

Product Information Service & Exception Reporting

1 Overview

The FFV Pilot targets at transparency along the chain (forward and backward) regarding food safety, food quality and transportation issues. Due to food scares in the past and continuously published issues related to food products, the trust in food products is challenged on a regular basis. Especially the trust in the integrity of suppliers and products is challenged in the fruit and vegetable area, where commodities are marketed and traded and full traceability and transparency is hard to reach. Current practice proved to be deficient when it comes to the exchange of food quality and safety information, which is of importance to avoid crisis and to improve trust in food products for all involved stakeholders including the consumer. The present issues result in high control and transaction costs.

The scope of the pilot is the establishment of a web-based communication infrastructure that is:

- easy to adopt and decreasing the number of inter-enterprise interfaces,
- connects product information to traceability information gained from existing systems,
- allows the development and publishing of product- and process-related information services,
- and allows the management of access rights for specific information items and business partners,

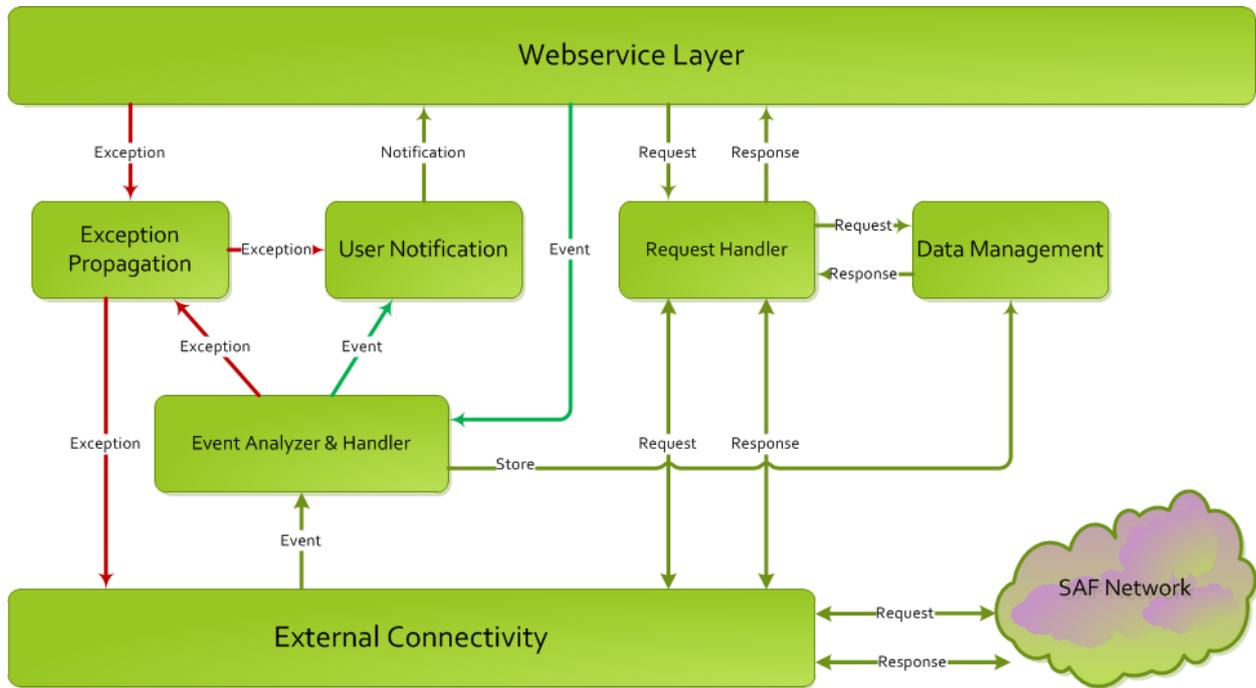
in order to enable the provision of product information to actors along the supply network of fresh fruits and vegetables.

2 Architecture

The figure below gives a high level overview about the modules developed in the scope of this pilot:

- The **External Connectivity module** handles the communication between the stakeholders using a P2P approach. Furthermore it allows the ability to share, search and access product related information throughout the supply chain.
- The **Event Analyzer & Handler** is responsible to handle all incoming events. This includes the classification of the event, the detection of responsible persons inside the company.
- If other stakeholders within the chain has to be informed about an event the **Exception Propagation** module looks up the corresponding company and propagates the event via the External Connectivity module.
- To inform users inside the company the **User Notification** module takes care about the selection of the best channel (e.g. e-Mail, SMS, etc.) to notify the user about the event.
- Request from within the company and from external entities are processed by the **Request Handler** module. It detects the correct information source for the required information.
- The **Data Management** module allows the access of existing information systems inside the company (e.g. ERP) and offers additional storage capabilities including an EPCIS system and a NoSQL store.

- The **web service layer** offers the underlying functionalities of the backend modules as RESTlike Services. These services can be easily consumed by applications including the user interface presented in the next chapter.



