

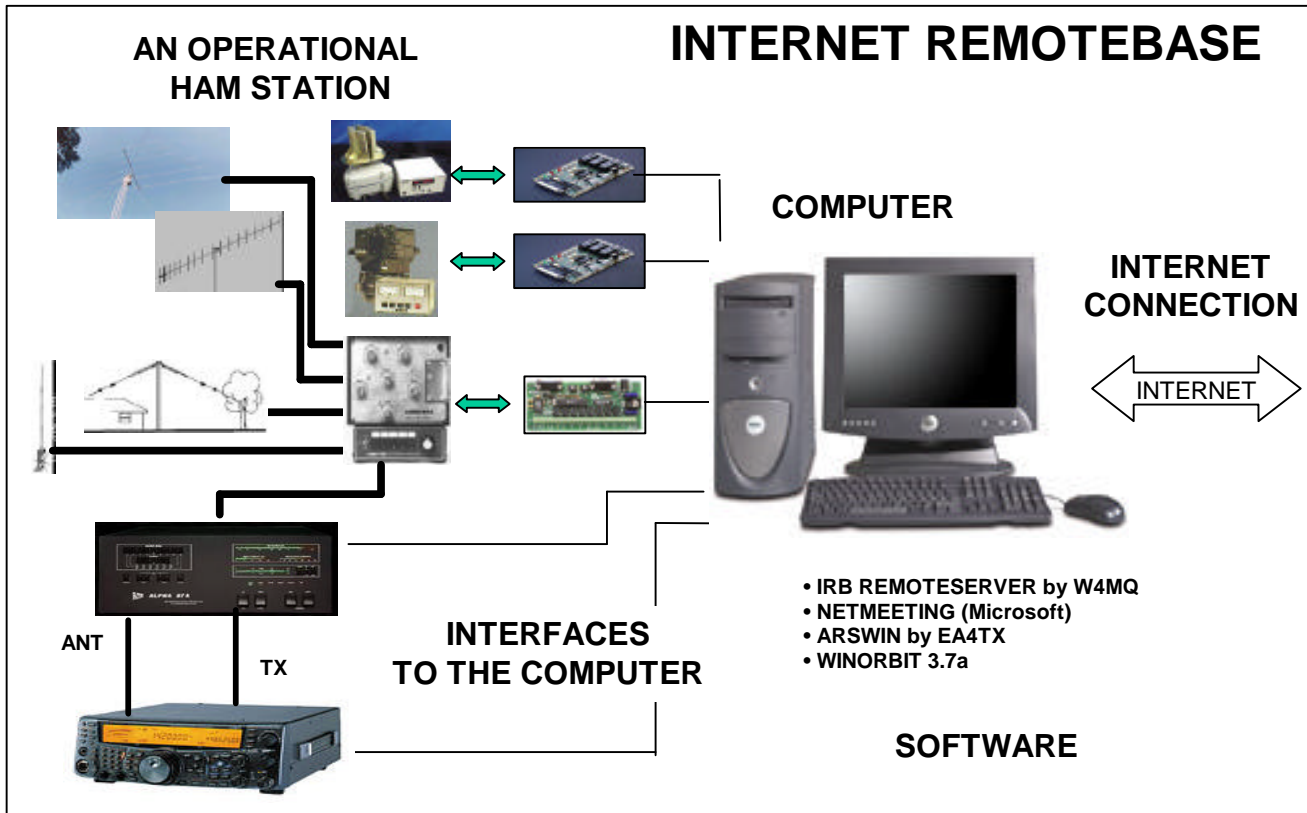
New Concept Merges Amateur Radio and Data Networking

Keith Lamonica, W7DXX and Stan Schretter, W4MQ, have implemented a new concept, the Internet RemoteBase (IRB), that expands both the utility and use of any ham radio station by making it available to all hams worldwide via an Internet link. These two stations have operated for nearly two years and have provided hours of HF and VHF ham operations to several thousand registered control operators using a simple interface on their computer.

In a typical day, licensed hams from all over the world, e.g. ON5, VU3, F6, SV3, VK3, ZL1, UA4(rx only), ZS6, 9K2, EI3, etc. accessed the systems. Essentially, operation is similar to remoting the front panel of a mobile setup, except that the "control cable" and "microphone cords" can be thousands of miles instead of several feet long. The control interface is a computer screen and keyboard rather than a knob and physical panel.



Unlike other Internet supported ham radio services, such as Internet Repeater Linking and Echolink which support only FM repeaters, IRB users fully control the station remotely, including all radio functions, any mode (SSB, AM, FM, CW, PSK31), amplifier setup and control, rotating antennas, and selecting antennas. A simplified diagram of an IRB station is shown below. More technical details about this concept are available in QST November 2001 and November 2002, and on the web at www.w4mq.com and www.lamonica.com. Keith and Stan can be contacted via email at keith@lamonica.com and w4mq@arrl.net



World-wide Contributors

The IRB has benefited from the technical contributions of many hams worldwide:

W7DXX and W4MQ use different antenna rotors, but it is desirable to have common software. This problem was solved with the Antenna Rotator System (ARS) developed by Pablo, EA4TX. Besides producing a great product that can be easily interface to the RemoteServer software, Pablo immediately responds to questions and has helped in configuring the systems at the IRBs.

Another example of cooperative development was Stan's desire to include PSK31 in the remote. This was achieved by adapting software developed by Dave, WA0TTN, into a client-server framework. Dave had repackaged the pioneering PSK31 software developed by Moe, AE4JY, for easy use in developing new applications. The IRB RemoteServer requires less than 10Kbps sent to the user interface to re-create the PSK31 graphical interface, a data rate that is easily accommodated over a dial-up Internet connection.

Another problem was interfacing the Icom PW-1 amplifier to the Kenwood TS2000 radio. Since the IRB stations are unattended, it was necessary to automatically control the band settings in the amplifier, a capability supported only by Icom radios. Jozef, OM7ZZ, came to the rescue with his Band Decoder inserted between the computer and the TS2000 that did not affect control of the radio, but interfaces to the PW-1 using the Icom protocols to fully control the amplifier, whenever the remote user changes frequency and bands.

From Bahrain with Bits

The IRB has allowed Tom, NN2X, a US businessman in Middle East to maintain his ham operations while being in a country that does not even issue ham licenses. Tom's digital path to the IRBs is often longer than the RF path for his QSOs, involving a local dial up connection, fiber and satellite circuits.

It's Elementary my dear....

Alan, WB4L, teaches elementary school students in Miami, both reading and ham radio. He is the trustee of a ham station in his elementary school, and has been using the IRB to illustrate radio propagation and allow his student to monitor their own transmissions.

The IRB will soon support AO-40 satellite operations

Both Keith and Stan have been busy expanding the IRB for satellite operations. Keith has the antennas, preamps and rotator integrated, and Stan has completed a unique software control interface. Traditionally, satellite operations have required the operator to be knowledgeable in the details of antenna tracking, Doppler corrections, and uplink/downlinks. The IRB implementation will automate much of this and make satellite operations as simple as HF operations - tuning a single dial and communicating.

As sunspots go down, the power goes up

Recently, W7DXX installed an Alpha 87A auto-switching all band amplifier. This has been fully integrated within the RemoteServer software and will continue to provide a big signal on the bands as the propagation decreases. W4MQ will be soon installing the Icom PW-1 to providing an auto-switching all-band amplifier at that IRB.