# **Tungsten Fabric Overview**



#### **VISION**

# tungsten fabric

- Tungsten Fabric seeks to become a ubiquitous global network fabric, agnostic to underlay infrastructure and able to extend across all cloud infrastructure.
- It will provide a single point of control, visibility, and management, globally or through open standards-based federation, for all networks and network security.
- It will become the most broadly adopted and highest quality SDN overlay technology available.



#### **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.



#### **CODE & COMMUNITY**

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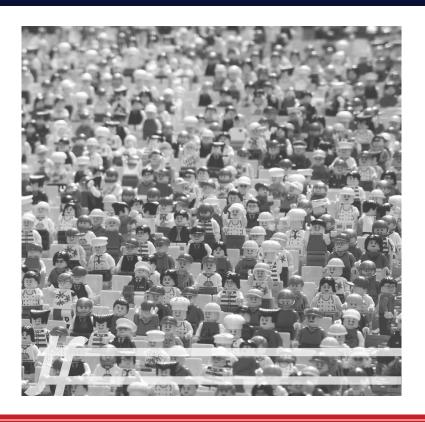
#### CODE

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- 2013-Today: >300 years of work
- 200-300 developer contributions
- ~100 active developers
- Languages: C++, Python, Node, Go
- Apache 2.0 license
- GitHub repositories
- Gerrit review processes
- Launchpad bug tracking and blueprints
- Other OSS used: Cassandra, Kafka, HAproxy, Docker, Keystone



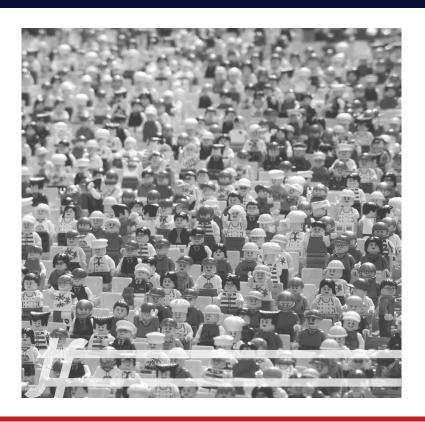
# COMMUNITY



#### 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



#### Online:

- Downloads and trial sandbox
- Talk with 700+ people: Slack, Mailing lists
- Follow: Blog, YouTube, Facebook, Twitter
- GitHub: Presentations, Tutorials
- Live (see calendar):
  - Conferences: OpenStack, KubeCon, ONS, Re:invent and GC Next
  - Meetups: host your own or join some
  - User Group events: often at conferences
  - Governance summits
- Groups: Governance, Technical, Infrastructure
- Community manager: Greg Elkinbard

