Network Cloud Family
Akraino Release 2

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PTL for Rover and Unicycle with SR-IOV Blueprints

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Network Cloud Family Overview

› Network Cloud blueprints automate deployment of OpenStack using Airship

  › Rover – single server
  › Unicycle – three to seven servers

› Akraino Release 2 major changes:

  › Airship Treasuremap v1.3 [Aug 2,2019] (newer helm charts and docker images)
  › Updated to OpenStack Rocky

Thank you to everyone that contributed to Release 2!

AT&T, Ericsson, NTT, Juniper, Radisys and others
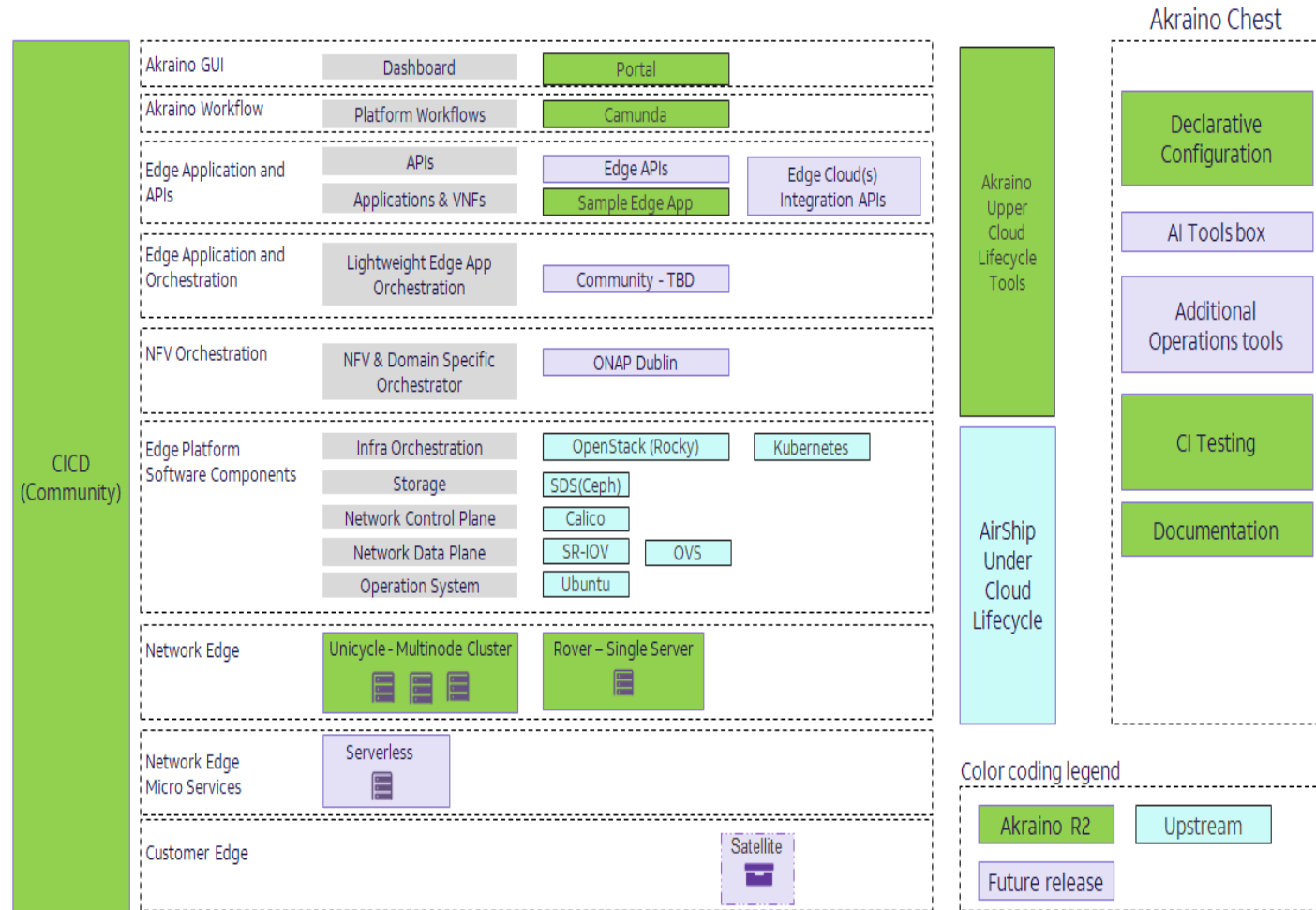
Deployment Overview

