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Web start-ups map the route

>By Chris Nuttall

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Bill Gates' worst nightmare may be taking shape at Ritual Coffee Roasters, a hip café in San Francisco's Mission district. Amid the lattes, patrons at their laptops are whipping up an internet revolution that could shake Microsoft's software empire. Five years after the dotcom phenomenon burnt itself out, a new version of the web is taking shape.

The Microsoft chairman has recognised the threat. In a memo to staff released last week, he warned that the latest phase of online innovation was likely to be "very disruptive" to the industry's established powers. "This next generation of the internet is being shaped by its grassroots adoption and popularisation model," he added.

Work done on coffee-shop sofas is producing the processes of what is being called Web 2.0. Flickr, a photo-sharing site that earlier this year enjoyed its 15 minutes of fame as the most talked-about company in Silicon Valley, has held meetings around a large table at Ritual. Designers and coders from Rollyo, a "roll-your-own" customisable search engine, and other start-ups have worked on applications and tested their sites over its free wireless connection. The low-key nature of it all is a mark of how different the new phase of internet invention is from the boom of the late 1990s.

It may not seem a likely setting for a technology shift capable of unseating Microsoft. After all, the software giant had little trouble dispatching Netscape and adapting its own business to the internet when the online medium was born a decade ago. Yet there are differences that could make the latest outbreak more difficult to quell.

Flickr, recently bought by Yahoo, was one of the new breed of companies mentioned by Ray Ozzie, Microsoft chief technical officer, in his own e-mail to colleagues. Alongside larger competitors such as Google and Yahoo, "tremendous software-and-services activity is occurring within start-ups and at the grassroots level," he warned. In his note to staff, Mr Gates compared the significance of the Ozzie memo to his own "Internet Tidal Wave" warning 10 years earlier, when he predicted that the internet was going to change forever the landscape of computing and that Microsoft risked being swept away if it failed to adapt. Though Microsoft has long used stark warnings like this to shake its developers into action, a groundswell of technological change is clearly under way.

Views about the significance of the Web 2.0 surge of innovation vary greatly. To those who are in the midst of it, it amounts to an entirely new way of producing and delivering software. Google has become the standard-bearer for this new generation of technology: the sophisticated software behind its search engine is accessed over the internet, available as a service supported by advertising – a far cry from Microsoft's way of doing business. Others, while acknowledging the significance of the moment, question how much upheaval it will bring. "I think this is a genuine revolution as well," says Charlene Li, analyst with Forrester, the research group. "But it's with a small 'r' rather than a big 'R'. The web represented a total mind-change, whereas this is a variation on a theme: it's not as earth-shattering to the consumer or business experience."

Two important developments that have taken place since the dotcom bust help to account for the rise of Web 2.0 and may help to sustain it for longer than the last wave of internet mania. One is the spread of broadband internet access. As pointed out by Mr Ozzie in his memo, high-speed connections have created a big audience for content and applications produced online. The second change has been the internet advertising market created by Google.

By accepting ads from Google's network of advertisers on their own websites, many of the Web 2.0 upstarts have been able to generate immediate revenue from their efforts. Where the dotcomers could only collect "eyeballs" and dream of one day finding a business model that would work on the web, Google has supplied one on tap. It is this arrival of advertising-supported software, delivered over the web, that has stirred Microsoft into action. Much consumer software, and even some of that used by small businesses, may one day be paid for this way, according to Mr Ozzie.

Against this background, the Web 2.0 crowd has discovered how to create internet services with mass market appeal on a shoestring. The watchwords of this approach: wherever possible, develop "lightweight" software from standard technology building-blocks that can be released quickly over the web, then learn from the experience of early users to refine the service. "In the past, you needed a big development team and a way to distribute the programs – a lot of resources, in other words," says Ms Li. "With Web 2.0, you can be talking about just a couple of engineers building something interesting and compelling, because the cost has gone down."

Joe Kraus, chief executive of a start-up called Jotspot, says the changes have been dramatic for him second time around – he was co-founder and president of Excite, a Yahoo-type web portal now owned by Interactive Corp. “The cost of starting a company these days is an order of magnitude lower than it was a decade ago,” he says. “When I started with Excite, it cost us \$3m from the idea to when we had a product in the market. For Jotspot, it has cost me \$100,000.”

One reason for the fall in costs is that applications can be speedily constructed with the help of the freely available building blocks of open-source software. They can be joined together with a blend of web tools that are transforming the browser experience to one where applications can look and perform just like programs stored on a computer hard drive.

