

# The MicroWeb

using MicroContent in practice

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In this presentation I will sketch how MicroContent can be used and is used in practice. MicroContent is still a fairly new subject, so there are not much examples available. What the actual value will be for the users is even harder to formulate.

## MicroContent revisited

Before I start I would like to refresh your mind on MicroContent itself. MicroContent are **focused** pieces of content. And with small pieces I do not mean the actual size in bytes, but the message contained in a MicroContent Item. A MicroContent Item can in fact be very large, think here of an image of many Megabytes. However the depiction on an image usually provokes a simple small message.

MicroContent Items are **self-contained**. A MicroContent Item does not need context in order to be understood. You still can understand a recipe when it is no longer in the recipe book. A music piece is still nice when it is ripped from the CD.

MicroContent Items are **indivisible**. You can not chop a recipe in pieces and still get something nice to eat. Chopping up a piece of music will kill the original idea.

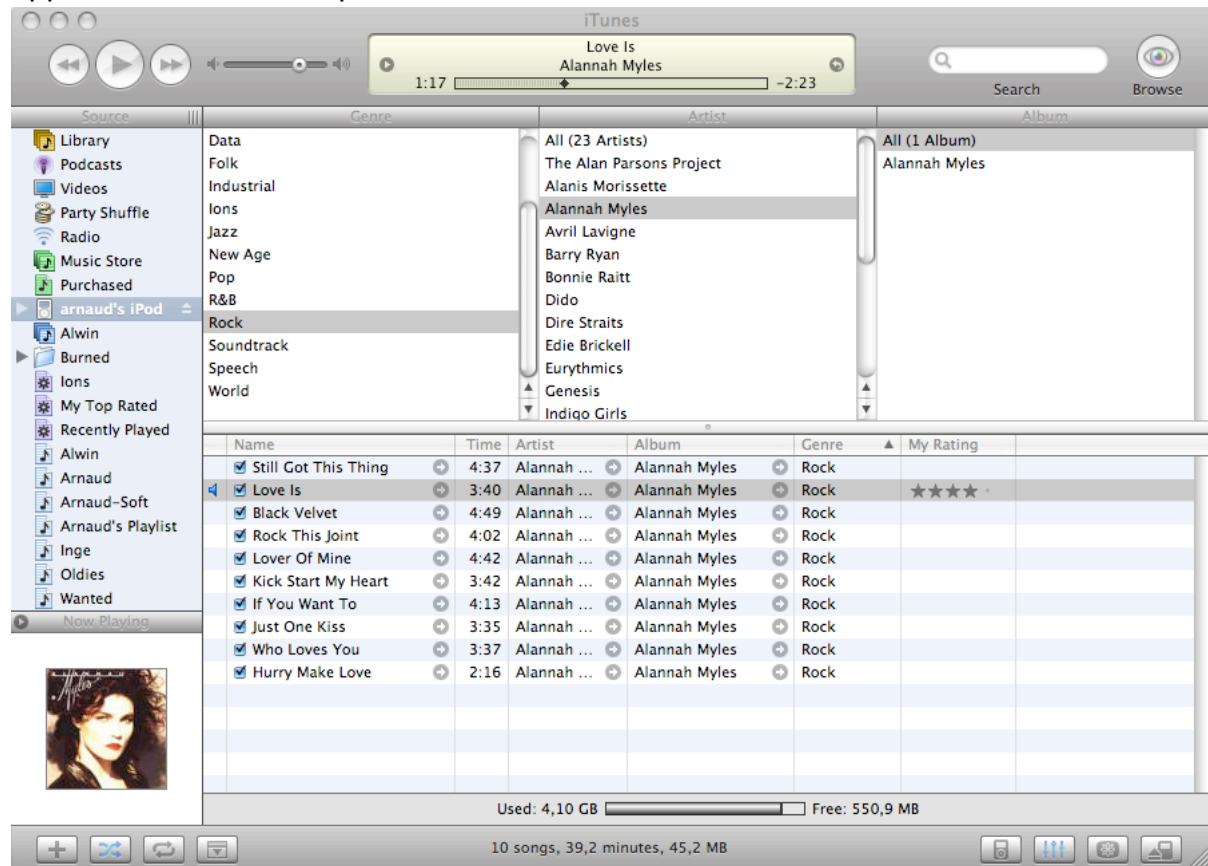
I find the most important characteristic of MicroContent idea however the fact that is **structured**. A MicroContent Item will consist of multiple fields and each field has it's own meaning and type. And the more structure the better.

The last characteristic is **addressability**. One should be able to find a MicroContent Item back. It should be possible to point others to an Item. Just as you can tell someone that you find a recipe with a title in a certain book by a certain author on a certain page, you should be able to find to MicroContent Item on Internet through an permalink.

## Applications

I would like to start the discussion with the application. I assume that everyone will at least have one such application Let me illustrate the features of such an application

through iTunes, Apple's application to manage music and audio. I use this application as an example as it is one of the feature richest MicroContent Clients.



One sees that the main interface is divided into five regions. In the lower right portion one sees the Items-pane, which is a tabular listing of the MicroContent Items. The tabular listing shows each Item as a row and shows selected fields as columns. In a good MicroContent Application users can set the columns shown, change the presentation order of the columns, set the sort key and sort direction.

