

NETWORKS FOR NIMRODS

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So you want a network, do you? Language lab directors are expected to be up on new developments in audio, video, computer, and satellite technology, and to be creative in their application to language instruction. More and more, language labs are incorporating computer networks into their facilities as a way of integrating new technologies for delivery of materials and for lab management. Careful planning will help to insure that a local area network will be an asset to your operation.

Just what are networks and what do they do? One answer is that they are a set of connections that allow computers to talk to one another. Wide Area Networks (WANs) provide links between distant sites, using phone lines or satellite connections. Local Area Networks (LANs) provide links between computers located in the same room, or within a fairly short distance. Some of the characteristics of local area networks are: a) the LAN should be able to connect devices of many different types and from different vendors; b) every device on the network should be able to talk to every other device, or to all of them at the same time; c) the network should allow for later change or expansion; d) LANs may provide a means of communication for different kinds of data (such as text, voice, video, and fax) over the same cable.

Networks are great for circulation management, with centralized databases and statistics all in one spot. No more tallying up users on little slips of colored paper! Delivery of computer-assisted instruction (CAI) may be expedited by locating software and record keeping functions on a central file server. Software packages can be used to control the number of users on a particular program at one time, as well as to track usage of software and hardware. Networks are also well-suited for teaching writing skills, using activities adapted from the audio lab, and more. All it takes is your vision of what the network should do, money and good advice.

QUESTIONS TO ASK

A local area network will only be as effective in the language lab as the vision behind it. In fact, the crucial part of the process of setting up a network is determining how it will fit into your vision of the lab, and how it will make your life easier. Faculty and student input is crucial at the earliest planning stage; if users are involved from the beginning, they are much more likely to take advantage of the network when it is up and running.

You should have answers to the following questions before talking to vendors or mapping out hardware and cables: What do you really want from this network? Do you want to use electronic mail or dial-up services like CompuServe? Do you want to run computer-assisted instruction programs from a central file server? Are you planning to add interactive audio or video to your lab services? Do you want to share printers or

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videodisc players? Do you want to centralize circulation management and maintain all data in a central location? How will this network make you more efficient or effective in your work? Will you be able to offer more or better services without incurring additional cost, or hiring additional staff? Will the network relieve you of some of the more onerous tasks associated with the lab, such as usage statistics and materials management? How much do you really want to know?

Unless your primary function is to manage a network, as a language lab director you should not have to be a network expert. It is easy to feel that you need to know all about packets and Ethernet and IEEE before you can be involved with the networks, but a basic understanding of the principles of communications technology ought to be sufficient. There are some good resources for learning the basics. *The Well-Connected Macintosh* provides a good introduction to computer communications. Contents include everything from how to use a modem for connecting to dial-up services, to basic network design. In addition, a team from Apple Computer has put out a useful guide for the beginning network manager called *Planning and Managing AppleTalk Networks*. This guide, while focusing on AppleTalk networks, provides a clear and non-jargonistic explanation of networks, from initial planning all the way through to daily management and troubleshooting. In addition, both of these books provide additional references on various aspects of networks.

PLANNING YOUR NETWORK

Find someone qualified to provide consulting on your network. This consultant is crucial, unless you are very familiar with data communications. The consultant should be able to provide you with training, work with you to determine the

hardware and software configuration appropriate to your situation, and support your network when it is operational. If your campus does not have a computer center, you could check with nearby campuses or local computer user groups to locate a consultant. Don't rely on your local computer dealer to provide an objective point of view; you may not get everything you want.

Your consultant can help you address strategic issues for your network, such as: What physical environment will this network go into? Will it link users in a single room, or a building, or between buildings? How many people will use the network? Will more users be added in the future? What types of computers and peripheral equipment do you want connected to this network? What are the priorities for the network: speed, flexibility, cost, security...? How does this network fit into the long range plan of your lab and of your campus?

When these issues have been resolved, hardware and software can be selected to meet your needs. The physical layout of the network will depend upon these needs and the requirements of the equipment you've chosen. No one type of configuration is better than another; some are simply more suited to a particular situation.

LIVING WITH YOUR NETWORK

The LAN manager, like the language lab director, should be a generalist. The creativity and sense of humor required to be a good lab director are essential in managing a network. Technical skill is important, but less important than creative problem-solving and a cool head.

LAN management and maintenance can be simplified with good training and strategy. Lab staff and patrons should be trained to use the network just as they are trained to use the audio console and other

lab equipment. Users will not need to know everything about the network, but should be aware of the following: a) background concepts and terminology; b) daily network procedures (such as how to log on and how to save work onto diskettes); c) user responsibilities (like checking with the LAN manager before putting an application on the network, or regularly using virus detection software); d) general information on network equipment (how devices connect and disconnect from the network); e) network applications (Email or word processing or CAI); and f) network security.

When network problems arise, they take on much greater significance than individual PC problems, since more people are depending on the network for access to software or shared devices. A malfunctioning network can bring down an entire department until the problem is isolated and corrected, or can cause intermittent problems that disrupt user activities. Responding to problems on the network requires patience, knowledge, a good memory, and skill.

"Hands-on" experience is the best tool for diagnosing and solving network problems. If you don't have access to network support staff, you will have to cultivate your own troubleshooting strategy. This starts with learning all you can about your network as it is installed, and keeping up-to-date with changes in its configuration. Once your network is in place, document it. Map out the cabling configuration of all the equipment connected to your network. Diagnosing network problems will be easier if you maintain current network maps. There are a variety of products that can provide network documentation. Some provide graphic maps of the network, allowing the network manager to compare a new map to a previous map to see changes

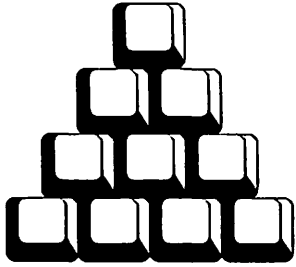
in the network. Familiarize yourself with the network when it is functioning well so that you'll be alert to problematic situations before they bring the network to a complete halt.

Maintain daily backups of network files as well. Central files can be backed up from the server onto tape or other drives, and user files can be backed up on local hard drives, if necessary, using individualized login/logout scripts. These scripts can also be used by the network manager to keep track of software versions and access rights of individual users on the network. Finally, a systematic testing of network components can isolate problematic sections of the network.

Networks can be a useful addition to the language lab toolbox. Like laser printers or mass duplicators, once you have one, it becomes an integral part of the operation. Unfortunately, language lab directors have more demands upon their time than just making sure that their local area network is running at peak efficiency; despite all the benefits of having a network, it may not be the timesaver anticipated. However, careful planning will pay off by ensuring that you get what you want out of your network and by making the network easier to manage.

REFERENCES

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- Bove, T. and C. Rhodes. *The Well-Connected Macintosh*. Orlando, FL: Harcourt Brace Jovanovich, 1987.



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