CLOSING THE INTERACTIVE LOOP
by Kevin Werbach

If the Web is going to transform business, it needs to do more than let people buy books in their pajamas at two in the morning. For all the talk about one-to-one marketing and how the Internet makes everyone a publisher, most existing applications don’t leverage the fact that users now have a return channel. Companies have rushed to publish online, but they haven’t learned to listen. Few have changed their business processes in response to the new opportunities the Internet creates. Software vendors are making use of Web browsers as desktop viewers, not as hubs of a two-way medium.

The prerequisites are in place to change the way companies interact with their customers and partners. It’s about time. Waves of technology and re-engineering have made business processes and internal knowledge management more efficient, but traditional barriers between producers and consumers remain in place. Product cycles are getting shorter as customer-support costs escalate and margins dwindle. The Internet, by raising customer expectations and fostering new competitors, has only made things worse for companies doing business the old way.

Fortunately, several software vendors are building tools that use the Internet to create valuable new connections with customers. They all understand that information is power, but only if it can be harnessed and fed back into business processes that drive revenue-producing activities.

Some of these companies, such as BroadVision, Silknet, SMART Technologies and Vignette, help their customers develop sophisticated online operations that leverage user information across a wide range of interactions. eGain offers electronic commerce providers a narrower service, e-mail management, but does so on a broad, customer-centric platform. 2WAY and Decisive Technology use the Internet for rapid, flexible surveys of customers and business partners.

Even publishers are finding...
they can turn content distribution into a circular process, thanks to companies such as 2Bridge.

This issue of Release 1.0 looks at this new generation of closed-loop products that leverage the Internet as a return channel.

The Möbius-strip network

The Internet is a giant, tangled Möbius strip, endless despite the concrete physical entities it comprises. You can pinpoint your location on a Möbius strip, but there's no way to tell how close you are to the beginning; the term has no meaning. Efforts to impose a single structure on the Internet will always be transitory, because any solid surface can conceal a doorway. The only viable center of the Internet universe is each user, one by one. Each user gives form to the network when she clicks and returns on a regular basis. Cumulatively, those actions determine the success or failure of companies doing business online.

The challenge is to figure out what users want, and to give it to them. They may want something unique and complex. Or they may just want someone they trust to tell them what to do. The hard part for companies is building that trust, and gaining the deep understanding of user preferences it depends on.

Reversing the information flow

People generate information all the time, explicitly and implicitly. They make choices, express preferences and interact with one another. Most of the time, however, this information simply gets lost. Rather than arriving as signal, it escapes into the ether as noise. For example, virtual communities create rich stores of user preference data, but don't necessarily provide the tools for commercial activities. Or the information is used crudely as a commodity, turning customers off instead of building better relationships. (Take, for example, GeoCities' recent run-in with the FTC.) Users should have some control over the use of their personal information. But when information can benefit customers and vendors simultaneously, it makes sense for both sides to take advantage of the opportunity.

Nowadays, companies usually interact with customers on the assumption that the company holds the relevant information. If the company wants to learn more about its users it can query them, at some expense. Data mining and data warehousing help companies make better use of the data, but they don't fundamentally change the way the data gets there in the first place.

Try this for a thought experiment - flip the traditional Internet diagram inside out. The network connections don't depend on the direction of traffic any more than the top of a map needs to point North. Start with the company putting information out on the Web, searching for valuable customers on the other end of the network. Just as users need tools such as directories and search engines to find vendors, those vendors use advertising, questionnaires and market research to seek out customers. Responses to these initial inquiries give companies a better picture of what they're looking for. Over time, companies locate those customers that best meet their needs. They keep coming back to these users with new offers, and build durable relationships based on mutual trust and benefit. (Portal
sites strive to do the same thing, so by analogy we could call such customers the “portal mortals.”)

This all sounds like traditional direct marketing, which for all its inefficiencies continues to thrive because it delivers results. Can we do any better on the Internet? The ideal of one-to-one marketing, as the term implies, is a symmetric relationship. Customers get only the information they find useful, and vendors deal only with customers most likely to buy. Some of the cost savings from avoiding people unlikely to buy should, in theory, flow back to the customer, resulting in a win-win situation.

There’s a catch. The customer initially holds the most valuable commodity in such transactions. Do companies truly want to reverse the information flow between themselves and customers? The short answer is no, but they will do it if the other guy does. If some companies successfully exploit the customer back-channel to build value and enhance revenues, their competitors will have to follow. The initial motivation for deploying the systems described in this issue is likely to be self-defense. Long-term, however, we think it will be opportunity. (We’ll come back to some of these questions on page 18.)

Outsourcing is in

Mining the Internet return channel has other, more subtle consequences. One is to strengthen the already-powerful trend towards outsourcing and virtual enterprises. We recently examined the benefits of outsourcing for small businesses (see Release 1.0, 7/8-98). The companies we discuss in this issue generally target medium-to-large enterprises that can afford to pay up-front, but they too are finding strong demand for hosted solutions.

Relationship patterns don’t necessarily correspond to corporate structures. Users interact with multiple vendors and with each other. Consequently, if your customer-support system is built around customers, there may be no fundamental advantage to locating that system inside your company offices.

In fact, there may be substantial disadvantages. The great challenge in software today is integration: between software components, between applications and between business partners. Nothing starts with a blank slate any more. (Just ask the Windows NT 5.0 development team!) The Internet makes it easier for companies to share information, but in so doing forces companies to confront these integration headaches. Each new system must link with what is there before, with mission-critical reliability.

Given how challenging it can be to get software to work, it’s often easier to leave the operational headaches to the vendor. Outsourcing allows companies to add new functionality rapidly without impacting their own IS infrastructure. In an era of specialization, everyone can concentrate on what they do best. Because of the Internet, the physical location of servers hardly matters.

