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## Ubiquitous Online News:

### Content Syndication and the Semantic Web

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#### **Towards Content Sharing**

Recent years have seen the increasing interconnection and content sharing between individual publications, and especially amongst blogs and other alternative news Websites. This move can be seen as an outcome of their users' fascination with gatewatching<sup>1</sup> and similar efforts, even though it may not be articulated as such. Blogging provides a particularly clear insight into the significance of gatewatching here: the fundamental principle of blogs is the provision of timestamped information (in reverse chronological order, that is with the most recent material displayed most prominently) – in this respect, they are little different from diaries or journals. Other than the fact that they can now be published to a potentially world-wide audience, one, and perhaps the key advantage of blogs over such more traditional forms of writing is their embeddedness in the wider network of information that is the World Wide Web, however: contrary to the writers of diaries or journals, bloggers writing about topics which interest them can *directly* connect to other material on these topics through the inclusion of hyperlinks and copied excerpts from other Web pages in their blog entries. Where a diary writer in another medium might have to summarize the issue they are concerned about, and then engage with it, a blogger can simply link to the online resource which triggered their ruminations, and respond to it directly – in essence, then, we could describe blogging, and indeed most gatewatching, as a form of remote annotation or criticism of Web content. (This is not to say that some bloggers do not use their blogs as simple online diaries – however, such approaches are far less influential and prominent than those based on gatewatching practices.)

Blogging, in other words, is not about diarism in isolation, but about connecting one's private thoughts and opinions to current and public events (and to other bloggers' content) – and hyperlinking is a key tool for that connection. One of the drivers of the blogging phenomenon is the ability to attach their own thoughts to such events which blogs afford their creators, much as some five or ten years earlier one of the drivers of the Web phenomenon was its ability to make everyone a potential publisher without the need to rely on an editor or distributor. Then as now, the ease with which users could publish their own material and connect it with the wider Web thus becomes critical for the success of the publishing tools developed and provided by Web and blog servers.

Similar considerations apply also in other gatewatched publications, such as open news Websites: here, too, users need to be able to connect easily and effectively with outside material in order to effectively collate and comment on a broad range of relevant views on a specific issue. In such sites, facilities for the systematic identification and embedding of relevant resources into user-created content are important, in order to free users from the more tedious aspects of *finding* content to respond to, and in order to enable them to spend more time on their actual *responses* instead.

This paper discusses a number of methods and mechanisms which address all of these needs, from enabling bloggers to conduct discussions across a large number of individual blogs to providing open news sites with a steady stream of reports upon which to comment, and on to providing the facilities for one gatewatcher site to automatically combine its own content with material emerging from a wide range of other sources.

### **News Syndication**

Overall, such efforts are often referred to as *syndication* of content, even though the tools for such content exchange and the nature of what exactly is being exchanged (full articles, headlines, links) differ from case to case. Syndication amongst blogs and open news sites clearly builds on the networked structure of the Internet which enables the easy and effective exchange of news items, but of course it is not without its predecessors: indeed, syndication of news reports dates back at least to the very first technologically supported news networks (using the telegraph) and has become ever more prominent with the rise of electronic media such as radio and TV. As Kovach & Rosenstiel point out, however, what has changed significantly in recent times is the level of direct access to syndicated news sources. Traditionally, “the news services were mostly relaying their always-breaking information to other journalists, who sorted through the varying accounts and cobbled together their own stories, which they bylined, ‘From Wire Services.’ Today, in effect, the pipeline goes straight to the citizen.”<sup>2</sup>

In other words, as Lasica points out, syndication “turns your computer into a voracious media hub, letting you snag headlines and news updates as if you were commanding the anchor desk at CNN.”<sup>3</sup> Largely, therefore, this constitutes an extension of practices in traditional media forms to the new online news environment, with the end user rather than an editorial intermediary in control of what is selected from an incoming syndication stream. Additionally, it also opens up the realm of syndication to new providers who can provide outgoing streams of their own news items for syndication, thereby removing some of the privileges of established news agencies – for example, the Indymedia network has in effect turned each of its constituent local members into a source of syndicated news; these news streams are then collated for example to form the world-wide Indymedia news wire. For Indymedia, with its clearly stated aims to ‘become the media’ and provide some balance to what is seen as biased news reporting in the mainstream media, this is crucial: its effect stems not simply from the presence of local Indymedia Centers in cities around the world, but perhaps even more so from the use of Indymedia news in a large number of other, affiliated alternative on- and offline news sources.