To the left of this Items-pane one can see the Lists-pane. A list is a set of MicroContent Items. The user can either define the content of these lists, which I call handpicking (such as Lists with names as *Arnaud* or *Oldies*. Or the content of a List can be defined by a set of rules. These rules match user-defined values against actual field values of each Item in the Library. Examples of such Smart Lists are the List with names *Ions* and *My Top Rated*. One can also see some other Lists in this Lists-pane, I would like to point out: *Library* which contains all MicroContent Items; *Arnaud's iPod*, which contains Items (and Lists) on a connected device; *Videos*, which contains only Items of the type Video (a kind of pre-programmed Smart List); *Podcasts*, which contains Items distributed through RSS-feeds, which are thus Items that live on the Internet and are produced elsewhere; And finally the MusicStore, which allows users to buy and download MicroContent Items.

Interestingly these MicroContent application also include MicroContent Items that

are to be found on connected devices, the network or on Internet. For the user this is totally transparent and offers the same way to manage Items.

And finally I draw your attention to the View-pane. The metadata of an audio Item is split in two parts: the cover image of the album and the controls for listening to audio. In other applications this pane might cover a larger part of the interface.

The browser pane above the Items-pane allows the user to filter the contents of a List and zoom in quickly.

I have discussed this application rather extensively as it has a very broad feature set. This feature set is copied by all MicroContent Applications, both in term of functions offered and interface layout. And it does not matter whether we are talking about images, bookmarks, recipes, blog-items, etc.

In summary, the feature set that allows an end-user to manage MicroContent, seems to converge.

## Services

The modern way to manage your MicroContent Items is to use a service. This can be Flickr to manage Photo's, Del.icio.us to manage bookmarks, EventFul to manage events, etc. Normally we need to use a web-browser to use these services. However when these services offer RSS-feeds or other formats, we might be able to use other applications as well.

The screenshot shows the Del.icio.us interface for user 'aleene'. The main content area displays a list of bookmarked items, each with a title, a brief description, and a 'saved by' count. The sidebar on the right shows a list of tags under the heading 'microcontent' and 'unbundled tags', with counts for each tag.

del.icio.us / aleene /  by Arnaud Leene [popular](#) | [help](#)  
[your bookmarks](#) | [your network](#) | [inbox](#) | [links for you](#) | [post](#) logged in as **aleene** | [settings](#) | [logout](#)

All your items (1489)

« [earlier](#) | [later](#) » page 1 of 149

[FeedRinse: filters for your RSS and a happier Internet](#) [edit](#) / [delete](#)  
 What to think of this service?  
 to [microcontent feeds](#) ... [saved by 1 other person](#) ... 1 hour ago

[Slate.com starts "textcasting": podcasts of print content.](#) [edit](#) / [delete](#)  
 Slate is starting with textcasting.  
 to [microcontent enclosures](#) ... 2 hours ago

[What matters 2.0](#) [edit](#) / [delete](#)  
 Read/write is the only thing that matters for Web 2.0.  
 to [microcontent web2.0](#) ... on may 15

[7 Reasons Why Web Apps Fail](#) [edit](#) / [delete](#)  
 Nice overview of Web 2.0 problems.  
 to [microcontent services web2.0](#) ... [saved by 319 other people](#) ... on may 15

[Speakeasy - Speed Test](#) [edit](#) / [delete](#)  
 Nice way to test the speed of your broadband service  
 to [broadband, speed](#) ... [saved by 1496 other people](#) ... on may 14

[Alex Barnett blog : Go and microformat stuff! \('cause it's going to happen anyway\)](#) [edit](#) / [delete](#)  
 Comments on Live Clipboard.  
 to [microconten, mashing](#) ... [saved by 9 other people](#) ... on may 13

[Worldmapper: The world as you've never seen it before](#) [edit](#) / [delete](#)  
 An very interesting set of world maps, where each country is sized based on its relevance.  
 to [maps, world](#) ... [saved by 769 other people](#) ... on may 12

[Quaero: 10 reasons why the French search engine will fail.](#) [edit](#) / [delete](#)  
 Great overview by Loic Le Meur why Quaero will not succeed  
 to [quaero, google](#) ... [saved by 7 other people](#) ... on may 10

[BoekenlijstSKC](#) [edit](#) / [delete](#)  
 Brussel, T. van De drieling bij Janneke thuis 4 Leene, C. Kluitman  
 to [leene schol charlotte google id:0223](#) ... on may 9

[\[PDF\] Children'sLiterature Bibliographies](#) [edit](#) / [delete](#)

**microcontent**  
 166 [microcontent](#)  
 21 [microformat](#)

**unbundled tags**  
 1 [\(ada\)](#)  
 1 [\(bernard\)](#)  
 7 [\(bert\)](#)  
 1 [\(broos\)](#)  
 1 [\(eilish\)](#)  
 1 [\(frits\)](#)  
 2 [\(gedalja\)](#)  
 2 [\(ger\)](#)  
 13 [\(henk\)](#)  
 4 [\(hennie\)](#)  
 1 [\(jaap\)](#)  
 2 [\(jim\)](#)  
 1 [\(lisanne\)](#)  
 8 [\(lucie\)](#)  
 7 [\(marjoleine\)](#)  
 6 [\(rob\)](#)  
 1 [\(stan\)](#)  
 2 [\(steve\)](#)  
 1 [\(wilco\)](#)  
 1 [\(wim\)](#)  
 1 [\\*\\*](#)  
 1 [\\*\\*\\*](#)  
 1 [2002](#)  
 1 [2004](#)  
 1 [a9](#)  
 2 [aaltje](#)  
 2 [aaltjen](#)  
 1 [aavik](#)  
 1 [abigail](#)  
 1 [acronym](#)  
 1 [address](#)  
 1 [adriaan](#)  
 1 [adriana](#)

