

Push and pull

"Push" technology is the net's latest killer app, likely to pull in big bucks and eventually make the web as powerful a medium as TV. Tony Smith reviews the current state of the art.

The internet would be nothing without standards. Standard protocols, the TCP/IP family, control how information is exchanged between the computers that make up the net. Web-site designers use a standard language, HTML, to create their pages, while individuals use standard methods (PPP or SLIP) to connect their PCs and modems to the internet.

The net works by consensus, and for this you need standards. Yet the internet's current flavour-of-the-month, the so-called "push" technology, has emerged with barely a whisper of consensus beyond the basic agreement that this new paradigm of information delivery is the internet's latest killer application.

Dozens of companies are now developing client and server software that offers "push", and no two developers' products are compatible. If "push" becomes the single most important channel through which net users receive information, it will mean big money for the company that establishes its product as the *de facto* standard.

It worked for Netscape, and now the "push" providers want it to work for them, too. Only Microsoft, of all companies, has raised the issue of standards, but that is probably due to how it is faring in its continuing war with Netscape. The sounds you can hear in the background are members of the net's Standards bodies tearing their hair out.

In some respects, they have only themselves to blame. "Push" technology has only begun to interest the wider community of net users in the last six months or so (although the idea behind

"push" is a little older). This is due to the commencement of services like PointCast's Network, and the way in which industry giants have been fêting "push" start-ups like Marimba and BackWeb.

It all stems from another technology, once hailed as the future of the net; the "intelligent agent". Organisations like MIT's Media Lab devised applications (the agents) that learnt the categories of information in which its user was most interested. It could then scour the internet for pertinent material and deliver it to the user as and when it was updated. Ultimately, agent technology never amounted to much. Instead, people took to the web, a system so easy to use and so easy to search that agent software no longer seemed necessary.

Agent extension

But while the web remains simple to use, the huge growth it has experienced, driven by that very simplicity, has made it harder to find not only the information you want, but content that is of sufficient quality — or, claim the developers of "push" technology, of sufficient relevance to you. The answer, they say, is an extension of the agent idea: the delivery of personalised, up-to-date information direct to the user's desktop. And that is what "push" technology is all about: making the data come to the user, rather than the other way around. When you access a web page by typing in its URL or simply clicking on a link, you're effectively asking the site server to download HTML and graphics files to your machine: that is, you're "pulling" the information to you.

On the other hand, systems like Marimba's Castanet, PointCast's Network, Intermind's Communicator and

BackWeb's Polite Agent *push* the data at you; it's like subscribing to *PCW* rather than buying each issue from a newsagent. In both cases, you decide you want the magazine (the data) but with "push" technology that's *all* you do: the data appears on your PC without your intervention, just as your magazine comes through the letterbox each month.

Channels: taken from TV

The subscription parallel is a close one: you receive information by signing up to specific channels offered by content providers or the "push" people themselves. The PointCast Network, for instance, offers seven basic channels covering current affairs, business, financial, entertainment, sports news, stock prices and the weather. Each contains information supplied by major content providers, including Reuters, the *New York Times* and CNN.

Many of these providers offer their own additional channels, too. "Push" companies' use of the word "channel" is deliberate; they all describe the technology as the internet's answer to television. It's not a bad metaphor. PointCast's server doesn't broadcast information, neither does it initiate the downloading of updates: that's scheduled by the client software (either PointCast Viewer or the SmartScreen screensaver) at regular intervals. This neatly hides the pull in "push". The channels are akin to favourite programmes, recorded not on a VCR but on your PC's hard disk, allowing you to view them at any time, online or off.

PointCast and similar services from Freeloader (now part of Individual, a US personalised news service driven by agent

technology) and IFusion's Arrive, see themselves as large-scale networks, net equivalents of the BBC and CBS.

Microsoft, through its forthcoming Active Desktop technology and the increasingly channel-orientated MSN, is likely to adopt a similar outlook. But this isn't just posturing. For the networks, it's the key to winning the support of big-name content providers (and the revenues they bring) by way of the paying advertisers they attract: the bigger the names, the higher the network's profile. The more users you pick up, the more advertising dollars you bring in. It's the old "bums on seats" approach.

PointCast's server software was written specifically to cater for millions of users simultaneously online — over 1.7 million people have already downloaded its Viewer. It's a strategy that's likely to pay off. PointCast, the only network that has truly moved out of the beta stage, is already being courted by media conglomerates.

