Event Handler

System Design Description

Abstract
This document describes the Event Handler core system of the Eclipse Arrowhead Framework. The purpose of Event Handler supporting core system is providing authorized publish-subscribe messaging system to the Eclipse Arrowhead Framework.

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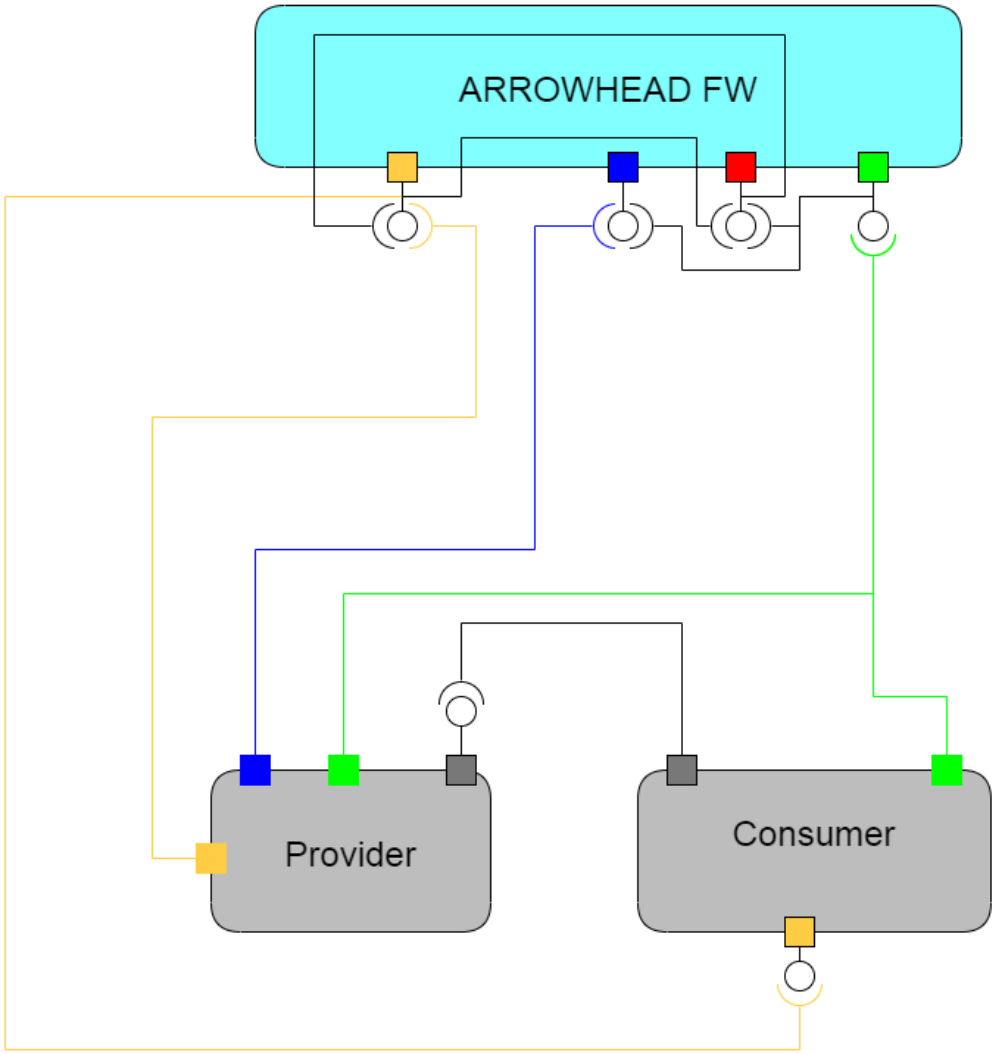

Figure 1: This diagram shows how consumers and providers are connected to the Arrowhead Framework and each other.

1 Overview

This document describes the Eclipse Arrowhead Event Handler system, which exists to provide a secure publish-subscribe messaging system in a Eclipse Arrowhead Local Cloud (LC). Examples of such interactions is a consumer subscribing to some kind of Eclipse Arrowhead Event.

The purpose of this System is therefore to allow:

- Application systems to publish their event types.
- Consumers to subscribe and unsubscribe to events.

2 System Role

The color coding on Figure 1 shows:

- Blue: Service Registry

- Red: Authorization
- Green: Orchestration
- Yellow: Event Handler

This System provides multiple Core Services, **Echo**, **EventPublish**, **EventSubscribe**, **EventUnsubscribe**. There are four use case scenarios connected to the Event Handler.

- Event publishing
- Register subscription
- Unregister Subscription

The Event publish interface is used to o deliver Event to all relevant Subscribers.
The register interface is used to register a subscription.
The unregister interface is used to unregister an subscription.

3 Services

3.1 Consumed Services

3.1.1 CheckAuthorizationSubscription

This service checks whether a given application system is allowed to receive events from another application system.

3.1.2 Notification

This service is provided by the event consuming application system where the Event will be sent.

3.2 Provided Services

3.2.1 Echo

This service allows to check the core systems availability.

3.2.2 EventPublish

This service allows to application systems to publish events.

3.2.3 EventSubscribe

This service allows application systems to subscribe to events.

3.2.4 EventUnsubscribe

This service allows application systems to unsubscribe from events.

4 Security

This System can be secured via the HTTPS protocol. If it is started in secure mode, it verifies whether the Application System possesses a proper X.509 identity certificate and whether that certificate is Arrowhead compliant in its' making. This certificate structure and creation guidelines ensure:

- Application System is properly bootstrapped into the Local Cloud
- The Application System indeed belongs to this Local Cloud

- The Application System then automatically has the right to register its Services in the Registry.

If these criteria are met, the Application System's registration or removal message is processed. An Application System can only delete or alter entries that contain the Application System as the Service Provider in the entry.

5 Revision History

5.1 Amendments

No.	Date	Version	Subject of Amendments	Author
1	2020-12-05	4.3.0		Tanyi Szvetlin

5.2 Quality Assurance

No.	Date	Version	Approved by
1	2021-01-18	4.3.0	Jerker Delsing