3 User Interfaces

The pilot offers different views depending on the type of information which should be shown (i.e. product related information or tracking data) or captured. However all UIs are following the same structure by offering an input field for the electronic product code to be queried at the top of the page and the result content below.

Tracking Information

To access tracking information the UI shown in the figure below visualises EPCIS events fetched from different stakeholders in the chain. These events are displayed in the left of the result pane in a list containing the most important information including the type of event, the time when the event was captured, its location and the business step. On top of that the origin of these events are visualised by using the Google Maps API.

Search for Tracking Information

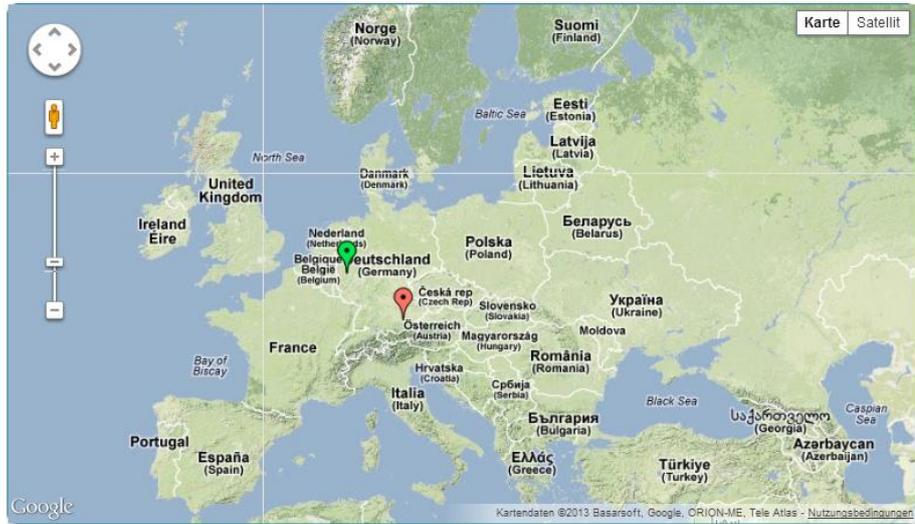
Enter the EPC URN to fetch tracking information (e.g. urn:epc:grai:08714548.10400.0000594299)

urn:epc:grai:08714548.10400.0587983331

Search

Tracking Points

Landgard	
Time:	2013-02-22 14:42:24
Eventtype:	Transaction Event
Disposition:	Unknown
Step:	Arriving
Location:	urn:epc:global:fmog:lo...
Landgard	
Time:	2013-02-22 14:44:08
Eventtype:	Transaction Event
Disposition:	Unknown
Step:	Shipping
Location:	urn:epc:global:fmog:lo...
Distribution Center	
Time:	2013-02-22 14:47:38
Eventtype:	Transaction Event
Disposition:	Unknown
Step:	Arriving
Location:	urn:epc:global:fmog:lo...



Product related information

The next user interface is used to display product related information stored by different actors in the chain. To address the different types of possible information, it displays these data in a key-value type of list. The goal of this UI is the user to access information from farm to fork and vice versa in different scenarios:

- Fetching feedback information for producers and traders:** The provision of feedback is important for traders /marketers selling products with a specific initial quality to their customers. Due to the involvement of different actors, companies at the beginning of the chain are not able to observe and influence the handling of products to preserve the initial quality as good as possible. It is their most important interest that their products arrive at the customer and the consumer at the best possible quality, which is also important for the reputation of traders/marketers.
- Product information for consumers:** Product related information can be made accessible for consumers buying the products in supermarkets and want to receive additional information for their products.

Search for Product Information

Enter the EPC URN to fetch product Information (e.g. urn:epc:grai:08714548.10400.0000594299)

urn:epc:grai:08714548.10400.0587983331

Search

Time:	2013-1-22 14:45:14
Citrus	Oranges
GrowingMethod	ORGANIC
Segment	Food/Beverage/Tobacco
ProductClass	Citrus
Family	Fruits - Unprepared/Unprocessed (Fresh)

Exception Generation

Beside the UI to display existing data the last user interface allows the capturing of product related information. In this case it lets the user enter a special type of information: exceptions. Exception reporting is considered as a major requirement for improved food chain management. Exception reporting follows the term “If something went wrong, notify the decision making persons that are required to be notified”. Currently decision makers get the information on potential hazards to late or not at all, when the possibility is there for corrections in the process and to control the process in a way, which allows the removal of unsafe products. The goal of this UI is to enable the user to easily report an exception, whereas the backend functionality takes care of selection and contact of partners which has to be informed.

Generate product exception

Product ID:	<input type="text" value="e.g. urn:epc:grai:08714548.10400.0000594299"/>
Exception Message:	<input type="text" value="e.g. delayed delivery, varying quality, ..."/>
	<input type="button" value="+ Create!"/>