Churn -- alarmingly high customer loss -- bedevils telecom companies, cable TV service operators and online services. Local phone companies have it easy so far because their customers have few alternatives, but about a third of long-distance subscribers switch services each year. Many of them move or don’t pay, but some of them are unsatisfied or want better rates. Cellular carriers see annual churn rates of 25 to 30 percent, and even cable systems have churn of 15 to 18 percent per year (not counting household moves, which account for an additional 20 percent).

The $25 to $100 incentives that long-distance companies offer customers to switch from competitors’ systems exacerbate the problem. In fact, a small proportion of long-distance customers seize every promotional opportunity and switch constantly. They’re known in the trade as “spinners.”

Online services and Internet service providers (ISPs) face the same problem. Subscriber loss of 4 percent per month is considered normal. Before it switched to flat-rate pricing in early 1996, AOL’s churn was clocked at 25 to 33 percent per quarter; now it seems to stay between 12 and 15 percent. Many less-popular online services have fared far worse.

Lower prices haven’t made subscribers more loyal. Although there are no standard industry measures, the average churn rate for online services and ISPs today is believed to be around 45 percent per year. When you’re spending $40 to $70 to get a new subscriber (up to $300 per sub if you net out the ones who cancel right away!), these numbers are pretty grim.

Netcom backed out of the retail service provision business and saw its churn rates drop substantially. Business customers can’t afford the disruptions of account switching. Net applications trying to stake some turf on everyone’s desktop face the same problem. Point-Cast has had millions of downloads, but how many people still use it? Many people find it annoying and turn it off.

So far, online services’ principal weapon in the war against churn has been content. They have created content of their own and negotiated exclusive content deals with popular third-party brands such as Newsweek magazine and ESPN. Content deals have caught...
all the media attention over the past few years, but it's unclear whether they do much good. Great content is available everywhere, and churn rates are still high. Even if the official "produced" content were locked up in paid enclaves, there is an enormous amount of new content available for free that in many cases is as good as the traditional branded stuff.

This issue of Release 1.0, is about neither churn nor content. It is about the "virtual fridge door," a service offering we envision that has little to do with service-provided content but should go a long way to reduce churn. We spent three paragraphs describing it in last April's issue, "Metaphors and the Net." Here's the pitch, with a lot more depth.

Magnetic ideas

You may not think of it this way, but the refrigerator in your kitchen is a sophisticated communications device. Your family probably uses standards-compliant hardware components called magnets that come in whimsical motifs to post items such as grocery lists, movie reviews and schedules, collaborative poetry, the Cystic Fibrosis calendar, vacation pictures and kindergarten art projects. Putting these items within easy reach helps your family coordinate its activities. It also helps make your house a home. Note that the only people who can see these items are people you would let into your kitchen.

Alas, many working couples spend all too much time at their jobs. Some of these couples have taken to using their voicemail systems (work or home) as surrogate fridge doors. The messages sound like this: "Honey, I found a babysitter for tonight. Why don't you call 777-FILM, pick a movie and let me know where to meet you after work." "Honey, on your way home, could you pick up some milk, a roast chicken and that Grgich Hills merlot you like so much?" "Honey, I missed my plane and won't be home until 11 pm." (OK, so that last one wouldn't be on your real fridge door.)

As more and more companies install permanent Internet connections, many working couples now have access to reliable e-mail (yes, "a few" might be more realistic than "many," but bear with us). They have begun to move the fridge-door items to e-mail, where it's easy to distinguish personal messages from business messages and deal with them when it's appropriate. As URLs get easier to embed in e-mail messages, it is also possible to include links to resources such as movie and real-estate listings, events and special offers.

But this system still suffers from the weaknesses of e-mail. Things get lost. It's hard to find a message you need when you need it. (Somehow, when messages roll off the top of your inbox window, they also slip from short-term memory. It takes a heroic effort to scale your inbox and slash the message count to a bearable number, after which it bloats again, instantaneously. It's a Sisyphean task.) There's no place to put the messages down, metaphorically speaking, so they'll be there again when you try to pick them up. Not all e-mail programs recognize embedded URLs. The list goes on.

