The Networked Home:
Voice and Data Communications in the Post-PC Era
**The Market**

With the rapid growth of personal computers and the Internet world-wide, there has been considerable attention given lately to the notion of a home communications network. A common definition given to a home network is one that ties all computers within the home together to share printers, disk drives, files and a single connection to the Internet.

The consensus or mean view amongst most analysts is that the Residential Gateway/Network market in Europe will reach 3m homes by the end of 2003, and that the US market will achieve a similar number, giving a total of 6m homes, just 20% of the above prediction. In truth, nobody really knows. These predictions could be out by 70%. But all agree that home networks are coming, and that wireless will be preferred.

From these statistics, other industry analyst reports, and activity from numerous companies developing strategies and products to build home networks, it is clear that this is a new and exciting new market for consumer products. LAKE believes this market will be successful, and has developed a comprehensive product strategy around all applications within the home, for data as well as voice.

LAKE Communications believes the networked home of today and tomorrow is not, and will not be, centered strictly around PC communications and data-only applications, but instead must also include solutions for voice and other telephony applications.

**Myopia: Data-Only, PC-Centric View**

Many hardware and software vendors are providing solutions via a home local-area-network (LAN) built around the home’s PCs and its inside telephone wiring, electrical wiring or new wireless technology. As depicted in the graphic below, in this home LAN configuration, one PC generally acts as a Master to the network, providing network addressing and routing between the home and the Internet.

**PC-CENTRIC APPROACH TO HOME NETWORKS**

For the early adopters of home networks, this evolutionary approach appears simple and straightforward as it simply marries familiar PC technology with new home networking technology. However, challenges exist to these solutions ultimately succeeding in the mass-market.

First, a home network built around a master PC implies that the PC always be on and available for communications. This implies that no other software or hardware application running on the PC can interfere with the ability of the PC to perform its communications tasks. While consumers today somewhat accept that PC applications from time-to-time cause “fatal errors”, or in
some other way negatively impact the computer, consumers are less forgiving of their communications network, and expect that the network, much like the public telephone network, always be available and work reliably.

Second, approaching the networked home from a data-only perspective is myopic in view, because it is merely focused on one consumer application, and ignores other applications and possibilities within the home.

While some emerging uses for PC-PC connectivity exist such as file sharing, multi-user gaming, printer sharing, and sharing a single Internet Service Provider (ISP) account, other voice-related networking needs are largely being ignored by most vendors. Yet while the need for a home LAN is emerging, the need for high-quality, flexible voice communications which enhance and also simplify life at home or in the home office is highly desired today by the consumer.

**LAKE’s View: Voice AND Data**

LAKE has taken a decidedly different approach than many other vendors in developing its home network. LAKE believes that consumers today want a complete communications solution for their home, providing a voice and data network that is reliable, simple to install and easy to use.

As shown in the graphic below, LAKE has developed a network controller that provides wireless communications within the home, as well as acting as a communications gateway with the Internet for data and the public telephone network for voice, fax and dial-up data traffic. This controller is a highly-reliable digital switch dedicated to providing communications for the home.

With this solution, LAKE supports the following applications for the busy-household and home-office consumer:

1) **Home Local Area Network (HLAN)** — Taking advantage of the networking capabilities built into Microsoft Windows®, LAKE provides an easy-to-install, and easy-to-use wireless LAN between all PCs within the home. The sharing of computer files, printers, and disk drives are all easily supported, as is the ability to support multi-player PC games in the home via a wireless Ethernet and/or TCP/IP LAN.

2) **Internet Gateway** — LAKE provides an Internet Gateway for sharing a single ISP account and connection with all PCs. Everyone in the home can surf the WEB at the same time, and only one account and monthly charge is necessary. Without concern for wiring, all PCs in the home can share a 56kb, 128kb or faster connection to the Internet, and all addressing and routing of the traffic is performed by LAKE’s Controller.

