Akraino KNI Blueprint family
Release 4 Review

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Kubernetes Native Infrastructure Blueprint family

- Kubernetes-managed infrastructure
- Built on the rich tooling & best-practices of Kubernetes community & ecosystem
- Rich orchestration and lifecycle management
- Optimized for Kubernetes-native workloads, allows hybrid deploys with Kubevirt
Kubernetes Native Infrastructure Blueprint structure

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

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

- **sites**
  - Individual definition of a site

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

  - **testing.libvirt**

  - **production.aws**

  - **testing.baremetal.edge-sites.net**
    - Specific config changes for site: name, domain
- Small footprint deployments able to host NFV (vRAN) and MEC
- Remote worker nodes architecture.
- Requirements: Lightweight, self-managing clusters - Support for VNF (via KubeVirt) and CNF common infrastructure - Support for multiple networks, SR-IOV, PTP
New features for this cycle:
  - Refresh component dependencies
  - Support for real-time workloads using RHCOS-RT

- OpenAirInterface working on KNI PAE blueprint:
  https://www.lfedge.org/2020/08/04/openairinterface-end-user-case-study-running-5g-on-akrainos-kni-provider-access-edge-blueprint/
Industrial Edge Blueprint

- Boosting manufacturing efficiency and product quality with AI/ML, edge computing and K8s.
- Requirements: real-time processing data, failure prediction, security, etc.
- Two different blueprints:
  - Management Hub (big centralized cluster)
  - Edge Computing remote sites (3 nodes clusters)
- Pushing AI/ML to the edge via gitops and blueprints.
- Validation via CI/CD on central clusters
Industrial Edge Blueprint

- **blueprint-management-hub components:**
  - Advanced Cluster Manager (ACM)
  - Tekton (Cloud Native CI/CD Pipelines)
  - ArgoCD
  - OpenDataHub (AI/ML Marketplace)
  - etc...

- **blueprint-ie components:**
  - ACM self-registration process
  - line server (MQTT Emulation)
  - Data Streaming components (Kafka, MirrorMaker, etc.)
Warning: ALERT!
Please check the pump and seal in zone 1.
Thank you!