Akraino KNI Blueprint family
Release 4 Review

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AKRAINO EDGE STACK

Kubernetes Native Infrastructure Blueprint family
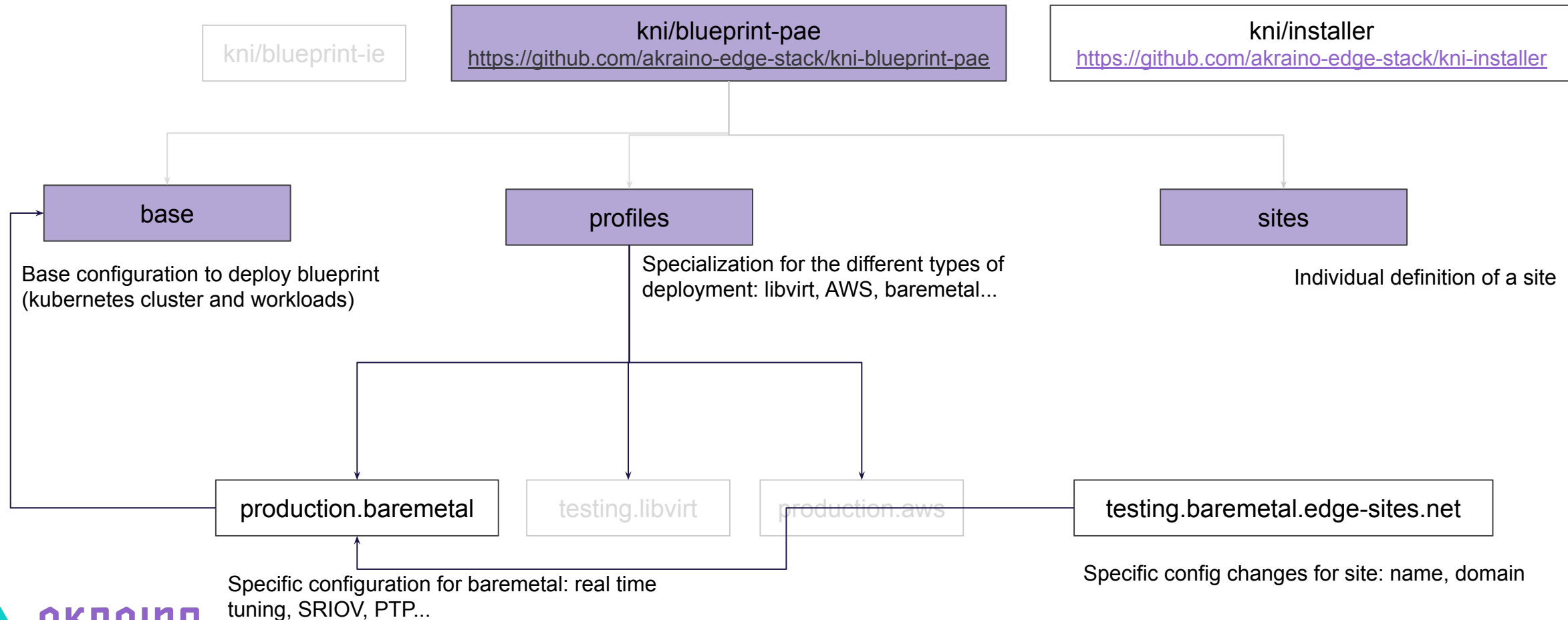
| Kubernetes-managed infrastructure |

| 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

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

base

profiles

sites

Base configuration to deploy blueprint (kubernetes cluster and workloads)

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

Individual definition of a site

production.baremetal

testing.libvirt

production.aws

testing.baremetal.edge-sites.net

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

Specific config changes for site: name, domain
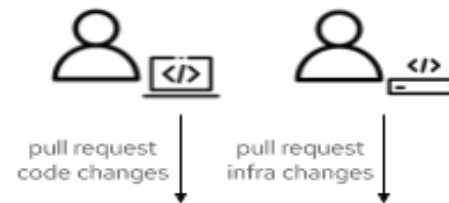
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Provider Access Edge blueprint

