

The New Intelligent Edge

Akraino Project Overview

Arpit Joshipura

GM, Linux Foundation

Aug 2018



Akraino Announcement March-June 2018



Data Center • Networks

Why does the world need the new 'Arkraino' network edge stack?

Because devices on massive networks need services, says Linux Foundation orchestration guru Arpit Joshipura

By Richard Chirgwin 3 May 2018 at 05:58

7 SHARE

Over the next couple of quarters, a team of developers will start fleshing out the roadmap of a Linux Foundation effort A&T ignited in February, when the telco giant donated code to the Akraino project.

The aim is to create a "network edge stack" that plugs a gap in the open source world, between the OpenStack/OPNFV-built clouds home to



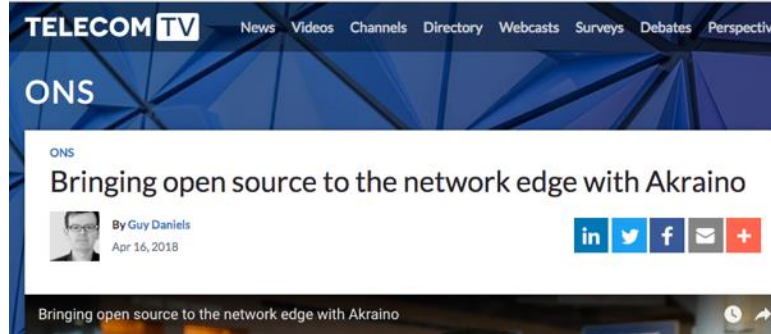
The Linux Foundation Opens to the Edge with Akraino Project



Dan Meyer
February 20, 2018
3:19 pm PT

The Linux Foundation launched the Akraino project, which taps foundational work done by AT&T in edge computing systems and applications.

Akraino is an open source software stack that can support carrier availability and performance needs in cloud services optimized for edge computing systems and applications. Edge computing is synonymous with multi-access edge computing and mobile edge computing, which both go by the MEC acronym.



Why Edge Why

- › First Open Source Project at Edge gathers momentum, complements other standards & consortiums
- › Edge now an integral part of Open Source Software Ecosystem

Welcome to CIMI Corporation's Public Blog

Thoughts on industry events from Tom Nolle, President of CIMI Corp. Please read the

The Hardware and Platform Requirements for Edge Computing

that specific. A more general approach is represented by the Linux Foundation Akraino Edge Stack project, supported by Intel, Wind River, and a host of operators, including AT&T. The key point for the foundation is the creation of an optimized platform for edge hosting, which includes containers.

The problem with containers is the management of the scheduling process. Container deployment isn't fast enough to make it ideal for hosting very short-lived processes. Remember that event-driven functions are typically expected to load on demand. One way to improve the handling of events in container systems is to rely on a lot of memory and forget the idea that you have to load on demand. With that proviso, the Akraino approach seems to be the best overall path to a generalized software platform at the edge.

New Member Press Release, Aug 21, 2018

FINAL FOR RELEASE

Akraino Edge Stack Moves into Execution with Project Governance Formation and Ecosystem Growth

Under The Linux Foundation, new open source project at the edge gathers momentum to support broad range of Telco, Enterprise, and Industrial IoT use cases

San Francisco – August 20, 2018 — The [Akraino Edge Stack](#), a Linux Foundation project creating an open source software stack that supports high-availability cloud services optimized for edge computing systems and applications, today announced it has moved from formation into execution. The project welcomes members Arm, AT&T, Dell EMC, Ericsson, Huawei, Intel Corporation, inwinSTACK, Juniper, Nokia, Qualcomm, Radisys, Red Hat, and Wind River as it solidifies its governing structure and begins technical documentation.

The Akraino Edge Stack is designed to improve the state of edge cloud infrastructure for enterprise edge, OTT edge, carrier edge networks. It will offer 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.



