GOAL
Enrich the Arrowhead platform with Eclipse IoT components.

Challenge

The Eclipse IoT stack is considered as one of the most matured technologies in the open source IoT domain realm. It is the basis of several commercial offerings and hence a valuable fit for industrial digitalization efforts.

Therefore, an integration of Eclipse IoT with the Arrowhead Framework can provide building blocks to achieve Technology Readiness Level 7 or above (TRL 7+) and by that allow the realization of the Arrowhead Tools project goals in productive settings.

Following a common understanding, the IoT domain comprises two major building blocks, the connected devices and the backend system being responsible for managing those devices.

Bosch.IO focuses on the backend systems which comprise but are not limited to:

- A Messaging Infrastructure
- Update Mechanisms
- Digital Twin
- Device Abstraction
- Authentication and Authorization

Arrowhead Example Deployment

This project has received funding from ECSEL Joint Undertaking (JU) under grant agreement No 826452. The JU receives support from the European Union’s Horizon 2020 research and innovation programme and Norway and Switzerland.
To address the challenges of the Arrowhead Tools project, several new core systems and their related service have to be designed and developed that support the integration to existing Eclipse projects.

The following projects are considered:

1. **Eclipse Hono**: A messaging infrastructure that is able to connect millions of IoT devices in a scalable fashion.
2. **Eclipse Vorto**: A toolset to easily describe and model the functionality and characteristics of devices.
3. **Eclipse hawkBit**: A framework to roll out software updates in a structured fashion on a large number of devices.
4. **Eclipse Ditto**: A “digital twin” implementation that allows to capture and manage the state of devices.
5. **Keycloak**: A highly adaptable framework for authorization and authentication.

The results will be made available as Open Source and allow interested parties to use a proven technology stack for their Arrowhead powered digitalization efforts.