

AllStarLink

Asterisk based Ham Radio Linking Technology
using the Internet

In 1999 a new method for linking Ham Radio repeaters was developed by Jim Dixon, WB6NIL.

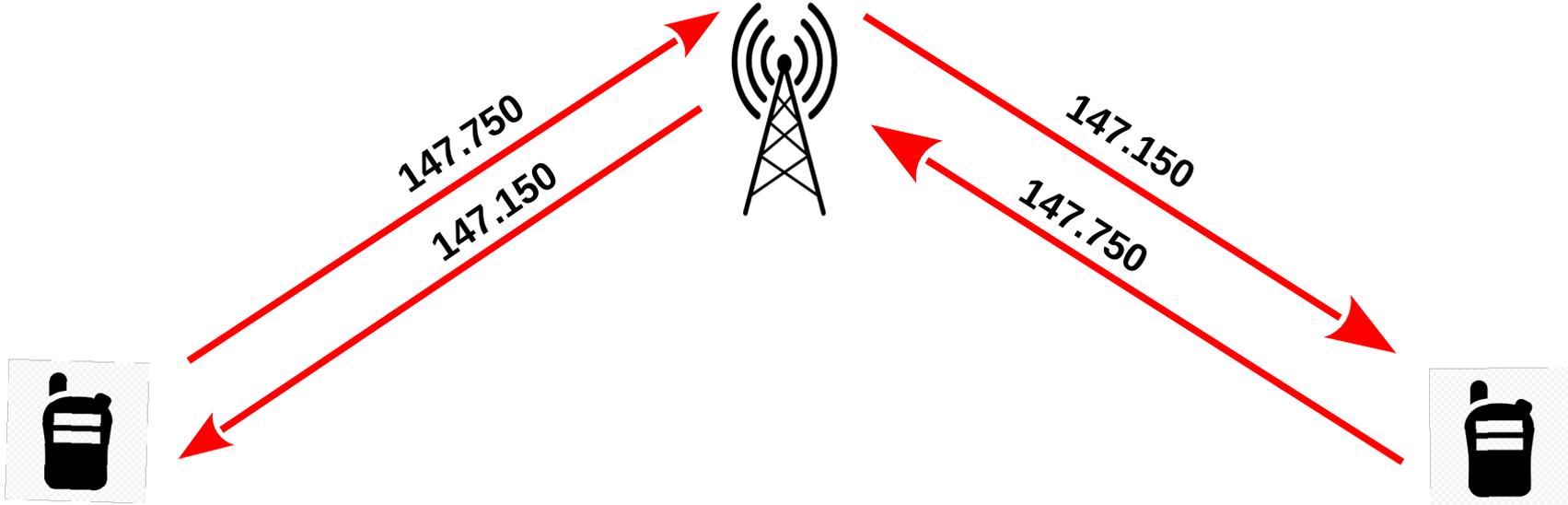
Jim was involved in the creation of Asterisk, an Open Source telecom PBX system.

While working on Asterisk it occurred to him that it could be used for linking Ham Repeaters which led to the creation of the AllStarLink system.

Jim became a Silent Key in December 2016.

