

Multi-Blogging with Scribo 0.3x

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Abstract

Social networks and their services such as blogging cover a large part of today's Internet. Mobile access to services is also becoming popular since users would like to be presented in their social network independently on their current location. Furthermore, users need a universal tool for participating in several social networks at the same time. In this progress report, we describe the current state of FRUCT R&D project Scribo from Petrozavodsk State University. Scribo is a non-browser mobile multi-blog client to existing blog services. It is primarily targeted to Maemo/MeeGo for Nokia N900 mobile computer. The recent Scribo release is 0.3x focusing on multi-blogging features. In contrast to the previous releases, it provides a common mechanism at the client side to work in parallel with several blog services for receiving, sending, and manipulating messages, including support for comments.

I. INTRODUCTION

Blogging is a typical example of the increasingly growing popularity of social networks [1]. There exist many blog services available in the Internet for public and private use: Livejournal [4], Blogger [5], WordPress [6], and Twitter [7] to name a few. Blogging provides a way for many users to participate in distributed discussions on various topics, forming a social network of bloggers. Note that a lot of small- and medium- scale blog communities are organized by deploying own blog service on top of a popular blog engine. For example, the FRUCT Maemo/MeeGo community uses blog service at <http://meego.fruct.org> on top of LiveStreet.

We consider two important directions in social networking. The first one is mobility when users would like to be presented in their social network independently on current location [2]. As a result, many mobile blog clients now are under active development and coming into the market. The second one is multi-use of several social networks when their user would like to participate seamlessly in multiple networks at the same time [3].

This paper is a progress report of Scribo [9], [10], an R&D FRUCT project at Petrozavodsk State University [8]. The project develops a non-browser mobile multi-blog client for Maemo/MeeGo. Note that the browser user interface is designed for PC, thus a browser-based solution is not friendly for small screens, tiny keyboards, and non-mouse control. Recently, many blog services provide API and RSS support to access blog discussions without web-based mechanisms.

The reasons and implementation details of Scribo as a non-browser mobile blog client were presented in our previous publications [11]–[15]. In this paper, we focus on multi-blog features that appear in Scribo release 0.3x (project iteration IV: May–November 2010). Table I shows the basic blogging terminology. In contrast with the previous releases, Scribo 0.3x can operate effectively with multiple blog services in parallel for receiving, sending, and manipulating messages. Its multi-blog model is based on common lists that accumulate discussions from

TABLE I
BASIC BLOGGING TERMINOLOGY

Blog	Web log, online journal or diary of events. The key difference from traditional diaries: blogs are open and usually involve third-party readers who may publicly debate with the author.
Blogger	A person who has an account at blog service. She can be an author of one or more blogs at this service and can send comments to own or others' blogs.
Lurker	A person who only reads blogs. No account is needed.
Post	The first message written by the blog author to opens discussion on a specific topic.
Comment	A message from author or other bloggers (friends) that continues the discussion. Comments are written in response to one of the previous messages.

several blogs. The same message can be duplicated to several blogs. Various filter/search and sort operations for these lists are available.

The rest of the paper is organized as follows. Section II demonstrates blogging scenarios of Scribo and introduces our blog and multi-blog models in comparison with some popular blog clients. Section III describes the architecture of Scribo and other important implementation details. Section IV concludes the paper.

II. BLOGGING AND MULTI-BLOGGING WITH SCRIBO

The current version of Scribo supports Livejournal [4] and several its clones (Blurty, InsaneJournal, DreamWidth). Additional blog services are in progress. Access to blog services is via API. User profile integrates the data of user accounts from all her/his blog services.

The basic blogging functionality of Scribo is similar to browser-based solutions. A blogger can view and edit her/his profile as well as make blog postings/comments. In contrast to the browser-based approach, GUI is simplified as much as possible in accordance to the specific of mobile computers. Example screenshots are shown in Figures 1 (a), (b), and (c). For the better mobility Scribo uses its own local database that is similar to web caching while is more flexible when Internet access is temporarily unavailable. More details about this blogging can be found in our previous publications [11]–[15].

As a new feature of Scribo, release 0.3x implements support for comments. A blog discussion is represented as a tree. Refresh operation is available. An interesting problem is deletion of comments since comments to comments are possible. Our solution is a recursive lookup for undeleted children in the tree from the comment to delete (a root of comment's subtree).

