Why is my Modem so Slow?

by **Keith**Parsons

Have you ever wondered what is causing you to have a slow Internet connection? It could be one of many variables in getting your local PC connected to the net. Your digital PC needs to change its communication technique from digital to analog in order to 'speak' across regular phone lines. A modem does this work and changes your digital computer signals to specific sounds on a phone circuit. A human voice only needs some 3 Hertz of bandwidth; our voices and ears can only work in a very limited range. Dogs can hear sounds we can't, and bats use even higher pitched sound waves to find their way in the dark. Modems too have been designed to use the phone lines total capabilities, not just those we can hear.

The telephone company has a mandate to provide voice-grade service to its customers. If you are able to hear static, or overhead parts of conversations on your second line, then your phone system has been compromised down to the level that your ear can detect. Likewise, there are phone line degradations that also affect a modem's signal that you can't hear. Poor line quality can dramatically change modem performance.

To determine whether poor line quality is responsible for your modem's slow performance, do the following. First, disconnect any other devices from your modem's telephone line. Fax machines, inexpensive phones and extra long cables can all degrade the line quality. Attach a single high-quality phone to the line and listen while you dial a single digit. If you hear static after the number's tone, you may have excessive line noise. If you do, call your telephone company and ask for a repair.

You can also test your local line's suitability for 56K transfer speeds by accessing a free service from the modem manufacturer 3Com. You'll find instructions on how to use this useful tool at the following URL:

http://www.3com.com/56k/need4-56k/linetest.html

If your regular phone line doesn't support high speeds via a modem (analog to digital conversion) you might want to try one of the digital-only solutions of ISDN or DSL. These techniques do not need to encode your digital signal into sounds, but have an encoding scheme to transmit your data to the net completely in digital format.

We've used analog and both ISDN and DSL in our offices and have found DSL to be by far the better choice, with speeds up to 768K available on our line. As an ISDN connection, we were able to hit 112K only. Check with your local carrier to find the best price and speed you can afford.

Distance Learning

We at the Institute for Network Professionals wanted to share some experiences from a new type of teaching we are pioneering. We've started to teach the MCSE (Microsoft Certified Systems Engineer) program over the Utah Educational Network or "EdNet".

This system is quite a marvel in itself. It provides the means to have simultaneous classes running in several places at once with only one instructor. The "EdNet" is also available to rural areas that would not normally have access to this technical instruction.

The state of Utah has spent millions of dollars to set up the means for individuals to receive "top-notch" instruction in the most remote areas of the state. Folks from the west desert to the four corners area can take advantage of classes that would not normally be available.

In our pilot experiment, we have been originating the broadcast from Mountainland Advanced Technology Center (MATC) in Orem, UT. We have been sending this real time broadcast to the Weber/Ogden Advanced Technology Center (WOATC).

As we teach, we have one monitor that shows us the Ogden students. There is a camera mounted on this monitor so that as we look at the Ogden class, they are actually seeing us look at them. All of the students have microphones that allow them to ask questions during class time and also allow all students, in both classrooms, to hear and interact. This took a little getting used to.

Now that we are well into the MCSE track, it feels quite natural and like both campuses really are one class. The students are all acquainted

with each other and seem to have a good camaraderie. They all root for and encourage each other to succeed in these difficult tests.

In the beginning, we weren't sure if the testing success would be as good with some students not having the teacher in the same classroom with them. We have seen that the students are doing just as well in both classes.

In the last week, we had one student in Ogden get a perfect score of 1000 on the NT Server certification test, and one Ogden and one Orem student each get a perfect score on the NT Workstation certification test. The other students' scores ranged from 833 to 933 with a score of 700-733 required to pass.

The credit certainly goes to the students for their dedication. Our elation stems from the fact that we can reach more students in an effective manner. It's an exciting thing to have a small part in positive life changes for these students.

A good part of the credit also goes to our lab proctor in Ogden. She assists, tutors, and motivates the students to stay on course both on and off the air.

Our normal program, apart from the distance learning, is set up very similarly. We have had great success by having live taught classes, proctored study time, and hands on practice for the students.

One thing that helped the course get off to a good start was involving the students in building the computer systems. They built all of the systems they are doing their daily work on. This helped to make the experience just a little more personal for them. Right off the bat, they found success and got their confidence boosted. It is a subtle reminder everyday that they are doing their practicing on a system that they built. This has to have a positive effect on them, to know that the system they built is working fine, and that must also say to them that they have some worth.

We have been very pleased with the success of this program. We hope in the near future that those in Manti, Blanding, Delta, or wherever the need is, might join us. We hope to have a small part in changing as many lives for the better as we can.