Unicycle with SR-IOV Blueprint

Please refer to the NC Family Documentation - Release 1 for full details of the Unicycle with SR-IOV blueprint

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Blueprint Description

Network Cloud Unicycle with SR-IOV support is based on the original seed code provided by AT&T as the foundation for the Akraino Network Cloud Blueprint Family. This blueprint uses Airship to deploy a containerized Openstack environment with support for SR-IOV to provide virtual machines a high speed, low latency data path.

This blueprint addresses multiple edge use cases supporting virtual machine based workloads.

Use Case

The primary use case of Unicycle with SR-IOV blueprint is to support vRAN and 5G Core applications or other VM based edge applications which require high performance through-put with low latency. The blueprint will be evolved further to support multiple edge use cases.

Where on the Edge

The Unicycle blueprint can be deployed at any location in a network where between a three to seven server multi-tenant Openstack service is required to support applications.

It is expected that telco operator Central Office, Mobile Switch Offices or other aggregation sites would house this blueprint.

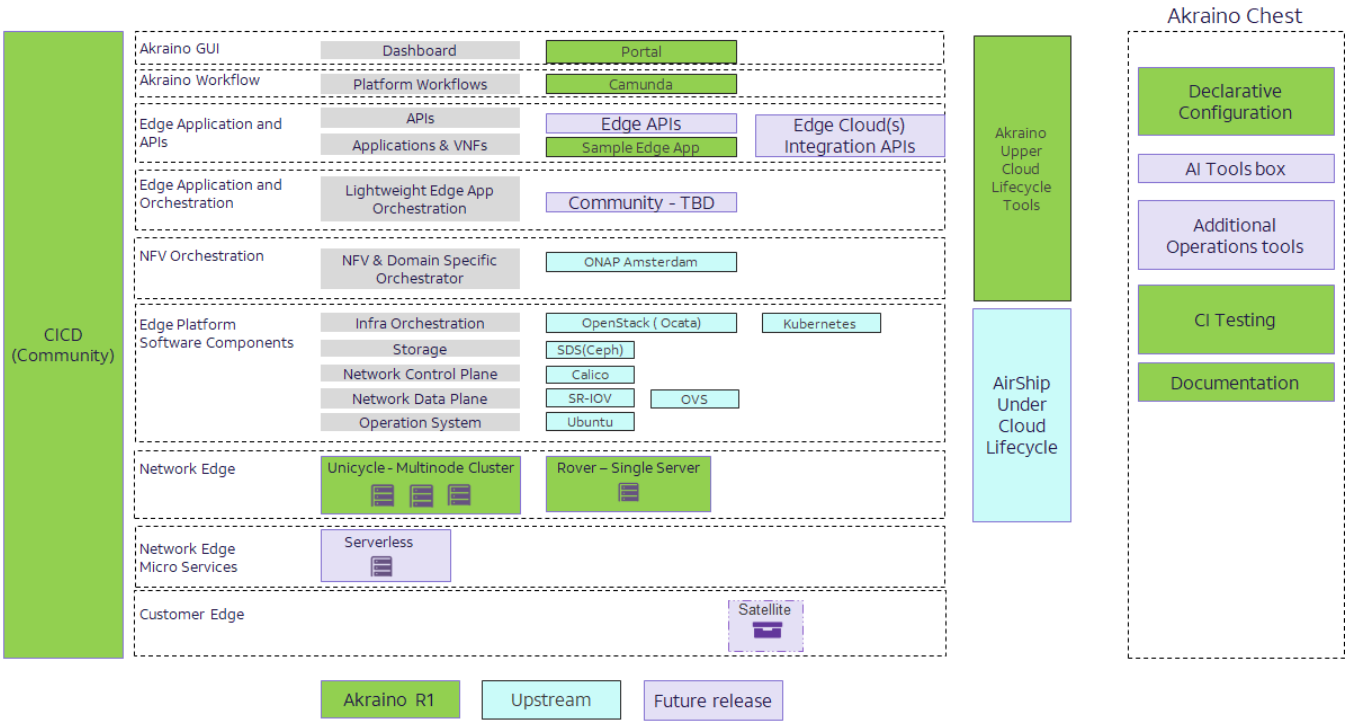
Deployment in non telco networks is equally supported.

