Welcome Steve Gillmor, an avid blogger, and a radio impresario as host of The Gillmor Gang, an IT Conversations weekly Web radio podcast with more than 10,000 subscribers. He’s also an avid RSS-feed reader: He subscribes to 800 feeds. Once a principal reviewer with Byte magazine, Gillmor covered beats including Visual Basic, Windows NT, Lotus Notes and other collaborative software systems. After stints as a contributing editor with InformationWeek Labs, editor-in-chief of Enterprise Development magazine, and editor-in-chief and editorial director for XML and Java Pro magazines, he joined InfoWorld as test center director and columnist in 2001, until 2003. Subsequently, he wrote CRN’s Emerging Opp’s blog, and then became eWEEK OpEd columnist and contributing editor. Since July 2004, Gillmor has been a ZDNet contributing editor.

Proving the point about blogs and individuals transcending institutions, he retained his own voice throughout these varied roles. Gillmor is the second Gillmor to appear in our pages. His younger brother Dan wrote our July 2003 issue on RSS.

When blogs first appeared, they showed up spontaneously as a new format. Heralded with much hullaballoo and eventually recognized by the establishment, blogs represented the triumph of the individual and of the Long Tail – the notion that the millions of “others” individually represented on the right side (long tail) of a bar chart could be rolled up to outweigh the named leaders in a pie chart.

Significantly, most blog-publishing software built in the ability to syndicate blog content automatically via RSS feeds. (see Release 1.0, July 2003.) RSS feed aggregator software allowed blogs to be organi-
RSS feeds changed the nature of the content under discussion, too. Feeds deliver blogs, for sure, but they can also provide updated pricing, product-availability alerts and lots of other information far from the ruminations of a literate soccer mom or a passionate pundit.

Now there’s another sea change coming: emergent “attention” structures based on blog and RSS metadata. While blogs themselves can be unstructured, the links among them and other metadata about them – who wrote a post, who looks at it, how often, where those viewers come from, and more – allow the spontaneous emergence of structure, visible to those with the proper tools to see it. We’ve already seen some of that in social networks such as LinkedIn (see RELEASE 1.0, NOVEMBER 2003). Who has the most friends? Who connects different social groups? But most people aren’t comfortable rating and ranking others. Making content a proxy for the people, however, adds legitimate purpose – for example, I’m reading about politics – and the emerging Attention.xml standard (conceived in part by Gillmor) adds the capability of measuring attention across and outside the walled gardens of today’s social network platforms.

This next chapter, then, is about the self-organizing Net of user-generated content and the vendors who are encouraging its emergence by fostering the creation and analysis of metadata about users’ interactions. The reactions of hundreds and thousands of users to each post, or to the metadata – anything Fred writes, I will read – create more metadata in the system. So we find out not only that 200 people linked to this post, but that 10 of them subsequently subscribed to that blog’s RSS feed. Different metadata analysts will write algorithms weighting each of these actions in different ways. Those who best mirror the “true” weight of those actions will create selections and recommendations that feel more “right” to their users, and will eventually build communities that last better than those that use mere popularity. It’s the difference between old-style traditional text search and the new algorithm-rich techniques pioneered (commercially) by Google.
But the resulting structures are still richer than the one-dimensional rankings offered by Google and other search engines. In the real-time world of blogs and RSS feeds, the range of user behavior (including the dimension of time) is far greater and more granular than what happens on the static Web of webmasters and links. The blogosphere (much as we hate this word) is infinitely richer and more fractal, approaching the complexity of a living system.

This issue covers the standard to watch, Attention.xml, and limns the early players. Some are building their own attention-based ecosystems on proprietary platforms, while others are attempting to broaden the use and interoperability of attention metadata so that communities and other attention-defined structures can emerge on the open Web.

- Esther Dyson

Back in the late ‘90s, Web portals started to offer “personalization” services – each user could design a page that aggregated all her favorite columnists, categories of news and so on, in one place. This service was offered mostly by the big portal companies, who had the mass audience and the resources to make distribution deals with large news and information services.

But this personalization required a lot of work from the Person. The user had to explicitly pick different features, and the categories were way too broad. Juan is not interested in all sports: He’s interested in football, whereas Alice likes badminton and competitive swimming. Meanwhile, Alice couldn’t care less about most financial news, but she’s keenly interested in the fortunes of her employer (for now), Peoplesoft. And of course that means she now also cares a lot about Oracle.

Over time, the capabilities got more precise, but personalization wasn’t dynamic: If Alice changed employers, she had to list a whole new set of companies one by one.

Then, last year, blogging exploded. What people wanted to read came from millions of individual voices rather than from a few hundred information sources. All of a sudden, individuals once again had to spend the entire day hunting and gathering content, picking through their 50 favorite bloggers, 50 favorite blogs and 50 favorite news and information websites. There is no Associated Press equivalent to the blogosphere for Yahoo! to make a deal with.
That’s where RSS, for (among other things) “really simple syndication,” comes in. RSS allows any content publisher to create an XML-based syndication feed for any sort of content – blog posts, news headlines, selected essays, and now audio/video “podcasts.” Instead of configuring a My Yahoo! page and visiting it every day, individuals can simply subscribe to any number of feeds and new or updated content in those feeds is downloaded automatically and collected on a single client – usually called an RSS aggregator. Standalone aggregator clients include NewsGator (a plug-in for Microsoft Outlook), Ranchero Software’s NetNewsWire for the Mac OS and Bradbury Software’s FeedDemon. We cover some Web-based aggregators below.

