

# Synchronization problems in parallel activity of SmartScribo blog processors

Rustam V. Kadirov, Dmitry G. Korzun, Ivan V. Galov

Petrozavodsk State University  
Department of Computer Science



This project is supported by grant KA179 of Karelia ENPI - joint program  
of the European Union, Russian Federation and the Republic of Finland



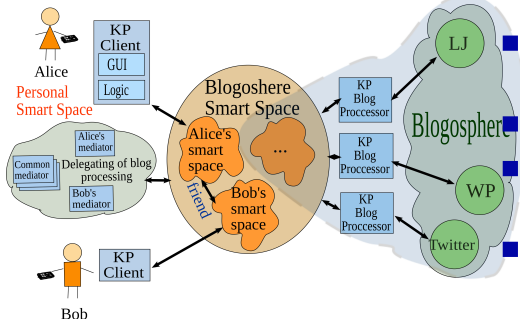
11<sup>th</sup> FRUCT conference  
April 23–27, Saint-Petersburg, Russia

# Table of Contents

- 1 Review of Smart-M3 platform
- 2 Infrastructure of blog processors
- 3 The task of synchronizing blog processors
- 4 The task of authorization on services
- 5 The task of data integrity
- 6 Conclusion



# SmartScribo system

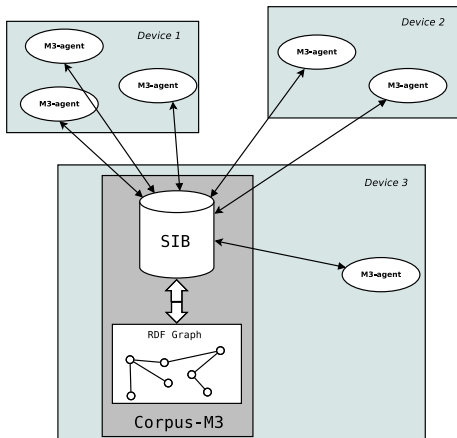


## Problems:

- RSS and Twitter in SmartScribo system
- Blog processors classification
- Authorization on blog services
- Protocol for synchronization interaction of blog processors
- Problem of data consistency



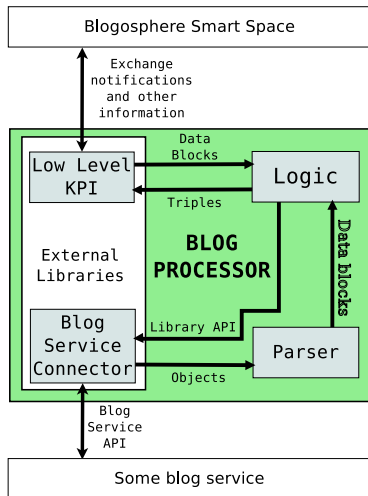
# Smart-M3 platform



- Open source software project
- For each service own agent
- Ontological representation of data
- SmartSlog as Smart-M3 SDK



# SmartScribo blog processors



- Registration/authorization of user
- Recieving information about user
- Operate with posts and comments
- Operate with friends
- Multiblogging
- Notifications system



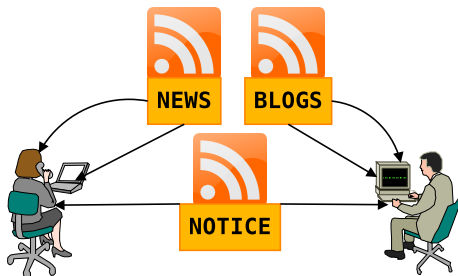
# Classification of blog processors

Type	Subtype	Blog processor
Bidirectional	Standart	BP-LiveJournal
	Reducing	BP-Twitter
	Mixing	None
Only reading	With registration	None
	Without registration	BP-RSS
Multiblog Integration	None	None
	None	None



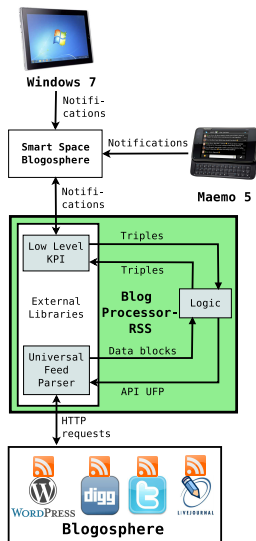
# RSS in SmartScribo

- Describing rss feeds and changes in blogs
- Without registration
- Access only for reading



# Current implementation (BP-RSS)

- Work in read-only mode with following blog services:  
Twitter, LiveJournal,  
WordPress Digg
- RSS support was implemented in following blog clients: Windows Maemo5

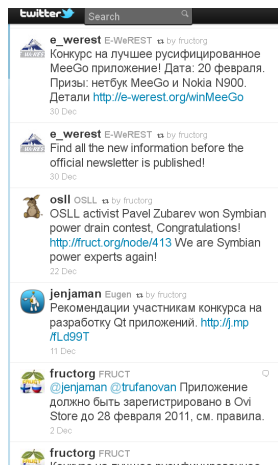




# Blog service Twitter

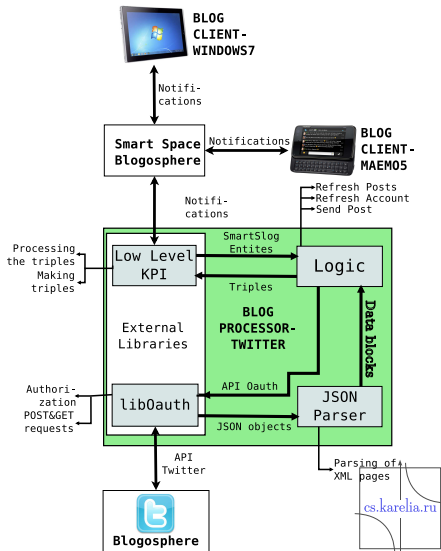
Twitter is reduced blog service

- Length of messages less than 140 symbols
- Messages do not have comments
- System of friends is replaced by system of followers



