



# The Gigaphone

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## The Shouting Ground Newsletter

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### From the cubicle of the president ...

#### Ameritech, SBC Communications, McLeod, Consolidated Communications: Who are these guys anyway?!

With all the recent discussion about mergers, baby-bells, and consolidation in the telecommunications industry, I thought it might be informative to discuss the local environment right here in Champaign-Urbana, and how it affects you and me. Before I begin, however, it's important to make a distinction between what are called Incumbent Local Exchange Carriers (ILECs) and Competitive Local Exchange Carriers (CLECs). Just what are these confusing acronyms?

In general, every community in the United States has one ILEC. If you reside in Illinois, it is Ameritech or GTE. If you mess with Texas, it would be SBC Communications. The ILEC is the company that typically manages the physical communications infrastructure in your local community: the telephone poles, the wires on those poles, and usually a central office where the telephone company's switch resides for routing voice and data. Along with the usual ILEC, communities can also have zero, one, or more CLECs that basically compete against the ILEC for subscribers. The catch, however, is that the CLEC must ultimately use the ILEC's infrastructure or build their own facilities (a costly endeavor at best) to deliver telephone services to its customers. ILECs are required to accommodate CLECs in doing this, but it has known to be a long drawn out process in some situations.

In our little neck of the woods, Ameritech (or Ameritech/SBC) is an example of an ILEC, and McLeod USA (which recently acquired Consolidated Communications) is an example of a CLEC. In 1996, prior to its acquisition by McLeod, Consolidated Communications began offering local services here in Champaign. Primarily these services were aimed at small business and residential customers. You may have noticed the appearance of numbers with a prefix of 239. This was the prefix assigned to Consolidated Communications so that they could offer local dial tone to customers in Champaign-Urbana. For the first time ever, we had competition for phone service in the area! At first glance, this appears to be a good thing. In general, competition helps the consumer in lowering rates and adding a little fuel to fire when it comes to deploying new services to the public. However, one must admit that it is an odd form of competition when one competitor owns all of the physical infrastructure while the remaining competitors must rely on the ILEC. In other words, if I buy service through McLeod USA and there's a break in the line somewhere,

Ameritech is eventually the one who will have to come out and repair the circuit. (This is not always the case. Usually Ameritech only gets involved when there's a physical break somewhere. Most programming issues can be dealt with directly.)

We are still of the opinion that competition is a good thing, but it's hard to reap the benefits amidst all of these recent mergers. Only last year did Consolidated Communications, a 100-year old family-owned company based out of Mattoon-Charleston, merge with McLeod, based in Cedar Rapids, Iowa. Now Ameritech and SBC Communications are close to an agreement on a merger which would lower the total number of baby bells from four to three. How long will it take before we're once again back to just one national provider?

Most companies will tell you that these mergers lead to better rates, customer service, performance, reliability, etc. However, why would they say anything to the contrary? In our experience, it usually takes twelve months or more for both companies to settle down into their new territory and bring quality of service up to what it was prior to the merger. A scary example: We once had a circuit go down, and contacted McLeod/Consolidated to have it fixed. Because they are a CLEC, they eventually had to call Ameritech to have an engineer assigned. The McLeod/Consolidated rep identified themselves as McLeod, but the Ameritech folks had the circuit listed as being owned by Consolidated. As a result, they wouldn't act on it. This inevitably led to a delay in the repair of the circuit.

If you feel strongly one way or the other, it never hurts to let your feelings known with letters to the Federal Communications Commission and the Illinois Commerce Commission. The FCC has an online way to comment on recent filings at <http://www.fcc.gov/e-file/ecfs.html>. You can also read about the proposed merger between Ameritech and SBC at <http://www.icc.state.il.us/icc/home/tc.asp>.

What do you think?



### The DSL Difference Mike Berger

Reports about DSL have raised expectations for high speed internet access. With several companies poised to offer these

services, you'll need to understand the different features each one provides.

DSL technology isn't new. T1 circuits are frequently run using DSL. Radio stations have used DSL for years for remote broadcasts. These varieties of DSL required expensive equipment, but worked well with ordinary phone lines.

The T1 circuits typically use HDSL (High-speed DSL), which has some limitations. Although transmit and receive speeds are guaranteed at full T1 rates in both directions, the two circuits can't be in the same wire bundle group (set of wires that are run together and usually share the same insulation wrapper), making it difficult to run to some locations. Adding new HDSL circuits can interfere with the existing circuits unless care is taken.