#### **COMMUNITY MEMBERS**





















































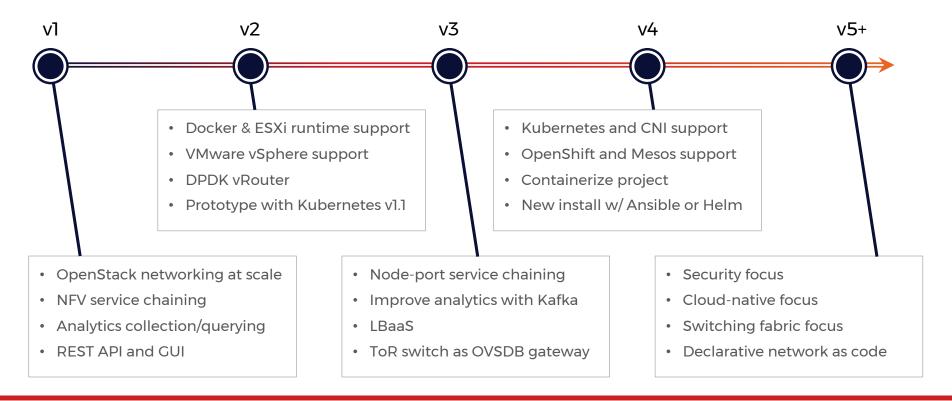








# **PAST, PRESENT & FUTURE**



# **FEATURES**



**Routing & Switching** 



**Network Services** 



**Load Balancing** 



**Security & Policies** 



**Performance & Scale** 



**Gateway Services** 



**Rich Analytics** 



**Service Chaining** 



**HA & Upgrades** 

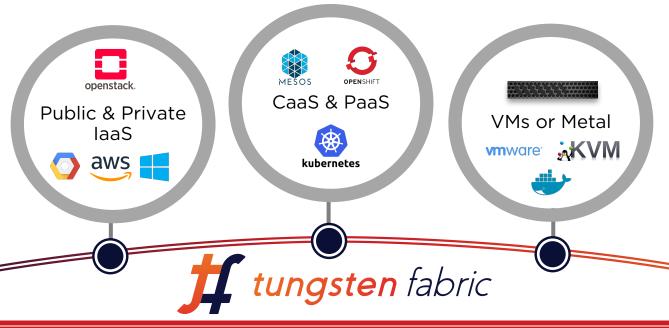


**APIs/Orchestrations** 

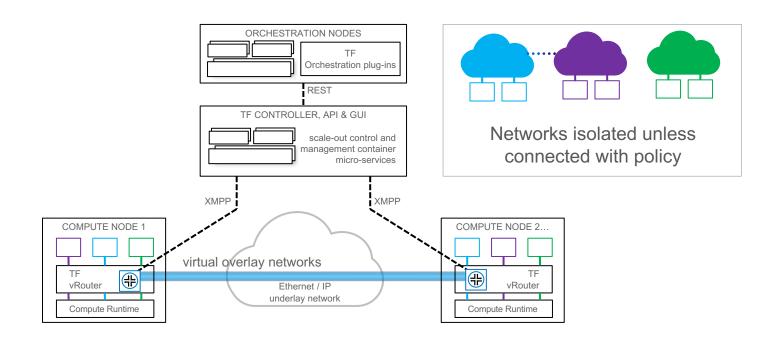
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#### **RULE THEM ALL WITH ONE**

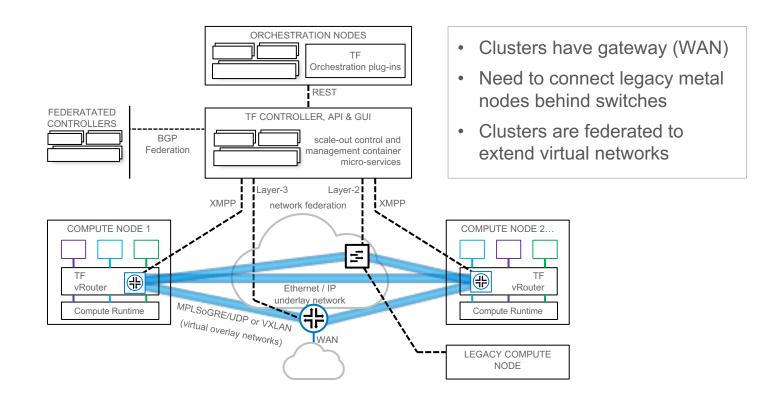
automated secure open SDN



# **ARCHITECTURE OVERVIEW**



#### **ARCHITECTURE EXPANDED**



#### INSTALLATION



• Ansible playbook to flexibly deploy Tungsten Fabric binaries



Helm charts to easily operate Tungsten Fabric components on Kubernetes



• Install-time option with OpenShift to deploy with Tungsten Fabric



Tungsten Fabric binaries available on DockerHub and we're improving CI/CD



Commercial integrations into lifecycle tools like RH OpenStack Director

#### **USER EXPERIENCE**

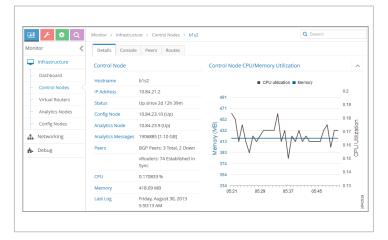
#### **NORTH-BOUND API**



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

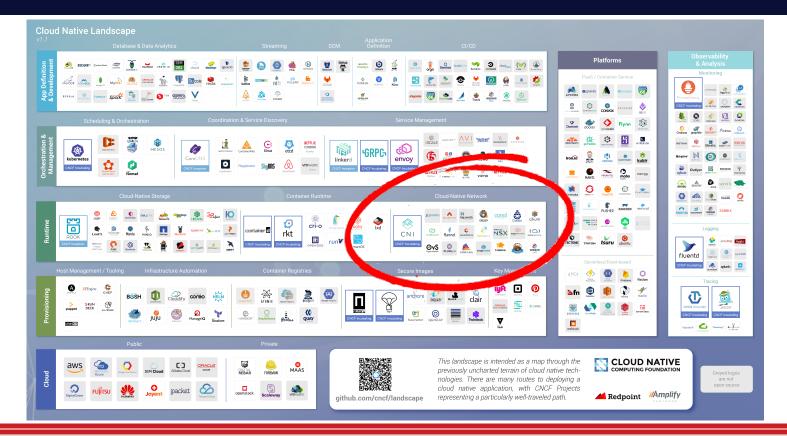
#### **GUI**







# **SDN ECOSYSTEM in CNCF**



#### **SDN ECOSYSTEM in CNCF**













































#### **Beyond cloud-native... Do you care about:**

- High-performance forwarding
- Proven cloud-grade, carrier-grade scale
- Feature rich for Kubernetes and LB, beyond CNI
- Feature rich in general for net + sec
- Multi-tenancy

- Open source / community
- Open standards-based federation
- Multiple orchestrator support
- Solid vendor backing and optional services
- Collapsing stacked SDNs: e.g. K8s on OpenStack
- Ease of use

# **SDN ECOSYSTEM in LF**



































- We're cloud-native—run in containers, cloud and Kubernetes—but also support more outside the CNCF
- Cross-project integrations already exist with OPNFV, ONAP, DPDK and other LF projects
- Enlarge open community, eliminating network vendor / developer hold-outs over "openness" FUD
- Easy for LF and LF-N members to join our project, and most of our members are also LF members
- Events, infrastructure and idea collaboration economies of scale inside large foundation
- Trusted foundation operations solve ad hoc funding and marketing support

#### **SHAPE THE FUTURE**

