New features that enhance dial-up Internet access

Make your dial-up Internet connection faster and more productive.

New technology creates a broadband-like experience.

This white paper addresses:

- How to improve dial-up Internet access
- How to benefit from reduced connection times, faster uploads and downloads, and the ability to make and receive phone calls while on-line
- How to start using these features today
- How you or your business can save money

Lucent Technologies
Bell Labs Innovations



How to improve dial-up Internet access

If you use a dial-up modem for Internet access, you've probably found yourself staring at your monitor for long periods while waiting for your connection to the Web. If you've ever tried e-mailing or downloading a large file—such as a digital photo or a document with diagrams and charts—you know what it's like to have to remain idle until that document has reached its destination. And unless you have a second line, you can't use your phone while you're waiting. This can be especially frustrating if you use a dial-up Internet connection to work at home.

If you happen to be responsible for Information Technology for your company, your frustration may even be greater. You may be accountable for the IT needs of remote employees who must access your company's Internet and intranet sites using dial-up modems. With capital and operating budgets under tremendous pressure, you know how difficult it can be to maximize the productivity of your remote workers.

A broadband connection might be the answer for some people, whether they use their dial-up Internet connection for professional or personal use. But broadband connections may not be available everywhere. If available, they may not fit into your budget.

Now, there is a better solution for dial-up Internet access. V.92 and V.44 are new standards for modem-based Internet connections that enable better performance and a "broadband-like" experience for dial-up modem users. These new standards help make Internet connections quicker, make it possible to move large files faster, and provide the ability to make and receive phone calls while on the Internet.

All of these features and their benefits are available today, as long as your Internet Service Provider (ISP) utilizes the new V.92 standard, and you are using a V.92 modem.

How to benefit from reduced connection times, faster file transfers, and the ability to make and receive phone calls on-line

Until recently, dial-up Internet access was built around a standard called V.90. This standard enables the equipment used by you and your ISP to "talk" to each other so you can access the Internet. Recently, a new standard called V.92 was introduced. V.92 provides three enhancements to V.90 technology:

- **Reduced modem connection time—**A feature known as "Quick Connect."
- **Faster uploading of files sent from a PC to the Internet—**A capability also described as "Pulse Code Modulation (PCM) Upstream."
- **The ability to suspend a data connection to receive or initiate a voice call—**A feature called "Modem on Hold."

A second new standard, V.44, makes it possible to reduce the size of files being sent over the Internet, to make file transfers and Web page loading faster. Technologists refer to this as improved data compression.

Most of these capabilities are available today—PCM Upstream will be available in 2003—as long as your PC and modem comply with the new standards, your ISP also complies with the standards, and you subscribe to some commonly available services from your phone company. Quicker connect times, faster upstream data rates and smaller file sizes improve the Internet experience. The ability to make and receive calls while on line delivers a new level of convenience, and it could potentially save you the cost of an additional phone line.

If you use a dial-up connection to work remotely, these new standards can help you to be more productive. If you are responsible for providing technical support for a mobile workforce, they can make your job easier by helping solve some of the most common complaints about dial-up access. Whether you are concerned about dial-up access from a personal or business perspective, you may also benefit from a potential cost savings that results from the ability to access the Web and receive phone calls over a single line.

How to start using these features today

Taking advantage of the enhancements provided by the new standards for dial-up access is simple. The requirements for consumers include:

- A computer and modem that are compatible with V.92 and V.44 standards.
- "Call Waiting" and "Three-Way Calling" services that you can order from your telephone company.
- An ISP whose equipment also complies with the new standards.

In some cases, you can upgrade an existing system to V.92 and V.44 by downloading new software from the modem manufacturer. You can contact your modem or computer manufacturer to determine if your existing modem is upgradeable. Otherwise, you may need to purchase one of the V.92 modems available on the market today. Both internal and external modems exist. If you are purchasing a new computer, you can check with your retailer or ask manufacturers directly what models have modems that support the new standards.

