

1. Communications

I think the storm showed up many faults in the existing communications network, and rather than jump in all at once, it seems we need to sort out exactly what we need before throwing out all kinds of ideas.

Let's look at the needs.

1. Long range communications –

- A. For gaining news, official and unofficial.
- B. For communicating with other groups spread widely apart.

Obviously this is the domain of Ham. But not everyone needs a Ham radio or receiver. Ideally one or two people in the group should have this capability, as the use may be quite limited.

Some limiting factors are :

- a. Size – while some of these units are mobile, for the use intended a base station setup is required.
- b. Power – either the grid must be up, or a generator will be needed. Note that generators can really screw up a radio.
- c. Antenna – For long distance, a purpose made long distance antenna is needed.
- d. Cost – Good units are expensive.

Summary –

So exactly what are the needs?

Do you need long distance communications?

Intermediate range communications:

- A. To contact group members in a particular region.
- B. To relay news obtained from Ham radio or other sources.

Determine what your operating region will be in terms of a radius. Select a communications system that will reach to the perimeter.

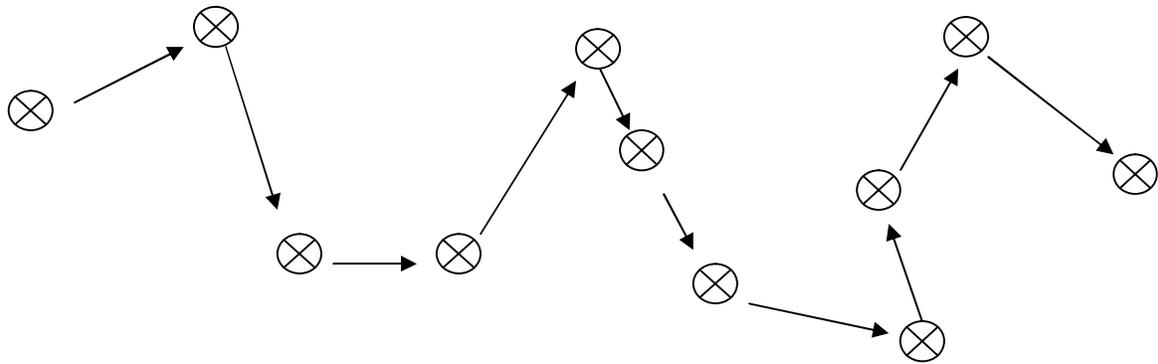
This will vary greatly on the surrounding terrain. This means generally a mobile radio, which is fine, as having it in the car provides easy power and transportability. This can be Ham, CB, or SSB, depending upon the range needed.

There are two main setup types, borrowed from the IT department.

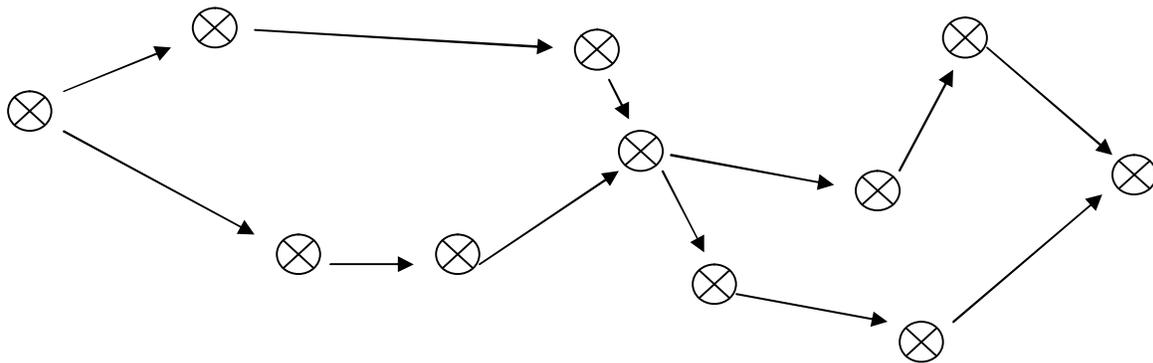
- A. There are serial links, peer to peer.
 - 1. Direct serial
 - 2. Parallel serial
- B. There are Hub links

Serial links suffer the disadvantages of the old Christmas tree light strings. When one peer in the network is unavailable or cannot be reached, the rest of the string is left in the dark.

A partial solution for this is Parallel-Serial, where the stream is split and cross linked, if one node is not available, a string still goes out, but it is a smaller section of the string.



"Serial", or "Peer to Peer" communication



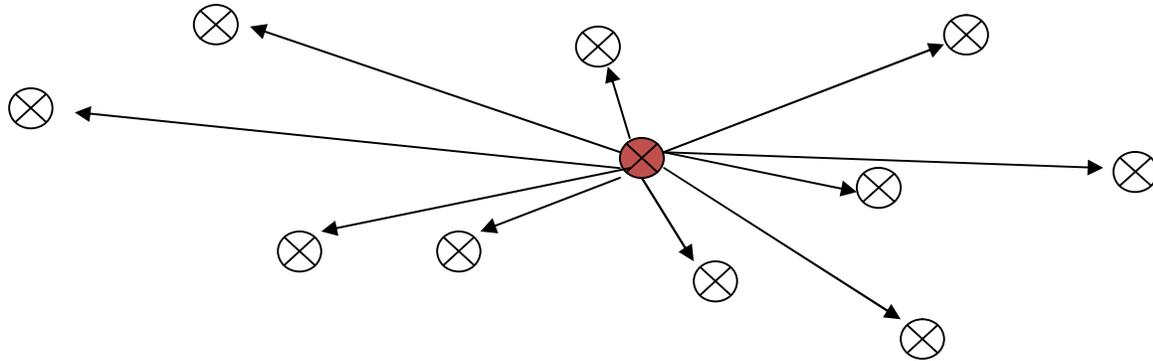
"Parallel-Serial" communication

Most people, when considering communications, tend to think in terms of "Hub Links."