Let us have a look at the Del.icio.us service as an example. One can not really talk of panes here, but we see a list with Items. There is no View-pane as all information on an Item fits in a few rows. Del.icio.us heavily uses tags, so we have pre-programmed Smart Lists for each tag. Clicking on the tag will show the relevant Items, which contain that tag.

An interesting function of Del.icio.us is that it also publishes my bookmarks on Internet. Vice-versa it makes it possible to look at bookmarks of other users, see specific tags and through RSS subscribe to interesting tags.

Another interesting thing of Del.icio.us is that it has various API's. This allows the bookmarks of Del.icio.us to be integrated into Applications, to integrate the data into a web-site, post from an application such as WebnoteHappy or NetNewsWire.

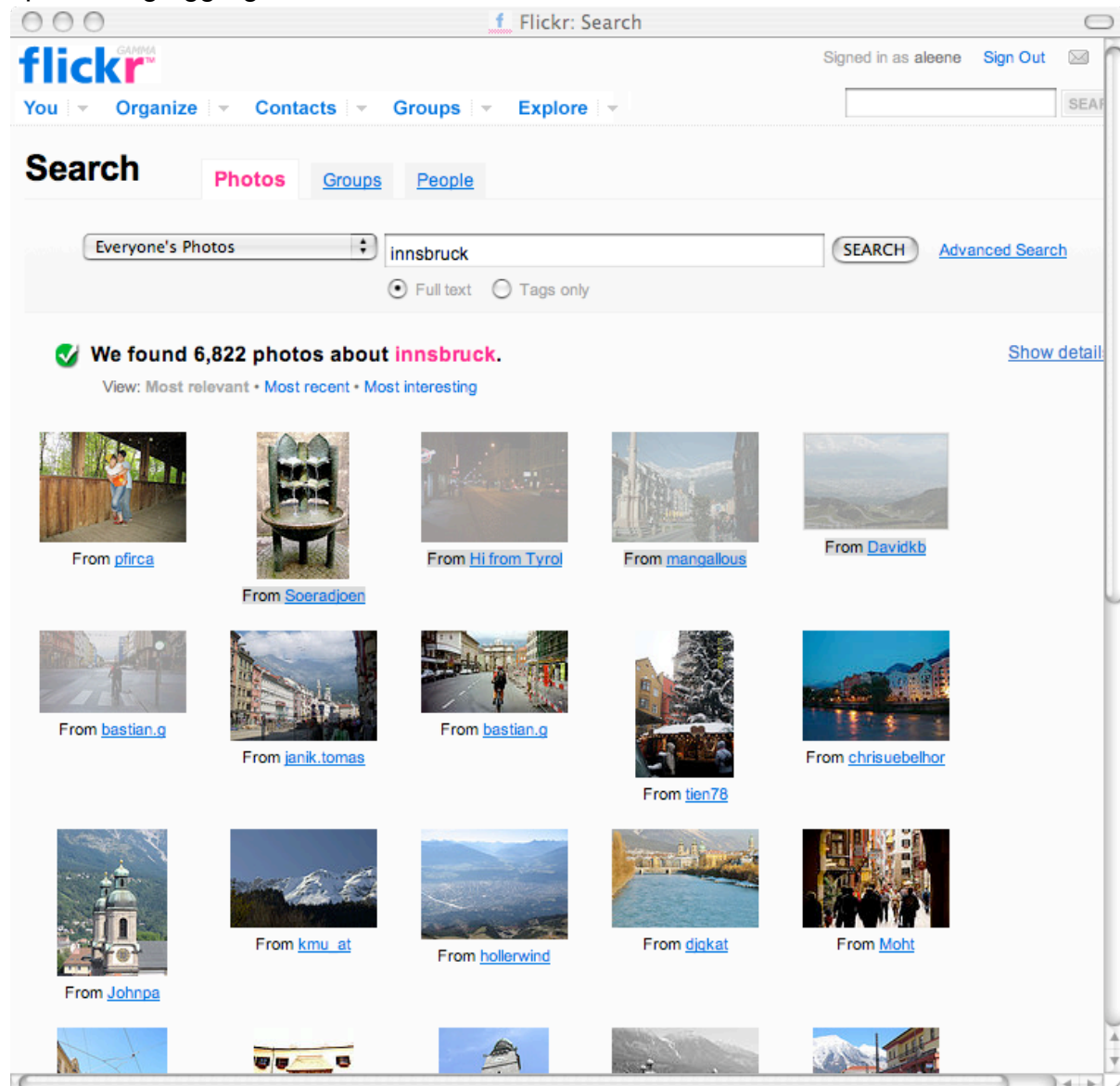
In fact I only use these API's in order to access Del.icio.us, I never go to the web-site

itself.