Once you have the right equipment, you need to subscribe to the following services:

- **Call Waiting—**Required to receive incoming calls while on line.
- **Three Way Calling—**Required to interrupt an on line session to make a phone call from your phone.

You must also make sure your ISP supports the V.92 and V.44 standards.

Experiencing the benefits of V.92 and V.44

Once all of these elements are in place, you will automatically have access to faster modem connection times and the file compression capabilities that will make file uploads and downloads quicker. Taking advantage of the "Modem on Hold" feature—which lets you make and receive calls while on the Internet—is like having a second phone line.

For example, if you are on line when a call comes in, you will see a pop-up window notifying you of the incoming call. You decide whether to accept or reject the call, typically clicking on another button that is likely to say "Accept Call" or "Reject Call." If you accept the call, you then pick up your receiver and begin talking.

If you are on line and want to place a call without ending your Internet session, you will need the three-way calling feature on your phone service to make an outgoing call. From your PC, you would launch the "Modem on Hold" software, put your on-line session on hold for an outgoing call, pick up the phone, and dial the desired number.

You should be aware that you can only stay on the phone for a certain length of time and maintain your online session—up to 16 minutes. After this, the "Modem on Hold" feature will automatically terminate the Internet session. It's best to confirm the maximum length of time you can keep your Internet connection while using the phone with your ISP.

How you or your business can save money

While the features and benefits described so far have focused on a better dial-up Internet experience and the ability to be more productive when on line, there are also potential cost savings. For individual users, the savings could exceed $200 per year; for IT managers who support multiple workers who rely on dial-up access, these savings increase according to the number of remote employees.

Analog dial-up access users traditionally had to make a choice: forego the ability to receive phone calls while browsing the Internet and reading or sending email, or pay installation and monthly fees for a second phone line. Today, they can do both on a single line. Anyone presently paying for a second phone line could save an average $20 per month even if they pay a little extra for V.92 access, as demonstrated in Figure 1.

* Based on average second line costs from US local phone service providers and representative FCC surcharges and taxes

	Cost Component	Estimated Savings
Phone Line Service	Additional Line	$17*
	FCC Surcharge/taxes	$8*
Total Second Line Cost		$25
ISP	Modem on Hold Premium Service Fee	–$5
Estimated Total Monthly Savings		$20

Figure 1: Estimated average total monthly savings per disconnected second phone line

For businesses, an investment in V.92 can result in larger potential savings, depending on the number of dial-up access users that a company supports. Figure 2 displays estimated savings based on the size of the business.

	Company Size			
	100–499	500–999	1,000–4,999	>5,000
Mean number of employees with remote access*	73	158	938	1,609
Potential Savings per employee**	$20	$20	$20	$20
Total Estimated Monthly Savings	$1,460	$3,160	$18,760	$32,180
Total Estimated Yearly Savings	$17,520	$37,920	$225,120	$386,160

*Based on information in 2001 IDC WAN Manager Survey

**Based on typical second line costs from US local phone service providers and representative FCC surcharges and taxes and an estimated $5 V.92 premium access charge

Figure 2: Estimated business cost savings based on headcount

Conclusion

Most industry analysts predict dial-up will continue to be the dominant means of accessing the Web in the foreseeable future. The new standards for dial-up Internet access, V.92 and V.44, enable new features that can help you make Internet connections quicker, move large files faster, and make and receive phone calls while on the Internet. If you are an IT manager for your company, you can use the features enabled by V.92 and V.44 to help the remote workers you support to be more productive. Using these features can even help you or your business save money by using a single phone line for both data and voice services. To take advantage of these benefits today, you need to make sure your PC, modem and Internet Service Provider are all compatible with the new standards, and you need call waiting and three-way calling services from your local phone company. This simple investment can help create a broadband-like experience from your dial-up connection.

To learn more about our comprehensive portfolio, please contact your Lucent Technologies Sales Representative or visit our web site at http://www.lucent.com.

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