Getting Started as an Upstream Contributor

Marc Rapoport
Open Source Networking Days, Bay Area
November 1st 2018
Project Overview
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

Public & Private IaaS
openstack
aws
vmware

CaaS & PaaS
MESOS
OPENSHIFT
kubernetes

VMs or Metal
KVM
Tungsten Fabric Overview

**ORCHESTRATION**
- OpenStack
- OpenShift
- Kubernetes
- Marathon / Mesos
- VMware
- ONAP
- Custom ...

**SERVICES**
- L2 and L3 virtual networks
- DNS, DHCP, IPAM, FIP
- QoS
- Security Policy
- Load Balancing
- Service Chains
- Monitoring, Analytics
- API
- Web GUI

**CONTROL**
- vRouter
- Router / ToR
- Multi-Cloud GW
- Junos OS
- ARISTA
- Cumulus Networks

**CONNECTIVITY**
- VMs (ESXi)
- VMs (KVM / Linux)
- Containers
- BMS

Config Plane: Netconf, Ansible, ...
Control Plane: BGP (EVPN, L3VPN)
User Experience

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

**Past**
- OpenStack networking at scale
- NFV service chaining
- Analytics collection/querying
- REST API and GUI
- Docker & ESXi runtime support
- VMware vSphere support
- DPDK vRouter
- Prototype with Kubernetes v1.1

**Present**
- Node-port service chaining
- Improve analytics with Kafka
- LBaaS
- ToR switch as OVSDB gateway

**Future**
- Security focus
- Multicloud deployability
- Switching fabric focus
- Declarative network as code
- Kubernetes and CNI support
- OpenShift and Mesos support
- Containerize project
- New install w/ Ansible or Helm
- ToR switch as OVSDB gateway
• 2013-Today: >300 years of work
• 200-300 developer contributions
• ~100 active developers
• Languages: C++, Python, Node, Go
• Many OSS leveraged: Cassandra, Kafka, Zookeeper, Docker, Keystone, …
• GitHub repositories
• Gerrit review processes
• Launchpad bug tracking and blueprints
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
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/](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

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
- Kolla Ansible - https://docs.openstack.org/kolla-ansible/latest/
- Canonical Juju/Charms
- Mirantis MCP
0-60 in 15 Minutes w/Carbide (TF+k8s on AWS)
0-60 in 15 Minutes w/Carbide (TF+k8s on AWS)
Community resources

- Slack — 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

#dev

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

These files contain `docker pull` commands.

Egor 7:52 AM
@andrey-mp @tnaganawa 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 8:37 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/kubeconcfp/](https://tungstenfabric.io/kubeconcfp/)

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

artgnov 9:47 AM
Joined #dev.
HOW TO CONTRIBUTE CODE
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.
Start: Submit your CLA

There are two CLAs:

- Corporate Contributor Licence Agreement (CCLA)
  [Link](https://drive.google.com/open?id=1DOBC0RuBhJpBDpamliaUF-TUV-m2PGti)

- Individual Contributor License Agreement (ICLA)
  [Link](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

Sign in, then...

