Akraino Blueprint Family

Kubernetes-Native Infrastructure (KNI) for Edge
Why “Kubernetes-Native Infrastructure”?

- Kubernetes-managed infrastructure
- built on the rich tooling & best-practices of Kubernetes community & ecosystem
- optimized for Kubernetes-native workloads

More info:
Declarative Edge Stacks with KNI-Edge

Kubernetes is built around the controller pattern:

- Controllers monitor a system for deviations between the user-declared target state and reality and take corrective actions to reconcile reality with the declared target state.

KNI-Edge applies this pattern across the whole Edge Stack:
The KNI-Edge Blueprint Family

Blueprints in the KNI for Edge family

- **implement the Kubernetes Cluster and Machine APIs**
  - declarative, provider-agnostic cluster deployment and operation
- **leverage the Operator Framework**
  - automated and secure application deployment and operation
- **support VM workloads via KubeVirt**
  - manage VMs like containers (e.g. common resource management)

More info:
KNI-Edge Blueprints in Progress

**Provider Access Edge (PAE)**
Optimized for real-time and networking performance for vCRAN and MEC workloads.

**Industrial Edge (IE)**
Optimized for small footprint and low-latency for IoT, serverless, and machine learning workloads.

*) part of next point-release
KNI-Edge blueprint components

**base**
Base configuration to deploy blueprint (kubernetes cluster and workloads)

**profiles**
Specialization for the different types of deployment: libvirt, AWS, baremetal...

**production.baremetal**
Specific configuration for baremetal: real time tuning, SRIOV, PTP...

**testing.libvirt**

**production.aws**

**sites**
Individual definition of a site

**testing.baremetal.edge-sites.net**
Specific config changes for site: name, domain

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More info:
- [KNI-Edge blueprint components](https://github.com/akraino-edge-stack/kni-blueprint-ie)
- [kni/blueprint-pae](https://github.com/akraino-edge-stack/kni-blueprint-pae)
- [kni/installer](https://github.com/akraino-edge-stack/kni-installer)
Features for Akraino R2

- Integrate fully automated deployment on baremetal
- Add support for real time worker nodes
- Add support for hugepages, CPU allocation, realtime tuning
- Integrate Tungsten Fabric as SDN
- Deploy Open Air Interface workload
- Start working on Industrial Edge blueprint
Demo of Declarative Infrastructure Management

https://youtu.be/WEU46u2qA7U