Linked Repeaters

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Many new hams start with a handheld and make their first contacts through a local repeater, with a ham who's also fairly local to them. And we know that repeaters are an important part of emergency communications for their ability to move crucial information into and out of an area affected by a disaster or emergency. But what if you want to be able to talk farther than the limits of a local repeater? This is where *linked repeaters* can be a help.

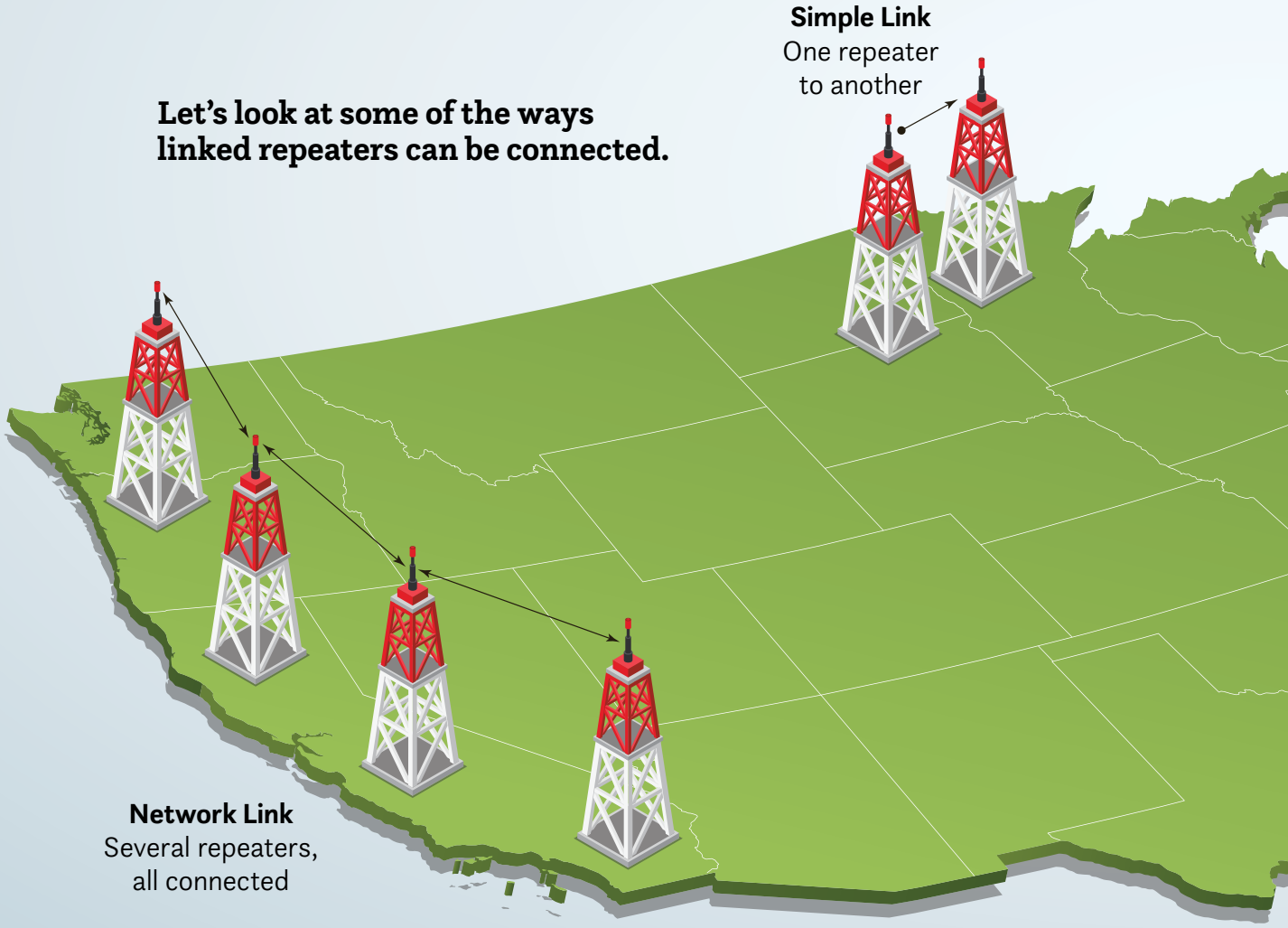
Many groups use linked repeaters to extend the range of communication. The concept is just what it sounds like: two or more repeaters are linked together, enabling you to contact a local repeater and use it to talk with hams in another town, county, or even state.

How Linking is Achieved

There are two basic linking plans: *Ad-hoc* links and *fixed* links. *Ad-hoc* linking means that the link is not always connected. The link can be switched on or off with CTCSS tones as needed for emergencies or nets. Typically, the repeater trustee will assign the rights to trusted members, and give them the code that allows them to control the link. *Fixed links* are connected all the time.

Linking is generally done by one of two methods, by *radio* or by *internet*. *Radio* linking is typically for local networks of repeaters that cover a specific geographic area, like a single state or close group of states. *Internet* linked repeaters can be across the country or even around the world. The newer digital systems like DMR use internet linked repeaters and can connect hundreds of repeaters in many countries.

Let's look at some of the ways linked repeaters can be connected.



