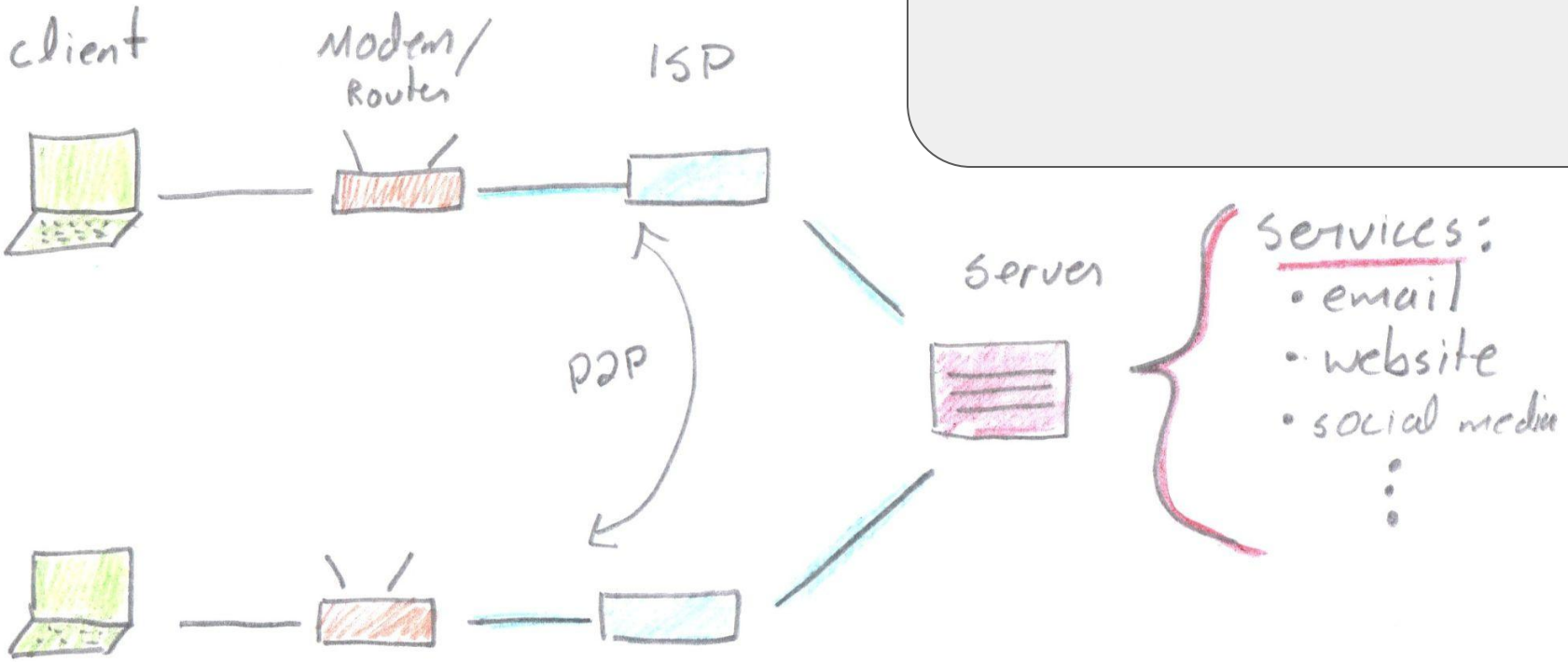
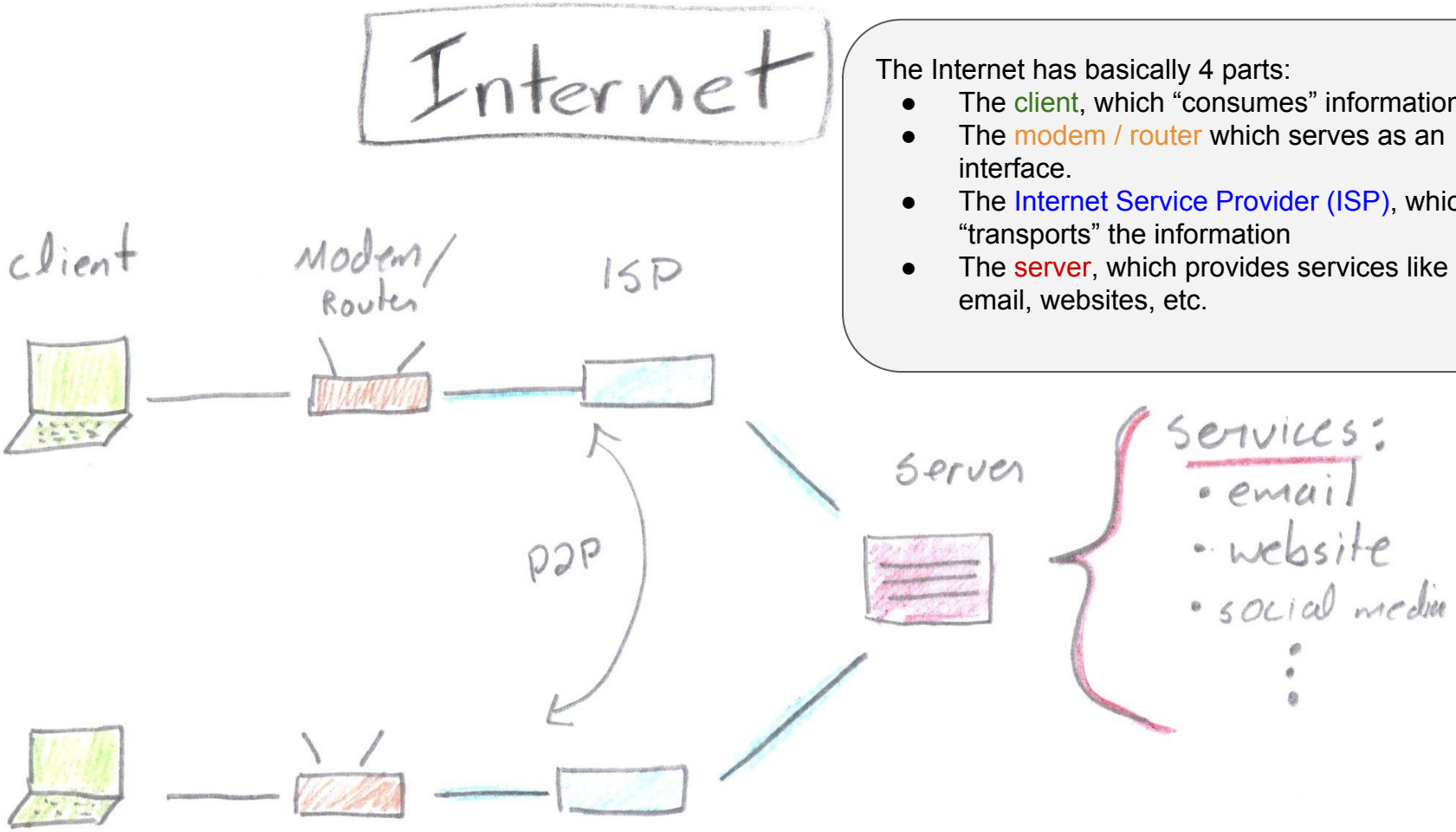
Internet

