The Design And Implementation of News Reader Based on RSS Technology

Abstract-In the face of the situation that the network information is constantly increasing and updating, RSS provides a way to realize information sharing in the Internet age. For the technology of pushing information in RSS, which can be used in dynamically aggregate multi-source information, provide personal service and efficient information, this paper puts forward the application of pushing technology to the field of online news reading. This paper introduces the basic concepts and characteristics of RSS, and then designs and develops the news reader in detail based on the RSS technology, making obtain large amount of information on the Internet in a rapid and efficient way.

Keywords: RSS technology; Information Aggregation; RSS Reader

I. INTRODUCTION

The rapid development of the network makes the number of web pages is more and more huge. In order to get the information they need, people usually browse a large number of web pages, this is not only a waste of time, but also can't be able to get the latest and complete information certainly. On the other hand, information publishers also hope that more users can read their information in a high-speed way[1]. In this case, RSS technology is bred and born.

RSS is a convenient way to publish the information of interest. RSS supports XML data, which contains a simple abstract of the complete information source. If the user is interested in these abstracts, they can obtain further information and view all of the content. RSS provides title and abstract of news for Internet users. It acts like a sieve, filtering a large number of "useless" information, and directs to the needing pages for users in a traffic-saving way. Users can read by the RSS reader, don't need to surf the Internet to find the latest information. Convenient and active delivery are the most valuable advantages in subscription of RSS[2].

II. OVERVIEW OF RSS TECHNOLOGY

A. Concept of RSS

RSS (Really Simple Syndication) is a kind of content packaging and delivery protocol based on XML standard, which is widely used in the nternet. RSS(Really Simple Syndication) is a format of description and synchronization the content of the web site, which is the most widely used XML application. RSS set up a technology platform for the rapid spread of information, making each person can become a potential publisher of information. After an RSS file is published, the information of it can be directly invoked by other sites. Since these data is standard XML format, so it can be used in other terminals and services.

B. Character of RSS

RSS technology has great advantages in information aggregation and information push[3]:

(1)Many kinds of personalized aggregation of information: RSS is a widely used defmition format of content packaging, so every source of information can be published by this method. At the client end, RSS reader is in accordance with the preferences of the user, selected corresponding content to aggregate in the software. In this way, any form of content can be transported.

(2) Information filtering: through the RSS reader or the web site, users can subscribe information on their own interest, the choice of information sources and information content can be determined by the user. Through the choice of user, which can shield the information that isn't selected by users, such as a variety of advertising and spam, RSS provides users with "no pollution" and "personalized" information

(3) The high timeliness of information and the low cost: The information subscribed is always updated with source site at the same time, once there is anything to be updated, the new content will be sent to the user in real time. RSS technology is very simple, which is almost a one-time work, making the cost of long-term information publish is almost zero. That is to say the cost is very low.

(4)Easy to use: It is simple for user to operate it, subscribing or cancelling the RSS information is just in a reader window to operate.it does not need to connect to other sites, and does not need any account and password, which greatly simplifies the user's operation process. Users only need to open the RSS reader, so that they can read the information content immediately. In this way, Users can not only save time, but also improve the efficiency of retrieval.

The good initiative and efficient of RSS technology can push the information that meet the need of users in a timely manner; The advantage in the information aggregation can make the information which users need together, so that users don't have to log in a lot of Web sites every day to retrieve the information. So building personalized information service model based on RSS ,can provide information resources to

meet the need of users better, enhancing level of information service, and providing the thought to use advanced information technology to the develop information services.

