

Telecommuting and the Computer...Here Today, Home Tomorrow

By Cara Rodgers and Eric Teicholz

1. OVERVIEW

Everything from e-mail to virtual offices on the Internet have made it easier for people to work remotely. The result is that the number of telecommuters has nearly quadrupled in the last decade. The Gartner Group, a Stamford (CT) market researcher, estimates that almost 30 million workers -- 22% of the labor force -- "frequently" (at least three days per month) work from home. It is predicted that this number of telecommuting American workers will reach 25% by the year 2005.

Socio-economic trends also have influenced the rise in telecommuting. Dual working-parent families, which are now the norm, typically rely on the flexible work arrangements that telecommuting provides. And with unemployment rates the lowest they've been in 25 years, employees often have leverage in this tight market to insist upon these teleworking arrangements.

But it is really technology that has reshaped the business landscape, making it easier for virtual workers to function as if they were in the next cubicle. Laptops and e-mail alone may be enough for employees to stay in touch with the corporate office and their customers. There are also new web-based tools that help virtual teams work more efficiently including web/video-conferencing and collaboration web-sites that let workers share files and post schedules.

Supporting the work environment and technology infrastructure for telecommuters poses some new challenges for facility managers - who are increasingly overseeing this information technology (IT)/administrative function.

2. THE INCENTIVES

It is not only employees who benefit from remote work. In large part, the explosion of telecommuting is being driven by the self-interests of the employer. It is substantially less expensive to set a worker up at home than it is to install a worker in a centralized office and, because hoteling arrangements reduce the need for office space, companies can cut capital

costs as office rents in most cities skyrocket. Companies also use telecommuting to lure employees and keep turnover low and, in turn, reduce recruiting expenses. Additionally, freed from lengthy commutes everyday, home-working staffers are likely to give some of that time back to their jobs.

Merrill Lynch and AT&T were among the companies that decided very early that they should institute formal telecommuting programs to remain ahead of the curve and retain valuable employees. Today, half of AT&T's 50,000 managers worldwide telecommute. Merrill Lynch reports saving from \$5,000 to \$6,000 per office per year, in overhead costs.

While the benefits of telecommuting are quantifiable, there are undoubtedly some disadvantages. Yet even the downsides (e.g., a decrease in communications among co-workers and an increase in isolation from company culture) are being addressed by company programs and new technology. Herman Miller is a case in point.

A few years back, Herman Miller had suspected telecommuting would change the face of corporate America. They polled some 11,000 corporate facilities managers and learned telecommuting was quietly becoming a logistics nightmare at the same time that companies were eager to cash in on real estate savings and keep employees happy. The finding of their study resulted in a turn-key program initiated last summer that lets clients' telecommuters choose ergonomic furniture and accessories for about \$1,500 a package. And Herman Miller practices what it preaches. The company's "Homesite" program provides its telecommuters with a phone line, laptop, \$1,500 stipend, and their favorite Herman Miller chair. In return, they surrender their space in the main office. When teleworkers have to go to headquarters, they operate out of a "campsite"-a place where they can hook up their computers, use the phones, and meet colleagues.

3. THE TECHNOLOGY OF TELECOMMUTING

While traditional face-to-face communication is still the preferred method for conducting business, many people agree that the majority of their work is conducted over the phone and fax, through emails and, increasingly, the Intranet. The virtual office concept today offers Internet-based communication tools for document management as well as ASP-hosted applications for focused business functions such as timekeeping, expense reporting, payroll, printing services, office supply procurement, web conferencing, and project collaboration. These tools are not only convenient for the telecommuter but serve as an outsourced function

for companies, eliminating most overhead costs associated with hardware, software, networks, training and IT staff. Some examples of the technologies that support virtual business are discussed below.

Remote Access

The cost of adequate speed connectivity, which has been the biggest impediment to the growth of telecommuting, has gradually been decreasing over the past few years. Already cable modems and broadband access are yielding the same productivity as the office network, and for much less cost per seat.

Many companies are finding that investing in technology that provides access to the company's local area network provides significant advantages in bridging the distance between home and office. According to a 1999 International Data Corp. (IDC) survey, about 29% of small companies with fewer than 100 employees already give their employees remote access to their local-area networks, and the larger the business, the more likely they are to offer such access.

