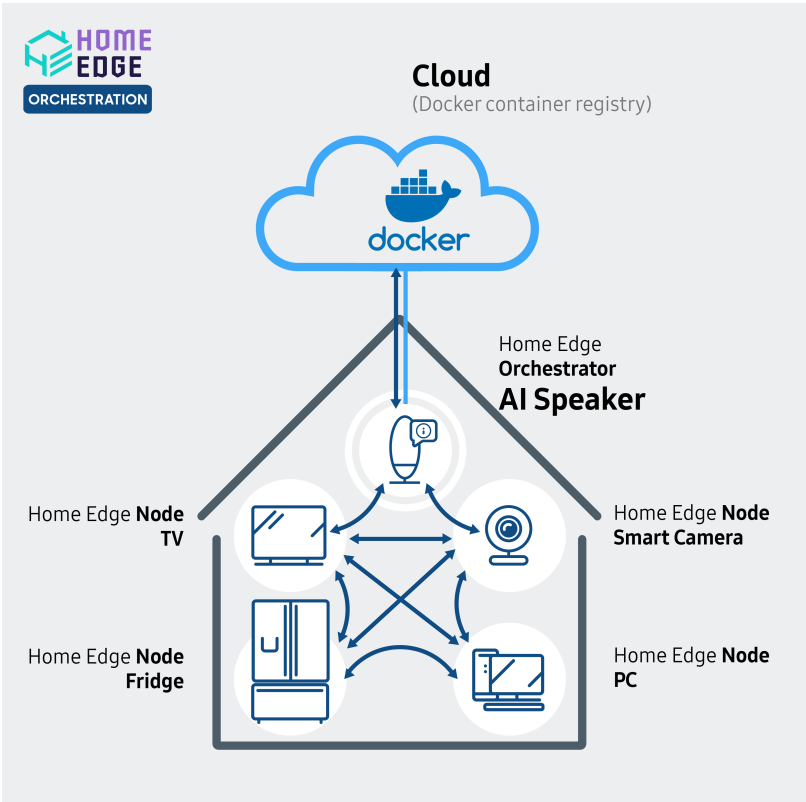


Edge Orchestration

Introduction

The main purpose of **Edge Orchestration project** is to implement distributed computing between Docker Container enabled devices.



All the devices (TVs, fridges, washing machines, etc.) connected into *Home Edge Network* are considered *Home Edge Devices*. Some of the devices, possessing significant H/W resources and capable of running containerized applications, are called *Home Edge Nodes*. Tasks performed on devices of *Home Edge Network* are managed by *Home Edge Orchestrator* software. These tasks are called *Home Edge Applications*. They are assigned to specific *Home Edge Nodes*. As of now, *Home Edge Orchestrator* incessantly scans the *Home Edge Network*, forming lists of attached devices, and forms ratings of performance for them. Performance ratings are basis for deciding on which devices *Home Edge Applications* are to be run. If *Home Edge Orchestrator* can not find device with rating higher than its own device rating, it will start the *Home Edge Application* locally. *Home Edge Networks* support distributed applications consisting of interacting Docker container instances. Docker containers offer quick deployment, easy management, safety and hardware independence. Applications that can run on *Home Edge Network* are deployed from cloud-based centralized storage as needed. Assortment of applications is determined by tasks that must be solved by *Home Edge Network*. All the devices (TVs, fridges, washing machines, etc.) connected into *Home Edge Network* are considered *Home Edge Devices*. Some of the devices, possessing significant H/W resources and capable of running containerized applications, are called *Home Edge Nodes*. Tasks performed on devices of *Home Edge Network* are managed by *Home Edge Orchestrator* software. These tasks are called *Home Edge Applications*. They are assigned to specific *Home Edge Nodes*. As of now, *Home Edge Orchestrator* incessantly scans the *Home Edge Network*, forming lists of attached devices, and forms ratings of performance for them. Performance ratings are basis for deciding on which devices *Home Edge Applications* are to be run. If *Home Edge Orchestrator* cannot find device with rating higher than its own device rating, it will start the *Home Edge Application* locally. *Home Edge Networks* support distributed applications consisting of interacting Docker container instances. Docker containers offer quick deployment, easy management, safety and hardware independence. Applications that can run on *Home Edge Network* are deployed from cloud-based centralized storage as needed. Assortment of applications is determined by tasks that must be solved by *Home Edge Network*.

Platforms supported

x86-64 Linux	Raspberry Pi 3	HiKey960	Raspberry Pi 3 Cluster

High level design

Orchestration can execute of service on the appropriate device through choosing home device which has computing capabilities in the home network.

In the alpha version, orchestration use simple scoring function to choose proper edge device. In next version, orchestration will be able to use custom scoring function and NAT discovery.