...create an Ubuntu One ID

Email 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
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.
# 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.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Name</th>
<th>Definition</th>
<th>Delivery</th>
<th>Assignee</th>
<th>Drafter</th>
<th>Approver</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>LB/VASV2 support in OpenContrail</td>
<td>Review</td>
<td>Good progress</td>
<td>Yuvanraj Manappan</td>
<td>Rudra Rugge</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>Service health check</td>
<td>Drafting</td>
<td>Started</td>
<td>Rudra Rugge</td>
<td>Rudra Rugge</td>
<td>Ashish Rangan</td>
</tr>
<tr>
<td>High</td>
<td>Third party IPAM integration in OpenContrail</td>
<td>Drafting</td>
<td>Started</td>
<td>Atul Moghe</td>
<td>Atul Moghe</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>Vcenter plugin to vcenter rest interface</td>
<td>Drafting</td>
<td>Started</td>
<td>Andra Chamaru</td>
<td>Andra Chamaru</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>ZTP of Greenfield devices using CFM</td>
<td>New</td>
<td>Unknown</td>
<td>Rishabh Tulsi</td>
<td>Rishabh Tulsi</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>contrail helm charts for microservices architecture</td>
<td>New</td>
<td>Started</td>
<td><a href="mailto:mmayakommemang@juniper.net">mmayakommemang@juniper.net</a></td>
<td><a href="mailto:mmayakommemang@juniper.net">mmayakommemang@juniper.net</a></td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>Allow custom attributes for configuring tenant lbaas</td>
<td>New</td>
<td>Unknown</td>
<td>Varun Lodya</td>
<td>Varun Lodya</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>ovlanwire-misc-support</td>
<td>New</td>
<td>Started</td>
<td>Jeya ganesh babu J</td>
<td>Jeya ganesh babu J</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>High</td>
<td>Support vcenter only service chaining</td>
<td>New</td>
<td>Unknown</td>
<td>Srichidanan Vaidya</td>
<td>Srichidanan Vaidya</td>
<td>Rudra Rugge</td>
</tr>
<tr>
<td>Medium</td>
<td>EVPN type 5 support in contrail vrouter</td>
<td>Approved</td>
<td>Good progress</td>
<td>Manish Singh</td>
<td>Manish Singh</td>
<td>Ananth Suryanarayana</td>
</tr>
<tr>
<td>Medium</td>
<td>IPv6 Reverse Zone Support for contrailv</td>
<td>Approved</td>
<td>Needs Code Review</td>
<td>Valentin Snitsyn</td>
<td>Valentin Snitsyn</td>
<td>Ananth Suryanarayana</td>
</tr>
<tr>
<td>Medium</td>
<td>Integrate OpenContrail vrouter with DPK 17.11</td>
<td>Approved</td>
<td>Good progress</td>
<td>Yiyang</td>
<td>Joseph Gasparakis</td>
<td>Raja</td>
</tr>
<tr>
<td>Medium</td>
<td>IPv6 Underlay Support</td>
<td>Pending</td>
<td>Deferred</td>
<td>Valentin Snitsyn</td>
<td>Valentin Snitsyn</td>
<td>Nischal Sheth</td>
</tr>
</tbody>
</table>
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

Specs can be approved by one member of the ARB. Start that process by sending an email to 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).
- 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
Get it reviewed

