Akraino Edge Stack – Update

November 5th, 2018
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AT&T initiated Blueprints (seed code)

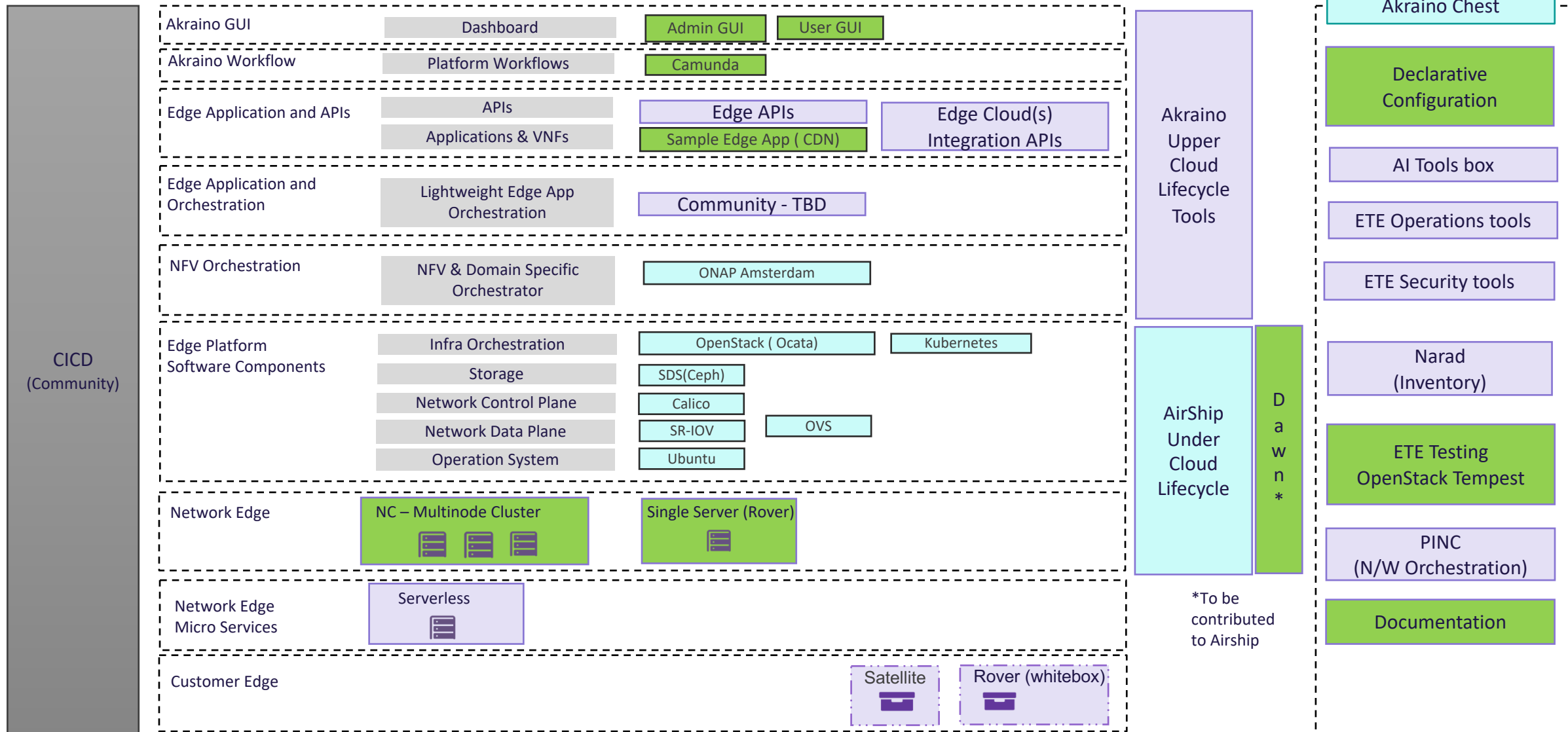|		
Use Case	Telecom (5G -Core, Voice, …)	
Blueprint Family	Network Cloud	
Blueprint	Rover (Single Server)	Unicycle (Multi-server)
Status	Full CI/CD – Master branch	• Full CI/CD – Development branch. • To be moved to Master branch

Akraino Network Cloud Blueprint (November, 2018)

Akraino Chest

CICD (Community)