More interesting, the bloggers aren’t just producing blogs; they are also acting as de facto editors, picking through lots of content, commenting on and linking to their favorites. They are publishing their blogrolls and encouraging others to read those blogs (or sign up for feeds) by that implicit endorsement. Moreover, since RSS-reading is decentralized and feeds and aggregators use open standards, a lot of useful, sharable metadata is generated from all this activity. Some early-adopter RSS fans are already drowning in RSS-feed data, which has led to various methods, notably the Attention.xml spec (see page 5), to manage this metadata to improve the overall experience. Below we cover some of the companies offering services that use all this metadata.

**Group TiVo for the Web**

RSS is fundamentally changing the way much of our information will be created and consumed. It’s a shift from the HTML browser-centric world of the ‘90s – a search-and-store model of information retrieval – to an XML-driven publish-and-subscribe model. It’s also a shift from the static world of Web pages and browsing, to a real-time world of streams of data, sequenced over time and constantly rearranging themselves.

RSS mirrors one part of the TiVo aesthetic, allowing users to specify their precise interests – by subscribing to a particular feed – and letting their RSS aggregator download and store relevant information. You become your own programmer, hiring and firing your shows based on the deadly triage of hard drive space (for TiVo) or your attention span (for RSS).

RSS allows users to bypass a content publisher’s home page, content hierarchy and selection of “what’s important.” Attention.xml lets the community select what’s important, even as users select their own communities. The metadata generated
from a user’s expressed topics and people of interest allows smart feed aggregators help other users discover new, interesting information: If you like reading what Juan has to say, you may also like Alice.

As more and more people replace time in their browser with time in their RSS aggregator, the mainstream press also has begun to use RSS to syndicate its content. While the total consumption of mainstream news via RSS is still small – 1 to 2 percent of page views on washingtonpost.com are generated from RSS feeds, according to CEO and publisher Caroline Little – the number is growing. Advertising-supported websites will have to deal with the realities of the shifting audience. . .potentially to the benefit of all. By definition, subscribers to an RSS feed are an advertiser’s dream: a self-selected audience interested in what is often a very specific topic – local news from Boise, ID, or any blog posts from Google VP of engineering Adam Bosworth. Ads in RSS feeds will no doubt elicit resistance from RSS purists, but as in other media, eventually there will be a variety of options, from free-but-ad-ridden to pure-but-charged-for.

What’s more, using the millions of pieces of metadata being generated by bloggers and RSS readers – who subscribes to whose feed, who quotes whom, how often and for how long a blog is read by how many readers, and so on – RSS search engines such as Technorati and Feedster (see release 1.0, July 2003) can mine the link dynamics in RSS and HTML streams to generate a sort of Google page rank, or authoritativeness of a page, for blogs: call it blogrank. (Disclosure: Esther Dyson is an investor in Technorati.)

Finally, usage data can help users manage their own attention (see release 1.0, June 2004) and help publishers assess the qualities of their content.

**Attention.xml: Say Goodbye to Attention Deficit**

Attention.xml is a structured way for RSS aggregators to gather, track and broadcast information about the attention users pay to the RSS feeds they subscribe to and the blogs they read? Aggregator clients can in turn use this metadata to help users manage their subscriptions. . .and therefore their further attention.

Dave Sifry, the founder and CEO of weblog search engine Technorati, and I came up with the concept behind Attention.xml. The specification is being co-authored
by Sifry, Technorati senior technologist Tantek Çelik, and Technorati principal engineer Kevin Marks.

The Attention spec provides the language for aggregators to describe the attention metadata for each item of content and each RSS feed comprising the content. As each user navigates through his content, the aggregator can track the user’s actions – signifying the attention he pays to each item – and collect and aggregate the attention metadata. Then the system can annotate each item with a variety of metadata including the last time it was read, the amount of time the user spent reading it, which URLs in the post the reader clicked on, and so on.

Using this Attention data, an aggregator can allow users to perform simple organization tasks such as reordering feed items by updated date, most-read or unread. Such data also can be used to synchronize read/unread data between a single user’s multiple instances of a client on two different machines – or someday, if the Attention.xml spec is adopted widely, between different aggregators and aggregator services and even for different users. For example, a traveler at an Internet café could read a story in her Web-based Bloglines aggregator, and when she returned home and opened her FeedDemon client, that “read” mark would be updated from her Bloglines account to her FeedDemon client. Similar Attention data could be used to throw out duplicate entries in different feeds so that a much-linked-to post would be marked “read” across all feeds, after the user had read one instance of it.

**Aggregating users**

Things get more interesting when a particular user’s Attention data – anonymized or not – is combined with others’. A user could agree to have his Attention data periodically collected by a service that could use that data and other users’ habits to offer feed personalization, recommendations and other services. Over time, users – observing proper permissions – also could use other people’s attention data, anonymous or identified, to order their priorities according to the attention paid to items by a group or by particular individuals.

Many of the service providers profiled below allow users to comment on posts, tag them, and assign them to private or public groups. Knowingly or not, these active users are creating metadata, which can be browsed or queried by others: Show me Juan’s favorite feed, or the posts that got the most comments from people who rarely comment, or all the posts that Alice commented on.
Service providers also can use that metadata – with permission, of course – and blog rank to infer a user’s social network, to determine a poster’s relative popularity or profile within a particular community, or simply to recommend new feeds.

The Attention spec offers other interesting possibilities and extensions, what old-timers would call “typed links.” For example, a user (through an interface built into the aggregator) could express approval or disapproval of a particular post. At the moment, a link from one site to another implies approval of that post – often a false assumption. Moreover, without identity tools, a spammer could mark her own posts as legit...or a troll could launch a new kind of “denial-of-favor” attack. All these “interesting” social/technical issues represent an opportunity as well as a challenge.

