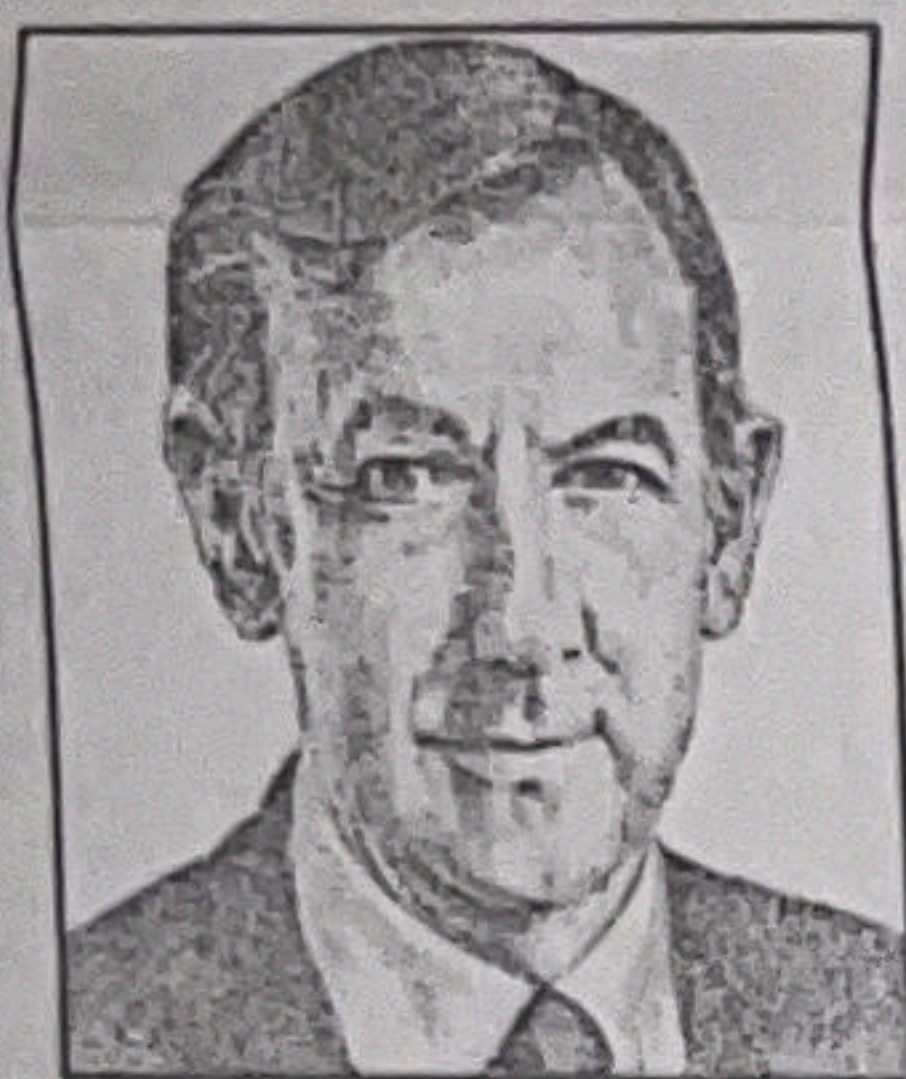


## APPLIED INTELLIGENCE

## ISDN in the Home Will Revolutionize Telecommuting



JAMES MARTIN

*Final part of a six-part series on Integrated Services Digital Network (ISDN).*

There are more than 100 million telephone subscribers in the United States, all of whom will be able to have ISDN in the home. Originally

conceived as a global telecommunications network available to both business and domestic subscribers, ISDN will slowly become available to the domestic subscriber network as an increasing number of local communications loops are digitized.

As central office switches in large urban areas are adapted to provide ISDN services primarily to the business community, opportunities will exist to provide ISDN to the home. This will parallel the digitization of local telephone loops—creating a two-tier telephone system.

A subscriber connected to an ISDN exchange will have access to ISDN services at a premium and to other digital services at lower costs.

ISDN domestic services will be provided by the standard 2B+D Basic Rate access (in other words, two 64K-bps channels for either voice or data plus a 16K-bps signaling channel). Until ISDN services are available on a large scale, they are likely to be expensive (between two to four times the cost of an equivalent analog service).

### ISDN at Home

ISDN's development in the domestic subscriber market will depend on the cost to the user, the perceived benefits and the marketing of the service. ISDN digital services for the home will include better line quality, new feature phones with LCD display and alpha keypads, video telephones, automatic voice-mail and answer-phone facilities.

