

## Smart Telephony

### ***With simultaneous voice and data, new screen phones will bring better services***

*by Bob Emmerson*

What exactly is this thing? It looks like someone crossed a telephone with a little TV screen. Look closer and you'll find a slide-out alphanumeric keyboard, plus slots for memory and smart cards. There's also a built-in modem, a printer output, and a serial interface for a bar-code or magnetic-stripe reader. Is it a feature phone, a data terminal, or a dual-media device? None of the above. It's a smart "screen phone" from Philips. This souped-up device lets you have voice and data simultaneously over regular telephone wiring. This little gadget also represents a different approach to telephony than what most of the computer industry has been pushing.

With its P100 screen phones, Philips is taking the voice-centric route to computer telephony. "In our perspective, the road map to smart telephony is service," says Bill Hewlett, chief operations officer of Philips Home Service. The types of communication capabilities you can have with screen phones are call forwarding, call-waiting indication, and three-way calling, provided by the network operators; delivery of information, such as train and plane schedules, provided by third parties; and transaction-based services like home banking and ticket purchasing.

The Philips phone comes with an Intel 8086 processor. You can add up to 4 MB of memory by plugging in PC Cards (Flash or SRAM). Context-driven softkeys can be tied to small applications and make the phone easy to use.

## International Protocol

The P100 is based on the Analog Display Services Interface (ADSI). This horizontal protocol -- introduced by Bellcore in 1992 -- is being adopted by telecom operators in Scandinavia, the Netherlands, Spain, Italy, and the U.K., as well as by service providers. ADSI is basically a signaling protocol for use with existing voice networks. It enables analog transmission of voice and data. ADSI is universal in that if an information provider in, say, Madrid bases its service on ADSI, then anyone in the world with a Philips smart phone can use that service.

With ADSI, some services that have required digital connections can now come down ordinary analog lines. ADSI facilitates providing the kind of enhanced telephony services that many users require, particularly people who work in small businesses.

Having voice and data at your disposal means that interactive voice response (IVR) can be combined with downloadable scripts. Thus, verbal instructions like "press 1 for sales, 2 for service" are replaced by menu options, so users don't have to remember which number to enter.

ADSI data is supplied in very short bursts. By muting the voice circuit during these intervals, caller ID and call-waiting information can be displayed -- even when the user is talking. These features provide a new platform that allows IVR vendors and audiotex service providers to offer enhanced interactive services using voice and text.

In Europe ADSI will be implemented in different flavors and on different time scales. Caller ID, for example, may not work across certain national frontiers. However, ADSI is not dependent on the network. Information and services in the private sector function on an end-to-end basis. Thus, with ADSI implemented on a host server, people can access services

from any ADSI-enabled screen phone anywhere in the world. ADSI is the standard for the "horizontal" call-management services offered by network operators and the "vertical" business applications of information and service providers.

The forecasts for intelligent screen phones are optimistic. According to analysts at the Yankee Group (Boston, MA), the installed base will be around 4 million in the U.S. , with somewhat lower use in Europe. The analysts think people will want the smart phones in order to take advantage of four high-value applications that ADSI and screen phones offer: enhanced telephony, information services, Telescript-type intelligent messaging, and transaction processing.

The P100 screen phones currently cost about \$600. However, in order to become a true consumer product, the price of these devices will have to come down to around \$200 to \$300. Philips forecasts sales of around 100,000 this year. The company projects sales in North America to be about three times higher. However, sales could increase dramatically when new chip sets start to make their way into next-generation devices. This will probably happen toward the second half of this year.

"At that time we will reach the right price point for a consumer product," says Hewlett, "and we should have a critical mass of services and applications."

### **Phone Mail**

Hewlett says that next-generation screen phones will be widely used for electronic messaging. At the recent Telecom '95, for example, the database giant Oracle demonstrated a specialized version of its Office Messaging software that works with Philips' screen phones, enabling consumers to send and receive E-mail across the Internet.

There are good reasons to expect that the next generation of Philips' intelligent screen phones will employ General Magic's Magic Cap operating system. Magic Cap can be implemented in two chips, a powerful RISC processor and a digital signal processor. Add a third chip -- an ADSI chip -- and you have a very intelligent screen phone produced with relatively inexpensive materials. You also end up with a device that is small enough to be portable -- a de facto PDA.

Telescript and Magic Cap could become global standards for portable communications, and chip vendors like Philips Semiconductors have anticipated this development. When intelligent messaging services become available in Europe, PDA devices can easily become personal intelligent communicators. PDA functionality in a device with the familiar look and feel of a phone makes a real mass-consumer communications gadget.

Computer telephony devices have so far been mainly data-centric; for example, they've been personal computers or PDA-type devices with added communications functionality. The Philips P100 comes from the other direction and starts at the telephone side, making use of the most popular communication device in the world. Many people in the industry see this development as a logical move toward interactive multimedia and intelligent messaging for the consumer market.