Most of the companies we discuss below offer hosted versions of their solutions. Some, including Decisive Technology and eGain, have made outsourcing their primary business model. Customers increasingly prefer the reliability of a managed solution to the one-time cost of a packaged
application. This is especially true for Internet-oriented companies that place a premium on flexibility and time to market.

The outsourcing trend has important consequences. Vendors themselves must offer better service, because they now have an ongoing financial relationship with their customers. As companies get lighter, software providers may get heavier, or they may turn around and outsource their network infrastructure obligations to Internet-service and Web-hosting providers. Someone still has to solve the knotty integration challenges. However, there should be more pressure for open, standards-based approaches when companies don’t try to do everything in-house.

CUSTOMER RELATIONSHIP MANAGEMENT

It’s the customer, stupid!

Customer relationship management has become an IT buzzword. As we observed two years ago, automated customer service and call centers are increasingly important to many companies’ bottom lines (see Release 1.0, 9-96 and 10-96). According to Mentis, a technology research firm for the financial services industry, there are now some 100,000 call centers in the US with annual costs approaching $200 billion.

Large enterprises have spent years and millions of dollars automating their back-office functions through enterprise resource planning (ERP) suites. Now they are beginning to realize the potential for connecting and enriching front-office functions such as sales, marketing and customer service. Many of these companies poured money into call centers based on circuit-switched telephony just as the Internet was emerging. Small and medium businesses that can’t afford massive call centers are wondering whether the Internet offers a cost-effective means to compete with bigger players.

Vendors such as Vantive, Clarify, Remedy and Scopus have ridden the call-center wave with client-server tools to automate and track customer-service operations. A parade of sales-force automation providers, such as Siebel, Aurum, Saratoga, Pivotal and Onyx, have done the same for the sales process. These sectors are quickly converging into a broader relationship management market. Siebel acquired Scopus in March, and both Vantive and Clarify have released sales-force automation products. IBM, which acquired customer-support vendor Software Artistry earlier this year, announced last month it would spin off an independent relationship management company. The major ERP vendors - Baan, Oracle, PeopleSoft and SAP - are all expanding from the back office into the front office. Baan acquired Aurum last year; PeopleSoft announced partnerships with Siebel and Vantive in late August; and SAP has invested in SMART Technologies.

All the established players are trying to assemble an integrated customer relationship management solution... but still predominantly from the merchant’s point of view.

At the same time, a bevy of Internet-oriented startups are attacking specific support challenges, including customer e-mail management (Kana, Adante, Brightware, Mustang, Micro Computer Systems) and live customer sup-
port through chat, IP telephony and collaboration tools (Acuity, Webline, Business Evolution, SiteBridge, Balisoft, eFusion and others). The number of companies chasing these opportunities proves that venture capitalists travel in herds, but both segments have real potential because they solve concrete problems.

**A new center of the universe**

Rather than automating pieces of the customer-interaction puzzle, what about stepping back and reconsidering the problem as a whole? The common point for all of these products is the customer, so why not put the customer front-and-center in building solutions?

The previous generation of front-office automation products tended to focus on the enterprise, providing customer-service representatives, salespeople and managers with better, faster and more integrated information. An alternative is to look at the world through the eyes of the customer. Customer-centric relationship management includes self-help and access to internal knowledgebases (where contenders include Inference and Edify), but such tools are only the tip of the iceberg. A holistic approach includes self-help within a broader and more interactive framework. It's like the difference between document management and desktop publishing: A collaborative process rather than a static endpoint.

We're not all the way there yet. The companies we describe below provide many elements of a comprehensive customer-centric framework, including personalization engines and unified data models to link disparate customer interactions. What they don't do is give customers robust online identities they can carry from site to site. If the world is to revolve around them, users will need better tools to manage their presence and preferences, and to control the use of such data (see Release 1.0, 2-98 and 4-98).

On the merchant side, relationship management software must get better at aggregating incoming user information with data in legacy systems. Companies are beginning to recognize the value of eXtensible Markup Language (XML) for this task (see page 6), but they still have a ways to go.

Moreover, most of the established customer-service solutions have their roots in pre-Internet mainframe and proprietary client-server technology. It's one thing to offer a browser-based window on your data, it's another to architect your system from the ground up on Internet standards and offer full functionality to anyone with a browser. Internet-centric design makes it easy for companies to offer hosted versions of their products, to integrate with other solutions, and to mix and match components.

Customer-centric and Internet-centric approaches are related in powerful ways. The Internet's return channel gives customers unprecedented ability to shift their relationship with vendors. Just as toll-free numbers offer customers greater control than direct mail or telemarketing, the Internet allows the customer to define the terms of the interaction. Rather than create closed systems that isolate the customer, companies can build Möbius-strip networks that capture the customer while remaining open-ended.
Web enabling technologies: Something’s happening here

The Internet is a necessary but not sufficient platform for companies to build more interactive relationships. Websites, intranets and extranets open up remarkable new possibilities, but they can also be expensive investments resulting in “brochureware” and integration headaches.

Successful Web-based business activities require open enabling technologies that complement the Internet protocols themselves. It’s not always clear which pieces are missing. Early on, most experts thought widespread e-commerce would require sophisticated new mechanisms such as digital cash and public key infrastructures. It turned out that Netscape's Secure Sockets Layer and good old credit cards were enough, once users got used to the idea of buying online.

Something similar is happening in the area of Web-based interactivity. The enabling technology for dynamic, platform-agnostic systems was supposed to be Java, but it hasn’t quite worked out that way. Hundreds of companies are writing sophisticated business applications in Java, but mostly on the server side. Client-side Java is not yet the unifying force that Sun envisioned, in part because of Microsoft’s efforts and in part because of Java's slow, unreliable performance on most platforms.

