

Solarpunk Computer/Communication Networks

What does the internet look like in the solarpunk future? For a brief while there, the Internet as we knew it fit pretty well -

Changing the underlying technology certainly isn't a guarantee that people will be better behaved, or that convenience, security, and liability can't cause some centralization. It's quite possible these systems will remain a sort of side note beside the

Just the same, I've gathered up a few examples which might give you some inspiration:

Meshnets

Meshtastic/Meshcore

These meshnets use inexpensive LoRa radios to run long-range off-grid communication platforms. Basically you set up these small radio devices, some of which look like a microchip with an antenna attached, others of which look like small walkie talkies, and use them to send texts (usually by connecting them to a cell phone with an app or similar). There's a ton of interesting things you can do with the network as long as you can do it by sending short text messages. People run Internet of Things -style devices using these networks, they set up Tile-style trackers with small GPS-enabled chips that shout out their location on the meshnet, there's all kinds of clever stuff. But it's not equivalent to the internet - you can't set up and visit web sites or anything like that.

How they work and how they're different:

This is obviously going to be an extremely simple summary because I'm a writer with a very light technical background. The big thing is that these networks don't use traditional infrastructure like cell towers, underground fiber lines, datacenters, or any of that when relaying these text messages. There's no big centralized infrastructure for a company to own and charge for. They run entirely on the LoRa hardware individuals and groups set up, and they're free to use.

In Meshtastic especially, there's no 'backbone' infrastructure at all. The node you're using to send is both the endpoint for your communications and the backbone for somebody else's. When someone sends a message all the other nodes in range see it and use a preprogrammed logic to decide who re-broadcasts it and who doesn't. To grow the network you need to balance adding more nodes with adding too much traffic. This strikes me as being a risky arrangement (seems like there's only so much bandwidth available, and Metastatic could fail from success if too many people try to use it at once - even though that's how it's supposed to grow. That said, there's a sort of romance in the idea that there's no infrastructure involved but each other - it's a truly democratized sort of system where the cost of using it is enabling others to also use it by relaying their messages.

Here's a neat example of a meshtastic node set up just to hang around extending the network.

Meshcore is also off the grid, but it has a DIY backbone of dedicated repeaters that people set up (often on rooftops and hanging from tall trees). These repeaters are what relay your message and bounce it around until it reaches its destination. The endpoint node ("companion") you carry around and use to text doesn't rebroadcast other people's messages. If you want to grow the network you add more repeaters. This gives Meshcore advocates a pretty concrete goal for building out a mesh - they can buy and rig up hardware and set it up in good locations (LoRa is line-of-sight) in order to

make the mesh more effective and usable for more people. Someone in my local mesh is apparently using a quadcopter drone to drop solar-powered repeater nodes into tall trees and the group is pretty active in trying to get access to rooftops with good views.

To my uninformed opinion Meshcore seems to be better designed as a network. The ability to build out the infrastructure for this communications system piece by piece, in this plug-and-play sort of way feels like a good fit for the genre.

Reticulum Network

So this one is more complicated - it's basically a lot of the above but also it's a whole alternate internet

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