This is a setup of a typical radio station.

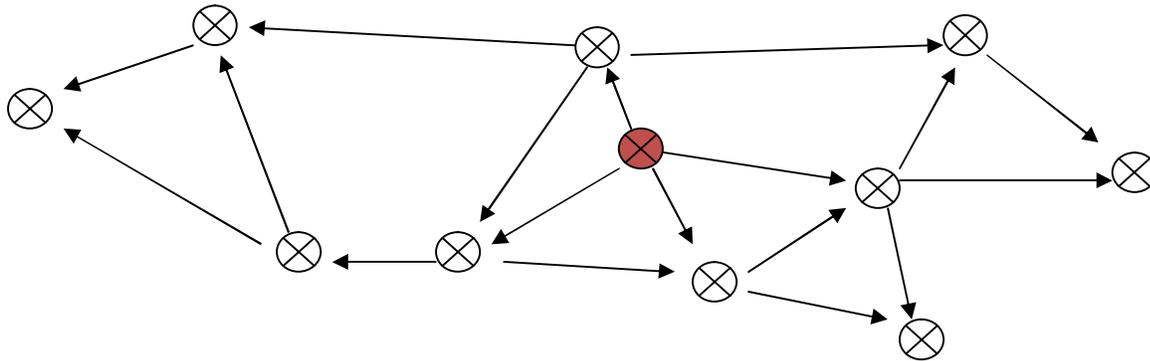
The major disadvantage is that it requires more power, better antennas, and a backup system to be sure the one vital transmission point stays running.

Another is that the hub must be centrally located to minimize the amount of power needed.



"Central Hub"

The most redundant of these would be a combination of a central hub plus limited peer to peer networks.



"Redundant Hub"

Using this, there is multiple confirmation and few to no broken links.

So the first step is to map out where everyone is. Second step, decide what kind of network to use, then pick the communications option for each step.

You may need 2 shortwave receivers, (one on each end of the frontier), one central transmitter/receiver, and then everyone else uses some other type of transceiver, such as SSB or CB.

My biggest beef with Ham setups are the licensing. Just as in other 'licensed' items, Radios will be subject to seizure as well. Licensing just tells them where you live. In a large scale emergency, communications will be tightly controlled, and Ham operators should expect visits.

They are also fairly easy to pinpoint by triangulation. The more powerful the transmitter, the quicker and easier to find you. Low power has a lot of advantages.

These are some of the reasons I steer away from ham, and go for more unconventional setups. There is nothing against purchasing a mobile ham rig for use in an emergency though, and I would consider that approach. The other big Ham issue is what band do you intend to operate on? I am not an expert, but from what I understand, transceivers are purchased to operate on different specific bands. There is no all-in-one radio with lots of channels. (Maybe a big base rig, but we are talking mobi's here).

Other options –

Marine radio - they start at less than 100 bucks, and have the option of 1 watt broadcast, or 25 watts.

The Pros – unusual, therefore less people will be on them in an emergency, so noise, static, and crowding would not be an issue.

They also can monitor some CG frequencies, so some incoming info may be there.

Cons – probably fines for using them like a CB, but they have to catch you first. In a real emergency, should not be an issue. Actual broadcasting should be kept to a minimum anyway, regardless of what system you use.

SSB-CB - Again, starting around 100 bucks, in CB mode has a 5 watt power output, switch to SSB for 12 watt output.

Pro's – Low power with fair range, can switch to 'unusual channels' in the SSB range for higher power, clearer channels.

Under the right conditions, CB signals can be 'skipped', allowing long range communications that rival Ham.

CB can also make use of low cost, simple, (and illegal) linear amplifiers. These are widespread and easy to obtain. Wattage can be boosted to 100 watt outputs or more. There is little to no enforcement of this in all but the most egregious of cases.

Cons - CB bands can be very noisy and cluttered. It is sunspot cycle peak, which also interferes with transmissions. SSB not as badly affected, but still some noise.

FM – VHF –

These range from the simple Motorola 2-way radios we all love to hate, to some fairly exotic hybrids.

Apparently, since these are line-of-sight devices, range varies wildly based on your location and terrain. For short range, these may be ideal.

BaoFeng UV-5R 136-174/400-480 MHz Dual-Band DTMF CTCSS DCS FM Ham Two Way Radio

4.3 out of 5 stars [See all reviews \(98 customer reviews\)](#) | [Like \(31\)](#)

List Price: \$129.00

Price: **\$43.00** & this item ships for **FREE with Super Saver Shipping**. [Details](#)

You Save: \$86.00 (67%)



Here is a Chinese hybrid, FM/HAM. Power is stated at 1 watt / 4 watts. There are many similar choices in this particular category. Ask around and test drive before purchasing.

Remember, there are advantages to low power. You want enough to be heard by the party to communicate with, any more is wasteful and potentially dangerous.

Aviation radios –

Similar to marine radios, but with a 5 watt limitation. Cost about twice as much as marine radios. About the only benefit I can see is the ability to operate on relatively uncluttered channels.

Now, I know this is a lot to digest, but it is vital to agree on a system, after finding one that works.

I suggest cascading the requirements, ie, one or two ham , on the bands you intend to operate on, then cascade down to intermediate range devices, and finally local devices.

So, the group needs three types of radio communication. Most people will only need one or two, some will need all three.

One final exotic option – find some old surplus radios –

www.worthpoint.com/worthopedia/military-radio-an-prc-21-vhf-fm-radio-by-motorola

I have seen many PRC's for sale, you channels would be relatively clear, but you will be operating on a military band. Just an interesting option.