Web 2.0 for the Rest of Us

February 16, 2006

By Russell Doty

Once again, the February meeting had an excellent turnout with over 60 people showing up to hear Joshua Porter of User Interface Engineering (www.uie.com) talk about *Web 2.0 for the Rest of U*s. The talk explored ways that "the Web" is evolving and the implementation and implications of these changes. This was the second talk from UIE, following the January presentation by Jared Spool. I was impressed with the knowledge and insight that these speakers provided – if you missed these presentations, you missed out on the true value of belonging to organizations such as ACM and IEEE.

Joshua began by stating that he wasn't going to talk about Web 2.0 – that this term was fraught with controversy and debate. Instead, he wanted to talk about changes in Web technologies and the implications of these changes. And, perhaps, a few observations on how to make use of these change.

One of the first points is that we are experiencing the evolution of the Web from the *Read-Only Web*, dominated by a few large companies, to the *Read/Write Web*, largely driven (today) by Blogs. This is in many ways as radical a change as the original Web was. It means that information is being created – quickly and in incredible volume – by individuals and small groups and made instantly accessible to everyone.

These changes include many contradictions: One is the long tail, an example of Pareto's Rule, where 20% of the sites are responsible for 80% of Web traffic. In fact, the top four sites (Google, Amazon, Yahoo and Ebay) account for a significant portion of all Web traffic. A corollary of this is that the combination of the relative flatness of the long tail – the huge number of sites that together receive 20% of Web traffic - combined with the high volume of total Web traffic, means that many sites far out on the tail still receive substantial traffic. The Web is big enough today to support many specialized niches.

After saying that he wasn't going to talk about Web 2.0, Joshua defined Web 2.0 as *software that lets **you** leverage the network*. In many cases, the form of this leverage can be counter intuitive. The challenges are as much social as technical. The network is a collection of *individuals* each *acting in their own best interest*.

Reaching these people requires cutting through the huge pile of information available online. A major factor is the *Paradox of Choice* – when we have too many choices, we often choose nothing. For information to be useful, it must both be *available* and *presented in small enough chunks* to be absorbed. Much of the evolution of the Web is tools for finding and presenting relevant information in usable quantity. Examples include search, both search engines like Google and domain specific search like Amazon, RSS feeds, and even Blogs (many Blogs are effectively human searches over specific areas, with human evaluation of sources and group feedback).

These tools link directly to content pages, bypassing traditional site navigation. As a result, the Home Page is no longer the most important page and context must be maintained across the entire site.

Because of the huge amount of content available, Recommendation Systems such as Amazon Customer Reviews are vital for helping people sort through – and validate – information. Joshua described user testing of Ecommerce sites where some users would refuse to make purchases if they couldn't get to Amazon and check the user feedback on the products they were considering! Joshua bluntly stated "recommendation systems are a forced move"; you have to deal with them if you are a Web developer, especially if you are involved in Ecommerce.

Integrating Java and C++

March 16, 2006

By Russell Doty

Alexander Krapf of CodeMesh delivered an interesting presentation on Integrating Java and C++. This was one of the more technical presentations, providing considerable insight into challenges and architectural decisions arising when attempting to integrate Java and C++ code. As I am neither a C++ nor a Java programmer, I'm afraid I was unable to fully appreciate the talk. Any errors in this report are strictly mine! You are encouraged to visit the CodeMesh Web site at www.CodeMesh.com for more details.

The first question raised was "Why integrate Java and C++ code?" There are a few technical reasons, such as the superiority of C++ for high performance computing, but most of the time it is for business or people reasons. Both C++ and Java have huge installed bases. C++ has been the most widely used language, but Java has been growing in recent years. For example, many Universities have switched from C++ to Java to teach object oriented programming. Business mergers may bring together applications written in C++ and Java that need to be combined to provide full capabilities. Different development teams in a single company or department may have chosen different languages. Third party applications or libraries may need to be used. There are many reasons for needing to combine code written in different languages; there are also many ways to do this integration.

Alexander focused on calling Java functions from C++. He sees considerable demand for this where C++ programmers wish to use some of the high level functions available in Java. The approach CodeMesh has taken is to support the semantics of both languages – to support the semantics of Java inside a C++ program. This has major implications, ranging from language specific characteristics of pointer handling and constructors to differing data models for items such as arrays and strings. Strings received special attention – C++ treats them in a lightweight fashion as sequential space in memory, while Java treats strings as relatively heavyweight objects. Thus, unless care is taken in design and coding, string manipulation from C++ using Java functions can become very expensive!