Leading Premier Members

arm



DELL EMC



JUNIPER
NETWORKS

Qualcomm

NOKIA

radisys.

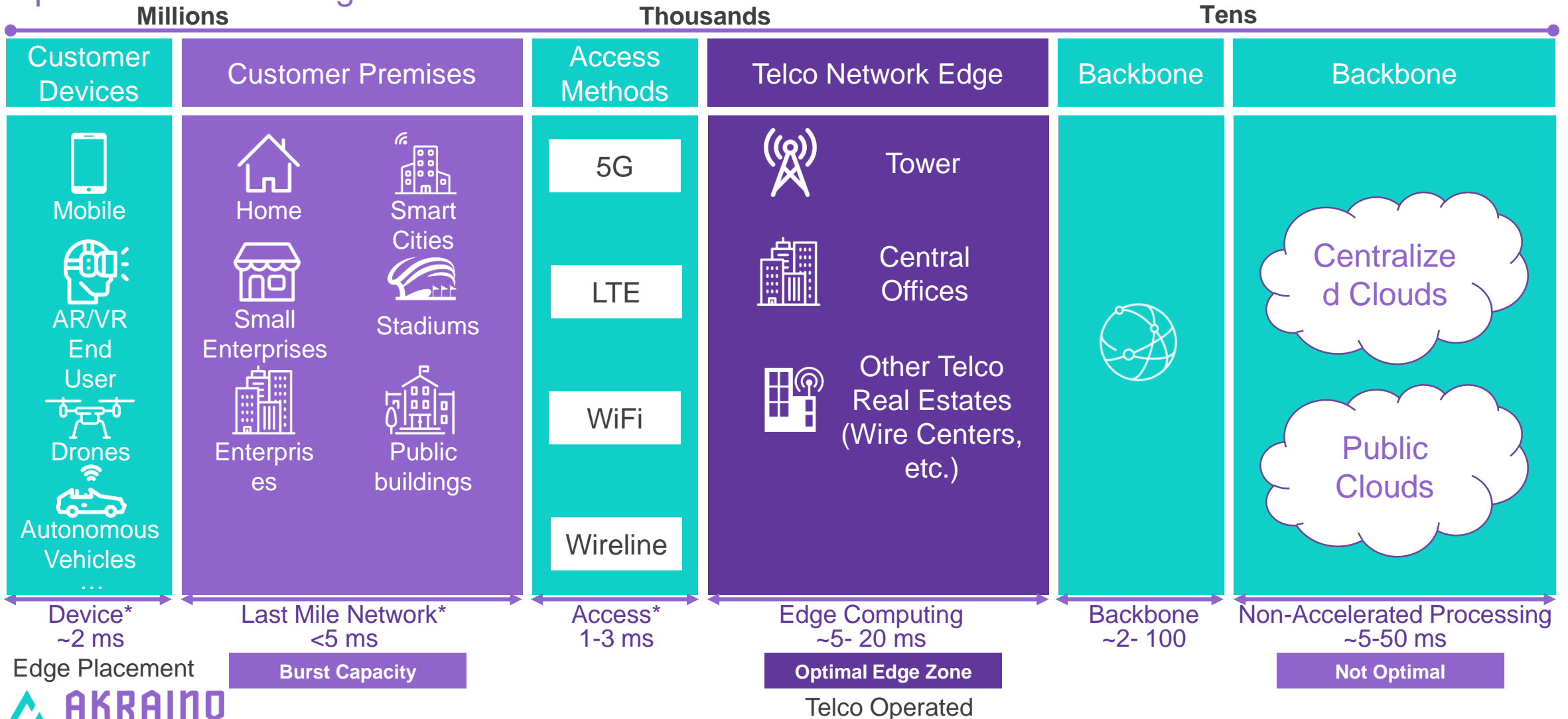


WIND™



Use Case 1: Operator's Owned Network Edge

Optimal Zone For Edge Placement



* Estimates

Use Case 2: IOT Driving the New Edge for Enterprise

Retail, Transportation, Healthcare...