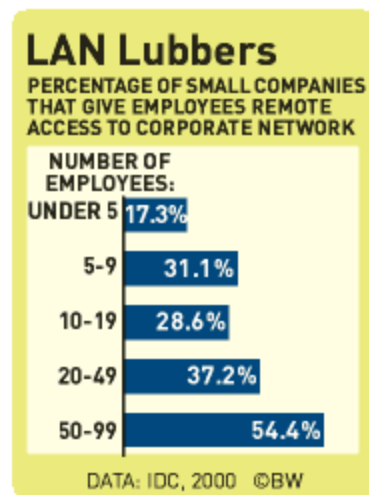


Figure 1 : Over half of small companies with over 50 employees provide remote access to corporate networks. This percentage increases with the size of the company. (Source: IDC, 2000)

Remote Access Servers (RAS) or Virtual Private Networks (VPN) are the hardware and software combinations that allow employees remote access to the corporate network. The cost of setting up remote access varies widely, of course, depending on the solution and existing technology infrastructure.

The most efficient gateway to the corporate network is through a hardware-based RAS and an "always-on" connection, such as a T1 or Digital Subscriber Line (DSL). With dedicated

hardware for the remote gateway, an IT professional can use regular networking protocols to configure the security and system settings. In addition to the dedicated server (which can range from \$2,000 to \$30,000) a router is needed (e.g., Cisco Systems low-end 1000 series or Farallon Communications Inc.'s Netopia ISDN routers, which cost between \$1,000 and \$2,000). Additional costs are required for staffing experienced IT personnel to administer and maintain the networks.

There are a variety of VPN alternatives which are more affordable and easier to configure than hardware-based RAS solutions. Both Apple and Microsoft (Windows98 and NT) have remote access client software built into their operating systems already (called Point-to-Point Tunneling Protocol - PPTP) and the server software needed comes at minimal additional cost. Setup is basically done by setting up IDs and passwords, and assigning a phone number to each PC. To launch the program on a laptop, the remote worker dials into the server, and is virtually back at the office.

Virtual Offices

Virtual offices are hosted web-sites that provide a variety of services to bridge the communication gap between telecommuters and office workers. At a basic level, these services provide employees with email, chat forums, document management functions, workflow and the ability to share calendars and contact lists. These virtual web-sites are ideally suited for smaller companies and essentially operate like the IT department, but without the overhead. Companies can expect to pay minimal fees in the range of \$10 -15/per month per user. This standard fee typically includes nominal disk storage per user (e.g., 20MB), with additional charges billed as more storage space is used. Many of these office Intranet services (e.g., Buzzsaw) even provide their services for free by letting advertisers absorb the cost.

Timekeeping/Expense Reporting

OpenAir (<http://www.openair.com>) is an Internet-based ASP for professional service-oriented businesses that have several offices in different locations and want all employees entering data into one system for client billing and management reporting. OpenAir provides employees with remote access for timekeeping and expense reporting. The company charges about \$10/month/employee for use of the system.

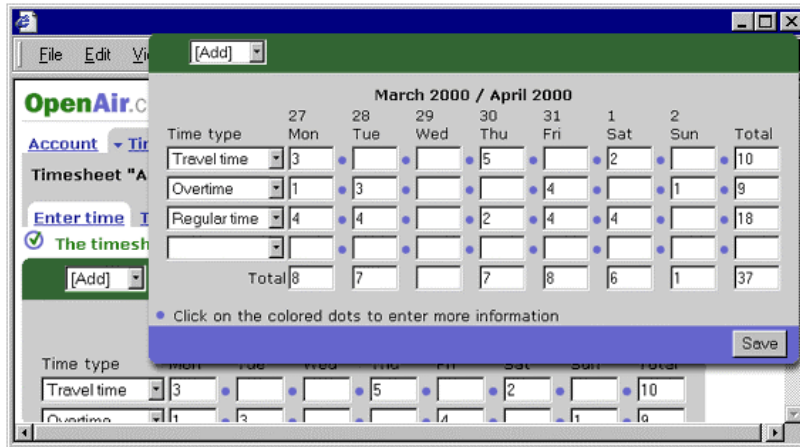


Figure 2: OpenAir.com's browser-based timekeeping lets employees log hours by time type into a weekly timesheet to keep track of how time is spent.

Web Conferencing

If you have not yet attended a web-conference, you will be amazed at how easy it is to participate. Not only useful for the telecommuter, these tools have become an ideal way for companies to hold seminars and training sessions, promote new products, give client presentations or even hold virtual tradeshows with thousands of people attending.