In essence, Attention allows the creation of a network of interlinking communities that take on the virtual characteristics of the network, bound not by brand loyalty or geography but by reputations and relationships.

**Standardizing attention**

Technorati is working with the developers of Feedster, FeedDemon and others to add Attention.xml support. In particular, Feedster co-founder and VP of engineering Scott Johnson worked with the Technorati Attention.xml team to produce a simplified subset of the spec to enable synchronization between different aggregators, using timestamp and other information to coordinate what items are read or
unread. Johnson is also pushing for vendor-neutral terminology to encourage widespread industry adoption of Attention.

The spec is still a work in progress, and as of yet no patents have been filed around it. “Work [on the spec] is owned by the authors,” says Sifry. “There is no standards organization which this has been handed off to yet, but that is fully the intent.” The spec has been released under a dual Creative Commons for-attribution license and a BSD license.

Of course, all the old rules about open standards apply. The success of Attention.xml, as we present it here, depends entirely on its being adopted as an open, sharable standard. If a single Web-based aggregator – such as Yahoo!, perhaps – owned and could leverage the attention data of the majority of users, why would that company share it?

Most aggregators say they will support whatever standard emerges, but the surge of support for any particular standard has yet to begin. Popular aggregators that have agreed to implement Attention.xml support include Web-based aggregator Feedster, service provider FeedBurner and client-side software vendor FeedDemon, which is working with Technorati directly. Bloglines has its own attention-oriented API, but it is promoting that only to client-side aggregators who want to work with Bloglines, rather than to its own counterpart competitors. On the other hand, there is no credible alternative to Attention.xml – and in the standards business, “other” is no answer.

Clearly, Sifry is hoping the Attention standard will catch on among aggregators so that Technorati and others can offer such services: “Technorati helps readers and writers stay ahead of what’s happening on the Web right now, and acts as a hub for information between readers, writers, and advertisers,” he says. “To the extent that harnessing attention metadata helps users manage their time better and helps create a new business model for writers and micropublishers, the Attention.xml standard will help everybody, including Technorati, grow their businesses.”

In the meantime, in January 2005, Technorati will release an Internet Explorer toolbar that records your attention metadata while you’re browsing. In theory, such a plug-in could record data about any sort of browsing, either of feeds in a Web-based aggregator such as Bloglines or Rojo, or of regular Web pages.
Deflecting attention
Like any other kind of user data, Attention data is the kind of stuff that users may want to control – and successful services will offer clear options for users about how their data can be used. When kept private, the data can be used to help a user track his own behavior (read/unread, favorites, recommendations) on the client side. Of course, a user can benefit from aggregated group data, or other users’ public data, without sharing his own. It may well be that the level of sharing of Attention data will be part of the terms of any user’s account; users who are more generous with their attention data will get better pricing or other benefits in return. Figuring out the right defaults for, say, contacts, friends and good friends, and making them easy to modify for power users, is a key task for the platform creators and service providers.

The terms can be arbitrarily complex, from no sharing, to sharing aggregated information only within a group, all the way to completely public.

“It’s like [a card game], where everyone in the game agrees to a neutral third party who holds and deals the cards,” Sifry explains. “I don’t necessarily want to let my other friends know what my subscription list is, or the things that I’m reading in my list. But I will allow my subscription list to be used [by a trusted third party] as part of a reordering mechanism for my friends” and others. “It isn’t dependent on a single service from a single organization.”

Valuing attention
In addition to the attention-management and personalization services an individual can get in exchange for his data, he could also barter Attention data for content: free access to wallstreetjournal.com or salon.com full-text feeds, for instance.

Advertisers benefit as well. Despite rhetoric to the contrary, online advertising is often as imprecise as advertising in broadcast media, with messages developed to the lowest common denominator. That began to change with search-based advertising, pioneered by paid-results search engine Overture and popularized by Google’s AdWords. Not only did advertising messages become more targeted, but who and what was being advertised changed: All of a sudden, it made more sense for smaller companies to advertise their products and services. The idea was that a person that searches the Web for something – say, “recipe Texas chili” – is a prime target not just for the item specified, but also for a related product – say, hot sauce.
Google's AdSense introduced that concept to individual Web pages and blogs, allowing small publishers to earn ad revenue and advertisers to reach a targeted audience. Attention brings the same dynamic to the blogosphere. “The only information Google AdSense has about you [the publisher] is the stuff you’ve written on your site,” says Sifry. “From that information you do some magic and figure out
what advertisers are going to be most successful on that site. Attention.xml is about taking that same model and inferring from reader [attention habits] as well as writer information.”

Advertisers benefit from a highly qualified, self-selected audience. “These are people who have opted in to receive information from this publisher,” says Sifry. Using aggregated Attention data for a particular feed as well as demographic information from the publisher, advertisers can get a clear idea of who’s reading their message.

All of this adds up to a concept Wired magazine editor Chris Anderson popularized as the “Long Tail,” the idea that the new, user-generated media breaks down the old formulas of concentrated supply forcing concentrated demand for media: Individuals now can browse hundreds of thousands or millions of movies, books, songs and ideas. They can choose favorites based on their own preferences and the preferences of a particular community – say, the reviews posted on Amazon.com. As Anderson wrote in the October Wired, “The average Barnes & Noble carries 130,000 titles. Yet more than half of Amazon’s book sales come from outside its top 130,000 titles.”

There is evidence that advertisers are picking up on this trend: Jason Calacanis’ Engadget and Nick Denton’s Gawker vertical blog sites are both sold out in advertising inventory, and both have begun to sell advertising in their RSS feeds.

