

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

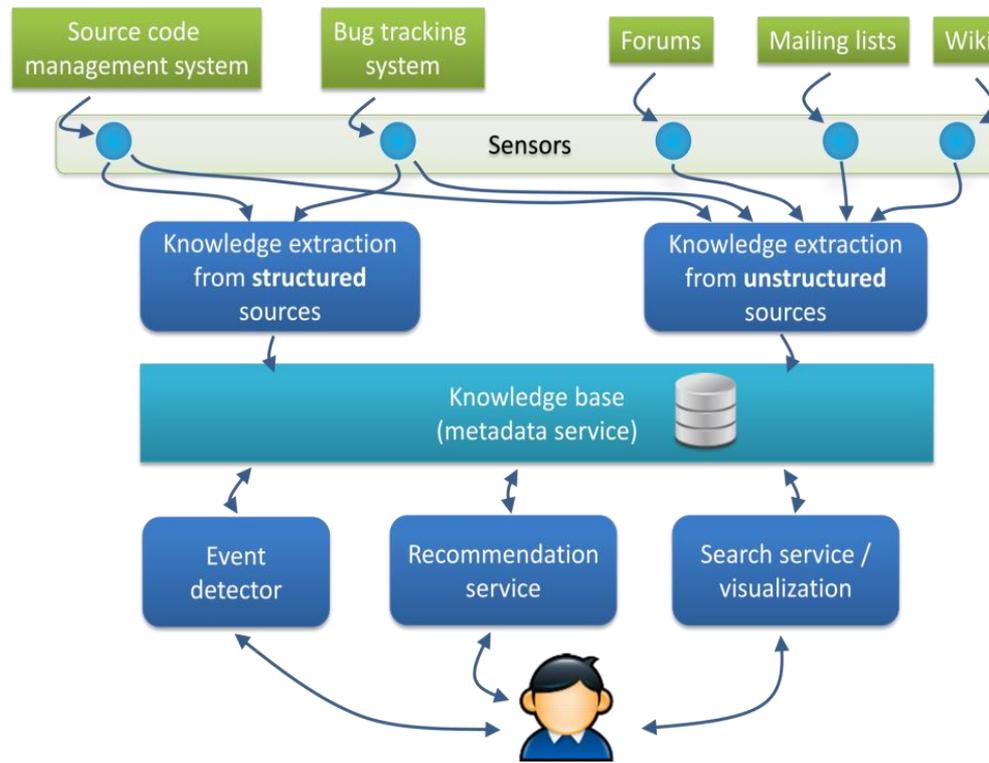
ALERT

- 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

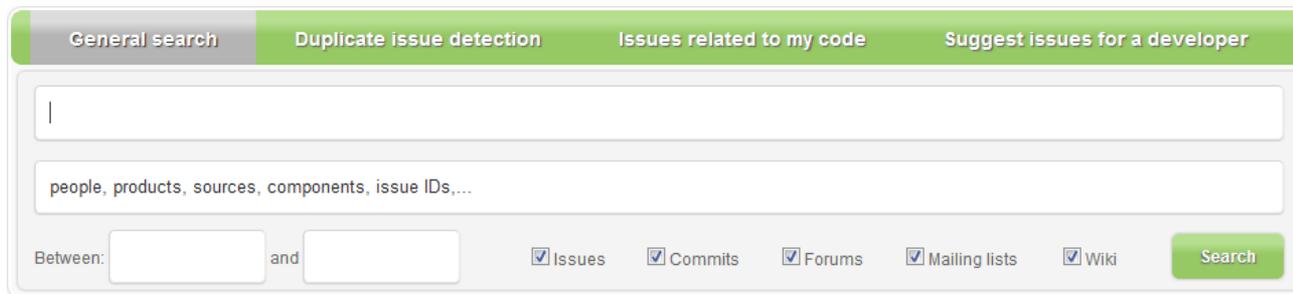
- 3 components use the information stored in the Knowledge base to provide certain functionality
 - Event Detector
 - Recommendation service
 - Search/Visualization service

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



The screenshot shows a search interface with four tabs: "General search", "Duplicate issue detection", "Issues related to my code", and "Suggest issues for a developer". The "General search" tab is active. Below the tabs is a search input field with a vertical cursor. Below the input field is a placeholder text: "people, products, sources, components, issue IDs,...". At the bottom, there is a "Between:" label followed by two empty input fields and the word "and". To the right of these fields are five checked checkboxes: "Issues", "Commits", "Forums", "Mailing lists", and "Wiki". A green "Search" button is located to the right of the checkboxes.