Many media operations are already on the web, yet few can see a clear way to making it pay. "Push" networks' built-in provision for adverts that can't be cancelled while they're being downloaded, changes all that. Industry research operation The Yankee Group reckons that within three years, "push" will account for a third of the internet's overall \$19.1bn revenue. It's no wonder the bean-counters are excited.

While PointCast continues to state its intention to remain independent, it's hard to see how it can hold out when the likes of Rupert Murdoch's News Corporation is said

to be offering between \$350m and \$450m for it. This for a company no-one had heard of nine months ago. But that said, the future of "push" may end up elsewhere.

US company, Forrester Research, believes that while these "monolithic personal broadcast networks" aren't going to disappear, neither are they going to control it. The BBC metaphor has its flaws, affecting content providers and users alike. While they're not unattractive, PointCast's viewer and screensavers, and Arrive's client, gobble up large amounts of disk space. Like Navigator, they're not too hot on cache management and hog the screen while they're running. That's great for advertisers, but it's a pain if you're just having a five-minute break from word processing to catch up on the news.

For the content providers, the viewers place significant restraints on how you can present your information. PointCast's viewers are, after all, simply applications that display data in a number of pre-programmed ways, and you can't add a new presentation method without rewriting the viewer. It's like trying to do multi-column text in HTML with a browser that doesn't support the table commands. Only the largest, most wealthy content providers will have the muscle to persuade PointCast to add a feature to its viewer. Even if one did, it would still have to wait for a sufficient proportion of users to download the new version before it could begin using the alternative display mode.

Forrester Research predicts that, in any

www.pointcast.com

TIME

Zhirinovskiy Watch
 BAGHDAD: It seems Russian politician Vladimir Zhirinovskiy is not worried about making the White House guest list. On Monday, the ultra-nationalist leader of Russia's Liberal Democratic Party began a visit to Iraq trying to bring an end to UN sanctions imposed after Iraq invaded Kuwait in 1990. So far, Zhirinovskiy has lived up to his reputation for inflammatory rhetoric, meeting with Saddam Hussein and calling the UN sanctions "an ugly crime being committed against Iraqi people by the United States of America." A grateful Saddam called the Arabic-speaking Zhirinovskiy a lifelong friend, perhaps referring to the several trips to Iraq Zhirinovskiy has made in...

Charles the Rocket
 HOUSTON: After months of intense lobbying, Charles Barkley got his wish Monday when the fast-fading Phoenix Suns traded him to the Houston Rockets in a four-for-one swap. Barkley will be expected to add sorely-needed rebounding skills to a Houston team that won NBA championships in 1994 and 1995 but was out rebounded and embarrassed in losing to a stronger Seattle team in the playoffs last year. To get Barkley, the Rockets had to part with guard Sam Cassell, forwards Robert Horry and Chaucky Brown, and forward-center Mark Bryant. It's the second time Barkley has engineered a trade from an also-ran to a contender — the first was four years ago, when...

PointCast, which was the first company to make "push" technology widely available, is being courted by the media conglomerates

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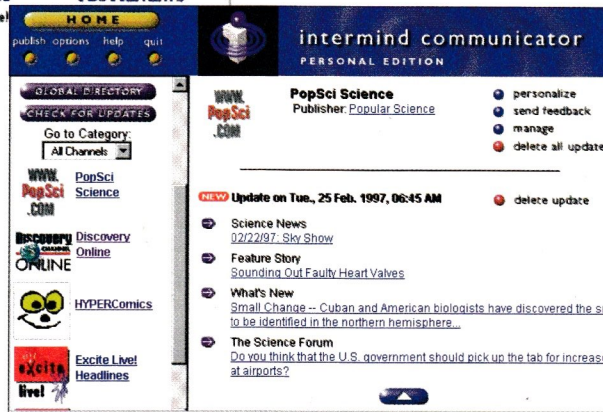
special server software, just the ability to set up the server to correctly transfer the .CON files with which Communicator works: Communicator's Publish option builds .CON files from your HTML. This simplicity is the reason for InterMind's claim to offer the largest number of channels: over 170 at the last count and certainly well up on the company's rivals.

