Akraino R5 includes Multitenant Secure Cloud Native platform (ICN-MTSCN) blueprint, part of the ICN family, which provides same capabilities as ICN but with the addition of running container workloads using Kata Containers runtime. Kata Containers provides VM level isolation of workloads within a node leading to greater flexibility in multitenant scenarios. Using Kata Containers, you’ll enhance the multitenant capabilities of your Kubernetes environment as it will allow you to run trusted and untrusted workloads on the same node. Untrusted workloads will be isolated in VMs that do not share the kernel with other workloads or the host, so even if a malicious workload tries to take advantage of a vulnerability in the Kernel, the vulnerability could break out of the container isolation but will still be isolated by the VM.

**Akraino Blueprint:** Integrated Cloud Native (ICN) - MICN

**Overall Architecture Diagram:**

![ICN-MTSCN R5 Release Architecture](image_url)
ICN Infrastructure

Overview:
ICN-MTSCN comes under Akraino Community approved Blueprint family. It addresses multitenancy challenges in edge deployments. It covers same use cases as ICN-MICN such as Software Defined Edge WAN – SDEWAN controller, Composite vFW and Service Function Chaining (SFC), but also focuses on hard multitenancy use cases.

ICN blueprint - MICN provides Zero Touch Provisioning model to deploy ICN Infrastructure. Akraino ICN uses Kubernetes as the de-facto resource orchestration to deploy various container runtime(docker) and VMs (Kubevirt), EMCO as service orchestration to manage workloads in edge locations supporting both baremetal and virtual deployment.

Key Features:
- Enables Kata Containers and Containerd that can be used for hard multitenancy use cases.
- Zero Touch provisioning (ZTP) using Binary provisioning agent (BPA) using Metal3, Ironic – Baremetal provider (Baremetal deployment) and libvirt provider (KVM)
- Kubernetes Deployer (KuD) is being containerized and a single solution deploy various addons such as Multus, OVN, Flannel, Accelerator plugins (SRIOV), QAT, NFD, Nodus, Multi cluster Orchestrator (EMCO), Application such Composite Containerized Firewall(cFW), and SDEWAN CNFs, SDEWAN Controller
- ICN enable nested K8s use case, where K8s is used to manage both under cloud (Baremetal provider) and Overcloud (k8s inside VM)

For more information:
Blueprint Details – Multitenant Secure Cloud Native platform
Akraino R5 is now available! For more information: [https://www.lfedge.org/projects/akraino/](https://www.lfedge.org/projects/akraino/) or [https://wiki.akraino.org](https://wiki.akraino.org)

Akraino Edge Stack is an open source project under the LF Edge umbrella that creates edge software stacks that supports high-availability cloud services optimized for edge computing systems and applications. 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 platform integrates multiple open source projects to supply a holistic Edge Platform, Edge Application, and Developer APIs ecosystem.

- Akraino uses the “blueprint” concept to address specific Edge use cases to support an end-to-end solution.
- A blueprint is a declarative configuration of the entire stack-- i.e., edge platform that can support edge workloads and edge APIs.
- To address specific use cases, a blueprint architecture is developed by the community and a declarative configuration is used to define all the components used within that architecture such as hardware, software, tools to manage the entire stack, and method...
of deployment (Blueprints are maintained using full CI/CD integration and testing by the community for ready download and install).


[SIDEBAR]

Akraino is part of the LF Edge umbrella organization that establishes an open, interoperable framework for edge computing independent of hardware, silicon, cloud, or operating system. By bringing together industry leaders, LF Edge creates a common framework for hardware and software standards and best practices critical to sustaining current and future generations of IoT and edge devices.

LF Edge Projects address the challenge of industry fragmentation, and collaborates with end users, vendors, and developers to transform all aspects of the edge and accelerate open source developments.

[Insert Logos for: Akraino, Baetly, Fledge, EdgeX Foundry, Glossary of Edge Computing Home Edge, Project EVE]

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