III. REVIEW OF RELATED LITERATURE

Literature four[4] held the view that with the development of XML technology and the rapid growth of the blog group, RSS technology has gradually been widely accepted. That paper discussed the significance of RSS reader and analysed its situation, and studies showed how to realize the design concept of RSS reader's news aggregation function. Literature five[5] came up with that facing the fast raise and quickly update of online educational resources, this paper applied RSS , a typical technology in Web2.0, to the publish and subscribe of resources. Based on the analysis of the advantages of the RSS, the paper gave the construction method and the way of subscription, realizing automatic push and aggregation from online resource to the client, and improving the acquisition efficiency of information. Through the research of RSS technology, Literature 6[6] used Studio Visual 2010 to design and develop a reader, the reader is composed of three parts that is the channel list, the title area and the content area. The system runs well, and the retrieve of information is fast. Literature 7[7] thought that RSS is a simple way to realize information sharing in the mobile Internet era, through the RSS reader, we can read and get information efficiently and quickly. This paper firstly introduced the RSS technology, and then introduced and discussed the design scheme of RSS reader in Android platform in detail. Literature 8[8] put forward that distributed computing like cloud computing is quietly changing the network world, and RSS as the basic elements of new Internet applications, is quietly rising. The paper found the common point between the cloud computing and RSS through introducing definition, characteristics and development process of them, getting a conclusion that in the era of cloud computing RSS will make great progress. The paper emphatically introduces the function and role of the RSS reader and its prospects of development in cloud computing time. The idea of literature 9[9] is that RSS readers aggregated web content, such as journal abstracts, in a single location for easy viewing. It assessed whether use of an RSS reader would increase resident reading frequency, familiarity, and understanding of the primary literature.

IV. ANALYSIS AND IMPLEMENT AnON OF TECHNOLOGY

A. working principle

RSS is a way of organizing digital resources based on XML format, which is usually used for news and other web sites in order. An XML data file which is conformed to RSS grammatical standard called RSS Feed. The file usually uses RSS or XML as a suffix. RSS Feed is generally composed of a <RSS> element and its child element <channel>. Among them, RSS is the root element, the essential element is version which indicates that the current document follows the RSS specification. The <channel> element contains all the information and content of it. News in the channel is marked with <item>. According to the rules of grammar, the channel

can contain many child elements. Child elements contain <title>, <link>, <description> three essential child elements and a number of definitions of the optional child elements. The structure of a typical RSS Feed is as follows:

```
<rss version="2.0">
    <channel>
    … all kinds of information of channel
        <item>
            <title>title of information</title>
            <link>author of information</link>
            <description>description of information</description>
            <pubdate>time of publish</pubdate>
        <item>
        … other items...
    <channel>
</rss>
```

Content providers use RSS Feed aggregation software or aggregation portal site, periodically synchronizing feed. Users firstly read the abstract and then according to their own needs to read relate content, in the case of not opening the content page[IO]. The comparison between RSS reader and traditional way of information acquisition is shown in figure I and figure 2.
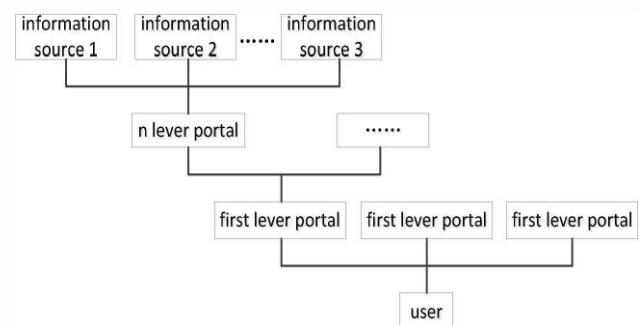

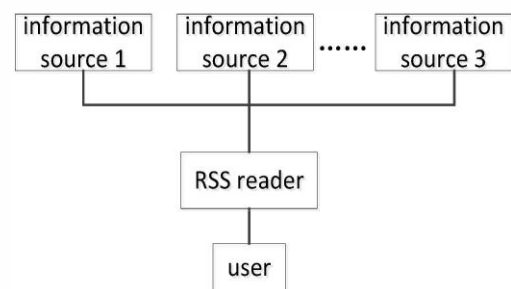Figure I traditional way of information acquisition

