IRLP and EchoLink Developments

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Past Developments

- EchoIRLP developed 2002-2003.
- VoIP Net combines in 2004 using Analog Gateway.
- *WX_TALK*/IRLP 9219 integrated for the 2005 season.
- “Conference Kicker” script introduced prior to Katrina.
- 2005 – 2008, changes have been incremental and evolutionary.
- 2007 – Hurricane Flossie near Hawaii. Codec issues due to clash between traditional operating procedures and VoIP WX technical requirements.
Current Development

- New software (rtpDir and thelinkbox) has become available, Renewed development on existing software such as thebridge.
- New systems such as D-STAR are rapidly coming online.
- DV Dongle allows access to D-STAR audio by PC users and third party applications.
- New capabilities and software are the basis of current and future developments.
Thebridge – New Capabilities

- Thebridge is the workhorse of EchoLink conferences and the foundation of the VoIP WX Net's infrastructure.
- New capabilities since 2005 of importance include:
  - Ability to make Speak Freely connections to arbitrary ports.
  - Audio recording/playback now works for both IRLP (GSM only) and EchoLink nodes.
  - ADPCM conference capability (not for EchoLink).
  - RTP outbound connections – possible third party integration.
- WX_TALK/9219 has been upgraded to the latest version of thebridge.
New Software – thelinkbox

- Thelinkbox is essentially the bridge with the addition of a multiport repeater controller and a software audio switch matrix.
- Also developed by Skip WB6YMH.
- Thelinkbox is capable of handling repeater and simplex links, as well as EchoLink, RTP and Speak Freely VoIP connections.
- Capable of using both GSM and ADPCM codecs.
New Software – rtpDir

- RtpDir (RTP Director) is another package that incorporates a conference server and an RF link controller.
- Developed by Scott KI4LKF and a team of programmers.
- Requires a GUI (Windows or Linux).
- RtpDir can handle EchoLink, RTP and Speak Freely VoIP connections.
- Has an “EchoIRLP” mode of operation, which aims to create an EchoIRLP node without modifying the IRLP scripts.
- Can be used as a conference server, RF link or both.
- One VoIP WX NCO using rtpDir as a dispatch console.
The GSM – ADPCM Transcoder

- Created using thelinkbox and its audio bridging capabilities.
- Completely software solution, no soundcard required.
- Audio remains in digital form. Audio latency and degradation are minimised.
- Can be deployed from an IRLP mode for tactical use, or as a permanent link between ADPCM and GSM networks.
- Node 6392 transcoder is capable of tactical deployments between any two IRLP reflector channels.
- IRLP reflector 9500 and EchoLink *VK3JED* are permanently linked – the “VK Megalink”. These are in turn linked to IRLP 9509 (GSM) and several EchoLink conferences.
"VK Megalink" Transcoder Deployment

IRLP 9500 (ADPCM)

Transcoder

*VK3JED*

GSM

9509

GSM

EL

GSM

EL
Future Development

- EchoIRLP-rtpDir – In testing by KI4LKF.
- EchoIRLP-NG – Under development by VK3JED using thelinkbox as its core.
  - Will be easy to revert to standard IRLP.
- IRLP Reflector Redesign – Using thebridge to enhance IRLP reflector functionality.
  - Simple one and two way connections to other reflector.
  - Multiple integrated conferences per physical machine.
  - Simple and dynamic “listen only” connections. Uses thebridge's control capabilities.
- D-STAR integration – Very new project to link a D-STAR reflector's audio with EchoLink and IRLP using a DV Dongle and thelinkbox.
Other Possibilities

- D-STAR text integration – It should be possible to link D-STAR low speed data to EchoLink's text box across the network.
- Further interoperability is dependent on open specifications and protocols. This is why D-STAR integration is likely before any digital links to eQSO, for example.
Thanks

- Skip WB6YMH – author of thebridge and thelinkbox.
- Scott KI4LKF – author of rtpDir.
- Danny KD4RAA and Kevin KD5WX – for trusting me with 9219 and *WX_TALK* respectively.
- Pete VK2YX for approving the installation of the transcoder on 9500 and 9509 on a permanent basis.
- Kent W7AOR for access to the test reflector for developing the new IRLP reflector system.
- Various other developers, vendors and amateurs who have made this all possible.