In general I am disappointed about the feature set of these MicroContent Services. The major advantage of these MicroContent Services is their aggregation feature, i.e. the combination of MicroContent from multiple authors.

## Aggregation

I talk about aggregation when a service aggregates MicroContent from multiple authors. In the example of Del.icio.us discussed earlier, I can see all bookmarks for a specific tag aggregated over all Del.icio.us users.



Similarly one can look at all images stored on Flickr based on tags or date and again these are aggregated over all Flickr users.

Maybe you get already the gist of the problem: these Aggregation Services are limited to their users. If you want to see more you must go to a true aggregator. The first MicroContent Aggregators are coming on the scene now. The aggregators for Blog Items are already a bit longer around. Technorati is one of the best examples.

The screenshot shows the Technorati search results for the term 'microcontent'. The page is signed in as 'Arnaud' and features a green navigation bar with options like 'Search', 'Tags', 'Blog Finder', and 'Explore'. The search bar contains 'microcontent' and shows '3,131 posts contain:'. Below this, there are filters for 'All Blogs', 'Your Favorites', 'Web2.0', and 'Microlearning'. The first search result is titled 'Filecasting' by Arnaud Leene, with a snippet: 'Slate is starting with textcasting. The idea is that a RSS-feed is used to send text files as enclosures...'. Other results include 'Windows Vista to dent the \$3.6 billion security...' and 'Geek News Central Podcast by Todd Cochrane'. On the left side, there is a 'Mentions by Day' bar chart showing posts from April 17 to May 16. Below the chart are sections for 'Today's Most Popular' and 'New in the Technorati Blog'. A sidebar on the right features an advertisement for the HP Compaq nc6400 Business Notebook, highlighting 'Up to 16 hours of battery life' and 'Intel® Centrino® Duo Mobile Technology'.

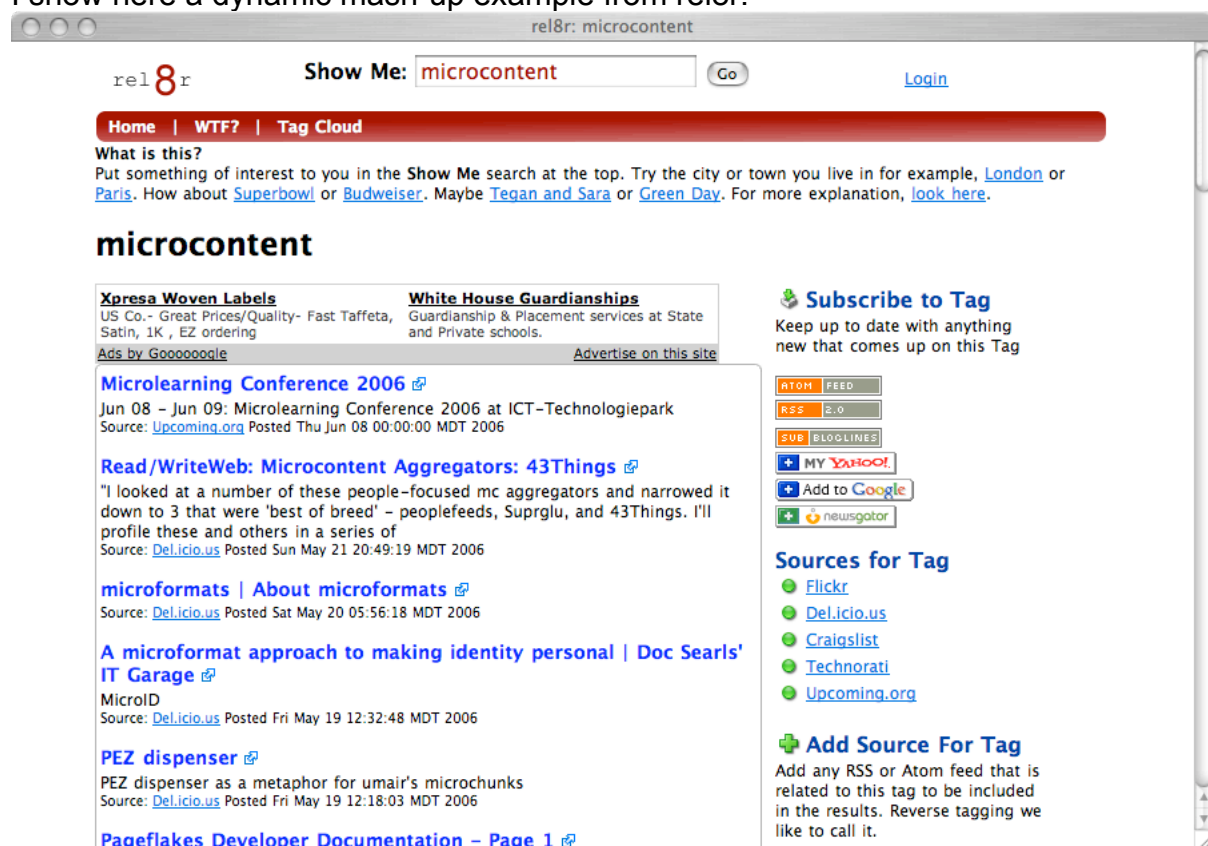
Here you see the result of a search for the term *MicroContent* in all the blogs they follow. You see a list of Items with their title, author, blog name, date and part of the description. Technorati has several features to zoom in to my favourite authors, authoritative blog items or related subjects. Naturally a user can subscribe to a RSS-feed of his so search, so he no longer has to look at the web-site, as I am doing now. Aggregation is just a simple way of combing MicroContent Items, it gets more interesting when we start combining MicroContent Items in other ways. We call this **mashing** or **mixing**.

