ALERT
Active support and real-time coordination based on Event Processing in FLOSS development
Introduction

- Open Source developers located all over the world
- In order to exchange information on questions, comments, requests and bug reports, several information sources are employed:
  - Bugzilla
  - Mantis
  - LaunchPad
Introduction

- Mailing lists and forums allow users to participate in open discussions
- Wikis used as platforms for providing user support
- Source code management systems are used to commit modifications to source code and describe the changes
Introduction

- The user has to open a separate web page for each of these sources and use different search interfaces
ALERT

- Provides functionality to integrate information from:
  - Issue tracking systems
  - Source code management systems
  - Forums
  - Mailing lists
  - Wikis

- Extracts information from structured and unstructured sources

- Provides advanced search capabilities across all information sources
ALERT

- Provides automatic methods for time consuming tasks:
  - Finding bug duplicates
  - Suggesting developers who can fix an issue
- Provide subscription mechanisms that allow users to be notified when something relevant is posted
System architecture
Components

- Information processing is done by 2 components:
  - KESI (Knowledge Extractor from Structured Sources)
  - KEUI (Knowledge Extractor from Unstructured Sources)
- Both store the extracted information in a Knowledge base
Components

- 3 components use the information stored in the Knowledge base to provide certain functionality
  - Event Detector
  - Recommendation service
  - Search/Visualization service
Search Service

- Provides the ability to search across all information sources
- Offers four conceptually different search options:
  - General search
  - Duplicate issue detection
  - Issues related to my code
  - Suggest issues for a developer
Search Service

- General Search
  - Allows the user to search on plain keywords or on structured information available for the post
Search Service

- Duplicate issue detection
  - Provides a list of the most similar issues for a given issue
  - Provides a score of similarity for each issue

![Search Service Interface](image)
Search Service

- Issues related to my code
  - Suggests issues which are possibly caused by the users code
Search Service

- Suggest issues for a developer
  - For each developer the ALERT system maintains an expertise profile
  - ALERT matches a developers profile to existing open issues and displays the best matches
Visualization Service

- Search results are presented in different ways:
  - List of results
  - Item details
  - Timeline
  - Social graph
  - Tag cloud
Visualization Service Components

- List of results
  - Author
  - Subject
  - Short content
  - Date
  - Similarity
Visualization Service Components

- **Item details**
  - Displays the full content of the item or
  - The full thread if the post is part of a threaded message

![Image of item details](image.png)
Visualization Service Components

- **Timeline**
  - Shows the distribution of search results over time
  - The user can spot periods of high and low activity
Visualization Service Components

- **Social Graph**
  - Displays a graph of people who are involved in the results
  - Helps identifying the most active/knowledgeable people on a particular topic
Visualization Service Components

- Tag cloud
  - Displays the most relevant terms extracted from the results
Example
Example
Example
Example
Thank you

- Questions?
Thank you

- Questions?