BacWeb originally took a similar approach to InterMind by allowing users to subscribe to web pages. More recently, however, it has shifted direction to offer a more PointCast-style system, but one that works alongside other applications and has more of a multimedia feel about it. The BackWeb system places information into InfoPaks; compact chunks of data. BackWeb's Polite Agent software checks

for updates from the content provider and downloads the appropriate InfoPaks in sections when bandwidth is available. The key is the way in which InfoPaks can be given a schedule so that even though they've been downloaded, the BackWeb 1.1 viewer won't display them until it's

Left and below
Simpler than other systems, InterMind acts as a server residing on your desktop. It alerts you to updates on selected web sites

allowed to. The upshot is that there's usually time to retrieve all the InfoPaks, even on an intermittent net connection like a modem. InfoPaks contain both data and a playback script. The data can include not only text and graphics but specific formats, too, like Shockwave presentations and RealAudio. ActiveX and Java support are in the works. The script tells BackWeb how to display the data; either as a sudden on-screen flash, as screen wallpaper, or as a screensaver. Scripts are written in BackWeb's own BackWeb Authoring Language Interface.



Second wave

BackWeb is a powerful system and is probably the only second-wave "push" technology capable of giving Marimba's Castanet is by far the most innovative "push" product — it certainly seems to have inspired BackWeb's efforts — and has won the most plaudits from the industry. Lotus

will be embedding Castanet into its Domino Intranet web server. Netscape will be using Castanet to equip Communicator with "push" functionality, in response to which Microsoft recently signed up BackWeb to fulfil the same role in Internet Explorer 4.0. Castanet has won praise because it

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offers content providers the most flexibility for creating their own channels. That flexibility neatly extends beyond information to any digital data.

Network managers have taken notice of Castanet because it also allows them to deliver and install software. It's a major plus: not only can you use Castanet to tell network clients their software is going to be upgraded, you can also make sure they get the software and that it is installed before publishing a user-guide channel showing how the new features work.

Castanet hasn't quite hit the mark with its relatively poor selection of channels. Content providers build channels by supplying data files and Channel Applications which take that data and present it in whatever form the provider requires. The applications are written in Java, which on the plus side keeps them small and relatively easy to produce, but to run them you need a Java Virtual Machine installed on your PC. By providing channels through individual, standalone (almost) applications, Castanet allows content providers a high degree of customisation.

BackWeb's InfoPaks, while more open and more flexible than, say, PointCast, nevertheless impose certain limits on the presentation of information by restricting them to wallpaper, screensaver and screen-flash modes. Castanet allows all of those and more — no wonder Netscape likes it. In fact, Castanet ties in neatly with Netscape's own plans for desktop domination by

providing an alternative interface to that provided by the Mac, PC or Unix box's OSs. Called Constellation, it integrates application views with information views, whether they be web pages, "push" channels, or live streamed data.

It is not a new idea — Lotus pioneered the idea with Notes — but it does extend the idea of the desktop to something more than merely a repository of icons. Of course, Microsoft is planning something similar for IE 4.0, called Active Desktop. It's more prosaic than Constellation, taking its styling from Windows 95, but it offers the same sort of approach.

Initially, both Constellation and Active Desktop will have the most impact on the enterprise customers at whom Communicator and IE 4.0 are targeted, but individuals will also be able to see and evaluate them. In fact, Active Desktop is destined to be incorporated into Windows 97, so for many people it will in any case become the standard interface.

For content providers and "push" software developers, most important is the support for Castanet and BackWeb. Given the distribution these two applications are going to achieve, it's questionable whether information owners will choose any other product. Their one hope is that Microsoft's putative standard for "push" technology — Channel Definition Format (CDF) — is given the World Wide Web Consortium's (W3C) stamp of approval. As guardian of web standards, the W3C's support counts for

much. But as CDF is an instance of Extensible Markup Language (XML) — an alternative to HTML currently being submitted to the W3C, which no-one is likely to implement until it wins approval — it isn't much to pin your hopes on. As one Netscape insider said: "For now, CDF is just vapourware."

Whichever "push" technology comes to pre-eminence, and the smart money's on Castanet despite Microsoft's deal with BackWeb, its incorporation into IE 4.0 and Communicator will extend its reach to the vast majority of net users. When "push" technology reaches that point, no-one will be able to write it off as "nothing more than the latest in a long line of internet fads". Like the web, it will be some time before it becomes truly useful, offering sufficient choice, ease of use and customisability. Unlike the web, those very features will allow the net to spread beyond desktop computers to other information outlets, from kiosks to TVs, each hardwired to receive specific channels. To those who don't believe the internet can become as powerful a medium as television, there's only one thing to say: "Push the other one, it's got bells on".

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