Alexander recommended using in-process integration, as it provides advantages in performance and security. Considerable experience in developing large applications using in-process integration has shown that in usually produces a 0%-25% performance penalty over use of a single language, and that the performance penalty for combining the languages is often negligible. He also recommended including a private Java runtime environment in your application, noting that this will greatly simplify your life by making software distribution easier and reducing environmental errors.

It was clear from the talk that it is *possible* to integrate Java and C++ code, that there are often compelling business to do so, and that there are often considerable benefits to developing integrated applications. While Alexander didn't say it, an obvious conclusion is that the right tools and expertise make this task much easier.

GBC ACM May General Meeting

Topic: Self Organizing Robots
Speaker: Daniela Rus, MIT Computer Science and Artificial Intelligence Lab
Date: Tuesday, May 9, 2006 6 -8 PM
Location: TBD
Details: http://www.gbcacm.org/

Kakuro Puzzles

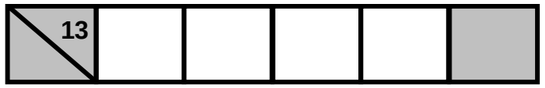
(from http://www.kakuro.com)

Kakuro puzzles resemble crosswords which use numbers instead of words. The aim of the game is to fill all the blank squares in the grid with only the numbers 1-9 so that the numbers you enter add up to the corresponding clues. When the grid is filled, the puzzle is complete.

Kakuro puzzle grids can be any size, though usually the squares within them have to be arranged symmetrically. As a rule of thumb, the more blank squares a puzzle contains, the harder it is. However, this isn't always true, especially if it is a good quality puzzle. It is very important to note that a proper Kakuro puzzle has only 1 unique solution and it will always have a logical way of reaching it, there should be no guesswork needed.

Kakuro puzzles will contain many clue squares. These are squares which help you to solve the puzzle. A clue square can have an "across" clue or a "down" clue, or both. The across clue is located in right or upper triangular section of the clue square; the down clue is located in the left or lower triangular section of the clue square.

In the example below we see an "across" clue square, with 4 blank squares to the right of it. Note, that darkened squares are not used. The 4 blank squares make up a "run". You must fill the run so that all the numbers in it add up to the clue (in this case 13). So you could enter 1,2,3 and 7.



The same is true for "down" clue squares. However, the squares which form the run are positioned below the clue square in that case. You may not enter any duplicate number in the same run. You must fill in every run, using only the numbers from the set 1-9 without duplicates so that they add up to the clue square given.
The puzzle below is rated easy. Try your luck!

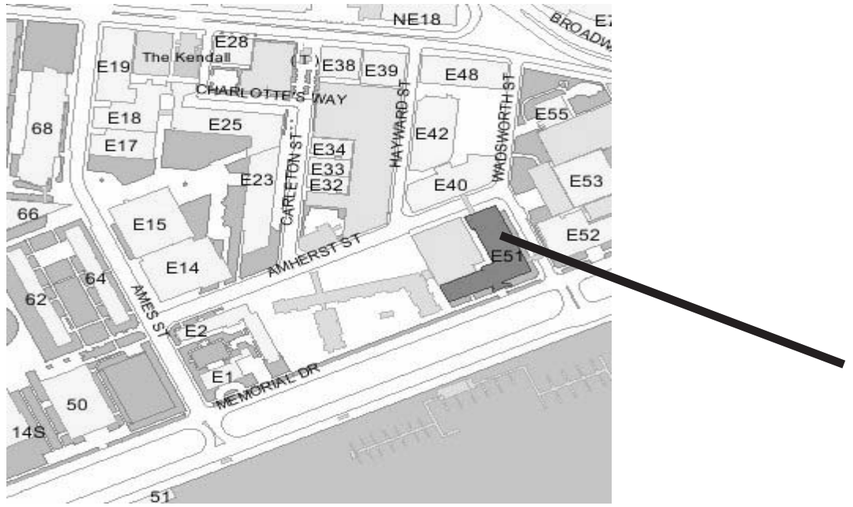
		42	28	29	
	23 / 4				15
32					
16					
	14 / 12				11
15					
34					
	7				

GBC ACM April General Meeting - *continued from page 1*

MIT Communications Futures Program, a project for industry collaboration and coordination along the communications value chain.

MIT is at 77 Massachusetts Avenue, just on the north side of Memorial Drive (on the north shore of the Charles River) in Cambridge, MA. Building E51 is located near the Eastern extremity of MIT, on Memorial Drive close to the Longfellow Bridge. It also adjoins Amherst Street and Wadsworth Street. Room 315 is on the third floor.

