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Feed Feeds: Managing Feeds Using Feeds

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Abstract

Feeds have become an important information channel on the Web, but the management of feed metadata so far has received little attention. It is hard for feed publishers to manage and publish their feed information in a unified format, and for feed consumers to manage and use their feed subscription data across various feed readers, and to share it with other users. We present a system for managing feed metadata using feeds, which we call *feed feeds*. Because these feeds are Atom feeds, the widely deployed Atom and AtomPub standards can be used to manage feed metadata, making feed management available through an established API.

Contents

1 Introduction

Feeds have become an important part of Web technology and information management. They are used as important tools for information access and aggregation [3], and an increasing number of information management platforms provide feeds as one means for accessing information resources managed by them. The main data formats used for feeds are *RSS* and *Atom* [4]. The *Atom Publishing Protocol (AtomPub)* [2] builds on Atom and provides a standardized protocol for publishing and editing Web resources which are made accessible through an Atom feed.

This paper describes a way of management of feed information using a Web-based service. Feed publishers and feed consumers can use this service to manage, publish, and share feed descriptions. The Web service is based on AtomPub and thus uses a standardized way of accessing information items. Since the entries in the feeds managed by that service are feed descriptions, the service is called *feed feeds*. In addition to the basic service of managing feed descriptions as a feed, the service also provides ways how to explore the available feed descriptions, so that it is suited as platform for publishing and sharing feed descriptions.

2 Use of Feeds

Feeds are widely used on the Web today, but apart from *feed readers*, there is only little support for managing feeds. For example, the only reasonably well-supported language for exporting and importing is the *Outline Processor Markup Language (OPML)*, which has been developed as a generic format for outlines and has only been adopted for feed data because of a lack of a better alternative.

2.1 Current Use

Feed use has so far been dominated by news services and blogs. *Feed publishers* usually make feed information available through `link` elements embedded in the page's HTML. Currently, few feed publishers view their feeds as strategic information assets which should be widely publicized and well-supported. Feeds have, however, an important role in the back-end of content syndication architectures, where a stream of information resources is aggregated and/or filtered as a convenient way of reusing information.

Feed consumers almost always directly subscribe through a feed reader (a web-based or desktop application), which they will use to access the feed. Many feed readers support little or no support for export or import of subscription data, which effectively locks in the subscription data.

2.2 Problems and Potential

Collaborative tagging [1] has proven to be a useful tool for managing the vast number of information resources available on the Web. While in theory, today's tagging services could also tag feeds, this is not done in practice. By providing specialized support for feed URIs, it is possible to exploit the properties of feeds, such as their association with the information resources' URI, and the users subscribing to them.

From the publishing perspective, feeds today are more treated as a byproduct of Web publishing, not as an information asset. For producers of many feeds generated on multiple platforms, it is hard to manage and maintain an consistent view of all feeds available from that producer. A standards-compliant service for managing feed information provides a service that can be used easily from any system that is publishing feeds.

3 Feed Management Service

Our approach for realizing the potential described in Section 2.2 relies on the facts that feed metadata is rather simple and can be viewed as a small set of properties for each feed, and that feeds themselves are a good foundation for managing this information. Thus, the *feed feed* approach uses Atom feeds to manage feed metadata, with the constraint being that entries in these feeds are always feed metadata entries. By also supporting AtomPub, these feeds can be turned into a service that allows submission of entries.

As one important facet of representing feed metadata as feeds, feeds can be described by categories, which is a standard feature of Atom. For publishers, this categorization will likely follow a predefined *controlled vocabulary* which categorizes feeds according to the criteria defined by that publisher. For consumers, this categorization can follow the more lightweight concept of a *tag*, which can be freely assigned.

The feed feed service does not manage each feed feed individually, but instead allows access from the URI of a feed to all data associated with that feed, which is the entirety of *all* feed feeds which contain that feed. This way, starting from a feed URI, it is easy to explore in which other feed feeds this feed is being included. Furthermore, more feeds can be found by requesting any other feeds which use the same category, which supports exploring the data in the form of tag clouds [5].

While the basic service provides the necessary abstractions for managing feed descriptions in feeds, it does only provide a Web-based service through its AtomPub-based API. The following section describes how this service is used by two Web-based applications to provide a user interface for one publisher- and one consumer-facing service.

4 Feed Management Applications

The central approach of managing feed metadata using feeds as described in Section 3 is only one part of our approach. To make this service accessible to feed publishers and consumers, there also need to be applications providing user interfaces for the basic service. While feed publishers might use tools which integrate the feed feed service as part of their publishing process, feed consumers need a user interface to manage their feed subscriptions, and to explore the available feed descriptions provided by the feed feed service.

