ALLSTAR LINK & ASL3 PRESENTATION: HIGH-FIDELITY INTERLINKING FOR THE MODERN HAM

ADVANCED COMMUNICATION TECHNOLOGY CONNECTING AMATEUR RADIO OPERATORS WORLDWIDE

Why Would I Care About AllStar?

Use repeaters you cannot normally access

- In a bad location? Want to talk to someone in another state or country?

Keep in touch with your node when away from home

- Just need an internet connection and it's as if you're home

Participate in nets or connect to hubs outside of your local repeaters

- BlindHams, Hawaiian Hub, East Coast Reflector, Philadelphia Hub

Did I mention that you don't need an expensive "proprietary" digital HT / Radio

- Use what every Ham has – an ANALOG VHF/UHF HT (Baofeng if you like J

INTRODUCTION TO ALLSTAR LINK

Analog Interlinking Technology

AllStar Link enables analog-to-analog radio interlinking using IP networks, preserving traditional FM radio communication.

Reliable Repeater Support

ASL3 powers repeaters like Hamaker and Hogback, ensuring high-fidelity and reliable club network communications.

User-Friendly Deployments

The system supports both club-level and personal deployments, allowing members to build home nodes easily.

WHAT IS ALLSTAR LINK?

Foundation on Asterisk PBX

AllStar Link is based on the open-source Asterisk PBX, used widely in professional phone systems.

Global Radio Network

Each radio or repeater acts as a 'phone extension' on a global network for flexible linking. As of 2/24/2026, there are over 12,600 nodes!

High-Fidelity Audio Quality

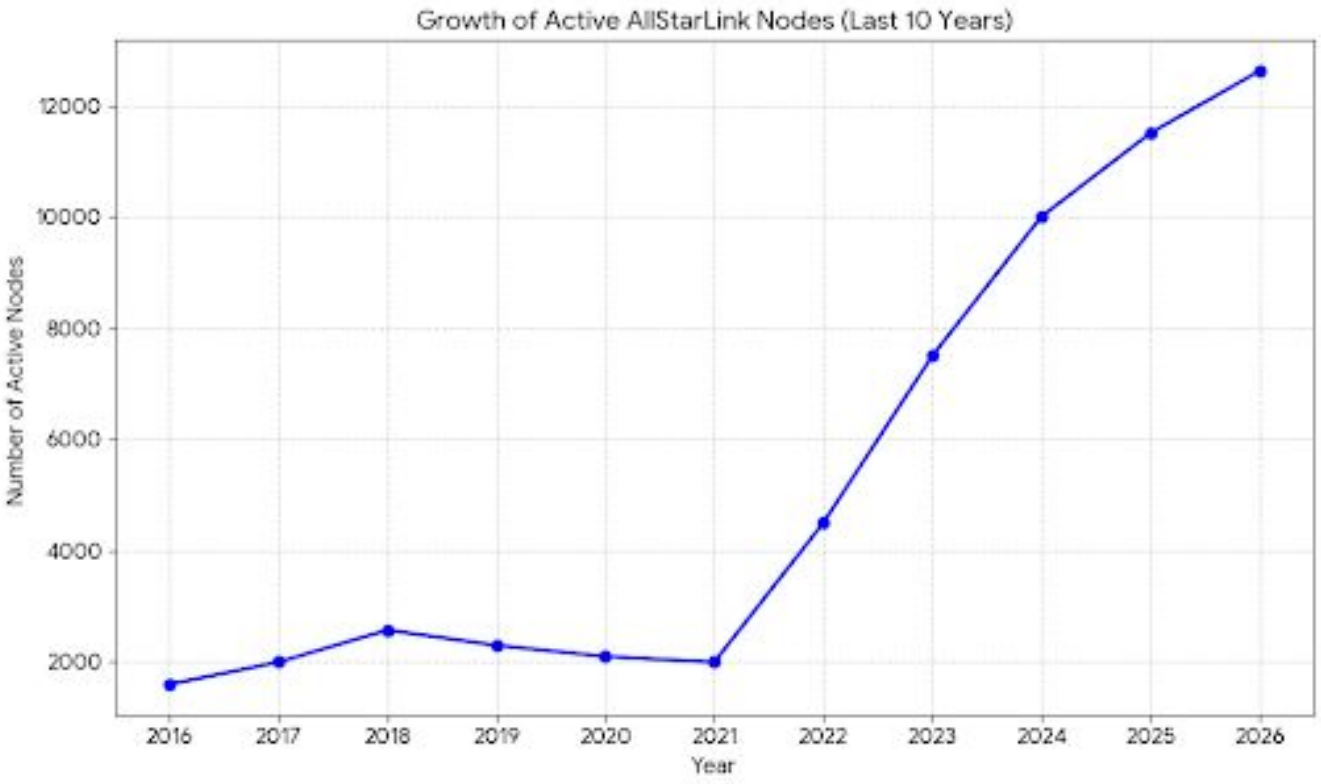
The μ-law codec ensures broadcast-quality, natural-sounding audio for clear and reliable communication.

Robust Telephony Technology

AllStar Link leverages established telephony technology, supporting diverse nodes and deployment models.


SIP Phone
Autopatch
Phone Portal
Phone App
DVSwitch
Zoiper
Repeaterphone
!! Lots of Connectivity Options !!
Repeater
HAMVOIP or ASL Software
RF Interface
Web Transceiver
Droid/Dude Star
Transceive
AllStar Link
Connect to other Nodes, Repeaters and or Hub's
VHF / UHF Analogue

AllStar Growth



Exponential Growth: Active node counts have increased by over **500%** since 2021.