## Mash-ups

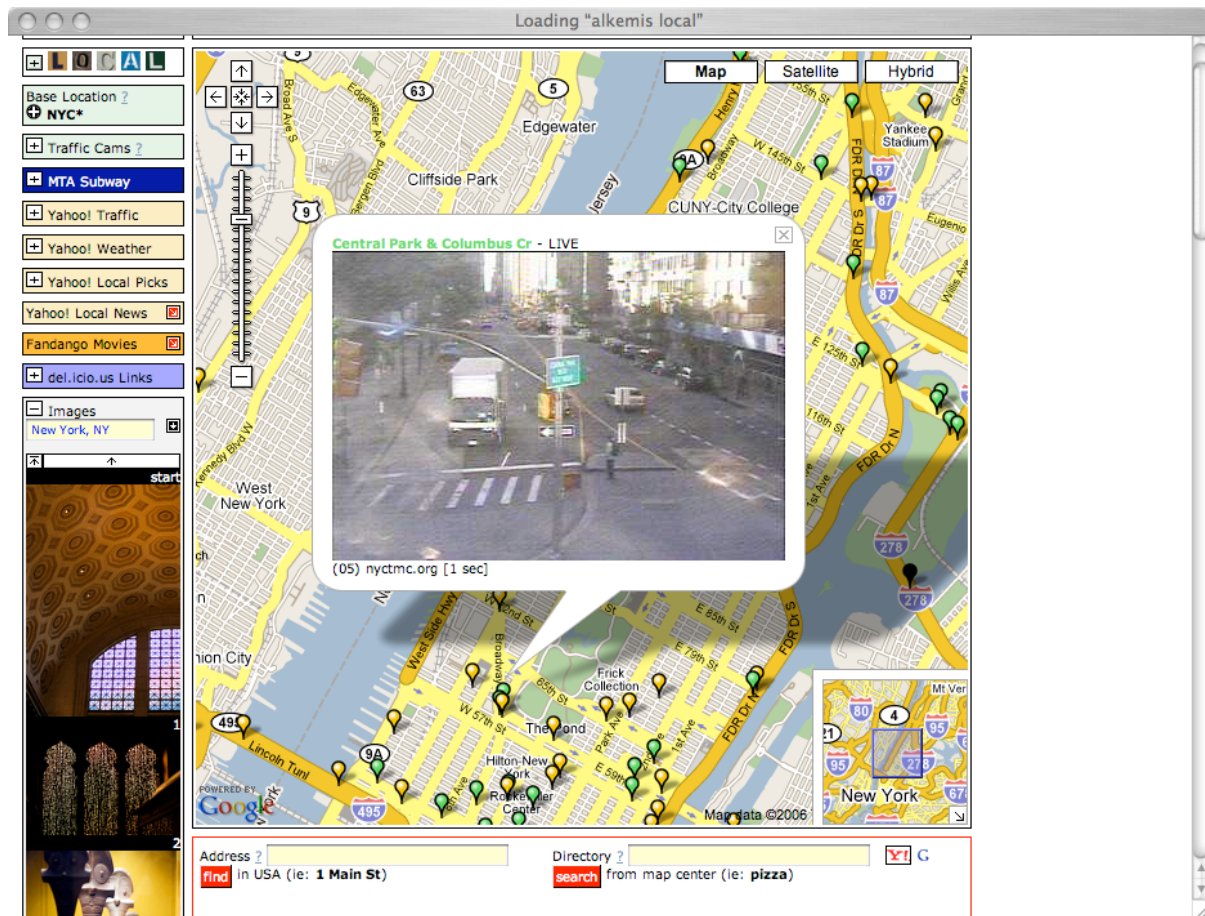
The idea of mashing is that one combines MicroContent Items of multiple Types. There are two ways to create mash-ups: static and dynamic. In the dynamic case, it is the web-developer that decided both the sources and the rules behind the mashing. In the dynamic case the rules are set by the user. The mashing is then based on the values of a single field of MicroContent.

In order to combine different MicroContent Types in a dynamic way, they must have a single field in common. At the moment the best example for this kind of mashing is the tag-field. There are more and more MicroContent types introduced that use a tag-field. The best MicroContent examples are blog-items on Technorati, images on Flickr and bookmarks on del.icio.us.

I show here a dynamic mash-up example from rel8r.



