

New Communication Concepts based upon Advanced RSS Feeds

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Abstract

RSS feeds provide information through channels that can be subscribed. Updates in subscribed channels can be controlled by feed readers automatically – to make new information available to the user – immediately after the update. Today elementary RSS feeds are widely used for information dissemination. Advanced RSS concepts can improve communication concepts in many areas. Keywords - RSS, Feeds, XML, Communication

I. Introduction

RSS is a Web content syndication format. Its name is an acronym for **Really Simple Syndication**. All RSS files must conform to the XML 1.0 specification, as published by the World Wide Web Consortium (W3C).^{1,2,3}

RSS is used to provide items containing short descriptions of web content together with a link to the full version of the content. This information is delivered as an XML file called **RSS feed**, **RSS stream**, or **RSS channel**. The first online news site to use RSS feeds was Variety.com in June of 2002⁴. News services, broadcasters, financial service providers and some others used RSS feeds first. In 2004 and 2005, use of RSS spread to many other organizations.

RSS feeds offer different kinds of news in specific channels. People interested in specific news subscribe such channels using feed readers that look for new contributions in these channels. The user can read these new contributions immediately after the update of the items in the channels.

In the future the technology of RSS feeds – or similar technologies – will become part of information systems everywhere. New communication concepts use RSS feeds to distribute classified news within organizations, within projects, and teams. Feedback functions will be added.

II. Elementary Applications of RSS Feeds

Using RSS one can describe a channel with its items. Items include at least a title, a description and a link to a source with additional information about that channel. Figure 1 shows part of the channel of the BBC World News⁵ on the 29th of December 2004 with the first two items, one about aid disposed to the victims of the tsunami in December 2004 in the Indian Ocean, and one about an explosion in Bagdad.

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<rss version="0.91">
  <channel>
    <title>BBC News | World | UK Edition</title>
    <link>http://news.bbc.co.uk/go/click/rss/0.91/public/-/1/hi/world/default.stm</link>
    <description>Updated every minute of every day - FOR PERSONAL USE ONLY</description>
    <language>en-gb</language>
    <lastBuildDate>Wed, 29 Dec 04 10:34:52 GMT</lastBuildDate>
    <copyright>Copyright: (C) British Broadcasting Corporation,
    http://news.bbc.co.uk/1/hi/help/3281849.stm</copyright>
    <docs>http://www.bbc.co.uk/syndication</docs>
  </channel>
  <item>
    <title>BBC News</title>
    <url>http://news.bbc.co.uk/1/hi/shared/img/bbc_news_120x60.gif</url>