For publishers, a focused audience allows them to charge advertisers a higher per-view fee than under the old coarse-grained broadcast model. For example, with more fine-grained attention data, a publisher could sell – at a premium – ads targeted only to people who have read about competitive products; an advertiser could use those to offer especially heavy discounts only to those more savvy customers.

**Aggregation of Attention: Collective Wisdom**

RSS aggregators are either client-side, downloadable, stand-alone software or server-side, Web-based subscription services. In general, usage is moving from client-side apps to Web services...though in reality the two are merging.

As mentioned above, the makers of client-side aggregator software such as FeedDemon and NetNewsWire are starting to build attention data-tracking, broadcasting capabilities into their clients. On the Web, subscription-based services such
as My Yahoo!, Bloglines, Rojo and Pluck are beginning to aggregate not only RSS feeds but also to collect and aggregate attention data, combining open Attention.xml data, their own proprietary attention statistics and a subscriber’s personal data to offer or enhance a variety of services.

Yahoo! became the first major player to raise the RSS flag, with a complete redesign of its My Yahoo! portal. While it certainly brought a much broader audience to RSS (in a somewhat submerged form), so far Yahoo! is using RSS more as a new technology to improve a service it already provided.

Startup aggregators such as Bloglines and Rojo hope to capture Yahoo!’s and new customers by offering more sophisticated and power-user services. Pluck, a plug-in with rich client capabilities married to a server aggregator back end, captures the middle ground.

None of the companies in this space are making much money. Instead, they are concentrating on building their audiences and enhancing their ability to gather and leverage attention metadata to improve the user experience and ultimately revenue per subscriber. Some focus more on one side or the other. . . .

**Yahoo!: Making RSS really simple**

In September, Yahoo! became the first major player to jump into RSS, redesigning its new My Yahoo! personal portal around incoming RSS feeds. Out went the checklist of 100 things a user could add to his home page; in came a feed-finder, a content directory and search engine of more than 300,000 content feeds of blogs and other media. Yahoo! editors use aggregated usage data (similar to what you can get from Attention.xml) to monitor the most popular feeds and those with the most “buzz,”
what content seems to be paired with what, and so on. Then they organize the content into categories, editor's picks and highlights.

The design goal was to leverage RSS and XML without requiring the user to interact with the technology at all, says Yahoo! senior director of personalization products Scott Gatz, who worked in personalization and search for 12 years at Reuters and a number of small startups. “We’ve taken this content, and without using the letters RSS very much, ask users, ‘Hey, what’s your interest? Tell us about it. We’ll get you hooked up to the content you want.’ With one click, they can add it to their page.”

Yahoo! has taken this Greyhound “leave the driving to us” strategy a step further and moved it beyond its own site onto some 6,000 partner sites – including blogs and mainstream sites such as CBS Marketwatch, abc.com, about.com, the Wall Street Journal, and the New York Times. On the partner site’s page listing RSS feeds, it shows an “Add to My Yahoo!” button next to the orange “XML” button most sites use for subscribing to their RSS feeds. If a user clicks the button, that particular RSS feed is added to his My Yahoo! page automatically. No money changes hands (at least for now); it’s designed to make it easier for Yahoo!’s users to subscribe to RSS feeds. (The company has gotten pushback from many for forking away from the XML icon, which Yahoo! calls confusing for new users.) The next time the user visits his My Yahoo! page, the data from any added RSS feed will appear at the top of the page, with a link to the full content on the partner’s site.

“People don’t come just to My Yahoo! to discover what they might be interested in,” says Gatz. “They might be interested in stuff on [another] site [when] they’re reading it.” Yahoo!’s partner program makes it easy for people to sign up at the time they are exposed to the content, rather than later when they’re back at My Yahoo! and may have forgotten where they were. While Gatz won’t say exactly how many users have switched to the new RSS-supplied My Yahoo!, he says, “It’s measured in the millions since we relaunched My Yahoo! in September.”

As for supporting an attention metadata standard, Gatz says, “When the time is right, and they understand the benefit, we’ll move ahead with [a common attention standard].” For now, the company is focusing on growing the My Yahoo! user base, he says: “It’s an advertiser-supported product with banner advertisements, but it’s
also an opportunity to introduce users to services and other benefits that Yahoo can bring – travel, fares, e-mail – and to other services from around the Web.”

Bloglines: 21st-century home page
Bloglines founder and CEO Mark Fletcher calls his company and product “the home page for the 21st century.” Before founding Bloglines, Fletcher founded Onelist, a free mailing list provider that merged with eGroups and subsequently was acquired by Yahoo! in 2000.

He describes Yahoo! as the home page for the last century, challenging My Yahoo’s ability to compete effectively with pure RSS plays. “Because of the way My Yahoo! was designed in the ‘90s, even though they’ve added some of these minor RSS features, it doesn’t lend itself to how these tools will develop in the future.” While Yahoo! says it will adjust its interface as the audience requires, Fletcher suggests the Yahoo! one-page-fits-all approach is both difficult to use to navigate large volumes of information and inferior to the folder structure favored by Bloglines.

Fletcher started Bloglines, a Web-based aggregator site, to help deal with his own personal information overload problem. “I had a bookmark list of a hundred different sites I would visit every day,” he recalls. “The problem is, it takes a very long time. You have to visit each site because you don’t know if it changed or not. It’s very unwieldy.”

Subscribers can subscribe to and read their feeds on the site. They can also discover new feeds, either by searching the 400,000 feeds indexed by Bloglines, or by accepting some of Bloglines’ recommendations, which are made based on the user’s subscriptions and the habits of users with similar interests. While the company uses its own proprietary attention metadata rather than Attention.xml, Fletcher has indicated that Bloglines will support Attention.xml once it gains momentum, and supports the idea of sharing attention data with everyone on the Net “eventually.”

