Service Description (SD) SystemDiscovery

23 september 2019

1 Service Description Overview

This document describes the Arrowhead SystemDiscovery service, including its interfaces, functions and information model.

The SystemDiscovery service is used to register and de-register systems within the local cloud, their produced services and their hosting devices, as well as to find systems among the registered systems in the SystemRegistry system.

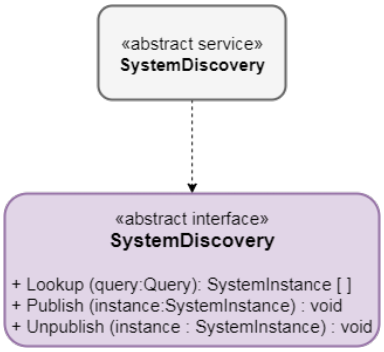

Figure 1: The SystemDiscovery service

2 Abstract Interfaces

2.1 SystemDiscovery Interface

The SystemDiscovery service provides three functionalities.

2.1.1 Functions

Publish The publish method is used to register a system. The systems will contain a symbolic name as well as a physical endpoint. The instance parameter represents the endpoint information that should be registered.

Unpublish The unpublish method is used to unregister a system that no longer should be used. The instance parameter contains information necessary to find the system to be removed.

Lookup The lookup method is used to find and translate a symbolic system name into a physical endpoint, IP address, and a port. The query parameter is used to request a subset of all the registered systems in the SystemRegistry system based on a specified criteria.

2.1.2 Sequence Diagrams

Sequence Diagram for Publish method Figure 2 shows the sequence diagram for the publish method of the SystemDiscovery service.

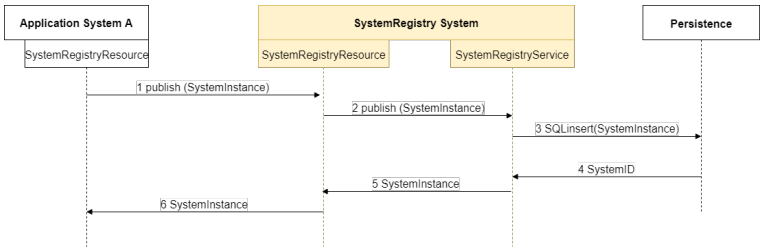

Figure 2: Sequence Diagram for the publish method of the SystemDiscovery service

Sequence Diagram for Unpublish method Figure 3 shows the sequence diagram for the unpublish method of the SystemDiscovery service.

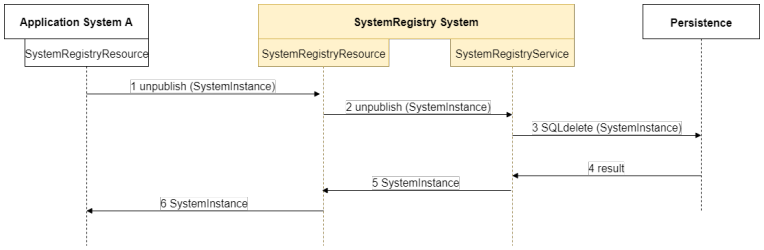

Figure 3: Sequence Diagram for the unpublish method of the SystemDiscovery service

Sequence Diagram for Lookup method Figure 4 shows the sequence diagram for the lookup method of the SystemDiscovery service.

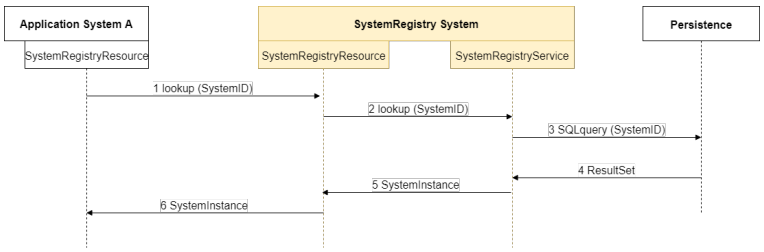

Figure 4: Sequence Diagram for the lookup method of the SystemDiscovery service

3 Abstract Information Model

A SystemRegistry entry contains the following information, as presented in Table 1. This is the payload that needs to be sent when registering or de-registering an entry from the SystemRegistry.

Table 1: SystemRegistryEntry type description

Field	**Description**
providedSystem: ArrowheadSystem	The Arrowhead System object that is provided (SD and IDDs)
systemName: String	The name of the Arrowhead system
address: String	IP address of the system
port: Integer	The port where the provided System can be consumed.
authenticationInfo: String	If the communication is secure provides the public key of the certificate.
metadata: String	Metadata belonging to a service/provider pair. Metadata is to be provided using key pairs such as, $encode = syntax$, e.g., $encode = xml$, $compress = algorithm$, e.g., $compress = exi$, $semantix = XX$, e.g., $semantic = senml$.
provider: ArrowheadDevice	The Arrowhead Device that is providing the System.
deviceName: String	The name of the provider.
serviceURI: String	The URL subpath of the ProvidedSystem within the address:port of the Provider.
endofValidity: Integer	System validity time period expressed in seconds. This gets converted to a date-time, and stored in the database.

4 Non-functional Requirements

Not specified yet.

5 Revision history

5.1 Amendments

No.	Date	Version	Subject of Amendments	Author
1	2017-09-10	1.0	Initial Version	Silia Maksuti
2	2017-11-15	1.1	Updated Version	Silia Maksuti
3	2019-09-23	1.2	Updated Version	Silia Maksuti