Typically emails are sent out inviting attendees to go to a URL address and call in (via telephone). As each attendee is connected, the seating chart on the screen indicates where each person is sitting in an auditorium. Figure 3 from Placeware (<http://www.placeware.com>) illustrates this function. The presentation is in a Microsoft Powerpoint format for the on-screen video portion, with the telephone used for the audio portion.

There are a variety of pricing models for using the web-conferencing tools. On the small scale, Placeware offers a hosted ASP service on an ad-hoc basis with monthly fees charged to a credit card based on the number of seats (e.g., 5 seats cost \$100 with unlimited meetings conducted). Annually, they also offer conference services based on the number of "meeting rooms" that are leased. For example, three 10-person meeting rooms with unlimited conferences might cost \$5000 for a year.

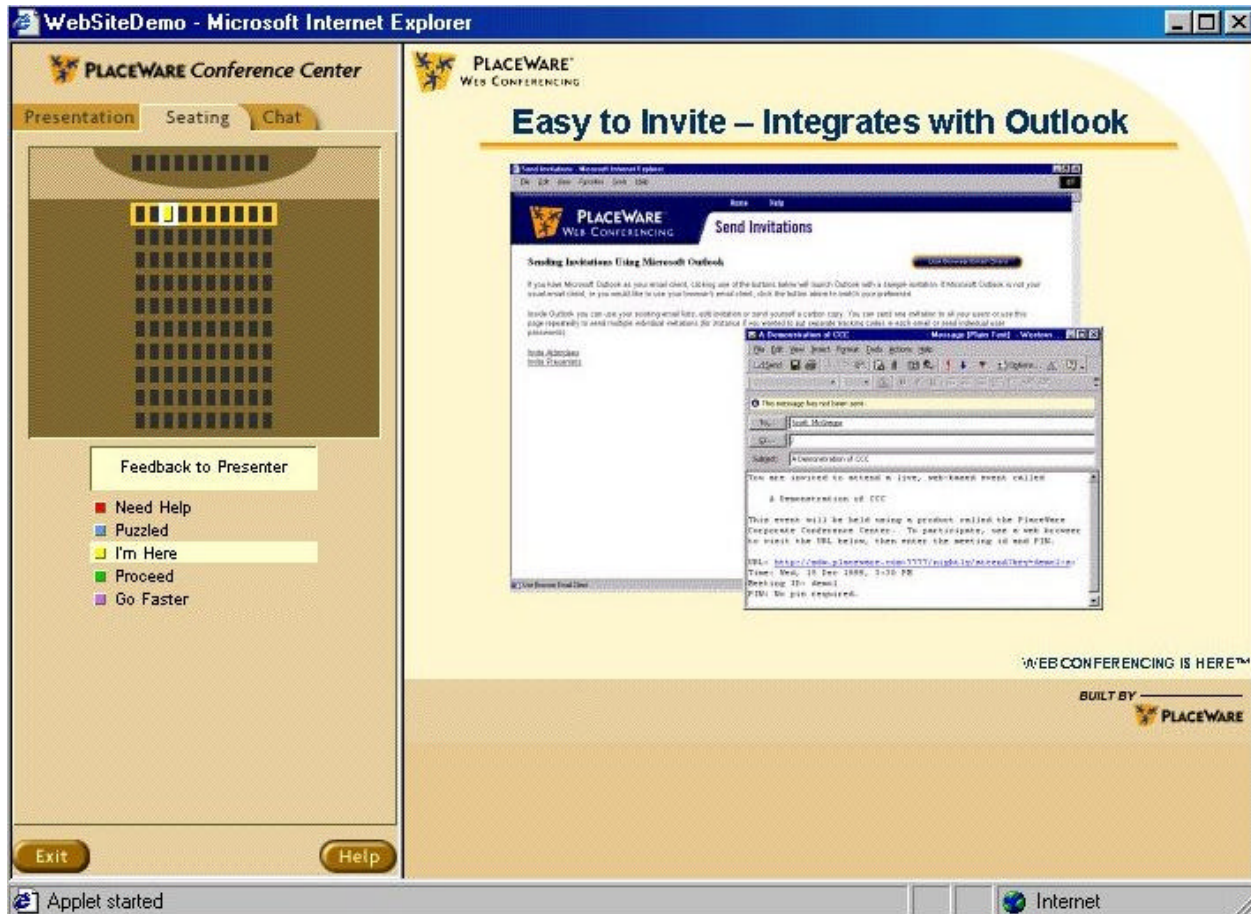


Figure 3: Placeware's Conference Center console locates your seat in the auditorium, while the presentation is shown on the right side of the screen with a phone providing the audio.