Beyond such benefits for open news sites attempting to export their content to a wider audience, however, syndication might also help alleviate some of the problems

stemming from the very proliferation of news sources supported by the Web. The downside of the fact that online everyone has the potential to be a publisher is that *everyone* has the potential to be a publisher, which poses the threat of information overload; as Lasica puts it, “who the heck has time to read all this stuff?”<sup>4</sup>

Syndication might help here by allowing users to focus on specific syndication streams provided by the news sites they trust, rather than more unsystematically trawling the Web for relevant information. In effect, syndication streams combine both Web and broadcast (‘push’ and ‘pull’) models: while still constituting on-demand content which will only be transmitted to the end user if specifically requested, syndication streams which *are* requested more closely resemble a broadcast bulletin of the latest news – but further on again rely on the user to make a choice from the available headlines as to which items are of interest and will be read.

### *Rich Site Summary (RSS)*

The key technology currently used for news syndication is a format known as Rich Site Summary or RSS (known in earlier incarnations also as Really Simple Syndication). RSS forms part of the Resource Description Framework (RDF), a technology standard developed by the World Wide Web Consortium (W3C), and can be described as

a lightweight XML format designed for sharing headlines and other Web content. Think of it as a distributable ‘What’s New’ for your site. Originated by UserLand in 1997 and subsequently used by Netscape to fill channels for Netcenter, RSS has evolved into a popular means of sharing content between sites (including the BBC, CNET, CNN, Disney, Forbes, Motley Fool, Wired, Red Herring, Salon, Slashdot, ZDNet, and more). RSS solves myriad problems webmasters commonly face, such as increasing traffic, and gathering and distributing news. RSS can also be the basis for additional content distribution services.<sup>5</sup>

Sites syndicating their news simply provide a downloadable document, known as an RSS feed, on their Webserver, listing all of their recent news items in a standardized format using extensible markup language (XML, a relative of the hypertext markup language used to create Web content). Detail and length of this document may vary – it might include on the latest few items or a complete list of all news reports from the past month; it might list only headlines, links to specific articles, and dates of publication, or provide authors’ names, article abstracts or full texts, and other metadata. It should also be noted that while our chief interest here is news syndication, RSS could just as well be used to share information about a variety of other material.

RSS news feeds may be used in a variety of contexts. Specific software exists which can regularly retrieve a number of RSS feeds and display them on computers or mobile devices; users of such software “simply subscribe to a news feed by clicking on those little orange XML rectangles sprouting up on thousands of weblogs.”<sup>6</sup> Many Website packages, especially for blogs and similar publications, also offer the chance to automatically embed retrieved RSS feeds into one’s own Website, however, so that one’s original content is immediately complemented by material syndicated from elsewhere. Also, “affiliate networks and partners of like-minded sites (say a collection of Linux sites) can harvest each other’s RSS feeds, and automatically display the new stories from the other sites in the network, driving more traffic throughout.”<sup>7</sup> This, of course, is the way in which news is syndicated across and beyond the Indymedia network.

Further, blogs and other news Websites often also enable their users to respond to a syndicated news item by using it (that is, its headline and a link to the full article) as the start for a new blog entry. Used in this way, in other words, syndication provides a steady supply of source material for the gatewatching process, lessening the need for users to actively seek out articles to refer to and discuss. On collaborative news sites, such syndication streams might serve as discussion prompts – a local Indymedia site, for example, would display the entire incoming Indymedia newswire feed as part of the site with a view to prompting debate amongst its local users about those issues which connect to local concerns.

