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

**Abstract**

This document provides the main template for the System Description of Arrowhead compliant Systems. It should be used to define the main services and interfaces of a system, without describing its internal implementation.

All Arrowhead systems should be specified using this template and stored on a common repository (available on the SVN server), in order to document and formalize the pilot demonstrators and the common Arrowhead framework.

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# System Description Overview

In the System Description document a proper “Black box” description of system is presented. Enumerating all the produced/consumed services with references to the IDD’s. In this way a clear picture of how to interface the system is provided. A High level overview of the system should be presented in this section.

It can include one or more eye catching figures into this description.

This document does not report non-functional requirements (QoS, robustness, etc) since they are related to the interaction between systems and to the SoS as a whole, and are thus defined in the SoSD document.

An example of how this template can be used can be found on the SVN server in: ……….Arrowhead\Meetings\Multi WP Workshops\2013-11-05 Porto\Documenting\Examples\SysD\ Arrowhead SysD Prosumer\_v0.1.docx.

# Use-cases

Describe typical use cases e.g. using UML use cases diagrams, which can be realised by the system. Only add this section if relevant in relation to SoSD document. Each use-case description should follow the structure defined in Table 1.

Table 1 Use-case description

|  |
| --- |
| Name of the Use-case: |
| **Brief description**:  Give a brief description of the use-case. |
| **Primary actors**:  Present the primary actor, e.g.,Prosumer |
| **Secondary actors**:  Present the secondary actors, e.g., Virtual Market of Energy |
| **Preconditions**:  If there are any |
| **Main flow**:  Present in a sequence of steps the interactions among the actors  1-  2-  3-  ……… |
| **Postconditions**:  If there are any |
| **Alternative flows**:  Any possible alternative flows to the sequence presented in the Main flow section. |

# Behaviour Diagrams

The diagrams proposed in this section are behaviour diagrams such as:

* Sequence diagrams to specify how to interact with this component (e.g. substation). The use of UML or SysML is proposed.
* Activity diagrams to define how this component is integrated in a process as a whole. The use of UML or SysML is proposed.

# System services

This section states the Produced and Consumed services, which are described in the Service Definitionin a technology dependent Interface Design Description (IDD) document. An IDD accordingly specifies the details needed for implementation of service providers and consumers for the Service Description (SD) it refers to. The IDD specify the service interface details and payload semantics.

# Produced Services

Table 2 Pointers to IDD documents

|  |  |  |
| --- | --- | --- |
| Service | SD Document Reference | IDD Document Reference |
| Service1 | Path the SD document | Path the IDD document |
| Service2 | Path the SD document | Path the IDD document |
| Servicex | Path the SD document | Path the IDD document |

A description of the provided services should also be included.

# Consumed Services

Table 3 Pointers to IDD documents

|  |  |  |
| --- | --- | --- |
| Service | SD Document Reference | IDD Document Reference |
| Service1 | Path the SD document | Path the IDD document |
| Service2 | Path the SD document | Path the IDD document |
| Servicex | Path the SD document | Path the IDD document |

A description of the consumed services should be included.

# Sequence Diagrams

It is proposed to use UML/SysML sequence diagrams, defining the interactions between service producers and consumers.

# Security

This chapter defines usage of Arrowhead Framework security mechanisms, e.g. AAA, payload encryption, onboarding.

# Security Objectives

High-level security objectives for the system need to be defined. They are the basis for the definition of concrete security requirements. Objectives shall in any case cover the well-known *AIC-*triad (availability, integrity, confidentiality). The attribute *availability* ensures that information is available when it is needed. *Integrity* refers to the authorized modification of data within a given system. *Confidentiality* seeks to ensure that information can only be read by authorized subjects.

# Assets

List of assets (important resources) that need to be protected. Examples of assets include e.g. operational assets (they support the function of a process/service), functional assets which related to the value of the service i.e. the direct product …. High level asset ….

# Non-technical Security Requirements

In this section the defined security objectives are applied on the assets to be protected. Please note that the technical security requirements are defined in the SysDD documentation.

Non-technical security requirements shall be collected using a table with the following format.

Table 4 Non-technical security requirements

|  |  |  |  |
| --- | --- | --- | --- |
| ***Number*** | **Objective** | **Asset** | **Requirement description** |
| *Sys\_NSR1* | Refer to defined objective  A|I|C|Other | Refer to defined asset |  |
| *Sys\_NSR2* |  |  |  |
| *Sys\_NSR…n* |  |  |  |

# References

Any references must be placed here.

# Revision history

# Amendments

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Date | Version | Subject of Amendments | Author |
| 1 | 2020-05-27 | 1.0 |  | Jerker Delsing |
|  | 2020-08-18 | 4.2 | Minor updates | Jerker Delsing |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# Quality Assurance

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