Despite all these troubles, voicemail and e-mail are thriving applications. More and more people have become dependent on them. It really is easier to plan a potluck dinner or school dance when you can leave messages for oth-
ers, rather than having to reach them in person. But there must be some-thing that’s easier and more useful.

Going virtual

Imagine a virtual fridge door that encompasses many of the features we have just described, plus a few more. It has:

- A unified mailbox, with private bins for family members;
- A persistent "fridge door," where members can easily leave stuff for one another;
- A family calendar; and optionally,
- A buddy list, so everyone can see who’s around when they are on-line, and conversation tools, so they can connect;
- A public Website;
- Bit transport (access of all kinds);
- Revenue-generating tools; and
- Ancillary services aplenty.

The idea is pretty simple. A basic fridge door is completely private, like voicemail. It has one section for transient messages (the universal inbox), one for more permanent notes and decorations (the private Web page posing as a fridge door) and one for managing activities over time (the calendar).

It’s easy to promote a message to a more permanent status by dragging it from the inbox to the fridge door. It’s also easy to schedule an event by dropping it into the calendar. More on those features later.

If computers and Net connections continue to proliferate in schools and off-ices at anything like the current pace, many people will be able to look at the fridge door at will during the day. It could even be "up" all day long, as a PC’s wallpaper or screen saver. As notes are posted by others, they show up on-screen.

Now imagine getting a WebTV or other inexpensive Web access device for your grandparents, who live too far away to be involved in your children’s lives every day. Your grandparents could leave your kids notes in the morning and see vacation pictures as soon as you post them. You would give limited access to your fridge to friends. The litmus test might be whether you would want to have them in your real kitchen or family room.

The calendar is an important element of the fridge door. It is the work-horse application that helps families get things done. It transforms mes-sages into activities. A well-designed calendar will let families attend more school events, figure out who is taking the kids to softball practice and meet for dinner more often with friends.

The fridge door’s goal is to facilitate people’s complex private lives, to give them more time to be with each other and with friends. This focus helps reduce churn. Once a family gets a hundred messages in the mailbox, several dozen names in the network-based address book and gives the fridge-door URL out to relatives (without needing to know that it is a URL or how it works), the service operator would really have to mess up or raise prices sharply to make the family unhappy enough to leave. Fridge doors tie cus-tomers to their carriers, even when all the technology in fridge doors is based on open Internet standards.

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Pricing the fridge

The best model for pricing a fridge-door service is Centrex voicemail service. A carrier could also offer Internet access, cellular service, pagers and Wildfire-style personal assistants or even satellite or cable TV. Carriers could provide all of these services at extremely competitive rates, since the carriers could turn services on and off without having to enter all-new subscriber information. Better still, they could amortize their customer-acquisition expenses over multiple services.

Voicemail pricing isn't the only model. One can easily envision three different pricing models. The first is a free or inexpensive advertising-funded service more like Juno's ad-funded e-mail than the generally ad-free voicemail services. Having some visual real estate on the fridge door creates the opportunity to add commercial messages that take up too much precious time when the interface is all audio.

A second, similar price model is sponsorship. The service is again free or inexpensive, but in this case one or two companies explicitly sponsor the family's service. There are no ads for other products. The third pricing model is, of course, fully paid customer subscriptions. No ads, no privacy violations, less noise on the screen.

Can you say, "perpetuities"?

For years, phone companies have been selling caller ID, voicemail, call forwarding and a few other services to their subscribers. In many cases, they even charge for touch-tone service, which comes free with the powerful digital switches that every phone company now uses, but that's another story. Fridge doors create an especially appealing opportunity for add-on services and applications.

Market penetration for some of the ancillary phone services is quite good, but phone companies are limited by their platform. It takes forever to add features to the phone system, which was not designed to be flexible and easily extensible. As we have mentioned before, long-distance phone companies are in a more tenuous position. If a household makes no long-distance calls, the interexchange carrier gets no revenues, and it still has to send a bill.

Even though the Internet is far more flexible than the phone system, ISPs have been at a loss to find add-on services they can charge for. One of the most attractive so far seems to be Internet fax services that bypass long-distance phone charges, but they are picking up steam slowly, despite a crisp return-on-investment proposition. We explore many such services toward the end of this issue.