We have all talked through an Analog Repeater

W2OSC

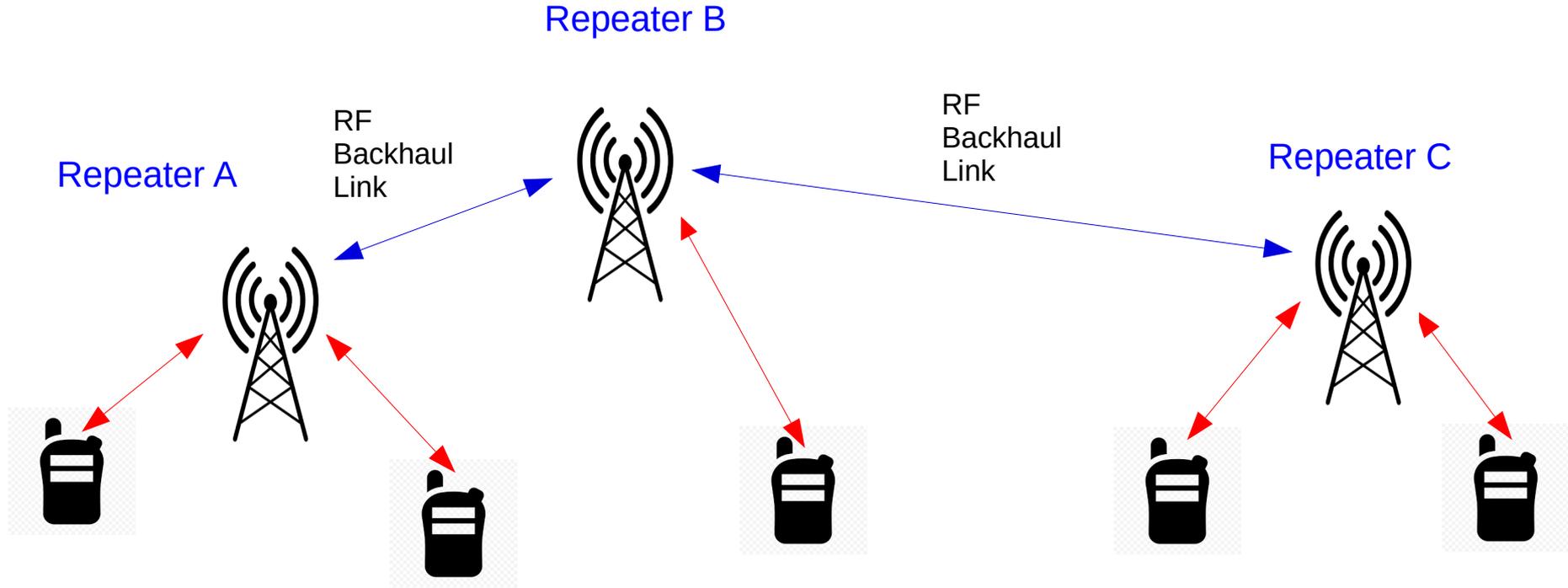


Traditional VHF/UHF Ham repeaters usually cover a small area limited by line of sight.

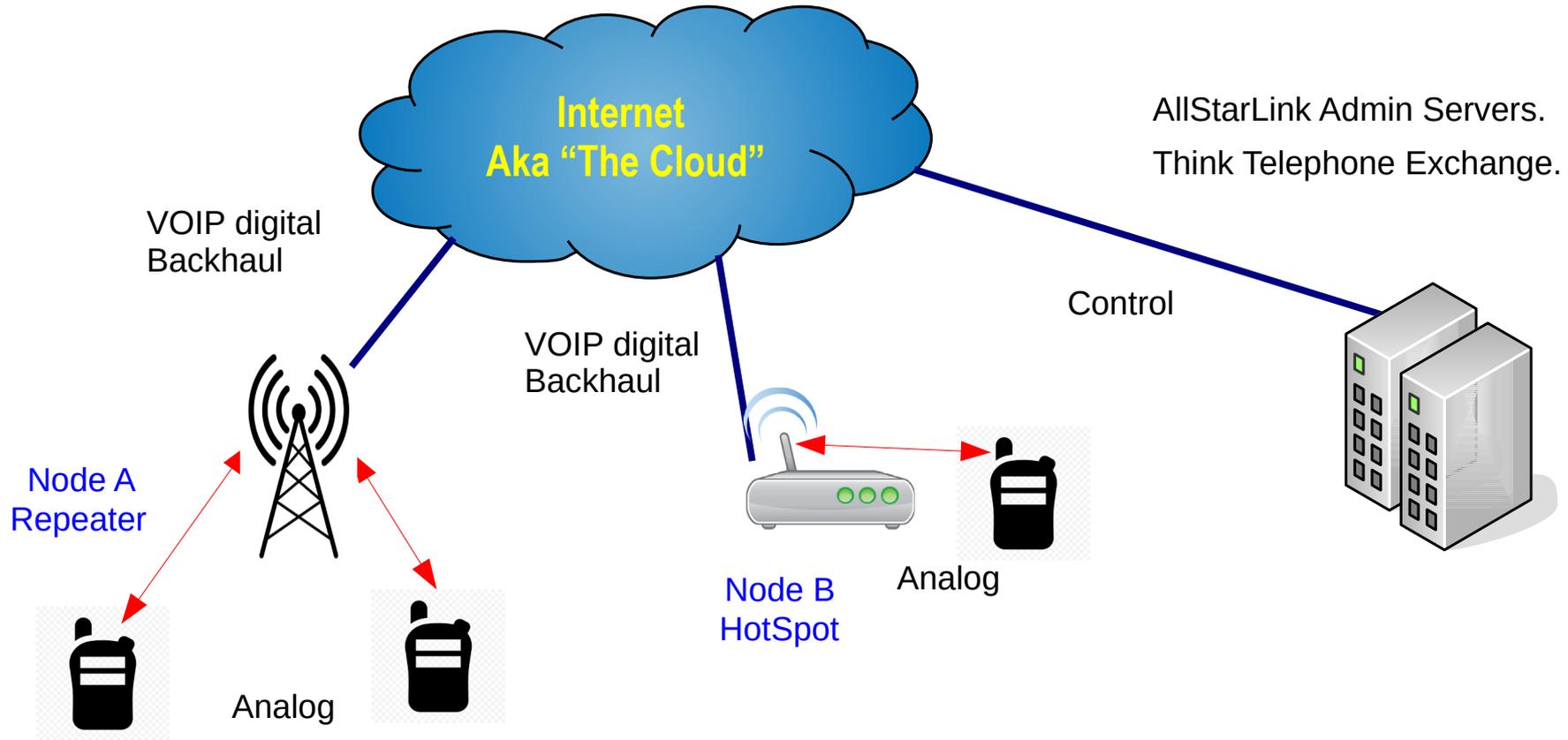
In order to cover a larger geographic area our repeaters are often interconnected using RF backhaul links .