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

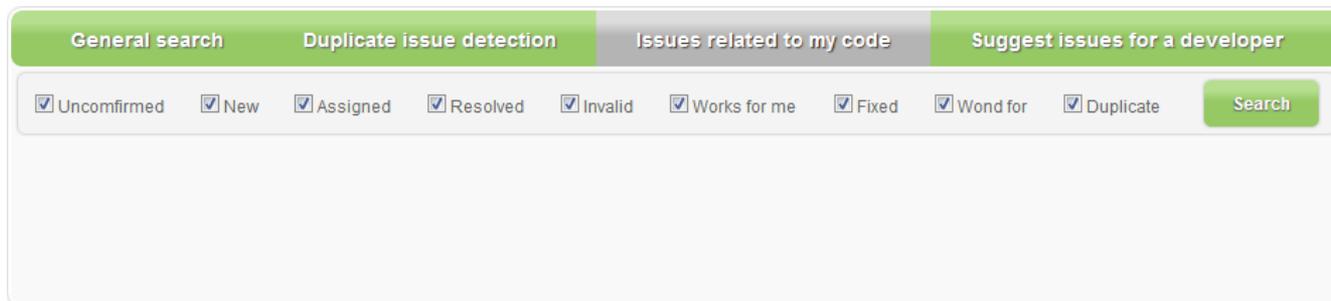


The screenshot shows a search service interface with four tabs: "General search", "Duplicate issue detection", "Issues related to my code", and "Suggest issues for a developer". The "Duplicate issue detection" tab is currently selected. Below the tabs is a search input field. Underneath the input field are two rows of filter options, each with a checked checkbox. The first row is labeled "Resolution:" and includes "None", "Fixed", "WontFix", "Invalid", "Duplicate", "WorksForMe", and "Unknown". The second row is labeled "Status:" and includes "Open", "Verified", "Assigned", "Resolved", and "Closed". A green "Search" button is located to the right of the status filters.

General search	Duplicate issue detection	Issues related to my code	Suggest issues for a developer				
<input type="text"/>							
Resolution:	<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> Fixed	<input checked="" type="checkbox"/> WontFix	<input checked="" type="checkbox"/> Invalid	<input checked="" type="checkbox"/> Duplicate	<input checked="" type="checkbox"/> WorksForMe	<input checked="" type="checkbox"/> Unknown
Status:	<input checked="" type="checkbox"/> Open	<input checked="" type="checkbox"/> Verified	<input checked="" type="checkbox"/> Assigned	<input checked="" type="checkbox"/> Resolved	<input checked="" type="checkbox"/> Closed	<input type="button" value="Search"/>	

Search Service

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



The screenshot shows a search service interface with a navigation bar and a filter bar. The navigation bar has four tabs: "General search", "Duplicate issue detection", "Issues related to my code", and "Suggest issues for a developer". The "Issues related to my code" tab is currently selected. Below the navigation bar is a filter bar with several checkboxes, all of which are checked: "Unconfirmed", "New", "Assigned", "Resolved", "Invalid", "Works for me", "Fixed", "Wond for", and "Duplicate". A "Search" button is located to the right of the filter bar.

