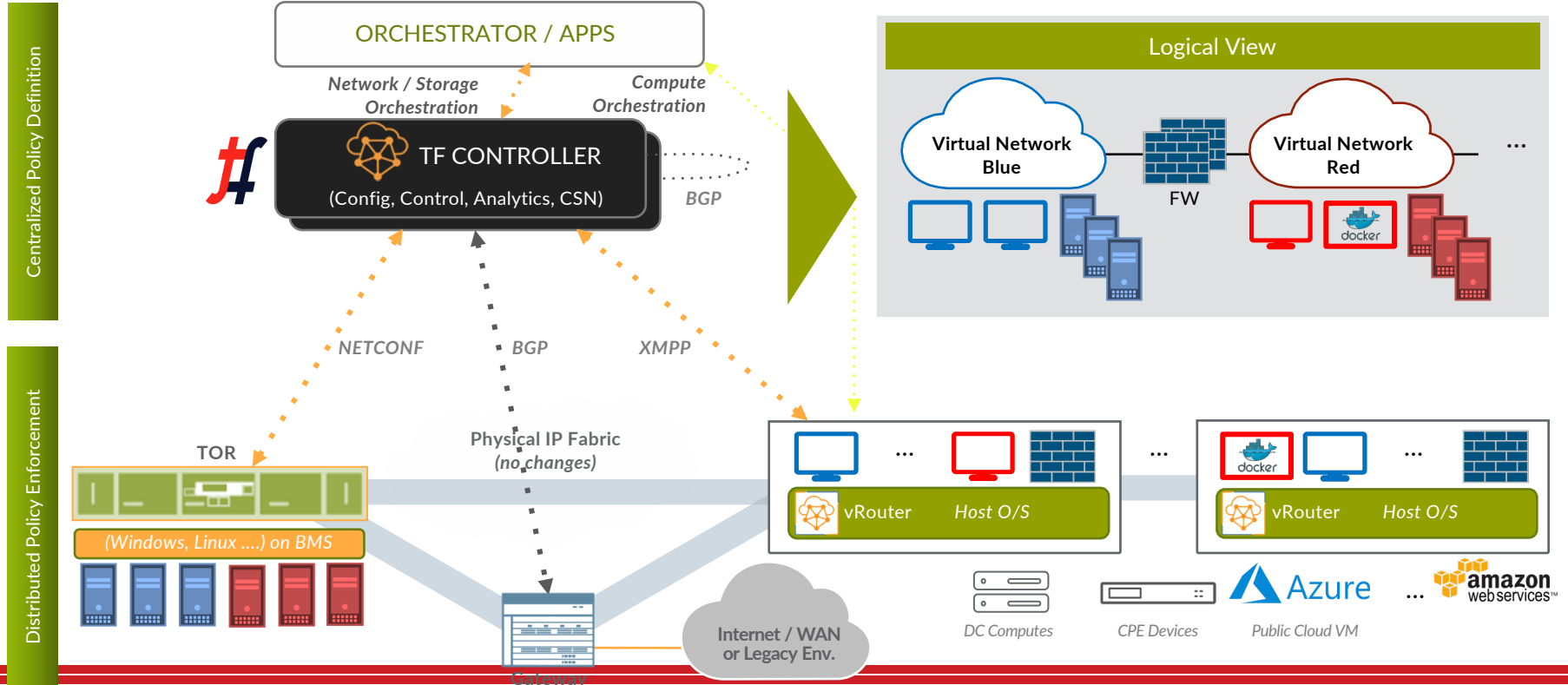


# Akraino Network Cloud & Tungsten Fabric

*Sukhdev Kapur, Distinguished Engineer  
Juniper Networks*

# Tungsten Fabric Architecture

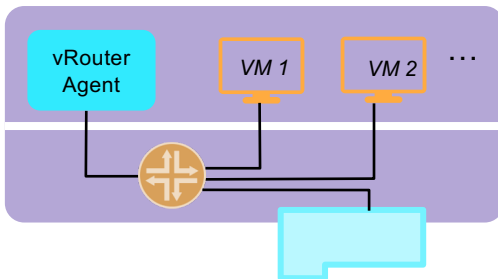


Centralized Policy Definition

Distributed Policy Enforcement

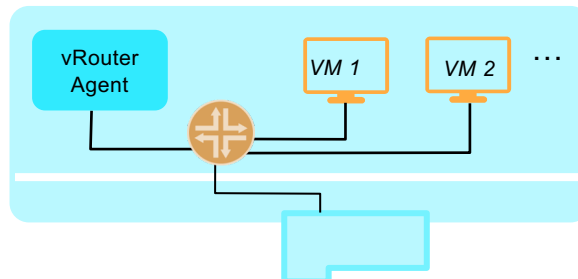
# vRouter Deployment Models

## KERNEL VROUTER



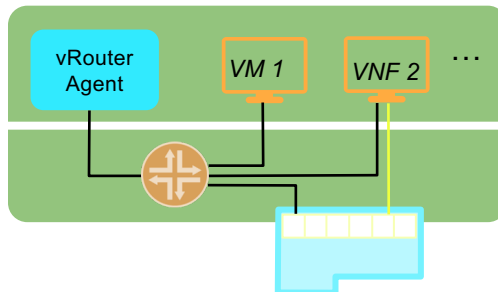
- This is the normal operation where fwding plane of vRouter runs in the kernel and are connected to VMs using TAP interface (or veth pair for containers)
- vRouter itself is enhanced using other performance related features:
  - TSO / LRO
  - Multi-Q Virtio