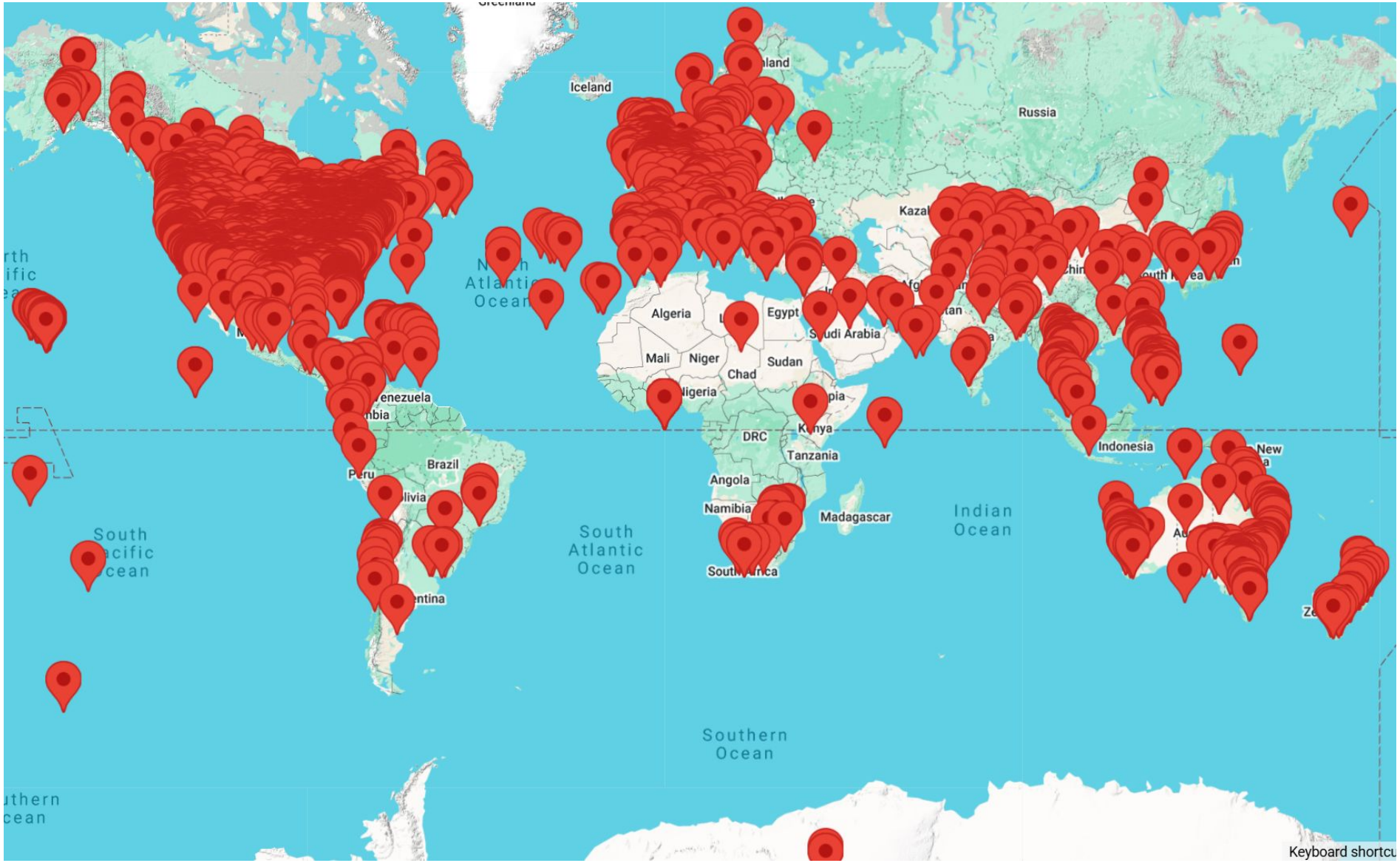
Current Network Status:

Active Nodes: ~12,617
Registered IDs: Over 45,000

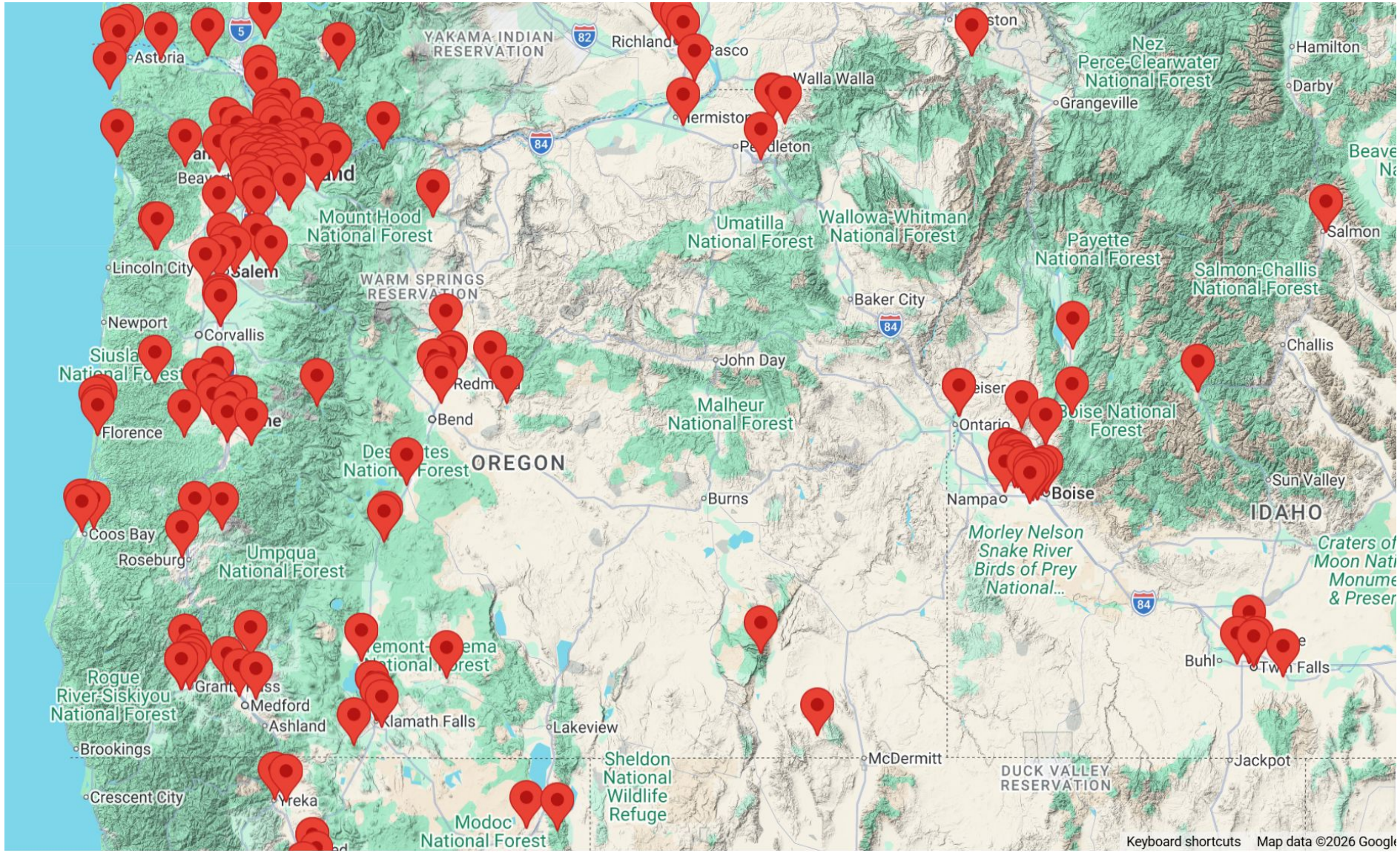
Primary Drivers:

- Low-cost Raspberry Pi integration.
- High-fidelity VoIP linking (Asterisk-based).
- Increased adoption of analog-to-digital bridges.

