Document Header

Title proposals

- Object-Oriented Internet - reactive visualization of asynchronous data using AZURE
- Object-Oriented Internet - Azure interoperability

Abstract

Key words

Introduction

- **Subject** - A basic matter of thought, discussion, investigation, development, etc. Describe the problem and the motivation for undertaking the effort to solve the problem.
- **Goal** What we are going to achieve - the result or achievement toward which effort is directed.
- **Scope** - What we must do to prove the goal have been achieved. Extent or range of development, view, outlook, application, operation, effectiveness, etc.
- **Related work** - Any information about available reusable deliverables related to this work.

Azure Main Technology Features

- **Selection of the service**
- **Metadata** - must be discussed in context of the design/run time stages.
    - **Device Template (DT)**
    - **Device Capability Model**
    - **Interface**
    - **Digital Twin Definition Language (DTDL)**
- **Simple, complex and structural data processing**
- **Connectivity**
- **How to implement** All about available libraries and tools

OOI Main Technology Features

- Machinie To Machine communication based on the semantic data
- OOI PubSub Implementation Architecture

- Simple, complex and structural data processing

Azure to Sensors (A2S) connectivity deployment (field level connectivity)

The title must be revised

- **Architecture** - Domain model presenting relationship between the: Azure, PubSub Gateway, Device, Design and development tools
- **Connectivity** - Describe reactive nature of the Azure monitoring process data (telemetry) services.
- **Deployment phases**
  - Design
  - Gateway and devices registration
  - Authentication
  - Device/Service association
  - Device/Application association
  - Establishing session
    * Device/Device Template (Device Capability Model) association - establishing a semantic-context
    * Security management - establishing security-context
  - Interconnection - exchange of data
  - Maintenance

We have selected IoT Central because:

- provides process data visualization user interface
- allows to describe devices using metadata containing telemetry data types

Gateway implementation

- Architecture
- Protocol selection and mapping
- Configuration
- Testing

Conclusion

The OPC UA PubSub to Azure gateway (`AzureGateway`) implementation has been just published on GitHub as the open-source (MIT licensed) as a part of the more general concept of the Object-Oriented Internet reactive networking. It is proof of the concept that

1. OPC UA PubSub can be implemented as a powerful standalone package - no C/S dependency

2. Azure interoperability can be implemented as an out-of-band communication (MQTT, AMQP, HTTP) - no PubSub dependency
3. Process data functionality can be composable at run-time - no programming required