### Code Review

#### Search for status:merged

<table>
<thead>
<tr>
<th>Subject</th>
<th>Status</th>
<th>Owner</th>
<th>Project</th>
<th>Branch</th>
<th>Updated</th>
<th>Size</th>
<th>A</th>
<th>CR</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>On route table cleanup, delete EVPN_ROUTING_PEER added paths</td>
<td>Merged</td>
<td>Pranevadatta (3N)</td>
<td>Juniper/contrail-controller</td>
<td>R6.0 (bug/1799912)</td>
<td>3:49 PM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td><a href="Ansible">DM</a>: Fixes for FIP issue</td>
<td>Merged</td>
<td>Suresh Balaneni</td>
<td>Juniper/contrail-controller</td>
<td>R5.0</td>
<td>3:45 PM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Initial commit for DC GW functionality</td>
<td>Merged</td>
<td>Senthilnathan Munugappan</td>
<td>Juniper/contrail-test</td>
<td>R5.0 (bug/1799962)</td>
<td>11:36 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Reenable Project integration test</td>
<td>Merged</td>
<td>Michal Bielniak</td>
<td>Juniper/contrail</td>
<td>master (bug/1754740)</td>
<td>10:58 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Add more sync tests and fix watchers issues</td>
<td>Merged</td>
<td>Michal Bielniak</td>
<td>Juniper/contrail</td>
<td>master (bug/1754740)</td>
<td>10:58 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Handle fieldmask in Sync property</td>
<td>Merged</td>
<td>Kamil</td>
<td>Juniper/contrail</td>
<td>master (bug/1799494)</td>
<td>10:48 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Wait for VM network device to be connected to DVport</td>
<td>Merged</td>
<td>Adrian Szczepanski</td>
<td>Juniper/contrail-center-manager</td>
<td>R5.0 (set-vlan-on-power-on)</td>
<td>9:47 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Fixed reading of nam, tokens for cassandra</td>
<td>Merged</td>
<td>alexey-mr</td>
<td>Juniper/puppet-contrail</td>
<td>R4.1 (bug/18005647)</td>
<td>9:32 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Create repo files with every run</td>
<td>Merged</td>
<td>Łukasz Łukasiewicz</td>
<td>Juniper/contrail-test</td>
<td>master</td>
<td>9:03 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Add package lists for RHEL7.6</td>
<td>Merged</td>
<td>Jakub Lisow</td>
<td>Juniper/contrail-packages</td>
<td>master (rhe76-pkg)</td>
<td>8:42 AM</td>
<td></td>
<td>️</td>
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<td>✔️</td>
</tr>
<tr>
<td>Add ability to switch to fqdn</td>
<td>Merged</td>
<td>alexey-mr</td>
<td>Juniper/contrail-tripleo-heat-templates</td>
<td>stable/queens (bug/1800198)</td>
<td>8:27 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Added selinux rule for /var/run/venv/run</td>
<td>Merged</td>
<td>alexey-mr</td>
<td>Juniper/contrail-tripleo-heat-templates</td>
<td>stable/queens (bug/1800245)</td>
<td>8:24 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Windows should use opencontrailightly registry,</td>
<td>Merged</td>
<td>Michał Kozłowski</td>
<td>Juniper/contrail-ansible-dployer</td>
<td>master (contrail-windows)</td>
<td>8:21 AM</td>
<td></td>
<td>️</td>
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<tr>
<td>Make sure librdkafka is installed from tpc.</td>
<td>Merged</td>
<td>Michał Krawczyk</td>
<td>Juniper/contrail-packages</td>
<td>R5.0</td>
<td>8:12 AM</td>
<td></td>
<td>️</td>
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<tr>
<td>Make sure librdkafka is installed from tpc.</td>
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<td>Juniper/contrail-packages</td>
<td>master</td>
<td>7:38 AM</td>
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</tr>
<tr>
<td>Add package lists for RHEL7.6</td>
<td>Merged</td>
<td>Jakub Lisow</td>
<td>Juniper/contrail-packages</td>
<td>R5.0 (rhe76_pkl)</td>
<td>7:15 AM</td>
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<td>️</td>
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<td>✔️</td>
</tr>
<tr>
<td>Wait for VM network device to be connected to DVport</td>
<td>Merged</td>
<td>Adrian Szczepanski</td>
<td>Juniper/contrail-center-manager</td>
<td>master (bug/1800034)</td>
<td>6:58 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
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<tr>
<td>Add RHEL test job to contrail-packages</td>
<td>Merged</td>
<td>Jakub Lisow</td>
<td>Juniper/contrail-project-config</td>
<td>master</td>
<td>5:07 AM</td>
<td></td>
<td>️</td>
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<td>✔️</td>
</tr>
<tr>
<td>Adjust timeout for UT job</td>
<td>Merged</td>
<td>Paweł Rusak</td>
<td>Juniper/contrail-zuul-jobs</td>
<td>master (ut-limout)</td>
<td>1:29 AM</td>
<td></td>
<td>️</td>
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</tr>
<tr>
<td>Adjust timeout for UT job</td>
<td>Merged</td>
<td>Paweł Rusak</td>
<td>Juniper/contrail-project-config</td>
<td>master (ut-limout)</td>
<td>1:29 AM</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Update VLAN ID assignment logic</td>
<td>Merged</td>
<td>Adrian Szczepanski</td>
<td>Juniper/contrail-center-manager</td>
<td>R5.0 (set-vlan-on-power-on)</td>
<td>Oct 00</td>
<td></td>
<td>️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>
Code review
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
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://www.linkedin.com/in/randybias/
•  rbias@juniper.net

Sukhdev Kapur
Distinguished Engineer
•  tungstenfabric.slack.com
•  sukhdev@juniper.net
Getting Started as an Upstream Contributor

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