The Cruising Club of America

PHONE CALLS WITH

VOICE OVER IP (INTERNET PROTOCOL)

Version 5.01

November 2005

Walter R. Paul

FOREWORD

This paper was originally a section in the paper "Some Observations On Cruising European Waters". Recognizing that cruisers in other parts of the world would be interested in using VOIP, I've broken it out into a separate paper with some modification and expansion.

A few Administrative Notes:

1. Downloading this paper to a computer running on Windows XP requires Acrobat Reader Version 6.0 or higher. Acrobat Reader Ver. 5.0 was released prior to Windows XP and while the display will appear correct on the computer screen, printing it out will not. Acrobat Reader Version 7.0 or better (available free at this website) will do the job properly.

2. For printing setup, margins, top and bottom, left and right should be set as follows:

        a. Top and bottom   – 0.8"
        b. Left and right   – 0.6"
        c. Header and footer – 0.6"

3. Hyperlinks, charts and significant changes are presented in color and all functioning at the time of posting.

4. It has been suggested that an index be added. Actually, a facility in Adobe Acrobat is available for this. Simply click on "Edit" on the Tool Bar, then "Find" and type in the reference word. The program will do the rest.

I want to acknowledge and thank those who have commented and made suggestions on this paper. They are Tari McCabe on s/v Vision for grammar and editing along with my son, Stephen Paul and CCA member R. Steven Thing who reviewed the material for technical correctness.

Clearly, this material is not all inclusive and is dated by its nature. It was current in November 2005. Suggestions on how to improve this paper along with updates, corrections, and comments are most welcomed; please do not hesitate to send an email. By all means, the latest version should always be consulted.

Best wishes for fair winds and good communications.

Walt Paul
nefertari@b-bcs.com

Chair
Offshore Communications & Electronics
Cruising Club of America

Internet Phone Calls - Voice Over IP

Things in the electronic communications arena move fast. New on the scene (perhaps not so new but not well known until recently) is the ability to make phone calls over the internet. This means that an internet café or any computer connected to the internet can serve as a phone booth.   It also means that poor quality phone lines and operator intervention can be a thing of the past.

This new phone call capability is called Voice Over IP (Internet Protocol) or more commonly, VOIP.

1   VOIP – What It Is About

There are probably many firms or organizations providing this capability and more joining all the time. The one we are familiar with and have used is Skype which is available at www.skype.com.

All that is needed to make a <u>free</u> phone call to anywhere in the world from anywhere in the world is:

1. You must have a computer and access to the internet. You can do this with a wireless Internet connection or via a cell phone with GPRS (General Packet Radio Service). You can also do it via a local telephone line or cable connection into your ISP (Internet Service Provider).

        a.   If you use a wireless connection to the Internet, the call can be free on your end to anywhere!

        b.   If you use your cell phone with GPRS, there will be a charge for the local GPRS phone call connection to your ISP and for your ISP service.

        c.   In the same way, if you use a local telephone line connection to get into the internet, there will be a charge for the local phone call and as above, from your ISP.

2. You and the person called (both) must have downloaded the free Skype software and have it running on your computer. This can operate in a background mode.

3. You and the person you are calling must both have a multimedia head set plugged into your computer. You can get by without this, but the echo produced is annoying to the other person and makes the conversation difficult to understand.

4. You will probably have to make some adjustments to the audio settings on your computer. Skype provides easy to follow illustrated instructions on this although they were somewhat difficult to find. They can be found at:

                www.skype.com/help/guides/soundsetup_win2k.html

                (Note the hidden underscore between "setup_win".)

It will be helpful to download and print these instructions if you are not as familiar with Windows as you would like to be.

And that's it.

A very adequate multimedia headset (Part Number 33-8811) is available from Radio Shack for US$ 20. Others are available, of course. If you have a headset other than the Radio Shack model, make sure the wire connectors will plug into your computer.

2 START UP

When you sign on for the first time, you will be asked to complete some information for the Skype directory including a name or nickname to be called by (instead of a telephone number). Some of it is personal such as birthday, city, etc. which you can and probably should omit.

It would be wise to have several nicknames available ahead of time because there is a good chance a name such as your boat name is already taken. Once you've completed this, you will be able to scan the directory for people you know to obtain their call sign. You'll have to get their concurrence to call them as will they to call you. That way, no spam calls (thank goodness).

3 THE CALLING PROCESS

You can think of these calls as a three step process. The first is your connection to the internet using your computer; the second is the internet transmission using Skype and finally, the called party accepting the call through Skype.
            .

| **Your Computer** | _____ | **The Internet** | _____ | **Called Party** |

    .
3.1 Calls Made From Your Computer

VOIP uses the Internet in place of the telephone company and their wires. Actually, that's not quite correct because the program uses any medium available including telephone lines. But that's beyond the scope of this paper; the important thing is, a caller (you) has to have access the internet somehow to make this work.

A cruiser or even someone at home can get into the internet in several ways. First, through a telephone connection or secondly and with much more speed, through an Ethernet (cable) or Broad Band connection. In both cases, a wire must be connected to the computer. An alternate is via a wireless device which can come in three forms (so far) or through a cell phone with GPRS.

If you are using a laptop which most cruisers have, the wireless can be built into the computer. Wireless devices are also available in the form of a card (called a PCMCIA card) that slides into a slot in the laptop. Finally, there are wireless devices that plug into a USB (Universal Serial Bus) port on the laptop. From personal experience, the USB plug-in type seem to have more sensitivity and range than the PCMCIA card type and is therefore, more desirable.