General search	Duplicate issue detection	Issues related to my code	Suggest issues for a developer						
<input checked="" type="checkbox"/> Unconfirmed	<input checked="" type="checkbox"/> New	<input checked="" type="checkbox"/> Assigned	<input checked="" type="checkbox"/> Resolved	<input checked="" type="checkbox"/> Invalid	<input checked="" type="checkbox"/> Works for me	<input checked="" type="checkbox"/> Fixed	<input checked="" type="checkbox"/> Wond for	<input checked="" type="checkbox"/> Duplicate	Search

Search Service

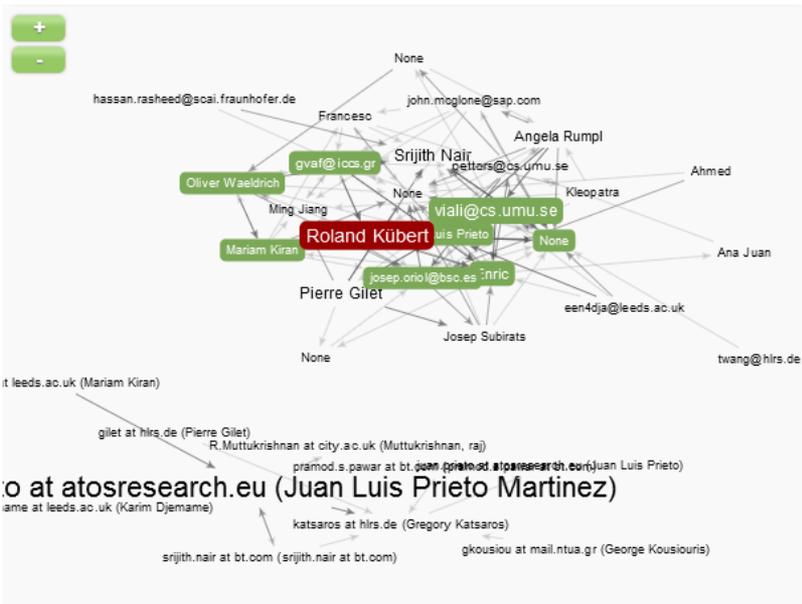
- Suggest issues for a developer
 - For each developer the ALERT system maintains an expertise profile
 - ALERT matches a developers profile to existing open issues and displays the best matches



The image shows a screenshot of a web application interface. At the top, there is a horizontal navigation bar with four tabs: "General search", "Duplicate issue detection", "Issues related to my code", and "Suggest issues for a developer". The "Suggest issues for a developer" tab is currently selected and highlighted in a darker shade. Below the navigation bar is a search input field with a placeholder text, and a green "Search" button to its right. The main content area below the search bar is currently empty.

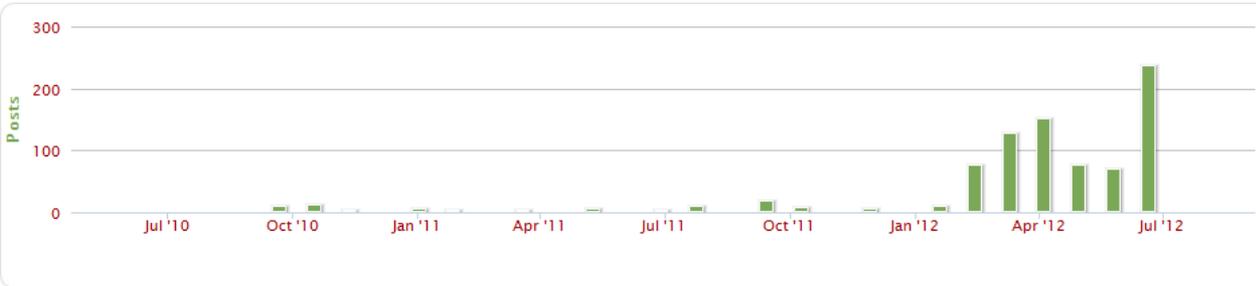
Visualization Service

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



o at atosresearch.eu (Juan Luis Prieto Martinez)