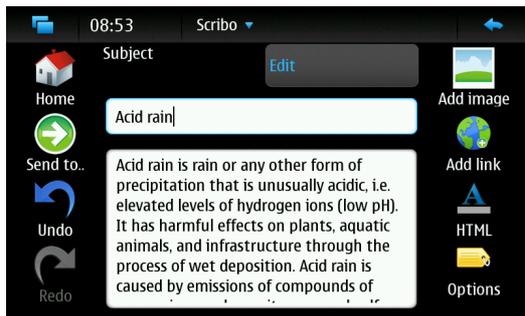
Scribo's multi-blogging model is demonstrated in Figure 1 (d). Let Alice have accounts at Livejournal and Wordpress owning her blogs there. Bob is a Livejournal blogger. In his Livejournal account he made Alice a friend to read and comment Alice's Livejournal blog. On the other hand, Bob is a Wordpress blogger who is interested in Alice's Wordpress blog. Alice would like to participate in both her blogs in parallel; some messages are the same, some other can differ. In addition, Alice also can make Bob and Tim as her friends to read and comment their blogs.

Scribo provides a seamless way for multi-blogging when user manipulates with common lists of messages. One list is for own blogs; it merges discussions from all accounts of the user. Another common list is for all blog messages from friends, again from multiple services. Filter/search and sort operations are applicable to a common list. User can find those messages that contain certain keywords. Filters support unread, time, and text pattern criteria. Sorting posts by date, title, or other criteria is also useful for efficient blogosphere crawling.

Scribo supports message duplication when a message can be sent to several blogs. Now user can simply select the destinations for her/his message. This operation is useful when a



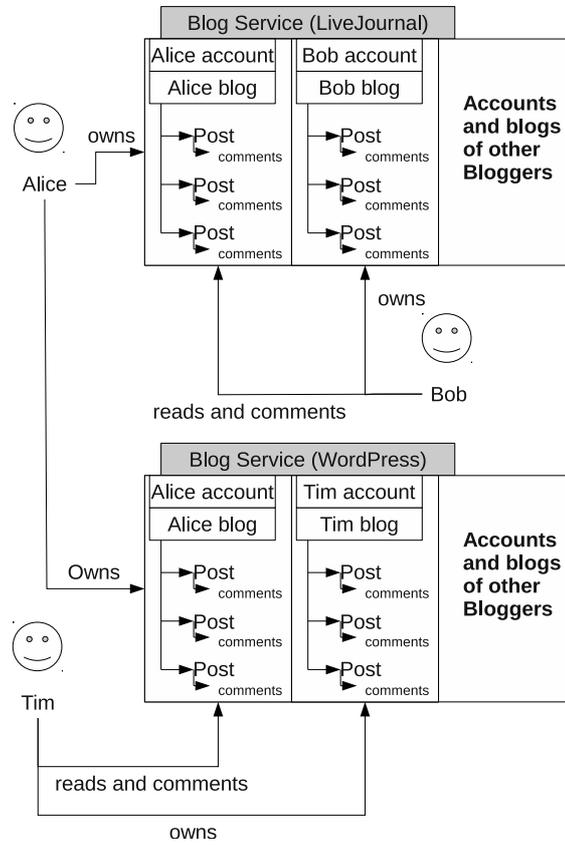
(a) List of own posts



(b) Write a post



(c) Tree of comments



(d) Multi-blogging model example

Fig. 1. Blogging and Multi-Blogging with Scribo

discussion needs to be more widespread in the blogosphere.

User can construct specific common lists if needed. Note that the same user can maintain several blogs at the same service. Similarly, a blogger can participate in several groups at the blog service (several bloggers maintain cooperatively their group blog). Both scenarios are also supported by our multi-blog model. In fact, the model allows a user to operate with multiple blogs as if it is a single blog.

There exist several blog clients for Maemo/MeeGo as well as for other mobile platforms like Symbian or iPhoneOS. Table II compares Scribo with some popular clients. Cells marked with '?' means that the documentation does not provide enough information about availability of the feature, and further analysis is needed. To this moment, we can conclude that multi-blogging in mobile clients is presented poorly, especially in Maemo/MeeGo blog clients. Scribo 0.3x outperforms them in multi-blogging features and support for mobile work.

