

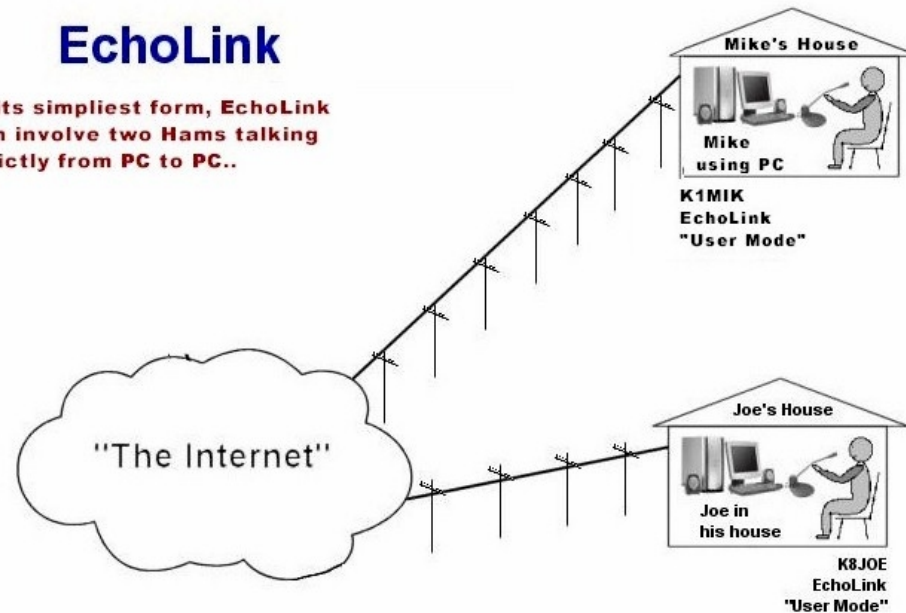
EchoLink, IRLP, VOIP And HamPi

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CVARC 10/17/2013

VOIP Linking

EchoLink

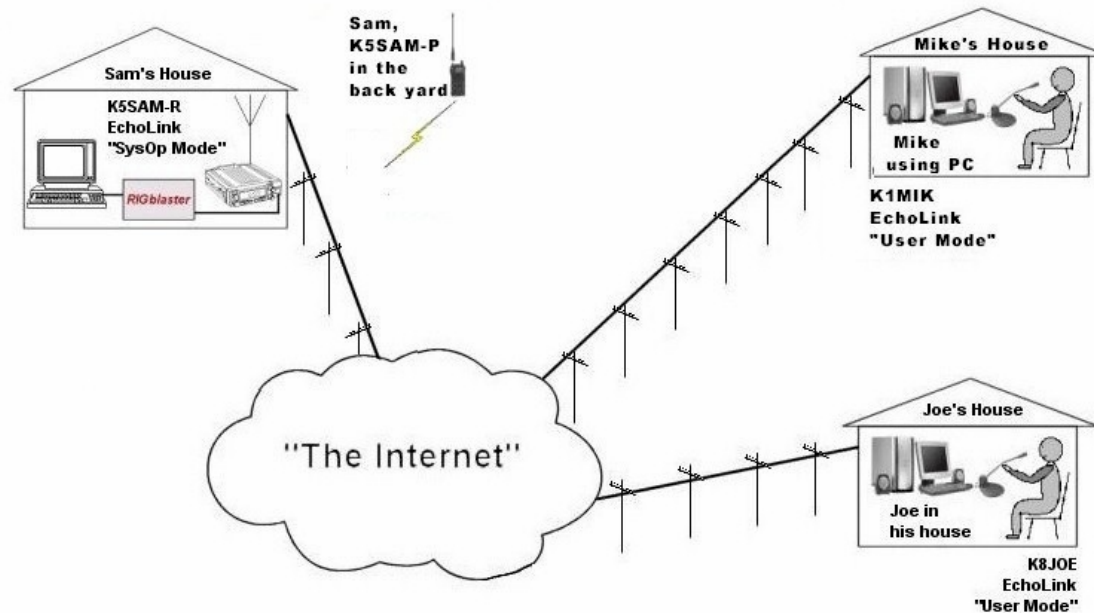
In its simplest form, EchoLink can involve two Hams talking strictly from **PC to PC**..