Since feed publishers and feed consumers have different needs, there are two applications. Publishers focus on the feeds they produce and on a way of managing these feeds in uniform way. This includes categorizing feeds and maybe exporting the feed descriptions so that they can be displayed in a feed directory. Consumers are potentially interested in any feed that is available, and need
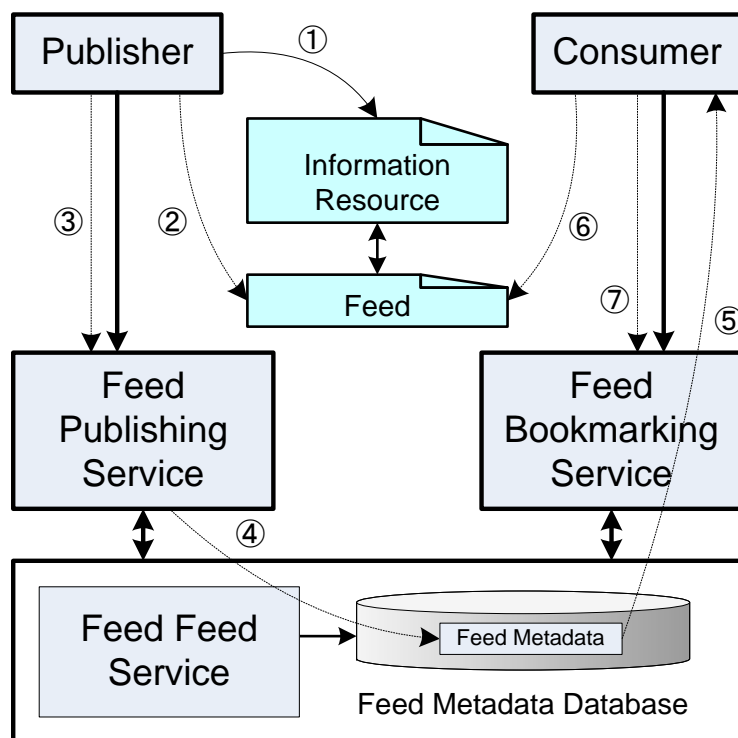
Figure 1: Feed Publishing and Subscription

support for exploring the large set of available feeds, mainly by using metadata such as categorization (provided by feed publishers or by feed consumers through tagging), or feed subscriptions ("what other feeds are subscribed by users subscribing to that particular feed?").

As shown in Figure 1, the overall design includes both a publisher- and a consumer-facing service which are built on top of the *Feed Feed Service*. A publisher of a web page ① creates a feed to accompany it ②. The publisher then connects to the *Feed Publishing Service* and submits the feed metadata ③.[1] If the publisher uses a content management system it can bypass the Feed Publishing Service and plug directly into the Feed Feed Service (not shown). The Feed Publishing Service submits the information to the Feed Feed Service where it is stored and made available for use ④. A consumer searching for information finds it using the *Feed Bookmarking Service* ⑤ and reads the feed ⑥. The consumer tags the feed ⑦.

5   Scenario

The feed publishing service is used by feed publishers to manage the metadata of the feeds they are publishing. Some tools may directly submit feed metadata to the feed feed service (for example, if

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[1]Following AtomPub, feeds can be categorized; category values can be based on a fixed set of values or on an open set.

some part of an organization decides to publish a new feed), but the feed feed service still provides useful functionality, such as managing the controlled vocabulary which can be used for categorizing the feeds, and configuring the export of (possibly subsets of) the feed feed, which can then be published as a feed directory.

The feed bookmarking service is similar to the already established shared bookmarking services for Web resources, but handles only feed URIs. This allows the bookmarking service to provide an interface to feed-specific information, such as the URI of the information resource that is associated with a feed, other feeds associated with that resource, and other feeds associated with the feed because of publisher or consumer categorization.

6   Conclusions

This paper describes a design for managing feed metadata through a web service and web applications which themselves are using feeds and support AtomPub. Based on this design, we present a way how feed publishers and feed consumers can manage feed descriptions. Feed publishers are presented with a Web service for managing feed metadata, which makes it easier for large Web publishers to manage and a large number of published feeds in potentially heterogeneous environments. Feed consumers can manage their feed subscriptions, and can discover new feeds based on the metadata of feed publishers, or on tags used by other consumers.

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