Business Project Collaboration

Most project collaboration Extranet sites are designed for AEC and construction industries. Some, however, can service any business by offering more general tools integrating disparate project methodologies with schedules, budgets, document control, meeting notes, threaded discussions, work flow and so forth. E-Room Technologies (<http://www.eroom.com>), for example, positions itself as a digital workplace, providing Internet-based communication tools to mobilize business projects regardless of the location of team members. E-Room provides industry specific templates and methodologies (called e-Practices) for various types of projects - and allows for customization to accommodate workflows and scalability of projects. Similar to most project Extranet tools, there is a document version control feature, a drag-'n-drop function for posting documents from a local PC to the project web-site, and access control down to the file level. One notable e-Room feature is the project calendar which synchronizes with team member's Microsoft Outlook calendars.

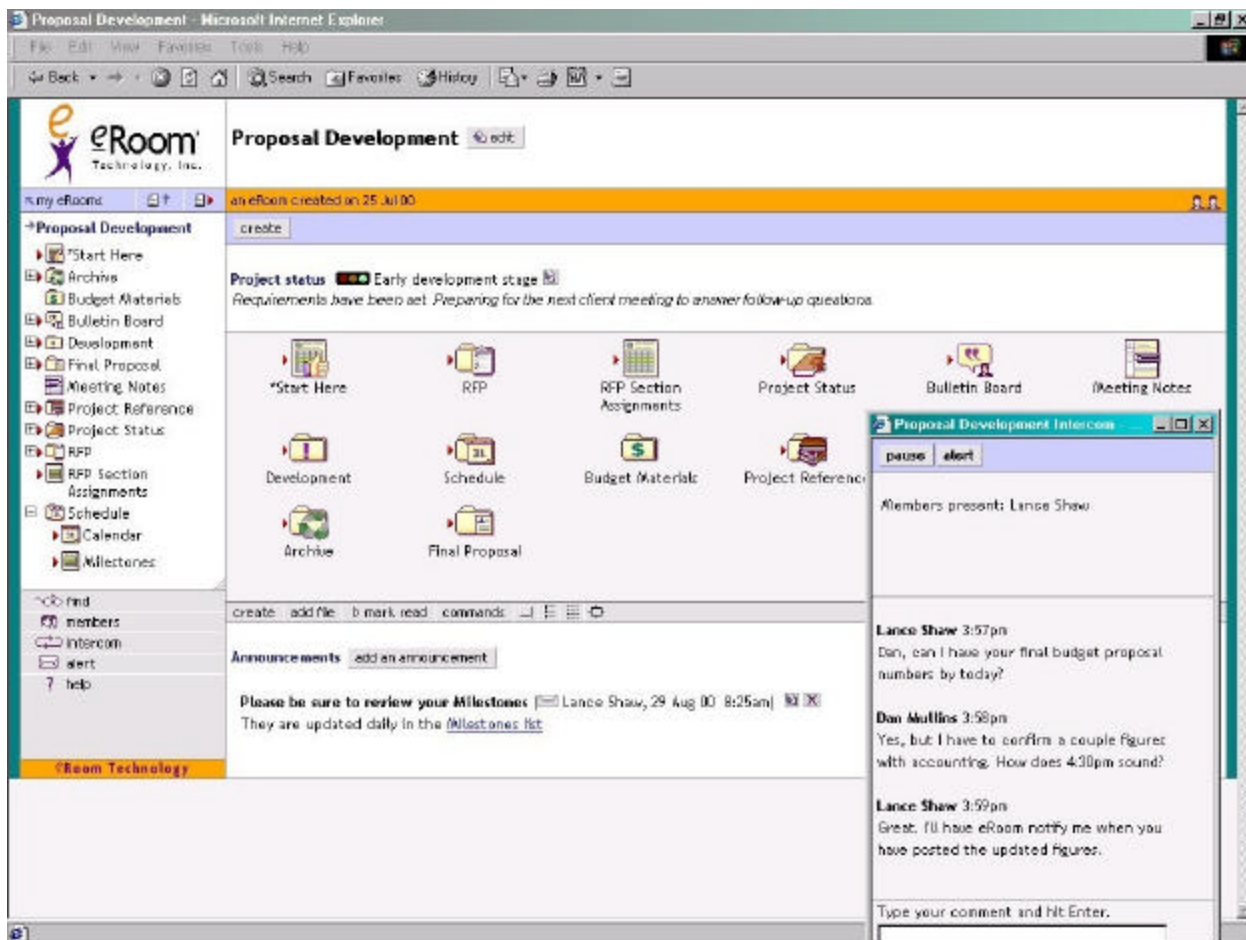


Figure 4: E-Room's project templates provide icons representing workflow and various parts of a Proposal Development project , e.g., phases, schedules, budget, meeting notes, bulletin board.