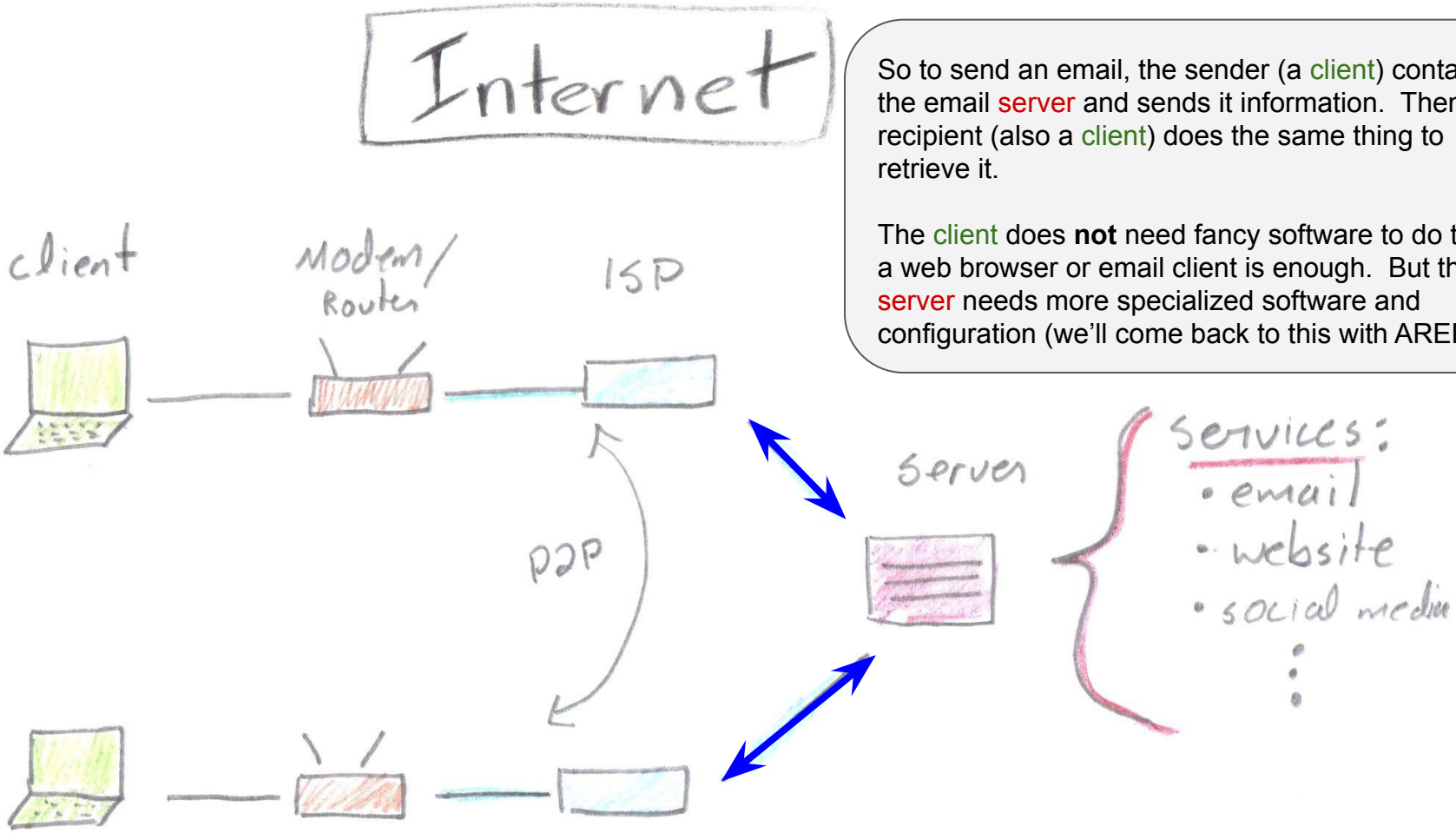


Before we discuss AREDN, let's look at two things we're familiar with so we can use them as analogies: the Internet and Winlink.



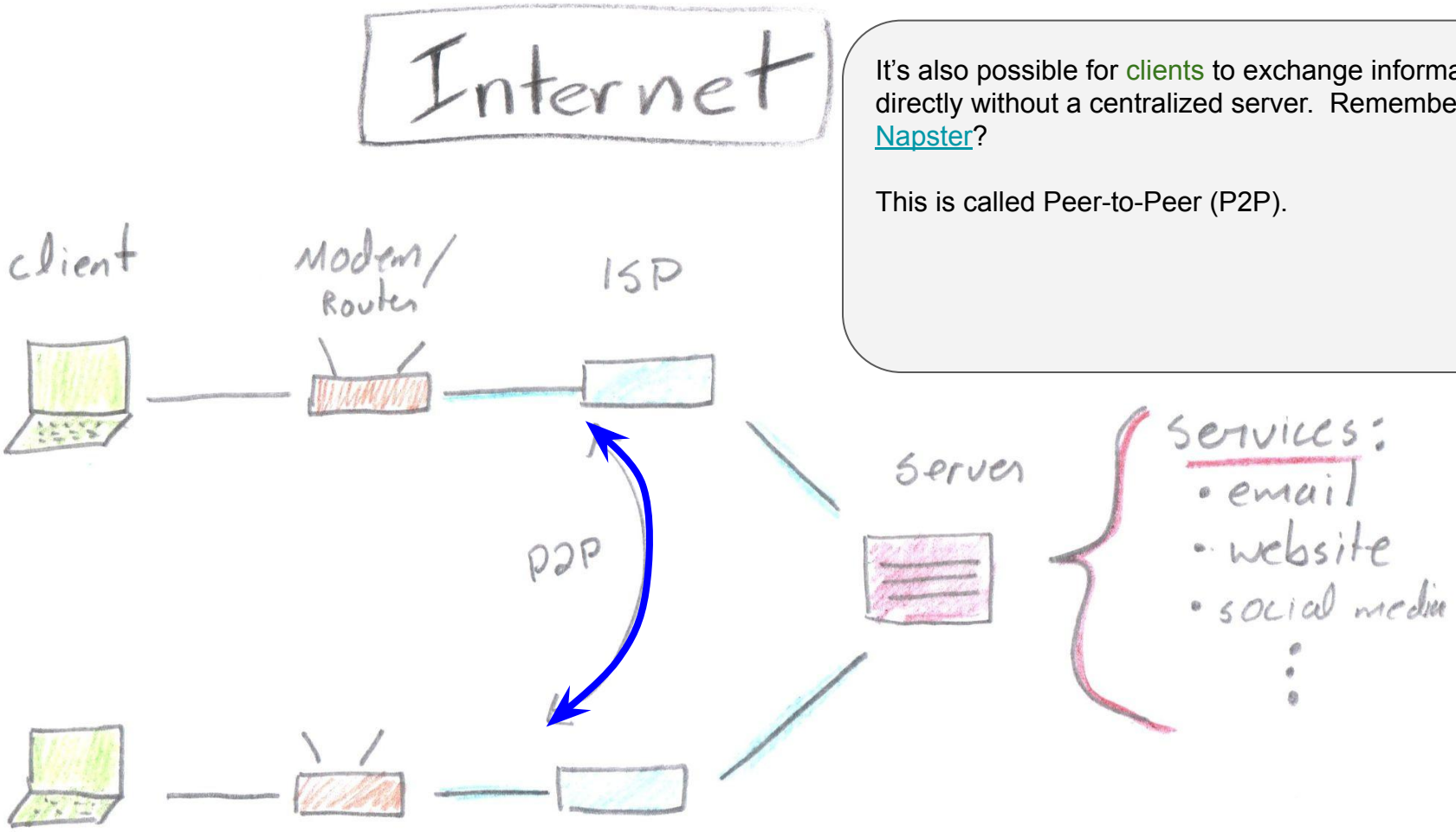
The Internet has basically 4 parts:

- The client, which “consumes” information.
- The modem / router which serves as an interface.
- The Internet Service Provider (ISP), which “transports” the information
- The server, which provides services like email, websites, etc.



