels

**Tungsten Fabric** | marc.rapoport

Jump to...

All Unreads  
All Threads

Channels

- # dev
- # random
- # smartnic
- # general
- # users

Direct Messages

- slackbot
- marc.rapoport (you)
- Max
- r3j3
- sukhdevkapur

Apps

**#dev** | 1,075 | 90 | Add a link

Today

`./create_control.yml`  
`./create_vcenter_plugin.yml`  
`./create_vrouter_Linux.yml`  
`.create_webui.yml`

these files contain 'docker pull' command

**Egor** 7:52 AM  
@andrey-mp @traganawa Folks, is it vrouter possible build vrouter for aarch64 (Marvell processor) without DPDK support. If it possible may you can give me some refs to corresponding manuals, Thanks!

**andrey-mp** 8:27 AM  
Hi @Egor, I'm sorry, I don't know

**Egor** 8:54 AM  
@andrey-mp As far as I understand, TF's vrouter doesn't support Arm architecture. Is it truth?

**andrey-mp** 9:32 AM  
I don't know, I'm not an expert in vrouter's codebase

**Jennifer Fowler** 9:33 AM  
Don't miss the opportunity to share your TF Story at KubeCon North America. **Submit your proposal today!** Users and developers are invited to participate in the Tungsten Fabric Developers Summit on December 10. Today is the deadline for CFPs <https://tungstenfabric.io/kubecconcfp/>

**Tungsten Fabric**  
**Calls for Papers: Tell Your Story at Two Upcoming Tungsten Fabric Events**  
Users and developers in the Tungsten Fabric community are invited to participate in the calls for papers at two upcoming events: Tungsten Fabric Workshop at KubeCon China (Nov. 13 in Shanghai) Tung...

Oct 1st

**artgromov** 9:47 AM  
joined #dev.



# HOW TO CONTRIBUTE CODE



*tungstenfabric*

# The big picture

- 1) Sign up for mailing lists, Slack, Gerrit, and Launchpad, plus sign the CLA.
- 2) submit your blueprint via Launchpad. Notify the #dev channel on Slack, as well as both the “dev” and “arb” mailing lists.
- 3) Once your blueprint is approved, create a spec – detailed design
- 4) Once approved, you’re ready to write your code and post for review to [review.opencontrail.org](https://review.opencontrail.org).



# Start: Submit your CLA

There are two CLAs:

- Corporate Contributor Licence Agreement (CCLA)  
<https://drive.google.com/open?id=1DOBC0RuBhJpBDpamliaUF-TUV-m2PGti>
- Individual Contributor License Agreement (ICLA)  
[https://drive.google.com/open?id=15kY8BmdXJEaq7mbHqM\\_O\\_7vbi7Nmx3ZD](https://drive.google.com/open?id=15kY8BmdXJEaq7mbHqM_O_7vbi7Nmx3ZD)

Choose the right one for you, sign, and submit it.

### 3. Create a Gerrit account

Create a Gerrit account on [review.opencontrail.org](https://review.opencontrail.org)



Email [cla@lists.tungsten.io](mailto:cla@lists.tungsten.io) with your CLA to get access to Gerrit.

# Is it a feature, or is it a bug?

I'm working  
on a **BUG**

I'm working  
on a **FEATURE**

It all starts in Launchpad: <https://launchpad.net/opencontrail>

---

Attend a Tuesday meeting ask TC to  
accept the bug fix.

Submit a blueprint <https://launchpad.net/opencontrail>

---

Pay attention to the code completion deadlines! [www.tungsten.io/community](http://www.tungsten.io/community)

# What is a blueprint?

A blueprint is a use case. Here's an example:

<https://blueprints.launchpad.net/opencontrail/+spec/ip6-arpa-zone>

Ask yourself...

- Does the community need it? Does it fit our current architecture?
  - Alternative implementations not a good idea
  - If current implementation is broken, jump in and fix it
  - Technology placement for its own sake is not welcome
  - We are not a universal SDN big tent. Read the architecture, follow the architecture
- Provide just enough detail for review
  - Save the implementation details for the spec.

# blueprints.launchpad.net

Overview Code Bugs **Blueprints** Translations Answers

## Blueprint assignments for "OpenContrail"

This listing shows the assignment of work for blueprints currently associated with OpenContrail. The drafter is responsible for getting the specification correctly written up and approved. The approver is usually the person who would sign off on the specification.