## DPDK VROUTER



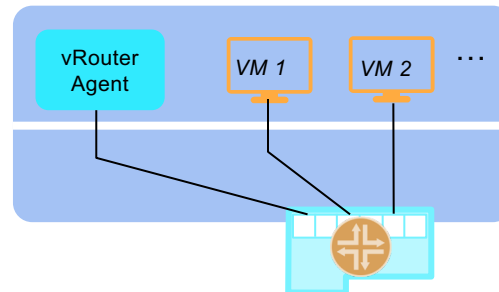
- vRouter runs as a user space process and uses DPDK for fast path Packet I/O.
- Full set of SDN Capabilities Supported
- Requires the VMs to have DPDK enabled for performance benefits

## SRIOV/ VROUTER COEXISTENCE



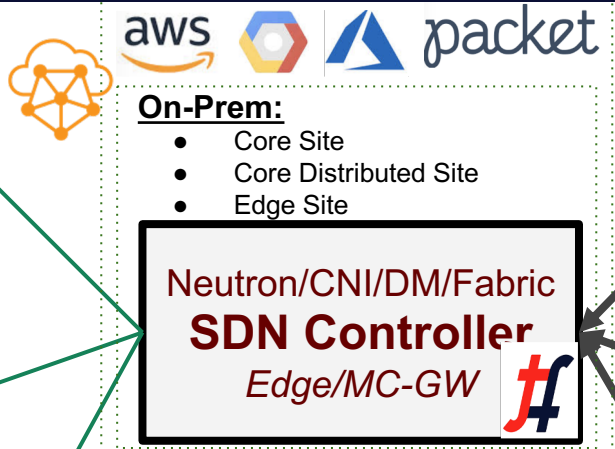
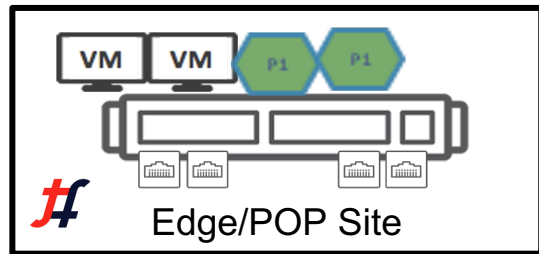
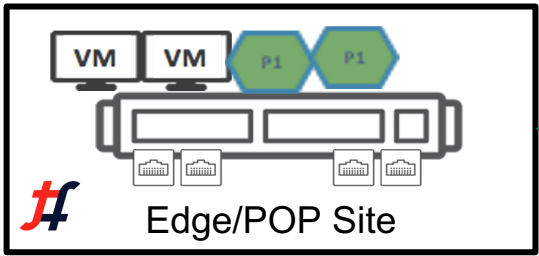
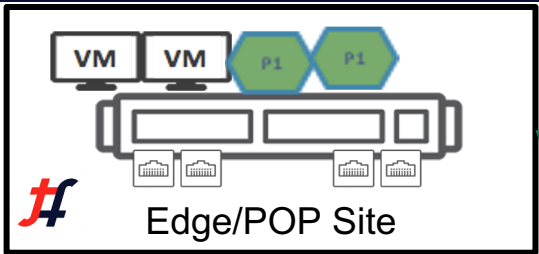
- Some workloads can directly SRIOV into the NIC, while others go through the vRouter
- Sometimes a VNF can have multiple interfaces some of which are SRIOV-ed to the NIC
- Interfaces that are SRIOV-ed into NIC don't get the benefits / features of vRouter