Figure 2 information acquisition based on RSS reader

B. function module

In this paper, the RSS reader is composed of four parts , including the menu bar, channel list, title area and the display area, realizing the function of open, view, add and save of news

channel. Among them, the menu bar is on the top of the reader. Channel list area is located on the left side of the main body. The title area is located on the top right, including the information of title, author and publishing time. The content display area is located in the lower right of the main body, used to display specific content of selected information. Model shows as figure 3.
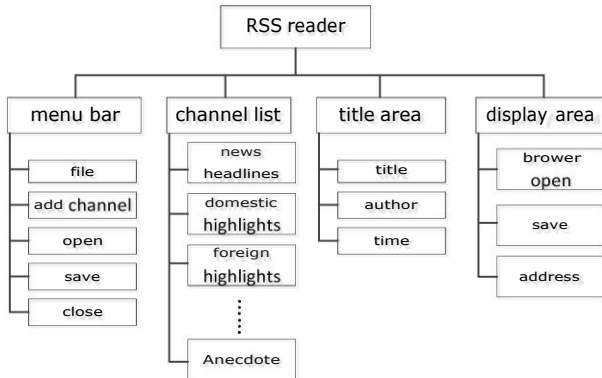

Figure 3 function model

C. Function realization

The paper mainly uses OPML file in Sina News, that is outline processing markup language. It is the Standardized XML file format, so this time the main source of RSS news channel is from Sina website .

There are two data models that are RSS Feed and RSS Item. RSS Feed is the data of RSS source. RSS item is used to get detail information of news, including author, title, time, link and description. The crucial codes are as follows.

```
public class RSSFeed  {

    private List<RSSltem> altern;

    ……
}
public class RSSltem  {

    private String title = null;

    private String description = null;

    private String pubDate = null;

    private String author = null;

    private String link = null;

    ……
    }
```

One of the main functions of the RSS reader is to parse the XML file, which uses Jdom to parse the captured XML news, and then the parsed file is displayed in a text field. mOM combines the advantages of DOM and SAX. The XML document is represented as a tree, at the same time it does not require to put entire XML file into memory, reducing the system overhead[ll]. The process of how Jdom processes XML file is showed as figure 4.
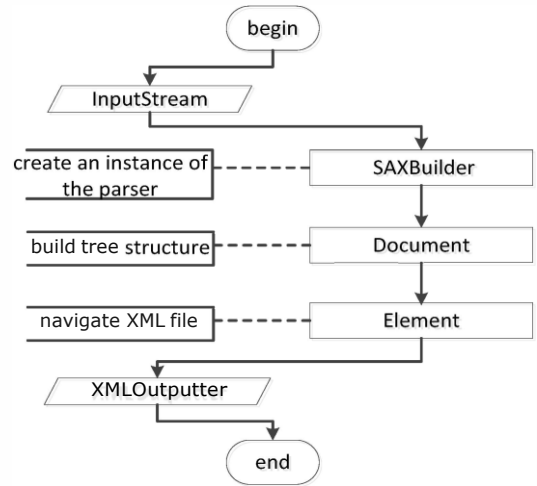

Figure 4 mOM parse XML file

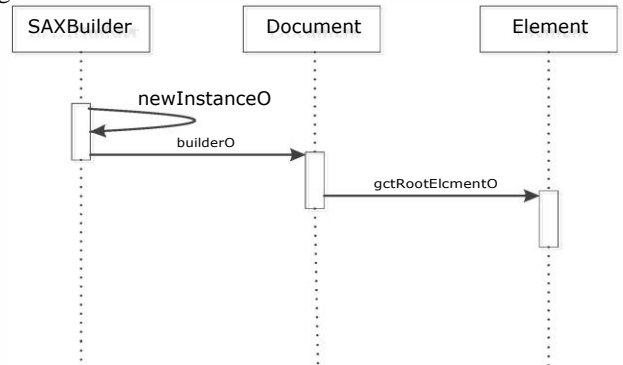Timing diagram of mOM parsing XML file is showed in figure 5.