The idea is to build a platform for a variety of services that lead to a series of recurring revenue streams. It's far better to get $30 from a household each month than to get $50 from it once for a shrink-wrapped software package.

What's a platform?

Let's extend the platform concept for a moment. Assume that the cost of communication stays low and goes even lower, which is not out of the ques-
tion. Once you're connected to the Net, moving bits around doesn't cost much at all. In this world, carriers and service providers want people to communicate all the time so they can sell ancillary services, because there isn't much revenue in pure access.

An individual's "platform" is then the environment in which she keeps her information and through which she communicates, publishes and transacts business. It doesn't matter whether it is her PC's operating system or her carrier's smart network. If recurring revenues for features are the goal, then most software will be a free front-end to services (see Release 1.0, 12-94 and 1-96). The software may still be created by small companies, but it will be delivered through larger carriers as part of their platforms. As Microsoft blends the OS and the Web, its offering becomes a service as well as a platform. But only if it gets the service aspects right.

Of course, this all doesn't work unless the platform is all standards-based, preferably standards of the Internet/IETF variety. Too many companies have tried to build proprietary systems that do many things well but connect only to others within the same system. Take Lotus Notes and Microsoft Exchange, both of which have had to undergo dramatic transformations to fit in an open-standards world. To be successful, applications must have blanket, no-questions-asked interoperability.

Home and work

The fridge-door pitch is tuned to households, but there's no reason the tools it describes can't be useful in business settings. In fact, many examples of fridge-door-like functionality that exist today are from business software and services, where there is a clearer revenue opportunity. As with many technologies in the past, business buyers will break trail and help evolve the software, which will really hit its stride when it is used by many more people but at dramatically lower prices.

Over two years ago, we described Net-based vehicles that would help workers express their points of view and build better relationships with others. We called them zines (see Release 1.0, 6-95). Fridge doors are their private complement; together they form a powerful platform for communication and commerce.

Zines and fridge doors have fractal, organic, low-level growth. They're not about mass markets or even mass customization, but instead about allowing small units to form and do their own thing.

Featureware

Creating a fridge-door service may seem like an immense and costly integration project, especially since we are arguing that the features of multiple product offerings be consolidated into one and made very affordable. But if you choose a base set of functions and set out to deliver them efficiently, they shouldn't cost nearly as much. Complexity is masking simple solutions.

One reason that all this software seems expensive is that all too often features pose as companies. Someone has a good idea, sells the business plan and launches a company, but the idea isn't broad enough to support a company. This fact usually becomes clear when you hear the product's price,
which may well be $100 per desktop -- a price designed to cover the costs of direct sales, product engineering, marketing and so on. If corporations paid $100 per desktop for every feature of this type, they could never afford to hire people. The best thing that can happen to the feature-producing company is that it is bought by a larger company that needs the capability and can integrate it in a larger offering, where it can add incremental value.

Note that many of the fridge-door features described in the rest of this issue are available today on the Net for free, including Web-based e-mail, chat rooms, buddy lists, personal home pages, directory services, collaborative filters, personal news pages and more. Note also that the fridge door described here doesn't include any news feeds, "channels" or professionally generated Content. It could, but it would be completely extraneous and supplementary.

Churned details

There is a baseline level of "frictional" unemployment, the natural level due to job changes, moves, etc. Similarly, there is an unavoidable level of "frictional" churn with carriers and service providers. People hit service potholes; they get offered better deals. They move or change jobs. When churn erases margins, it's dangerous.

Many online services and ISPs offer a free initial month of service. On AOL in particular, some percentage of churn is due to these free-hour harvesters who somehow continue to find valid credit cards each month to launch new accounts. While this may be good sport for teenage kids, it's hard to keep in touch with others or run a business when your e-mail address keeps changing. Also, many service providers don't count subscribers as such until they have received a month's payment, so their subscriber-loss calculations don't include these people.

Channels and Content

Most carriers and access providers seem bent on re-learning the expensive lessons that Prodigy learned over the past decade. They focus on "channels" and produced content, hoping to turn the Net into a variant of TV, and they ignore communications. They do so at their peril. Prodigy's users revolted, using Prodigy's own communication tools, which executives thought were unimportant add-ons but which proved to be essential.