## SMARTNIC VROUTER



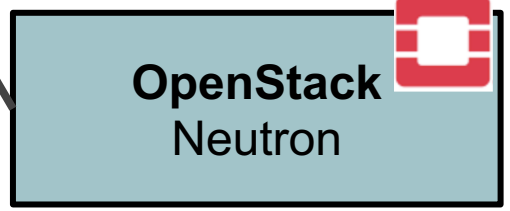
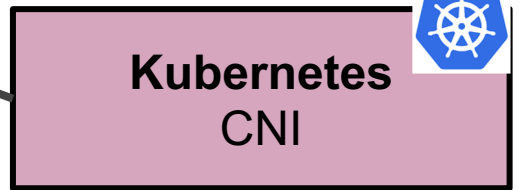
- vRouter fwding plane runs within the NIC
- Workloads are SRIOV-connected to the NIC

# Distributed Networking for VMs, PODs, & BMS

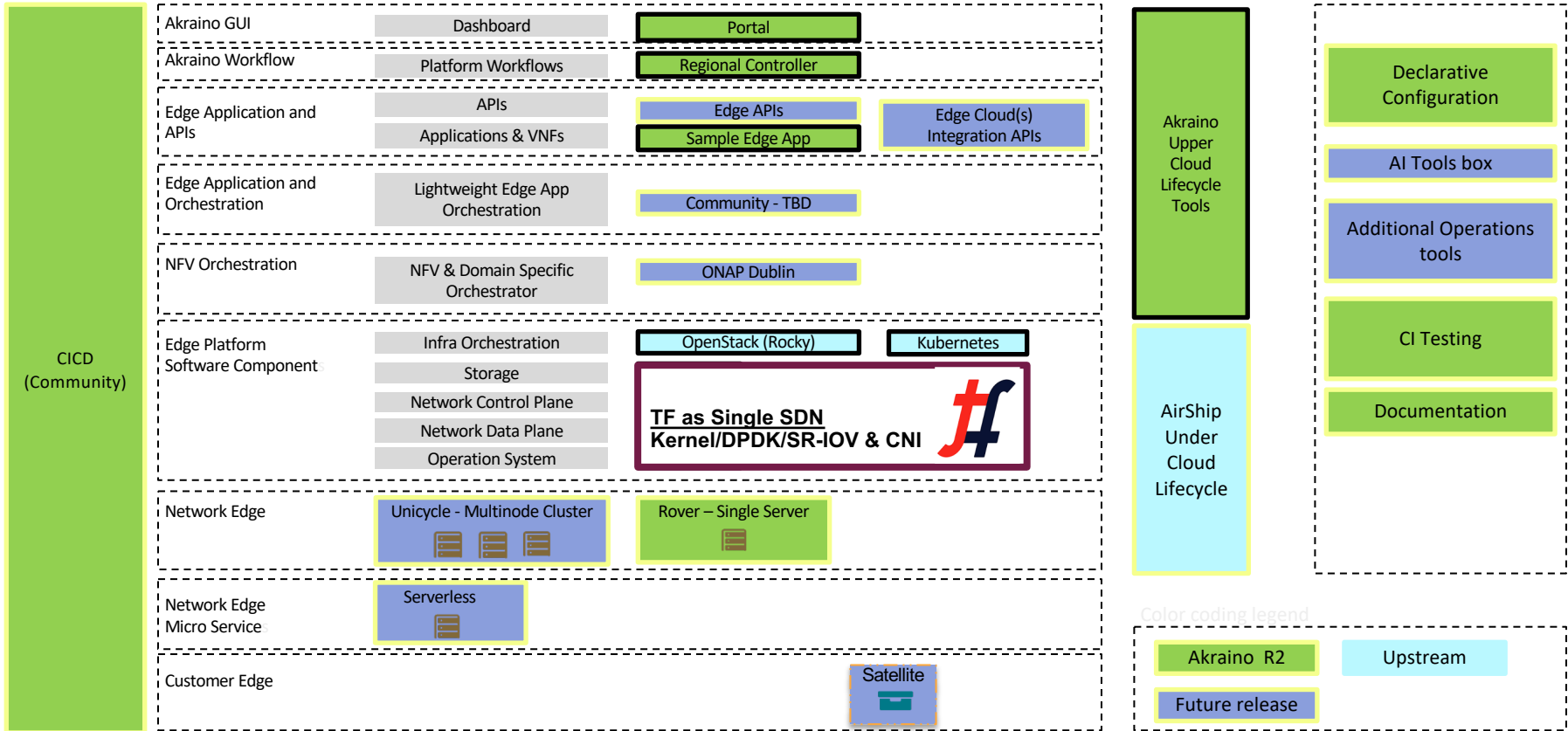


**Basic Networking:**  
L2/L3 or L2/L3 Network  