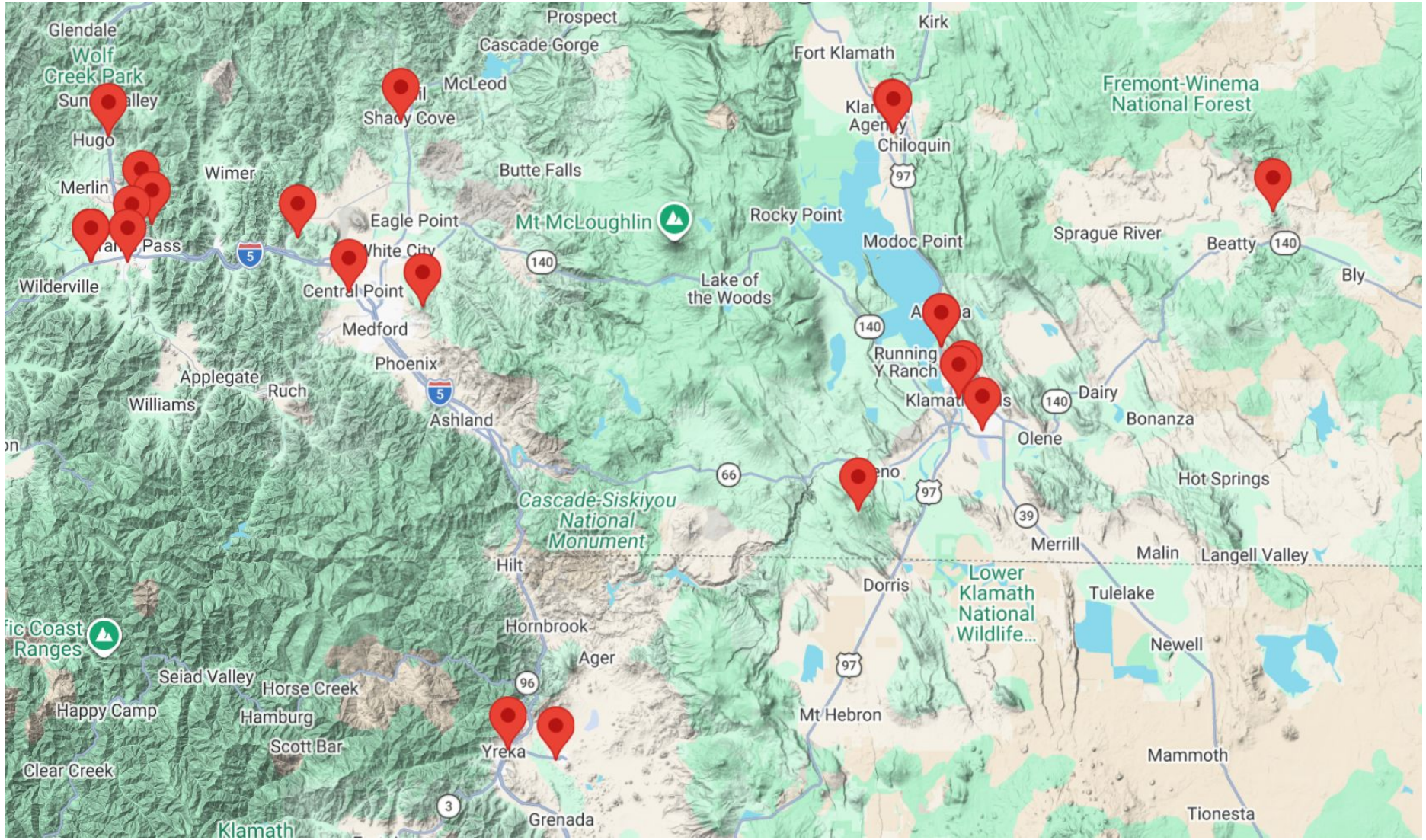
Map of Worldwide Nodes



West Coast Nodes



Southern Oregon and Northern California Node Map



Building your node!

For a NODE Build – There are TWO Software Options

ASL – AllStarLink
https://wiki.allstarlink.org/wiki/Downloads

Can run on either Physical or Virtual X86 / Single Board Computer (Raspberry Pi / Beagle Bone Black)

HAMVOIP
https://hamvoip.org/#download

Can **ONLY** run on Single Board Computer (Raspberry Pi / Beagle Bone Black)

ASL3 FEATURES AND IMPROVEMENTS

Improved Performance and Security

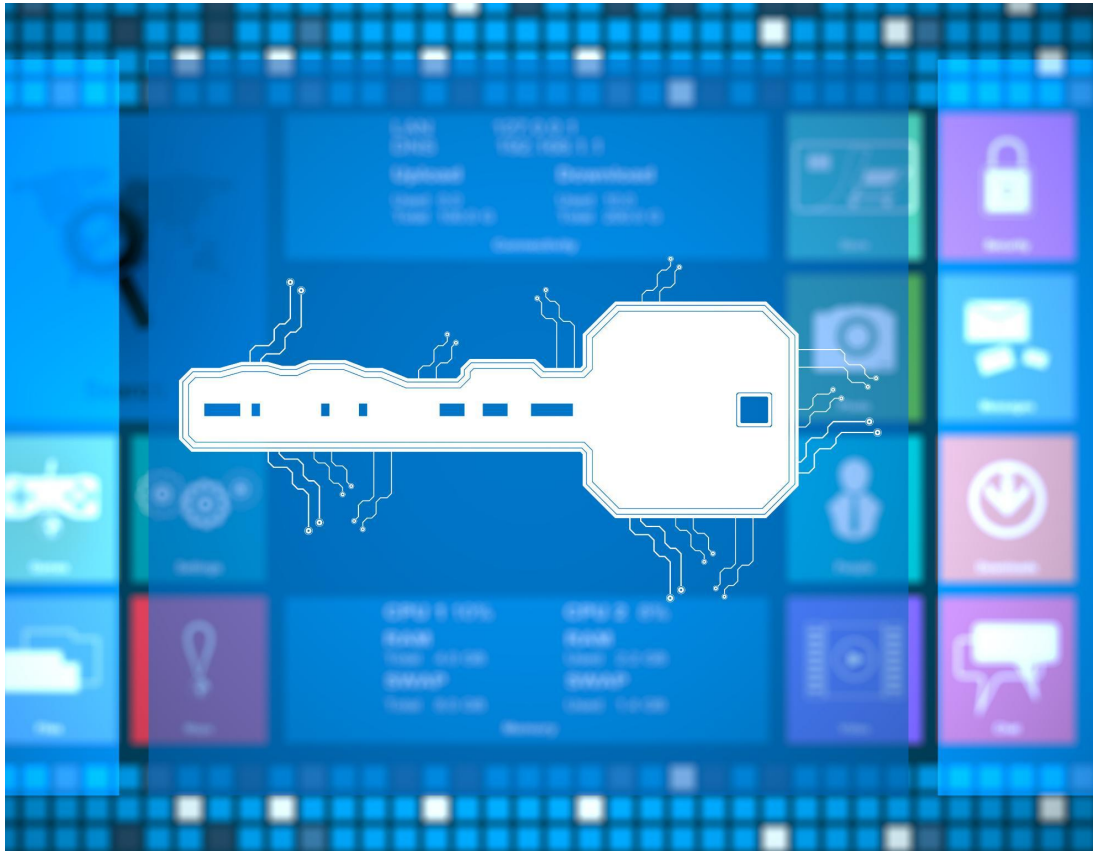
ASL3 is built on Debian 12, offering lower latency and better hardware support for enhanced performance and security.

Modern Web Dashboard

The new web-based dashboard simplifies system control and configuration, improving remote node management accessibility.

Official Standard and Long-term Support

ASL3 is the official AllStarLink standard, ensuring compatibility, reliability, and long-term support for clubs and users.



LEGACY AND SMARTPHONE ACCESS

Smartphone Integration

ASL3 supports EchoLink for smartphone and computer access to club repeaters, enabling remote communication.

Legacy System Compatibility

IRLP is bridged into ASL3 to ensure compatibility with older legacy communication links.

Extended Repeater Reach

Integrations extend repeater reach, allowing participation for traveling or remote users without local RF access.

Versatile Communication Platform

EchoLink and IRLP support make AllStar Link versatile for both modern smartphones and legacy systems.

REGISTRATION PROCESS

Account Registration

Start by visiting the website and creating an account with a valid FCC license for verification.

Node and Server Request

After account creation, request a server and node number to participate in the network. https://www.allstarlink.org/

Verification and Approval

The verification process takes about 24 hours ensuring licensed operators access the network securely.