Why does @Home put more work into its content deals than its communication tools? Who determines most of what goes on MSN and AOL? Traditional media producers like Bob Bejan and Bob Pittman. Of course they're not going to head toward communications.

Exclusive content deals are illusory. Most content is useful, but not compelling. Service providers would be better off if they viewed each piece of content as a potential launching point for conversations, rather than as a way to capture eyeballs and train them or grab them. Intent guides design.
The piece parts

One of the nice things about the fridge door idea is that it isn't dependent on solutions being found for an intractable problem, such as error-free, speaker-independent, unlimited-vocabulary speech recognition. The piece parts for the fridge door exist already. There is a non-trivial integration process to go through before a well-turned fridge door will exist, but it is not hard to envision.

The feature sets that make up the fridge door are each markets already. This section describes the components and dynamics of each of these markets, using existing products and services as examples. The company descriptions here are brief; it is not our objective to do a thorough analysis of each one, but rather to offer a quick overview of the competitive situation.

You might look at the fridge door as a family PIM (Personal Information Manager) done right, on the Net, but it's more than that and less than that, simultaneously. PIMs don't generally include messaging or publishing components, and few of them are designed to work as shared resources. PIMs are also typically more complex than a fridge door needs to be.

A Unified Message Bin

ISPs offer e-mail. Local phone companies -- some of which are ISPs -- offer voicemail. Paging services offer pagers. Some pagers have e-mail addresses. All these systems require different IDs, passwords, devices and commands -- and they send you different bills. It's a mess, if you have even modestly complex communication needs. It makes sense to bring them all together. The merger seems inevitable, although more distant than we would like. (We first wrote about unified messaging in Release 1.0, 12-92 and 1-93, before there were any commercial ISPs and when IP usually referred to intellectual property or information providers.)

The fridge door has one family mailbox, with private bins for family members. It can store, present, filter and forward voicemail, e-mail, faxes and pages. It is accessible from anywhere there is Net or phone access and from many kinds of devices. That is, Zoe can check her messages from an Internet kiosk in a mall or library just as easily as she can call for messages with a conventional phone. She can have important e-mail messages read to her by a text-to-speech module. (We regret to report that text-to-speech technology has barely advanced over the past decade, probably because it isn't as useful to national security as speech recognition. The "drunken Swede" is alive and well. One company that gets the pace and cadence right is AcuVoice. General Magic has licensed AcuVoice's technology for its upcoming Serengeti service.)

Current offerings

There are quite a few unified messaging systems on the market now, most of which do a decent job of managing e-mail, voicemail and faxes. Some of them manage a variety of access methods elegantly. That is, you can use them to see your inbox over the Web or dial into them and have messages played or read to you. General Magic's Serengeti promises to do all that, but its most notable feature will be a speech-recognition interface that can understand phrases.

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The Wildfire system's interface uses carefully crafted speech recognition (see Release 1.0, 10-94), but it doesn't handle e-mail or have a Web front end -- yet. Serengeti may give it a run in the marketplace, though it won't be available until mid-1998. The Tornado Electronic Messaging System from Tornado Development offers a comprehensive unified mailbox, but no speech recognition. TEMS is available both as a service for individuals and as a licensed server for larger corporations.

Omaha-based Prairie Systems and Norwegian-owned TelePost come at unified messaging from the phone-company front. The two systems have similar features, the most distinguishing of which is conference calling. Prairie's business model is to sell plenty of call minutes on its own network; TelePost seeks to sell its system to carriers.

The fight to liberate people from dependencies on media and devices continues, but the efforts are scattered. For example, NetPhonic's servers can read the text on Web pages to you over the phone, with cues that indicate which words are links you can follow. Sweden's Telia just announced a system that uses Ericsson GSM cellular phones and Oracle's InterOffice to provide unified messaging for wireless users. There are also many computer-telephony integration (CTI) companies that sell development systems, such as Active Voice and Applied Voice Technology.

