Routing, Oh Where is My International Routing

or

Where did that order for 10 keys of coke come from?

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After looking at the state of network routing and they way the present networking schemes work I at times wonder if we are not going from bad to worse.

In Central America we have looked at all the routing schemes and finally decided on the ROSE X.25 Packet Switch due to the fact that it uses recognized protocols for the different parts of the network. The entry points of the network are easy to determine for traffic in transit across non-end point countries.

Digipeaters, well we all know the pros and cons of that so I will not even talk about them!

TCP/IP looked good but the version now being used does not use a universally accepted addressing scheme as far as we can determine. It has addresses but in many countries we have to live with regulators who only know CCITT and so we must have addressing that will comply with some KNOWN system.

We saw the system used by Net/Rom TheNet and made the observation that "it works but not good enough**

Now do not get you feathers up! The problem is not that these are bad systems, but they do not take into account the problems associated with traffic going across international boundaries.

The question that the GUY/LAW (Big Brother, The Authorities, FCC, PTT, or what every the Governing authority is) wants to answered about our communications are;

1. Who sent it? (They all ask that)

2. Who is it going to? (They ask that one too)

3 Is there a commercial or CCITT equivalent (Do I have to learn anything new?)

4. Can we monitor it and determine answers to 1. and 2.

5. Can you control in transit traffic?

6. Can you tell what happened and when?

These and many other questions have been put to many of us doing our part for the worldwide amateur digital network outside of the USA. Our problems are many times compounded by the very fact that we are small countries. We have international boundaries everywhere we look and the regulators care about that fact. Costa Rica is about one fifth (19,575 sq mi) the size of Colorado! In Costa Rica we cover the country with just three switches, with a forth to fill in some small holes. Anything beyond that is in Panama on the south, or Nicaragua on the north or San Andres Island on the east in the Caribbean Sea. Those are small countries and a island much of our communications will be going on across their boarders, into countries on down the line.

As an example say I want to talk to someone in Mexico. I will have to link through Three countries to get into Mexico. Counting the entry and exit countries I will have a total of Five countries involved in the connection.

Now let us look at those questions that we asked in the very beginning. Say I am the LAW in Nicaragua, a good place to start since by their very nature they are going to ask all they can about what is going on, remember the type of government in power!! The local amateur packet group comes to me and wants to put up a switch to link Central America, the first thing they want to do is monitor this stuff that is going in and out of this country, so they ask the questions.

Can we monitor it? We reply yes you can. But if it is Net/Rom or TheNet they can not tell where is is coming from with out special programs. You can also fool it pretty easy such that you can look like you am coming from somewhere else in the network.

ROSE takes care of these problem very simply, it has a few more numbers on the address information. We can tell the LAWman that those numbers are X.121 (CCITT) and every LAWman has X.121 routers for their commercial network. We go on beyond that and tell them that the rest is based on the local telephone network so then it becomes quite easy to figure out where stuff is going to from the monitored packets. This X.121 address is PUBLIC information so he can tell where both ends of the connection are. Usually the guy who asks this question already has X.121 information so that makes him even happier and you get a real nice pat on the head and 5 "attaboys"!!

As a example say our LAWman is watching the Nicaraguan part of the network and sees packets go by that have something like this as the header:

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YN1YA>W1BEL,YN1YN,3100,305689: Text
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This one is going to USA (DNIC 3100) and it will be sent to area code 305 (S.Fl) and the exchange is 689. He can call International Information and find out where the 689 exchange is in area code 305.

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YN1YA>W1BEL,7100,43,K4GBB-3* : Text
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This is what the packet would look like at the other end. This tells the LAWman in the USA it is coming from Nicaragua (DNIC 7110) and the local exchange is 43.

There are other packets that carry this information plus the call of the station on each end, so it is very easy to follow all that is going on and if they do not like it, turn the thing off or block that circuit. There are also commands to display the full addressing information of all connections going through a switch.

I would like to know if you can do that with any of the other systems except perhaps the digipeater network (yuck! !)

I know that you can do it with all the networks but you need special programs to decode the routing headers. Try to tell that to a LAWman who only has a dumb terminal and a tnc!! Due to that need you may find you network shut down!

Thereby bringing us to the usage of CCITT recommended systems, if we follow these 5 letters reasonably closely we are pretty sure of being able to get permission to set up our network, but if we don't we may run into all kinds of problems.

Can any one of the other networks in use today on the hambands demonstrate that it follows the CCITT recommendations ? Can any of the other networks show with a minimum of equipment the entry and exit points of the packets going across the network? Is the routing information easy to come by? It MUST be public information and it's access should be as painless as possible. We can't be hampered by Numbers Guru's when we need to expand the network.

You see, as soon as the Central American Network is in order we do not think many MINUTES will pass before some smart drug COMSTATION tries to send orders through the network. On a bbs network that may be pretty easy to follow but on a switched network if things are not done right it can all be done in the finest of anonymity.

Those networks that are already running should think about incorporating routing on x.121, if you do it right you can reduce your routing tables greatly. It is easy for me to route in Costa Rica to other ROSE networks without having to know more than the DNIC of the country and in some cases just the first one or two digits of the DNIC and no more, think about that, you could reduce your routing tables greatly by using X.121. I can have a routing table that covers the WORLD that only takes 2-3K bytes.

If we all used the same routing system it would make life a lot easier Colombia and Central America have taken the step along with Australia and some other countries to set up a network based on known standards for routing. Something you can get out of your phone book and your switched data network. So you guys when you do network switches, do them with more than your county, or state or even just your country in mind.

Packet is the WORLD it is GLOBAL and it is time we the users and implementers started thinking that way!! If we do it will make the network much easier to set up even in the most authoritarian of countries. If you don't believe it, ask the questions put forward at the beginning of this paper about your network and the code used to run your network. If it fails on any or all of these questions your network will not be usable in many countries.

Think about it. Meantime we are watching for that first "coke" order to come across and when it does we will know where it entered the ROSE network at and where it departs it. Maybe we can be part of the people who put a stop to this horrible business of drugs. Anytime your network can give the entry and exit points in a very visible form everyone will see that the information is not obscure. Since you have this facility at hand maybe they won't try it on our network, because they will know that we will know where they are on each end!

Remember we are here among other things to help people not help kill them, our network should be the same!