Layer	Component	Items
Akraino GUI	Dashboard	Admin GUI, User GUI
Akraino Workflow	Platform Workflows	Camunda
Edge Application and APIs	APIs / Applications & VNFs	Edge APIs, Sample Edge App (CDN), Edge Cloud(s) Integration APIs
Edge Application and Orchestration	Lightweight Edge App Orchestration	Community - TBD
NFV Orchestration	NFV & Domain Specific Orchestrator	ONAP Amsterdam
Edge Platform Software Components	Infra Orchestration	OpenStack (Ocata), Kubernetes
	Storage	SDS(Ceph)
	Network Control Plane	Calico
	Network Data Plane	SR-IOV, OVS
	Operation System	Ubuntu
Network Edge		NC – Multinode Cluster, Single Server (Rover)
Network Edge Micro Services		Serverless
Customer Edge		Satellite, Rover (whitebox)

Akraino Upper Cloud Lifecycle Tools

AirShip Under Cloud Lifecycle

Dawn*

*To be contributed to Airship

Declarative Configuration

AI Tools box

ETE Operations tools

ETE Security tools

Narad (Inventory)

ETE Testing OpenStack Tempest

PINC (N/W Orchestration)

Documentation

Legend:
- Akraino - new
- Upstream
- Future release

Interested Feature Projects in R1

User Interface:

1. Enhancement to Akraino Portal and Workflow

2. Edge APIs (Standard APIs to the Akraino blueprints and 3rd party Edge Cloud interfaces)

Inventory:

3. NARAD Interface

Operational and Security tools

3. Fault Detection using ML/AI

4. CHOMP – Fault detection and counters

Interested enhancements in R1 (NC Family)

› GPU support

› Tungsten Fabric

› OVS-DPDK

› ARM servers

AKRAINO EDGE STACK

Other Blueprint Proposals

Blueprints	SEBA (In collaboration with ONF)	Serverless	Real Time	3rd Party Cloud	Customer-premises / Far Edge
	Single Rack – 3 Servers (NC Family)	(NC Family)	Multiple Servers (All Container workloads)	3rd Party Cloud Edge Stack – **Standard Interfaces**	All-in-one White boxes
Use Cases	vAccess (XGSPON)	Microservices	Realtime RAN , vRAN	Multiple Edge Applications	Universal CPE