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It is not only start-up companies that are using these techniques. Google has become the champion of many of the standardised, lightweight technologies and its rapid-fire release of services has become a model for product development in the Web 2.0 world.

In earlier versions of the mapping services being offered by Google and Yahoo, moving around an online street map meant clicking on arrows that caused a fresh page to be loaded. Now, users can drag the map with a mouse continuously along the route they wish to pursue. In internet terms, the map is being generated dynamically within the browser.

Other examples include Writely.com and Mr Kraus’s Jotspot Live, which allow people to collaborate online in real time in order to draft a document. Much of this innovation rests on assembling a number of technology components, along with well-trying techniques for building online communities, to create a new breed of service.

Flock, a browser recently accorded the dubious distinction of being the Web 2.0 application with the most “buzz” surrounding it in Silicon Valley, combines many tools associated with Web 2.0 with Firefox, an open-source browser competitor to Microsoft. It allows easy access to users’ blogs and photo-sharing sites, takes in news feeds the user subscribes to and allows online shareable tagging of interesting web pages – more collaborative than bookmark “favourites”.

“We are excited about social trends and giving the browser back to the user again – I see Flock as a client-side mash-up where users can mix and match applications without being limited to any one vendor,” says Bart Decrem, chief executive of Flock. “Small entrepreneurs are on a level playing field again.”

Microsoft has found a challenger in Google in a very different arena from the browser wars it engaged in and won 10 years ago when taking on Netscape, says Tim O’Reilly, joint organiser of the Web 2.0 conference first held in October last year that gave the movement its name. Competing with this wave of innovation will not be as straightforward. “It’s a fundamental business challenge Microsoft did not face with Netscape,” says Mr O’Reilly. “That was a battle still framed across a software application.”

Many of the latest services remain small and fragmented. “The start-up’s advantage is the speed with which it can move and Web 2.0 really extends that strength,” says Mr Kraus. “Usually these waves [of innovation] produce a few big companies.”

His service aims to break into the corporate software business by offering “wikis” – encyclopaedic databases built by user contributions – as company intranets, with the bonus of offering quick development of custom applications using Web 2.0 tools.

Tapping into applications like this as services over the web, rather than using them as pieces of software loaded on computers, will be a norm for consumers in 10 years’ time, he predicts. In the corporate world, online providers such as Salesforce.com say this has already arrived and that Web 2.0 endorses their own models. “The era of the traditional software “load, update and upgrade” business and technology model is over. [Microsoft] is simply a dinosaur,” Marc Benioff, chief executive, told Salesforce.com staff last week

Microsoft should not be counted out so fast. Through MSN, its own internet service, it already ranks among the online giants – even if it has struggled to make money from the service – and is in hot pursuit of Google and Yahoo in the search business. It is also adapting the Web 2.0 toolkit to its own purposes, both by embedding it in its technology and acquiring start-ups: two weeks ago it bought FolderShare, an online file synchronisation service.

“I think the competition that is happening is very healthy,” says Mr O’Reilly. “It’s not just Microsoft and Google, but Google and Yahoo as well. When Microsoft has good competition, it does great work; when it doesn’t, it does lousy work. I’m eagerly awaiting lots of surprises.”

### **Obstacles stand in the way of a cultural shift**

Can Microsoft become more like Google? If it wants to remain a dominant force in the next phase of the software and internet industries, it will have to – at least according to Ray Ozzie, the Microsoft chief technical officer who has been charged by founder Bill Gates with pulling off what could turn out to be the biggest transformation in the software company’s history, *writes Richard Waters*.

The shift in approach will depend on big cultural and organisational changes. Software development as practised by Google and the new internet companies that have sprung up since the dotcom bust bears little resemblance to that undertaken at Microsoft. Products are produced and released quickly, then refined. They are made available as services delivered over the internet rather than software

loaded on to a user's personal computer.

That is a far cry from Windows Vista, the next version of Microsoft's operating system due out late next year. The hugely complex Vista is "a 60m-lines-of-code mess of spaghetti", according to Michael Cusumano, a professor at the Massachusetts Institute of Technology's Sloan School of Management.

Mr Ozzie, whose software start-up, Groove, was acquired by Microsoft this year, seems temperamentally closer to the Google approach. "We got a lot done with a small amount of people in a relatively short space of time," he said in an interview soon after joining Microsoft.

He now wants to unleash the same small-company mentality inside Microsoft. In an internal memo last month, Mr Ozzie called for a different approach to development that looks far more like that of Google – while warning that, without action, "our business as we know it is at risk".