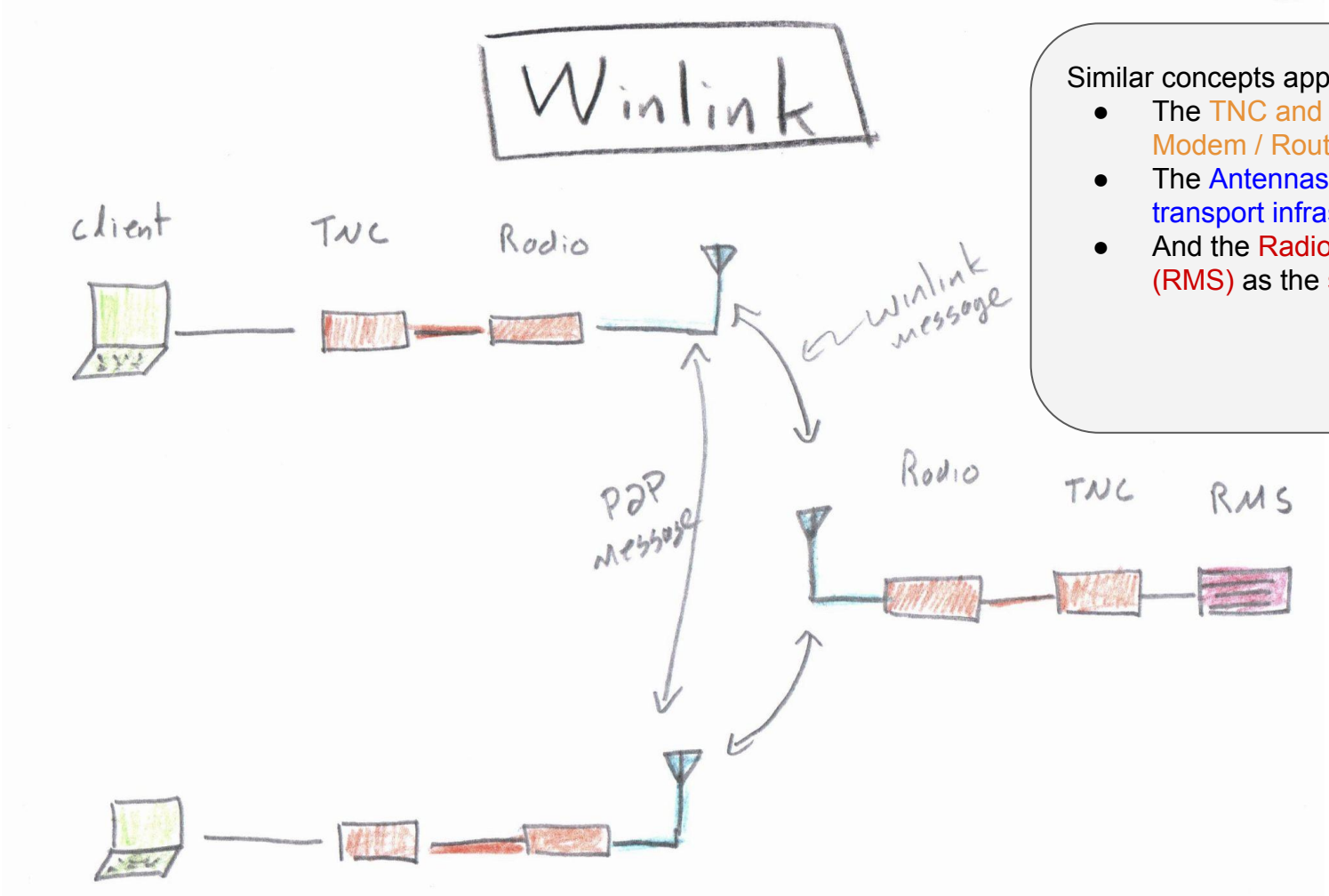
So to send an email, the sender (a client) contacts the email server and sends it information. Then, the recipient (also a client) does the same thing to retrieve it.

The client does **not** need fancy software to do this: a web browser or email client is enough. But the server needs more specialized software and configuration (we'll come back to this with AREDN).