CTI, but over IP

One of the principal barriers to unified messaging and CTI is the variety and incompatibility of voice and data gear. Until recently, implementing a CTI solution involved buying hardware that connected your PBX(es) and voicemail systems to your particular kind(s) of file server (and possibly also your PCs to your brand of telephones), then spending considerable money integrating and programming it all. You really had to see the payback to embark on such a project.

The Internet is a nifty integrator. Now voice and data servers can talk to each other over uniform protocols. Nevertheless, real CTI probably will not find broad use until the voice traffic is carried over the Internet protocol (IP). The next-best answer is to integrate voice and data services on a large-capacity service platform. Think of it as a Centrex-style service. The key is not to get sucked into expensive link-ups with traditional telecom hardware, and instead to build fresh, taking advantage of the fact that all these systems have directories, password schemes and message stores.

Grand unification

Unified messaging isn't easy, especially when you have legacy voicemail and e-mail systems to deal with. It's easier when you can start from scratch and control the whole application, but even then there are still significant issues of media integration, interface design and address management. How many e-mail addresses and phone numbers should you have? How will you get only the messages you want on your Pilot?

Progress in this market exists, but it is fitful. AOL may be pretty well positioned to create a fridge-door service, especially if it moves aggressively to integrate voice -- possibly even by allying with or buying a voice-services platform (vs. allying with a carrier). AOL already allows
for five screen names in each family account. The company also recently in- 
ked a deal with JFax, which will allow AOL subscribers to receive faxes and 
voicemail in their e-mail inboxes. AOL 4.0 looks like more of the same. If 
we were running the company, we'd be building fridge doors for everyone and 
locking in those recurring revenues.

Some of the virtual office products we describe in the next section include 
unified messaging capabilities, although those systems focus mostly on docu-
ment sharing.

THE FRIDGE DOOR ITSELF

The next major component is the virtual fridge door itself, a spot where 
family members can easily leave stuff for others to see and use. The main 
idea is that this Web page is private; everything else is dressing. Only 
people that you give the password and URL to can find the page and see its 
contents.

Of course, the virtual fridge door need not look like a fridge door (though 
who can resist magnet poetry? see http://prominence.com/java/poetry/). Some 
people will prefer other metaphors, such as: a cork bulletin board with vir-
tual push pins and tape to hold up notes and pictures, a square-ruled note-
book with multicolored pens for absent-minded doodling, a magic sketchpad 
with "magnetic" pens and iron-filing "ink," a cave wall with charcoal pieces 
and assorted pigments, or a beautiful sheet of handmade (virtual) paper on 
which family members can easily leave notes in calligraphic fonts. Third-
party developers might sell new style packages for fridge doors. There is 
definitely a market for ancillary services (see page 13).

Unfortunately, leaving friendly scribbles or hand-painted cave markings is 
more difficult than posting text messages. Today's Web authoring tools are 
nowhere near as simple as they need to be for a fridge-door service. They 
are designed for designers, not ordinary folks who want to jot notes, post 
pictures and get on with their lives. A few Websites feature simple Java 
applets that let visitors draw, scribble or compose pictures using pre-
declared building blocks, but this form of expression hasn't been explored 
much on the Web yet.

The business side

There is no virtual fridge door for families quite yet, but the features 
exist in some business applications. A number of startups offer persistent 
Web spaces for workgroups to share information and coordinate their acti-

vities. This section describes a few of them. Imagine some of their fea-
tures reconstituted into a fridge-door service for families.

1 Interestingly, iVillage's Parent Soup encourages its members to set up 
personal pages that it calls "cyberfridges." Unlike the private fridge 
doors described in this issue, the cyberfridge doors are visible to other 
Parent Soup members and list personal information (married, single, birth 
date), family information (children's names and ages), hobbies and places 
they like to visit in Parent Soup.
Here's a quick summary: Netopia Virtual Office (NVO; from Netopia, which until just recently was known as Farallon Communications) and HotOffice (a 1997 PC Forum debutante) present a desktop-metaphor view of messages, documents and other items for personal use and for visitors. Lotus' Instant!Teamroom and Instinctive Software's eRoom offer private spaces where workgroups can collect documents they want to share and discuss topics of interest. The Visto Briefcase service (from Visto) holds documents for workers who travel intensively.

