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Master Thesis – Event Aggregation

Background

Large CI/CD systems use events to communicate information on occurrences within the system. At Ericsson we have created the open-source Eiffel message protocol to cater for this. The Eiffel event protocol describes each event and the connection between the events. Typical events can be that a build system is finished or that automated regression tests have been run. As the events are posted in a stream it is possible for consumers (listeners) to the stream to establish traceability between the events, for instance that a particular build triggered the execution of a certain test suite.

The event producers send an event for each of the occurrences within the CI/CD system. This could be millions of events per day. This creates a stream of events, where each event contains a piece of information that we need to aggregate into a data model.

The CI/CD pipelines are vital for achieving time of delivery and quality to customers as well as facilitating that development teams can have their undisturbed focus during iterations.

Several consumers may listen to the same stream, and each user may have a need for different information. As with a consumer listening to the raw data stream, a consumer of the data model needs some way to receive information based on the data model as soon as that information exists.

Thesis Description

We currently have an open-sourced project for aggregating this stream of events based on own developed algorithms.

We would like to improve our solution by using readily available techniques for event aggregation possibly using stream processing. We would like to have an overview of solutions for this and a demo of the most suitable candidate. The thesis student will have large freedom in selecting solutions and technology for the demo.

Qualifications

This project aims at students in computer science or similar.

Extent

1-2 students, 30hp each

Location

Ericsson AB Mjärdevi, Linköping

Preferred Starting Date

Spring 2024

Keywords

DevOps, Continuous Integration, Continuous Delivery, Continuous Deployment, Stream Processing, Events

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