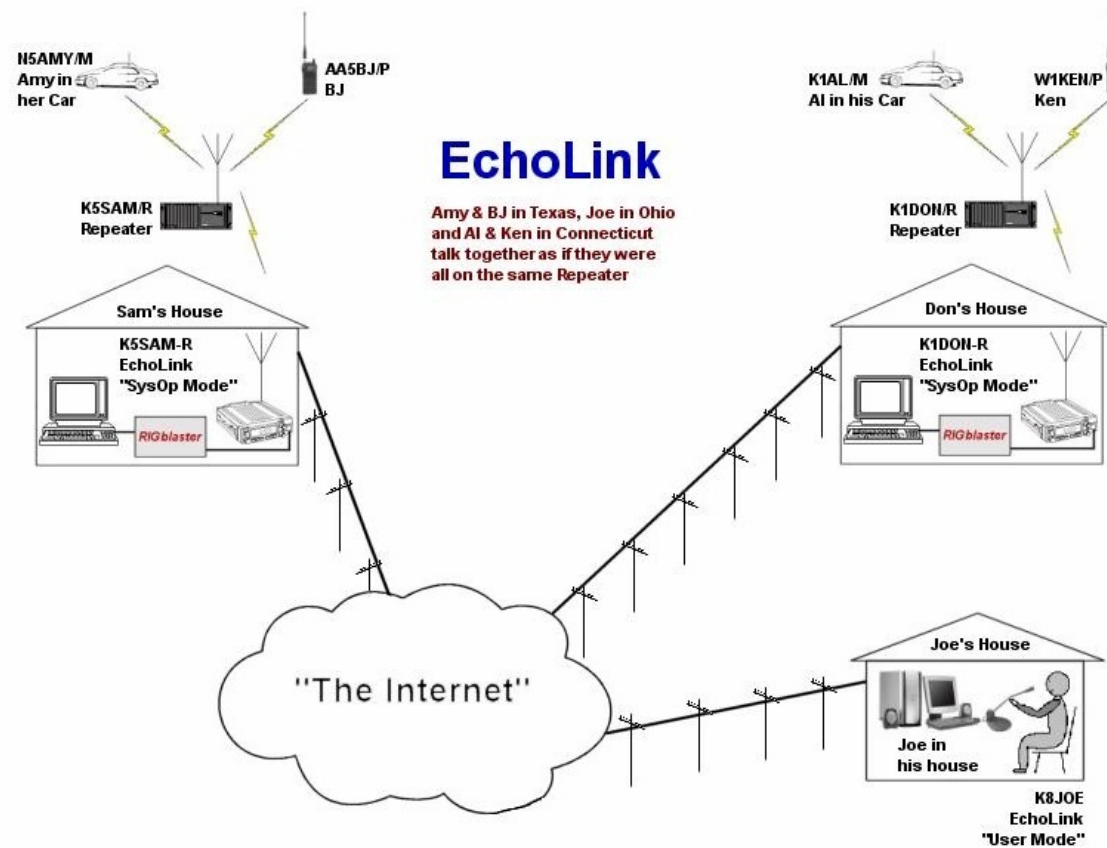
VOIP Linking

EchoLink

Sam now takes his HT - also tuned to 145.600 and goes into his back yard to operate.

