LF Edge Akraino Project 2021 Annual Review to LF Edge Board

February 22nd, 2022   Rev A
Ike Alisson
Akraino TSC member & Documentation Sub-committee TSC Chair
Contents

1. Akraino Overview
2. Akraino Internal Activities
3. Akraino External Activities
4. Questions
1. Akraino Overview

- 20 < Blueprints (aka Integration Projects), BPs Proposals & Feature Projects
  - set of Open Infrastructures & Application Blueprints (BPs)

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

Objective: To deliver a fully integrated stack
1. Akraino Overview

Akraino Project (Blueprint) Lifecycle States and Reviews Phases

- Five (5) states that Projects go through.

- A Project Lifecycle may **extend across** Multiple Projects & Akraino Releases.

- The Procedure of moving from one (1) State to the next one is **independent from the Akraino Release Lifecycle** and the pace depends on each individual Project.

- In order to effectively review Project progress, **four (4) Reviews** are built-in to the Project Lifecycle, namely,
  1. Proposal
  2. Incubation
  3. Mature
  4. Core
  5. Archived

![Lifecycle Diagram](image-url)
1. Akraino Overview

All Projects > Linux Foundation Edge > Akraino (beta) > Technical Trends > Summary

SOURCE CONTROL
Commits
Go To Overview

SOURCE CONTROL
Commits
Go To Overview

40.26K Lines Of Code Changed

49 Commits
10 Contributions

1 No Of Sub-Projects
5 Repositories

Top 10 Contributors By Commits

NAME | Lines Of Code | Commits | %
--- | --- | --- | ---
Todd Malloy | 13.44K | 29 | 33.33%
Kurianmohan R | 7.03K | 11 | 13.33%
Eric Bell | 144 | 5 | 0.36%
out32871 | 40 | 2 | 0.02%
Le Yoo | 23.4K | 2 | 6.82%
Trevor Yoo | 4 | 1 | 0.03%
Ali Shazhmumar... | 8 | 1 | 0.02%
Andrew Grinberg | 24 | 1 | 0.03%
potatrap | 8.83K | 1 | 21.04%

Top 10 Organizations By Commits

NAME | Commits | %
--- | --- | ---
Intel Corporation | 27 | 27.03%
The Linux Foundation | 5 | 5.05%
OpenDaylight Project, Inc. | 1 | 0.10%
Amit Limed | 1 | 0.10%

76 Changesets

0 Time To Merge
27 Open Changesets

9.3 days Time To First Review
160 Approved Changesets

Top 10 Contributors By Changesets

NAME | Changesets | %
--- | --- | ---
Todd Malloy | 43 | 63.19%
Kurianmohan R | 11 | 14.47%
out32871 | 5 | 6.85%
Le Yoo | 2 | 2.63%
Potyk Strasawicz... | 2 | 2.63%
Andrew Grinberg | 1 | 1.32%
Ali Shazhmumar... | 1 | 1.32%
Amit Limed | 1 | 1.32%
Eric Bell | 1 | 1.32%

Top 10 Organizations By Changesets

NAME | Changesets | %
--- | --- | ---
Intel Corporation | 43 | 63.19%
The Linux Foundation | 5 | 7.14%
OpenDaylight Project, Inc. | 1 | 1.32%
Amit Limed | 1 | 1.32%

76 Changesets

Intel Corporation
The Linux Foundation
Unknown
OpenDaylight Project, Inc.
03/01/2021 - 03/03/2021 Akraino Technical Meetings - Spring

Summary

- **Agenda:** R5 planning, 2021 priorities for the community, labs, developer sync-up
- **Dates:** March 1st to 3rd, 2021

> All the time mentioned here is PT, California time.

> Register for the event at https://events.linuxfoundation.org/akraino-technical-meetings-spring/

> Speakers please upload the presentation before the meeting starts.