Subscribers can share their feeds, either all at once by making all their feeds publicly available or individually and privately via a tell-a-friend e-mail feature on the site. “You can see who else is subscribed to a given feed if they’ve made their feeds public [to the Bloglines community],” says Fletcher. “You can look at [all] their feeds as well, and you can share your subscriptions with [all or just some] other people.”
“There’s going to be more social network-type features in aggregation services and software. [Bloglines] already has some of that stuff,” he says. The service will be extended in the next few months to support collaboration tools including virtual shared folders where users can drag and drop interesting feeds and items, and then specify which friends can view the contents, rather than using tell-a-friend e-mails.

For now, however, Bloglines doesn’t have any specific plans for social-networking tools. And while Fletcher acknowledges the value of sharing attention metadata across aggregators, Bloglines will wait for a standard to emerge. “For the data that we actually do capture, we end up republishing that right now, not necessarily in a machine-readable form, but all the subscriber stats are out there for anybody to see,” Fletcher says. “We don’t currently track who clicks on what, but we’re committed to [doing] it.”

In the meantime, in October 2004 Bloglines rolled out a “show only updated feeds” setting that displays only unread articles in the user’s My Feeds page. The company also published the Bloglines Web Services API as a platform for third-party development of new web applications and to help synchronize read/unread articles between Bloglines and other aggregators. Client-side aggregators NetNewsWire and FeedDemon have used the API, which also supports podcasting and downloading feed text for display on the iPod’s display as a poor man’s PDA. Coming soon to Bloglines will be a feature to correlate links to the same post from different blogs the user is subscribed to.

These are all precisely the sort of information-organization issues that Attention.xml was designed to handle.

So far, people can subscribe to Bloglines for free. “We have talked about incremental fee-based services, but we don’t have any currently scheduled,” Fletcher says. The company plans to incorporate targeted-search advertising on the site in early 2005. “Initially we will use AdSense for testing,” says Fletcher, “but long-term we think we’ll need to bring the targeting technology in-house.”

**Rojo: Sharing attention**

Like Bloglines, Rojo is a Web-based aggregator that tracks subscriptions and new posts for registered users. But Rojo, still in beta, goes far beyond Bloglines and other
sites in collecting and leveraging attention metadata. Where the results of most RSS search engines are a global “cosmos” of related links from around the blogosphere, Rojo improves search results based on a link analysis of a particular user’s activities – feeds subscribed to, articles read and unread, posts tagged, and so on.

Rojo also monitors the activities of the user’s Friendster-style social network. Users can invite friends into their network and view their profiles, subscriptions and the stories they flag. They can comment on a story and/or tag it with a category and share it with friends.

Rojo tracks all this activity, which it calls certifications – units of attention – for every object, feed, story and person in the system. “If story A links to story B, that’s a certification. If I subscribe to this feed, it’s one certification, and when I read it, it’s another. For any feed you’ve got, we’re tracking what they’re linking to – their blogroll – and who’s linking to them, to build a cloud of relevance,” explains Christopher Alden, co-founder and CEO of Rojo, who co-founded Red Herring in 1993. “Then, when you say ‘Show me a story,’ we’ll say, ‘Here are the stories that have the highest reputation,’ scoped to a particular area of interest.” For example, a search for “apple” would return food-related results for users subscribed to food-industry feeds, and results about Steve Jobs’s company for technology-centric subscribers.

Implicit communities of influence can be built out of this affinity information, says Alden. “Discovering people who have an affinity of interests is not deployed yet, but it will be.” The company plans to launch this service in Q2 2005. Until then, users can review all their tags as well as those of any contact, and can view the most popular posts across their social network. By early next year, says Alden, users will be able to group friends by different categories: business, sports, hobbies and other user-specified categories.

If you want to monitor a story bloggers are buzzing about, the Rojo interface lets you create a folder, tag feeds to flow into that folder, and read the items as they come in. In addition to results from feeds in that folder, Rojo can display results from feeds outside but related to that category.

Another new feature will be the ability to set up continuous search queries and have the results published as RSS feeds. This service is similar to one offered by Bloglines (page 14), but it is different from Pluck’s “perching” (page 18), which is not in RSS.
(and therefore can’t be subscribed to from any aggregator) and which includes granularity for filtering or specifying the results. Another possible virtual feed might be for comments from friends, but Rojo needs to address privacy, authorization and security concerns before it can offer this.

In addition to acting as an aggregator site, Rojo plans to offer a platform for publishers of vertical sites – what Alden calls a Model-T aggregation publishing model. Rojo will provide publishers with content aggregated from RSS feeds as well as a simple publishing platform. Alden’s hope is to create a number of shrink-wrapped Nick Dentons or Jason Calacanises, whose Gizmodo and Engadget sites republish content from other blogs and news sources and average 250,000 unique visitors a day each. (Publishers that don’t want their content republished by a stranger can request to have their feed withdrawn from Rojo’s custom-publisher offerings.)

“It’s a very similar model to blog hosting,” explains Alden. “We’ll host it for free and keep the ad revenue, or you [the publisher] can pay us a hosting fee per month and sell your own ads on it.” He also hopes to license the RSS-aggregation technology to large organizations and to sell a package for corporate intranets.

Given the natural Roach Motel attention-data strategies of Yahoo! and other portal players (who don’t need others’ data), Alden is upbeat about the business value of open attention metadata standards. “If attention.xml were pervasive and used frequently, we could say, ‘We know you’re a FeedDemon user. We want to track your attention.xml. It will make our recommendations for stories you should be reading much more effective, and you can still read your feeds in FeedDemon.’”

