KNI IE Landing Application

The Industrial Edge blueprint from the Kubernetes Native Infrastructure family is ready to deploy an adhoc demonstrator created for this purpose called: MANUela

MANUela stands for Manufacturing Edge Lightweight Accelerator. The purpose of this demonstrator is to show an exemplary horizontal solution blueprint for IoT Edge Computing use cases applicable to different verticals. It demonstrates using OpenShift, ACM, AMQ Streams, OpenDataHub, and other technologies to address a common edge computing use case commonly found in manufacturing: Machine inference-based anomaly detection on metric time-series sensor data at the edge, with a central data lake and ML model retraining.

The blueprint is composed by two different roles:

- Management hub cluster
- Industrial Edge cluster(s)

Once the management hub and factory edge clusters are up and running, the platform is ready to perform some demo flows that will show how we can manage clusters and applications in the edge using GitOps.

- GitOps configuration management
- Code change
- CI/CD pipeline & GitOps staging
- Event streaming from edge to core & filling the data lake
- Machine learning

A full demo will be recorded and posted in this page, but for the moment, you can see a screenshot of how the IoT Dashboard looks like:

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The Industrial Edge site will gather data from line data sensors and show them in the dashboard shown above. During the data gathering, an anomaly detection machine learning model will perform inferencing on this data in order to predict if the machines in the factory could fail, and they are just false positives.

Once the data is processed, it will be sent back to the data lake located at the management hub cluster. Furthermore, all components are deployed following a GitOps approach and Cloud-Native CD such as Tekton. Creating a new version of the model takes just the execution of a new pipeline that will build the new code, test it, push it to a container image registry and update the version into the K8s manifests located in Github. If the new commit is merged, the edge site will pick up these changes and perform the update.