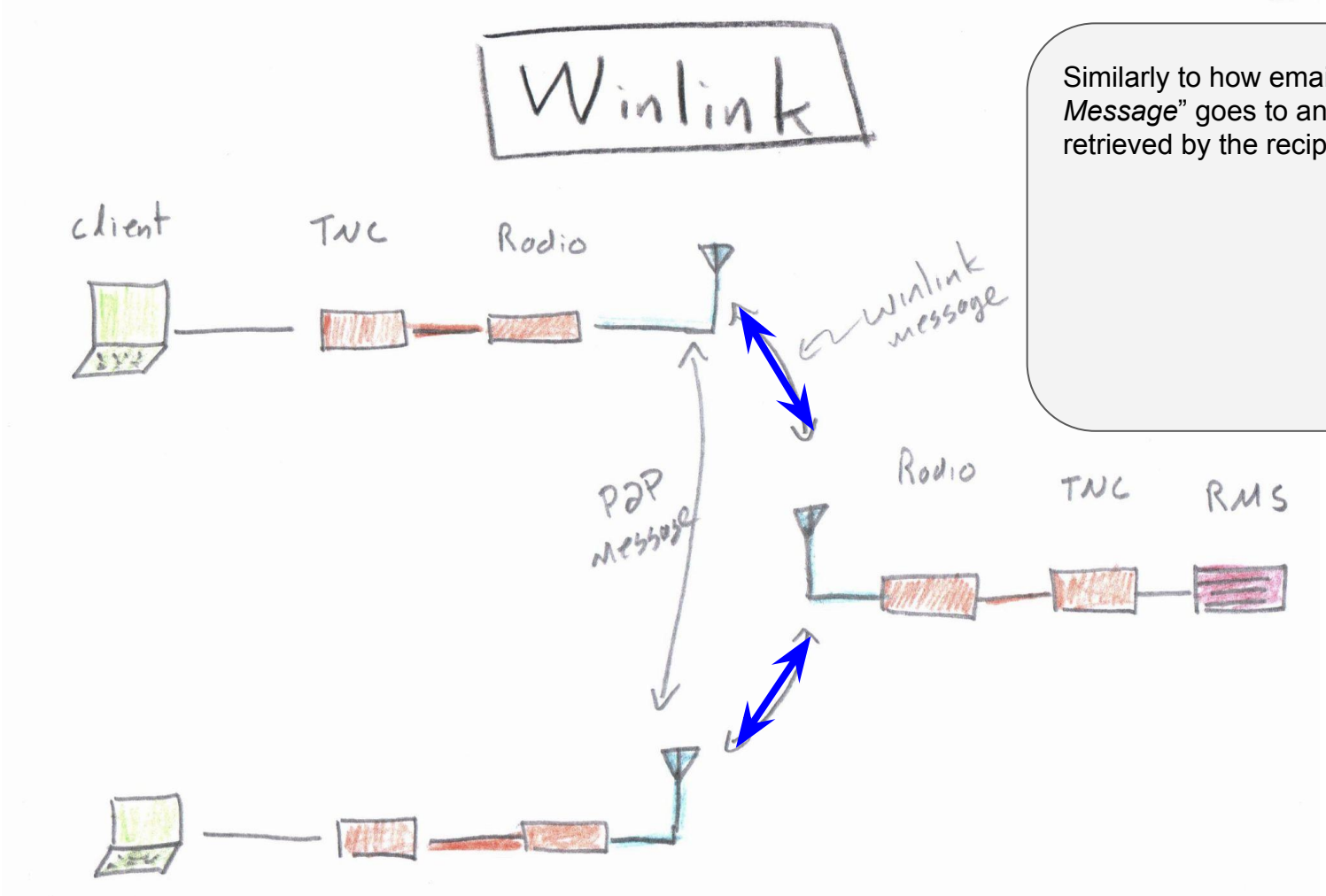
It's also possible for clients to exchange information directly without a centralized server. Remember Napster?

This is called Peer-to-Peer (P2P).