Newer services include variations of ADSL (Assymetric DSL), where the transmit and receive speeds differ, usually by a pretty large amount, and SDSL (Symmetric DSL), using new signaling methods that avoid some of the problems with HDSL. Because much of the new DSL equipment is aimed at the small office and consumer market, prices have declined substantially. There is very little interoperability among manufacturers, so your DSL equipment will almost always be constrained by your provider.

Presently, all of the DSL flavors are limited to a distance of about 18,000 wire-feet from the Telco switch. Shouting Ground clients must be located in Champaign, and served from the Clark St. switch. We provide SDSL services with metered bandwidth. Please call for information.

A couple of companies have revealed their plans for providing less expensive DSL services to homes. What can you expect for \$ 39.95 per month?

The providers of cheap DSL service keep their costs down by limiting the bandwidth, restricting how many machines can be connected, and constraining what services you can run. For example, AT&T bills their cable broadband service as a "Consumer Entertainment Product", does not permit routers or multiple clients, and prohibits servers. Some DSL and broadband services time out your dynamically assigned address after a few minutes and assign a new one.

If you select DSL service from one of the local telephone companies, you will probably be locked into their Internet service as well. Although McLeod and Ameritech have made provisions for accomodating other Internet Service Providers for their DSL services, it's extremely costly and may not, in reality, be feasible for any of the local providers.

The cheap DSL services typically terminate in a DSLAM (DSL Access Multiplexer), which passes the appropriate traffic to the intended Internet Service Provider. In some cases the network is shared, and you see traffic from your neighbors' networks. In other cases the Internet traffic might be routed, but broadcast traffic (like Windows or Macintosh file sharing) is passed to everybody else. The type of service offered by Shouting Ground is a completely dedicated, routed line. We offer it as a less expensive alternative to dedicated T1 lines, but with the same high level of service.

DSL is not a magic technology that's going to make high speed Internet access affordable for everybody. It reduces the cost of the circuit to deliver your Internet traffic the last mile, but not the costs of the bandwidth on the Internet, which is usually the most costly part.



## **Linux Security Part II: X Windows Security**

**Lucas Peet**

As Linux users probably know, the standard graphical interface for Linux is called "X Windows", or just plain "X". It's a client-server based graphical interface, where the local X server connects to the remote client, and is able to run programs remotely, with the output (windows) displayed locally. In most applications, this is used locally, with both the client and server running on the same machine. This isn't always the case, however. Since X has the ability to connect to an X client across the planet, and let you run applications remotely, there needs to be some sort of security involved to ensure Joe Cracker isn't running programs and using your computer remotely. With open access to your X server, Joe Cracker has the ability to do a number of things, for instance, he can take a screenshot of your current display, and see exactly what you see. He can also capture every keystroke you press, including your passwords. This article will give you ideas on how to prevent this.

There are two mechanisms incorporated into X to control access. The first is "host based". With this mechanism, you specify all the hosts that you want to be able to access your display. This is done using the 'xhost' command. To give a host the ability to access your display, you use the command 'xhost + xxx.xxx.xxx.xxx', replacing the 'x' with a valid IP address. To remove a host from the list, use 'xhost - xxx.xxx.xxx.xxx'. You can disable all remote usage of your X server by issuing the command 'xhost - '. You can also enable all access to your X server by issuing 'xhost +', however this poses serious security risks, and that's what we're trying to avoid here.

The second mechanism is "user based" access control. This mechanism will read an authorization file that contains a key (often called a 'Magic Cookie'). This file is usually called '.Xauthority' and is located in your home directory. When your client wants to connect to the X server, it must give the server this key. This is usually done with XDM, or something similar. Basically, XDM is a graphical login application that sends the key to the server when you log in.

Both mechanisms, user based and host based, can be run concurrently, however this is not recommended because if one gives authorization, the other doesn't matter. One tool that can help you keep an eye on your connections, is called 'mxconns'. It's a public domain tool that will prompt you for each new connection and allows you to either accept or deny the request.

For a crash course on X Windows Security, you can go to: <http://www.uwsg.iu.edu/usail/external/recommended/Xsecure.html>

For more information and to download 'mxconns', go to: <http://c.home.cern.ch/c/cons/www/mxconns/>