The unlikely beneficiary is JavaScript, the Netscape-developed scripting language that actually has no connection to Java. Although there are some compatibility issues between Microsoft’s and Netscape's implementations, JavaScript code generally runs without a hitch on any browser released in the last three years. JavaScript isn't nearly as powerful as Java, but it works quite well for developing browser-based front-ends that obviate the need for proprietary clients. 2WAY and 2Bridge provide good examples of what humble JavaScript can do (see pages 10 and 16).

The other important enabler is XML (see Release 1.0, 5-98). XML is particularly valuable for data interchanges, which are absolutely essential to most of the applications described in this issue. XML makes it easy to link information in multiple formats and multiple locations with standardized, reusable metadata. This allows companies to organize systems around abstract concepts like customers, rather than specific data repositories or corporate units. Adopted as a World Wide Web Consortium recommendation only in February, XML is already finding its way into applications as diverse as technical support (Motive's Diagnostic Language), application scripting (XML Remote Procedure Calls) and content syndication (the Internet Content and Exchange standard).

A pre-Internet technology, relational databases, also contributes to the success of customer-focused applications. Databases make it possible to build dynamic, targeted Web pages for each user. They also run all the internal systems, from customer service to supply-chain management, that can be harnessed to support customer interactions. But these databases are only as good as the information fed into them. What has typically been missing, and what the companies in this issue offer, are automated many-to-one connections between such back-end systems and users.
Several vendors lead the customer-centric charge. BroadVision, a major e-commerce tool vendor, caught on early to the value of dynamic personalized content (see Release 1.0, 3-94) and most players today see it as the competitor to beat. Vignette began as a content-management system vendor but has moved aggressively into relationship-oriented e-commerce. Silknet and SMART Technologies help companies manage their customer relationships across all interaction points. Broadvision, Vignette and Silknet often compete directly for Fortune 500 e-commerce accounts. SMART, with stronger ties to the ERP world, offers a higher-end solution with greater emphasis on systems integration.

All offer conceptually similar object-oriented, browser-based architectures. BroadVision uses CORBA to integrate the components, although most of its applications run on Windows NT in addition to Solaris and HP-UX. Silknet and SMART Technologies rely on Microsoft's COM/DCOM object model. Above that layer, however, Silknet supports both Solaris and NT and both Netscape and Microsoft Web servers (as does Vignette). SMART has tightly integrated its product with NT and Microsoft Site Server. Long term, these architecture choices will be important, but it's too early to tell who will come out ahead.

Recently launched eGain targets a lower-end market segment, and its initial offering addresses the narrower task of handling customer e-mails. Although not a direct competitor to the other companies, eGain takes a similar end-to-end customer-centric approach.

BroadVision: A broad vision of narrowly-targeted personalization

Way back in 1994, Dr. Pehong Chen, having just sold Gain Technology to Sybase, spoke at PC Forum about his newly formed company BroadVision. He described how his new venture was going to build the plumbing for Web-based transactions and billing relationships. As he now admits, "the original vision was to build an e-commerce platform, but all the specific functionality or benefits were still being fleshed out." BroadVision spent its first nine months talking to companies doing business online to identify their needs, and decided to focus on scalable platforms for personalized, one-to-one interactions with customers. The now-public company has over 200 employees, expects $40-50 million in revenue this year from some 200 corporate customers, and recently turned profitable.

BroadVision's One-to-One application system puts personalization into all aspects of a site. In addition to the basic system, BroadVision offers three specialized modules: One-to-One Commerce (for business-to-business and business-to-consumer commerce over the Internet); One-to-One Financial (for financial institutions); and One-to-One Knowledge (for employers and business partners managing corporate knowledgebases). A typical installation costs between $250,000 and $1 million.

BroadVision's largest competitors in the e-commerce market, such as Open Market and InterWorld, tend to focus on organizing internal business processes to support online transactions. They use the Web as a front-end for fungible customers, rather than as a mediation point in peer-to-peer relationships. Although BroadVision makes the plumbing work as well, it sees
personalization as the key driver of successful e-commerce. Accordingly, its closest competitors include Silkenet and Vignette, which have reached the same conclusion from their roots in customer service and content management, respectively.

Chen feels that the current portal craze has obscured the true potential of the Web for most e-commerce providers. Portals, which are “mile-wide and inch-deep,” take a mass-media approach based on eyeballs and advertising revenues. For companies using the Web as a new sales channel, however, eyeballs don’t matter nearly as much as the quality of the customer experience. Chen asserts that for most sites, hits stands for “highly irrelevant traffic.” A large number of clicks often means that a user had a hard time finding what he or she was searching for.

Personalized sites must be both easy to create and scalable. BroadVision’s template-based approach allows massive, dynamically generated sites to be controlled and updated easily. American Airlines, for example, has deployed a highly personalized site using 48 templates, of which three get used 80 percent of the time. The templates, combined with profiling, matching engines and back-end system integration take AAdvantage of American’s 31 million-member frequent flyer database to give each user a distinct experience. The site now has over 650,000 registered users.

BroadVision scored a big win in late July when Cisco, among the biggest e-commerce success stories and a devotee of building rather than buying, announced it would use BroadVision to enhance its internally developed Website. Chen, who sits on the board of Siebel, sees commerce-site development following the same patterns as sales-force automation. He guesses that only 10 percent of the business Websites today are commerce-enabled, and only 10 percent of those use personalization, meaning only one percent of all sites are personalized. In the next few years, however, he feels that “personalization is the absolutely mission-critical element for the Web as a business medium,” and that personalized sites are likely to grow to 20 percent of the total.

Meanwhile, consolidation is likely. For example, if a customer can’t find what he or she wants on a personalized Website, there should be a “panic button” to connect to a call center via text chat or a voice connection. The customer-service representative on the other end should automatically see full information on that customer. BroadVision already offers a wide range of “open adapters” to tie Websites into existing back-office and front-office systems, and plans to partner with other companies to enhance its voice interaction capabilities.

