

# Unicycle with OVS-DPDK Blueprint

Please refer to the [NC Family Documentation - Release 1](#) for full details of the Unicycle with OVS-DPDK dataplane blueprint

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## Blueprint overview/Introduction

[Network Cloud Unicycle with OVS-DPDK support](#) is an Akraino approved blueprint and is added as a new species to Akraino's [Network Cloud Blueprint Family](#). This blueprint integrates the Akraino feature project [Support for OVS-DPDK in Airship](#) which primarily focuses on up-streaming OVS-DPDK functionality in to the [Airship](#) project with the Akraino specific Network Cloud deployment capabilities.

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

### Use Case

The primary use case of Network Cloud Unicycle with OVS-DPDK 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.

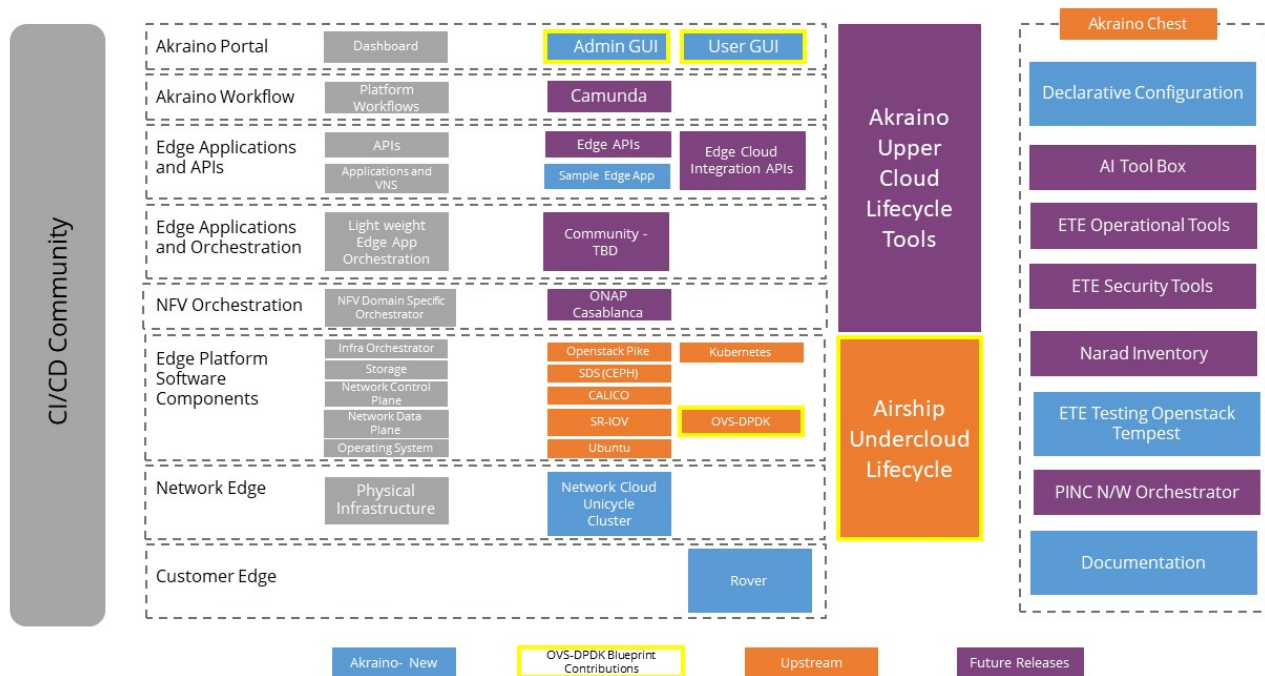
It is expected that telco operator Central Office, Mobile Switch Offices or other aggregation sites would house this blueprint.

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.



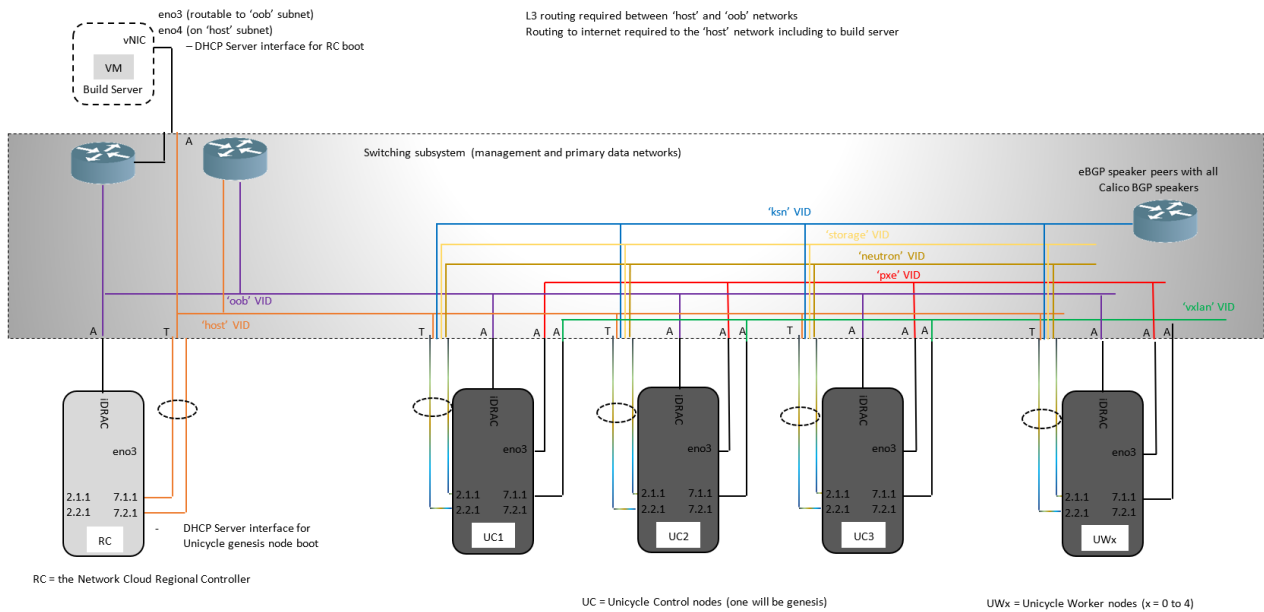
## Platform Architecture

Please see the [Network Cloud Architecture](#).

The diagram below shows the fundamental nodal and networking structure of the blueprint.

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.

RC region and Unicycle edge site and pod specific configuration is enabled through the use of user defined yaml based input files (fully described in the R1 documentation).



## Software Platform Architecture

Please see the [Network Cloud Architecture](#).

## APIs

Deployment of edge pods is primarily driven by the Network Cloud UI portal in the R1 release.

## Hardware and Software Management

The Unicycle OVS-DPDK blueprint uses the same hardware and software management processes and components as the Unicycle SR-IOV blueprint.

## Licensing

- GNU/common license