Node Configuration and Participation

Once approved, configure your node to start operating within the AllStar network effectively.

ASL3 CAPABILITIES AND FURTHER LEARNING

Powerful Analog Linking

ASL3 provides robust and flexible analog linking systems for amateur radio with reliable connectivity.

Local Repeater Usage

Operators can access ASL3 via local club repeaters at 146.850 MHz and 146.610 MHz frequencies.

Learning and Resources

Online platforms offer documentation, software, and community support for configuring AllStar Link systems.

Scalable and Interoperable

ASL3 supports both club-level infrastructure and personal nodes with scalability and interoperability.

OPTION A: SHARI PI MICRO-NODE

Compact Micro-Node Design

The SHARI Pi combines a Raspberry Pi and an integrated radio module in a compact, self-contained case.

Low-Power Hotspot Use

Designed for low-power hotspot applications, providing coverage around homes or yards efficiently.

Easy Assembly and Configuration

SHARI Pi offers simplified setup, making it accessible for users of all technical skill levels.

Personal Node Connectivity

Enables easy connection to the AllStar Link network using integrated hardware without complexity.

https://kits4hams.com/shari * https://hotspotradios.com/

OPTION B: BRIDGE NODE FOR WIDER COVERAGE

Hardware Configuration

Bridge Node uses Raspberry Pi 4 with RA35 interface and Kenwood-style 2-pin connector radios for reliable operation.

Enhanced Coverage

External antennas like roof-mounted J-Pole enable wider local coverage beyond basic hotspots.

Deployment Flexibility

Bridge Node offers flexibility in antenna placement and power output for home and field use.

Reliable Signaling

RA35 interface ensures robust audio and control signaling supporting stable communication.

https://www.masterscommunications.com/#ra

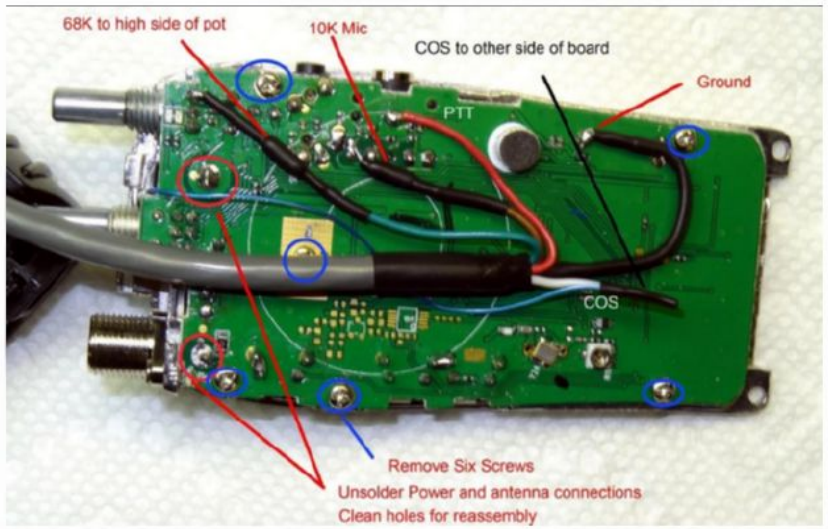
BARE Bones – Still Requires Raspberry Pi

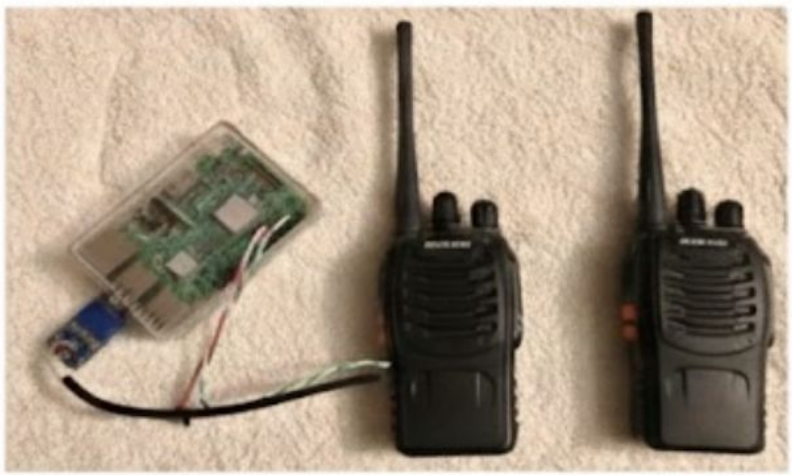
Radio-Less (Full Duplex)

- USB Headphones (CM108 / CM119 ($10)
- USB Sound Card CM108 ($6)

Radio Based Half Duplex (Baofeng 888s)

- USB Sound Card + HT ($6 + $18)





COMMERCIAL-GRADE REPEATER INTEGRATION

Repeater Stack Components

The system includes a Kenwood TKR-750 repeater, Raspberry Pi 3 B+, and RA35 interface for seamless integration.

RA35 Interface Functionality

The RA35 bridges USB audio and DB25 ports, ensuring matched audio levels and solid PTT/COS signals.

Professional Performance and Reliability

This setup supports continuous operation, remote management, and eliminates common generic system issues.

HAMAKER AND HOGBACK LINK

Private Microwave Network

The repeaters are connected through a private microwave backbone, ensuring reliable communication independent of public internet.

High Reliability and Low Latency

The microwave backbone offers low latency and robust connectivity, supporting daily nets and emergency communications effectively.

Control and Scalability

Using private infrastructure allows the club to minimize external dependencies and maximize network uptime and scalability.

