From Manual Inspection to Automated Distributed Multi-sensor Control

To perform continuous uninterrupted data flow from connected sensors in an Edge environment within limited Internet connectivity we need to go through several milestones which are documented below.

In long term, this initiative is intended to be useful for medium, small, and micro farms.

To follow precision agriculture principles and as a result ensure efficient, productive, qualitative, profitable, and sustainable production smart decisions based on real-time and aggregated machine learning data must be made.

New quality attributes are defined below as we slide through the R&D sprints.

System Quality Attributes

Should Not Require Technical Skills to Replicate the Supported Scenarios

Should Work On-premises in Restricted, Low, or No Connectivity Environment

Should Support Device Management and Software Updates for Distributed Fleets of Devices at Hyper-scale

Should Support Edge AI and Distributed Edge AI to make local business decisions

Support Zero-Touch Provisioning / Secure Device Onboard

Should Provide Data Durability and Availability Once Generated

Core System Components Should Not Depend on Commercial Software (i.e. Open Source)

Should Support Off-premises Integrations with Cloud Providers: GCP, IBM, AWS, Azure, Digital Ocean, Oracle, and others

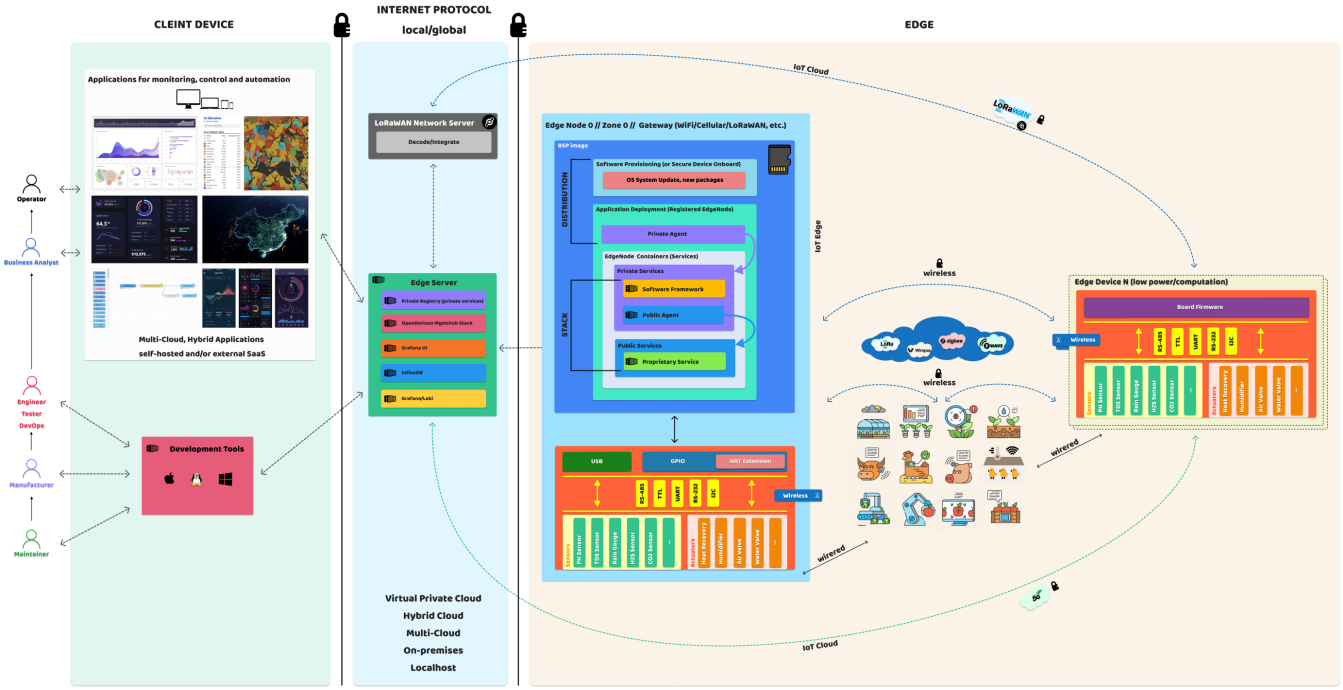
Should Follow Enterprise Level Security for System Operation and Useful Data Artifacts

Should be Running with As Few Human Interventions as Possible in Deployment and Operations

Should Support Integration with Different Connectivity Networks and Protocols

Should Support Integration with Wirelessly Connected Sensors and Controllers

Should be Capable of Exporting Operational Data Into Visualisation and/or Analysis Dashboard (i.e. Grafana, Power BI)



Milestones:

Milestone 1: Table Garden - Initial RPi4 board setup with **HDT22** sensor and Open Horizon Agent which accepts updates from local Open Horizon Management Hub.

Milestone 2: Outdoor single sensor - Sensor **S-Soil MTEC-02B** added as an example demonstration scenario and all data is saved on the server.

Milestone 3: Containerised IoT Edge Ecosystem - Ecosystem to build custom software stack and run on localhost, on prem or in cloud (multi, private or hybrid-cloud) environment.