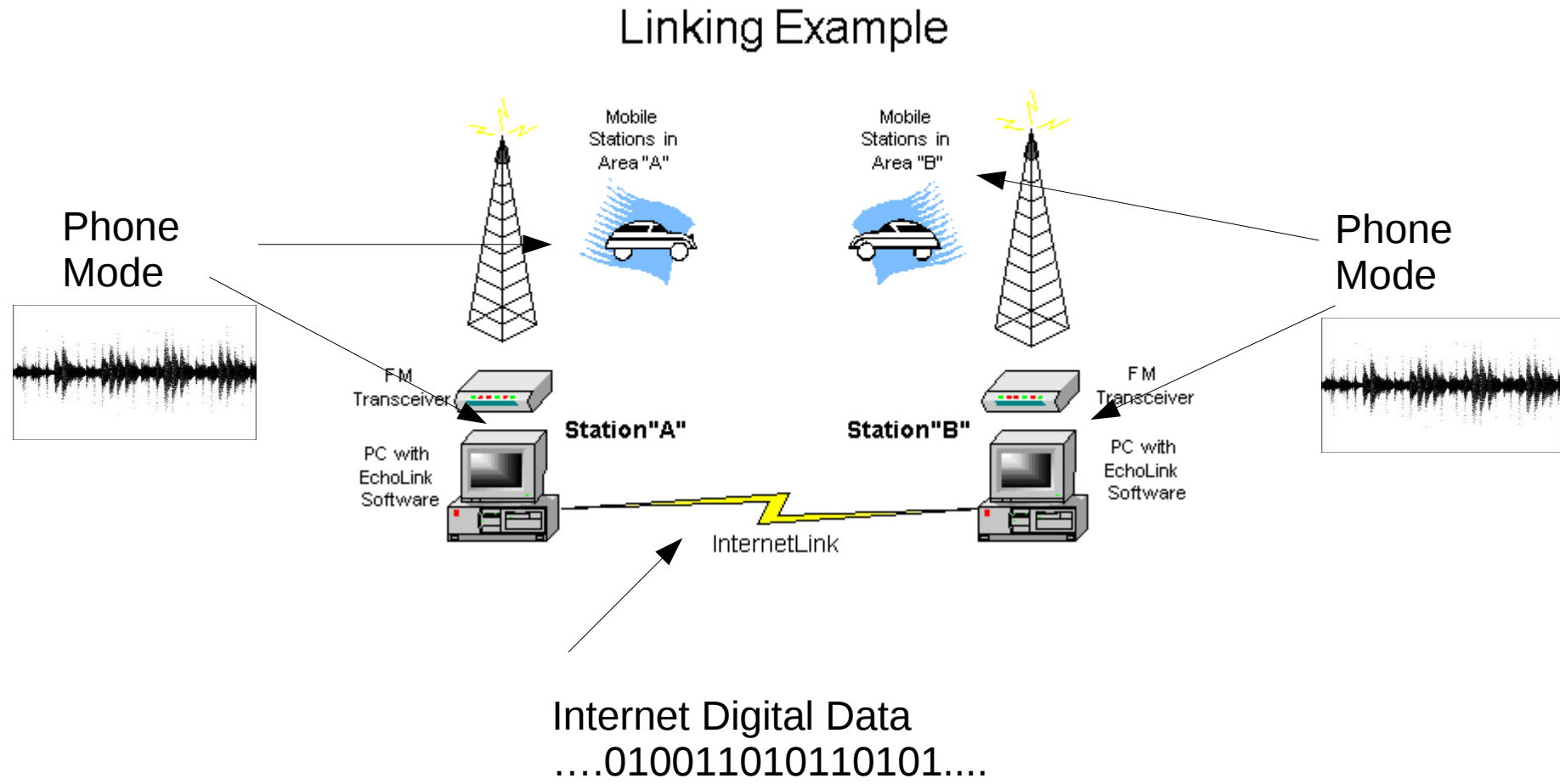


VOIP Linking

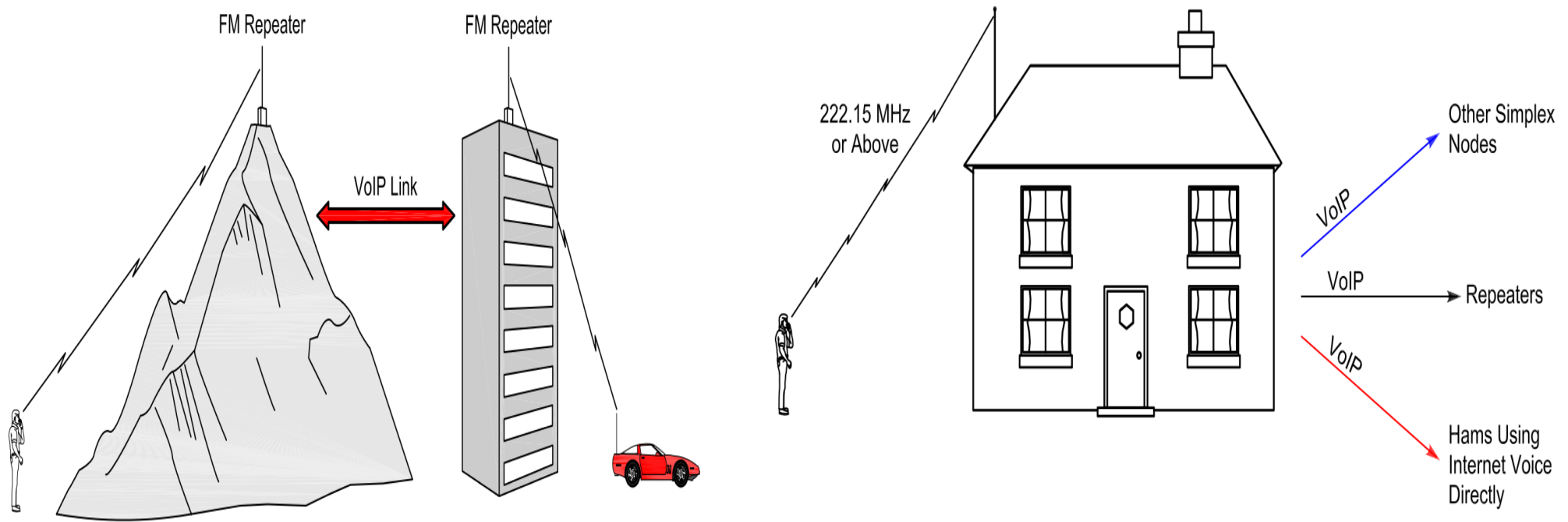


VOIP Linking

- Not a digital Mode



VOIP Linking

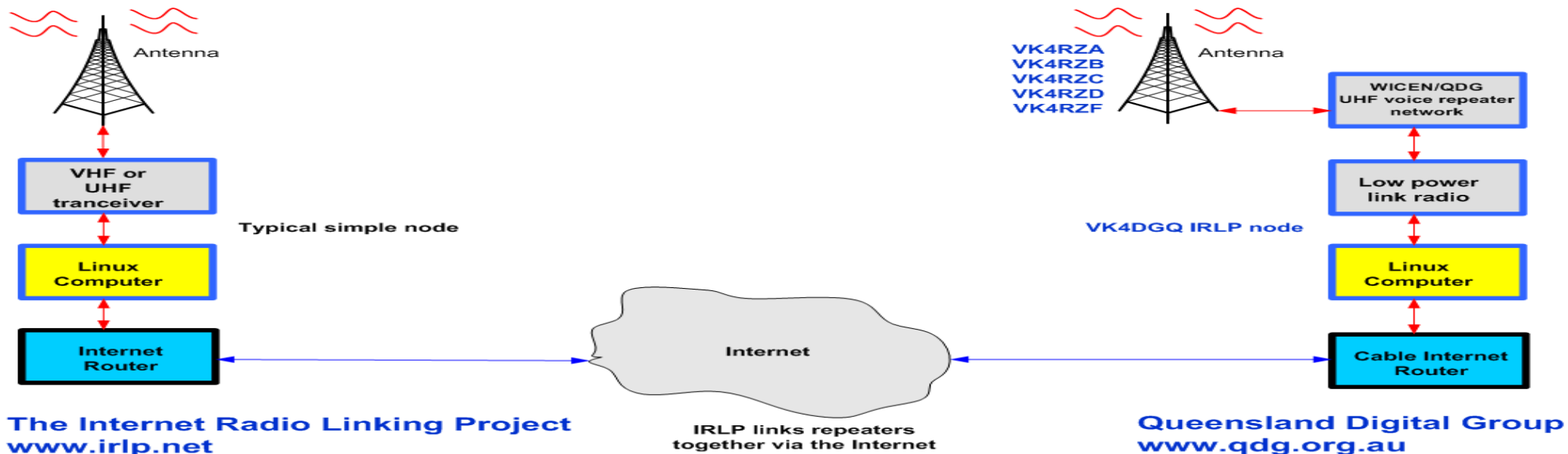


- TX/RX voice over the Internet (Voice Over IP).
- Can be used to link repeaters, or in simplex mode.
- Main use is to provide DXing using UHF/VHF FM transceivers
- FCC regulations
 - Part 97 still applies to the station TX/RX (don't care about the VOIP part).
 - Linking Repeaters is not a problem (they can be automatically controlled) as long as they prevent non-ham use through the Internet
 - Simplex operations can not be automatically controlled.
 - Remote controlled stations need to utilize auxiliary stations with restricted frequencies.
- More info: <http://www.arrl.org/files/file/Technology/tis/info/pdf/voip.pdf>