TABLE II
SCRIBO AND OTHER BLOG CLIENTS

Feature	Scribo	Mastory	Mauku	PicoBlogger	BlogPress
Platform	Maemo	Maemo.	Maemo	Symbian	iPhoneOS
Blog services	LiveJournal, DreamWidth, InsaneJournal, Blurty	LiveJournal, Blogger, WordPress, Drupal	Twitter, Identy.ca, Qaiku	LiveJournal, Blogger, TextAmerica, MovableType, TypePad	LiveJournal, Blogger, TextAmerica, MovableType, TypePad, MSN LiveSpace, WordPress, Drupal, Twitter
Posts	Reading, Writing, Editing, Deleting	Reading, Writing, Editing, Deleting	Reading, Writing	Reading, Writing	Reading, Writing, Editing
Comments	Reading, Writing, Screening, Freezing, Deleting	Reading, Writing	Reading	Reading, Writing, Notifications	?
Friends and Groups	Reading, Writing, Deleting	—	Reading	Reading, Writing	Notifications about updates
Cross-posting	Yes	No	?	No	Yes
Cache	Yes	Only for drafts	?	?	?
Offline mode	Yes	Drafts only	?	?	Drafts only
UTF support	Yes	No	?	?	?
WYSIWYG-editor	No	Yes	?	?	Yes
Images in posting	links	Flickr, Picasa	links	yes	Flickr, Picasa
Multiaccounts	Yes	No	?	?	?
Categories and Tags	Tags	Yes	?	?	Yes

III. ARCHITECTURE AND IMPLEMENTATION

Scribo is a Python application. Its high-level architecture is shown in Figure 2.

Local info space stores user profiles and caches blog content (posts and comments). Driver Database (SqlDriver) is a wrapper to implement the storage on top of SQLite library. Caching the blog content supports the offline mode, typical in a mobile environment. Synchronization

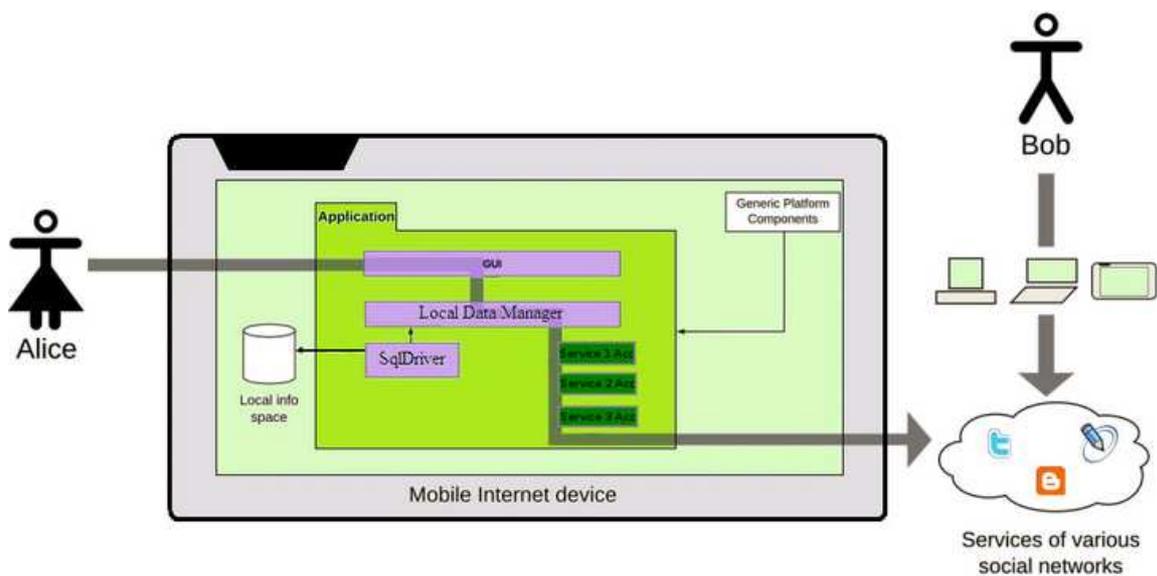


Fig. 2. Architecture of Scribo

with the blog services happens in the online mode. The concentration of content locally supports multi-blog scenarios, which require joint analysis of data from several blogs.

Local Data Manager (LDM) implements the application logic, orchestrating the data and control flows between the user, her/his blogosphere, and local info space. LDM performs data processing in accordance with blogging and multi-blogging scenarios.

