Fachbereich Informatik und Medien

Apache Camel
Anwendung - Erdbebendaten

Systemintegration 1. Semester Master Informatik
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1 Introduction / Motivation / Project

Systemintegration is the part of a software architectur. It helps to connect components or subsystems together. Certain patterns are used in the industry today. Using and learning EIP ("Enterprise Integration Pattterns") with Apache Camel is the goal of this Project.

The Example for this project is all about earthquake data from around the world. The Application is able to read earthquake data from various rss Feeds and processes it. During the processing the data will be in form of XML and Java Objects. The data will be enriched, splitted, sorted, aggregated, normalized, marshalled umarshalled and finally provided again in form of a restful service.

The specified task is as follows:

1. Read Earthquake Data continously from those two RSS Streams
   - `http://geofon.gfz-potsdam.de/db/eqinfo.php?fmt=rss`
   - `http://earthquake.usgs.gov/eqcenter/catalogs/eqs1day-M2.5.xml`
2. enrich this data with other related information like the weather in this area at this time. Data can be from here: `http://www.programmableweb.com`.
3. sort the earthquakes by the earthparts where they appear
4. if the earthquake has a strength of more than "M 5.5" than send an formated warning email to an email adress.
5. provide this data via a Restful interface in form of a list of the earthparts with an xlink to detailed information of the earthquakes.

2 Information Collection and Normalization

Listing 2.1: Aggregator

```
1 from("http://geofon.gfz-potsdam.de/db/eqinfo.php?fmt=rss&
    splitEntries=false")
2   .setHeader("visited", constant(true))
3   .to("xslt:data/xsl/transformation.xsl").to("direct:start")
4   .delay(1000);
5
6 from("http://earthquake.usgs.gov/eqcenter/catalogs/eqs1day-M2.5.
    xml?splitEntries=false")
7   .setHeader("visited", constant(true))
8   .to("xslt:data/xsl/transformation2.xsl").to("direct:start")
9   .delay(1000);
```

3 Aggregating Information Sources

The Aggregator is a special filter that recieves a strem of messages an didentifies messages that are correlated. Once a complete set of messages has been recied, the Aggregator collects information from each correlated message and publishes a single, aggregated message to the output channel for further processing. [HW03]

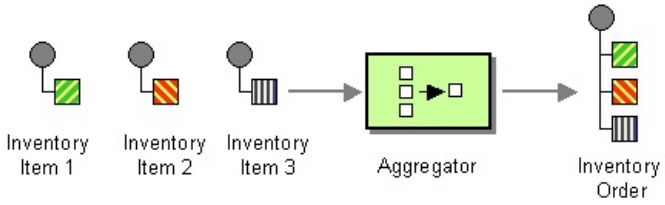

Abbildung 3.1: Aggregator Pattern [HW03]

Camel provides a method named *aggregate* with two parameters, first the identifier of the messages to aggregate (the message header) and second the strategy (as a Object: *SpecialAggregationStrategy* which implements *org.apache.camel.processor.aggregate.AggregationStrategy*). s

4 Normierung der Daten auf eine einheitliches Format

5 Anreicherung der Daten mit zusaetzlichen Informationen

6 Sortierung und speicherung der Daten

7 Emailbenachrichtigung

8 REST Schnittstelle zu den Daten

8.1 Liste der Erdbeben je Erdteil mit xlink

8.2 Detailinformationen zu einem Erdbeben

Literaturverzeichnis

[HW03] Hohpe, G. ; Woolf, B.: *Enterprise integration patterns: Designing, building, and deploying messaging solutions*. Addison-Wesley Longman Publishing Co., Inc. Boston, MA, USA, 2003. – ISBN 0321200683

Abbildungsverzeichnis