THE LAST FIVE METERS
Five Factors for Home Networking

Gary H. Arlen
Arlen Communications Inc.

Abstract

Home area networks (HANs) – formerly characterized as "home automation" – are finally becoming viable because of increasing functionality and usage of electronics and communications devices. Although households with multiple PCs have become a driving force for HANs (to share peripherals and/or Internet access), many other factors are affecting the development of home networks.

The last five (or maybe ten) meters in a house may become as big a challenge as the "last mile," which has impacted cable providers for decades. Five factors affect the deployment of HANs:
>*Interoperability*
>*Interconnectivity*
>*Interface*
>*Service/Support*
>*Price.*

Cable operators will find them-selves on the front lines in dealing with these factors if/when consumers adopt HANs.

HOME NETWORKING ARRIVES

Establishing a Market

Home Area Networks are on their way to becoming a $1.4 billion industry by 2003.[1] After decades of dreams and promises, ranging from the CEBus (Consumer Electronics Bus) to various "smart appliance" plans, the market has taken on new momentum thanks to the growing number of homes with two or more personal computers. About 34% of the 50 million U.S. homes with PCs have two or more active systems, and the number of multi-PC households is growing faster than the overall PC penetration rate.[2]

At the same time, a proliferation of set-top boxes (cable, terrestrial Digital TV, satellite and other sources) plus home security and digital entertainment devices is fueling consumer interest in the category. Since cable TV is likely to deliver many of the services into the home, cable operators may find themselves in the center of a technical and marketing maelstrom.

Multiple Distribution Formats

The HAN market will be very fragmented, based on consumer appetite and vendor aggressiveness, as indicated in this forecast:

Market Share
Percentage of End-Use By Format

	'99	'00	'01	'02	'03
Phone	56%	70%	65%	60%	50%
Power	7%	6%	8%	8%	8%
RF	7%	10%	14%	22%	32%
Ethernet	18%	7%	5%	4%	3%
Other	12%	8%	8%	6%	6%

Notes: Phone = phoneline; Power = powerline
Other = alternative and emerging wired solutions
Source: Cahners In-Stat Group April 1999

Use of existing home phoneline wiring will become the primary distribution mechanism, but Radio Frequency delivery represents the fastest growing segment. Wireless services can handle transmission at speeds comparable to phoneline connections (1 Megabit per second and faster). However, wireless signals may face interference and congestion, especially in dense housing clusters (townhouses or high-rises).

Plans to boost the speed of power-line distribution (currently operating in

the 350 kilobits per second range) may improve the opportunity for providers in that market sector. Moreover, powerline products are generally cheaper and more convenient (e.g. can be placed close to an electrical outlet) than phoneline sources. Wireless sources may prove to be the most attractive because of their "anywhere" capability.

Juggling Multiple Formats

This market fragmentation means cable operators will face growing confusion as consumers try to hook together products that receive cable input (video, datacasts, Internet and voice access).

REACHING THE LAST 5 METERS

Delivery to the last five meters in the home is likely to become as perplexing as outdoor plant services. In particular, cable operators face challenges on five fronts:

Interoperability

Cable systems must be able to function with whatever HAN the customer chooses to install. Industry standards are still being developed in this sector, but some signatories to home networking standards have already indicated they will launch independent ventures. The Shared Wireless Access Protocol (SWAP) for RF systems has just been adopted, although products complying with this standard will not be available until yearend. Cable operators will be challenged to work with a range of customer-selected HAN facilities.

Interconnectivity

Consumers may chose selectively to install products that are very specialized or unique (e.g. streaming media players). Again, cable providers may be asked to support HAN connectivity processes are still works in progress.

Interface

Methods to hook these devices into cable-delivered service must be created in ways that are understandable to end-users. Interface issues have barely been addressed at this time.

Service/Support

Cable operators must be prepared to handle a plethora of questions and problems that will arise as customers try to install, configure and operate HAN components – especially if cable services are funneled through the HAN. Inevitably, consumers will seek to blame someone or figure out the source of problems along the line (in-home or on-network) for installation, operation or functionality. This will make today's cable modem questions pale in comparison.

Price

The initial cost of HAN equipment (ranging from $50 to $300) is a new factor in consumers' growing electronics budgets. Some systems may require additional monthly usage fees. It is not clear how this pricing – or where it will be paid – may affect viewers' adoption of these services.

CONCLUSION

Connecting cable customers to a variety of HANs will pose significant challenges for cable operators. The early customers are likely to be high-end techno-buffs who put sizeable demands on the last few meters of the home communications process. Cable operators will have to work with a variety of systems and services to fulfill customers' expectations for these new technologies.

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[1] Cahners In-Stat Group, April 1999
[2] International Data Corp. quoted in **Electronic Business** magazine, May 1999.