Normally, sensitivity and range are not important. However, some marinas now provide wireless access for the folks docking there. Transient yachts are often given berths at the outer edges of a marina reducing wireless access unless you have a good unit. The farther your boat is away from the antenna, the less signal access you will have. The quality of the wireless you have will make a difference as well.

One company, Verizon has a product that slides into the PCMCIA slot which takes the place of a cell phone when connecting to the internet. Cruisers that have this on their laptop speak highly of its performance and range although it can be a bit pricey.

3.1.1 Costs For Placing A Call

If you are placing a call using a telephone line or a cable to access the internet, there is a charge for the service, usually billed on a monthly basis. With both telephone and cable access to an Internet Service Provide (ISP), the monthly billing allows for a given number of hours of access

For example and not including the cost of the telephone service, the AttGlobal basic plan at the time of this writing, was US$5.95 / mo for 5 hours and $1.50 / hour for any time over 5 hours. In addition, there is a roaming charge of $9.00 / hour for access outside the area where the account was set up. The Caribbean is included in the North American region. Europe is not.

When traveling outside the North America / Caribbean region, roaming charges take on great significance. Roaming costs and connectivity within the area you plan to cruise becomes the dominate consideration in selecting an ISP.

Using wireless to access the internet at some marinas, libraries, the 2005 Annapolis Sailboat Show or wherever wireless access is available, is free. In practical terms, making a call from my boat at Yacht Marine, Marmaris, Turkey to my son in Connecticut was and is free. Some locations (Hotspots) may have a low charge for 24 hour service.

3.2 Making Calls To Another Computer

After having gained access to the Internet, the call can be placed to another computer or to a telephone. The other computer should be equipped with a headset.

If the person you want to talk with is just going online with their computer, a little message will appear at the lower right corner of your screen telling you that they have just gone online. It stays there momentarily and then disappears. If you click on the green icon, a call will be placed and you will hear a telephone ringing on your computer. So will they.

Or, if one of your contacts was on line before you, clicking on the little Skype icon on the "tool bar" at the lower left will bring up a screen showing who of your contacts are on line.

To call one of these contacts, simply click on the green telephone icon at the bottom of the screen and the person you are calling will hear a telephone ringing sound. The call is answered by clicking on the phone icon.

3.3 Calls To A Telephone

In addition to calling another computer, a regular phone number can be called as well as. This is the same three step process with a slight modification. As above, the first segment is your connection to the internet and the second is using Skype to process through the Internet to dial the number being called. The third is the called party answering a telephone.

Depending upon how you make your call, the first and second phases of the call can be free or have a charge. There will however be a charge for the local call on the other end (this is where Skype makes its money).

To make a call to a regular phone number requires you have a credit on deposit with Skype to pay for the local portion of the call which can be set up by credit card. The only charge will be for the local phone call which is placed from the closest Skype terminal.

4 Advantages And Drawbacks Of VOIP

The advantages of VOIP are spectacular not only for the cruiser but the folks at home who can call you as long as you are online. The First Mate can talk to the Grandchildren or her sister in Texas every day if she likes. The Captain can call manufacturers for technical advice or to order a part. All that is required besides the program and a headset is to be connected to the internet and perhaps a credit on deposit for those calls to folks that do not have Skype.

This means you might be able to be out sitting on the hook somewhere and still be in touch with the world. If there is a wireless connection you can access, it can be free. You can still do this

with a GPRS enabled cellphone although there will be a charge for the cellphone call. Because it is through the internet, there is no charge for distance and the other user can be anywhere. It also can mean not getting wet rowing ashore to make the call. Or looking for a phone that works when it is raining, or…

A lot of people have discovered VOIP and it is normal to see about 3,000,000 users on line with Skype at any one time. In April 2005, Skype announced the 100,000,000th download of the program. In mid November 2005, it was 206,000,000 downloads. That's impressive growth.

But all is not roses. Most cruisers cannot access a broadband or cable internet connection where VOIP is the best. Wireless connections, although seemingly fine for data, are not the best for audio particularly when the wireless connection is week.

When we send a data message over the internet, we don't realize that there can be several iterations of the data transmission until the intended message is completely transmitted. This isn't the case with VOIP where the transmission is a one time pass.

Depending upon the quality of the connection to the internet, there can be pronounced delays in the audio received. These delays can occur anyplace as you talk and when it occurs, it is not necessarily at the end of a word or sentence. This is unfortunate because while the fidelity of the signal is usually very good, it can be offset by these delays which come across as interruptions.

The speech delay is particularly noticeable when using a flaky or week wireless Internet connection. I Getting closer to the station's wireless antenna or purchasing a better wireless antenna for your computer (that plugs into a USB port) may solve some of this. However, a wireless connection is not an Ethernet connection and at this stage for voice, its weaknesses do show up.

Talking at the same time when the other person is speaking doesn't work well anytime and with the slight delay in transmission, it is worse. Communications always work better if you let the other person finish what they have to say before starting in. It is also polite.

All said and done however, VOIP is a very good low cost technology that should be particularly attractive to all cruisers.

5 Business Information and News

Skype was recently acquired by eBay for US $ 4.1 billion and has some 66 million users as reported by the New York Times on 21 Nov 05. In attempting to reach mainstream America, they entered into an agreement with RadioShack to distribute phone gear oriented towards Skype. This includes Bluetooth technology, Logitech headsets and other items.