The two virtual office products have similar features: inboxes and outboxes for messages, discussion forums, document sharing and ways to contact the owner. NVO includes remote screen-sharing technology, so one party can show the other what's on his screen (this is, after all, the company that created the Timbuktu remote-control application). HotOffice lets participants share Microsoft Office applications through Microsoft's NetMeeting. It also offers Internet telephony and mailing-list services.

Until recently, the two offerings' major difference lay in where they put the server. HotOffice is a service; the data is on a server that HotOffice runs. NVO is a product; the data is on a server running on your own PC. While NVO's is a less expensive solution over time, it also means you have to leave your PC connected all the time if you want people to be able to reach your site whenever they need to. Netopia's most recent version allows for hosting on someone else's server, a much-needed feature.

Like the virtual fridge door, eRoom and Instant!Teamroom are secure, private Web spaces for small groups. The eRoom interface looks like the icon view in a file system. Icons representing documents, discussions and other objects sit side by side in an open window. Users can add documents by dragging them into the window and launch them by clicking on them. The system also includes version control and a voting applet.

The Instant!Teamroom interface is simple, but it hides considerable power. Building on Notes' ability to manage group members and their privileges and Domino's ability to generate dynamic Web pages, Instant!Teamroom makes it pretty easy to set up ad-hoc collaborations on the Web. Want to create custom document categories for your team? This product lets you. Want to customize the space? No problem. The system also includes well-designed e-mail invitations and notifications. Again, these offerings put the server in different places: eRoom is a product (around $130 per user, in volume), to be installed on a corporate server; Instant!Teamroom is a service to be run by VARs, available for roughly $15 per user per month.

The Visto Briefcase is really for single users. It lets them get to files that are normally stranded on their desktop machines when they're away from their offices. It provides a persistent personal space where they can replicate specific files, including their Web bookmarks, so that they can access them from a browser anywhere else. It does let them give others access to files, though that is not the Briefcase's intended use.

A FAMILY CALENDAR

Families work hard to coordinate their activities. Family calendars are woefully under-appreciated, particularly by software developers.
calendaring and scheduling software companies have been focused mainly on corporate sales. Whatever units they sell to private individuals are welcome revenues but also represent potentially expensive support calls.

Inside companies, the buying decisions are moving from departmental systems up to enterprise platform decisions. It's the same path that e-mail systems have taken, only a few months behind. In fact, all three major office software platform vendors, Microsoft, Lotus and Netscape, are making calendaring a core application. However, interoperability of calendaring systems is nowhere as good as it is with open standards-compliant e-mail systems.

That doesn't mean family calendaring won't happen soon. With drag-and-drop and the vCalendar protocol (for calendar-event interchange; see Release 1.0, 9-93), it is easy to create highly useful calendaring systems for the family's virtual fridge door.

Here's the goal: Get schools, Parent-Teacher Associations, movie theaters, dance studios, gyms, Scout troops, Little League teams, churches, synagogues and others to post their event listings on the Web in a vCalendar-compliant format. Then it is easy to find your child's team schedule and drop it in the family calendar. You can drop a movie and a restaurant listing into an evening. When that evening rolls around, you can go to the movie and restaurant Websites and make reservations or buy tickets. And that's only the beginning.

Who will get PTAs and Scout troops on the Web this way? The localized Web services, which need to beat each other at helping local organizations thrive: CitySearch, Digital City and Sidewalk.

Family calendars haven't caught much attention yet, but they will. The software will increasingly be available. Many PIMs now support the vCard and vCalendar specifications. Perhaps more significantly, the latest browser suites from Microsoft and Netscape support them, too. That means that most people with Internet access will be able to use advanced calendaring functions. It would be better, though, if the functions were nicely integrated in a fridge-door service.

A PUBLIC WEBSITE

The inbox, private note board and calendar are core functions of the fridge door. The most obvious next service is what many carriers are offering for free already: a public Website.

Today, AOL members can put up small Web pages for free, as can customers of most other online services and practically every ISP. On the Web, many sites offer Web homesteading for free or at reasonable rates, including GeoCities, Tripod (for Gen-Xers), Angelfire (just bought by WhoWhere?) and others. GeoCities alone has over a million members building Websites; Tripod has half a million, not all of whom build sites.