Two examples would be the NYS UHF linked Repeater Systems and The CNY Linked Repeater System.

Analog RF Backhaul Linked HAM Repeaters



AllStar uses the Internet for its Backhaul Circuits



A computer loaded with the Asterisk application is used at each node to act as the controller and to establish digital connections to other nodes via the internet.

In my case I used a Raspberry Pi 3A, an RA-25 audio interface and a Baofang BF-888 transceiver to create my [AllStar Node](#) (HotSpot). The Baofeng has been modified for about 50mw out so I could eliminate its heatsink and use a 1A power supply.

By using a more powerful radio along with the appropriate tower and antenna, this controller could also be used to build a repeater for wider geographical coverage.

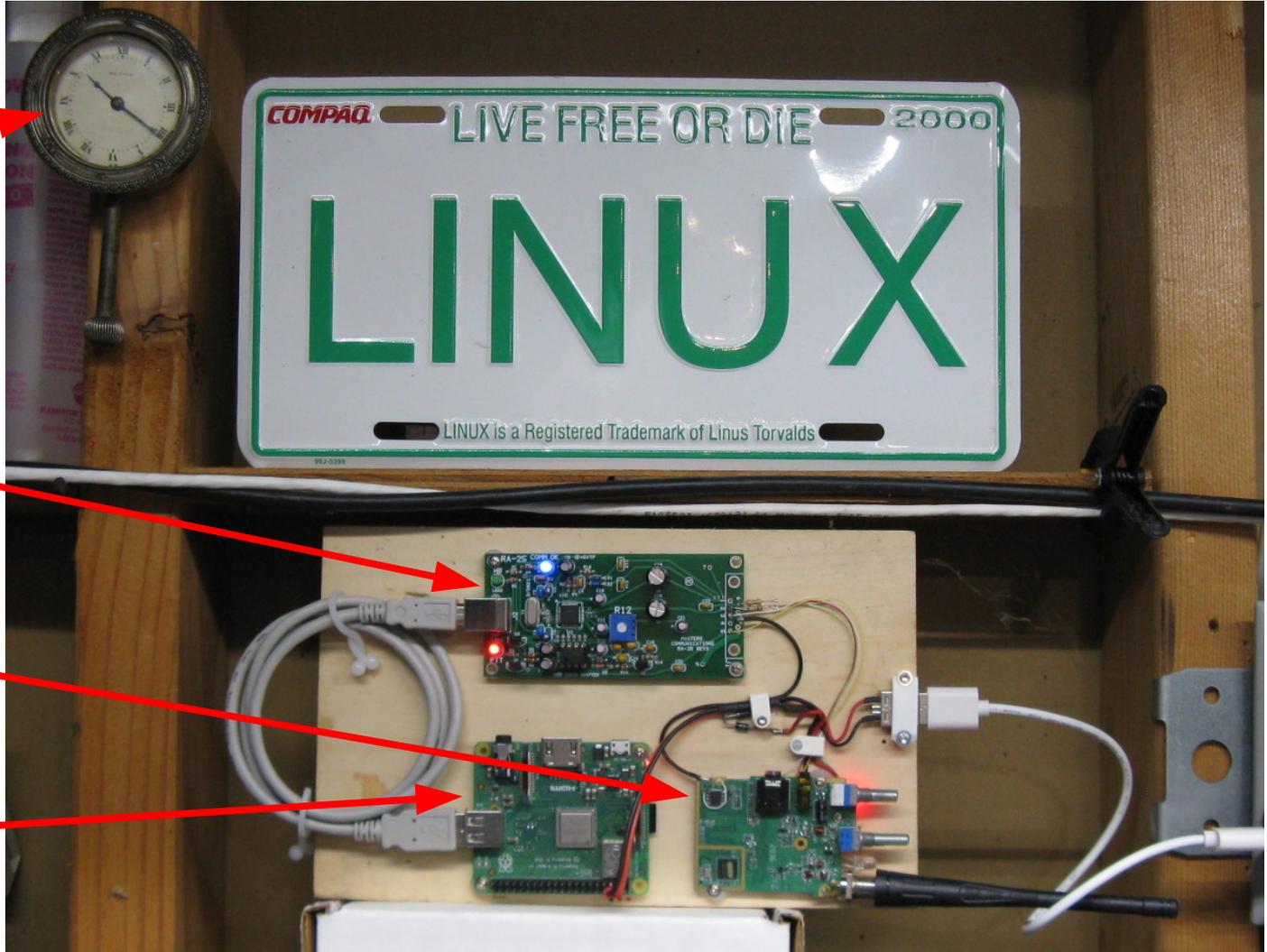
My AllStar Node

Model T Clock
Waltham 1915

RA-25
Audio Interface

BF-888
Transciever

Raspberry Pi
Model 3A



[AllStarLink](#), commonly known as [ASL](#), has become very popular throughout the world especially in the US, Canada and the UK.