Item description	Author:	Date:	Resolution:	Status:
Notify user on hardware changes 2	Sander Pientka	2009-02-17	Fixed	Resolved
Comment				
Version: (using KDE 4.2.0) OS: Linux Installed from: Ubuntu Packages It would be awesome if KDE notifies the user of newly installed hardware, missing drivers, programs to use the connected device, etc.	Sander Pientka	2009-02-17		
Comment				
If a driver is missing, clicking on the notification should open the package manager (by default) so the user can find a driver	Angel Blue	2009-03-04		



F. Javier Nieto	2012-05-15
Add probes for the Bursting U	sim: 23%
In the bursting use case we need that the Elasticity Engine implements two probes related to some measures coming from the Monitoring: -Percentage of memory used -Percentage of CPU used This is because	
petters@cs.umu.se	2012-03-08
Need for test service (Manifest + VM) for end-to-end testing	sim: 11%
In order to perform end-to-end testing of the SD, CO and EE etc we need a deployable, runnable service complete with valid ServiceManifest and VM images. The service should include dummy performance p	
Juan Luis Prieto	2012-04-17
Insert SLA agreement in Service Manifest	sim: 10%
A new element or attributed is needed to store the Service Level Agreement ID so it can be used later to subscribe to the notification system of the SLA Manager.	

page 1 >>

Visualization Service Components

- List of results
 - Author
 - Subject
 - Short content
 - Date
 - Similarity

F. Javier Nieto 2012-05-15
Add probes for the Bursting U sim: 23%
C
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page 1 >>

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

The screenshot displays a user interface for a service visualization. It features three main sections: an item description, a comment, and another comment. Each section has a header with metadata and a body of text.

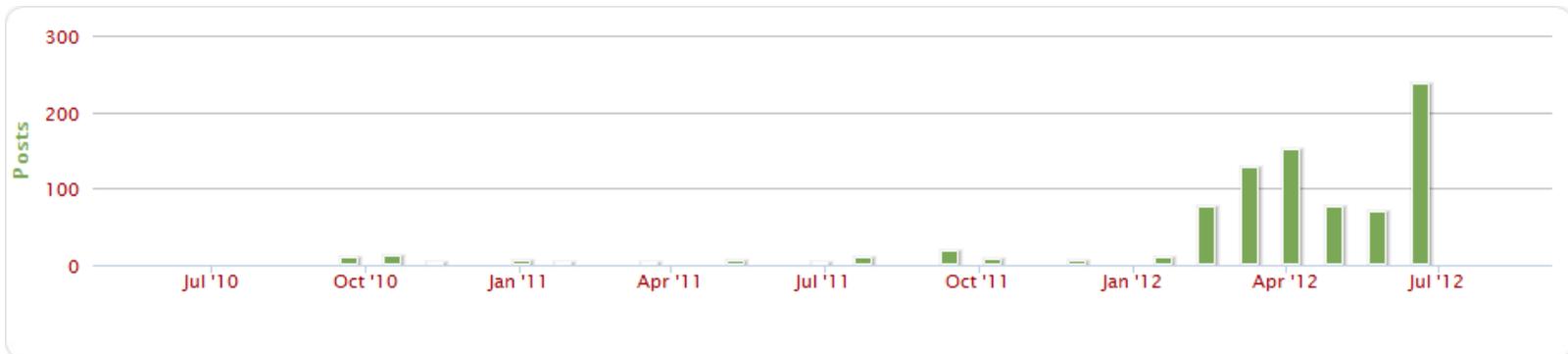
Item description	Author:	Date:	Resolution:	Status:
Notify user on hardware changes 2	Sander Pientka	2009-02-17	Fixed	Resolved

Comment	Author:	Date:
Version: (using KDE 4.2.0) OS: Linux Installed from: Ubuntu Packages It would be awesome if KDE notifies te user of newly installed hardware, missing drivers, programs to use the connected device, etc.	Sander Pientka	2009-02-17

Comment	Author:	Date:
If a driver is missing, clicking on the notification should open the package manager (by default) so the user can find a driver	Angel Blue	2009-03-04