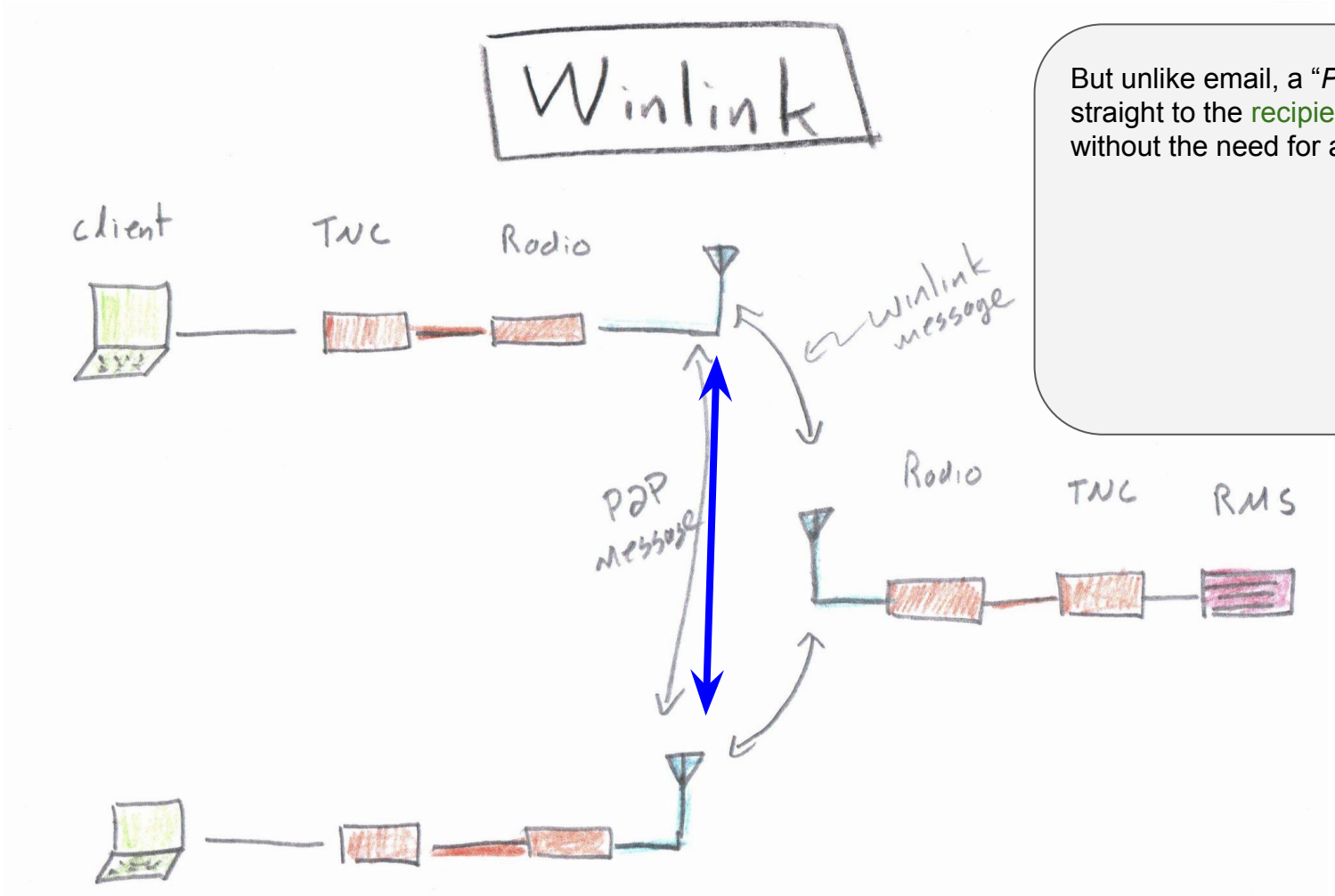


Similar concepts apply to Winlink but here:

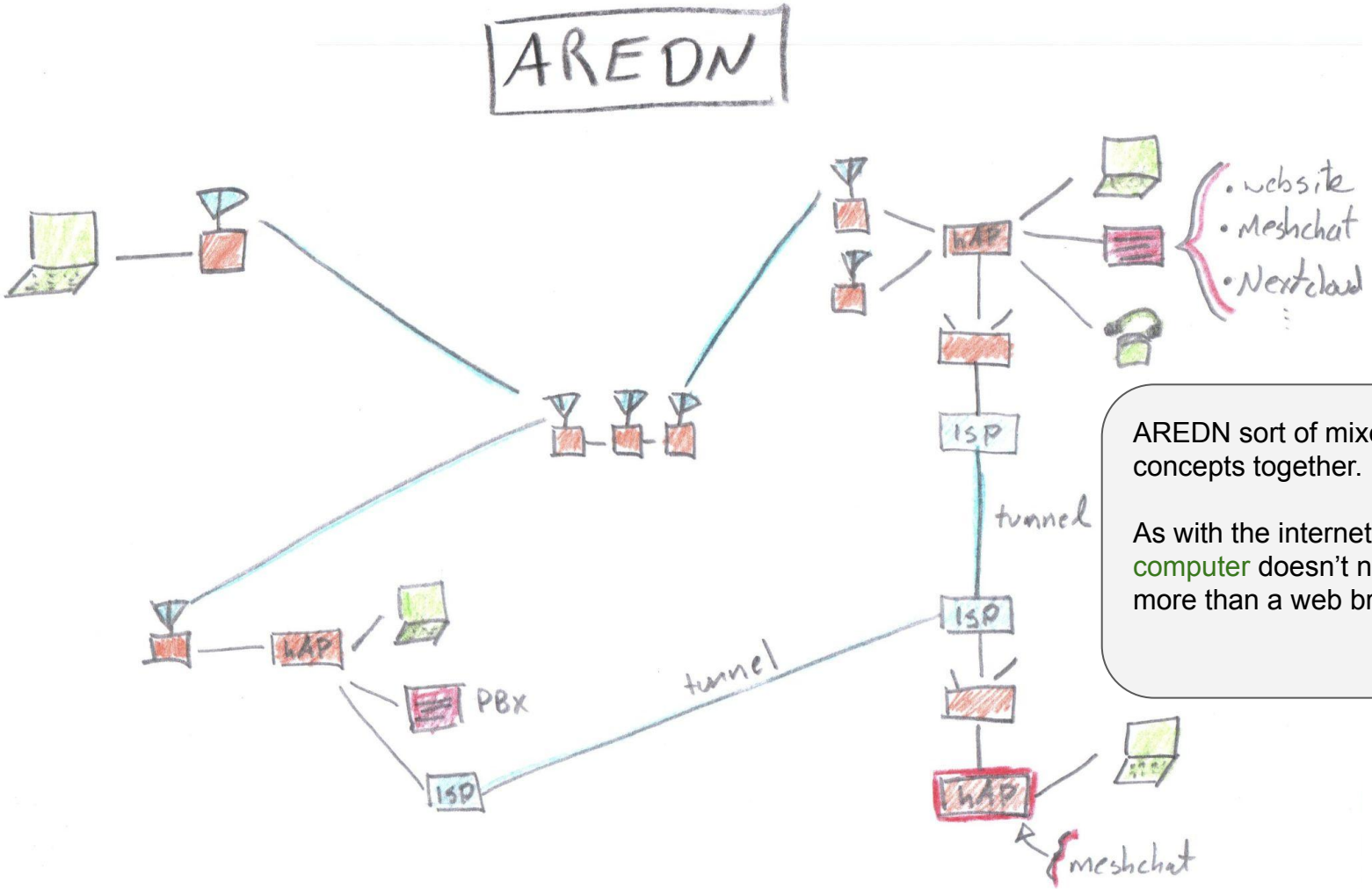
- The TNC and Radio act as the Modem / Router
- The Antennas as the ISP and its transport infrastructure.
- And the Radio Message Server (RMS) as the server