1 → 54 of 54 specifications

First • Previous • Next • Last

Priority	Name	Definition	Delivery	Assignee	Drafter	Approver
High	 LBAASv2 support in OpenContrail	Review	Good progress	 Yuvanaja Marappan	 Rudra Ruggie	 Rudra Ruggie
High	 Service health check	Drafting	Started	 Rudra Ruggie	 Rudra Ruggie	 Ashish Ranjan
High	 Third party IPAM integration in OpenContrail	Drafting	Unknown	 Acul Moghe	 Acul Moghe	 Rudra Ruggie
High	 Vcenter plugin to vrouter rest interface	Drafting	Started	 Andra Comaru	 Andra Comaru	 Rudra Ruggie
High	 ZTP of Greenfield devices using CPE	New	Unknown	 Rishabh Tulsian	 Rishabh Tulsian	
High	 Contrail helm charts for microservices architecture	New	Started	 mnaya@bomman@juniper.net	 mnaya@bomman@juniper.net	 Rudra Ruggie
High	 Allow custom attributes for configuring tenant lbaas	New	Unknown	 Varun LeCaye	 Varun LeCaye	 Rudra Ruggie
High	 mellanox-icx support	New	Started	 Jeya-ganesh babu J	 Jeya-ganesh babu J	
High	 Support vcenter only service chaining	New	Unknown	 Sachchidanand Vaidya	 Sachchidanand Vaidya	 Rudra Ruggie
Medium	 EVPN type 3 support in contrail vrouter	Approved	Good progress	 Manish Singh	 Manish Singh	 Ananth Suryanarayana
Medium	 IPv6 Reverse Zone Support for contrail-dns	Approved	Needs Code Review	 Valentin Sirobyn	 Valentin Sirobyn	 Ananth Suryanarayana
Medium	 Integrate OpenContrail vRouter with DPOK 17.11	Approved	Good progress	 Yi-yang	 Joseph Gasparakis	 Raja
Medium	 IPv6 Underlay Support	Pending Approval	Deferred	 Valentin Sirobyn	 Valentin Sirobyn	 Nischal Sheth



# How Blueprints get approved

Blueprints are reviewed and approved by the TC

Joseph Gasparakis, Chair

Tuesday meeting—get on the agenda (Slack Joseph)

Mind the blueprint deadline for the current release!

# After your blueprint is approved, create a spec

A specification (spec) is a detailed feature design. Here's an example:

[https://review.opencontrail.org/#/c/37214/3/specs/ipv6\\_reverse\\_zone\\_for\\_vdns.md](https://review.opencontrail.org/#/c/37214/3/specs/ipv6_reverse_zone_for_vdns.md)

Specs can be approved by one member of the ARB. Start that process by sending an email to [arb@lists.tungsten.io](mailto:arb@lists.tungsten.io). Contact members on Slack.

Once your spec is approved, commit your code and test it (unit and integration) by the code completion deadline:

- Create a commit bug on Launchpad.
- Do your tests and fix your code.
- Submit a review request on Gerrit ([review.opencontrail.org](https://review.opencontrail.org)).
- Ask dev channel for code review on Slack. << VERY IMPORTANT!

# Writing a great spec

Explain how the code fits the current architecture.

Explain how your code is simple, coherent, scalable, high performance, and production ready.

Specify all external and the most important internal interfaces, design, algorithms.

Show how will you test, and have a test plan ready.



# Approval responsibilities

The ARB is responsible for approving specs.

The ARB, PTL and core contributors are responsible for code reviews.

Get help from Joseph Gasparakis, Suhkdev Kapur, and Paul Carver via Slack.