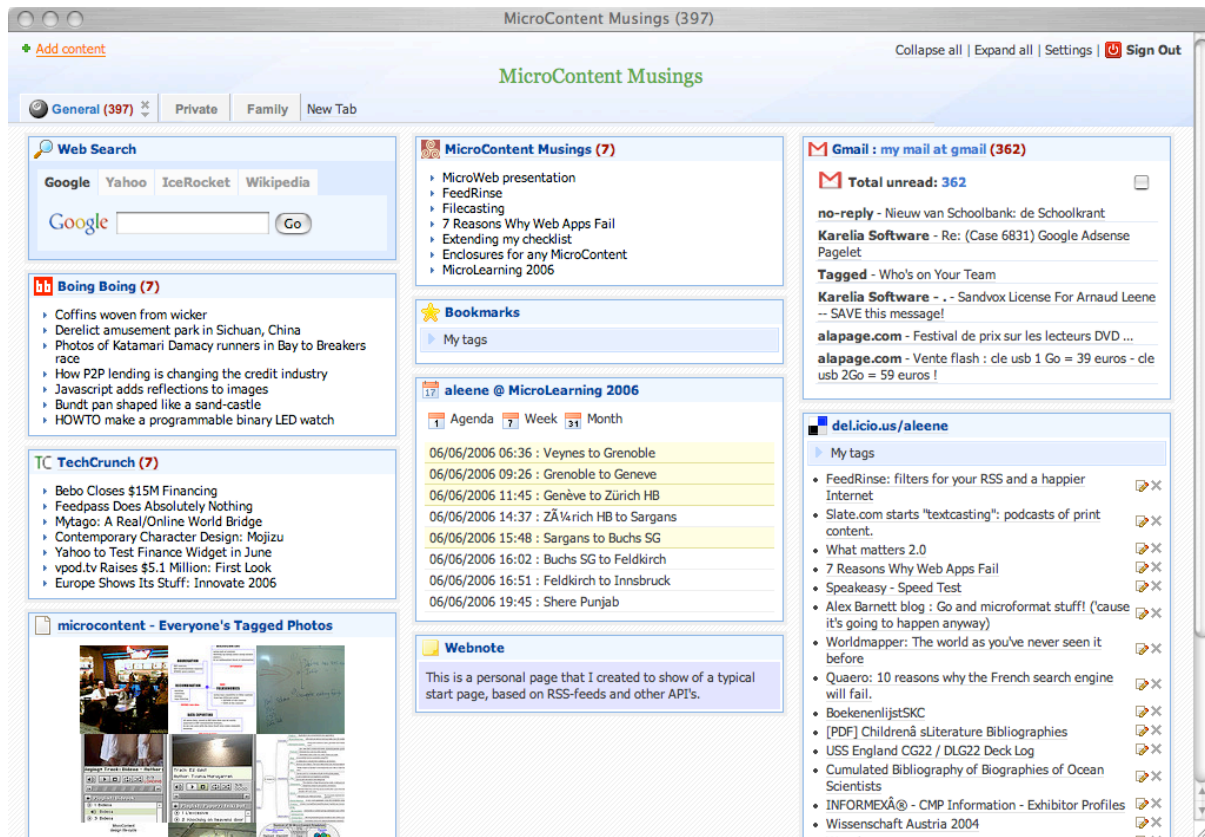
Another example of such a field is the geographic location field, also known as the geo-tag. In this case MicroContent Items are combined based on the geographic location, or better a radius around a location. Usually these Items are then presented on one of the Map-services, such as Google Maps. The service Alkemis that I show here combines data from many places. You see a map taken from Google upon which geotagged Items are placed for traffic incidents en web-cams. Interestingly this service also mashes Items that are tagged in the traditional way. It mashes Items from del.icio.us, movies, flickr, etc.



These are just two examples (many more can be found on Programmable Web) of mashing. There are many ways to combine data from many places. These two services seem to be the most complex however and show you what is possible. But they are still examples of web-pages created by a service provider.

## Personal mashing

There are now several services that allow end-users to create their own web-pages. These services really use the idea of the MacroContent container. Thus a web-page is split into 2 or more columns and in each column multiple modules can be placed. The user can then define each module and where the module should take the data. The user can drag the modules around and thus make its own web-page that can serve as starting point. The example that I show here is from NetVibes. This service can integrate RSS-feeds, Email, calendar and photo feeds. And it has many more modules.



This approach of modularising a web-page, is getting hold in many places and visible on many web-sites. However the way that MicroContent is combined is still pretty flat, there is not much structure.

## MicroWeb

In the previous example basically we only aggregated MicroContent Items, either through a common type, a common field or a common user interest. In a next step one looks at actual relations between MicroContent Items. There are not to many real world examples available. A good example are reviews. A review is personal record of a user experience with to another object. This other object can be a book, a DVD, a CD, a song, a restaurant, a holiday destination, a web-site; in general any product or service. This reviewed object has an important characteristic in it's uniqueness. This reviewed object has a unique identifier, such as an ISBN-number, street address, geographic location, or URL. This makes it possible for anyone to review that object and share the reviews. The review itself can contain fields such as a description and a rating. And it naturally contains a reference to the object.

