Network Cloud Family - Reference Architecture

PLEASE REFER TO R1 NETWORK CLOUD RELEASE DOCUMENTATION

NC Family Documentation - Release 1

THIS DOCUMENTATION WILL BE ARCHIVED

The figure below shows the collection of technologies that enable the Akraino Edge Stack Network Cloud (NC) Blueprint Family. This picture also highlights the items in the initial seed code of this blueprint family. This blueprint familyis the demonstration of end-to-end stack compiled using multiple upstream projects and maintained using Akriano's CI/CD process to support the life-cycle.

The Akraino Portal at the Regional site provides a menu-driven user interface to select a blueprint species for the edge site. Once a specific blueprint is selected, end-to-end edge automation is used to build the site. Building a site entails making sure network connectivity exists for all compute and control nodes in the rack and between racks including connectivity to network racks.

This blueprint family plans to utilize Platform for Intelligent Network Control (PINC) to provide network automation which includes bootstrapping the network devices in the CLOS fabric and providing needed configuration for fabric connectivity (PINC is not part of initial seed). Once network readiness is achieved, automation can start the build process for the given site with the chosen specific blueprint species using the portal. Akraino leverages upstream open source project AirShip to provide deployment automation for the under cloud as well as the deployment of OpenStack components at the edge site.

The Akraino portal intends to provide a single pane of glass view of deployment and management functions of the edge sites. Portal also capability to deploy Open Network Automation Platform (ONAP) at select sites.

The portal leverages the Camunda workflow engine to execute a set of scripts that operate on declarative configuration management principles.

ONAP supports inventory, catalog, orchestration, analytics, policy, mediation, optimization and exposure functionality for deploying VNFs. It provides both design time and run-time capabilities. The design time framework is a comprehensive development environment with tools, techniques, and repositories for defining/describing resources, services, and products. The run-time execution framework executes the rules and policies distributed by the design and creation environment.

ONAP can be leveraged for on-boarding VNFs where deployed. VNF can also be deployed through the Akraino portal directly, where ONAP is not deployed.