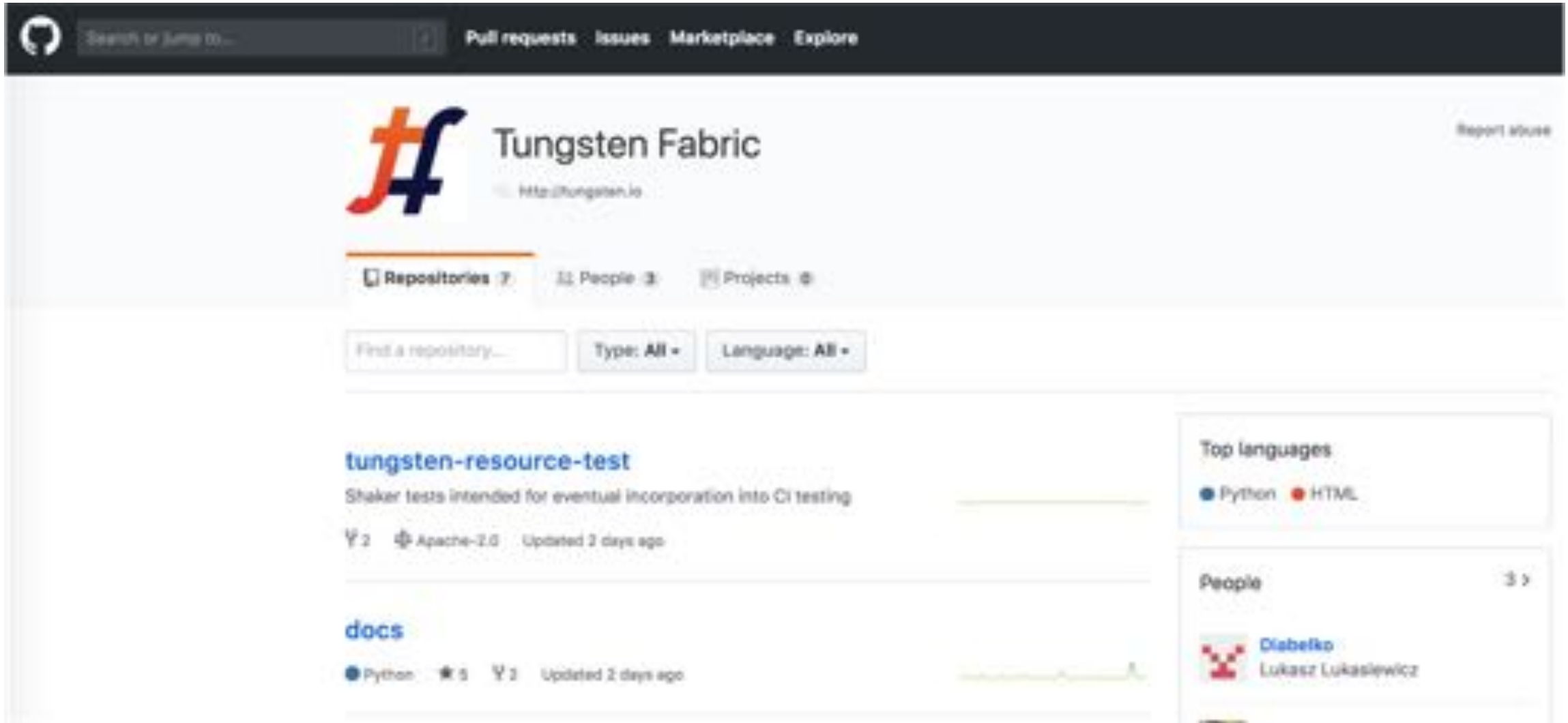
# Release schedule

Releases goals and deadlines are set by TC, published on Slack and at [www.tungsten.io/community](http://www.tungsten.io/community).

## Train model...

Releases go out on time, so features that don't make it catch the next release. You'll need a new ticket, and TC must approve your blueprint for next release.


# Push your code



The screenshot shows the GitHub profile page for Tungsten Fabric. At the top, there is a navigation bar with a search bar and links for Pull requests, Issues, Marketplace, and Explore. The profile header includes the Tungsten Fabric logo (a stylized 'tf' in orange and blue), the name 'Tungsten Fabric', and the website 'https://tungsten.io'. Below the header, there are tabs for Repositories (7), People (3), and Projects (0). A search bar for repositories is present, along with filters for Type (All) and Language (All). The main content area displays two repositories: 'tungsten-resource-test' and 'docs'. The 'tungsten-resource-test' repository is described as 'Shaker tests intended for eventual incorporation into CI testing', has 2 forks, Apache-2.0 license, and was updated 2 days ago. The 'docs' repository is for Python, has 5 stars, 1 fork, and was updated 2 days ago. On the right side, there are two sidebars: 'Top languages' showing Python and HTML, and 'People' showing Diabeiko (Lukasz Lukaszewicz).

Search or jump to...