IRLP

Internet Radio Linking Project

IRLP Block Diagram

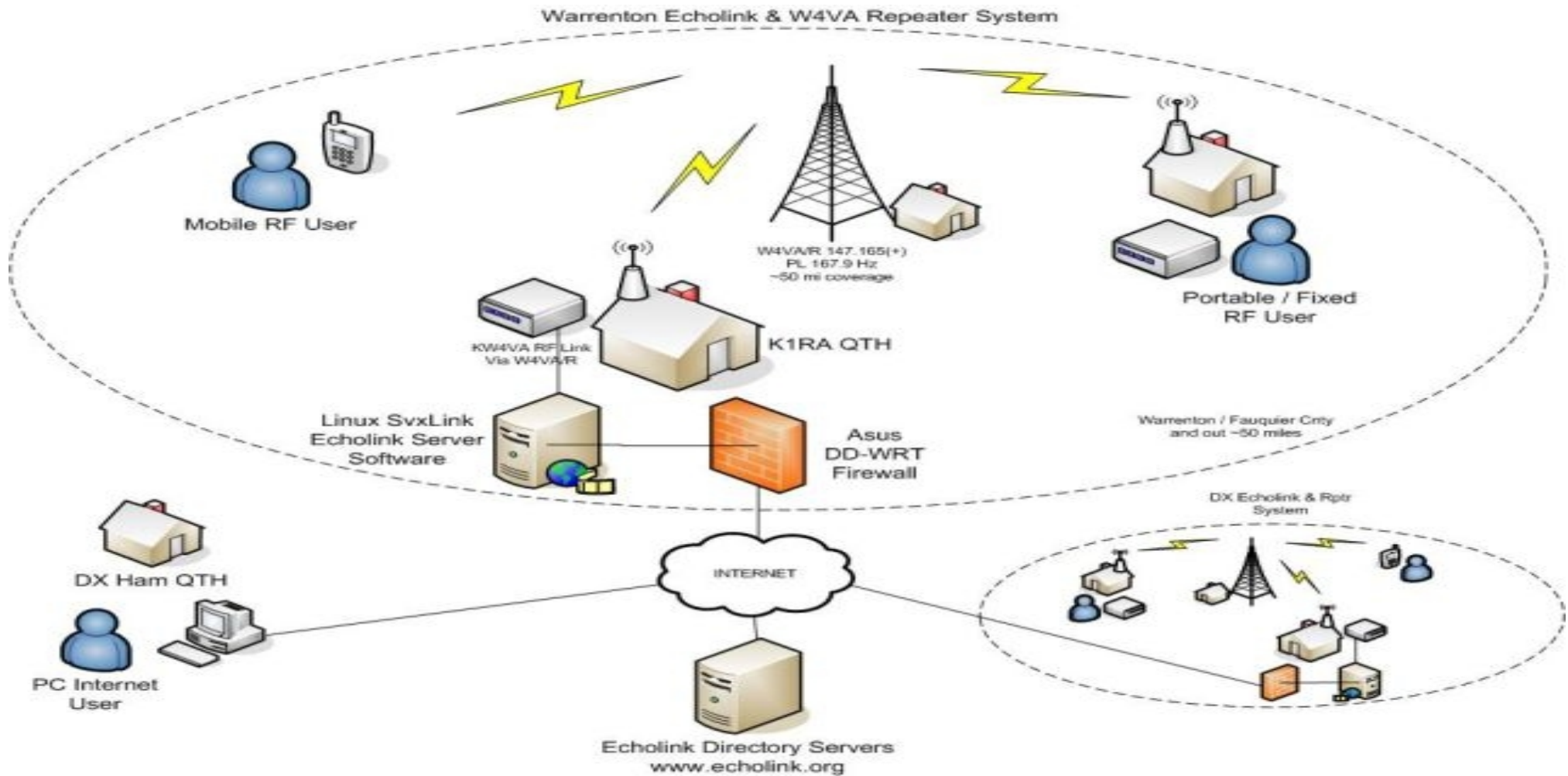


- Developed by David Cameron, VE7LTD
- Can only be accessed by radios.
- Runs on linux with DTMF codes for control.
 - Requires access codes to use.
- More info at: www.irlp.net

Works like a repeater autopatch.