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

- Tag cloud
 - Displays the most relevant terms extracted from the results



Example

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General search
Duplicate issue detection
Issues related to my code
Suggest issues for a developer

Angela Ruml

Between: and

Issues Commits Forums Mailing lists Wiki

Search

Kleopatra 2012-07-04

2nd Graphical Design

Points discussed:

Fonts uniformity

Reduce height of widgets

Topbar what size and if needs to be present

Container for avoiding scrollbar

Consider putting buttons in toolb

Angela Ruml 2012-06-28

PaaS Profile Management widget

*** This bug has been marked as a duplicate of bug ***

Angela Ruml 2012-06-28

Complete the paas offer editor

*** Bug has been marked as a duplicate of this bug. ***

Angela Ruml 2012-05-31

page 1 of 1

Item details
Social graph
Word cloud

Item description	Author:	Date:	Resolution:	Status:
2nd Graphical Design and testing	Angela Ruml		undefined	Verified
Comment	Author:	Date:		
	Angela Ruml	2012-04-12		
Comment	Author:	Date:		
	Kleopatra	2012-07-04		
Points discussed:				
Fonts uniformity				
Reduce height of widgets				
Topbar what size and if needs to be present				
Container for avoiding scrollbar				
Consider putting buttons in toolbar				
Place deploy think about a left widget				

Posts

Date	Posts
30. Jan	0
13. Feb	2
27. Feb	2
12. Mar	3
26. Mar	5
9. Apr	3
23. Apr	2
7. May	1
21. May	1
4. June	2
18. June	1
2. Jul	1
16. Jul	0
30. Jul	0

Example

The screenshot displays a web application interface for user Angela Ruml. At the top, there is a navigation bar with links for BROWSE, SUBSCRIBE, PROJECT OVERVIEW, and LOGIN. Below this is a search bar with a dropdown menu showing 'Angela Ruml'. The search bar includes filters for 'Issues', 'Commits', 'Forums', 'Mailing lists', and 'Wiki', along with a 'Search' button. The main content area is divided into two columns. The left column shows a list of issues, each with a sun icon, a title, a date, and a description. The right column features a 'Social graph' tab, which displays a network diagram with 'Angela Ruml' at the center, connected to various email addresses and names. Below the social graph is a bar chart showing the number of posts per month from January to July.

Navigation: BROWSE, SUBSCRIBE, PROJECT OVERVIEW, LOGIN

Search: General search, Duplicate issue detection, Issues related to my code, Suggest issues for a developer

Search Bar: Angela Ruml

Filters: Issues, Commits, Forums, Mailing lists, Wiki

Issues List:

- Kleopatra** 2012-07-04
2nd Graphical Design
Points discussed:
Fonts uniformity
Reduce height of widgets
Topbar what size and if needs to be present
Container for avoiding scrollbar
Consider putting buttons in toolb
- Angela Ruml** 2012-06-28
PaaS Profile Management widget
*** This bug has been marked as a duplicate of bug ***
- Angela Ruml** 2012-06-28
Complete the paas offer editor
*** Bug has been marked as a duplicate of this bug. ***
- Angela Ruml** 2012-05-31

Social Graph: Item details, Social graph, Word cloud

Network Diagram: Angela Ruml is connected to: Kleopatra, Jamesabyme@gmail.com, Pierre Glet, viall@os.umu.se, Roland Kübert, None, jorge.ajarque@os.c.e, petters@os.umu.se, in.mogione@sap.com, Juan Luis Prieto.

Post Frequency Chart:

Month	Posts
30. Jan	0
13. Feb	2
27. Feb	2
12. Mar	3
26. Mar	5
9. Apr	3
23. Apr	3
7. May	1
21. May	1
4. June	2
18. June	0
2. Jul	1
16. Jul	0
30. Jul	0

Example

The screenshot shows a web application interface with a navigation bar at the top containing 'BROWSE', 'SUBSCRIBE', 'PROJECT OVERVIEW', and 'LOGIN'. Below this is a search section with tabs for 'General search', 'Duplicate issue detection', 'Issues related to my code', and 'Suggest issues for a developer'. A search input field contains 'Angela Ruml'. Below the search bar are filters for 'Issues', 'Commits', 'Forums', 'Mailing lists', and 'Wiki', along with a 'Search' button.