› Configure physical network

› Deploy Regional Controller
  › Can run on virtual machine or bare metal
  › Build server only used to deploy on bare metal

› Create edge site configuration file
  › Defines hardware settings, network details, and other configuration options
  › Single file for each edge site
  › Minor changes to Unicycle configuration file

› Deploy edge site using Regional Controller
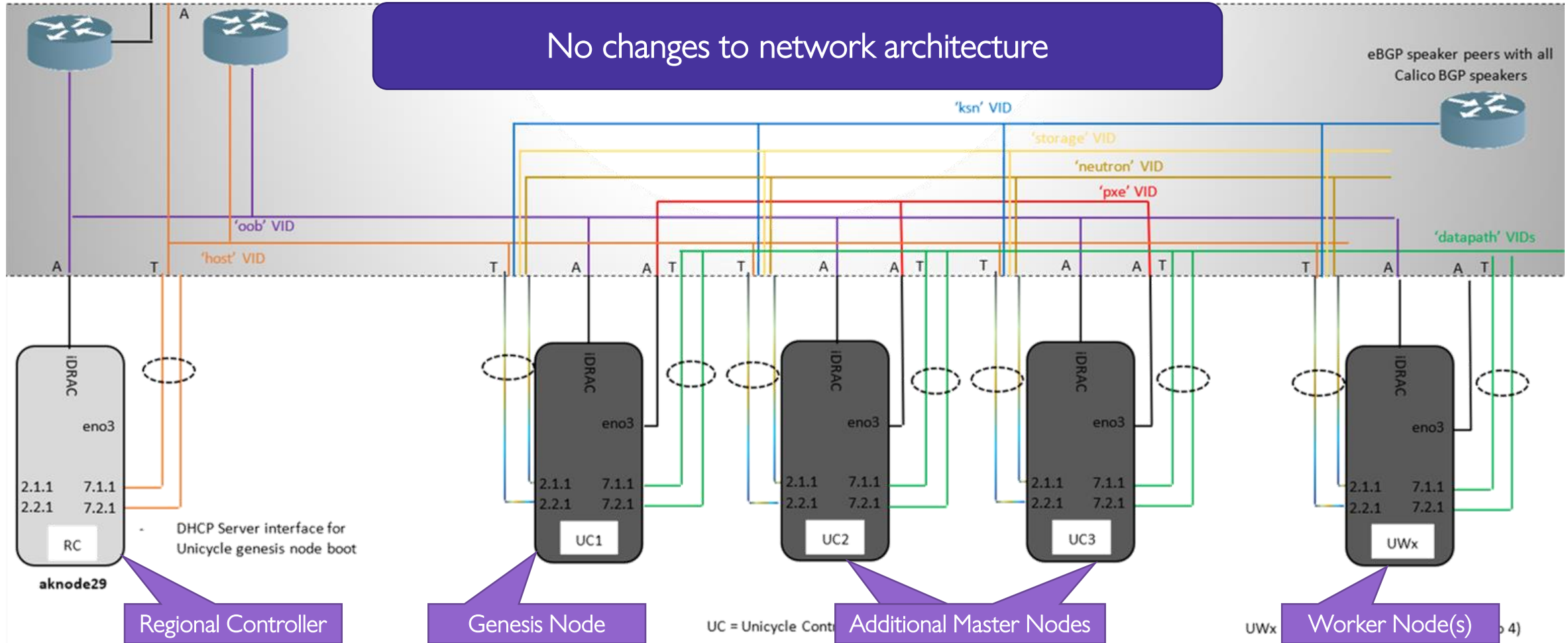
No change to deployment steps
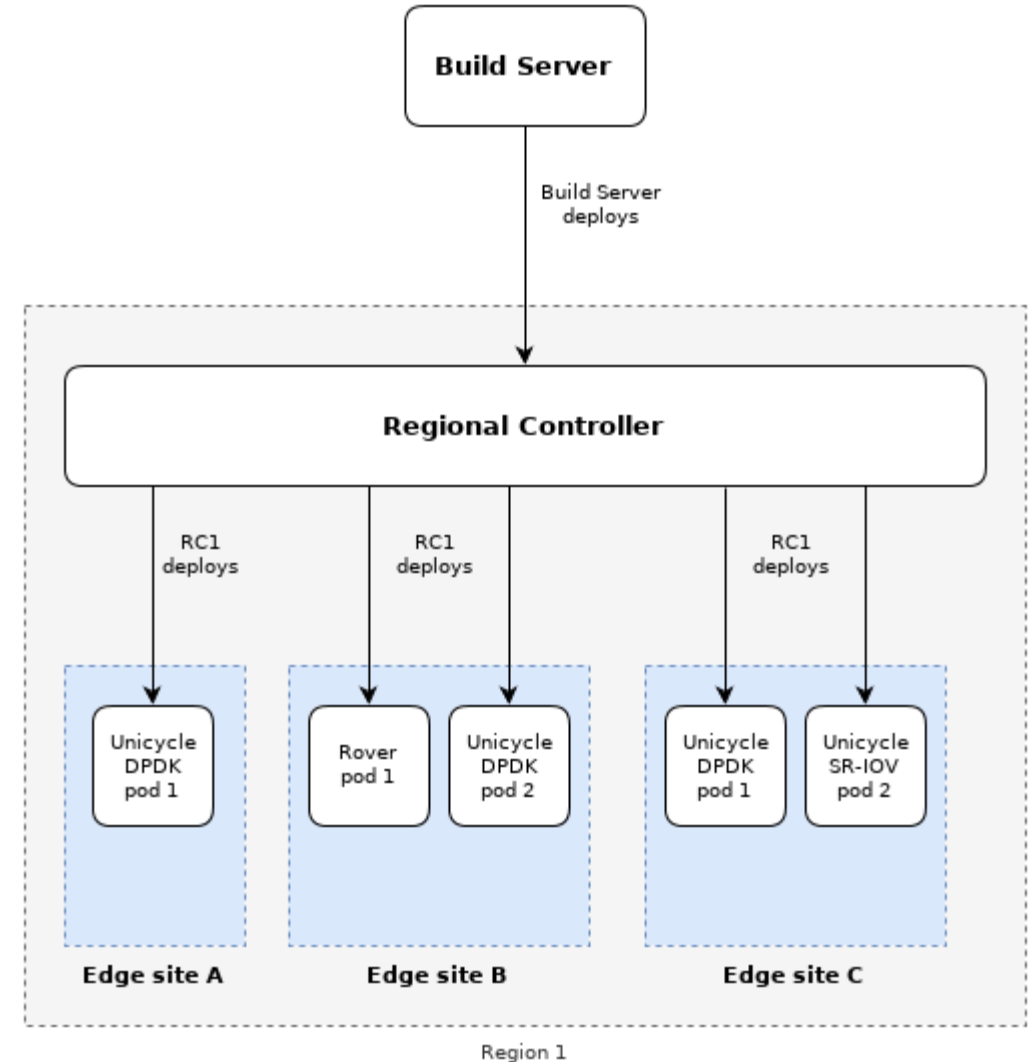
Regional Controller