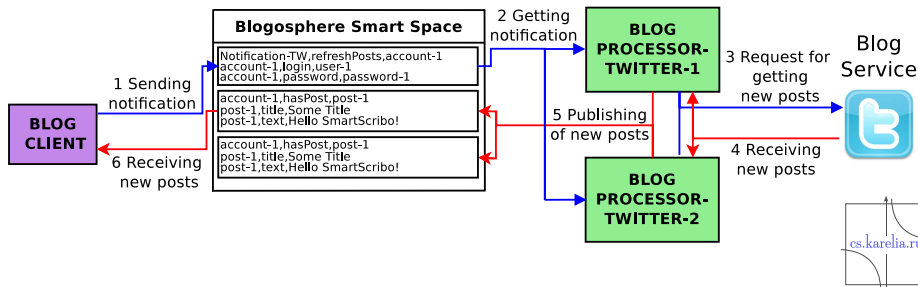
# Currents implementation (BP-TW)

- Authorization on service
- Send or delete post on service
- Recieving list of posts
- Using of SmartSlog library
- Blog processor Twitter support in Maemo5 and Windows blog clients



# Duplication of information with two or more blog processors

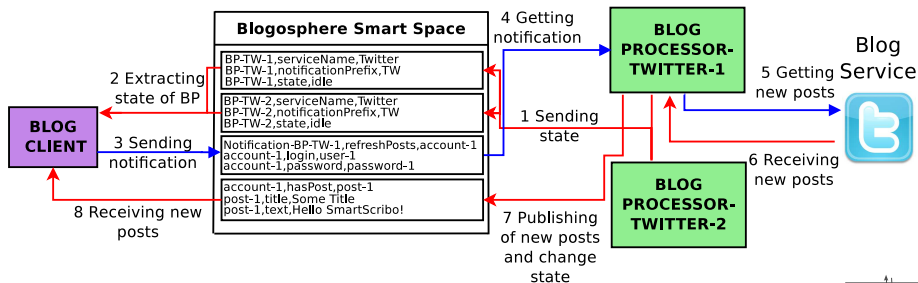
- Two or more blog processors operating with same blog services
- One notification from any blog client
- Duplication of information in Smart Space blogosphere



# Synchronization of work

## ■ Modification of notification system

- ▶ Sending current state of blog processors
- ▶ Receiving current state of blog processors on blog client side
- ▶ Sending notification to first free blog processor



## ■ Reducing duplication of knowledge



# Store personal information needed for authorization

- Problem of storage with oauth keys and password of user
- Threat of security

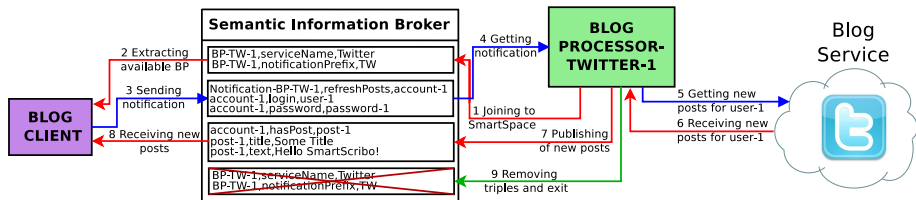
Possible solution:

- Waiting new version of Smart-M3 with some security system
- Own system of security



# Dynamical join/leave of blog processor

- Lost information because of unexpected appearance and disappearance of blog processors
- Losing of user data or some links between data



- Special knowledge processor for analysing of Blogosphere Smart Spaces
  - ▶ Removing duplication of data
  - ▶ Recovery of lost data



# Metrics of project

## ■ BP-RSS:

- ▶ Python 2.7.1+
- ▶ M3-Python KPI 0.9.2 library
- ▶ Python feed parser 5.1.1 library

## ■ BP-Twitter

- ▶ ANSI C 99
- ▶ SmartSlog SDK 0.37alpha
- ▶ OAuth 0.9.6 library
- ▶ JSON-C-parser 0.9

<b>Blog processor</b>	<b>Code lines</b>	<b>Comment lines</b>	<b>Total lines</b>
BP-RSS	680	126	970
BP-Twitter	2285	838	3123



# Results

- Classification of blog services
- Blog processor-RSS  
`http://gitorious.org/smart-scribo/smart-scribo/trees/master/BlogProcessor/rss`
- Blog processor-Twitter  
`http://gitorious.org/smart-scribo/smart-scribo/trees/master/BlogProcessor/twitter`
- All blog processors deployed on server `maemo-m3.cs.karelia.ru`
- Realization of authorization on services, which use OAuth
- Protocol of synchronization interaction of blog processors for reducing duplication of data
- Concern the problem of data integrity