> Akraino PowerPoint/Google Slides Template

**Meeting Agenda Lead:** Tina Tsou, Akraino TSC Chair

Please submit any questions about this event to tsc@lists.akraino.org in the #akraino channel on https://slack.lfedge.org/

**Meeting Recordings**

- Day 1: https://zoom.us/rec/share/a-t4w7MZjvP7_D3o5o50kbPXP75Qq9tHiPuMP2Jat5Z3dn-ZhqEsOJTRYHV8Gm.RluwA80KcgFEik8?startTime=1614609817000 (Part 1)
- https://zoom.us/rec/share/a-t4w7MZjvP7_D3o5o50kbPXP75Qq9tHiPuMP2Jat5Z3dn-ZhqEsOJTRYHV8Gm.RluwA80KcgFEik8?startTime=1614641824000 (Part 2)
- Day 2: https://zoom.us/rec/share/uiBse_eUEkdKiEPMY-pkdCstx1ytBwweEMjTMx64YfUEmHuumU07Hf8TWI2gyXTJiOWwZyKbSgQQFprpj?startTime=1614696618000
- Day 3: https://zoom.us/rec/share/wcUuNydsiG2o5IBeriDRKy6ZsdT6o5vSwI7TNjgq48XN9Yj2n9-

**Tuesday, 2021-mar-02**

**Meeting Location:** Zoom (https://zoom.us/j/97031339119?pwd=U2FXM1RJU18vRGFvOUt5dDZaTmp2Zz09 Paascode: 134822)

**Meeting Recording - Day 2:** https://zoom.us/rec/share/uiBse_eUEkdKiEPMY-pkdCstx1ytBwweEMjTMx64YfUEmHuumU07Hf8TWI2gyXTJiOWwZyKbSgQQFprpj?startTime=1614696618000

<table>
<thead>
<tr>
<th>Time</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:15 am - 7:45 am</td>
<td>TSC Members Sharing Technical Steering Committee (TSC) 2020-2021</td>
</tr>
<tr>
<td>7:45 am - 8:05 am</td>
<td>Open Source Networking, Edge, and Access - Arpit Joshipura, Linu Foundation</td>
</tr>
</tbody>
</table>
2. Akraino Internal Activities - 2

09/22/2021 - 09/24/2021 Akraino Technical Meetings - Fall

Summary
- Agenda: R6 planning, 2021 priorities for the community, labs, developer sync-up
- Dates: September 22nd to 24th, 2021

> All the time mentioned here is PT, California time.

**WEDNESDAY, SEPTEMBER 22 (North America time zone friendly)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>09:00 – 10:30 PDT (UTC-7)</td>
<td>Keynote Sessions</td>
</tr>
<tr>
<td>12:00 – 13:30 EDT (UTC-4)</td>
<td></td>
</tr>
<tr>
<td>18:00 – 19:30 CEST (UTC+2)</td>
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<tr>
<td>00:00 – 01:30 CST (UTC+8) (Thursday)</td>
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</tr>
<tr>
<td>10:30 – 10:45 PDT (UTC-7)</td>
<td>Break</td>
</tr>
<tr>
<td>13:30 – 13:45 EDT (UTC-4)</td>
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<td>10:45 – 12:00 PDT (UTC-7)</td>
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<td>13:45 – 15:00 EDT (UTC-4)</td>
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**THURSDAY, SEPTEMBER 23 (APAC time zone friendly)**

<table>
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<th>Time</th>
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<td>18:00 – 19:30 PDT (UTC-7)</td>
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<td>19:30 – 19:45 PDT (UTC-7)</td>
<td>Break</td>
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<td>22:30 – 22:45 EDT (UTC-4)</td>
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<td>04:30 – 04:45 CEST (UTC+2)</td>
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<td>10:30 – 10:45 CST (UTC+8) (Friday)</td>
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<td>19:45 – 21:00 PDT (UTC-7)</td>
<td>Keynote Sessions Resume</td>
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<tr>
<td>22:45 – 24:00 EDT (UTC-4)</td>
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Meeting Location: Zoom: https://zoom.us/j/36204631964?pwd=RGZBzmdoUnhadjdksJlZeekHMVvWTP09

Meeting Recording - Day 2: https://zoom.us/rec/share/ebe8WfCMBLcOasRBrGRJ0hwUZcpi4-pNgw8cInLe87E_VRle-hwXmcGnPgnM70.80UqQ8K8g7gzm3tuu?start_time=1632444412000

Time Zone: All times below are US Pacific Time Zone

<table>
<thead>
<tr>
<th>Time</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:15 pm – 6:30 pm</td>
<td>Edge AI Cloud Native Brief Introduction</td>
</tr>
<tr>
<td></td>
<td><a href="https://example.com">Wang Ye</a> , Baidu</td>
</tr>
<tr>
<td>6:30 pm – 6:40 pm</td>
<td>IoT/edge social implementation example</td>
</tr>
<tr>
<td></td>
<td><a href="https://example.com">Fukano Haruhisa</a> , Yamada Kenji, Fujitsu</td>
</tr>
</tbody>
</table>
New Blueprints for R5