› Web portal to perform tasks

› Workflow engine to orchestrate tasks

› Support services
  › Software repository
  › DHCP
  › LDAP
  › Postgress DB

- No changes to web portal or user actions

- Minor changes to Unicycle configuration file

Unicycle w/ SR-IOV Network Architecture Example

No changes to network architecture

Unicycle w/ SR-IOV Configuration File Changes

General Settings

```
---
site_name: edgesite1
site_type: sriov-a13
```

Storage Settings

```
storage:
  osds:
    - data: /dev/sda
      journal: /dev/sdh1
    - data: /dev/sdb
      journal: /dev/sdh2
    - data: /dev/sdc
      journal: /dev/sdh3
  osd_count: 3
  total_osd_count: 9
tenant_storage:
  osds:
    - data: /dev/sdd
      journal: /dev/sdh4
    - data: /dev/sde
      journal: /dev/sdh5
    - data: /dev/sdf
      journal: /dev/sdh6
  osd_count: 3
```

Network Settings

```
networks:
  host:
    vlan: 41
    interface: bond0.41
    cidr: 192.168.2.0/24
    ingress_vip: 192.168.2.49
    maas_vip: 192.168.2.48
    routes:
      gateway: 192.168.2.200
    ranges:
      reserved:
        start: 192.168.2.84
        end: 192.168.2.86
      static:
        start: 192.168.2.40
        end: 192.168.2.49
  ksn:
    vlan: 44
    interface: bond0.44
    cidr: 172.29.1.0/24
    gateway: 172.29.1.1
    local_asnumber: 65531
    ranges:
      reserved:
        start: 172.29.1.1
        end:   172.29.1.10
      static:
        start: 172.29.1.11
        end: 172.29.1.254
    additional_cidrs:
      -  172.29.1.128/29
    ingress_vip: 172.29.1.129/32
```

Hardware Settings

```
hardware:
  vendor: DELL
  device_aliases:
    - name: eno3
      key: pxe_nic01
      address: '0000:01:00.0'
      dev_type: 'I350 Gigabit Network Connection'
      bus_type: 'pci'
    - name: enp94s0f0
      key: data_nic01
      address: '0000:5e:00.0'
      dev_type: 'Ethernet 10G 2P X520 Adapter'
      bus_type: 'pci'
    - name: enp94s0f1
      key: data_nic02
      address: '0000:5e:00.1'
      dev_type: 'Ethernet 10G 2P X520 Adapter'
      bus_type: 'pci'
    - name: enp135s0f0
      key: sriov_nic01
      address: '0000:87:00.0'
      dev_type: 'Ethernet 10G 2P X520 Adapter'
      bus_type: 'pci'
    - name: enp135s0f1
      key: sriov_nic02
      address: '0000:87:00.1'
      dev_type: 'Ethernet 10G 2P X520 Adapter'
      bus_type: 'pci'
    - name: /dev/sdg
      key: bootdisk
      address: '0:2.0.0'
      dev_type: 'PERC H730P'
      bus_type: 'scsi'
    - name: /dev/sdh
      key: cephjournal1
      address: '0:2.1.0'
      dev_type: 'PERC H730P'
      bus_type: 'scsi'
```

```
disks:
- name : bootdisk
  labels:
    bootdrive: 'true'
  partitions:
    - name: root
      size: 30g
      bootable: true
      mountpoint: /
    - name: boot
      size: 1g
      mountpoint: /boot
    - name: var
      size: '300g'
      mountpoint: /var
disks_compute:
- name : bootdisk
  labels:
    bootdrive: 'true'
  partitions:
    - name: root
      size: 30g
      bootable: true
      mountpoint: /
    - name: boot
      size: 1g
      mountpoint: /boot
    - name: var_log
      size: '100g'
      mountpoint: /var/log
    - name: var
      size: '>100g'
      mountpoint: /var
  - name : ephemeral
    partitions:
    - name: nova
      size: 99%
      mountpoint: /var/lib/nova
```

Complete example configuration file located here: https://gerrit.akraino.org/r/gitweb?p=yaml_builds.git;a=blob;f=dellgen10-sriov-a13.yaml

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Akraino Release Planning: Changes to Airship