Vignette: Customers as stories

Visitor preferences tell stories, but companies don’t always listen. Austin-based Vignette, best known for large content-oriented Websites, believes its story-management expertise gives it an edge in tackling this problem. Vignette’s StoryServer runs many of the largest Internet news and information sites; customers include CNet, ZDNet, CBS SportsLine and Time-Warner’s Pathfinder. The software, based on technology developed in-house at CNet, offers a complete system for Website authoring, workflow, asset management, design and dynamic page generation.
From its content-management base, Vignette has expanded to serve a range of sites including NationsBank, Autodesk and Siemens. StoryServer 4, released in June, marks Vignette's push into relationship management.

StoryServer 4 uses a combination of technologies to offer appropriate personalization at all points of the customer life-cycle. For example, Vignette has integrated Net Perceptions' collaborative-filtering technology into a recommendation agent for interested customers. Visitor profiles are stored in a central repository, where they are linked to content metadata. Recognizing the value of empowering customers, Vignette includes tools to give visitors access to their preference information.

Vignette has raised nearly $28 million in venture funding since its 1995 founding. Investors include Goldman Sachs, Hambrech & Quist, Austin Ventures, Adobe Ventures and Charles River Ventures. Chairman Ross Garber sees increasing recognition of relationship management as a business issue for both transaction- and advertising-supported sites. In recent months, he says, companies have become comfortable valuing the return on investment for such technologies. Vignette considers BroadVision its primary competitor, and the companies have gone head-to-head for several accounts.

Garber acknowledges that BroadVision's template-oriented system works well for sites primarily interested in serving existing customers, such as airlines with personal data. However, he believes Vignette's life-cycle approach is more flexible and works better for customer acquisition-oriented sites. StoryServer can serve selective content from a user's first visit, rather than requiring an established profile. Later this year Vignette plans to release Site-to-Site, a content-syndication platform that will extend similar functionality across multiple sites.

Silknet: From customer service to relationship management

Silknet Software, an 80-employee privately held company based in Manchester, New Hampshire, was founded in 1995. Financial backers include CMG@Ventures, Intel, and JAFCO America Ventures. Like BroadVision, Silknet emphasizes the quality of the customer experience instead of simply the efficiency of customer-service operations.

President and ceo Jay Wood previously founded Coda, Inc., the US subsidiary of a British financial accounting software vendor now owned by Baan. He says Coda lost several sales when prospective customers chose comprehensive ERP suites, and that Silknet's eService customers have expressed a similar desire for integrated solutions in the front office. As their end-users began to request service via the Web and e-mail, many companies put systems into place that weren't integrated with their existing call-center software. Silknet promises to address this problem.

Silknet's product suite, eService 98, is built on a component framework called enterprise Relationship Management Architecture (eRMA). Unlike established client-server call-center vendors such as Vantive, Clarify and Scopus, Silknet built its products from the beginning using a multi-tier Internet-based architecture. All functionality is available through a Web browser. The system uses DCOM-based business objects and XML to tie together legacy systems, and uses Dynamic HTML, Java and JavaScript to generate dynamic Web pages. This approach allows the same underlying data to be
served in different forms to agents in a call center and to customers using Web-based self-service (or field service personnel or business partners).

In addition to eService, Silknet sells the full eRMA platform. Wood says eService customers are generally looking to reduce their support costs, while eRMA is aimed at companies looking more broadly to integrate their e-commerce efforts with a common data framework. A typical eService installation starts around $150,000, while the full eRMA costs about $1 million. So far Travel Services, a $700-million cruise-booking agency, and systems integrator Inacom are using eRMA. NationsBank is evaluating the product after having purchased eService. Other eService customers include Microsoft (which uses eService to support its 6,000-person field sales force), Southwestern Bell, Autodesk and PC Connection. For smaller businesses, Silknet offers Silknet Online, a hosted version of eService.

Relationship-oriented content management

Internet-based return channels are infiltrating even the resolutely one-way world of publishing.

Vignette's move into relationship management shows how personalization can help external sites attract customers. 2Bridge Software uses similar techniques to enhance content on internal networks. The company was founded in 1994 as Agora Digital by current CEO Mansoor Zakaria and Ron Lachman. It developed its 2Share system as a custom solution for Goldman Sachs, which wanted to distribute research reports rapidly over an extranet to its brokers and institutional clients. Seeing a broader opportunity to market the system as a packaged software solution, 2Bridge raised two rounds of financing from Goldman Sachs, New Enterprise Associates, SAP founder Hasso Plattner, Nobel laureate Arno Penzias and others.

Many companies have deployed intranets but have failed to realize the expected benefits because of the difficulty of publishing and organizing information. 2Share combines groupware, knowledge management, and enterprise publishing tools to give users a secure and personalized window on business information. The system's two components, WorkCenter for content management and InfoCenter for content viewing, are both entirely browser-based with JavaScript front ends. Users can quickly assemble and publish customized, dynamic pages incorporating information in over 100 file formats. Recently-released version 2 makes extensive use of XML metadata to tie together different forms of content.

InfoCenter uses an intranet or extranet as a unified abstraction layer for business information. The system automatically filters content based on user preferences and permission levels, and dynamically generates personalized Web pages as the underlying content changes. Unlike StoryServer, which is designed for large public sites, 2Share allows anyone in a company to create a personal Web-based desktop with the information most relevant to their job functions.
SMART Technologies: Partners rather than processes

Austin-based SMART Technologies, formed in 1995 from the merger of sales-force automation vendors MIS2 and NetTools, builds customer-centric enterprise relationship management software. According to ceo Bryan Plug, that means providing one point of contact integrated across all the dimensions of a customer relationship. Plug sees SMART's integration across many related domains, such as site personalization, transactions and customer support, and the company's customer- or partner-centric worldview as key distinguishing factors.

