Overview

Introduction

In Akraino's R1 release the Network Cloud (NC) family provides for the automated deployment of three different types of edge pod:

- Single server Rover pods
- Multi server Unicycle pods with an OVS-DPDK data plane for guest VMs
- Multi server Unicycle pods with a SR-IOV data plane for guest VMs

Each of these different pod types is considered a different blueprint species within the NC family. Multiple pods of the same or different species can be deployed at any given edge location. Edge sites would typically be Central Offices (COs), Mobile Switch Offices (MSOs) but could be any site within the operator's network.

The deployment process is based on a two tier hierarchical model incorporating a Regional Controller (RC) which is responsible for the deployment of any number of independent Rover and/or Unicycle pods at one or multiple edge locations within its region of control. In a large geographic deployment multiple RCs would be deployed to subdivide into a multi-region deployment.

Before Rover or Unicycle edge pods can be deployed to an edge site a RC must be deployed to orchestrate their deployment. The same RC is used to deploy all three supported blueprint species.

A 'build server' is used to create an RC. Once the the RC is created the build server has no further role in NC deployments (except if a new RC is to be created).

The diagram below shows the deployment process with time running from top to bottom.
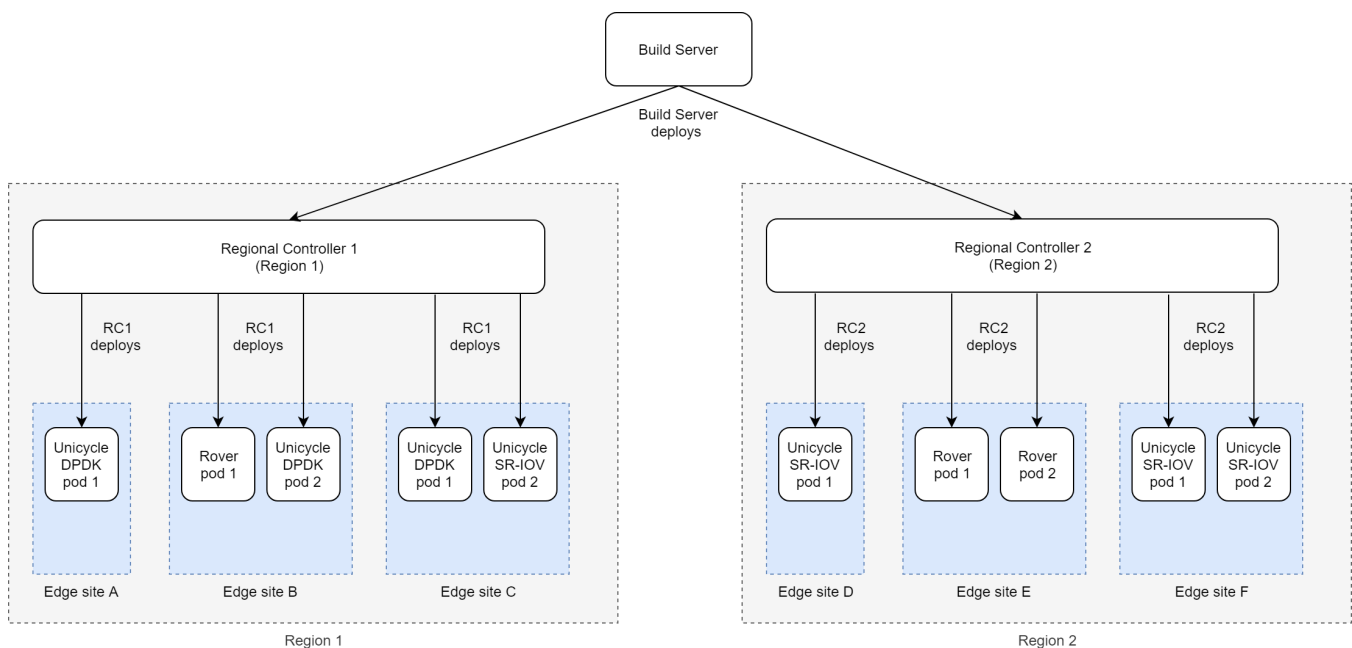
The fully automated deployment processes includes:

- The bare metal provisioning of the RC and Rover/Unicycle pods' BIOS via the servers' BMC using the Redfish API
- The provisioning and blueprint species specific configuration of an Ubuntu 16.04 operating system on all nodes.
- The deployment of all containerization, virtualization and associated Network Cloud specific software.

Summary

Build Server - a temporary VM or physical server initially used to deploy Regional Controllers.

Regional Controller - a VM or physical server used to deploy Rover and/or Unicycle pods at edge sites within its geographical region of control.

Edge pods - physical servers deployed by a Regional Controller at edge sites in either Rover or Unicycle pod configurations