Smart Cities

MEC-based Stable Topology Prediction for Vehicular Networks

Multitenant Secure Cloud Native platform (ICN-MTSCN)
R5 Updates to Existing Blue Prints

- Connected Vehicles
- IEC Type 4: AR/VR oriented Edge Stack for Integrated Edge Cloud (IEC) Blueprint Family
- ICN – Integrated Cloud-Native Family
- ELIOT IoT Gateway Blueprint
- ELIOT SD-WAN/WAN Edge/UCPE Blueprint
- Network Cloud and TF (Tungsten Fabric) Integration Project
- Network Cloud and TF (Tungsten Fabric) Integration Project
- KNI Provider Access Edge
- KNI Industrial Edge
- The AI Edge: School/Education Video Security Monitoring
- The AI Edge: Intelligent Vehicle-Infrastructural Cooperation System (IVICS)
- 5G MEC/Slice System to Support Cloud Gaming, HD Video and Live Broadcasting Blueprint
- IEC Type 3: Android cloud native applications on Arm servers in edge for Integrated Edge Cloud (IEC) Blueprint Family
- IEC Type 5: SmartNIC for Integrated Edge Cloud (IEC) Blueprint Family
- Enterprise Applications on Lightweight 5G Telco Edge
- Public Cloud Edge Interface (PCEI) Blueprint/Public Cloud Edge Interface (PCEI) Blueprint
- IoT Workloads at the Smart Device Edge – Predictive Maintenance (with a Thermal Imaging Camera, vibration sensors, etc.)
- The AI Edge: Federated ML application at edge
- KubeEdge Edge Service Blueprint
- Private LTE/5G ICN Blueprint
- IEC Type 2 for Integrated Edge Cloud (IEC) Blueprint Family
09/28/2021 Akraino R5 Webinar: Expanding the Edge
Skapad av Tina Tsou, senast ändrad av Asif Mehmood den sep 28, 2021

VIRTUAL SCHEDULE AT-A-GLANCE

Tuesday, SEPTEMBER 28

09:00 – 10:00 PDT (UTC-7)
12:00 – 13:00 EDT (UTC-4)
18:00 – 19:00 CEST (UTC+2)
00:00 – 01:00 CST (UTC+8) (Thursday)

Date Time: Sep 28, 2021 09:00 AM Pacific Time (US and Canada)
Topic: Akraino R5: Expanding the Edge

Here is the link to register for the webinar -- please share this with your friends and colleagues: https://zoom.us/webinar/register/WN_xnujjJxiITJa9irf9h0_rrw

Description: Akraino is an open source software stack that improves the state of edge cloud infrastructure for carrier, provider, and IoT networks. It offers new levels of flexibility to scale edge cloud services quickly, to maximize the applications or subscribers supported on each server, and to help ensure the reliability of systems that must be up at all times.

Join the community for a webinar outlining the newest blue prints available in the latest release, Akraino R5, covering new uses cases for:
In a stand-out finding of interest to our Telco Customers, 95% of respondents from the Telecommunications Industry report using Open Source.

The high-level takeaway of the report is that: "using Open Source SW across all Industries is no longer principally about making best use of IT Budgets."

*Lower Cost of Ownership has fallen off the top spot and now sits in sixth (6th) position.*

Today, the Strategic Benefits of using Open Source are valued more, including:

**Top benefits of using enterprise open source**

1. Higher quality software **35%**
2. Access to latest innovations **33%**
3. Better security **30%**
4. Ability to safely leverage open source technologies **30%**

**U.S.**
- 35% Higher quality software
- 33% Access to latest innovations
- 32% Ability to safely leverage open source technologies

**EMEA**
- 35% Higher quality software
- 33% Access to latest innovations
- 31% Better security

**APAC**
- 38% Higher quality software
- 33% Access to latest innovations
- 30% Trusted by smartest software engineers

**LATAM**
- 35% Better security
- 34% Higher quality software
- 32% Ability to safely leverage open source technologies
2. Akraino Internal Activities 7 - Akraino SW, Innovation & Security

The State of Enterprise Open Source

A Red Hat® Report

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Zero Trust Reference Architecture