While, as Rothenberg points out, “the weblog community as a whole is quite possibly the largest user of structural markup formats for syndication such as XML, RDF, and RSS”<sup>8</sup>, syndication has become a common practice well beyond this field – in part possibly also driven by the spread of mobile devices which enable users to receive news updates through RSS feeds. Even venerable news sources such as BBC Online now offer a variety of RSS news feeds for their content, and beyond this voluntary offering of content for syndication, there has also been an emergence of news aggregator services which provide syndication feeds even for Websites which do not offer them of their own accord, or combine content from individual sources into a themed feed.

#### *Brute-Force Syndication and News Aggregation*

A similar approach is taken also by *GoogleNews*, which does not specifically rely on RSS technology but rather builds on the *Google* search engine to collect and collate news reports from thousands of sources. At present, *Google* presents only the end result of its own brand of brute-force syndication of sources, without itself offering further RSS or other feeds for syndication (beyond an email subscription service which alerts users to news on specific topics); however, it appears likely that *GoogleNews* itself might eventually be ‘scraped’ by a brute-force aggregator for further syndication of its aggregated news feeds (*Syndic8* already shows a number of *GoogleNews*-related scraped feeds, even though most of these appear to be broken).

Particularly in the blogging world, whose sites usually offer up RSS feeds quite actively as a means of distributing blog authors’ views and of engaging with one another, a number of specific blog aggregation services have also gained prominence. Sites such as *Technorati*, *Blogdex*, or *Daypop* not only aggregate the RSS feeds emanating from most blogs, but also perform further calculations on the content they observe – for example, they are able to track the popularity of blogs and individual blog entries by counting the number of entries in other blogs which point to them, and can identify new and emerging topics of discussion by charting sudden increases in the use of specific key terms across new contributions to the blogging universe.

Such systems contribute to an important shift: the move away from individual Websites as news sources, or even from individual articles as complete reports on specific news events, and towards a reconceptualization of news topics as disembodied memes which are indicated through the identification of whole swarms of interrelated contributions from a wide range of authors through a variety of publications.

#### *Limitations*

In their report on ‘we media’, Bowman and Willis present some very positive views on bloggers and their uses of RSS. “‘It’s all part of the democratization effect of the Web,’

says entrepreneur Dave Winer, who incorporated an early version of RSS in Userland blogging software in 1999. 'It puts bloggers on the same field as the big news corporations, and that's great.'"<sup>9</sup> Indeed, the view that the syndication of news content enabled by RSS and other technologies might contribute to a greater democratization of the news mediasphere is widespread enough to be included in *Webreference's* entry on RSS: "with thousands of sites now RSS-enabled and more on the way, RSS has become perhaps the most visible XML success story to date. RSS democratizes news distribution by making everyone a potential news provider. It leverages the Web's most valuable asset, content, and makes displaying high-quality relevant news on your site easy."<sup>10</sup>

While certainly justified to an extent, it is important not to overstate syndication's case at the present time. We have already seen that news syndication does present significant benefits for bloggers and other news Websites: it enables small-time content providers to make their Websites more attractive very easily by embedding news from major external sources, and it provides news commentators with a steady stream of up-to-date source materials from a wide variety of perspectives without a need for extensive further research. However, there remain some significant limitations – for one, the mere fact that a blogger or collaborative news Website operator may be able to embed CNN or BBC news reports into their own site does not mean that this site suddenly rises to competition on the same playing field as these mainstream news organisations, or that vast audiences will be drawn to the site immediately; in fact, the very ease of adding RSS feeds to one's own site is likely to mean that we will see repurposed mainstream news appear in a multitude of blogs.

The most crucial limitation of current syndication technologies, however, remains that they are fundamentally one-sided. It is usually possible to embed external news into a Website, and perhaps even to comment on syndicated news items through the blogs or discussion fora on that site, but any such comments and discussion remain detached from the original news report. Much like when talking back at a TV screen, the content on that screen remains unaffected by the comments made, in syndicated online news the originally syndicated news item remains disconnected from the discussion which may surround it on a given site – but while in television this is caused by the inherent limitations of broadcast technology, in a Web environment there is no reason for engagement with published articles to remain one-directional: it would be possible to add links to the original source article which point to sites which discuss it. Thus, syndication may enable access to multiple perspectives on specific issues as well as further discussion and commentary, but in and of itself it does not provide the democratization promised by its advocates: it does not enable users to become equal participants in the processes of multiperspectival journalism.