- ID yourself and send the DTMF access codes
- State your intention and send the 4-digit node you wish to access
- Once the target node confirms with a voice ID, you can start communicating.
- Can use *reflectors* to connect a few stations simultaneously

EchoLink



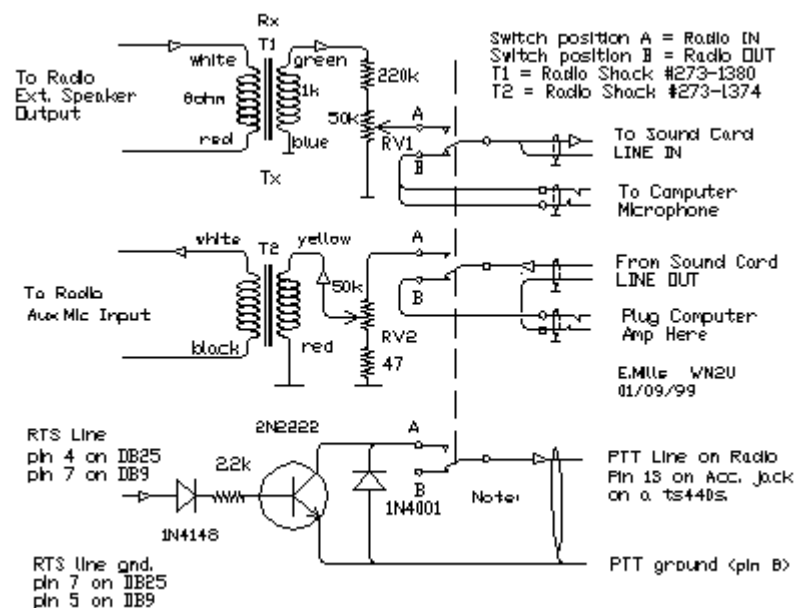
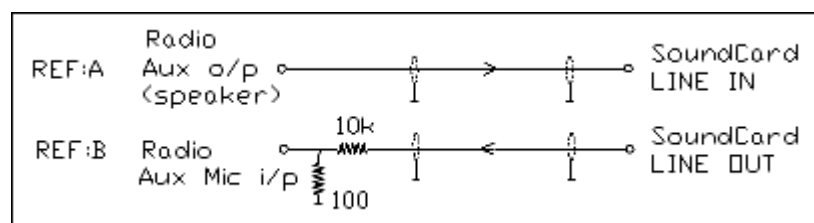
- Developed by Jonathan Taylor, K1RFD, in early 2002.
- One of the dominant Amateur Radio VoIP systems with more than 200,000 validated users worldwide.
- Free windows/linux software.
 - Requires validation of your Call Sign

- Uses servers to store who is currently connected.
 - Can support conferencing (use for nets).
- Can communicate using computers (Iphone and Android), HT, mobile or any other rigs.
- More info at: <http://www.echolink.org/>

EchoLink Setup

Radio To Soundcard Interface

- Simple interface 1: Place the radio next to the computer.
 - Will not work with higher bitrate modes. Will pick up noise from the surroundings.
 - Vox PTT
- Simple interface 2: Simple cables with an attenuator.
 - Use a 100:1 voltage divider
 - Works well, but can have ground loop problems.
 - Vox PTT
- Complex Interface: Use isolation transformers/capacitors to avoid ground loops and a trigger for PTT.
 - Best interface.