That is likely to draw an instant response from Microsoft's army of software developers, according to observers and former executives. "The developers will be doing cartwheels," says Mr Cusumano. "No one wants to develop in these massive codebases."

Microsoft certainly has plenty of talent to set free. The \$6bn it spent on research and development in the last 12 months dwarfed the \$350m or so spent by Google and was greater than all the venture capital invested in the software industry in the same period. A handful of high-profile defections to Google has done little to weaken its overall development base. "They have more talent than anyone else in the world," says one former Microsoft developer. "They could lose people for 10 years and still have more talent."

Microsoft is already a master of many of the technologies reshaping the web. That is one frustration expressed by Mr Ozzie: that while it has been a pioneer or early proponent of web-based technologies such as Ajax and RSS (see glossary), other companies have been more successful in harnessing them to create successful internet services.

This early lost ground may not matter. Often, new technologies only gain widespread support when they are adopted by big companies, says Michael Gartenberg, an analyst at Jupiter Research. "This isn't as big a threat as the web initially was [to Microsoft]," he adds. "It has shown it knows how to weather these storms."

Indeed, Microsoft's record suggests it should adapt. "Their history is based on seeing these emerging mass markets and throwing masses and masses of resources at them before the trend peaks," says Mr Cusumano.

Microsoft is likely to face two big obstacles as it tries to compete with Google on Google's terms. One is organisational. Divided into large product groups, Microsoft has been forced to develop a more bureaucratic approach to creating new products or services that cross divisional lines.

To overcome such shortcomings, Microsoft in September announced an overhaul that gave more power to three senior executives to make decisions across a wider range of technologies. Mr Ozzie has proposed a refinement of this, creating a cadre of executives charged with pushing through new services that draw on more than one division.

The second obstacle is commercial. The Windows and Office desktop software businesses produce the bulk of Microsoft's income. To the extent that new web-based services offer an alternative to these products, they are less likely to receive enthusiastic backing at Microsoft than at other companies. "They have to get out of the mindset of defending the empire," says the former Microsoft developer.

In the short term, the desktop software businesses seem unthreatened: new versions of Windows and Office next year are expected to trigger renewed growth at the software giant. Even an online alternative to Office might represent little real threat, says Rick Sherlund, software analyst at Goldman Sachs, as it would probably only appeal to home users.

That means that, for now at least, internet services may represent more of an opportunity than a threat for Microsoft. "It's a parallel universe they're investing in, a hedge," says Mr Cusumano. "Revolutions take time to happen."

## A WEB 2.0 GLOSSARY

**AdSense** – A Google advertising plan that helps creators of web sites, including blogs, make money from their work. It has become the single most important source of revenue for "Web 2.0" companies. Alongside search results, Google serves up ads relevant to a site's content, generating revenue for the site every time the ad is clicked on.

**Ajax** – A loose bundle of technologies used to create interactive web applications. Microsoft was one of the first to exploit this technology but Google's more recent and wholehearted adoption of the technique for services such as its online maps site has turned Ajax (short for "asynchronous JavaScript and XML") into one of the hottest new tools for web developers.

**Blogs** – As a low-cost form of web publishing available to millions, web logs were one of the first widely-used tools of the Web 2.0 wave.

**Mash-ups** – Services created by “mashing” together two different web applications. For instance, merging an online map site with a property listing service to present a single view of the location of houses for sale.

**RSS** – Short for “really simple syndication”, a way to distribute information on the internet that has turned into a powerful combination of “pull” technology (where an internet user requests information) and “push” (where it is sent to the user automatically). A visitor to a website that supports RSS can request updates to the site to be sent (known as subscribing to a “feed”). Microsoft chairman Bill Gates identified RSS as a core internet technology 18 months ago and directed it to be built into much of his group’s software.

**Tagging** – A Web 2.0 version of bookmarks, providing a way for users to attach keywords to pages or images they find of interest on the web, helping to categorise them and make them easier for others to find. The collaborative effect of many thousands of users lies at the core of web sites like del.icio.us and flickr.com. Tagging online is also referred to as a “folksonomy”, since it creates a distributed classification, or taxonomy, of the web’s content, increasing its usefulness.

**Wikis** – Communal web pages that can be changed by anyone with access to the page. Used on the public internet, this has led to phenomena such as Wikipedia, an online encyclopaedia written by its readers. Used inside companies, wikis are becoming an easy way for a group of workers involved in a common project to share their ideas.

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