- 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/

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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
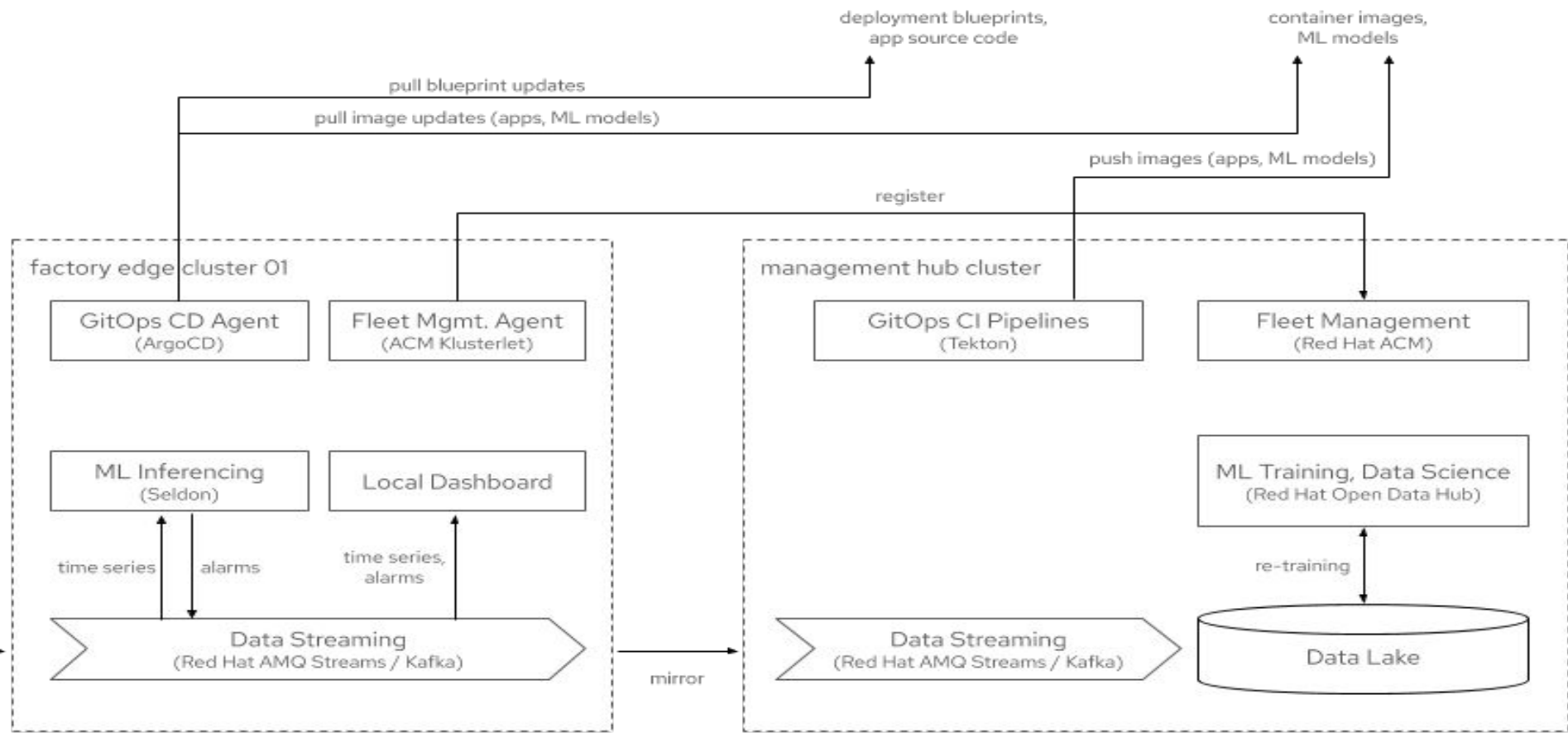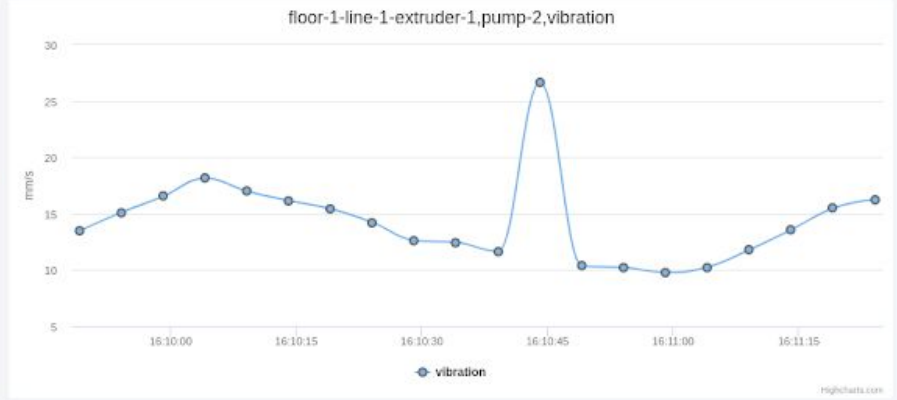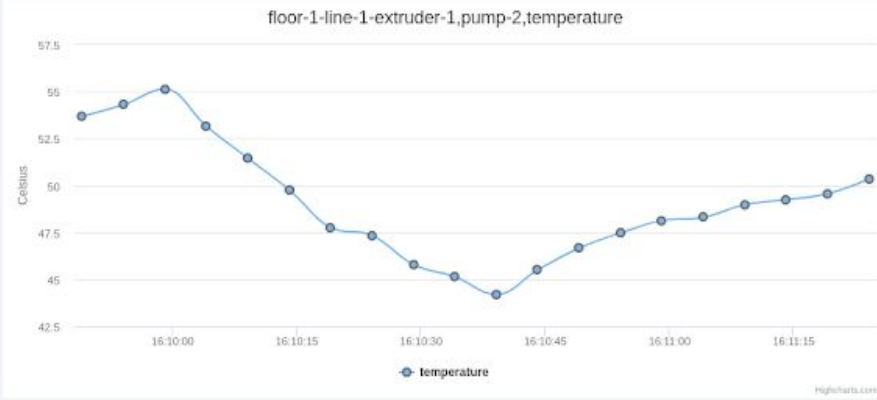
Industrial Edge Blueprint

- 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 (Kakfa, MirrorMaker, etc.)

Thank you!