IPAM/DHCP, DNS, Multi-Tenancy

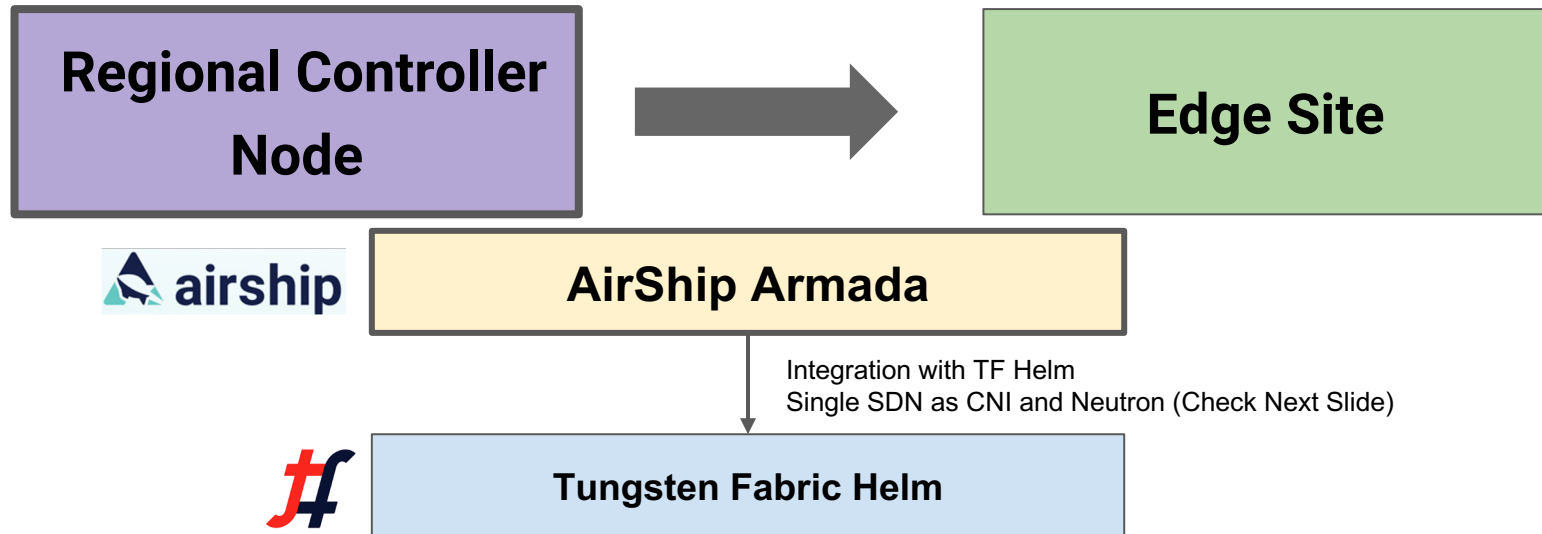
**Advance Networking:**  
VLAN-ID, VRRP, VIP, LB, Routes Advertisement,  
GW Function, Service Chaining,  
Traffic Steering, Flow awareness,  
QoS, SR-IOV/DPDK, BGP-VPN,  
Inter Site Federation, Health Checks,  
FW, IPSec/TLS Support