The screenshot shows the LibraryThing website interface. At the top, there's a navigation bar with 'LibraryThing BETA' and 'Catalog your books online.' Below that, a menu includes 'Your catalog', 'Add books', 'Search', 'Your profile', 'Tags', 'Pssst!', 'Extras', 'Home', 'Zeitgeist', 'About', and 'Blog'. The main content area displays a list of books with the following columns: Title, Author, Date, Tags, Rating, and Shared. The books listed are:

Title	Author	Date	Tags	Rating	Shared
The Birthday of the World and Other Stories	Ursula K. Le Guin	2003	SF (edit)	★★★★½	63
Bread Alone	Judi Hendricks	2002	(edit)	.....	20
Chainfire (Sword of Truth, Book 9)	Terry Goodkind	2005	Fantasy (edit)	★★★★	70
Close to Home : A Novel of Suspense	Peter Robinson	2004	Police (edit)	★★★★	7
The Conscious Universe : The scientific Truth of Psychic Phenomena	Dean Radin	1997	PSI (edit)	★★★★	6
Dolmens et menhirs en Languedoc et Roussillon: 27 circuits de découverte	Marc	2000	(edit)	.....	
The Extraordinary Healing Power of Ordinary Things : Fourteen Natural Steps to Health and Happiness	Larry Dossey	2006	(edit)	.....	

In the example I show here we see a list of books I entered in the LibraryThing service. In reality however this is my Amazon wishlist that I could report into the service. We see a list of review items. These review items show two kinds of fields: object fields and review fields. Thus the image, the title, the author and the date are object fields, they belong to the object. And the tags and ratings belong to the review field.

What we see here is the merging of two MicroContent Items: review and object. The MicroContent Item related to the object has been taken from third party services, such as Amazon, BOL or some library service. In the case of this service the user can choose which third party service should be used for the merge. Unfortunately there is not a unique source for these objects. Different sources might contain different information on objects. We have a very fuzzy relation between reviews and objects.

Another example of the MicroWeb are comments related to blogs, but I will not discuss these here.

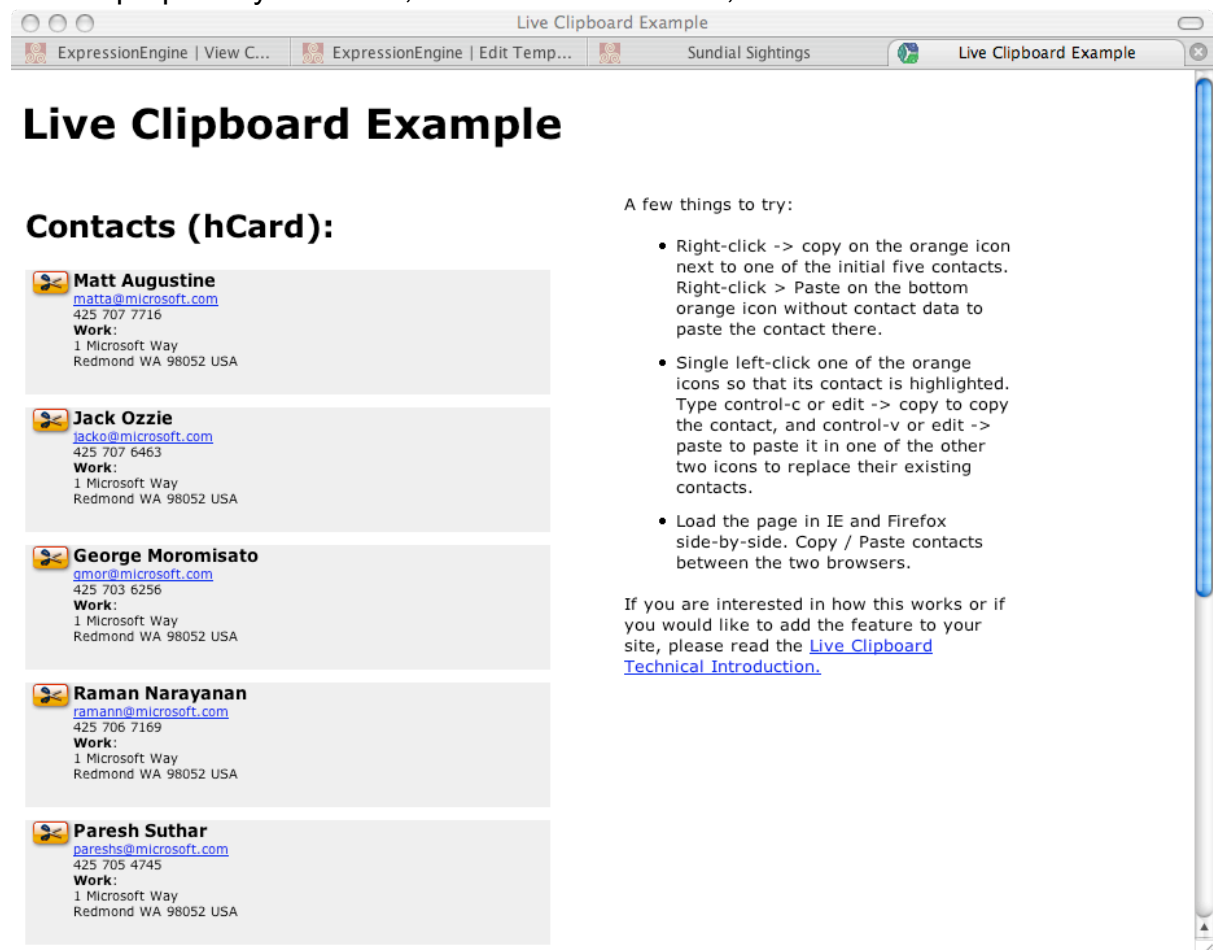
## Manipulating

I have been discussing how you can see MicroContent everywhere in applications,  
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services, aggregators and mashing. Naturally the MicroContent Items must be created by somebody. This can be done in most MicroContent Clients, which also allow to publish the Items on the Internet or mash them into RSS-feeds or Web-pages.