R1 Targets   R1 Start   After R1

AKRAINO EDGE STACK
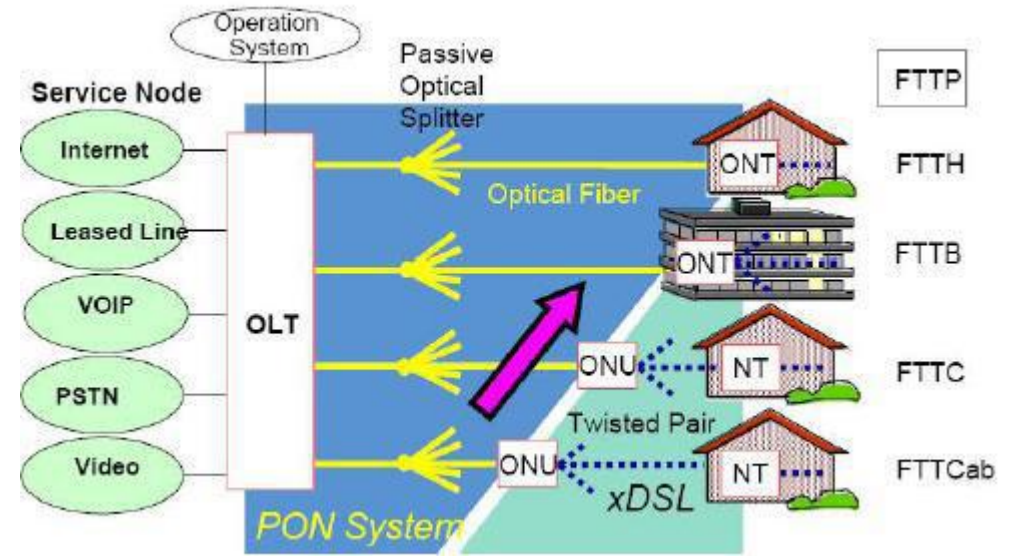
SEBA POD Overview

› Deployment model is self contained, pre-integrated solution
  › Scale to 1000s of central office locations
  › Lowest cost solution required.
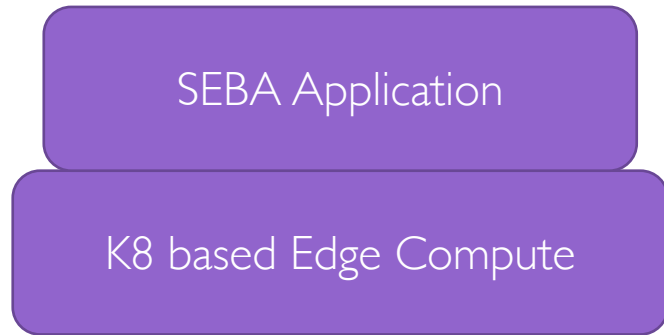
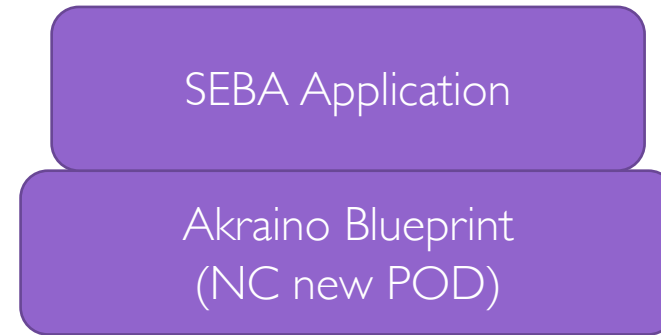› Current SEBA POD contains network elements, compute nodes, and software components
  › Aggregation and management switches
  › Three compute nodes required for K8 redundancy
  › About twenty containers running VOLTHA, ONOS, NEM, etc.
  › Supports up to 16 OLT
  › **All container based**
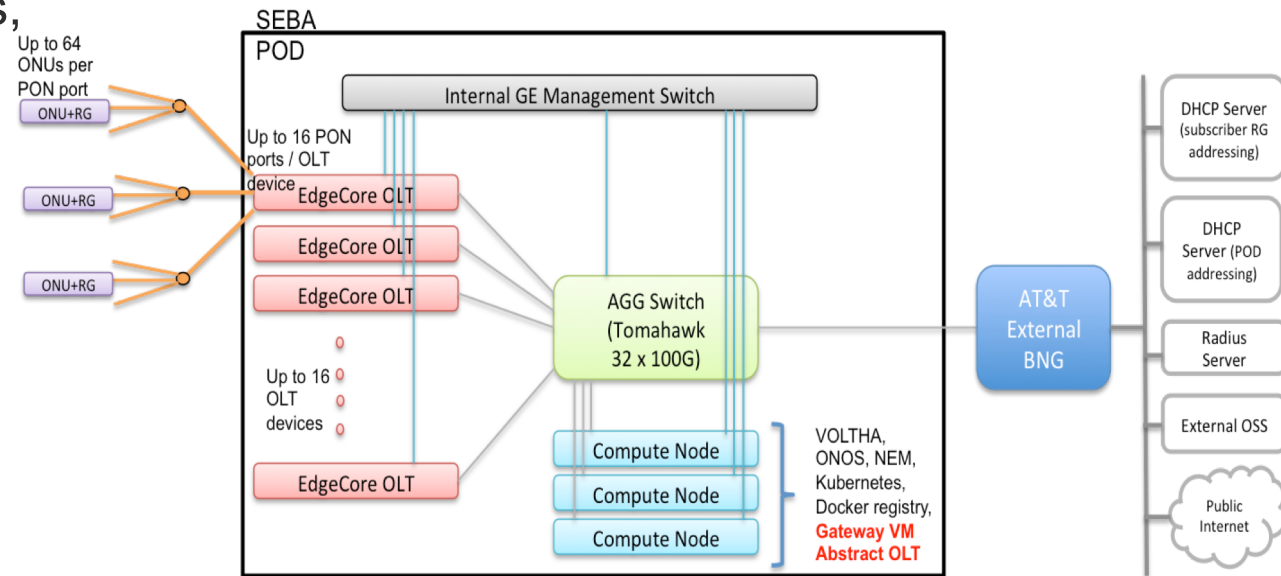
SEBA POD after Akraino Integration

SEBA Application

K8 based Edge Compute

→

SEBA Application

Akraino Blueprint
(NC new POD)

- ONF Monolithic design
- Manual steps involved
- **Edge Cloud layer not hardened for production**

- Akraino based community blueprint for the Edge Cloud Stack
- SEBA application upstreamed from ONF
- Network Cloud Family with enhancements
- Full Automation (Airship based + Tenant Container support)
- Cloud layer hardened for production

For More Information, Please
Visit www.akraino.org