Cloud Automation

Network Automation

IOT Automation



Retail



Hospitality



Healthcare



Manufacturing



Transportation
& Logistics



Enterprises



Enterprise
& Data
Centers



Public Buildings



"Southbound" Devices, Sensors and Actuators



Akraino Executive Summary



Zero Touch Edge Cloud
Automation

Akraino is an Edge project targeted to

- › Address Telco, Enterprise and Industrial IoT use cases

Akraino Scope:

- › Develop Edge Middleware, SDKs, applications and create an app/VNF ecosystem
- › Develop Edge API and framework for interoperability with 3rd party Edge providers & hybrid cloud models
- › Collaborate with upstream community (CI/CD & upstream process support)
- › Create Blueprints (integrated stack) to address Edge use cases:
 1. (Telco/Hosted) Edge: eg include ONAP, OpenStack, Airship, etc (eg large/medium POD)
 2. (Telco/hosted) Remote edge: Stack scale from single node to Enterprise use cases (eg IOT)
 3. (OTT/Enterprise/Telecom) Stack for remote edge locations (1000s) with disaggregated hardware
 4. (OTT/IIOT/Enterprise) Develop a lightweight stack for low latency remote edge and IOT gateway



Akraino TSC: fresh from the press!

- › Incubation phase: TSC is fully populated
 - › 15/15 members joined and already active
 - › Next set of 5 seats for contributor at large/project based
- › Congratulations to
 - › Kandan Kathirvel, AT&T as Chair for TSC
 - › Tina Tsui, ARM as Co-chair for TSC
- › Code is open to ALL
 - › LF IT has Opened the code to all!
 - › Thank you AT&T for the seed code that helps jumpstart a few blueprints.



Today's Summit
Trishan de Lanerolle
Linux Foundation



Our Objectives – Dev Summit

1. Technical Execution progress on Scope of Akraino
 - › Akraino Blueprint - Blueprints definition, lifecycle with the community
 - › Akraino release 1.0 - Scope, blueprints, lab, CI/CD infrastructure
2. Akraino Technical community Governance Progress
 - › Meet fellow participants
 - › Finalize the TSC charter
3. Discuss Collaboration with adjacent communities
 - › Upstream community work and projects
 - › Downstream reference implementations and users
 - › Adjacent Edge projects



Agenda: Thursday August 23rd

Time	Topic	Speaker	Room
8:00 AM – 8:45 AM	Registration & Breakfast (Sponsored by Ericsson)		A2-7Y06
8:45 AM – 9:05 AM	Welcome note, Community update & Introduction	Arpit Joshipura, GM Networking Orchestration, Linux Foundation	Auditorium
9:05 AM – 9:25 AM	AT&T Welcome Keynote	Mazin E Gilbert, VP Advanced Technology & Systems, AT&T	
9:30 AM – 9:50 AM	AT&T Akraino Edge Stack Network Cloud Blueprint seed code	Kandan Kathirvel, Director Member Tech Staff, AT&T Oliver Spatscheck, AVP Inventive Science, AT&T	
9:50 AM --10:05 AM	Making Akraino successful – Ericsson	Martin Backstrom, Head of Technology, Ericsson	
10:05 AM – 10:20 AM	Making Akraino Successful – Red hat	Frank Zdarsky, Senior Engineer, Red Hat	
10:20 AM – 10:35AM	Making Akraino Successful - Edge Cloud Requirements, Optimizing cloud for the edge, and Open hardware	Cris Mandras, Chief Architect, Nokia Tapio Tallgren, Technical leader, Nokia	
10:35 AM – 10:50 AM	Making Akraino Successful – A cloud native approach to scalable, light-weight, agile and intelligent IoT/Enterprise Edge	Wenjing Chu, Senior Director, Huawei Nan Zhou, Senior Engineer, Huawei	
10:50 AM – 11:05 AM	Making Akraino Successful – Tungsten Fabric	Sukhdev Kapur, Distinguish Engineer, Juniper	

