# LF Edge Akraino Project input to LF Edge SOTE (State of the Edge) Project

*Rev A*, 2020-10-28

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LF Edge Akraino Project is a set of open infrastructures and application blueprints (BPs) for the Edge, spanning a broad variety of use cases, including 5G, AI, Edge IaaS/PaaS, IoT, for both provider and enterprise edge domains.  These Blueprints have been created by the Akraino community and focus exclusively on the edge in all of its different forms.  What unites all of these blueprints is that they have been tested by the community and are ready for adoption as-is, or used as a starting point for customizing a new edge blueprint.
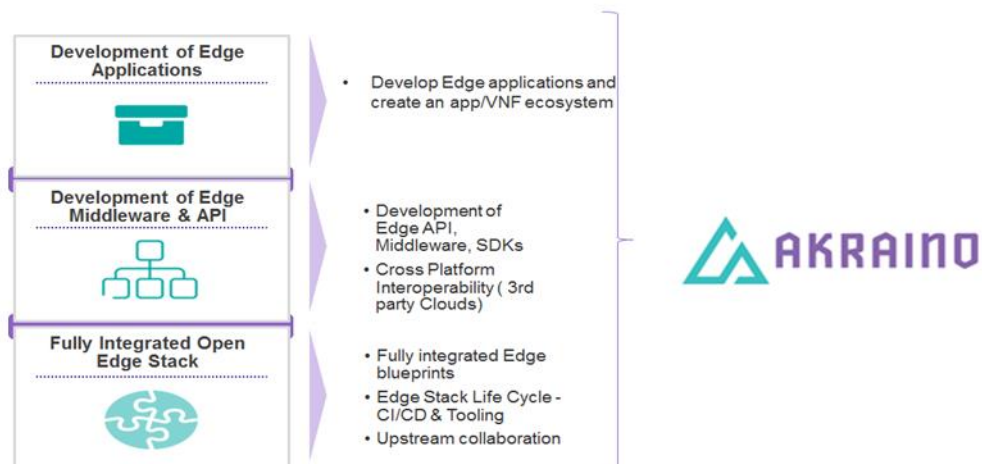


**Figure 1: LF Edge Akraino Edge Project Scope**

Akraino follows a holistic Design focused on Availability, Capacity, Security, and Continuity.

By focusing on the uniqueness that is the edge, Akraino focuses on building infrastructure and applications that have:
- Zero-touch provisioning, operations, and lifecycle – which in turn reduces OpEx
- Automated maturity measurement – operations, designs, and services.

The Akraino community has worked together to provide shared resources to the developers and open source participants to ease development across the different hardware (HW) Platforms and Architectures and entered in coordination & co-operation with multiple upstream open source communities/SDOs such as Airship, OpenStack, ONAP, ETSI MEC, GSMA, TIP, CNCF, ORAN to deliver a fully integrated stack. Akraino will supply a fully integrated solution that supports Zero-touch provisioning, and Zero-touch lifecycle management of the integrated stack.

Akraino Release 3 (R3), approved in August 2020, delivers a fully functional open source edge stack that enables a diversity of edge platforms across the globe. With R3, Akraino Edge brings deployments and PoCs from a swath of global organizations and enables innovative support for new levels of flexibility that scale 5G, industrial IoT, telco, and enterprise edge cloud services quickly, by delivering community-vetted and tested edge cloud blueprints to deploy edge services.

New use cases and new and existing blueprints provide an edge stack for Connected Vehicle, AR/VR, AI at the Edge, Android Cloud Native, SmartNICs, Telco Core and Open-RAN, NFV, IOT, SD-WAN, SDN, MEC, and more.

Akraino Release 3 (R3) included 6 new Blueprints for a total of 20, all tested and validated on real hardware labs supported by users and community members — the Akraino community has established a full-stack, automated testing with strict community standards to ensure high-quality blueprints.

The Release 3 (R3) new Blueprints are:

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

Adding new blueprints, as part of Akraino Release 4 (R4) and releasing an Akraino API portal are some of the main activities scheduled for Q4, 2020 and 2021.

Some of the selected new Blueprints for Release 4 (R4) are related to 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 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).

Akraino API Portal plans to present an API map where all Release 4 (R4) Project APIs will be organized and published. The API Portal will include both API map navigation and search capability, to allow customers to investigate APIs they may need. In addition to blueprint 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.


Document Rev. history:

Rev PA1 – Ike Alisson input on 2020-10-28

Rev PA2: Input from Tina T. about to update the Logo to remove reference to "Edge Stack" to avoid infringement on trademark copyright and Oleg. B. input for Akraino "coordination/co-operation with other organizations/communities such as ORAN, CNCF, TIP, GSMA, etc."
Both inputs were sent per mail on 2020-10-28.