The company's products rely on the SMART DNA hub, a component architecture that supports the core data model and services to manage customer relationships. SMART offers more than 100 modules on top of SMART DNA to address specific business domains in four phases of the customer life-cycle: Learning and shopping; merchandising and buying; questions and problem solving; and affinity and loyalty. SMART tracks common elements across all these areas, if necessary mapping data from legacy systems.

According to Plug, "electronic commerce is the starter kit" for companies that want to leverage the potential of the Internet, but the endpoint is to change the way they relate to the outside world. Plug sees the Internet not as a medium of disintermediation, but of "optimized intermediation" that can create new opportunities for manufacturers, their channel partners and customers.

For example, Compaq used SMART software to deploy kiosks in retail stores such as Radio Shack and Office Depot that give users real-time information about product specifications, configuration options and pricing. The information flows through the Internet into Compaq's back-end manufacturing planning systems. Customers get real-time information about products, retailers have a way to differentiate themselves, and Compaq gets point-of-sale demand information to drive its supply-chain applications. For business-to-business sales, Compaq allows its channel partners to view configuration, pricing, inventory and demand levels through a browser interface. SMART Technologies provides the glue that integrates these functions and connects them to a central customer-management database.

SMART is going after high-end customers looking for a total e-commerce solution; a typical installation costs $3.5 million. Plug says most potential customers are initially attracted to SMART for tactical reasons, such as containing support costs. Although the return on investment in these areas is easier to calculate, enterprise relationship management promises to have far deeper effects.

Plug, who worked as an accountant earlier in his career, compares enterprise relationship management to VisiCalc, the first desktop spreadsheet. Just as VisiCalc improved financial forecasting by enabling multiple "what-if" views on data, SMART hopes to give companies the ability to engage in "what-if" exercises with supply-chain partners.

Plug was an SAP executive before heading SAP/Intel joint venture Pandesic (see Release 1.0, 7/8-98), which he left because of strategic disagreements. SMART complements enterprise resource planning applications, which are process-centric rather than partner-centric. Plug sees the winners in
e-commerce as companies that take advantage of both transaction-oriented products and customer- or partner-centric relationship management platforms to integrate those transactions with the overall customer lifecycle. SAP, which has invested in SMART, evidently agrees. SMART's other investors include an affiliate of Goldman Sachs and Austin Ventures. Tandem founder Jimmy Treybig and Cisco CIO Pete Solvik sit on the company's board.

eGain: A platform approach to customer service

eGain Communications was founded in 1997 by Gunjan Sinha and Ashutosh Roy, who also started the directory and community service WhoWhere (which Lycos recently acquired for roughly $130 million). The two noticed that as WhoWhere grew, so did the volume of customer e-mails, but there were no automated systems to handle the incoming queries. (If this story sounds familiar, it's because Kana Communications arose from the same realization. See Release 1.0, 3-98.) Sensing an opportunity, Sinha and Roy spun off eGain to develop e-mail management tools and services. The 40-employee venture-financed company launched its first product earlier this month.

eGain focuses on serving electronic-commerce providers, including Internet Shopping Network, LookSmart, Waiter.com and not surprisingly WhoWhere. Customers of these companies are more likely to use e-mail or the Web for service requests, and they expect a fast response. Moreover, Sinha says, "customer service in this world is not just about being reactive and responding to e-mails as they come to you." E-commerce companies can use rich information about customers to provide pro-active service, if they have the right tools. While many see live, interactive customer support as a major opportunity, eGain believes the Internet is better suited to asynchronous communications, and that e-mail will be the dominant vehicle for service requests for the foreseeable future.

eGain views e-mail handling as part of a larger opportunity to close the loop with customers. This gives it a broader focus than e-mail management software providers such as Kana, Adante and Mustang, which primarily integrate inbound e-mail with customer-support workflow. Echoes of WhoWhere, which offers everything from directory services to personal homepages, are readily apparent. eGain's E-mail Management System (EMS) uses independent components with published COM APIs. Managing inbound e-mail is the first application, but EMS also offers outbound e-mail marketing tools. Some people may consider any unrequested e-mail to be spam, but Sinha argues that users will respond much more positively if messages are tied back to the customer's prior service requests. eGain also provides a Web form-builder for customer feedback, offering some of the functionality of survey products such as 2WAY's (see page 16).

In eGain's vision, the Internet makes possible new forms of supply-chain disaggregation, with company boundaries less important than customer relationships (see page 3). Indeed, most of eGain's customers have elected to purchase the system on a hosted basis. eGain anticipates strong demand for this outsourced option, and it is building data centers to handle significant traffic volumes with guaranteed uptime. For small to medium-sized businesses, the ability to get up and running quickly without using their own IS resources is a significant advantage. Unlike most traditional call-center solutions, the system is priced based on volume of e-mail processed, rather than on the number of agents that use the system. A typical server-
based EMS costs $50,000, while the hosted option begins at approximately $3,000 per month.

Because EMS is browser-based and usually outsourced, it easily lends itself to collaborative customer support applications. Waiter.com, an online food-delivery service, uses EMS to manage customer inquiries both for its own operations and for its restaurant partners. In the future, eGain intends to expand into customer-to-customer support through mechanisms such as newsgroups and moderated discussion lists. It also plans to track how users click through sites and to feed that data back into a customer-support system.

eGain is making a strong bet on Microsoft technologies. EMS runs on Windows NT, is tightly integrated with Microsoft Site Server, employs COM/DCOM for application integration, and uses Active Server Pages and JScript to serve customized information. Sinha feels that enterprises will want a uniform OS platform rather than struggling with the flavors of Unix. However, the system is flexible enough to support other platforms if needed, and it recently added support for Oracle to its existing links with Microsoft SQL Server. The company is in talks with BroadVision and its competitor InterWorld about possible partnerships, because it sees customer service as complementary to the transaction capabilities of the larger systems.