Pull requests Issues Marketplace Explore

 **Tungsten Fabric**  
https://tungsten.io

Report abuse

Repositories 7 People 3 Projects 0

Find a repository... Type: All Language: All

**tungsten-resource-test**  
Shaker tests intended for eventual incorporation into CI testing  
2 Apache-2.0 Updated 2 days ago

**docs**  
Python 5 1 Updated 2 days ago

Top languages  
Python HTML

People 3  
Diabeiko  
Lukasz Lukaszewicz

# Get it reviewed

OPENCENTRAL

All My Projects People Documentation

status:merged Search Mars Rapoport

Open Merged Abandoned

## Code Review

Search for status:merged

Subject	Status	Owner	Project	Branch	Updated	Size	A	CR	V
On rule table cleanup, delete EVPN_ROUTING_PEER added paths	Merged	FrancoisLafite DN	Juniper/contrail-controller	R5.0 (bug/1798912)	3:40 PM		✓	✓	✓
[DM][Ansible] Fixes for FIP issue	Merged	Suresh Balineni	Juniper/contrail-controller	R5.0	3:40 PM		✓	✓	✓
Initial commit for DC GW functionality	Merged	Senthinathan Murugappan	Juniper/contrail-test	R5.0 (bug/1799302)	11:38 AM		✓	✓	✓
Reenable Project integration test	Merged	Michal Slotniak	Juniper/contrail	master (bug/1794740)	10:58 AM		✓	✓	✓
Add more sync tests and fix watchers issues	Merged	Michal Slotniak	Juniper/contrail	master (bug/1794740)	10:58 AM		✓	✓	✓
Handle fieldmask in Sync properly	Merged	Kamil	Juniper/contrail	master (bug/1799494)	10:48 AM		✓	✓	✓
Wait for VM network device to be connected to DVport	Merged	Adrian Szczepanski	Juniper/contrail-vocter-manager	R5.0 (set-vlan-on-power-on)	9:47 AM		✓	✓	✓
Fixed reading of num_tokens for cassandra	Merged	alexy-mr	Juniper/puppet-contrail	R4.1 (bug/1800547)	9:32 AM		✓	✓	✓
Create repo files with every run	Merged	Lukasz Lukaszewicz	Juniper/contrail-test	master	9:03 AM		✓	✓	✓
Add package lists for RHEL7.5	Merged	Jarek Lukow	Juniper/contrail-packages	master (rhe75_pkg)	8:42 AM		✓	✓	✓
Added ability to switch to fqdn	Merged	alexy-mr	Juniper/contrail-tripleo-heat-templates	stable/queens (bug/1800198)	8:27 AM		✓	✓	✓
Added selinux rule for /var/run/vacatrun	Merged	alexy-mr	Juniper/contrail-tripleo-heat-templates	stable/queens (bug/1800345)	8:24 AM		✓	✓	✓
Windows should use opencontrailightly registry	Merged	Michal Kozrzewa	Juniper/contrail-ansible-deployer	master (contrail-windows)	8:21 AM		✓	✓	✓
Make sure librdkafka is installed from tpc	Merged	Michal Krawczyk	Juniper/contrail-packages	R5.0	8:12 AM		✓	✓	✓
Make sure librdkafka is installed from tpc	Merged	Michal Krawczyk	Juniper/contrail-packages	master	7:38 AM		✓	✓	✓
Add package lists for RHEL7.5	Merged	Jarek Lukow	Juniper/contrail-packages	R5.0 (rhe75_pkg)	7:15 AM		✓	✓	✓
Wait for VM network device to be connected to DVport	Merged	Adrian Szczepanski	Juniper/contrail-vocter-manager	master (bug/1800034)	6:58 AM		✓	✓	✓
Add RHEL, test job to contrail-packages	Merged	Jarek Lukow	Juniper/contrail-project-config	master	5:07 AM		✓	✓	✓
Adjust timeout for UT job	Merged	Pawel Rusak	Juniper/contrail-zuul-jobs	master (ut-timeout)	1:29 AM		✓	✓	✓
Adjust timeout for UT job	Merged	Pawel Rusak	Juniper/contrail-project-config	master (ut-timeout)	1:29 AM		✓	✓	✓
Update VLAN ID assignment logic	Merged	Adrian Szczepanski	Juniper/contrail-vocter-manager	R5.0 (set-vlan-on-power-on)	Oct 30		✓	✓	✓

# Code review

OPENCONTROLS

My Projects People Documentation

Search term Search Marc Rapoport

## Code Review

Change 47300 - Merged

On route table cleanup, delete EVPN\_ROUTING\_PEER added paths

Route table cleanup did not delete EVPN\_ROUTING\_PEER added paths. This results in routes lingering after route table delete, causing the VrfFlowMgrEntry -> AgentRouteTable -> VrfEntry delete cascade blocked. This eventually leads to VrfEntry delete timeout and agent core. Added code to cleanup EVPN\_ROUTING\_PEER paths on route table cleanup.