Department of Defense (DOD)

This publication is available free of charge from:
https://doi.org/10.4851/NIST.TR.800-207
Akraino Edge Stack
Security Sub-Committee

September 24, 2021

Daniil Egranov
Security Sub-Committee Co-Chair, Akraino

Randy Stricklin
Security Sub-Committee Chair, Akraino
Akraino Security Team 2021 Accomplishments

› Automated Lynis, Vuls and Kube-Hunter Log Output Pass/Fail Analysis

› Lynis – Reviewed Required Tests
  › Formalized and Documented Lynis Incubation vs Maturity Requirements

› Platform Security for Akraino Blueprints
  › Arm
  › x86

› Release 4 and 5 Blueprint Reviews
Akraino Security Team Future Plans - 2022

 › Develop Minimum OS Version Support Document
   › Ubuntu, CentOS, RHEL CoreOS, Debian

 › Develop Minimum Security Tool Version Support Document
   › Lynis, Vuls, Kube-Hunter, and OVAL (Vuls) database

 › BluVal (Blueprint Validation):
   › Integrate Automated Lynis, Vuls and Kube-Hunter Pass/Fail
   › Enforce minimum versions of Vuls, Lynis and Kube-Hunter

 › Version 1.0 Platform Security Whitepaper

 › Investigate using LFX Security
2. Akraino Internal Activities - Akraino Regional Communities

Akraino China Community - Downstream Lab 1 (China South, mainly Arm architecture initially)

- Cooperation mode
  1) Cooperation at the organizational level;
  2) Cooperative positioning;
  3) Business implementation;
  4) Industry promotion;
  5) Ability and personnel;
  6) About GCC/ERC

Blueprint Landing Plans

- Integrated Edge Cloud (IEC) Blueprint Family
  EC Type 3: Android cloud native applications on Arm servers is edge for Integrated Edge Cloud (IEC) Blueprint Family
  - Products implementing the blueprint:
    - Industrial Conference:
      - Exhibition;
      - Target Industries;
    - EC Type 5: SmartWIC for Integrated Edge Cloud (IEC) Blueprint Family
      - Products implementing the blueprint:
        - Industrial Conference:
          - Exhibition;
          - Target Industries;
        - The AI Edge Blueprint Family

Akraino China Community - Downstream Lab 2 (China North Architecture/Vendor Neutrality)

Benefits all the architecture irrespective of ARM or X86. It benefit Akraino community as well.

Kuralamudhan Ramakrishnan @ YE II

02-Dec 2021
Derek Jee/SDNLB/
Akraino and SDNLB Collaboration.ppt
2. Akraino Internal Activities 10 - Akraino Annual Awards - 1

- Akraino Community Awards 2021 - Woman of the Year was issued by The Linux Foundation to Tina Tsou.

- Akraino Community Awards 2021 - Top Blueprint of the Year was issued by The Linux Foundation to Oleg Berzin.

- Akraino Community Awards 2021 - Top Blueprint of the Year was issued by The Linux Foundation to Kurulamudhan Ramakrishnan.
2. Akraino Internal Activities 10 - Akraino Annual Awards -2
11/23/2021 Akraino Reunion Meeting

Skapad av Tina Tsou, senast ändrad av Jeff Brower den dec 09, 2021

IN PERSON & VIRTUAL SCHEDULE AT-A-GLANCE

When: Tuesday, November 23

10:30 – 14:30 PST (UTC-8)
13:30 – 17:30 EDT (UTC-5)
19:30 – 1:30 CET (UTC+1) (Wednesday)
02:30 – 6:30 CST (UTC+8) (Wednesday)

Date Time: Nov 23, 2021 10:30 AM - 2:30 PM PST (US and Canada)
Topic: Akraino Reunion Meeting

Where: HanaHaus + Blue Bottle Coffee

Address: 456 University Ave, Palo Alto, CA 94301
websites: HanaHaus (click on Palo Alto), bluebottlecoffee.com
3. Akraino External Activities 1 - LF Edge Akraino and ETSI MEC Co-operation

1. Use of ETSI MEC architecture in Akraino BPs. Some BPs already explicitly refer to ETSI MEC in their architecture (e.g., EALTEdge). Some BPs are “mappable” to ETSI MEC architecture (e.g., PCEI). Maybe we should include an optional architecture section in BP architecture documents that shows the alignment with ETSI MEC.