CUSTOMER SURVEYS

With all the exotic technologies to discern and track user preferences on the Internet, from the Open Profiling Standard (see Release 1.0, 4-98 and 2-97) to collaborative filtering, it's easy to forget the simplest one: Asking customers what they think.

For years companies have relied on focus groups and telephone surveys to research customer attitudes. The Internet provides a new channel to harvest and aggregate such information much more quickly, even in real time. By cutting information-gathering costs, the Internet also makes surveys a viable option for internal units that may be too small to justify the expense of traditional methods.

Connectivity is only part of the equation. It's easy enough to ask questions by e-mail, but the word-processor based format is inflexible. Web-based forms require programming that generally means IS involvement each time. And in both cases tabulating and analyzing the results, not to mention tying them into existing databases, can be daunting.

2WAY and Decisive Technology both start from the proposition that the Web is uniquely suited to ask people what they think in an efficient way. From there, however, the companies take different tacks. 2WAY wants to empower individual corporate users to engage in attitudinal research. The models are e-mail and groupware, which similarly freed business managers from dependence on the IS department. Decisive, on the other hand, focuses on large-scale outsourced customer surveys. The company uses the Internet to give large companies ongoing analysis of customer attitudes.
How to advertise on the Net? Maybe it's the wrong question

By Esther Dyson

Procter & Gamble recently held a conference about advertising on the Net. Aside from privacy (we're glad to hear), a major concern was how to develop standard measures for Net advertising. But isn't that a little like trying to judge a musical performance by the number of notes per minute? Yes, there's some correlation, but hardly a relationship on which any judgments about value should be based.

These may well be numbers worth collecting, but they lead vendors in the wrong direction. Traditional advertising, like broadcasting in general, is designed for large audiences and benefits from economies of scale - not a good model for the Net. The Net allows a vendor to personalize messages and - better yet - listen to customers. It doesn't eliminate economies of scale for large markets, but it does make it cost-effective to target to small, high-value market segments where large players don't have an advantage.

Although you can do traditional advertising over the Net, but there are better and more effective ways to use the medium. In sheer number of eyeballs reached, television is probably always going to be more cost-effective once vendors use the Net to its full interactive potential and start competing for customer time and attention effectively.

So there are two sets of questions. First: What is the Net good for? How can we establish brands on the Net if not by advertising? Or put it another way: Should we redefine advertising?

And second: Which products are most suited for the interactivity of the Net? And which are simply commodities that can't really benefit from Net-based value-added?

What is the Net good for?

If a brand is a promise, as pundits tell us, then the Net is a good place to deliver on a promise, not just to make one. The Net lets you do more than create needs or desires; it lets you satisfy needs and desires, whether by transactions and personal specifications for physical products, or actual delivery of information products and value-added.

Even as it gets harder to get people to pay for content, it becomes more necessary to include customized content and information with otherwise generic goods and services. Airline flights may be equivalent, but which airline lets me check my mileage most easily? Those airline miles are customized value-added, more interesting to me than all the promises of friendly flight attendants, plusher seats, and convenient schedules. How do the convenient schedules match my travel plans?

The opportunity for a vendor is to enrich the product (or service) by interaction, not simply by flashing your name or logo in front of "eyeballs." (Even if you don't take proper advantage of the Net, your competition will, thus making necessity out of opportunity.)
That means a lot of work; the Net offers more but it requires more. You can’t simply count page views, hits, impressions or even time spent online. (As Kevin quotes Pehong Chen on page 8, many hits may mean the customer couldn’t find what he wanted. Even time online only sounds good: The customer may have been on the phone...or asleep!)

**Customer-specific information as ideal value-added**

As we’ve noted before (see *Release 1.0*, 1-96), generic content (a.k.a. traditional advertising and advertising-supported media) is getting cheaper and cheaper - mostly free - from the consumer’s point of view. To counter that trend, one of the best ways to charge for information is to make it customer-specific and roll it into a product or service that customers will pay more for with information included.

“Customer-specific information” starts with free targeted information, such as a personalized home page or news service, as described in this issue. How that will be paid for is an exercise for the VCs.

But customer-specific information extends much further, into the realm of paid-for goods and services - to knowing the configuration of a computer the customer purchased previously (Dell), the customer’s weekly shopping list (NetGrocer), or his preferred seat (American Airlines). Also in Dell’s case, it’s the corporate-customer-specific Websites that offer employees order only company-approved configurations, prices and the like. Content-enhanced products can earn significant premiums. That includes everything from a custom-configured BMW to a brokerage that notifies you of movements in your favorite stocks, or a travel agent that manages your airline miles. All these services, of course, make their suppliers’ sites sticky - hard for a customer to abandon.

**Delivery as value-added**

Now what about toothpaste? It’s a challenge to imagine an absorbing customized service about toothpaste. For such products, a personalized approach could focus on purchasing opportunities - consummation rather than titillation. But that doesn’t make sense for the toothpaste vendor, who would be obliged to set up its own fulfillment operation. Ease-of-purchase is a brand attribute that best suits a retailer, such as NetGrocer or Drugstore.com. They can keep your shopping list, help you compare brands, and market to you one-to-one effectively. The toothpaste-vendor, for its part, could pay the retailer for better positioning or offer cents-off coupons. But as vendors know, those tactics don’t do much for customer loyalty - and they simply transfer money from vendors to retailers or consumers in a zero-sum game.

The toothpaste vendor could sponsor a show or online game, but in the end television is likely to be cheaper. All the best sites with the “best” audiences will be bid up by more targeted advertisers to whom they are specifically valuable, leaving only undifferentiated audiences not worth the trouble of creating content for.
Interactivity is valuable in many different contexts, not all of them involving end-users. Employees, especially those in marketing, often need feedback from sales representatives, distributors and product managers. 2WAY, a Seattle-based startup founded in December 1996, provides an easy-to-use tool for these applications.