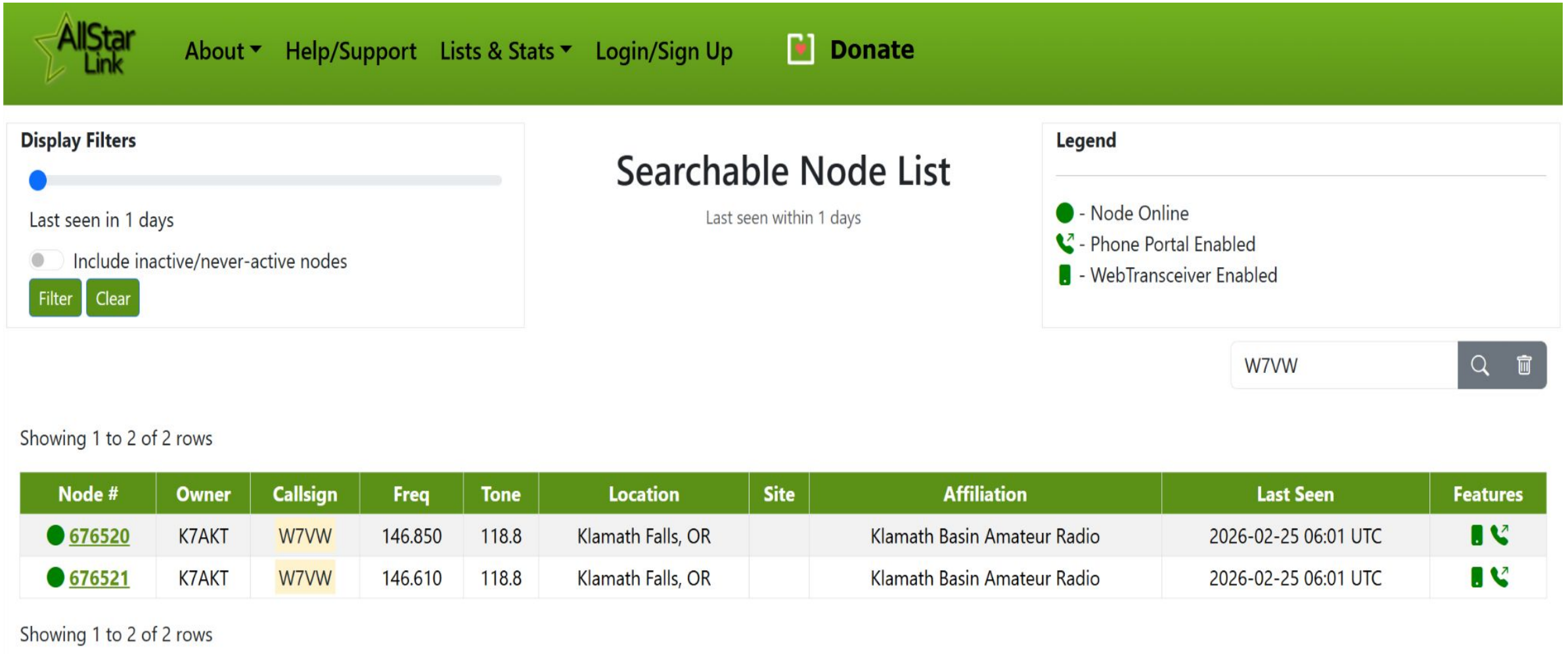
BASIC DTMF COMMANDS

FUNCTION	DTMF COMMAND
Connect (TX/RX)	*3 + Node Number
Connect (Monitor Only)	*2 + Node Number
Disconnect	*1 + Node Number
Disconnect All	*10

DTMF AND INFORMATION COMMANDS

FUNCTION	DTMF COMMAND
System Status	*70
Time of Day	*81
Play Callsign	*80
Reconnect Last	*30

