

Problem Statement of IoT integrated with Edge Computing

draft-hong-iot-edge-computing-02

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Contents

- Quick review of presentation at IETF 103
- Updates on draft
 - draft-hong-iot-edge-computing-02
- Some practical use cases of IoT Edge computing

Presented at IETF 103

- The first presentation at T2TRG side meeting in IETF 103
 - draft-hong-iot-edge-computing-01
- Introduced use cases of IoT Edge computing utilizing EdgeX with two demo videos
 - Smart constructions providing a monitoring service of construction site
 - Real-time control monitoring system by Rotary Inverted Pendulum system

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Chapter 6 is added!



New challenges of IoT

- Strict Latency
- Constrained Network Bandwidth
- Constrained Devices
- Uninterrupted Services with Intermittent Connectivity to Cloud
- Privacy and Security

IoT integrated with Edge Computing

- Edge computing is one of the candidate to satisfy the new IoT challenges
- The main philosophy of Edge computing is
 - Put the required functions near to users and data
 - and distribute the functions

IoT Data in Edge Computing

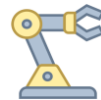
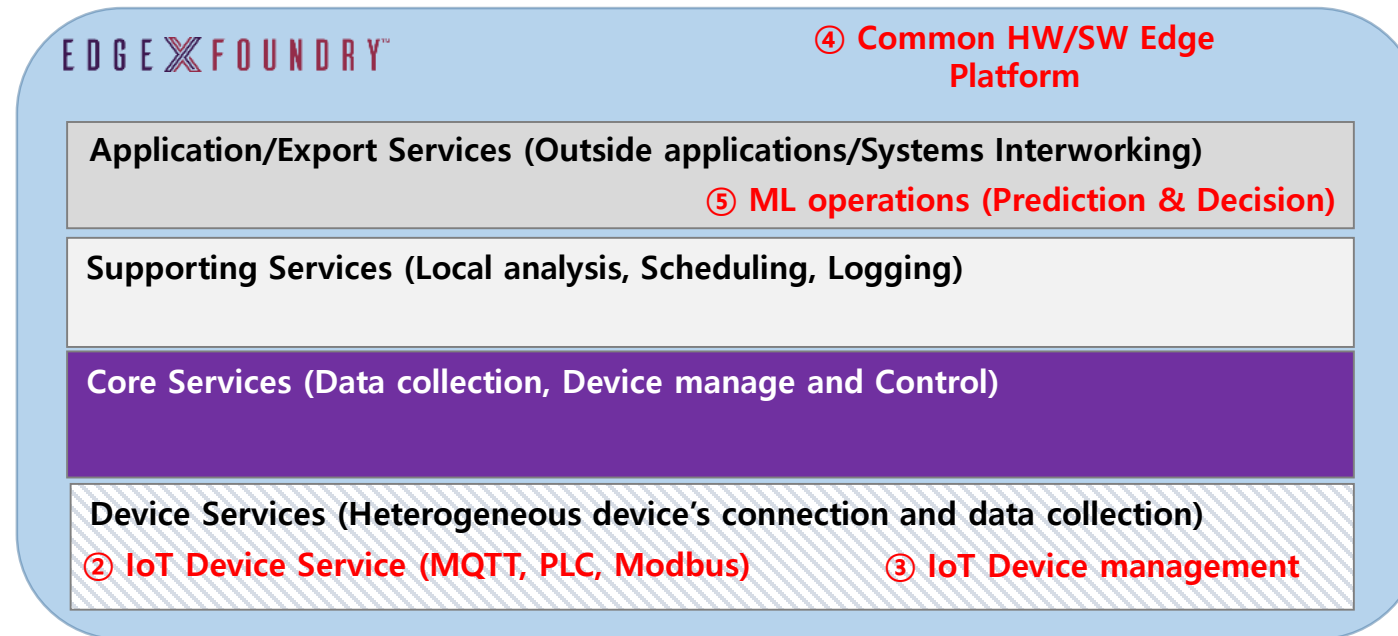
- Edge computing can provide many capabilities for IoT services because IoT systems are based on sensors and actuator devices in edge area and IoT data generated from sensors and actuator devices are gathered through a gateway
- In this draft, we concentrate on IoT data's aspect because the benefit of Edge computing with IoT data is very big in use cases
 - Data storage
 - Data processing
 - Data analyzing