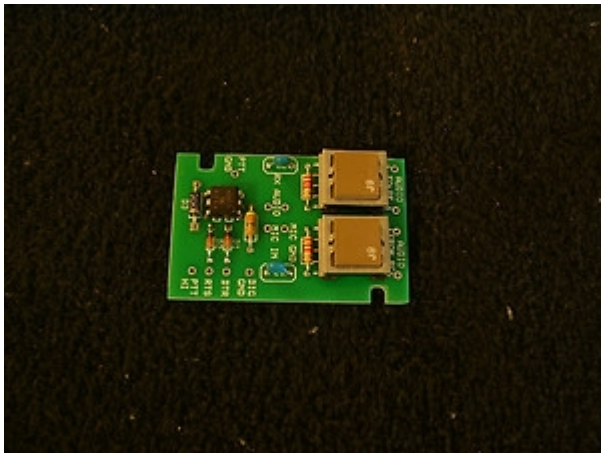


For more information:

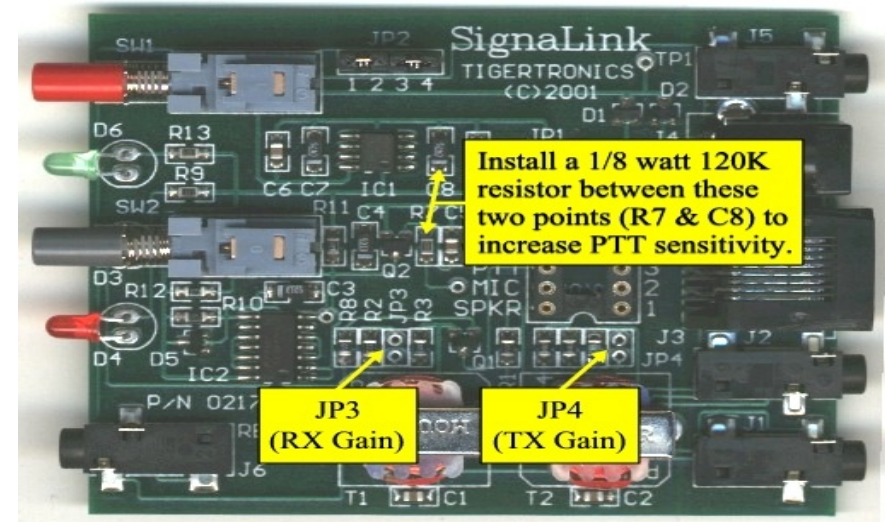
<http://www.qsl.net/wm2u/interface.html>

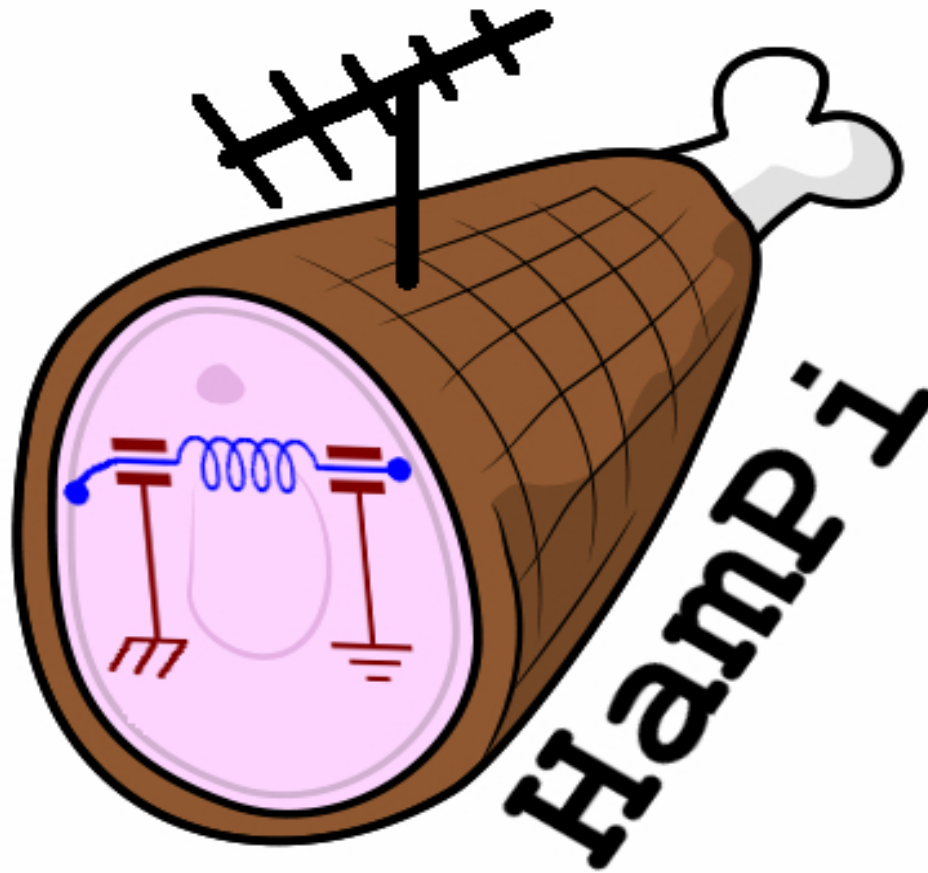
Connecting Radio To Soundcard Interface to Computers