Change-Id: I4c9a54587c7184aa406c536e98798246b5277ab  
Closed-bug: #1798912

Owner: Pranavadata D N  
Reviewers: Central Windows CI, Sudheendra Rao, Zuul v3 CI, sangarshan p, Vinay Vihai Mahuli, opencontrol-admin  
Project: Junipercentral-controller  
Branch: PLS  
Topic: bug1798912  
Updated: 19 minutes ago

Cherry Pick Revert

Approved +1 Sudheendra Rao  
Code-Review +2 sangarshan p  
Verified +2 Zuul v3 CI  
+1 Central Windows CI

Zuul v3 CI check (3 rechecks) 3:46 PM

- central-vmc-build-ubuntu-trusty SUCCESS in 2h 04m 32s
- central-vmc-unittest-centos7 FAILURE in 1h 22m 18s (non-voting)
- central-vmc-build-package-centos74 SUCCESS in 1h 15m 58s
- central-build-containers-centos7-ocata SUCCESS in 1h 02m 17s
- central-build-test-containers SUCCESS in 11m 29s
- central-build-containers-centos7-queens SUCCESS in 38m 41s
- central-sanity-centos7-kolla-ocata SUCCESS in 32m 30s
- central-sanity-centos7-kolla-queens SUCCESS in 36m 06s
- central-sanity-centos7-48s SUCCESS in 14m 52s

Zuul v3 CI gate 3:49 PM

- noop SUCCESS in 5s
- Central Windows CI check Oct 29 3:18 AM
- ci-central-windows-production SUCCESS in 2s

Author	Pranavadata D N <pranavad@juniper.net>	Oct 28, 2018 10:51 PM
Committer	Pranavadata D N <pranavad@juniper.net>	Oct 29, 2018 2:55 AM
Commit	71147316b1bf396d7fadc496c80b567c297319	(gitweb)
Parents	25706d70c3bde9f10831c24e8ac29121c86e40	(gitweb)
Change-Id	I4c9a54587c7184aa406c536e98798246b5277ab	

# CI and Test infrastructure

All community-wide tests run through CI.

For check-in/unit tests, Gerrit kicks Zuul, which does a build, then Zuul goes to OpenStack and runs the build.

Quick test are done using an all-in-one install (installed on a single VM), nested OpenStack-on-OpenStack. All tests run in a nested virtualized environment.

# Code Acceptance and Maintenance: Fix Your Bugs!

Code with outstanding bugs will be reverted.

All code must be production ready

- no bugs
- stable
- scalable
- high performance (supports wire speed)

Only incubation/experimental subprojects are allowed to keep buggy code in the tree.

# Downstream Releases and Community Code

Currently, three downstream distros: Juniper, Mirantis, Lenovo

All use open core model

Community code which passed through QA cycle will be present, but may not be officially supported in a given commercial distribution.



# Technical resources

Wiki: [wiki.tungsten.io](http://wiki.tungsten.io)

Doc repo: <https://github.com/tungstenfabric/docs>

Github: <https://github.com/tungstenfabric>

- Repos are being migrated from <https://github.com/Juniper>
- Meanwhile, if you need any code: <https://github.com/Juniper/Contrail->\*

Getting started: <https://github.com/tungstenfabric/docs/blob/master/Contributor/GettingStarted/getting-started-with-opencontrail-development.md>

## Gerrit

- Current – <https://review.opencontrail.org/>
- Future (migration in progress) – <https://review.tungsten.io/>

## Bugs and Blueprints

- Current – <https://launchpad.net/opencontrail>
- Future – <https://jira.tungsten.io/>

# Questions?

## Randy Bias

VP Technology [Acting Tungsten Fabric Community Director]

- [tungstenfabric.slack.com](https://tungstenfabric.slack.com)
- <https://www.linkedin.com/in/randybias/>
- [rbias@juniper.net](mailto:rbias@juniper.net)

## Sukhdev Kapur

Distinguished Engineer

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- [sukhdev@juniper.net](mailto:sukhdev@juniper.net)

# Getting Started as an Upstream Contributor

Sept. 2018