### **Beyond Syndication**

What is required to overcome the limitations of current syndication mechanisms, then, are mechanisms which report back to the originating sites of syndicated news items that their content has been used and cited elsewhere. Such mechanisms are now beginning to emerge, and again it is the blogging world which has led the way. Amongst blogs, it has become increasingly popular to notify sites cited by sending a small automated server message which the receiving Web server may then use to build a record of where its content has been cited. Rothenberg points out the irony of the fact

that such mechanisms “represent a reversal of the decisions made by the early developers of the Web: originally, the implementation of a two-way link system was purposely avoided for a number of technical and ideological reasons. Now, the technological base – and more importantly, the relational information infrastructure – is sufficiently advanced to warrant demand for non-directed systems.”<sup>11</sup> While still some way from the immediately bi-directional linkages postulated in early hypertext theory, the link-back systems now being deployed for blogs nonetheless constitute a significant addition to World Wide Web technology.

Amongst the most widespread technologies for the facilitation of such reverse linking is the TrackBack system which was first introduced in the popular blogging software Movable Type – “a mechanism that automatically finds other comments about a blog post on a weblog, and provides excerpts and links to the comments alongside the post. It’s like having an editorial page of commentary on the Web, automatically generated to appear alongside a story.”<sup>12</sup> As the Movable Type Website itself explains, “in a nutshell, TrackBack was designed to provide a method of notification between websites: it is a method of person A saying to person B, ‘This is something you may be interested in.’ To do that, person A sends a *TrackBack ping* to person B.”<sup>13</sup> This ‘ping’ is then evaluated by its recipient and can be used to automatically generate a list of relevant links. Authors of blogs can even enable TrackBack to automatically find links in their articles and ping the sites linked to; this is referred to as ‘auto-discovery’. Reverse linking through TrackBack and other tools has enabled the development of reasonably fast-paced conversations across a number of individual blogs, since it can be used to provide instant notification to authors of blog entries when their views are being commented on, enabling them to respond just as speedily. This, then, is the foundation for a true blog intercast – “the linking to and discussion of what others have written or linked to, in essence a distributed discussion.”<sup>14</sup>

From here it is only a short step to asking whether a combination of mechanisms such as RSS syndication and reverse linking could be expanded to lead to a fully bidirectional networking of news content and discussion. This would be especially effective if, as expected, “future versions of RSS will incorporate popular additional fields like news category, time stamps, and more.”<sup>15</sup> In combination, the two technologies would enable both a very targeted syndication of news content which would enable content aggregators and end users of syndication streams to sort from the incoming multitude of content exactly those news items which appear to be of relevance to their interests and bundle them into news feeds made available through their Websites, all the while retaining an opportunity also to make content originators aware of any comments or debates engaging with their published material (with a view to their becoming involved in the debate again as well).

### **Towards a Semantic Web**

Indeed, Lasica suggests that “for targeted information, RSS feeds will surely eclipse news alerts once the technology lets you parse the requested subject matter.”<sup>16</sup> This points to the fact that the use of RSS and reverse linking technologies will crucially depend on the availability and ease of use of content tagging and tracking mechanisms. Currently, information provided through RSS is limited, as we have seen, as is the level of detail relayed back to the originating server through reverse linking mechanisms.

Only if further, accurate information is added to these collections of data about Web resources – commonly referred to as metadata – can the news notification and aggregation tools work truly effectively. Ultimately, such developments would lead to a move from notifying users about news, and processing these notifications, to a full *exchange* of information which would be able to support a true distributed discussion of the news.