Figure 5 Timing diagram of mOM parsing XML file

Crucial codes are as follows:

```
public boolean RSS]raserO  {

……
if (doc != null) {

Element root = doc.getRootElementO;

Element Channel = root.getChild("channel");

@SuppressWamings("unchecked")

 List<Element> Items =  Channel.getChildren("item");

for (Element Item : Items) {

RSSltem rssltem = new RSSltem();

rssltem.setTitle(ltem.getChild("title").getTextO);

rssItem.setDescription(ltem.getChild("description").getTexto);

rssItem.setPubdate(Item.getChild("pubDate").getTextO;

rssltem.setAuthor(ltem.getChild("author").getTextO);

rssItem.setLink(ltem.getChild("link").getTextO);

aRSSFeed.setItem(rssltem);
```

D. Function display

The RSS reader in this paper is developed in Eclipse integrated development environment, using Java language in MVC structure. The effect of reader is showed as figure 6.
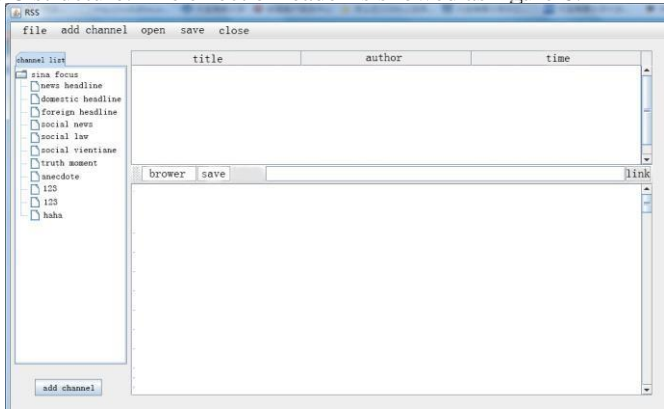

Figure 6 information of one channel

Since the technology of pushing infonnation in RSS has a number of advantages, such as aggregating mUltiple source infonnation, providing personal service, and high timeliness of information, this paper comes up with applying this technology to the field of online news, and develops a RSS news reader. The reader is fully reflected the concept of "take the user as the center", realizing that one click can read. In this way, users are able to browse and classify information at any time to help people obtain useful knowledge from the sea of data easily, which has important significance. The next step is to focus on the combination of RSS and cloud computing. According to the characteristic of distributed cloud computing, everyone not only is an infonnation collector, but also an information publisher. The user of a RSS reader can publish the information, comparing the information in the Internet. That is the way to contribute the communication of infonnation.

REFERENCES

[I] ZhangHanru,Research of focused Crawler about Group of university website based on RSS[D]..NanChang.:NanChang University.2012

[2] YangLixiang,ZhangTao,LiQingchuan.Research And Development About RSS news reader Based on Android platform[J].Moeden Science&Technology of telecommunications,2012,12:14

[3] Cheng Li.Rearch on Model of Personalized Information Service Based on Really Simple Syndication[D].XiAn: Xi'an Electronic and Science University.2013

[4] WangXiaoyue.Meaning and design concept of RSS reader[J].Science &Technology Information,2014,I4:I6

[5] ZhaiJun,ChenHongyu.RSS-based Online Educational Resource Publish and Subscribe[J].Computer Knowledge and Technology,2015,7:9

[6] JiaFeng.Design and Implementation of RSS Reader Based on C#[J].ModernComputer,2012,67:68

[7] ZhengJujie,ZhuXiangbin.The Design and Implementation of RSS Reader Based on Android Platform[J].Computer Knoledge and Technology,2012, 8183-8186

[8] MaXiaorui,XuMiaojun.The application of RSS Table Reader in the age ofCloud Computing [J].Science&Technology Information,2011,63:63

[9] Jenssen, Brian P; Desai, Bimal R; Callahan, James M. Randomized Controlled Trial of RSS Reader Use and Resident Familiarity With Primary Literature[J]. Journal of graduate medical education,2014,341:344

[10] ZhouJianfang,LiuGuifang. Construction of Personal Information Portal Based on RSS Reader[J].Science Information Development&Economy,2005,237:239

[Il] LiuYuxiao,YangYajuanXML Data Analysis Technique Based on JDOM[J].SoftwareTechnology,20I0,40:41