LF EDGE TAC Akraino Annual Review Agenda

1. Akraino Project R3 Overview
2. Akraino Technology Information flow
3. Akraino 2021 API related activities
1. Akraino Project R3 Overview - 1

- 18 Blueprints (BPs), 4 BPs Proposals & 10 Development Projects
  - set of Open Infrastructures & Application Blueprints (BPs)

- Coordination & Co-operation with Multiple Upstream Open Source Communities/SDOs as:
  - Airship,
  - OpenStack,
  - ONAP,
  - ETSI MEC,
  - GSMA,
  - TIP,
  - CNCF
  - O-RAN

Objective: To deliver a fully integrated stack
1. Akraino Project R3 Overview - 2

- Akraino Release 3 (R3) - approved in August 2020

- Akraino Release 3 (R3) included 6 new Blueprints:
  1. 5G MEC/Slice System to Support Cloud Gaming, HD Video and Live Broadcasting Blueprint
  2. The AI Edge: Education Video Security Monitoring;
  3. Micro-MEC
  4. IEC Type 3: Android Cloud Native Applications on Arm servers on the Edge
  5. IEC Type 5: SmartNIC for Integrated Edge Cloud
  6. Enterprise Applications on Lightweight 5G Telco Edge
1. Akraino Project R3 Overview - 3

- Akraino Release 4 (R4) - projected early Q1 2021
- Connected Vehicle,
- AR/VR oriented Edge Stack for Integrated Edge Cloud (IEC),
- Radio Edge Cloud (REC),
- The AI Edge: Intelligent Vehicle-Infrastructure Cooperation System (I-VICS),
- 5G MEC/Slice System to Support Cloud Gaming,
- HD Video and Live Broadcasting,
- IEC Type 3: Android Cloud Native Applications on Arm Servers in Edge for Integrated Edge Cloud (IEC),
- Enterprise Applications on Lightweight 5G Telco Edge, Public
- Public Cloud Edge Interface (PCEI),
- The AI Edge: Federated ML Application at Edge,
- Private LTE/5G ICN
- IoT Workloads at the Smart Device Edge - Predictive
- Maintenance (with a Thermal Imaging Camera, Vibration Sensors).
ETSICME: An Introduction
(almost) everything you want to know about ETSI MEC

Presented by: Alex Reznik, ISG Chair
ETSI MEC Leadership Team

For: Public consumption
Akaino TSC
Sept 23-24, 2020
2. Akraino Technology Information flow

Google Anthos

by

Prajakta Joshi

Akraino TSC
2020-10-06
The Value Chain

Operator Role
- Connectivity
- Facilities
- Data center
- Cloud stack
- App enablers
- App delivery
- Business
- End-user

Operator Platform Scope
- Platform Provider
- Infrastructure Provider
- Colocation Provider
- Interconnected/Federated Operators
- Operator 1
- Operator 2
- Edge Service Provider
- Hyperscale Cloud Provider
- Marketplace
- Service Provider
- Enterprise
- Consumer
- Business

The Unified Edge Theory

- The edge environment has to work as a single cloud provider
  - Consistent APIs for developers: Build once, run anywhere
  - Support for different deployment styles
  - Multi-dimensional openness
- The Ultimate Goal: In-Network Computing
  - A service continuum based on
    - Programmable network devices
    - Languages and abstractions to implement network functions
    - Data-plane abstractions and new network protocols to efficiently federate decentralized computing
    - Decentralized security and discovery mechanisms
  - End-to-end orchestration of all kind of resources and functionalities
Mapping ETSI MEC Architecture to MEF LSO Architecture

Mehmet Toy, Ph.D
Ass. Fellow
Verizon

December 2020

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Lifecycle Orchestration of MEC Services [MEF 55.1]

Customer Domain

Customer Application Coordinator

CANTATA (CUS,BUS)

ALLEGRO (CUS/SOF)

BUS: Business Applications
CUS: Customer Application Coordinator
ECM: Element Control and Management
NFV-MANO: Network Function Virtualization (NFV) Management and Orchestration (MANO)
NFVO: NFV Orchestrator
Or-VnfM: Reference point between NFVO and VNF Manager
SOF: Service Orchestration Functionality
Ve-VnfM: Reference point between Element Manager (EM) and VNF Manager
Vi-VnfM: Reference point between Virtualized Infrastructure Manager (VIM) and Virtualized Network Functions (VNF) Manager

SP Domain

Business Applications
LEGATO (BUS/SOF)

Service Orchestration Functionality

Infrastructure Control and Management

Infrastructure (Network, Compute, Storage)

PRESTO (SOF/ECM)

ADAGIO (ICM/ECM)

VNF-MANO

NFVO

Or-VnfM

VNF Manager

Virtual Infrastructure Management & Element Management

Vi-VnfM

Ve-VnfM

Verizon
2. Akraino Technology Information flow - 4

Anuket – Telecom Reference Infrastructure for SDN Functions

Project Update
Sukhdev Kapur, Distinguished Engineer, Juniper Networks
Beth Cohen, Verizon
December 17, 2020

Anuket | Problem Statement

Many combinations = silo deployments

Infrastructure Abstraction
- Reduced TCO
- Consistent Operating Model
- Better Utilized Infrastructure
- Scalable
- Easy to automate
- Unified Verification and Testing

Anuket | Workstreams (WS)

Reference Architecture RA 1
- OpenStack Based
- Specification
- Guidelines
- Innovation

Reference Implementation RI 1
- Install & Lab Requirements
- Playbook (Cookbook)
- Gap analysis
- Development Planning

Reference Architecture RA 2
- Cloud Native
- Specification
- Guidelines
- Gap analysis
- Innovation

Reference Implementation RI 2
- Install & Lab Requirements
- Playbook (Cookbook)
- Gap analysis
- Development Planning

Reference Certification RC 1
- Framework & Testcases
- Requirements
- Playbook (Cookbook)
- Gap analysis
- Development Planning

Reference Certification RC 2
- Framework & Testcases
- Requirements
- Playbook (Cookbook)
- Gap analysis
- Development Planning

Under Planning...
3. Akraino 2021 API related activities - 1

**Akraino API Sub-committee TSC Mission:**
Chair: Jeff Brower  Co-Chair: Jane Shen

Develop an API Plan for the Akraino BPs Collaboration + Development.

The TSC has asked the API subcommittee to identify commonality between APIs, and possibly identify a “base” set of Akraino Edge Computing APIs.

This is future work, under discussion.
3. Akraiño 2021 API related activities - 2  
Akraiño Blueprint Projects R4 API Reporting Requirements

• All R4 BPs Project APIs will be organized and published on the API map page of the Akraiño API Portal.

• The API Portal will include both:
  - API Map Navigation and
  - Search Capability

• In addition to BP Projects' mandatory baseline API info, optional information about:

  (a) Telco Network Interface APIs, and
  (b) Kubernetes Environment APIs Info will be collected.

This will be used to support:
- One-stop API Presentation,
- Analysis, Comparison, finding similar APIs, and
- Sandbox/Sample Code.

AKRAINÓ
Questions?