The main content area is divided into two columns. The left column displays a list of issues, each with a sun icon and a date. The first issue is by 'Kleopatra' (2012-07-04) with the title '2nd Graphical Design' and several points discussed. The second and third issues are by 'Angela Ruml' (2012-06-28) and are marked as duplicates. The right column features a 'Word cloud' tab, showing a visualization of terms related to the search results, with 'bug' being the most prominent word.

At the bottom of the interface is a bar chart showing the number of posts over time. The y-axis is labeled 'Posts' and ranges from 0 to 7.5. The x-axis shows dates from 30 Jan to 30 Jul. The chart shows a peak of 5 posts in late March.

Date	Posts
30 Jan	0
13 Feb	0
27 Feb	2
12 Mar	2
26 Mar	3
9 Apr	2
23 Apr	3
7 May	1
21 May	0
4 June	1
18 June	0
2 Jul	2
16 Jul	1
30 Jul	0

Example

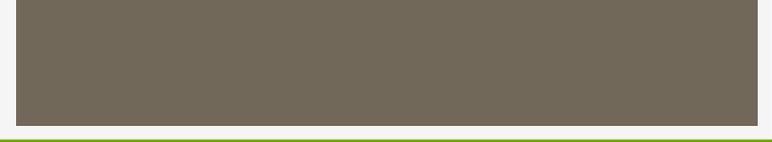
The screenshot shows a project issue tracking interface. At the top, there are navigation links: BROWSE, SUBSCRIBE, PROJECT OVERVIEW, and LOGIN. Below this is a search bar with the number 439. The search filters are: Resolution (None, Fixed, WontFix, Invalid, Duplicate, WorksForMe, Unknown) and Status (Open, Verified, Assigned, Resolved, Closed). A 'Search' button is located to the right of the filters.

Below the search bar, there are three tabs: 'General search', 'Duplicate issue detection', and 'Issues related to my code'. The 'Issues related to my code' tab is selected. Below the tabs, there are three issue cards:

- Jamesabyrne@gmail.com** (2011-12-11): Stop application does not work; while the same action done via command line directly on WP4 functionality works. sim: 38%. Fix the calls to SOA.
- Srijith Nair** (2012-04-01): When using the database backend data are never saved. sim: 20%. I have initialized the repositoryFile.rdf (committed in frontend-dash-board) using restTestet Initializer that i have upgraded to use 0.0.2-SNAPSHOT for API and SOA-commons. The point is that now.
- Enric** (2012-03-19): ServiceManager External Repositories. sim: 11%. Problem: There are external repositories defined in the root POM of the component. Action: Remove the repositories from the root POM of the folder and check that the modules...

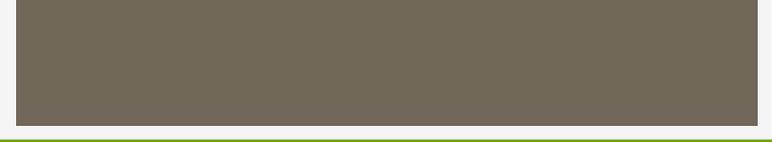
At the bottom, there is a bar chart showing the number of posts over time. The Y-axis is labeled 'Posts' and ranges from 0 to 7.5. The X-axis shows dates from 30 Jan to 30 Jul. The chart shows a peak of 5 posts on 26 Mar and another peak of 3 posts on 23 Apr.

Date	Posts
30 Jan	0
13 Feb	0
27 Feb	2
12 Mar	2
26 Mar	5
9 Apr	3
23 Apr	3
7 May	1
21 May	1
4 June	0
18 June	0
2 Jul	2
15 Jul	1
30 Jul	0



Thank you

- Questions?



Thank you

- Questions?