Alden doesn’t plan to charge users for Rojo’s social-networking, recommendation and other services while allowing members to use an offline client. “It may be a challenge to get everyone to read their feeds in Rojo.com,” Alden says. “But if we said, ‘We don’t care where you read your stuff, we’ll take [your attention] information, do a higher-level analysis [on it], and we give you [recommendations and other services],’ I’m all for that.”

“We could make money from a user reading a story in FeedDemon,” Alden suggests, “by putting a link back to the Rojo site for more information” and, presumably, a few relevant ads.

Conversely, Rojo could partner with a specialized service that uses Attention.xml – say, a book-recommendation agent – and charge Rojo subscribers for improved rec-
ommendations. In this case stickiness works for both parties; both would benefit from the sharing of metadata.

Alden sees Bloglines and NewsGator (see RELEASE 1.0, JULY 2003), a hybrid Outlook plug-in and online service similar to Bloglines, as his closest competitors. Like Bloglines’ Fletcher, he is less concerned about My Yahoo!, which still takes much more of a news-portal than a news-reader approach. Moreover, Alden places Rojo in the lead as the only service to combine search, reading, reputation and relevance, community features, tags and comments.

Pluck: Perch engine

Pluck co-founders Dave Panos (CEO) and Andrew Busey (executive VP of products) are each on their fifth startup. Both men had a hand in the building blocks of the real-time network: Panos spent seven years with Web-collaboration pioneer DataBeam before it became the basis for Lotus/IBM’s Sametime technology. Busey served as the first product manager for the Spyglass browser that became Microsoft’s Internet Explorer, and then founded iChat, the chat and instant messaging company bought by Apple in 2000.

“The biggest use of the Web is for news, the second is for shopping, and the third is for collaboration,” Panos says. “We started [Pluck] when Andrew and I noticed this increasing gap between what end-users were interested in and capable of doing, and the level of support provided by their Web browser.” Panos and Busey saw the opportunity to build an Internet Explorer plug-in to add a suite of utilities to discover and organize information on the Web and share it with others.

Pluck is a Web-based RSS aggregator and personal search engine rolled into one. Its aggregator services are similar to those offered by Bloglines or Rojo, but its most interesting new function is “perching,” for persistent searching. Pluck uses Web services to let users set up a perch – a continually executing user-specified query – and receive alerts when new results appear or existing results change. Users can specify perches simultaneously in Google, eBay, Amazon, and the news engine Moreover, which provides news to MSN and Ask Jeeves. “The user specifies a site, search terms and a number of extended parameters – say, ‘search eBay for a Barry Bonds rookie baseball card that costs less than $150 and only from sellers that accept PayPal.’ We’ll grab the initial result set, store it...
Perching has been “wildly successful” in the two months since it went into beta, he says. Customer surveys conducted by Pluck show perching as the reason for about 25 percent of new Pluck downloads. “We’ve combined what people like about RSS – the transparent, persistent delivery of data they are interested in – with the specificity and personalization associated with search results,” says Panos.

Perching does not use RSS – though Panos thinks most users will think it does – because the sites it searches have proprietary interfaces and the data in the search results has much richer attributes than currently supported in RSS. That is, RSS could deliver the data, but it couldn’t filter it with the specificity that perching allows. “For instance, a result from eBay might include time remaining on the auction, how many bids there are, who the seller is, whether or not they accept PayPal – attributes users want to use to sort and make decisions on,” says Panos. “There is no reason, in the future, why RSS through extensions couldn’t accommodate that stream,” he adds.

Panos sees perching as very much like TiVo in that users can specify their interests and Pluck downloads content according to those specs and stores it for consumption later. Where TiVo can do so for “all De Niro films,” Pluck can do it for specific auctions with specific parameters.
For the moment, Pluck generates revenue from ads near its search results and from affiliate programs on Amazon and eBay: “If you buy something on Amazon [as a result of a perch], we get paid,” says Panos. “And if you bid on something on eBay, we get paid.” When perching was added, eBay bidding among Pluck users increased 150 percent over the previous month.

By registering with the Pluck server, users can create virtual Web folders and share data – Web pages, feeds, searches, and comments – with other Pluck users, and can synchronize feed lists across multiple Pluck clients.

The company plans a public rollout in February: “Today, when I share folders with you, there’s a proprietary mechanism for staying in touch. We keep everyone who is running Pluck or the Pluck Web services in the loop via that,” Panos explains. “There will be a natural extension which will let you optionally turn on an RSS feed for any of those services.”

If perches do become published in RSS, we can imagine a sort of NASDAQ for eBay or Amazon transactions: How many people want a Barry Bonds rookie card for $150 or less? How has the price fluctuated since the news of his steroid use broke?

“We’ve raised enough money for a few years of runway,” Panos says. “We’re still working hard on first-order problems of adoption: ease of use and ease of initial discovery of content.” Also coming at launch will be support for RSS enclosures, tools for making it easier to discover and subscribe to new content sources, and a Windows Firefox release (the second most popular feature request).

**Services Deserving of Attention**

To varying degrees, all the companies above are building tools for the generation and accumulation of attention metadata. Below we cover two that create additional services around attention data.

**FeedBurner: Publisher attention**

FeedBurner, still in beta, provides RSS and attention services for the publishers of the content that aggregators collect. It offers a number of feed-management services including feed creation, splicing, enhancement and usage statistics.
FeedBurner is the fourth startup for co-founder and CEO Dick Costolo. Its founding group of four computer-science graduates has worked together for the last 10 years, as a consulting company, as producers of a small community publishing tool, and then on Spyonit.com, a screen-scraping technology company that notified users when new financial data was posted on a site. They sold that company to 724 Solutions for $53 million in September 2000.