2. Direct implementation of ETSI MEC services and APIs in Akraino BPs

3. Participation in ETSI MEC Hackathons and/or Plugtests. Akraino BPs and releases are essentially a “continuous hackathon”. Given that many Akraino BPs provide solutions for Edge Computing, we should find a way to “channel” Akraino BPs as ETSI MEC hackathon projects as well.

4. Include MEC specs in LF Edge Akraino API map, using either the existing Blueprint-organized map or a different basis of organization

5. Conduct architectural mapping and analysis between sample Akraino Blueprint projects (For example, PCEI) and appropriate MEC reference architecture

6. Promote MEC APIs in Akraino Blueprint projects, specifically MEC009 API design generic guidelines

7. Map, analyze, and compare Akraino Federated edge projects with MEC Federation specifications

8. Focus on implementing specific MEC use case categories (e.g., IoT, URLLC, Vehicular) in Akraino BPs
ETSI MEC Update of the collaborations with OpenSource, with special focus on LF Edge Akraino

Presented by: Jane Shen, VP of Technology Strategy, Mavenir Technical Expert, ETSI MEC ISG

© ETSI 2021

15.11.2021
The OPG believes that, for Operators to develop a Federated Edge Computing Platform such as the OP, Requirements must be enforceable in Contracts by a Published Set of Standards.

To this end, the OPG proposes selecting ETSI ISG MEC and 3GPP to provide a Standard Reference for an Edge Service End to End (E2E) definition.

We note that 3GPP EDGEAPP Architecture and ETSI ISG MEC Architecture could complement each other in a way that is acceptable to OPG:
ETSI MEC Update of the collaborations with OpenSource, with special focus on LF Edge Akraino

Presented by: Jane Shen,
VP of Technology Strategy, Mavenir
Technical Expert, ETSI MEC ISG

© ETSI 2021

15.11.2021
3. Akraino External Activities 1 - LF Edge Akraino and ETSI MEC Co-operation - 4

Enterprise Application on Lightweight 5G Telco Edge Use Case

Demo Brief

- Smart retail stores on Remote sites (RBSs)
  - Part 1: Smart shelf in retail store on lightweight 5G NBB edges
  - Part 2: In a broader context, stores have applications and data that need availability with backup and recovery of edge sites to remote cloud nodes

- Use case of CRB/CRI Management and Edge Node Apps Deployment on Edge connected with App. Applications across MEC nodes
- Download the Edge Node Apps
- Installing the Network Operation Center

Use Case for 5G Telco Edge

PCEI Release 5 Overview

- NBI APIs
- Multi-Cloud Provider Interface
- Dynamic Edge Cluster Registration
- Dynamic App Node Orchestrating
- Automatic creation of Service Instance in MEC and deployment at Node
- Automatic Topology Plan Execution

- Integrated Transport Plan Executive
- Azure (PCC)
- AWS (PCC)
- Equinix Fabric (Interconnect)
- Equinix Metal (Bare Metal Cloud)
- Openstack (3NF)
- Equinix Fabric Interconnect
- Multi-Cloud Core (PCC) Orchestrator
- Kubernetes Edge
- Openstack Edge
- Cloud Native 5G UPF Deployment

PCEI Use Case in ETSI MEC Plugtests 2021

- Use ETSI MEC spec – MEC013 Location API
- Generates and communicates MEC013 Location API server code
- Generates Helm charts for the code to make it deployable on Kubernetes
- Use Akraino PCEI Orchestrator as a MEC/MEPM to:
  - Onboard MEC013 Location API server as a Service/App
  - Deploy Equinix Metal server (MEPM/MEC Node)
  - Onboard Kubernetes on Metal server
  - Onboard Kubernetes cluster to PCEI Orchestrator
  - Deploy MEC013 Location API Service (as MEC App)
An API Portal For Edge Developers

- An API info hub of Akraino projects
- Cross reference with other relevant API information sites, e.g. ETSI MEC wiki, forge.etsi.org etc.
- Highlight API offerings from Akraino projects

https://apiportal.Akraino.org
3. Akraino External Activities 2 - LF Edge Akraino Automotive

07/26/2021 - 07/27/2021 Akraino Automotive Area workshop
Skapad av Tina Tsou, senast ändrad av Kendall Perez den 27, 2021

Summary
- Agenda: Automotive Area deployers, developers sync-up
- Dates: July 26, 2021