With ASL, the RF link to the HotSpot or Repeater is analog so the sound quality is usually excellent, far better than the Digital modes such as Fusion or DMR.

Unfortunately, because the RF connection to the node is analog no information about the connection such as callsigns or location data can be sent to the radio from the node.

ASL is frequently used for nets, connecting with repeaters in other parts of the nation and world and for ragchewing. However as with the other internet linking systems It is rarely used for contesting.

The AllStar Node can be controlled using DTMF tones from your radio just like your telephone.

*3 + the far end node number - connects to node.

*2 + the far end node number - connects in monitor mode.

*1 + the far node number - disconnects from node.

*70 - gives the overall connection information.

It is also possible to connect to several nodes at the same time, much like on a conference call. This is great for nets. Nets are very popular on ASL.

Your node can also be operated from a computer by using the [SuperMon](#) app which is included with the ASL software package.

Supermon allows you to connect to, disconnect from, and monitor all of the connections to your node.

You can use the various buttons displayed to store commonly accessed nodes, check node stats, monitor node operation and set the options for your node.

ASL can also connect directly to [EchoLink](#) and [IRLP](#).

NX2GW - Supermon 6.2+ AllStar Manager

Logout

Phoenix NY
RPI-3A Node

Allstar/IRLP/Echolink System Manager

55985 All Nodes IsNodes HAMVOIP

28458 Permanent

Connect Disconnect Monitor Local Monitor DTMF Lookup Rpt Stats Bubble Chart Control Favorites

Configuration Editor Tax/Rpt/DP RELOAD AST START AST STOP RESTART Server REBOOT SW Update?

AllStar How To's AllStar Wiki CPU Status AllStar Status Node Info Active Nodes All Nodes

GPIO Linux Log AST Log Connection Log Web Access Log Web Error Log Restrict

[allstar] [WAN IP: [71.7.11.158](#)] [WLAN IP: 192.168.1.154] [AstP: 4569] [MgrP: 5038] [SShP: 222]
[Tuesday, February 15, 2022 EST 07:05:56 up 35 days, 16:23, 0 users, load average: 0.11, 0.07, 0.02]

Display Configuration [CPU: 98°F, 37°C @ 07:05]

[Weather conditions for Phoenix NY 13135: 11°F, -12°C / Mostly Cloudy]

Node 55985 => NX2GW 433.310000 Phoenix/NY/USA Bubble Chart IsNodes						
Node	Node Information	Received	Link	Direction	Connected	Mode
55985	PTT-Keyed					
517300	The Canada Hub Hub 1 (VE3 & East) Maple Ridge, BC	000:00:15	ESTABLISHED	OUT	00:00:15	Transceive
28458	K2MST 443.150 Armory Square, Syracuse, NY	000:03:53	ESTABLISHED	OUT	02:13:52	Transceive

ASL also does Echolink, connect to Echolink from the radio's keypad

*33XXXXXX -- Where XXXXXX is the EchoLink node number padded with 0's to 6 digits.

For example, *33057780 connects you via Echolink to the East Coast Reflector a very active bunch of Hams with a great Web Site.

*13XXXXXX -- To disconnect from Echolink.

When using Supermon you must omit the leading asterisk *. In addition the AllStarLink Network has bridges to the various other Internet Linking networks like Yaesu Fusion, Dstar, DMR, IRLP etc.

Some useful locations on the WEB

www.allstarlink.org All things AllStar flow from this site.

www.hamvoip.org This is the starting point for Asterisk information.

www.eastcoastreflector.com East Coast internet linking stuff here.

www.thecanadahub.ca Canadian AllStar/Echolink/IRLP information.

www.rmrl.org BIG Denver area Amateur radio Web Site.

www.upstateham.com All things Ham Radio Upstate NY.

The node hardware I used for this project

Raspberry Pi 3a \$25

The Software is FREE

BA-25 Sound Interface kit \$30

Masters Communications

Baofeng BF-888 2 for \$25

Amazon

I also used a 5volt 1A DC supply and a microSD card for the Raspberry Pi Operating System along with various connectors, a couple of resistors, some wire, a diode and assorted hardware.

You Have Questions?

I Might have Answers!