Ceo David Bluhm says companies are showing heavy interest in data warehousing and data marts to automate sales, marketing and customer support. However, they often pay less attention to how reliable information gets into those data repositories, which is where 2WAY fits in.

The 2WAY system has two primary parts: a form designer and a server with administration, directory, reporting and scheduling tools. The designer provides a simple graphical user interface for creating Web-based surveys. It includes re-usable components and templates to speed the process. The surveys use a JavaScript interface that supports branching logic, so that different users may be asked different questions based on their status and prior responses. 2WAY surveys can be published to a Website or intranet, with branding and other graphical material if desired.

When a user fills out a 2WAY form the resulting data is sent to the 2WAY server, which tabulates the results and automatically populates databases using a SQL format. 2WAY also includes a set of APIs to tag data so that it can be fed directly into ERP, supply-chain management or sales-force automation applications.

2WAY's "structured Web communications" technology can be used anywhere someone in a company wants to ask consistent questions of a group of people; human resources and customer service are obvious candidates. As a startup, however, 2WAY must focus its positioning efforts. The company chose to emphasize marketing initially because marketers have a strong need for information that is ill-served today. Traditional outside surveys can cost $10,000 or more and take 45 to 60 days, which makes them impractical in many situations. 2WAY also hopes to ride the wave of interest in marketing automation. It has partnered with high-end market research firm E-Valuations Research, and is talking to others in the space.

Bluhm emphasizes the relationship aspects of receiving a survey directly from a company or even a specific product manager, rather than an intermediary. People are more likely to respond to a survey when they know whom it comes from. The flip side is that an intermediary can provide an aura of impartiality or anonymity, but this tends to be most relevant for the larger-scale surveys that companies such as Decisive Technology support (see below).

2WAY launched in July, and plans a new product release around November. Hewlett-Packard's Ink Jet business unit was 2WAY's pioneer customer and helped refine the product during beta testing. According to Bluhm other units of HP have expressed interest, and several other companies have signed on as customers. 2WAY is exploring an outsourced option in which an ISP or portal site would host a survey database.
Decisive Technology: Hearts-and-minds outsourcing

While 2WAY is just getting into the survey business, Decisive Technology of Mountain View has been offering what it calls “customer intelligence” products since 1993. The company now has 40 employees and over 700 customers, including America Online, PeopleSoft, Charles Schwab, HP, Microsoft and Chevron. Investors include Convergence Partners and Softbank Holdings. Founder John Chisholm left in 1997 to form Customersat.com, which uses the Internet for traditional market research studies. Current CEO Mike Tilson was promoted internally earlier this year.

Decisive sells multiple tiers of customer feedback products using either e-mail or Java-based Web pages to collect information. Its desktop Web survey tools start at $249 and scale up to $9,999 depending on the number of respondents per survey. For companies that want continuous customer intelligence analysis rather than periodic surveys, Decisive offers DecisionSource, a $60,000 client-server package.

Although continuing to offer software products, the company has shifted its focus to ongoing customer analysis as a form of decision support. The core of the effort is EnterpriseView, a combination of DecisionSource software and professional services. Decisive conducts the surveys and publishes results to the company intranet. Customers receive constant feedback on the effectiveness of their call centers at satisfying users, supplementing the operational reports from systems such as Vantive, Clarify and Scopus. Companies with Vantive systems can integrate the attitudinal data directly onto customer-service representatives’ screens.

EnterpriseView allows managers to review survey results through a browser interface, and to drill down to examine trends by specific groups or customer-service representatives. The service carries a startup fee of $40,000 to $80,000 and annual costs of $100,000 to $300,000.

America Online uses EnterpriseView to survey a representative sample of members who have contacted its call center for technical support. Every 24 hours, Decisive e-mails 20,000 to 30,000 AOL customers, inviting them to fill out a Web-based customer satisfaction survey. Ten to 15 percent typically respond, a high rate for this kind of survey. Tilson points out that “people actually want to tell their vendors how to improve service.” Customers respond positively when a company’s request for information is tied to their previous interactions, and ultimately to better service.

Decisive’s thrust into outsourced customer intelligence tracks the broader shift toward external infrastructures (see page 3). Its service goes significantly beyond the hosted option 2WAY has under development, because Decisive itself conducts the surveys and manages the resulting data. Decisive in effect asks companies to give up control over one of their most precious possessions: their understanding of their customers’ hearts and minds. In return for ceding control clients benefit from sophisticated, continuously-updated surveys without impacting their own IS infrastructure.

The data still belongs to the clients, and Decisive takes steps to keep it secure. At some point Decisive may seek permission from multiple customers in the same industry segment to share aggregate data, so that it could provide companies with confidential reports on their performance against an
Decisive’s customers use EnterpriseView for many different functions beyond end-user satisfaction surveys. For example, PeopleSoft uses Decisive to track all points of contact with its enterprise clients. Other companies use the technology for purely internal purposes, for example to discern employee attitudes toward human resources applications.

Tilson argues that surveys complement data-mining of prior transactional data to identify patterns in customer responses. Data mining is good at discovering unexpected relationships. Once relationships are identified, however, survey provide a deeper understanding of customers’ conscious preferences and experiences. Survey responses can then be fed through data-mining applications to identify further connections.

HOW REAL ARE THE BENEFITS?

We're excited about the potential of the Internet to close the loop with customers in powerful ways. As always, though, the technology is only part of the story. The success of these approaches will depend more than anything on whether customers and companies believe they solve real problems. Better customer support always sounds like a win-win proposition, but in many cases companies are better off keeping customers quiet than inviting them into a conversation. Or at least they think they are. It's important, therefore, to step back and consider whom the Internet back-channel truly benefits.