Parking: Driving westbound on Memorial Drive, you may park on the street near Building E51. There are often spaces available there in the evening. Driving eastbound on Main Street you will see an MIT parking lot on the right between the Kendall Square T and the Longfellow Bridge.
For a map: http://whereis.mit.edu/bin/map?locate=bldg_e51



April Meetings

Women Entrepreneurs in Science and Technology (WEST)

Topic: Beyond Your Own Domain: Explore the Convergence of Unlikely Technologies
Speaker: Keynote Speaker, Ray Kurzweil, Inventors Hall of Fame and National Medal of Technology
Date: Thursday, April 6, 2006 8 AM - 4 PM
Location: Sheraton Boston Hotel, Boston, MA
Details: http://westorg.org/prog/conf06/index.html

Software Quality Group of New England (SQGNE)

Topic: Software Testing for Different Development Processes and Industries **Speaker:** Carol Perletz
Date: Wednesday, April 12, 2006 6 PM Networking, 6:30 -8:00 PM Business Meeting &Presentation
Location: Sun Microsystems, Burlington, MA
Details: http://www.sqadvice.com/SQGNE_Calendar.htm

New England Information Security Group (NEISG)

Topic: Legal Implicatons of E-Mail **Speaker:** Mirapoint
Date: Thursday, April 20, 2006 6:30 PM **Location:** Microsoft Office, Waltham, MA
Details: http://www.neisg.org/Meetings/

***Real Times* Editor**
Rochelle Goren, editor@gbcacm.org

The Real Times is published ten times per year (September through June) and is the official newsletter of the Greater Boston Chapter of the Association for Computing Machinery, First-class postage paid at Boston, MA, 02101.

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*** April/May 2006 Events ***

Date	Page	Sponsor	Location
April 6	3	WEST	Sheraton Boston Hotel Boston, MA
April 12	3	SQGNE	SUN Microsystems Burlington, MA
April 20	1	GBC/ACM April General Meeting	MIT Room E51-315 Cambridge, MA
April 20	3	NEISG	Microsoft Office, Waltham, MA
May 9	5	GBC/ACM May General Meeting	TBD

If the top line of your mailing label below reads **EXPIRED, please renew your membership (for just $10/yr). For that $10 you get a copy of this newsletter/local event calendar mailed to any address you choose plus the right to attend PDS seminars at the member rate. Please consider renewing for more than one year at time. Your support helps make possible the wide array of GBC/ACM activities.**

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The Real Times

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GBC/ACM April 2006 Meeting - Cosponsored by IEEE Computer Society & IEEE Communications Society

Reinventing the Internet: Is it Time?

Speaker: David Clark, MIT Sr. Research Scientist & Principal Designer TCP/IP
Date/Time: Thursday, April 20, 2006, 7-9 PM
Location: MIT Room E51-315, Cambridge, MA

The basic design of the Internet was laid out about 30 years ago and it works very well. The Internet is great at what it does - it supports innovation, the creation of new applications, and the integration of all types of information over all sorts of technology. But, it has persistent problems. The research community has been trying to solve its security problems for over 20 years. There are persistent and troublesome problems of industry structure arising from its open interfaces. Open interfaces are great for innovation but tough on competition. The Internet is hard to manage, both for large service providers and for users. And, this is the situation today. What will happen in10 years when there are billions of small processors everywhere? Is the Internet for today's PCs or for all the computing devices of tomorrow? The question for the research community is how best to conceive a future Internet and how best to get there. This talk will speculate on some requirements for the future, some things we might do differently to get there, and a new National Science Foundation research program designed to let the research community play its part in the future.

David Clark is a Senior Research Scientist at the MIT Computer Science and Artificial Intelligence Laboratory where he has worked since receiving his Ph.D. there in 1973. Since the mid 70s, Dr. Clark has been leading the development of the Internet; from 1981-1989 he acted as Chief Protocol Architect in this development and chaired the Internet Activities Board. More recent activities include extensions to the Internet to support real-time traffic, pricing and related economic issues, and policy issues surrounding the Internet, such as broadband local loop deployment. His current research examines re-definition of the architectural underpinnings of the Internet and the relation of technology and architecture to economic, societal and policy considerations. Dr. Clark is past chairman of the Computer Science and Telecommunications Board of the National Academies and has contributed to a number of studies on the societal and policy impact of computer communications. He is co-director of the

Continued on page 3

Please check for any last-minute changes to meeting arrangements by visiting the GBC/ACM website <http://www.gbcacm.org> before the meeting.

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