System-of-Systems Description (SoSD)

**Abstract**

This document defines the template for the System-of-Systems Description of Arrowhead compliant System-of-Systems.

It will contain an abstract high level view, describing the System-of-Systems main functionalities and architecture.

This document will mainly be used to describe one System-of-Systems in an abstract way, i.e. without instantiating into any specific technologies. In Arrowhead such document will be used to describe a pilot.

All Arrowhead System-of-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.

1. En bild som visar text, diagram, Plan, schematisk

   Automatiskt genererad beskrivningSystem of Systems Overview
2. Systems

This section MUST contain pointers to SysD document, which instantiates the SoS, i.e., the Arrowhead Pilot.

Table 1 Pointers to the SysD documents

|  |  |
| --- | --- |
| **System name** | **Path** |
| demo | ./SySD |

1. Use-cases

This section should identify and define the main actors and include high level use-cases regarding relations and information exchange between actors.

Table 2 Use-case description table

|  |
| --- |
| **Name of the Use-case** |
| **ID**: 1 |
| **Brief description**:  Sell to the electricity grid to earn money. |
| **Primary actors**:  Household with excessive energy. |
| **Secondary actors**:  Grid, Energy market. Fortum, E.ON, Skellefteå Kraft. |
| **Preconditions**:  Household having internal storage of energy. |
| **Main flow**:  Present in a sequence of steps the interactions among the actors   1. Household has internal energy storage. 2. Household sell to their assigned electricity grid (electricity company). 3. Household receives money.   ……… |
| **Postconditions**:  Have wallet which can store money, |
| **Alternative flows**:  - |
| **Name of the Use-case** |
| **ID**: 2 |
| **Brief description**:  Buy electricity from the market. |
| **Primary actors**:  Household consumer with no excessive energy or internal battery storage. |
| **Secondary actors**:  Grid, Energy market. Fortum, E.ON, Skellefteå Kraft. |
| **Preconditions**:  Household consuming more that its producing. Or no production at all. |
| **Main flow**:  Present in a sequence of steps the interactions among the actors   1. Household consuming electricity. 2. Household buy electricity from the electricity grid (market). 3. Household receives debt for buying electricity.   ……… |
| **Postconditions**:  Have money balance that loses money based on amount bought. |
| **Alternative flows**:  - |
| **Name of the Use-case** |
| **ID**: 3 |
| **Brief description**:  Electricity generation source which can provide generation service. |
| **Primary actors**:  Wind turbine, solar panels. |
| **Secondary actors**:  Household consumer/s which accumulates from electricity source. |
| **Preconditions**:  Electricity generation source with internal accumulation. |
| **Main flow**:  Present in a sequence of steps the interactions among the actors   1. Electricity generation source which accumulates electricity. 2. Household send request to generation source. 3. Household receives electricity from generation source.   ……… |
| **Postconditions**:  Household having internal storage of energy. |
| **Alternative flows**:  - |
| **Name of the Use-case** |
| **ID**: 4 |
| **Brief description**:  Collection of consumer devices which can consume from household. |
| **Primary actors**:  Consumption devices. Telephones, charging devices, kitchen. |
| **Secondary actors**:  Households. |
| **Preconditions**:  Electricity generation source with internal accumulation |
| **Main flow**:  Present in a sequence of steps the interactions among the actors   1. Electricity generation source which accumulates electricity. 2. Household send request to generation source. 3. Household receives electricity from generation source.   ……… |
| **Postconditions**:  Household having internal storage of energy or access to electricity grid (market). |
| **Alternative flows**:  - |