3) **Wireless Voice Networking** — LAKE provides a complete wireless voice network within the home as well as to the outside world. Using the latest in digital spread-spectrum technology for clarity and security, each person in the home can have their own wireless handset, and can make or receive calls on any of up to four telephone lines coming to the home from the phone company.

Additionally, family members can make conference calls, transfer calls to each others’ handset within the home, and even dial from a directory of commonly-called names, all from an easy-to-use menu on the large display on the phone.
In addition, the handset displays Caller ID name and number information from the telephone company on every telephone line installed to the home. Individuals in the home can now see who’s calling on each line, and make decisions about how to answer the call. For the first time, multiple telephone lines can easily be used throughout the home by anyone who needs them, and telephone services such as Caller ID are made very user-friendly.

For the busy households, with children and working parents, this ability to easily share multiple telephone lines, advanced calling features and phone company features such as Caller ID simplifies and enhances their communication needs.

4) **Wireless Phone Jacks** – When a new telephone line is normally installed to a home, consumers must decide which rooms need access to that line, and either install new wiring or modify existing wiring accordingly. With LAKE, that need disappears.

All telephone lines coming to the home only need to terminate at one place, the network controller, and are then distributed throughout the home wirelessly. These lines can be accessed by the handsets mentioned above, or can also be accessed using a wireless phone jack.

If a consumer wishes to add a fax machine, modem, new telephone, television set-top box or any other device requiring a telephone connection, to a room where a wired telephone jack does not exist or is in the wrong place, the consumer can now add that jack wirelessly. By simply installing a wireless jack in a manner of minutes, the new fax machine, or telephone is ready to make and receive calls, and the hassle and expense of dealing with telephone wiring has been avoided.

**Key to Success: Simplicity**

For any home network technology to be successful in the marketplace, the network must be simple to install and easy to use. While consumers desire the functionality of a LAN, sophisticated voice networking and shared Internet access, the average consumer does not wish to get into any type of system engineering or system administration.

This is yet another reason why a PC-centric home network architecture may become more cumbersome than the average user can handle, as any attempts to troubleshoot the network may involve digging deeply into the bowels of the PC’s hardware and software.

LAKE’s approach has been to create a home network that is truly ‘plug and play’. Users simply take the network out of the box, plug the components into power outlets and answer a few simple questions. The entire voice and data network can be installed in minutes, with all technical information kept hidden from the average user.

“Consumers today want a complete communications solution for their home, providing a voice and data network that is reliable, simple to install and easy to use.”
The Post-PC Future

Any discussion of home networking would be incomplete without also discussing the need for connecting non-PC devices within the home. Business Week and others have reported lately on the proliferation of digital devices to the consumer. Because these devices are entering the market after the widespread adoption of PCs, this new wave of consumer electronic goods is commonly referred to as the Post-PC era.

As stated in this report, while operating systems and processors may vary from the Microsoft and Intel ‘standard’ commonly used in PCs, the one standard which will remain for these devices is the need to communicate with the Internet and within the home. This means the home network must provide reliable distribution of the Internet to all devices within the home, not just PCs.

LAKE has designed its products with a migration path to the future. In the first release of its products, a single 56kb or 128kb Internet connection is shared and distributed to all PCs attached to the LAKE LAN. Going forward in 2001 and beyond, standards-based interfaces for 802.11 wireless devices, xDSL devices and other high-speed Internet and Post-PC devices are planned and can be easily installed by the consumer as add-on products.

The Gateway To and From the Home

This approach of providing add-on services to PCs and other non-PC devices, is centered around a gateway philosophy adopted by LAKE, which provides the ability for all devices within the home to access any network, at any time from anywhere.

For the first time, a reliable and affordable gateway device is available via the home network controller which provides wireless access to the public voice network, the Internet, as well as distributes calls and content from both networks throughout the home to PCs, telephones, fax machines and other consumer electronics.

As emerging network applications for home-based banking, home health care, and fire and burglary monitoring via the Internet emerge, LAKE will be ready to network these devices within the home as well as across the world.

Further Information

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