Implementing Telecommuting Technology

Regardless of the type of application, when selecting an Intranet site for your company's virtual workforce, it is wise to consider the business process impacts and pros vs. cons of implementing such a tool for the organization. Implementation considerations include:

- Even if an application might seem straightforward, one must plan for how telecommuting staff will incorporate these new methods into existing work processes;
- The web-based remote application might necessitate all staff being involved. That is, the remote tool might have to be shared by all users in order to realize its benefits;
- An adequate technology infrastructure and technical staff must be in place to support the desired applications. Although telecommuting applications are typically provided as an ASP service and, therefore IT staff are not usually required, someone will need to serve as an administrator for the system to perform such functions as security and

access rights, adding users, overseeing business processes and, in some cases, legacy system integration;

- Some sites are more intuitive in terms of navigating and using an application. Other applications might require custom documentation and training. Team members must understand how to consistently use the document sign in/out functions to parallel existing business processes;
- Although the costs may appear lower or even nominal for some of these applications, hidden costs are often present. For example: fees for additional disk storage; alternatives for licensing structures based on amount of data/users/projects; consulting fees for setup and training; and perhaps most importantly, investment in staff time for making the transition to the new system. It is not uncommon for an ASP service to cost from 5-10% of the purchase price of that same application;
- And as a caveat for any ASP hosted service, the saying "here today gone tomorrow" may well apply. The Internet is currently a risky place to do business. Similarly to the selection of software or services, customers should conduct a thorough due diligence of the vendor including its executives, its application focus and track record, its references, and its financial stability. In addition, users should know what will happen to their data if the company gets bought out or closes its doors.

Looking Ahead

Most vendors of traditional client-server solutions are moving their applications to operate entirely on the Internet which, in turn, enables remote workers to access corporate applications through a web-browser. Many new technologies and tools are emerging to support the rapid growth of telecommuting. These trends will accelerate because of factors such as wireless communication, increased deployment of high speed networks, the high cost of urban real estate, and road and air congestion. It behooves organizations to develop strategic plans that include Internet strategies for doing business and supporting telecommuting. Technology will continue to eliminate distance as a factor for conducting business in today's global economy.

About the Authors:

Cara Rodgers is Senior Project Manager and Eric Teicholz is President, of Graphic Systems, Inc., an independent technology FM and RE consulting company. They can be reached at: crodgers@graphsys.com, eteicholz@graphsys.com or at GSI's website: www.graphsys.com.

Figure 5: Sample List of Telecommuting Vendors

| | |
|--|---|
| Network Solution Vendors: | |
| | Nortel Networks: http://www.nortelnetworks.com |
| | Netifice Communications: http://www.netifice.com |
| | Excite @ Home: http://www.home.net |
| | VPNNet: http://www.vpnet.com |
| Virtual Office Vendors: | |
| | http://www.intranets.com |
| | http://www.magicdesk.com |
| | http://www.vjungle.com |
| | http://www.hotoffice.com |
| | http://www.abrio.com |
| Timekeeping/Expense Reporting: | |
| | OpenAir: http://www.openair.com |
| | Konetix, Inc.: http://www.konetix.com |
| | Labor Management Solutions: http://www.payrollclocks.com |
| Web Conferencing: | |
| | Placeware: http://www.placewares.com |
| | J Connect: http://www.j2.com |
| | Astound: http://www.astoundcorp.com |
| | Pixion: http://www.picturetalk.com/ |
| | CUSEE Me Networks: http://www.cuseeme.com/ |
| | WebEx: http://www.webex.com |
| Business Process Collaboration: | |
| | E-Room Technologies: http://www.eroom.com |
| | Sitescape: http://www.sitescape.com |
| | Welcome: http://www.wst.com |
| | Centra: http://www.centra.com |
| | Inovie Software: http://www.inovie.com |
| Reference: | |
| | http://www.4telecommuting.com |
| | http://www.telecommutect.com |
| | http://www.telecommuting.org |

| | |
|--|---|
| | http://www.telecommutemagazine.com |
| | http://www.smalloffice.com |