**System Description (SysD) Temp****late – Black Box Design**

# System Description Overview

The system provides one service wm-data. That provides sensory data from an windmill. The data consists of the windmills speed, time since start of measurments, and a time series of the number of Gs measured in the windmills main bearing. The time series consist of 16384 measurements.

**Abstract**

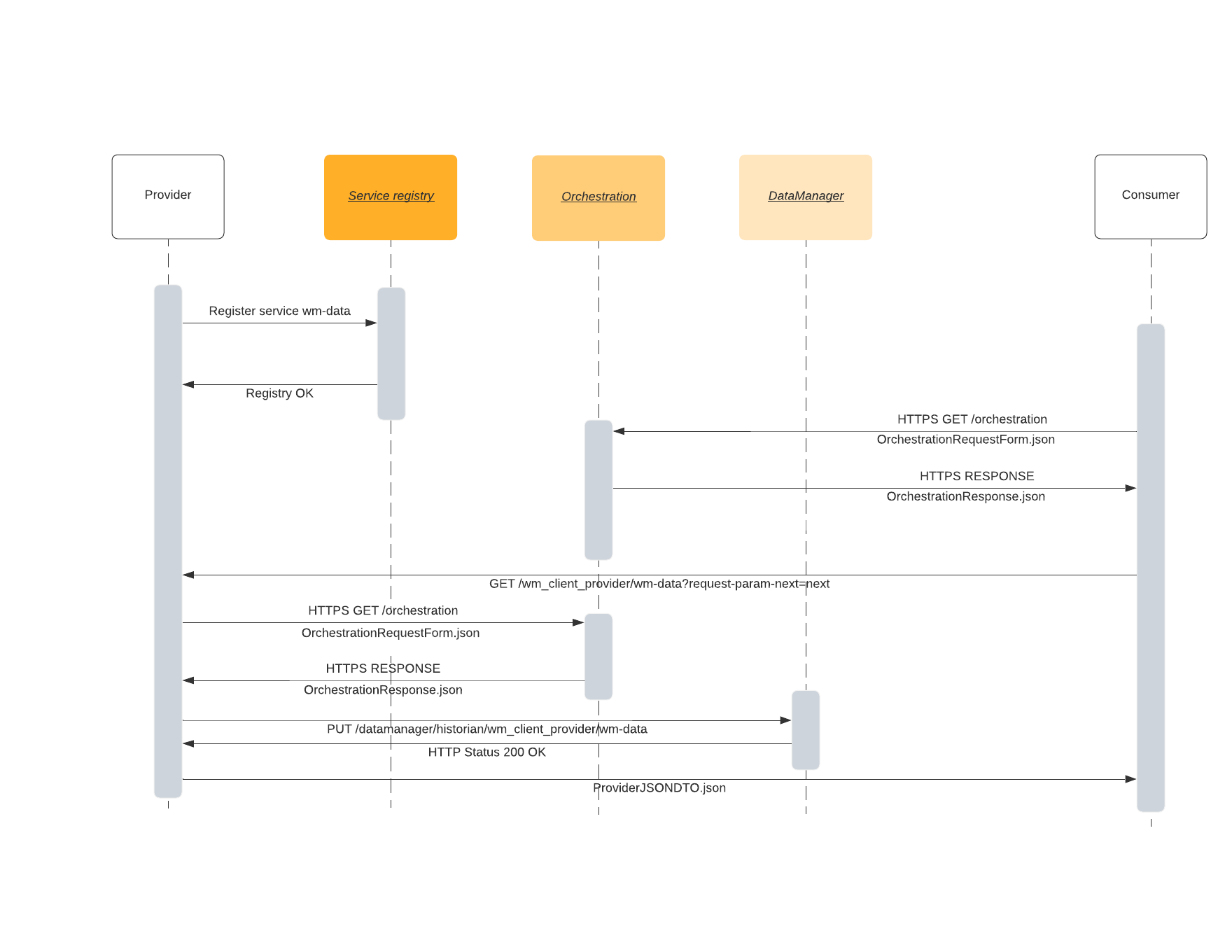
This document provides a black box design overview of the Windmill local cloud system. The system consists of one provider and one consumer.

# Use-cases

Table 1 Use-case description

|  |
| --- |
| **Main flow**:  -Provider receives request from a consumer  -Provider performs a request to DataManager’s historian services  -Sensor data gets stored in the DataManager database  -Sensor data gets sent to the consumer |
| **Postconditions**:  None |
| **Alternative flows**:  Eliminating the consumer from the flow. E.g make the process driven by the provider instead when it receives new data from the windmill. (Since I got the data as a whole csv file I choose to have a consumer drive the process instead.) |

# Behavior Diagrams



# System services

# Produced Services

Table 2 Pointers to IDD documents

|  |  |  |
| --- | --- | --- |
| Service | SD Document Reference | IDD Document Reference |
| wm-data | Windmill SD path: \documentation\SD\_windmill v4.3.docx | Windmill IDD path: \documentation\IDD\_windmill v4.3.docx |

# Consumed Services

Table 3 Pointers to IDD documents

|  |  |  |
| --- | --- | --- |
| Service | SD Document Reference | IDD Document Reference |
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# Security

# Security Objectives

The system uses HTTP over TLS to encrypt the requests and transmission. No other payload encryption is implemented currently.

In terms of availability, the system stores the data in the DataManager which ensures the availability of data at all times. As long as the Arrowhead core services aren’t compromised.

Integrity, data can not be altered as the system is designed right now. There is a possibility of data loss if an authorized system deletes data from the DataManager, in that case though the system deleting data needs to have the proper security credentials.

Confidentiality, the system relies on TLS for communication between the different services/systems which ensures that data can only be read by authorized subjects.

# References

Windmill IDD path: \documentation\IDD\_windmill v4.3.docx

Windmill SD path: \documentation\SD\_windmill v4.3.docx

# Revision history

# Amendments

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Date | Version | Subject of Amendments | Author |
| 1 | 2020-05-27 | 1.0 |  | Jerker Delsing |
| 2 | 2020-08-18 | 4.2 | Minor updates | Jerker Delsing |
| 3 | 2021-01-25 | 4.3 | Added Windmill text | Robin Jonsson |
|  |  |  |  |  |
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# Quality Assurance

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| --- | --- | --- | --- |
| No. | Date | Version | Approved by |
| 1 |  |  |  |
| 2 |  |  |  |