Blogging software automatically generates RSS feeds in at least one of three competing but mostly overlapping standards — RSS 1.0, RSS 2.0 and Atom. Meanwhile, non-blog publishers have to create custom tools or processes to create their own RSS feeds, often in each of the three standards to reach the biggest audience.

FeedBurner helps its 25,000 clients — mostly small organizations and blogs — manage all that by ensuring universal compatibility and functionality. It also acts as a sort of Grand Central Station control room for its clients’ feeds, tracking traffic, subscription and other usage statistics — sort of publisher-side attention metadata.

As the company’s client list grew, Costolo says, customers began asking for additional services, such as feed splicing: combining feeds from different content sources — say, from a del.icio.us Web-bookmarks account, a weblog and a Flickr photo account — into one feed. The company now offers splicing services for any sort of RSS feed, tagging each element so that smart aggregator clients can filter and display them properly downstream.

The company is focused on public feeds, setting aside the enterprise market for the time being. “We get a lot e-mails from companies saying, ‘We’ve got all these feeds, we’d like to do interesting things with the metadata on those feeds, to deliver them to departments in interesting ways,’” Costolo says. “We just don’t have the time or the resources to go after the corporate market at this time.” Indeed, Costolo is working on another round of funding for sometime in the spring of 2005.

FeedBurner offers its basic services for free to most publishers, charging organizations that monitor large numbers of popular feeds a fee based on bandwidth usage. The company also plans to generate revenue from premium services, including better monitoring statistics and feed enhancements. Says Costolo: “We think, just like in the Web-based world, [publishers] are willing to pay for better, more accurate, and easier-to-understand statistics and metrics” such as how many times a feed item has been viewed, the circulation of a feed, how many unique individuals subscribe to and read the feed, and so on.
While the company doesn’t offer this level of monitoring yet, Costolo says the prices for such services will be in line with what Web publishers pay for statistics packages (such as Webtrends or WebSideStory). Such packages charge $20-$35 per month for small businesses.

The company also will offer enhancement services that add certain data to a publisher’s feed. For example, a publisher might ask FeedBurner to add the total circulation numbers for a feed that happens to have 60,000 subscribers. “Bloglines could compare that to its own subscriber numbers and realize that half of those subscribers read the feed through Bloglines. In other words, Bloglines has a 50 percent market share for this important feed. This is very useful information that will allow Bloglines to <insert some interesting business thing here>,” explains Costolo. “At the same time, the publisher of the feed might say, ‘As you can see, I not only have 60,000 subscribers, but my subscriber growth rate is 10 percent per month, and therefore I can leverage this data with my customers so that they <insert some upsell message to customers here>. Bottom line: We think this data will be useful to attention service providers and publishers alike. We can’t predict how they might leverage it, but we’re sure they’ll find it useful.”

A more possible feed “enhancement” – including ads in a feed – is currently in trials, says Costolo.

But will large publishers – or even small publishers – want to tell their competitors how well or badly they’re doing? “Transparency is becoming more and more widely recognized as a beneficial tool for individuals and companies,” Costolo responds. “Individuals will be more willing to share [their attention data] initially, and lots of publishers will be more willing to share it down the road.” Besides, even if the large publishers choose not to share their data, the “Long Tail” is where the volume is.

As RSS and Atom converge to one common standard, Costolo sees new opportunity in rich-media syndication, starting with podcasting: “You can really only podcast today with RSS 2.0, since it supports enclosures and Atom doesn’t. We got mail from many users complaining [that they couldn’t create podcast feeds], so we’re offering a mechanism to transform a user’s Blogger [which supports Atom 0.3], Microsoft Spaces [RSS 2.0], and TypePad Basic [Atom 0.3 and RSS 1.0] feeds, and any other feed that can’t get hooks into enclosures, into podcasts.”
This may seem nothing more than an enabling tool for disenfranchised users, but FeedBurner can add more powerful features to its transformation services. One example is groupcasts, a mechanism for organizing podcasts into collections of podcasts. “Sites like del.icio.us enable community bookmarking (in which you assign your own tags to a link and share these links with everybody else),” explains Costolo. “Del.icio.us currently only provides RSS 1.0 feeds, but a fabulous thing you can do with del.icio.us is get a feed of all links with a certain tag. So, to get things started, we decided to create the tag ‘groupcast’ over at del.icio.us. Anybody can assign an audio link the ‘groupcast’ tag. We then created [a groupcast feed on Feedburner], which is a podcast-enabled version of the del.icio.us feed. Voila, groupcasting.”

The result: a community broadcast network that could expand to encompass music, comedy, and a hundred other specialty channels syndicated by RSS. “This is a really simple way to create a collaborative broadcasting environment,” says Costolo. “Obviously, you don’t need to use the ‘groupcast’ tag – you can create your own tag names with friends or the broader community, then burn those feeds through us, publicize those feeds, and you’ve created your own group broadcasting environment. Simple and powerful.”

**BrowserAngel: From attention to consciousness**

*BY ESTHER DYSON*

While most of the companies here are platforms for publishers of micro-content, the real value may lie in specific communities that such tools can support. Of course, some of them will arise spontaneously once Attention.xml and platforms using it proliferate, but some communities may need an organizer’s help – especially those with reluctant participants. Take BrowserAngel, a UK-based start-up. While many of the blogging/RSS/community tools are platforms targeted at a broad audience of potential customers in a sort of winner-take-all game, BrowserAngel will concentrate on corporate social responsibility – creating a focused platform where corporations, NGOs and private citizens can engage.