Meeting Location:
Join Zoom Meeting

Topics
9:00 am - 9:05 am
- Summary of Day 1, and Introduction of Day 2
  - @Tina Tsou, TSC Chair; @Oleg Berzin, TSC Co-Chair

9:05 am - 9:50 am
- Arm in Automotive - John Heinlein, VP North America Automotive Partnerships

9:50 am - 10:35 am
- Open Discussion @Ike Alisson

Edge computing research, standardization and roll-out practices in CVIS and Automotive Networking Area

Dr. Lei Yixue
Principal Researcher, Future Network Lab, Tencent
July 26th, 2021

MEC-based Stable Topology Prediction for Vehicular Networks
@Asif Mehmood

Akraino Automotive Area workshop
Introduction to Open Discussion
Ike Alisson
LF Edge Akraino Documentation Sub-committee TSC Chair
Monday, October 4th at 15:00 UTC (8am Pacific Time)

Attendees: Please add your name to the list below

- Taylor Carpenter - taylor@vulk.coop - Vulk Coop
- Drew Bentley - drew@vulk.coop - Vulk Coop
- Akash Manohar - akash@vulk.coop - Vulk Coop
- Lucina Stricko - lucina@vulk.coop - Vulk Coop
- Tal Liron - taliron@redhat.com - Red Hat
- Alexis de Talhouêt - adetalho@redhat.com - Red Hat
- Ike Alisson - ike@alicon.se - Alicon
- Daniel Bernier - daniel.bernier@bell.ca - Bell Canada
- Chencengxiang - chencengxiang@chinamobile.com - China Mobile

Agenda: Please add your agenda item(s) to the list below

- [Tal - Red Hat] 20 minute presentation of [CNCK: Cloud Native Configurations for Kubernetes, using Open5GS as a use case example]
- [Ike] - Alicon, 30min presentation on 5G Legacy of Edge and New Service Capabilities:
  [Broken] https://www.slideshare.net/secret/5yAn2C1yPg4V
Meeting Minutes - 2022-jan-19 @7:30 am PST

- @ Ike Alisson: 5G Slicing enhancements related to 3GPP "5G Advanced" Specifications
  - Currently Magma is not offering the capabilities enabling us for QoS
  - Importance for Magma to adopt VES Specifications supported by 3GPP - Call scheduled within the coming days

- @ Amar Kapadia: Latest update Magma/ONAP (Service Delivery):
  - In terms of status updates, we have completed the CPA development to automatically register the Magma...
### 5.1.2 Pre-conditions

Figure 5.1.2-1 shows the use case scenario where different network slices are configured on different frequency bands at a certain geographical location. In this scenario, all network slices and radio frequency bands belong to the same operator.

### Table 5.15.2.2.1: 5G Standardized Slice/Service Type (SST) Values

<table>
<thead>
<tr>
<th>Slice/Service type</th>
<th>SST value</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>eMBB</td>
<td>1</td>
<td>Slice suitable for the handling of 5G enhanced Mobile Broadband.</td>
</tr>
<tr>
<td>URLLC</td>
<td>2</td>
<td>Slice suitable for the handling of ultra-reliable low latency communications.</td>
</tr>
<tr>
<td>MiIoT</td>
<td>3</td>
<td>Slice suitable for the handling of massive IoT.</td>
</tr>
<tr>
<td>V2X</td>
<td>4</td>
<td>Slice suitable for the handling of V2X services.</td>
</tr>
<tr>
<td>HMTC</td>
<td>5</td>
<td>Slice suitable for the handling of High-Performance Machine-Type Communications.</td>
</tr>
</tbody>
</table>

### Table T1 List of attributes needed for NEST for MiIoT SST

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability</td>
<td>99.99</td>
</tr>
<tr>
<td>Device Velocity</td>
<td>0</td>
</tr>
<tr>
<td>UE density (per km²)</td>
<td>1000</td>
</tr>
<tr>
<td>Mission critical support</td>
<td>Mission critical</td>
</tr>
<tr>
<td>Mission critical capability support</td>
<td>Inter-user prioritization</td>
</tr>
<tr>
<td>Mission critical service support</td>
<td>MCCdata</td>
</tr>
<tr>
<td>Slice-quality of service</td>
<td>3GPP 5QI</td>
</tr>
</tbody>
</table>