A user however wants to do more with Items: he wants to manipulate them, i.e. copy and share Items, send a recipe to your mother, share a review with friends. Maybe you have seen the "share this" functionality on web-sites, which is not very interesting as it only allows the exchange of the URL's.

Audio, video and images MicroContent Items can already be nicely manipulated. Just drag&drop the Items onto your PC to get a local copy. This also works for bookmarks, but we like to extend it to any MicroContent Item. The nice thing about audio for instance is that it is file based and thus maps nicely on a PC. This approach can and should also be used for other MicroContent types and there are indeed proprietary solutions, such as MacGourmet, that do this.



The screenshot shows a web browser window with the title "Live Clipboard Example". The browser's address bar and tabs are visible, showing "ExpressionEngine | View C...", "ExpressionEngine | Edit Temp...", "Sundial Sightings", and "Live Clipboard Example". The main content area has a heading "Live Clipboard Example" and a sub-heading "Contacts (hCard):". Below this, there are five contact cards, each with a name, email address, phone number, and address. To the right of the contact cards, there is a section titled "A few things to try:" with a list of instructions. At the bottom of this section, there is a paragraph of text and a link to a "Live Clipboard Technical Introduction".

**Live Clipboard Example**

**Contacts (hCard):**

- Matt Augustine**  
matta@microsoft.com  
425 707 7716  
**Work:**  
1 Microsoft Way  
Redmond WA 98052 USA
- Jack Ozzie**  
jacko@microsoft.com  
425 707 6463  
**Work:**  
1 Microsoft Way  
Redmond WA 98052 USA
- George Moromisato**  
gmor@microsoft.com  
425 703 6256  
**Work:**  
1 Microsoft Way  
Redmond WA 98052 USA
- Raman Narayanan**  
ramanni@microsoft.com  
425 706 7169  
**Work:**  
1 Microsoft Way  
Redmond WA 98052 USA
- Paresh Suthar**  
pareshs@microsoft.com  
425 705 4745  
**Work:**  
1 Microsoft Way  
Redmond WA 98052 USA

A few things to try:

- Right-click -> copy on the orange icon next to one of the initial five contacts. Right-click > Paste on the bottom orange icon without contact data to paste the contact there.
- Single left-click one of the orange icons so that its contact is highlighted. Type control-c or edit -> copy to copy the contact, and control-v or edit -> paste to paste it in one of the other two icons to replace their existing contacts.
- Load the page in IE and Firefox side-by-side. Copy / Paste contacts between the two browsers.

If you are interested in how this works or if you would like to add the feature to your site, please read the [Live Clipboard Technical Introduction](#).

Unfortunately many MicroContent Items are locked into MacroContent containers. We need a way to extract these Items from their MacroContent jails. For this we need an encoding, such as microformat, so that the Item can be recognised. And we need a handle to manipulate these Items. Microsoft is experimenting with

Live Clipboard which allows to copy & paste these Items as XML fragments. It is not here yet, but it will be a great way to take an Item and add it to your personal collection, to publish it, etc.

## Future thoughts

Where is all this leading to?

I see this MicroWeb as an intermediary step towards the semantic web. In this future all the things we put up on Internet will have meaning. It will be much easier to find persons, objects and very specific content.

It might also lead to a Micro-Economy. Just as in Apple's iTunes we buy audio and video and since some time documents, we will buy specific MicroContent Items of any type. It will be a re-invention of the web.

It will be a time of liberation. MicroContent Items will be liberated from confining services and containers. End-users can really become pro-sumers, both producing and consuming MicroContent, just as is happening already with blogs. The consumers will define their own context by mixing the feeds and Items that they are interested in. And we are already seeing that consumers are becoming publishers as well. Consumers no longer rely on official publisher, but take content from everywhere. It is all about further individualisation: mix MicroContent Items from location, create your own context and release the content from the Web

## Web-services and products mentioned

- ◆ Alkemis - <http://local.alkemis.com/>
- ◆ Del.icio.us - <http://del.icio.us/>
- ◆ Delicious Library - <http://www.delicious-monster.com/>
- ◆ Flickr - <http://www.flickr.com/>
- ◆ iPhoto - <http://www.apple.com/ilife/iphoto/>
- ◆ iTunes - <http://www.apple.com/itunes/>
- ◆ MacGourmet - <http://www.advenio.com/>
- ◆ Microformat - <http://microformats.org/>
- ◆ NetNewsWire - <http://www.newsgator.com/>
- ◆ NetVibes - <http://www.netvibes.com/>
- ◆ Programmable Web - <http://www.programmableweb.com/>
- ◆ Rel8r - <http://www.rel8r.com/>
- ◆ RocketBoom - <http://www.rocketboom.com/>
- ◆ Technorati - <http://www.technorati.com/>
- ◆ WebnoteHappy - <http://www.happyapps.com/>