Airship 2.0 announced July 2019 with several major architecture changes:

- Adding regional control for deployments
- Introducing Cluster-API for Kubernetes management
- Enhancing bare metal provisioning with Metal3-IO
- Leveraging Argo for workflows
- Changing to Kustomize for document management

"The Airship team is excited to share the future plans – a complete rebuild of Airship core code migration from Python to Golang with an alpha release planned for early 1Q 2020, a beta release late 2Q 2020, and a full 2.0 release in 2020."

https://www.airshipit.org/blog/airship-blog-series-3-airship-2.0-architecture-high-level.html
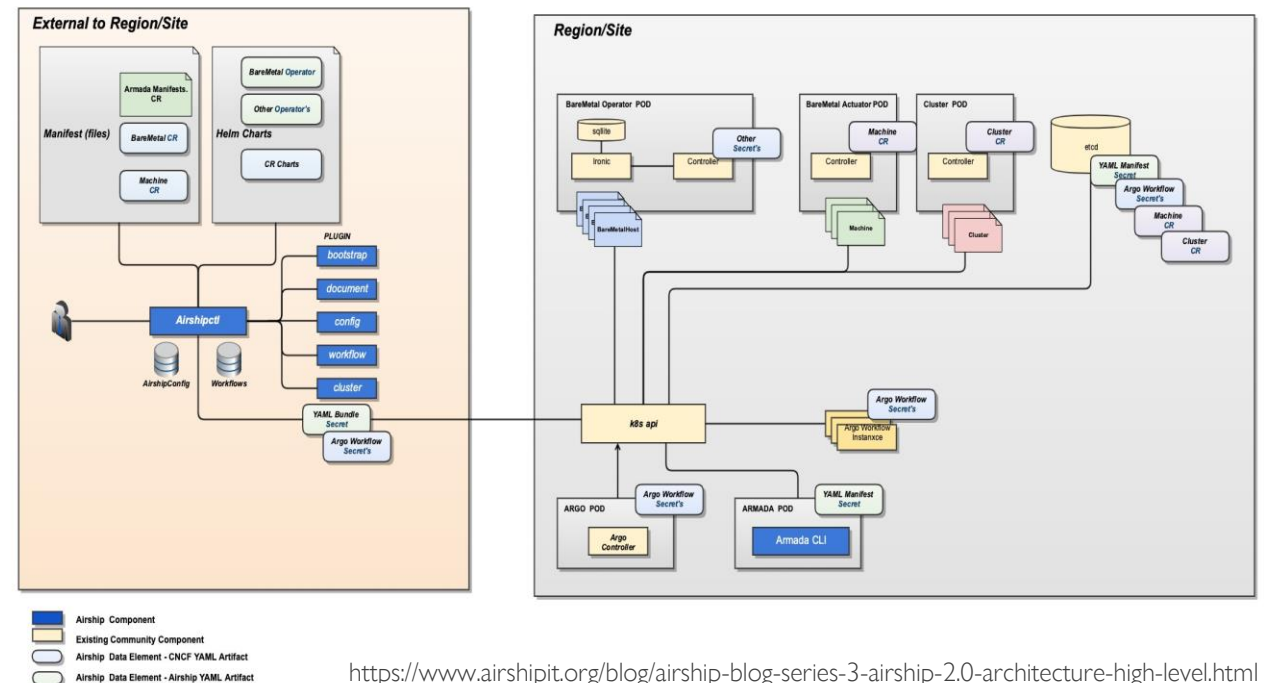
Akraino Release Planning

› Airship 2.0 introduces architectural changes that overlap with current Akraino Network Cloud blueprint functionality

› Monitoring Airship 2.0 progress in the OpenStack community to determine next steps

References

› Project wiki

   › https://wiki.akraino.org/display/AK/NC+Family+Documentation+-+Release+2

› Airship

   › https://www.airshipit.org/blog

› OpenStack-Helm

   › https://github.com/openstack/openstack-helm

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