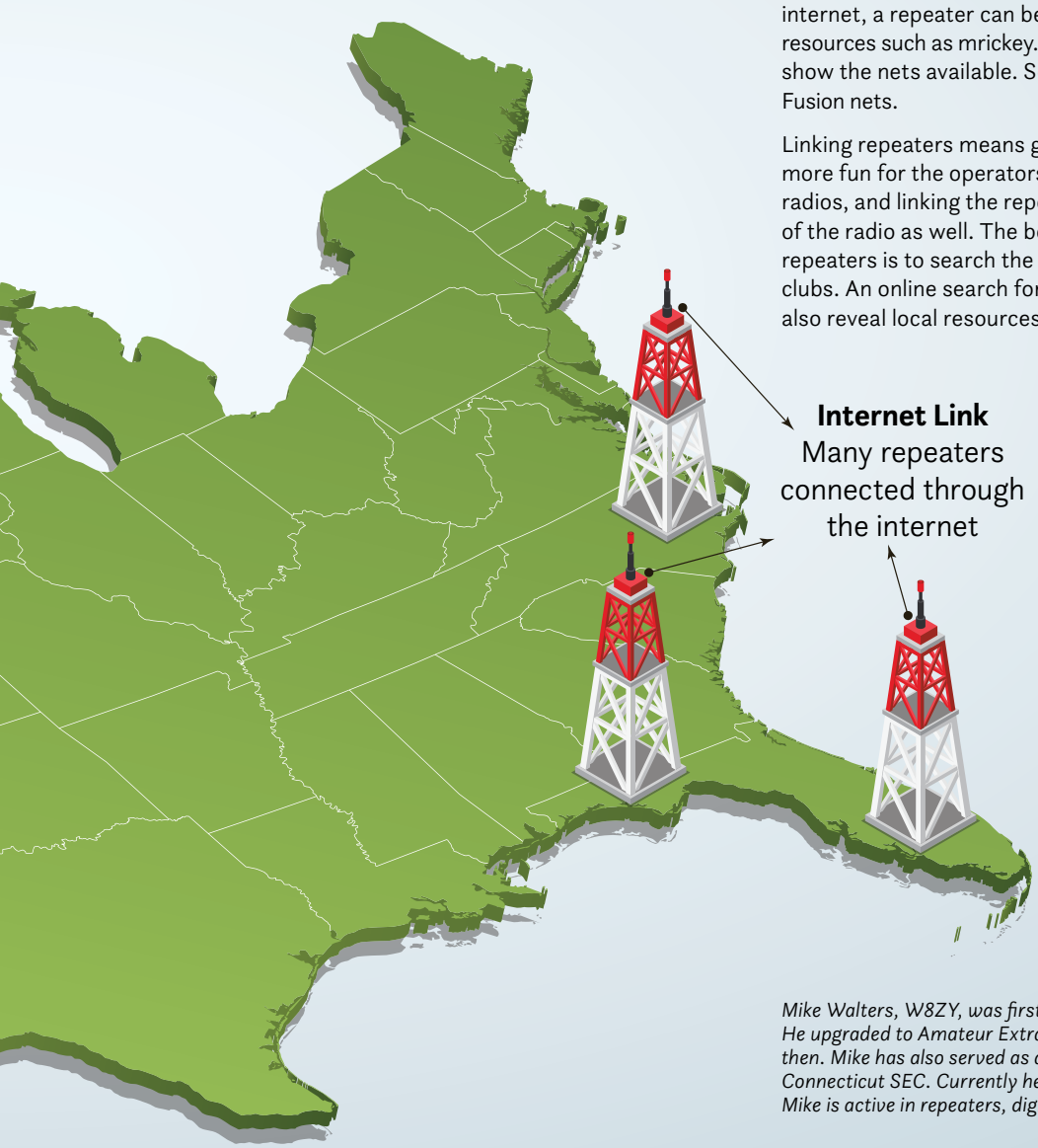
The Uses of Linked Repeaters

Emergency communications can use a linked repeater network to gather information over a much larger area. For instance, perhaps there's a storm that covers several towns in ice and snow. Phone lines and power are down in much of the area. Cell phones may work, but the system tends to be overloaded with the sudden increase in traffic. Emergency management has their hands full with various duties. This is where ARES comes in, using a linked repeater network. By establishing a net control, or several net controls that can cover the area, information on damage assessment, road closures, and downed power lines can be passed to authorities. By using a linked group of repeaters, more territory can be covered.

Another good use of a linked repeater network may be a public service event like a bicycle race. Many such races cover distances up to 100 miles. This may be outside the coverage of a single repeater. With a linked repeater network, a single net control station may cover the entire race. Event coordinators rely on timely information to manage such a race, and amateur radio and a linked repeater network works well to provide that information. Often during such events, hams will interface with law enforcement and emergency medical resources to conduct the race. Many such resources will not use their radio systems to pass race information, but hams are well suited to do just that.

Linked repeater systems that use the internet open a whole new world to hams with even a handheld and access to the local repeater. Digital systems like DMR and D-STAR use the internet to connect hundreds of repeaters together. Using the capabilities of these technologies, it is common to be using a handheld radio and be able to talk to someone in another state, country, or even continent. Nets are held on the systems that may have the net control in England and check-ins from the US to New Zealand. Linking the repeaters this way means that anywhere you can have internet, a repeater can be linked. There are a variety of online resources such as mrickey.com/amateur-radio/dmr-nets that will show the nets available. Search online for DMR, D-STAR, or Fusion nets.

Linking repeaters means greater coverage, greater access, and more fun for the operators. Repeaters extend the range of the radios, and linking the repeaters ultimately can extend the range of the radio as well. The best way to find information on linked repeaters is to search the websites for your local amateur radio clubs. An online search for linked repeaters in your area may also reveal local resources.



Mike Walters, W8ZY, was first licensed in 1977 in Bluefield, WV. He upgraded to Amateur Extra in 1992, and has been a VE since then. Mike has also served as a Volunteer Instructor as well as Connecticut SEC. Currently he is Field Services Manager for ARRL. Mike is active in repeaters, digital modes, and QRP.