Table III shows the possible mechanisms for communication with a blog service. Network communication is implemented as a set of scripts, one for each blog service. Blog service API must allow reading and writing posts, messages and comments as well as the login/logout/account function. The Livejournal support uses XML-RPC API. For abilities not provided by API we use URL-requests based on Python urllib.

TABLE III
COMMUNICATION WITH BLOG SERVICES

Mechanism	Reading	Writing	Notes
API	+	+	Requires authentication
RSS	+	-	Authentication is not necessary
HTTP	+	+	Requires authentication and parsing of HTML-pages

Graphical User Interface (GUI) is written with PyQt library. Blog messages are simple HTML pages. We use WebKit engine for hypertext visualization. Note that WebKit has own mechanism for caching images.

The internal architecture of Scribo follows the object oriented paradigm as shown in Figures 3 (a) and (b). Every window in GUI is inherited from parent class **MainWindow**. The latter contains basic definitions and methods. Blogosphere elements are represented with class **Message** for posts and comments and class **Account** for accounts of the user and her/his friends. The former class unifies the representation of hypertext blog content. The latter class unifies access to blog services, and each blog service requires a new class inherited from **Account**. Class **Profile** collects all accounts of the user.

This architecture is based on ORM (object-relational mapping) for storing objects in SQLite database. Class **Structure** implements the ORM model. For example, all fields of a message object is a record in table 'Messages' in the database.

Table IV summarizes the code metrics. There are four subsystems with 42 units in total. The

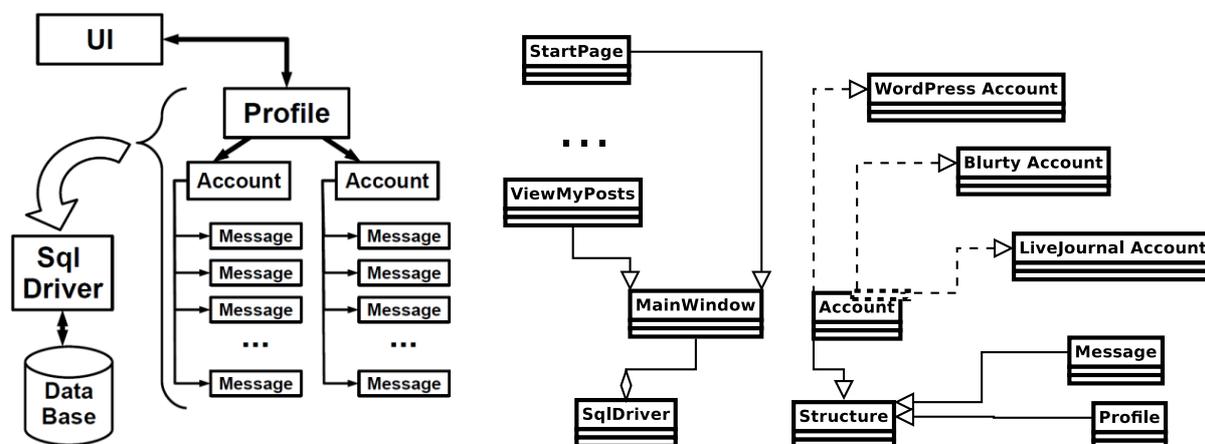


Fig. 3. Object-oriented design: architecture and basis classes

TABLE IV
CODE STRUCTURE AND METRICS (25.9.2010)