Tylenol vs. Viagra

Companies use the relationship-oriented products we've described for two reasons: To ease the pain of customer support services, or to grow their top-line revenues through happier customers. The return on investment (ROI) on the cost-avoidance side is clear. Silknet's Jay Wood estimates that a technical support call with a live customer-service agent costs approximately $25 to $30. Call-center automation may save 10 or 20 percent, but since labor is the biggest expense these systems can only go so far. Resolving the same problem through Web-based self-service, on the other hand, runs about $2 to $3. As Broadvision's Chen points out, call-center costs rise in almost linear fashion with the number of calls, a business model that simply won't work for fast-growing e-commerce businesses. With Web-based systems, by contrast, the bulk of the expense is up front, and the marginal cost of handling additional volume is relatively low.

The upside is murkier but potentially much larger. A Harvard Business Review study suggests that reducing customer churn by 10 to 15 percent can result in a 50 percent increase in profitability. (For a more extensive discussion of the costs of churn, see Release 1.0, 11-97.) Since it often costs four to six times as much to acquire a new customer as to serve an existing customer, anything that makes customers more likely to stay has an immediate effect on the bottom line. Vignette's Garber says the average e-commerce site has a looker to booker rate (the percentage of visitors that become purchasers) of only 2.7 percent, hardly better than unsolicited direct mail. Personalization can bring those numbers up.
Excite, the first search engine to personalize its default home page, found that daily registrations doubled and users who personalized were five times more likely to return. Broadvision's Pehong Chen believes that closed-loop, personalized customer experiences are essential for widespread e-commerce to occur at all, because users will simply give up if it's too difficult to find what they're looking for. BroadVision uses both explicit customer feedback and observation of customer behavior to assess the quality of the customer experience, and other companies use similar techniques. Another element, which 2WAY and Decisive offer, is to use Web-based customer surveys for rapid feedback to tune the effectiveness of customer-support efforts.

The customer back-channel also facilitates additional revenue streams. "One-to-one marketing" makes it easier to engage in cross-selling and up-selling, because customers can be targeted with additional offers they are more likely to find interesting. Efficient systems to capture customer information can also generate revenue opportunities from sales of lists, cross-promotions with third parties, and even outsourced personal data management (for example, Biztravel.com's system for tracking airline frequent-flyer miles).

The question remains whether these benefits will prove out in the real world. The short answer is that the performance of the companies described in this issue, and others like them, will serve as a proxy for the validity of our thesis. Personalization is certainly no panacea. As online newsletter author Robert Seidman observes, despite many well-funded attempts, personalized news services have come nowhere close to meeting expectations. Seidman should know, having been involved with news filtering products at FYI Online and IBM. He thinks the problem with personalization is that the better the profile, the more information required from the user. Most users simply don't find the payoff worth the costs in time, money and commercialization of their private information. Furthermore, some user preferences simply can't be expressed well in machine-readable terms; it takes human editors to have a sense of what people are really looking for.

Phrased in this way, personalization sounds awfully similar to content filters and search engines (see Release 1.0, 5-98). The problem is the same: Efficiently translating machine-readable data into human-readable form.

There are plenty of technical tricks to attack this challenge, including collaborative filtering, Bayesian inference, neural networks and data mining. But for the purposes we're interested in here, the limitations of personalization aren't all that worrisome to begin with. Personalization need not be perfect to facilitate transactions on an e-commerce site, and there are a wide range of implicit and explicit sources of customer preferences that can be brought to bear on the task. (To be fair, Seidman acknowledges the distinction.)

Closing the loop with customers pre-supposes some established or potential relationship, which personalization enriches but need not create out of whole cloth. The companies discussed in this issue all address bounded transaction spaces, whether purchasing products from an online retailer or fixing a technical problem with a piece of software. With online news
services, by contrast, the difficulty is precisely the unbounded nature of the potential information flow.

The lesson here is that technologies should be used to solve the problems they are best suited for. Companies must be intelligent enough to go after the opportunities that make the most sense. The biggest problem is that expectations about personalization may not track reality. If users anticipate something out of Apple's old Knowledge Navigator video, they are likely to be disappointed.

Whose information? (A familiar theme)

Closing the interactive loop involves a leap of faith for both customers and vendors. Customers must either explicitly send personal information in exchange for some benefit, or have information about their usage patterns collected automatically without their knowledge. The potential obviously exists for companies to abuse customer trust, and as we've discussed at length the industry has only gradually recognized the importance of protecting user privacy (see Release 1.0, 4-98). Privacy concerns are likely to be even greater when, as with the technical support products described above, software on the user's machine automatically collects information and sends it back over the Internet (see page 19).

Privacy need not be a show-stopper here, but it's something companies need to think hard about if they want e-commerce to take root. The most important element is disclosure. Customers should understand both what a site's privacy policies are in general, and why specific kinds of data are being collected. If customers so desire, they should be able to opt out; someone who does so isn't likely to respond favorably to the offer anyway. The tighter the relationship between the information given and received, the less likely customers are to be concerned. Closed-loop systems, if properly implemented, can actually reduce customer anxieties, by tying outbound communications into an established relationship.

Vendors must also give up some control in order to capture fully the benefits of the Internet as an interactive medium. Customer information becomes even more valuable if it can be shared and exchanged in a standardized manner. Customers don't need to spend as much time filling out repetitive forms, and companies can make their personalization efforts more precise. Data sharing raises a new set of privacy red flags, but the same rules for alleviating this concern apply as in the previous paragraph. A potentially greater challenge is convincing companies to give up their control over something as proprietary as information about their customers.

Increasingly, the potential gains may persuade vendors that the effort is worth it. Companies large and small have turned to outsourcing to cut costs and improve performance. Extranets in some industries are beginning to blur the lines between providers and create functioning "virtual corporations." Many of the companies discussed in this issue, including eGain, Silknet and Decisive Technology, offer hosted versions of their products, and others are likely to do so in the future. If the benefits are clear, customers will follow.
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Except as noted otherwise, all companies' Websites are at the likely address, http://www.domain_name.com.

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