Overall Architecture

The Network Cloud Architecture describes a detailed architectural view of Akraino Edge Stack Network Cloud (NC) Blueprint Family in R1.

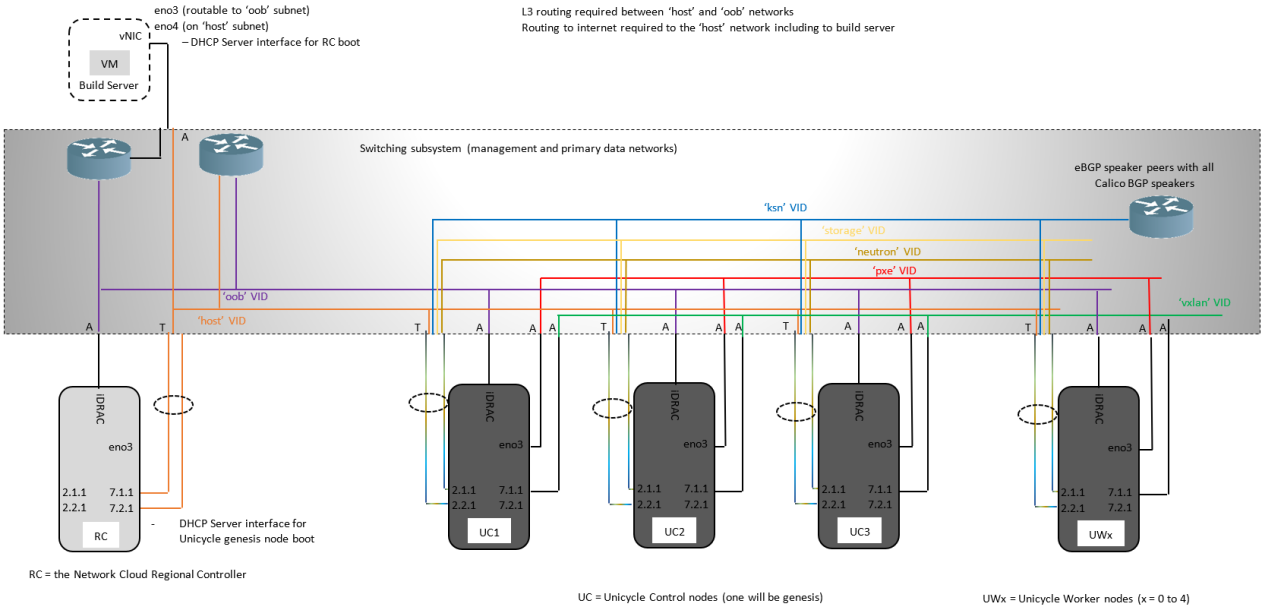
The figure below shows the collection of opensource projects that enable the Akraino Edge Stack Network Cloud (NC) Blueprint Family. This picture also highlights (marked yellow) the components and projects which are updated to fulfill the requirements on this blueprint.

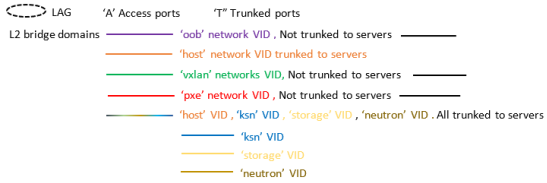
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Platform Architecture

The Regional Controller fully automatically deploys one or more Unicycle pods at each edge site location under its control. Unicycle pods consist of 3 control nodes and 0 to 4 worker nodes. Control nodes can also host tenant VMs as well as worker nodes. The configuration for each Unicycle edge site is defined in a user provided yaml based input file. Additional details can be found in the NC Family Documentation - Release 1.





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