### Table T2 List of attributes needed for NEST for HMTC SST

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability</td>
<td>99.9</td>
</tr>
<tr>
<td>Supported device velocity</td>
<td>2</td>
</tr>
<tr>
<td>UE density</td>
<td>100000</td>
</tr>
<tr>
<td>Slice-quality of service</td>
<td>3GPP 5QI</td>
</tr>
<tr>
<td>Mission critical support</td>
<td>Mission critical</td>
</tr>
<tr>
<td>Mission critical capability support</td>
<td>Inter-user prioritization</td>
</tr>
<tr>
<td>Mission critical service support</td>
<td>MCCdata</td>
</tr>
</tbody>
</table>
09/15/2021 Akraino IoT Area Webinar / Regional Developer Meetup - Africa

Skapad av Tina Tsou, senast ändrad av Stephen Ozoigbo den sep 15, 2021

The Linux Foundation Akraino community will conduct a workshop on Wednesday, September 15 (Local time, GMT +2) online.

**Registration Link:** [https://zoom.us/meeting/register/tJItceGvqDouGd1ToS3OyzaVb_Sb16eDDPZz](https://zoom.us/meeting/register/tJItceGvqDouGd1ToS3OyzaVb_Sb16eDDPZz)

On September 15, 2021 (9.00am - 2.00PM PST) the Akraino community will participate in a partner event online.

Launched in 2018, and now part of the LF Edge umbrella, Akraino is creating an open-source software stack that supports a high-availability cloud stack optimized for edge computing systems and applications. Designed to improve the state of edge cloud infrastructure for enterprise edge, OTT edge, and carrier edge networks, it offers users new levels of flexibility to scale edge cloud services quickly, to maximize the applications and functions supported at the edge, and to help ensure the reliability of systems that must be up at all times. The Akraino Edge Stack blueprints use several upstream open-source projects such as ORAN Alliance, CNCF, Openstack, ONF, ONAP, TIP and the community works with open-source communities to enhance any missing edge functionality.

This workshop will provide an overview of leading use cases of Edge computing systems and applications in Africa with a focus on V2X, IoT and Enterprise Edge solutions.

With key presentations from leading African infrastructure stakeholders, this workshop will provide a unique opportunity to gain unique insights on current infrastructure solutions across the African continent as well as specific technology approaches for the fastest growing industry verticals. In addition to providing detailed coverage of topics related to the current state of Edge computing on the African continent, there will be an opportunity for peer networking to connect with fellow professionals and expert industry practitioners.

There is no cost to attend the event and we encourage everyone interested in edge computing infrastructure and related opportunities in Africa to attend.

**Agenda:**

**Workshop, Wednesday, 2021-sep-15 9.00am - 2.00 p.m PST**

**Location:** Zoom link will be emailed to you after you register

**Registration Link:** [https://zoom.us/meeting/register/tJItceGvqDouGd1ToS3OyzaVb_Sb16eDDPZz](https://zoom.us/meeting/register/tJItceGvqDouGd1ToS3OyzaVb_Sb16eDDPZz)
11/24/2021 Akraino presentation to KICS on IoT (Korean Institute of Communications and Information Sciences)

Skapad av Ike Alisson, senast ändrad den dec 30, 2021

Akraino presentation to KICS on IoT (Korean Institute of Communications and Information Sciences) about update on Open Source and Standard trends related to 3GPP 5G and oneM2M IoT SL (Service Layer) Global Standard evolvement.

KICS is the largest ICT Institute in Korea with over 26,000 members, 50 members, 8 domestic and 5 overseas chapters, and 30 specialized Research Groups. As the growth engine and leader of ICT in Korea that has achieved the greatest accomplishments in the world, KICS provides open networks for Universities, Corporations, Government-affiliated Agencies and Research Institutes to engage in Academic activities, Technical Cooperation and Policy Reviews in the fields of ICT-based Communications, Broadcasting and ICT Convergence Industries. Today, with the upcoming future driven by the Fourth (4th) Industrial Revolution, KICS is opening a new future for ICT with the pride and passion that led Korea’s Information and Communications Technology that amazed the world. KICS is at the heart of the limitless competition of the Fourth (4th) Industrial Revolution. For further information about KICS, please visit the KICS web site: https://eng.kics.or.kr/html/?pmode=intro

https://wiki.akraino.org/display/AK/IoT+Area
Questions ?