KubeEdge

- **KubeEdge Web Page - https://kubeedge.io/en/**
- **KubeEdge presentation - Technical Community recording for KubeEdge**
- **IRC Channel on Freenode -**
- **Mailing list - https://groups.google.com/forum/#!forum/kubeedge**
- **Weekly meeting calendar invite -**
- **Use cases meeting calendar invite -**

KubeEdge is a K8s extended infrastructure for IOT/Edge workload. It aims to resolve three major challenges at edge computing: network reliability and bandwidth limit between cloud and edge, resource constraint at edge, highly distributed and large scalability requirement.

Being an open-source system, KubeEdge has its control plane at cloud and worker nodes at edge. Native container applications can be orchestrated from cloud to edge nodes. Cloud and edge are loosely coupled where edge side agent can autonomously managing containers and IOT devices when there is network disconnection from cloud; and can sync metadata with cloud when network is reconnected. Using websocket, KubeEdge built a bi-directional multiplexed network channel between edge and cloud. Architecturally KubeEdge is open & extensible that the community can integrate and build more innovations for IOT/Edge computing.

KubeEdge is a vendor neutral infrastructure. The same code is being used by a few real customers. The advantages of KubeEdge lies in below:

- **Edge Computing:** With business logic running at the Edge, much larger volumes of data can be secured & processed locally where the data is produced. Edge nodes can run autonomously which effectively reduces the network bandwidth requirements and consumptions between Edge and Cloud. With data processed at the Edge, the responsiveness is increased dramatically and data privacy is protected.
- **Simple App. Development:** Developers can write regular http or mqtt based applications, containerize them, verify at cloud and port to edge without worry.
- **Cloud Native:** With KubeEdge, users can orchestrate apps, manage devices and monitor app and device status on Edge nodes just like a traditional Kubernetes cluster in the Cloud. Locations of edge nodes are transparent to customers.
- **Extensible Infra. for IOT/Edge:** Based on Kubernetes, KubeEdge is highly extensible. Currently using MQTT broker and device twin at edge, KubeEdge can enable customers enable IOT functionalities. As listed above, KubeEdge architecture also addressed the key technical challenges specific for IOT/Edge workload.
- **Light weight agent:** Currently the agent memory footprint is about 70MB at runtime. With it, the edge side hardware can be Rasberri-pi or large server
- **Compatible to K8s APIs**Currently support K8s core API versions from 1.12 - 1.18 .

Details can be found at **https://kubeedge.io/en/**

Source code is at https://github.com/kubeedge/kubeedge