Frameworks and tools of potential importance to this process of providing detailed metadata information include those developed by the Semantic Web initiative of the World Wide Web Consortium (W3C). According to its developers, who include World Wide Web inventor Tim Berners-Lee,

the Semantic Web is not a separate Web but an extension of the current one, in which information is given well-defined meaning, better enabling computers and people to work in cooperation. The first steps in weaving the Semantic Web into the structure of the existing Web are already under way. In the near future, these developments will usher in significant new functionality as machines become much better able to process and ‘understand’ the data that they merely display at present.<sup>17</sup>

This, of course, is precisely what is needed to facilitate the effective exchange of information across Websites and thus sustain distributed discussions in the form as we have imagined them here. As its developers envisage it, “the Semantic Web will bring structure to the meaningful content of Web pages, creating an environment where software agents roaming from page to page can readily carry out sophisticated tasks for users”<sup>18</sup>; such software agents, then, would be the RSS newsreaders running both on end users’ computers as well as on Websites which enable the embedding of outside syndication streams into their own content, and they would also include reverse linking tools which scan the Web for outside pages which comment on local content and place links to found pages into the local site.

### **Imagining the Syndicated, Semantic, Intercast Web**

As the end point of such developments, a syndicated, semantic, intercast Web of news might mean that a user would encounter an article on *BBC News Online* and immediately also see an automatically generated list of other reports which refer to the same topic in a *GoogleNews*-style listing, and find links to the discussions the article sparked on *Slashdot*, *MediaChannel*, and any number of group and individual blogs – ranked for example in order of the number of contributions made or the recency of the last contribution to a discussion, or in order of the results of some more elaborate semantic analyses (say, the focus of individual discussions on specific aspects of a news report as determined through the presence of key memes in discussion contributions).

Further, the same BBC Online site, any of the discussion sites, or an external news aggregator site could also present a combined multi-discussion which commingles all of the individual discussion threads on separate sites and individual blogs into one large multi-threaded discursive environment. It would also offer users an opportunity to add their own comments which might then automatically be embedded into the intercast and linked into individual discussions in all relevant discussion sites contributing to the multi-discussion.

Syndication of news and discussion might also mean that while the news article originated from *BBC News Online*, users encountered it through a non-BBC site, for example a personal blog using the BBC syndication stream (while maintaining proper acknowledgement of BBC News as the originating news publisher), and that any further engagement with the article and the ensuing discussion similarly took place through that site even though the user's contributions might eventually end up on *Slashdot*, *Indymedia*, or *BBC News Online* itself. In effect, then, the fully syndicated, semantic intercast environment envisaged here would fundamentally reconfigure the way users engage with Web content: access to semantically tagged and syndicated information which is therefore be flexible enough to be recombined and embedded into new display contexts would mean that reading news online becomes a fluid movement through a stream of news and commentary independent of the specific Websites through which these items entered the intercast. Indeed, the ultimate effect of these technologies is to turn the Web into a distributed, open-access database of information which could also be viewed through tools other than Web browsers: news aggregator software would enable its users to engage with and contribute to this intercast just as easily.

### **Newssharing**

In essence, this fully developed system has the effect of detaching the content of news items and commentary (the actual news stories and responses to them) from their context of publication (the specific Websites or other fora of publication). A useful analogy can be drawn between this development and the effects of MP3 and filesharing technology on music distribution and exchange: here, too, the new digital and online technologies have detached content (musical sounds) from context (the specific CDs and DVDs used to transport them). Users of music filesharing software now readily access specific songs through sophisticated and distributed search and retrieval systems and have the ability to recombine downloaded music flexibly in new contexts.

The news intercast envisaged above could therefore be described also as a system for what we might call 'newssharing': here, too, users use sophisticated, distributed, and semantic search and retrieval facilities to access discrete informational items which may then be pieced together in a variety of contexts through manual or automated mechanisms. While clearly built on very different technologies and exchanging different forms of information, newssharing like music filesharing can be considered to be a peer-to-peer information exchange system (and indeed music filesharing could also be regarded as a system for distributed intercast amongst music users).