This kind of service offering is already a booming business. It makes so much sense that we'll stop right here. 

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PRESENCE SERVICES AND CONVERSATION TOOLS

Since you're going to check your fridge door for messages during the day anyway, wouldn't it be handy to know that someone else you care about is "around" at the same time? And wouldn't you want tools with which to contact her? These tasks are easily handled by buddy lists and other Net-based conversation tools such as chat servers and threaded discussion forums (see Release 1.0, 6-97 and 1-97).

Buddy lists, which we covered in June, are on a rocket ride. Mirabilis' ICQ now has over 4.7 million registered (and non-paying) users, 2.6 million of whom have used it recently. Its Website consistently ranks in the top 20 trafficked sites on the Net. The company has added capabilities that make it simple to set up public chat spaces; thousands of ICQ users have done so. Despite the heavy interest in public chat, we suspect the most interesting conversations are still private, between parties that know each other.

Live chat is available around the clock on LiveWorld Productions' Talk City, WebChat Communications' WBS, Time/Warner's Pathfinder and myriad topic-driven Websites, such as CBS SportsLine and iVillage's Parent Soup. Forum One offers an excellent search engine for online forums.

For the most part, public chat spaces give real-time chat a bad name. When you hear stories of anonymous characters who bounce into chat rooms, ask everyone's ages and genders, insult or proposition a few people then bounce back out, it's probably happening in open chat spaces. Private conversation spaces are far less volatile and can be extremely useful.

Seattle-based Throw, a debutant and company presenter at the 1997 PC Forum, has refined its strategy (see Release 1.0, 3-97). The company started out developing sophisticated Java-based spaces that featured interesting tools with which communities could self-organize and decorate their environments. But Java didn't move as quickly as Throw's developers needed it to, so they modified the original vision a bit and opted for a low-and-slow, HTML approach that brings with it a much larger potential user base. Throw's new objective is to help people create flexible, gated discussion spaces online.

BIT TRANSPORT

Our operating assumption is that the ideal fridge-door provider is a carrier or access provider -- a company in the business of moving bits. The fridge door offers them a way to differentiate themselves from their competitors in a market that is rapidly becoming a cutthroat wholesale business. Carriers that don't have national or global scope (preferably global) and extremely low operating costs will not fare well. There is too much competition headed toward each market.

If a company already provides your Internet access and fridge door, it makes sense that it also offer other kinds of access, including TV, telephone service (wired and wireless), paging and possibly home-security and car-alarm service. Billing systems that allow carriers to bundle services, manage affinity-club points and customize their offerings to different markets will outsell those designed for microbilling of faxes, phone calls, videoconferences, movies and data sessions.

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REVENUE-GENERATING TOOLS

Ordinary people are treated as passive subjects too often. What if we enabled them to earn money in various ways? The Amazon Affiliate Program is an excellent example. Anyone with a Web page and a bank account can become an Affiliate at Amazon by registering and specifying an account that Amazon should put your money into. Amazon then e-mails you some HTML code to put on your Website next to any book titles you recommend. If anyone buys a book after following your link, you get a commission, typically 8 percent for individuals. That money won’t let you quit your day job, but it’s nothing to shrug at, either.

Why don’t more companies copy the Affiliate program? Practically everyone has opinions, and the best product recommendation is a testimonial from a friend you trust. It makes sense to put this energy to work. Affiliate programs could be the network marketing programs of the next century.

There are many other ways that fridge-door providers could enhance their platforms to make it easy for their customers to make money. A simple one is support for Net payment systems such as First Virtual Holdings and CyberCash. Another is inexpensive access to Web catalogs and hosted databases.

ANCILLARY SERVICES

People using their fridge doors to organize their lives and upgrade their livelihoods should create a large market for add-in tools and services. Here are a few that sound compelling to us.

Translation and transcription services
Need a document in English translated into Polish or Esperanto? Net-based companies such as Aleph (see Release 1.0, 7-97 and 3-96) bring translators together with people who need things translated. Other companies can turn digitized recordings into text transcripts. Why not put a text transcript of the PTA meeting on the Web next to the RealAudio recording? On the business front, technical translations might involve code porting, media conversion or image optimization. And how about a copy-editing service?