Requirements of Edge computing from SMEs

- Manufacturing
 - Support legacy sensors/devices
 - Easy integration with existing equipment (e.g, LMS : Line Management System)
 - Support light-weight edge node (e.g., Arduino)
 - Minimize tremendous traffic (e.g., filtering or aggregation)
- Transportation
 - Applying ML at Edge node (Prediction & Decision)
 - Suitable price and HW performance (under 200 \$)
- Media / Communication devices
 - Support light-weight edge node (e.g., Raspberry pi 3)
 - Optimize edge computing

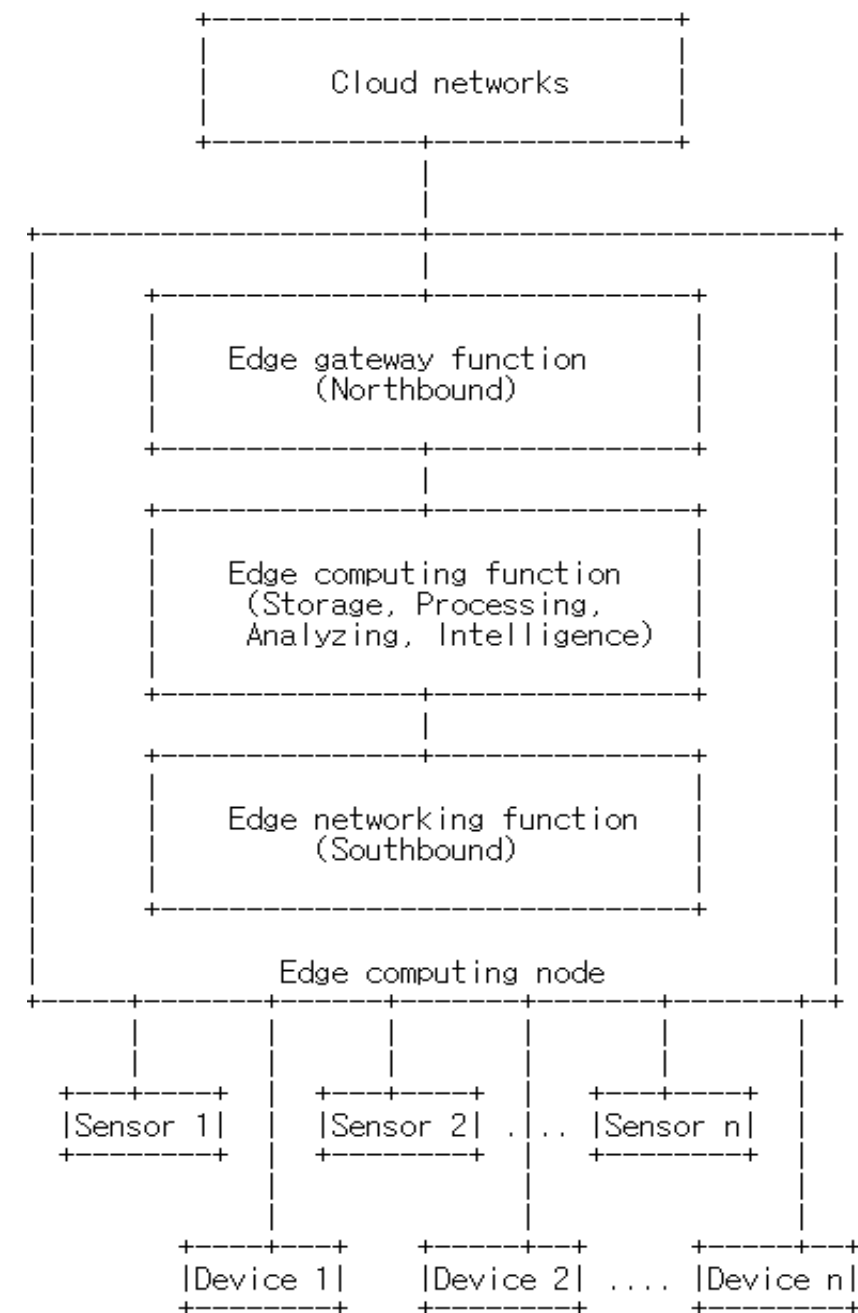
Prototype of Edge computing based on EdgeX

① EdgeX based Edge Platform



Architecture of IoT Edge Computing

- Provides
 - downside connectivity to IoT sensors and devices (southbound connectivity)
 - upside connectivity to cloud networks (northbound connectivity)
 - function of data storage
 - computing function such as data processing, data analyzing, and intelligence



Thank you!