Searching for Nodes



Node Information

Node 676520

W7VW Klamath Falls, OR

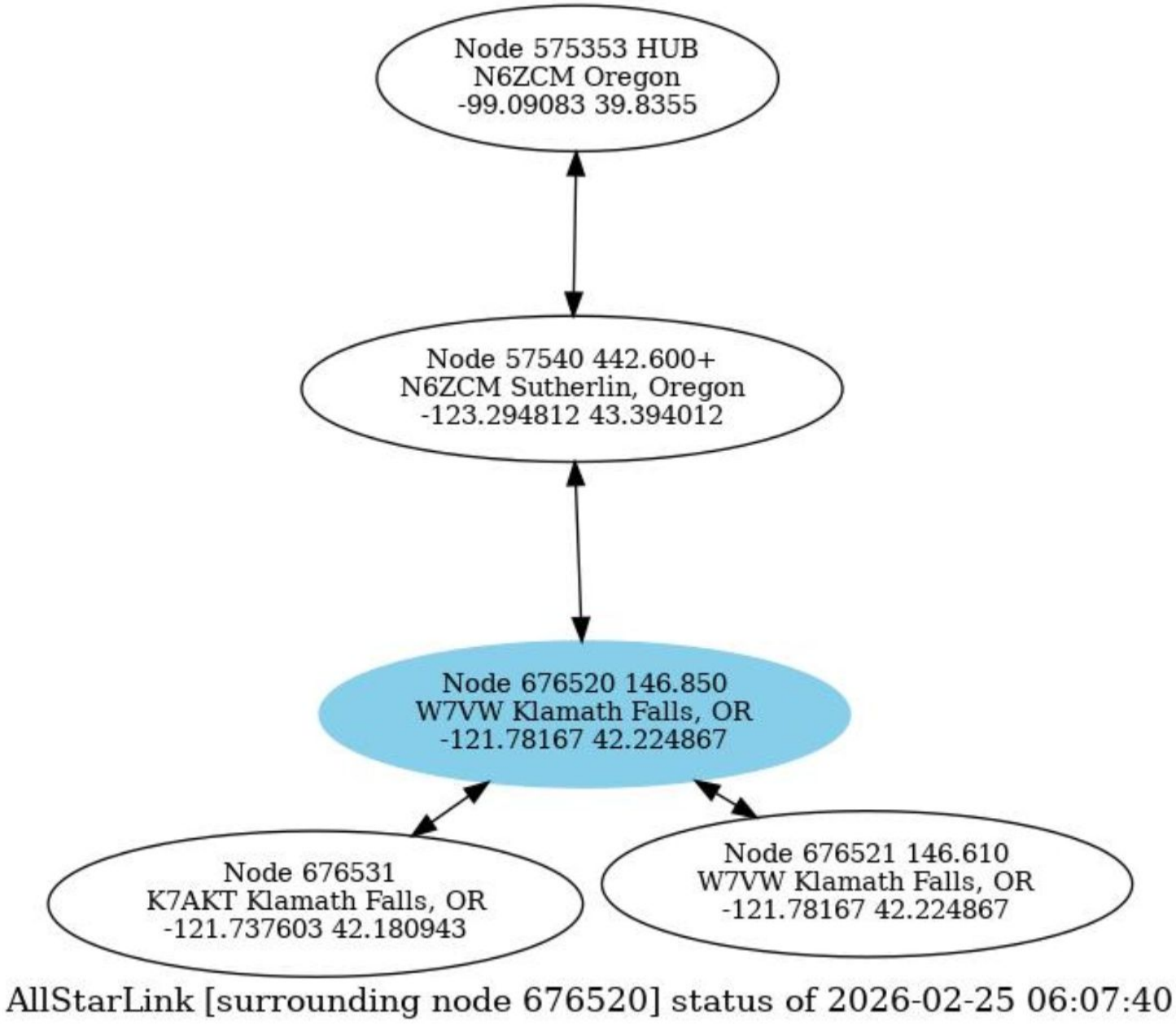
Click here for the Bubble Chart

Node	Callsign	Frequency	CTCSS	Location
57540	N6ZCM	442.600+	D606N	Sutherlin, Oregon
676521	W7VW	146.610	118.8	Klamath Falls, OR
676531	K7AKT			Klamath Falls, OR

Statistics

Actual Uptime	62d 17hr 2m 26s
Keyups	2071
Transmit Time	5hr 1m 39s
Timeouts	0
Commands Executed	0

Bubble Map
W7VW Hamaker



Hawaii

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Node #	Owner	Callsign	Freq	Tone	Location	Site	Affiliation	Last Seen	Features
2404	WB9STH	WB9STH	Hawaii HUB	None	Fort Worth, TX	Haltom City, TX	Old Fart Radio Network	2026-02-25 06:01 UTC	
2598	WH6FM	WH6FM	UHF Quantar - Hilo	123.0	Hilo, Hawaii	Kaiulani Network Operations	WH6FM Repeater Group	2026-02-25 06:00 UTC	
27141	NH6HI	NH6HI	KARC/ALLSTAR LINK		Kalaheo, Hawaii	NH6HI-KARC-LINK	NH6HI	2026-02-25 06:01 UTC	
27196	AH6OD	AH6OD	Conference Bridge		Queen Creek, Arizona USA	Home QTH	Hawaii Allstar Network	2026-02-25 06:02 UTC	
27893	WH6FM	WH6FM	WH6FM Hub - Hilo		Hilo, Hawaii	Kaiulani Network Operations	WH6FM Repeater Group	2026-02-25 06:00 UTC	
28284	AH6GR	AH6GR	442.750+	136.5	Wailuku Hawaii	Wailuku Maui		2026-02-25 06:01 UTC	
28285	AH6GR	AH6GR	Allstar-DMR Bridge		Wailuku Hawaii	Wailuku Maui		2026-02-25 06:00 UTC	
28286	AH6GR	AH6GR	146.500	136.5	Wailuku Hawaii	Wailuku Maui		2026-02-25 06:01 UTC	
28377	NH6M	NH6M	146.700- Repeater	110.9	Kailua, Kona Hawaii USA	Home QTH		2026-02-25 06:02 UTC	
28387	AH6OD	AH6OD	223.520 Simplex	100	Queen Creek, Arizona USA	Home QTH	Hawaii Allstar Network	2026-02-25 06:02 UTC	
28508	AH6OD	AH6OD	HAWAII AN Allstar HUB		Silicon Valley, California USA	Hawaii Mainland Network	AH6OD	2026-02-25 06:02 UTC	
28764	KH7MS	KH7MS	442.000 (+)	100.0	Ocean view, Hawaii	Ocean view, Hawaii	SHARC	2026-02-25 06:02 UTC	

N6ZCM

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Node #	Owner	Callsign	Freq	Tone	Location	Site	Affiliation	Last Seen	Features
57540	N6ZCM	N6ZCM	442.600+	D606N	Sutherlin, Oregon	On Air at home	442.600- D606N	2026-02-25 06:03 UTC	
575350	N6ZCM	N6ZCM	ASL2DMR_TG91		Oregon	DMR TG 91	DDB Repeater System	2026-02-25 06:02 UTC	
575351	N6ZCM	N6ZCM	444.750 DMR Repeater	CC1	K-Falls Oregon	Hogback Mtn.	DDB Repeater System KBARA	2026-02-25 06:02 UTC	
575353	N6ZCM	N6ZCM	Douglas County Hub		Oregon	ASL Hubs	DDB Repeater System	2026-02-25 06:03 UTC	