The analogy is sustained further by the fact that some significant ethical, commercial, and legal questions apply in similar fashion to both filesharing and newssharing. For some time now filesharing has provided the scene for some formidable, hard-fought debates centering on the question of whether it cuts into recording industry sales by making commercial content illegally available or whether it enhances artists' exposure to a potential buying public and thereby contributes to increasing users' music purchases – and indeed, despite a plethora of meretricious statements from recording industry associations, there is good evidence of filesharers' continued interest in purchasing those CDs which they determined to be worthwhile after evaluation through downloads. A corollary to such commercial concerns, then, is whether or under what circumstances filesharing should be considered to be an illegal practice or ethically indefensible.

Similar questions can be posed for newssharing (and indeed even for its rudimentary precursors, such as syndication). Newssharing similarly detaches news content from its context of publication, resulting in a situation in which news items from one source might appear on the Website of another (if hopefully with proper acknowledgement of the originating source). While this is analogous to what has been common practice for news agencies such as Reuters or Associated Press for decades, a significant difference in the new newssharing environment is that originating agencies are not usually able to charge for access to their syndicated content, and rather rely on users visiting their own pages. Much as is the case with filesharing, then, we might ask whether syndication and newssharing cuts into visitor numbers (and thus advertising revenue) for the originating news site, reducing its ability to exploit its intellectual property – or whether it increases the reach and recognition of that news source, which may eventually lead to an increase in regular users of its site as these users increasingly recognize the site as a source of trustworthy news.

The willingness even of some major online news providers to experiment with news syndication might also point towards this second interpretation. We have already noted the BBC's provision of syndication streams for virtually all of its online news content, and a number of other significant operators have also joined this trend. Lasica reports on the views of Stephen Gray, publisher of U.S.-based newspaper *The Christian Science Monitor*, who notes that "the cost of providing the feeds is essentially zero. 'The content is already made, and once that's done we need to challenge ourselves to get it into somebody's path so they can engage with the Monitor in whatever form suits them,' he says."<sup>19</sup>

Indeed, for Gray there are also significant commercial opportunities here despite this giving away of content for free through syndication:

"I look at the Web as an opportunity to have a million doorways to the Christian Science Monitor. ... I think of it as a progression from one end, where it's free, to the other end, where it's paid. The pipeline has to be really big at the out end to bring in lots of beginners if you want to maximize the number of subscribers at the other end."<sup>20</sup>

It is possible to find some very similar statements which regard music filesharing as a pipeline towards music purchases. And much as the recording industry has found itself increasingly isolated in the music filesharing battle from both the artists it exploits and the fans it criminalizes, leading very slowly to a realization that the fight against music filesharing may have been lost already, so might any attempts by news organizations to quarantine their own content from being subsumed into newssharing networks be seen as ultimately counterproductive. Not only will news aggregators make available quarantined content to a wider audience eventually anyway (much in the same way that audiovisual content in protected formats such as DVDs and copy-protected CDs has nonetheless quickly found its way onto filesharing services), but perhaps even more so than is the case in music filesharing a voluntary abstention from the newssharing networks would spell irrelevance for news organizations. As Bowman & Willis put it,

News media have traditionally viewed themselves as central nodes in the information network, with the power to control the ebb and flow of news. On the Web, that is no longer possible. News sites that sit behind registration firewalls, or whose content is quickly moved into paid archives, display the characteristics of a cul-de-sac rather than a connected node on a network.<sup>21</sup>

Overall, then, it seems likely that the impact of semantic tagging and syndication will significantly shake up current news models. As Shirky points out,

media people often criticize the content on the internet for being unedited, because everywhere one looks, there is low quality – bad writing, ugly images, poor design. What they fail to understand is that the internet is strongly edited, but the editorial judgment is applied at the edges, not the center, and it is applied after the fact, not in advance. Google edits web pages by aggregating user judgment about them, Slashdot edits posts by letting readers rate them, and of course users edit all the time, by choosing what (and who) to read.<sup>22</sup>

This is no less effective than some of the more traditional approaches to news editing – “right now, journalistic standards are enforced by cumulative effect [of] individual users’ choices of which sites to frequent and which to avoid”<sup>23</sup> – and therefore it does provide a solid basis upon which to build the newsharing network.

## NOTES

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