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Monitor
System Description

Abstract

The Monitor microsystem is a support system in the Eclipse Arrowhead suite of SOA/Microservie infrastructure. The objective of the Monitor system is to consume all produced Monitor microservices in a local cloud and making monitored data avialable for furhter processing.

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1 Overview

The Monitor microsystem is a support system in the Eclipse Arrowhead suite of SOA/Microservie infrastructure. The objective of the Monitor system is to consume all produced Monitor microservices in a local cloud and making monitored data avialable for furhter processing addressing SoS issues like e.g. resilience, failover, maintenance.

The rest of this document is organized as follows. In Section 1.1, we reference major prior art capabilitites of the system. In Section 1.2, we the intended usage of the system. In Section 1.3, we describe fundmental properties provided by the system. In Section 1.4, we describe de-limitations of capabilitites ofn the system. In Section 2, we describe the abstract service functions consumed or produced by the system. In Section 3, we describe the security capabilitites of the system.

1.1 Significant Prior Art

In the edge SOA/microservice domain very little is avilable from the major open source projects. In legacy and monolitic code monitoring is mainstream but most often propritary knowledge and code.

1.2 How This System Is Meant to Be Used

The intended usage of the Monitor system is to consume all produced Monitor microservices in a local cloud and making monitored data avialable for furhter processing addressing SoS issues like e.g. resilience, failover, maintenance. The consumption of Monitor services shall be on a publish subscribe basis (MQTT).

1.3 System functionalities and properties

Consumption of all produced Monitor service registered in the ServiceRegistry of a local cloud. Such services will provide a few mandatory interfaces and evnetually additional interfaces of importance to the hosting microsystem. It is required that non-mandatory interface shall provide necessary metadata such that the Monitor system can generate a complete and working publish subscribe consumer. The subscription to indivudual Monitor service shall be possible to condtion as allowed by the prodicing microsystem.

1.3.1 Functional properties of the system

Consumption on a publish subscribe basis of produced Monitor services.

Capability to generate Monitor service consumers for those produiced Monitor service having non-mandatory interface with necessary meta data stored int the ServiceRegistry. Such generated code should be possible to V&V in run-time.

1.3.2 Configuration of system properties

Subscription condition to consumed Monitor service shall be possible to configure using a Monitor_configuration service.

1.3.3 Data stored by the system

Monitored data will be pushed to the DataManager making data available for further processing.

1.3.4 Non functional properties

- security, AA security based on x.509 certificates is supported.

- safety, ...

- energy consumption, ...

- latency, ...

- Power saving properties, ...

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ARROWHEAD

1.3.5 Stateful or stateless

- states preserved, functional and non-functional

1.4 Important Delimitations

The Monitor system is not expected to take actions on the monitor data being collected. Data will be pushed to DataManager for further actions by other microsystems within the local cloud or external local clouds.

2 Services

This section describes consumed and produced service. In particular, each subsection names a prodiuced or consumed service indicating the different capabilities and associated interfaces of the service. Reference to the appropriate SD document shall be made.

2.1 Produced service

- Monitor_management

2.2 Consumed services

The core services:

- ServiceDsicovery

- Authorisation

- Authentication

- Orchestration

and all Monitor services registered in the ServiceRegistry.

3 Security

Overview of security level chosen for the system
The following is covered

- The system can be started in un-secure and/or Arrowhead secure mode.

- The system can only handling Arrowhead compliant X.509 certificates.

3.1 Security model

The following points should be described:

- protocol supported: HTTP, MQTT

- data protection supported: TLS

- system authentication capability supported: Arrowhead X.509 certificate

- produced service authorisation checking: via token from Orchestration system directly via the Authorisation system

For Arrowhead certificate profile see github.com/eclipse-arrowhead/documentation

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4 Revision History

4.1 Amendments

Revision history and Quality assurance.

No.	Date	Version	Subject of Amendments	Author
1	2024-05-26	5.0.0		Jerker Delsing
2		5.0.0		
3		5.0.0		

4.2 Quality Assurance

No.	Date	Version	Approved by
1	2022-01-10	5.0.0	