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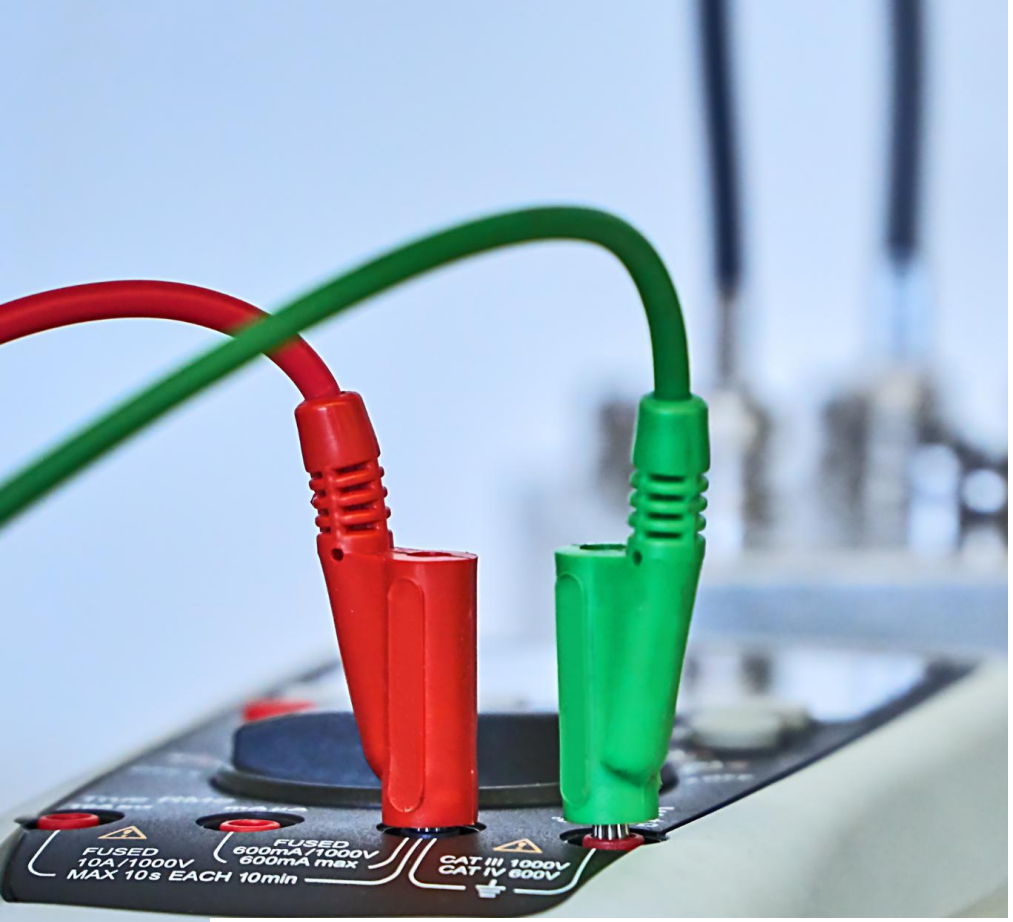
AllScan v0.98 K7AKT Mobile | Cfgs | Users | Settings | Logout
Connection Status
K7AKT Mobile - Mobile
Node
Node Info
Received
Dir
Connected
Mode
676531
Idle
27339
W2ECR East Coast HUB1 Wilmington, NC, USA
Never
OUT
00:00:07
Receive Only
676520
W7VW 146.850 Klamath Falls, OR
Never
OUT
00:10:46
Transceive
2 nodes connected
Node# 27339
Add Favorite
Delete Favorite
Connect
Disconnect
Monitor
Local Mon
DTMF
Permanent
Disconnect before Connect
Favorites
#▲
Node
Name
Desc
Location
Rx%
LCnt
1 27339 W2ECR East Coast Reflector East Coast HUB1 Wilmington, NC, USA 33 104
2 512511 GB3CR 433.150 +1.6Mhz North Wales UK - 0
3 54318 GB3EG 430.9125 430.9125 + 7.6mhz wigan, greater manchester 14 1
4 50683 GB3PI 145.750 Barkway, Hertfordshire, UK 2 1
5 2514 GB3ZB 430.825 430.825 +7.6MHz Dundry, Bristol - -
6 41360 GB7SJ 433.175 433.175 +1.6 103.5hz Northwich Cheshire UK 17 3
7 42235 K4JDR 441.725+Backbone HUB Raleigh, NC 6 6
8 28404 K6RRR San Diego Hangout San Diego, CA 2 5

Summary

- It’s useful for getting to non-local repeaters, hubs, that support AllStar
- Very good sound quality, and most importantly, “It feels like analog FM”
- Low cost barrier for entry.
- Raspberry Pi + $10 headphones and you’re in
- Many options to play with (Radio-less, simplex, duplex)
- Use of your existing HT (Non Digital



DVSWITCH UNIVERSAL BRIDGE

Analog to Digital Bridging

ASL3 bridges analog audio to digital networks, enabling interoperability across multiple digital radio modes.

Supported Digital Modes

Supports DMR, D-Star, P25, and System Fusion modes, expanding the reach of analog repeaters.

Raspberry Pi Integration

Raspberry Pi manages the bridging process, allowing seamless integration between analog and digital systems.

Benefits for Operators

Allows clubs and operators to join digital nets without replacing analog repeaters, enhancing communication flexibility.