The business model here is to build communities including not just the corporate critics but also the objects of their attention. It’s a challenging task – akin to Alice and all her teen-aged friends inviting Juan and all of his friends to a seminar on commitment. (Forgive the stereotypes, of both corporations and people!)
But founder Mehmet Golhan, who works by day as a banker, hopes that BrowserAngel can build up a critical mass of NGOs and interested citizens. With those people’s attention aggregated, BrowserAngel should be able to force the corporations to pay attention, too. That is, they will be advised to do so by farsighted PR agencies and enlightened insiders.

You can argue whether corporations want to listen or not, but it is certainly also true that it can be hard to listen effectively even if a corporation or institution is sincere (as we learned from our experience both inside and outside ICANN, trying to foster effective “public” participation).

Corporations often find themselves listening to self-styled public-interest groups who may be no more than self-interested fronts representing no one but themselves. (The same is true for politicians, we might add.) Yet how can they find the right people to engage with? Who’s a legitimate critic?

Those are the questions BrowserAngel intends to help them to answer, for a fee. Surely the best way to determine who’s legitimate is not through some certification process, but through the sort of bottom-up process that attention metadata can support. Which points of view are most credible and broadly supported? Which people do other people listen to? What issues are gaining traction? And so forth.

The business model is to charge the corporate participants, often going after their PR or corporate social responsibility budgets. BrowserAngel will sell to them direct and online, in the traditional manner. Individuals get to use the service for free, as do the online media who benefit from the extra attention/readers brought to them by the BrowserAngel recommendation system. Viral marketing plus promotion by a variety of public-interest groups should bring in the initial community.

For now, the system works primarily as a plug-in to a browser that tracks a user’s attention metrics. It creates a three-paned window, displaying the user’s “main window” as the primary window. It scans what the user is reading for example, an article about IBM and notices if the content concerns one of its selected topics initially a number of high-profile corporations and issues, and ultimately the names and other selected words relating to its sponsors. It highlights the word IBM, and links to feeds or pages concerning IBM, initially selected from what the user specifies as trusted sources. That could
be a list of favorite sites, or it could be everything that Henry trusts and exposes with a public bookmark, or, eventually, via Attention.xml.

The most popular of those sources (defined by what BrowserAngel users click on) rise to the top. And finally, in the third window, are messages to and from the sponsor – IBM, in this hypothetical case. If enough users have a question about IBM’s security practices, or its labor policies, that question rises to the top, and IBM has the opportunity to post its reply to an interested community. (It’s sort of a cross between Public Mind (see Release 1.0, March 2004) and a collaborative filtering tool.)

So far, BrowserAngel is in start-up mode, with funding of less than $2 million. It’s the sole surviving entity of an incubator Golhan founded in 2000, called drParsley. With luck, BrowserAngel will carry on the lineage. It will run its first public pilot early next year, in partnership with Business in the Community, the UK’s largest corporate social responsibility group, headed by Prince Charles and comprising 400 leading UK corporations including Merrill Lynch, Vodafone, Shell, Publicis, IBM UK and Oracle.

Clearly, BrowserAngel faces a number of challenges as it attempts to build critical mass, but we imagine a lot of corporations would find this a useful tool. Someday, we hope they’ll find it a useful way to listen as well as to respond.

**Breadcrumbs for the Web**

Attention.xml is an exciting potential standard that could help the Web become more “alive.” The value of the Web is largely due to the people on it. But so far they are treated either as individuals with individual content, or as statistics.

On the Web, everything is at hand, but as humans, we need a sense of perspective: What is close and worthy of our attention, and what should be relegated to the dark corners? Attention.xml will help to give shape, structure and dimension to the Web, making the actions and preferences of people visible in a way they weren’t before. For example, the most important thing you probably note about any restaurant you walk into is how crowded it is, and what kind of people are there. Shouldn’t we be able to do the same for the Web’s hangouts?
Resources & Contact Information

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For further reading:
Adam Bosworth speech on Attention: http://www.adambosworth.net/archives/000031.html
FeedBurner groupcast: http://feeds.feedburner.com/groupcast
Business in the Community: http://www.bitc.org.uk
World Wide World: IT ain’t just the Web anymore!

The World Wide World of the Web is now extending beyond IT. We’re expecting IT to solve real-world problems, even as real-world problems affect our use of IT.

IT is helping to solve social problems (medicine, education, security) as well as business challenges (supply chain management, customer relations, sales and marketing, regulatory compliance). But we need to solve real-world problems in order to use IT - many of them the same ones that IT can help solve: education, employee motivation, health-care costs, economic dislocations and the like. How is IT changing real-world business models, and how are IT’s own business models changing as customers supply more of the value, as open source erodes margins and as more and more value is delivered as intellectually enhanced services?

This year, more than ever, you can have fun at PC Forum and be productive at the same time. The mood will be upbeat because our industry is recovering, and even outsiders recognize the value of IT (!). Better yet, they need our help to make it work. At PC Forum, we’ll look at the wide world around us through the lens of information technology in a useful way. You’ll hear about new technologies and new companies and how they will affect your business as well as the world around you; you’ll understand the strategic gyrations of the big players; you’ll test your ideas against those of others on the panels and in the hallways; you’ll meet the potential partners and competitors that form your community at the social events.

IT leaders and business leaders – and you – will have the chance to share and challenge one another’s assumptions about what works in the real world. IT alone isn’t enough: More and more of the value of IT depends on how the customers make use of it. We’ll also assess corporate IT initiatives, as users strive to differentiate themselves with custom software to create strategic advantage. Where does that leave traditional application vendors?

In our increasingly friction-free world, good ideas don’t differentiate you for long. How can businesses use IT more effectively to serve their customers, and to differentiate themselves?

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