    <link>http://news.bbc.co.uk</link>
  </item>
  <item>
    <title>World boosts aid to wave victims</title>
    <description>Efforts are stepped up to get help to survivors of Sunday's disaster which left about 60,000 dead.</description>
    <link>http://news.bbc.co.uk/go/click/rss/0.91/public/-/1/hi/world/asia-pacific/4131437.stm</link>
  </item>
  <item>
    <title>Blast kills 28 during Iraq raid</title>
    <description>At least 28 people are killed in an explosion as Iraqi police raid a house in Baghdad, police say.</description>
    <link>http://news.bbc.co.uk/go/click/rss/0.91/public/-/1/hi/world/middle_east/4131479.stm</link>
  </item>
</rss>
```

Figure 1. BBC World News RSS Channel on the 29th of December 2004⁶ – with only 2 selected items.

Figure 2 shows the representation of this channel and its items by the feed reader RSS Bandit.

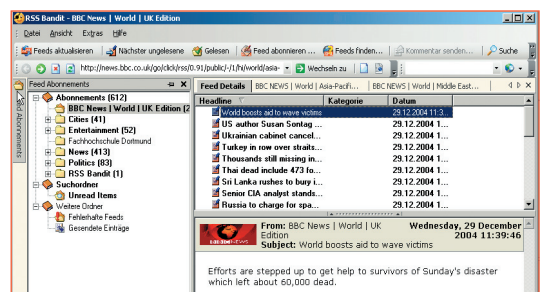


Figure 2. News feed of BBC World News represented by the RSSBANDIT⁷ feed reader.

The first item in the list of news the feed reader shows is titled “World boosts aid to wave victims”. Figure 3 shows the corresponding website.



Figure 3. The document in the link element of the first item⁸.

1) <http://www.w3.org/>
2) http://news.bbc.co.uk/rss/newsonline_uk_edition/world/rss091.xn
3) Ben Hammersley: Content Syndication with RSS, O'Reilly, 2003
4) http://en.wikipedia.org/wiki/Rss_feed
5) http://news.bbc.co.uk/1/hi/help/3223484.stm?rss=http://news.bbc.co.uk/rss/newsonline_uk_edition/front_page/rss091.xml
6) http://news.bbc.co.uk/rss/newsonline_uk_edition/world/rss091.xml
7) <http://www.rssbandit.org>
8) <http://news.bbc.co.uk/1/hi/world/asia-pacific/4131437.stm>

RSS feeds are used as news feeds worldwide (BBC, Yahoo⁹, Tagesschau, ...). Dozens of feed readers are available to manage the RSS feeds¹⁰. Feed readers support the subscription of feeds and the access to the items in the feeds. Feed readers "watch" the feeds subscribed, detect updates of feeds and restore the links to the updated feeds.

Fundamental tools like the Internet Explorer and MS-Outlook can be expanded to manage RSS-feeds.

In the future feed reader functions will more and more be integrated in such tools. RSS feeds will be improved regarding their functions and their integration into new communication concepts.

III. XSL Transformation for RSS Feeds

At the authors' institute RSS feeds for real business applications are partly derived by XSL transformations. This is a beneficial method especially when the sources are available in XML files.

In one case RSS feeds for the local power and water supplier DEW were transformed from XML files of news providers.

Figure 4 shows that RSS feeds for the categories water, gas, and electricity at the DEW website are derived from the sources of the news provider by various XSL transformations.

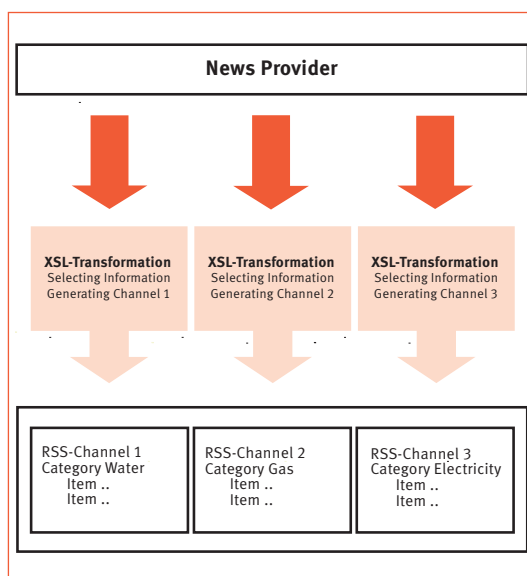


Figure 4. XSL Transformations Build RSS Feeds.

Figure 5 shows part of the XSL transformation – the part where RSS items are created.