File *.py	Description	Classes/Methods	LOC
Main			
About.py	Information about current version of scribo	0	18
BugReporter.py	Subsystem for auto-posting of errors to project bugzilla	1/3	152
ConfigDriver.py	Work with config file	1/4	118
Misc.py	Provides some utilites functions	0/2	35
ScriboExc.py	Provides Internal Scribo exception classes	3/5	70
Scribo.py	Contains main function of application	0/1	84
Total:		4/12	307
User Interface			
AddComment.py	Implements Add comment Window	1/5	194
AddPost.py	Implements add post window	1/19	614
AddProfile.py	Implements add profile window	1/9	283
HomePage.py	Implements Home window	1/10	243
InfoFriends.py	Implements Window with information about friend	1/4	82
ListFriendsPosts.py	Implements Window which show posts of out friends	1/8	133
ListFriends.py	Implements viewing list of friends from UI	2/13	269
ListMyPost.py	Implements viewing list of post	2/25	654
MainWindow.py	Implements main window	1/13	314
RepeatPost.py	Implements repeating of posts in UI	1/6	208
StartPage.py	Implements Start page of application	1/5	176
ToolBarWindow.py	Implements base class for window with Toolbars	1/2	52
TreeMessage.py	Implements tree of comments representation	3/25	360
ViewMessage.py	Implements viewing of message	1/17	401
Total:		14/161	3987
Local Data Manager			
Account.py	Definition of Account class	1/51	713
Dreft.py	Contains functions for work with drafts	0/1	22
Message.py	Definition of Message class	1/39	700
Profile.py	Definition of Profile class	1/10	255
SqlDriver.py	Provides access to database	1/6	252
Structure.py	Abstract ORM-structure, base for Account, Profile, Message	1/11	211
Total:		5/118	2152
Services support			
BlurtyAccount.py	Provides support of Blurty service	1/5	112
Dispatcher.py	Manage list of avalible services	1/5	84
DreamwAccount.py	Provides support of DreamWidth service	1/3	52
InsanjAccount.py	Provides support of InsaneJournal service	1/3	52
LivejAccount.py	Provides support of LiveJournal service, base class for DreamwAccount, BlurtyAccount and InsanjAccount	1/43	1250
LjCommentUtils.py	Contains utilities functions for proccess LiveJournal-like comments	2/7	190
ProxyedTransport.py	Proxy class for XML-PRC	1/4	50
Service.py	Contains base class for all modules with services	1/1	30
Total:		9/71	1827
Total in application:		32/362	8273

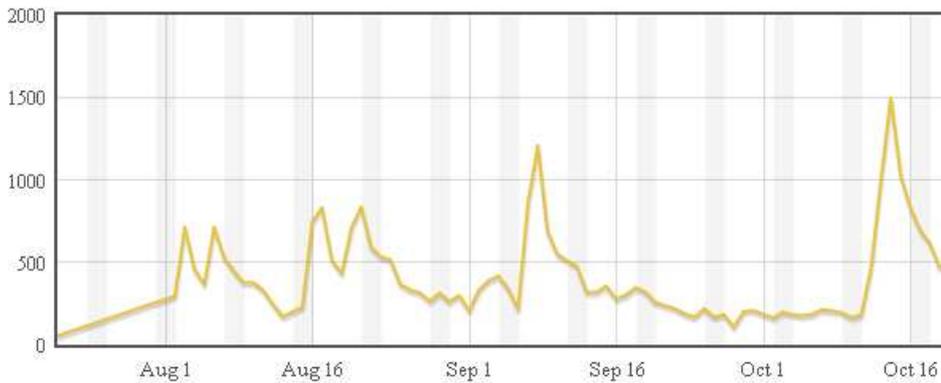
Python code is more than 10 KLOC. In addition, own testing system consists of about 3 KLOC in 17 units.

IV. CONCLUSION

The key feature that appeared in Scribo 0.3x are support for comments and for multi-blogging elements. The developers and users community can publish their feedback for the Scribo team using web resources listed in Table V.

TABLE V
SCRIBO WEB RESOURCES FOR THE COMMUNITY

Resource	URL
Project page at the maemo garage	http://scribo.garage.maemo.org/
Public Gitorious repository for source code	http://gitorious.org/scribo-client/
Project page at the FRUCT site	http://fruct.org/node/92/
Packages at the maemo repositories	http://maemo.org/packages/view/scribo/
Bug tracking system	http://oss.fruct.org/bugzilla/
Developers wiki-page	http://oss.fruct.org/wiki/Maemo-Blogs/
Maemo garage resources	http://garage.maemo.org/projects/scribo/
Blog about Scribo at LiveJournal	http://scribo-journal.livejournal.com/



Last update: 2010-10-21 18:20 UTC

<http://maemo.org/download-stats/index.php?unixname=scribo&os=Maemo5&repo=extras>

Fig. 4. Scribo download statistics

The Scribo package has had more than 25000 downloads (by October 2010) from the maemo repository, see Figure 4. The peaks correspond to publishing a release. Since the peak height is growing, it means that Scribo users community increases. We can assume that there are a few thousand of regular Scribo users.

Recently we have started a new project for Scribo development. Its goal is to construct Scribo using the smart space paradigm and open platform Smart-M3 [16].

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