Diagnostic and repair services
Cybermedia, Tuneup.com, Symantec and McAfee Associates are creating a viable market for Net-based utilities that help non-techies assess whether their computers are running properly and whether they have the latest versions of everything. Unfortunately, each handles only a subset of the tasks required to maintain a PC and its software, but consolidation is inevitable. AtWeb’s Web Garage performs similar work on Websites. Send it a URL and it will give you a report that critiques the site. It won’t be long before some cars and appliances get Net-connected for similar reasons.

Recording and playback
You just completed an important audio conference call. Wouldn’t you like to hear it again, or let others who couldn’t participate listen to it, too? Net-based conferencing services could offer a "record" switch and reasonably priced server fees to enable this feature to be available to practically anyone. Today, it’s too expensive a feature to buy for your home or PBX; on the Net, the resource is sharable. The recording would be put on a Website that might require password access.

Release 1.0 21 November 1997
Digital notaries and archives
Need proof you saw something on a Web page? Need to cover your, um, bases in case your boss says he never sent that e-mail? Want an independent record of what you've published on your Website? If digital notaries were easily available on the Net, these issues would be easily solved.

Brewster Kahle's Alexa Internet service searches and analyzes Web pages and stores them in the non-profit Internet Archive, from which it can retrieve pages no longer available on the Web. Some people are using Alexa to prove that something was published on a particular day.

Extra security
Home- and car-alarm businesses are commonplace. Whom do you turn to when you want to make sure your Website and message store aren't broken into, or that your messages aren't intercepted and read? How do you really know a site is safe? Encryption companies and ethical-hacking teams could offer valuable services fulfilled on the Net. When someone attempts a break-in, they would respond on your behalf.

Applications
Every day, there are more examples of new, Web-based applications that are useful for everyday activity. People can publish custom maps with driving directions on their Web pages, courtesy of sites such as MapQuest and Vicinity. The Kodak Picture Network makes it easier to get photographs onto the Web. It's a small step from there to putting the pictures on a virtual fridge door.

Mailing-list hosting and management
Mailing lists are extremely efficient ways of keeping a large group of people in conversation, but they're not that simple to set up and maintain. There is also an ongoing administrative burden to trace bounced messages and make necessary adjustments to the list. Server hosting, whether for mailing lists or other applications, is easy to do and makes a lot of sense. Facilities management and outsourcing should continue to see boom times.

Hosting. With people
There's another kind of hosting that matters: people acting as discussion hosts. Companies are beginning to gag on their e-mail discussions and Notes databases. In many cases, companies have discovered that it really pays to assign a person to help make connections between discussion threads and keep conversations flowing well. These people could easily be sitting in a well-connected cabin in Leadville, CO, or a chateau near Brussels, Belgium.

Smart assistants
Overwhelmed with messages? Can't get through your inbox or find anything on your desktop? Let a professional straighten you out. It costs a lot to have an efficiency expert come to your home or office and separate your Spandex from your Pendaflex, but on the Net these experts can easily glance at your personal quagmire -- with your permission -- and suggest better ways for you to structure your systems. They might even come equipped with their own tools and utilities. There are countless domains where this kind of expert assistance would be welcome, but has typically been uneconomic to deliver. Go crazy.

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Traditional professional services
Legal help. Tax advice. Financial planning. Medical advice. All of these could be left at hand, near your fridge door, which would act as the safe entryway to your important, private documents and files. Why worry about backing up your Quicken files when they can live on the Net? Want to change accountants or lawyers? Your documents are in a safe, independent storage facility on the Net. As long as service providers are trustworthy and the services they offer are priced reasonably, a significant proportion of the market is sure to adopt this solution.

Subscriber loss statistics from Inteco and other sources; (203) 866-4400.

All Websites follow the form www.companyname.com, except for:
General Magic http://www.genmagic.com
Prairie Systems http://www.prairiesys.com
TelePost http://www.telepost.net
Telia http://www.telia.se
Tornado Development http://www.tems.com

COMING SOON

- Handling the info-flood.
- Identity management.
- Online governance.
- Market-based security.
- And much more... (If you know of any good examples of the categories listed above, please let us know.)

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