```

- <xsl:for-each select="dataroot/item">
- <xsl:copy>
  <xsl:apply-templates select="item" />
- <xsl:element name="category">
  <!-- create name Element -->
  <xsl:value-of select="category" />
</xsl:element>
- <xsl:element name="title">
  <!-- create name Element -->
  <xsl:value-of select="title" />
</xsl:element>
- <xsl:element name="description">
  <!-- create name Element -->
  <xsl:value-of select="description" />
</xsl:element>
- <xsl:element name="pubDate">
  <!-- create name Element -->
  <xsl:value-of select="pubDate" />
</xsl:element>
- <xsl:element name="link">
  <!-- create name Element -->
  <xsl:value-of select="link" />
</xsl:element>
</xsl:copy>
</xsl:for-each>

```

Figure 5. XSL Transformation for RSS Feed

Figure 6 shows one item derived by this XSL transformation. This is part of the RSS feed at the DEW website for news that belong to the category water.

```

- <item xmlns:od="urn:schemas-microsoft-com:officedata">
  <category>Wasser</category>
  <title>Weltgrößten Kalt-Geysir sprudelt wieder</title>
  <description>Die Stadt Andernach einigte sich nun nach langem Streit mit Natursch&uuml;ttern auf ein naturvertr&uuml;gliches Konzept zur touristischen Nutzung des Geysirs in Andernach. Somit darf der weltweit ...</description>
  <pubDate>2005-05-11T00:00:00</pubDate>
  <link>http://www.dew.de/webentry.asp?G=621&A=2&N=104826&ID=374758</link>
</item>

```

Figure 6. Derived RSS Item for the RSS Feed

This kind of transformation will become more and more important since the amount of XML-based sources will grow and most database systems can create XML files. The selection of information for a channel can be done either by database export procedures or by the XSL transformation itself. The creation of all RSS channel and item elements should be done by the XSL transformation.

IV. Further Development

Most feed readers available today are restricted to the required RSS channel elements and the

9) <http://news.yahoo.com/>

10) <http://www.feedreader.com/>

11) www.dew.de

required RSS item elements (title, link, description), and only a few more.

Feedback elements of channels (textInput) and elements to classify items or channels (category) and other elements that are optional according to the RSS-specification typically remain unused today.

The following tables show part of the channel elements and all item elements according to RSS 2.0¹².

TABLE I
RSS Channel Elements

Channel-Element	Description
title	The title of the channel
link	The URL to the website corresponding to the channel
description	Phrase describing the channel
category	Specifies one or more categories that the channel belongs to
textInput	Specifies a text input box that can be displayed with the channel

TABLE II
RSS Item Elements

Item-Element	Description
title	The title of the item
link	The URL of the item
description	The item synopsis
author	Email address of the author of the item
category	Includes the item in one or more categories
comment	URL of a page for comments to the item
enclosure	Describes a "media object" attached to the item
guid	A string that uniquely identifies the item
pubDate	Indicates when the item was published
source	The RSS channel that the item came from

The important category element is available at channel level and at item level. So the categories at item level can be organized as subcategories of channel categories.

The development of RSS feeds will go along the following steps:

Elementary RSS feeds

Today RSS feeds are offered on web sites and submit unclassified contents through feed channels. Feed channels that were found on any web sites or through search engines are subscribed. Subscribers apply simple feed readers to get updated channels and to read the items and further information.

Advanced RSS feeds

In the future RSS feeds will be offered on web sites and will submit categorised contents by using special RSS elements in feed channels. Feed channels will be subscribed.

Subscribers will apply advanced feed readers to control the subscribed channels, to watch the items, to select items offered through the channel according to categories, and to give feedback to the provider or partner – using the standard textInput-element of RSS or new elements.

The areas of RSS applications will be expanded because new functions are available.

Integrated Communication Concepts

In the next step advanced RSS feeds will be integrated into new communication concepts for web-based communication. The integration of systems becomes more important than a poor dissemination of information.

Feeds combine internal and external sources and improve work flows. An improved semantical representation will support the integration.

The following figure shows the structure of an advanced RSS application, based upon various kinds of sources, multi-level classification, and user interaction.

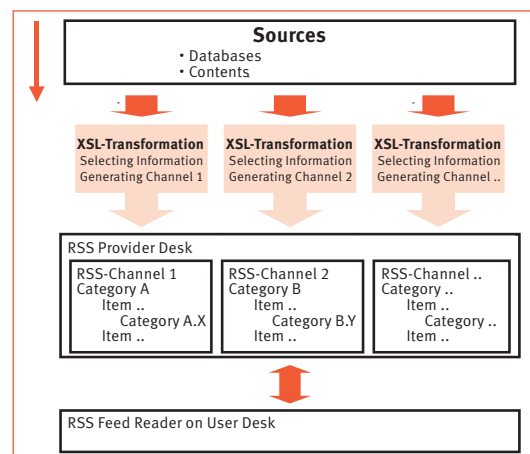


Figure 6. Interactive RSS with channels derived from different sources

12) <http://blogs.law.harvard.edu/tech/rss#hrelementsOfLitemgt>

V. Next steps

At the authors institute research and development on RSS is focused on following aspects:

- New RSS-applications are built especially in areas without experience in RSS-technologies so far, for example for power suppliers¹³ or institutes¹⁴. The experience derived from these projects is important for future communication concepts beyond those areas mentioned in the introduction.
- An advanced RSS-application is built to support project management. Here a special classification of feed items is implemented. Information dissemination in a project is an important issue – and RSS-channels can improve the dissemination of information and the transfer of information to other applications.
- To overcome some gaps in RSS-feed readers XSL-style sheets are implemented to support the selection of items and the transfer of selected items to other applications. An integration of feeds and other applications is established.

The RSS-application to support project management is based upon:

Channels for different kinds of stakeholders

- Project teams
- Departments, corporate groups, ...
- External partners of different types
- ...

Items are classified according to

- International standards - processes and knowledge areas derived from the PMBOK®^{15 16}, of PMI¹⁷® for example, and the new concepts of OPM3®¹⁸
- Standards of application systems – for example ASAP®¹⁹ with specific phases and tasks for SAP®²⁰-projects
- Standards of special user groups like the V-Model²¹ for governmental projects in Germany
- Categories derived from tasks, resources and other elements of individual projects
- Organisational standards (work flow, phases, document types, ...)
- Importance, risk, ...
- ...

This application is a prototype for advanced RSS-applications.

Focused channels, classified items and new procedures to select and transfer information on an open XML platform improve the concepts of feeds, expand the functions of feed readers, and establish new communication concepts.

References

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- [2] T. Schulwandt, RSS Anwendungen, Project Thesis, Dortmund, 2005.

13) for example at DEW in Dortmund

14) for example at ECLASS Cologne

15) http://www.pmi.org/prod/groups/public/documents/info/pp_pmbok2000welcome.asp

16) <http://www.pmibookstore.org/PMI BookStore/productDetails.aspx?itemID=358&varID=1>

17) www.pmi.org

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