Domestic ISDN services can be targeted to a variety of groups:

- people who work at home and require telecommunications;
- corporate employees who work at home and want office-level telecommunications services;
- consumers who want on-line access to an unlimited number of databases providing teleshopping with enhanced picture videotex, consumer advice, bulletin boards, reference libraries, movie information, automated yellow pages, stock exchange prices, on-line banking and investments, and investment-analysis services; and
- utility and other service companies offering discount ISDN connections to customers for on-line burglar and fire alarms, automatic utility-meter readings and monitoring for low temperatures.

A major advantage of ISDN in the home is the ability to use two telephone lines at the same time. It will be possible, for example, to be talking to the

children's grandparents, while sending them a facsimile copy of the children's latest drawing or school report. Both lines can be used separately or together.

Telephone features will be greatly enhanced. The basic push-button telephone will become all digital. It will contain a liquid crystal display and will have a number of preset function keys and a small alphanumeric keyboard.

When the telephone rings, it will display the name and number of the caller. Once you answer it, other callers trying to get through to you will have their name and number displayed on your phone, giving you the option to put one of the calls on hold or to ignore the call.

and may not be good enough for a consumer audience.

The introduction of ISDN, however, allows the 144K-bps Basic Rate Access to be used for videoconferencing. The two 64K-bps B channels can be used to carry the video and audio signals within a bandwidth of 128K bps, while the D channel is used to set up, route and terminate the call.

The availability of video transmission at speeds as low as 64K bps will revolutionize telephone communications. While the cost of videophones may start off high, the cost should fall as low as \$100 by the end of the 1990s.

Today most data communications in

Developments in videoconferencing and the widespread introduction of videophones will replace much of the need for actual, day-to-day personal contact. In time, the normal telephone network will offer worldwide videoconferencing, making some routine trips unnecessary and freeing time for important face-to-face meetings.

Rapidly spreading information networks, including video, will allow corporations, especially those in the service and information industries, to decentralize by setting up small offices interlinked with sophisticated telecommunications networks. People working in these mini-offices will spend less time commuting and will work in less expensive surroundings, while still retaining essential communication services.

Over the next few years, there is going to be an explosion in home-related information and entertainment services. Users will have much better access to traditional information databases and enhanced database services incorporating video.

### Enhanced Videotex

Lack of good graphics has been one of the major hurdles to using videotex as a home-shopping medium, because users cannot accurately see what they are buying. Enhanced videotex based on ISDN will allow a color picture to be inserted into a standard videotex frame, allowing consumers to preview their purchases.

Software libraries will provide access to a multitude of different applications programs that can be downloaded directly into a home workstation. Many more people will use on-line services for applications such as banking and stock-brokerage facilities. Investments will be managed on an up-to-the-minute basis if necessary. Intelligent credit cards will automatically debit your account each time they are used, and statements will be provided on line.

The introduction of both ISDN and digital networks into the home should stimulate rapid growth in the information-provider and information-service industries.

The availability of digital transmission networks will create a wealth of opportunities in the provision of new services for existing network operators, traditional information suppliers and market-wise entrepreneurs to build new multi-billion-dollar home information-services corporations.

Next week begins a series of three articles on Executive Information Systems and Decision Support Systems, which will be used increasingly to manage the corporation of the 90s. ■

*The James Martin Productivity Series, an information service updated quarterly, is available through High Productivity Software Inc., of Marblehead, Mass. (800) 242-1240. For information on seminars, please contact (in the United States and Canada) Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402 (213) 394-8305. In Europe, contact Savant, 2 New St., Carnforth, Lancs., LA5 9BX United Kingdom (0524) 734 505.*



Maryellen Zawatski

**Over the next few years, there is going to be an explosion in home-related information services. Users will have much better access to traditional information databases.**

The keyboard on the telephone will allow short text messages to be sent to someone who is unavailable.

All phone users will have a voice-message mailbox, similar to an answering machine, available to them in their local telephone exchange.

Progress in compression of video signals has made it possible to transmit a reasonable-quality color video signal at 64K bps. This opens a new dimension for video communication—the videophone. When transmitting at 64K bps, a videophone requires the same transmission circuit as an ordinary digital telephone. But the quality of video transmission at 64K bps is limited currently

the home are restricted to accessing databases through a personal computer and modem. In Europe, particularly in France and the U.K., videotex has begun to bring some of the benefits of information services into the home. One major area that will be affected by home data communications is the trend toward telecommuting (i.e., working at home).

ISDN will permit workers in the home to have access to the same computing facilities they have in the office. The home worker will not feel out of touch with the office.

Reports, graphics and video presentations will be sent as easily from office to home as from office to office.