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...
    - **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

**GitHub Repositories**
- **kni/blueprint-ie**
- **kni/blueprint-pae**
  - [https://github.com/akraino-edge-stack/kni-blueprint-pae](https://github.com/akraino-edge-stack/kni-blueprint-pae)
- **kni/installer**
  - [https://github.com/akraino-edge-stack/kni-installer](https://github.com/akraino-edge-stack/kni-installer)
Provider Access Edge blueprint

- Small footprint deployments able to host NFV (vRAN) and MEC
- Requirements: Lightweight, self-managing clusters - Support for VNF (via KubeVirt) and CNF common infrastructure - Support for multiple networks, SR-IOV, PTP - Support for real-time workloads using RHCOS-RT
- New features for this cycle:
  - Refresh component dependencies
  - Add a sample RAN workload (ORAN, OAI) to demonstrate the blueprint
  - Improve integration of Remote Worker Nodes
Industrial Edge blueprint rationale

- 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 testbed

Management Hub Components:
- Red Hat Advance Cluster Manager
- Tekton, Kafka, OpenDataHub, etc...

Edge Managed Cluster Components:
- Self-registration objects to ACM
- GitOps subscriptions
- Possibly: GPU operator, RT, etc.
Industrial Edge backlog

- Create basic blueprint structure for:
  - blueprint-management-hub (3 masters/3 workers cluster running on AWS/GCP)
  - blueprint-industrial-edge (3 schedulable masters cluster running on AWS/GCP for staging, baremetal for production)
- Cluster addons and services:
  - blueprint-management-hub: ACM, Tekton, ArgoCD, Image registry
  - blueprint-industrial-edge: Registration process, line server, data lake infrastructure.
- Full Akraino CI jobs to validate blueprints separately
- Information for user adoption (documentation, wiki, videos, demos, etc.)
- OpenHorizon ? Solution CI Integration Testing?
Thank you!