- Many commercial interfaces are out there.
- EasyDigi is the best price for performance. Real PTT signal.
 - \$8.95 for a kit and \$15.95 assembled.
- SignalLink. Most expensive but still requires PTT tuning.



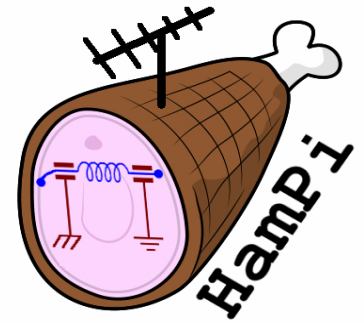
EasyDigi
Search on ebay





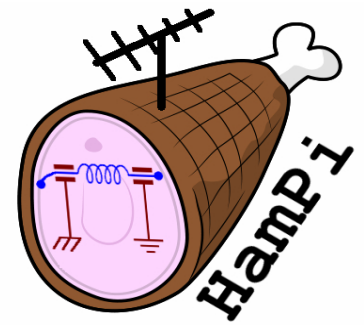
www.liorelazary.com Under Ham/Misc/HamPi

HamPi

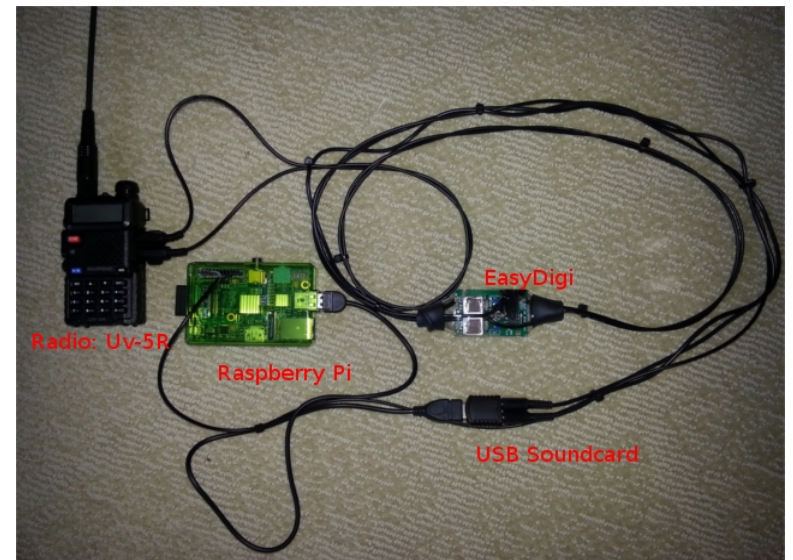


- Integrate every ham utility using the raspberry pi.
 - Fldigi, echolink node, packet, SDR, and many more.
 - Provide an easy way for people to just copy the sd image and not worry about all the setup involved in getting these software running.
 - For more information see my website (under ham, HamPi):
http://www.elazary.com/index.php?option=com_content&view=article&id=56:hampi&catid=17:misc&Itemid=17

HamPi Hardware



- Required hardware
 - Raspberry Pi Model B (512MB): Can be found from many places for about \$35-\$40. I got mine from MCM.
 - Sound Card \$8.49: Syba SD-CM-UAUD
 - Sound Card interface: EasyDigi. \$8.95
 - 4GB SD Card: \$6.90 from amazon.
 - 5V Power supply: \$5.99 from amazon.
 - Total: about \$65
- Optional Hardware
 - Cheep VGA display (about \$50)
 - Mini Wireless keyboard and touch pad. \$19.77 from amazon.
 - Heat Sinks for over-clocking the pi: \$5.99 from amazon.
 - Case: \$12.49 from amazon.
 - USB Hub: \$7.99 from amazon.



EchoLink Demo using HamPi