Agenda: Thursday, August 23rd

Time	Topic	Speaker	Room
11:20 AM - 11:35 AM	Synergy between EdgeX Foundry and Akraino	Jason.A.Shepherd, EdgeX Foundry	
11:35 AM – 11:55 AM	Configuration for the far edge [Starlingx upstream update]	Ian Jollifee, Director Engineering, Wind River Brent Rowsell, Principal Technologist, Wind River	
12:00 PM – 12:40 PM	Panel – Upstream Open source projects and how it will be helpful in building Akraino Blueprints	Moderator – Oliver Spatscheck, AVP Inventive Science, AT&T Airship – Abhijeet Singh, Director, AT&T OpenStack – Ildiko Vancsa, Technical Lead, OpenStack ONAP – Brian D Freeman, DMTS, AT&T StarlingX - Jim Einarsson, VP Engineering, Wind River OPNFV & FD.IO - Tina Tsou, Enterprise Architect, Arm ODL/Edge SDN - Andrew Wilkinson, Distinguished Engineer, Ericsson	
12:40 PM – 1:30 PM	Lunch (Sponsored by Ericsson)		A2-7Y06
1:30 PM – 3:30 PM	Breakout Session - TSC governance and goals Etherpad Link - https://etherpad.akraino.org/p/TSC-Breakoutsession		A2-7Y06
3:30 PM – 3:45 PM	Coffee Break		A2-7Y06
3:45 PM – 5:15 PM	Breakout Session - Everything about Akraino Blueprints		A2-7Y06

Agenda: Friday, August 24th

Time	Topic	Speaker	Room
8:00 AM – 8:45 AM	Registration & Breakfast (Sponsored by Ericsson)		A2-7Y06
8:45 AM – 9:00 AM	Welcome note & Logistics by Linux Foundation		
9:00 AM – 9:20 AM	Recap of Breakout session from day one		
9:30 AM -11:30 AM	Breakout Sessions		
	Akraino 1.0 release contents Use Cases for Akraino 1.0, blueprints, and upstream community work https://etherpad.akraino.org/p/Akraino1.0-breakoutsession		A2-7Y06
	Regional Orchestration [ONAP Edge Automation], Edge API, use of AI/Machine learning https://etherpad.akraino.org/p/orchestration-breakoutsession		A2-8A02
	End to End Testing frameworks, Operational requirements/tools, security tools, Edge Application onboarding tools https://etherpad.akraino.org/p/Tools-breakoutsession		A2-5A02
	Edge Networking https://etherpad.akraino.org/p/Networking		A2-5A05
	Virtual Network Function (5G, RAN, etc..) and Edge Applications requirements to Akraino https://etherpad.akraino.org/p/Application-requirements		A2-7x07
11:30 AM - 12:30 PM	Open Discussion		
12:30 AM - 1:00 PM	Box Lunch (AT&T Sponsored) & Depart		

Event Logistics

- › WiFi Access – All attendees can connect to attwifi, accept terms and access Internet
- › Food will be served in Multi-purpose room (A27Y06) during the indicated times in the agenda
- › AT&T security guidelines prohibit taking of pictures inside the premises
- › All attendees are requested to stay in the areas designated for the summit and do not access other areas of the building
- › Rest room facilities are conveniently located at the center of the building
- › All attendees are required to take care of their belongings as there are no storage or check-in facilities provided in the building
- › Conference attendees are reminded that it is important to wear their badges at all times within the building for security reasons
- › Personal belongings should not be left unattended in meeting rooms. These items are the responsibility of their owner and AT&T will not be held responsible. Additionally, any unattended items may be subject to removal by security.
- › As a courtesy to speakers, we request attendees to refrain from using their cameras or other photo devices in the Auditorium or in other session rooms. Presentations from the sessions will be made available to the attendees post summit



Thank you



For More Information, Please
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