# Akraino Network Cloud Blueprint – with Tungsten Fabric

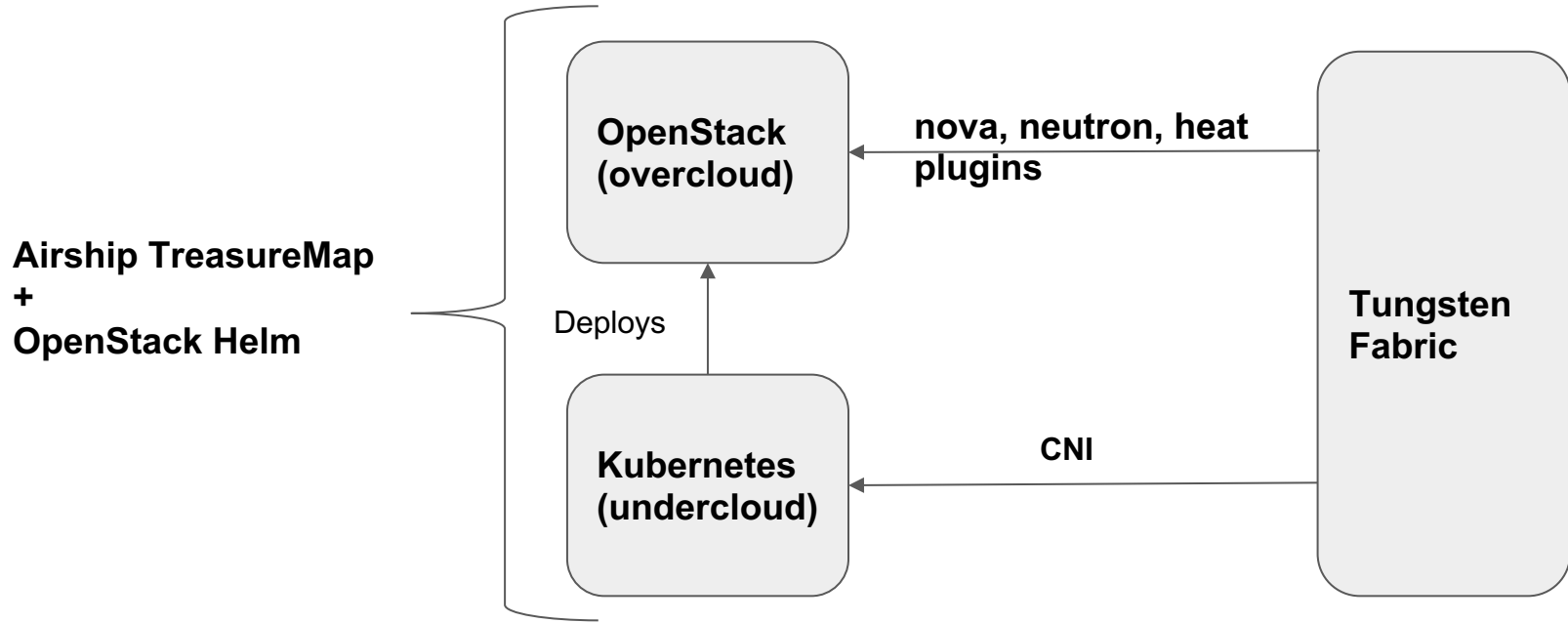


# Akraino Network Cloud & TF Integration *(Blueprint)*

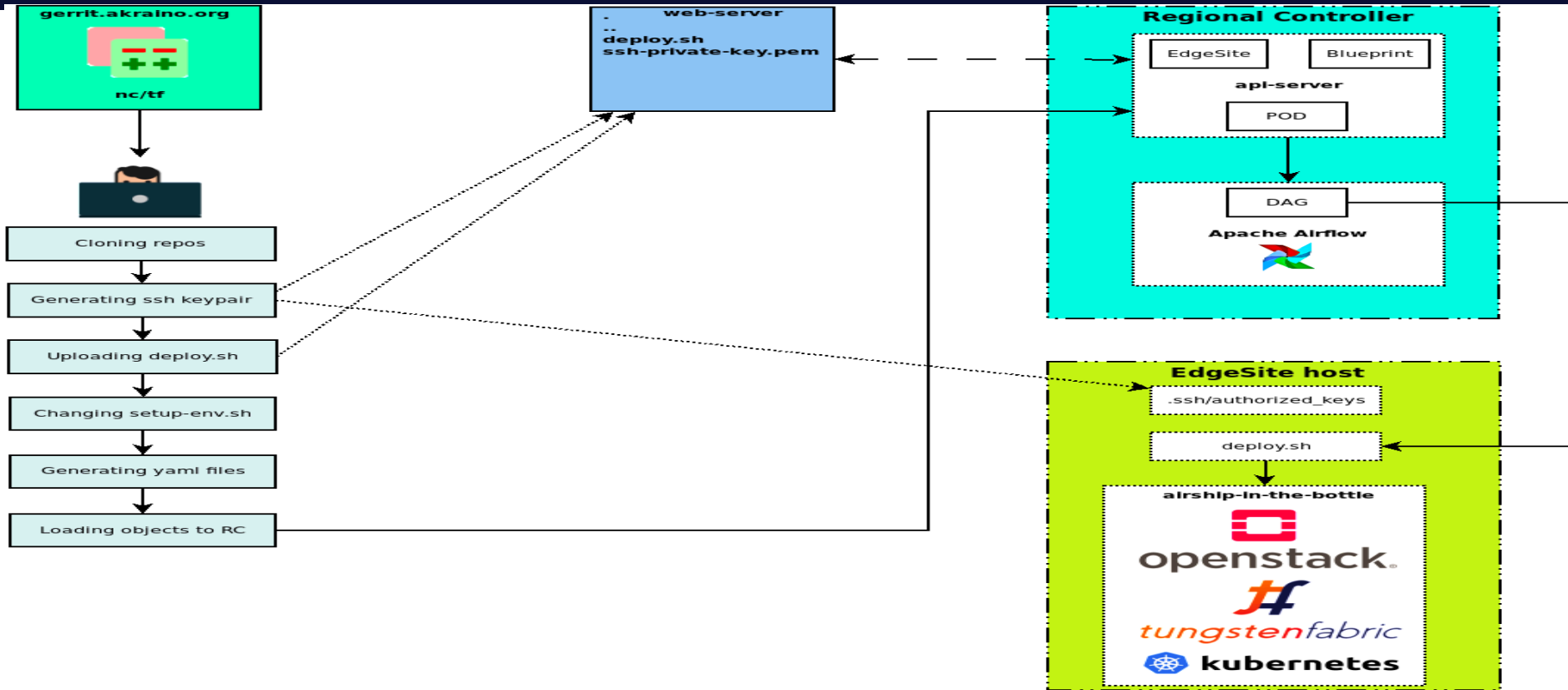


- Tungsten Fabric Integration with Airship for TF installation via TF-Helm
- Tungsten Fabric Integration with Airship for TF as CNI and OpenStack Neutron  
*(Single SDN Controller)*

# Blueprint Architecture



# The Workflow to deploy BP





# Give it a try

- Kick the tires – try it, play with it....
- Here are the details -

<https://wiki.akraino.org/display/AK/Network+Cloud+with+Tungsten+Fabric>

# Thank you!