Similarly to how email works, a "*Winlink Message*" goes to an RMS, and can be retrieved by the recipient at a later time.

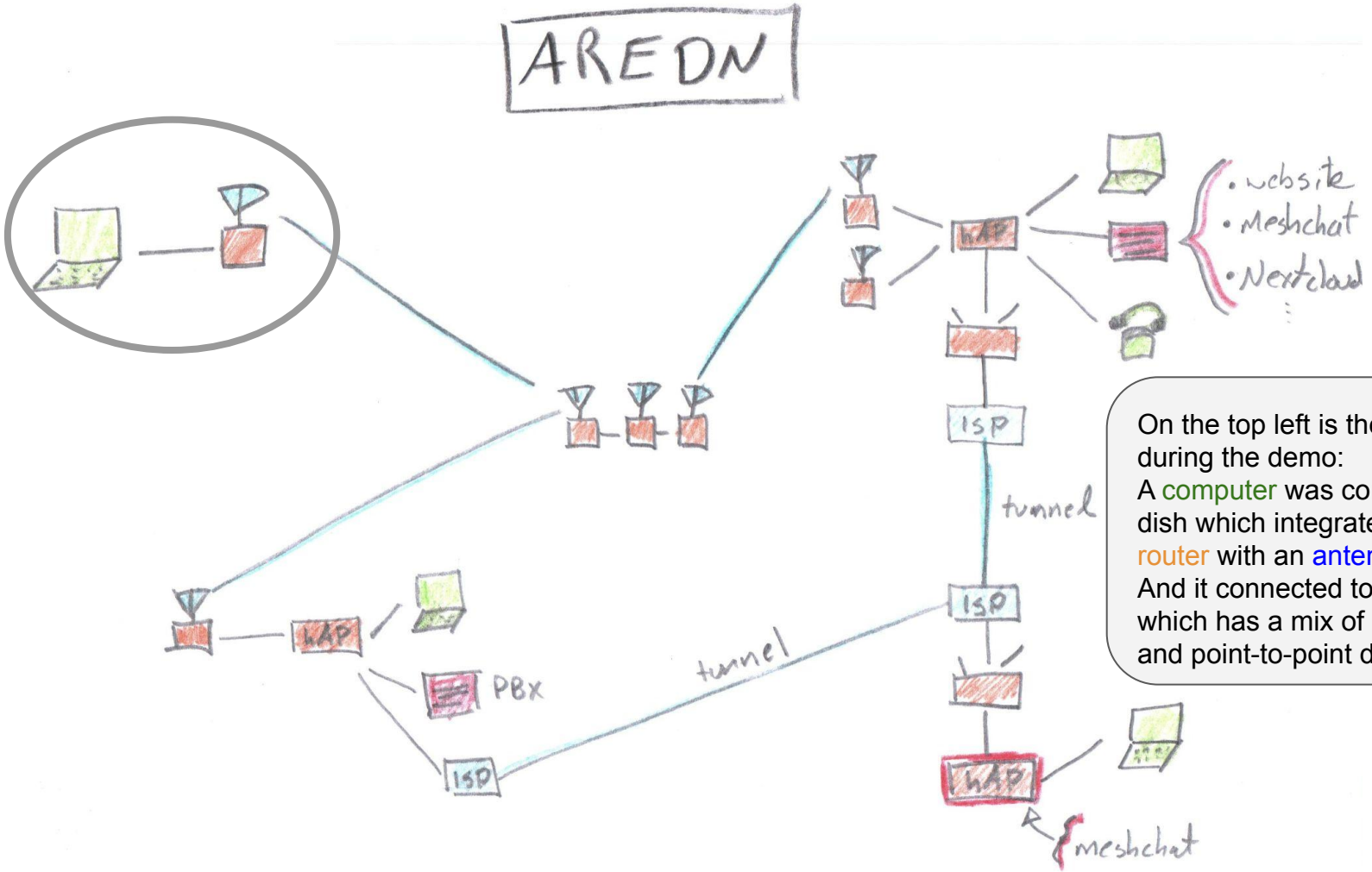


But unlike email, a “*P2P Message*” goes straight to the recipient (in real time) without the need for an RMS.

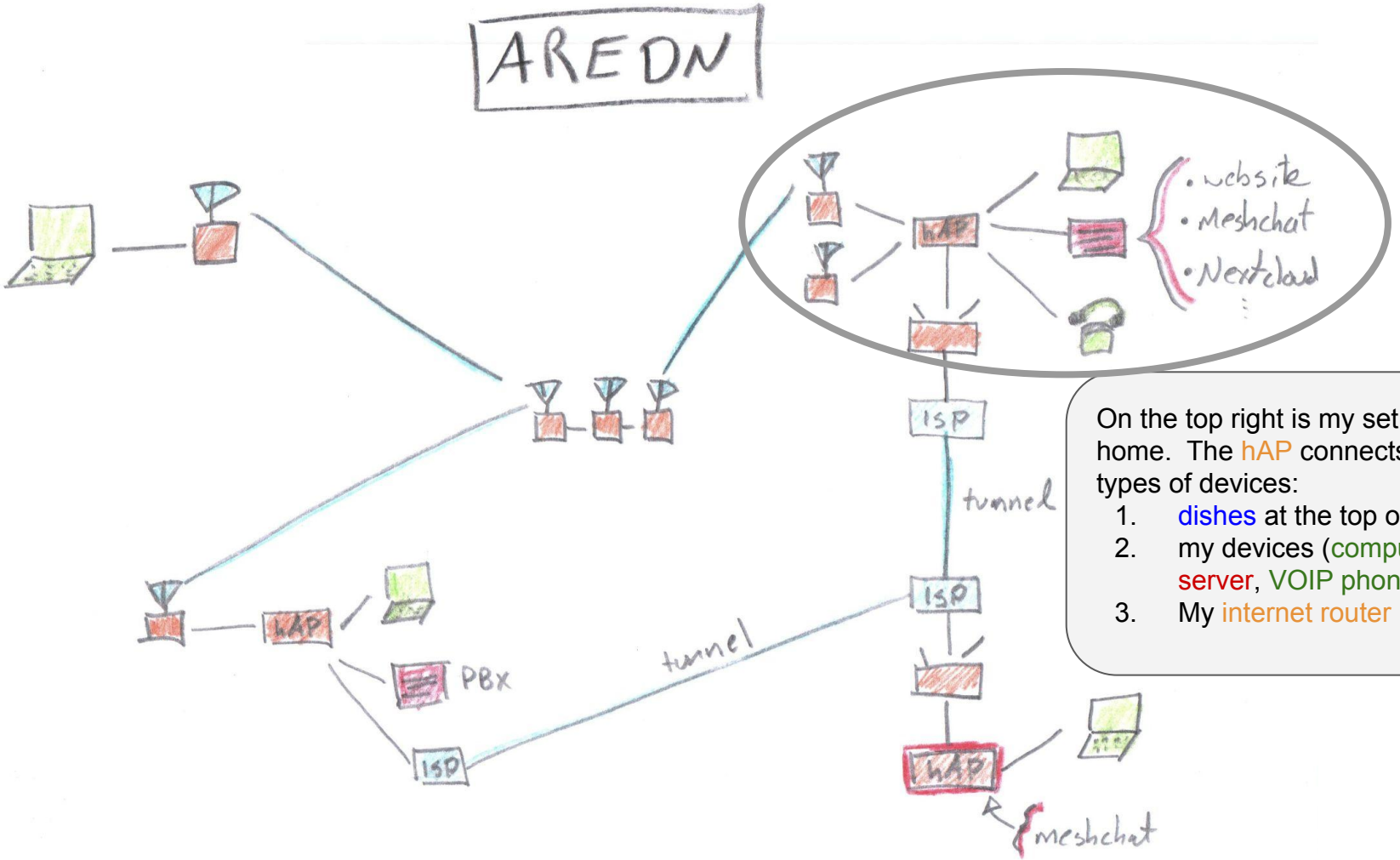


AREDN sort of mixes all these concepts together.

As with the internet, the client computer doesn't need anything more than a web browser.

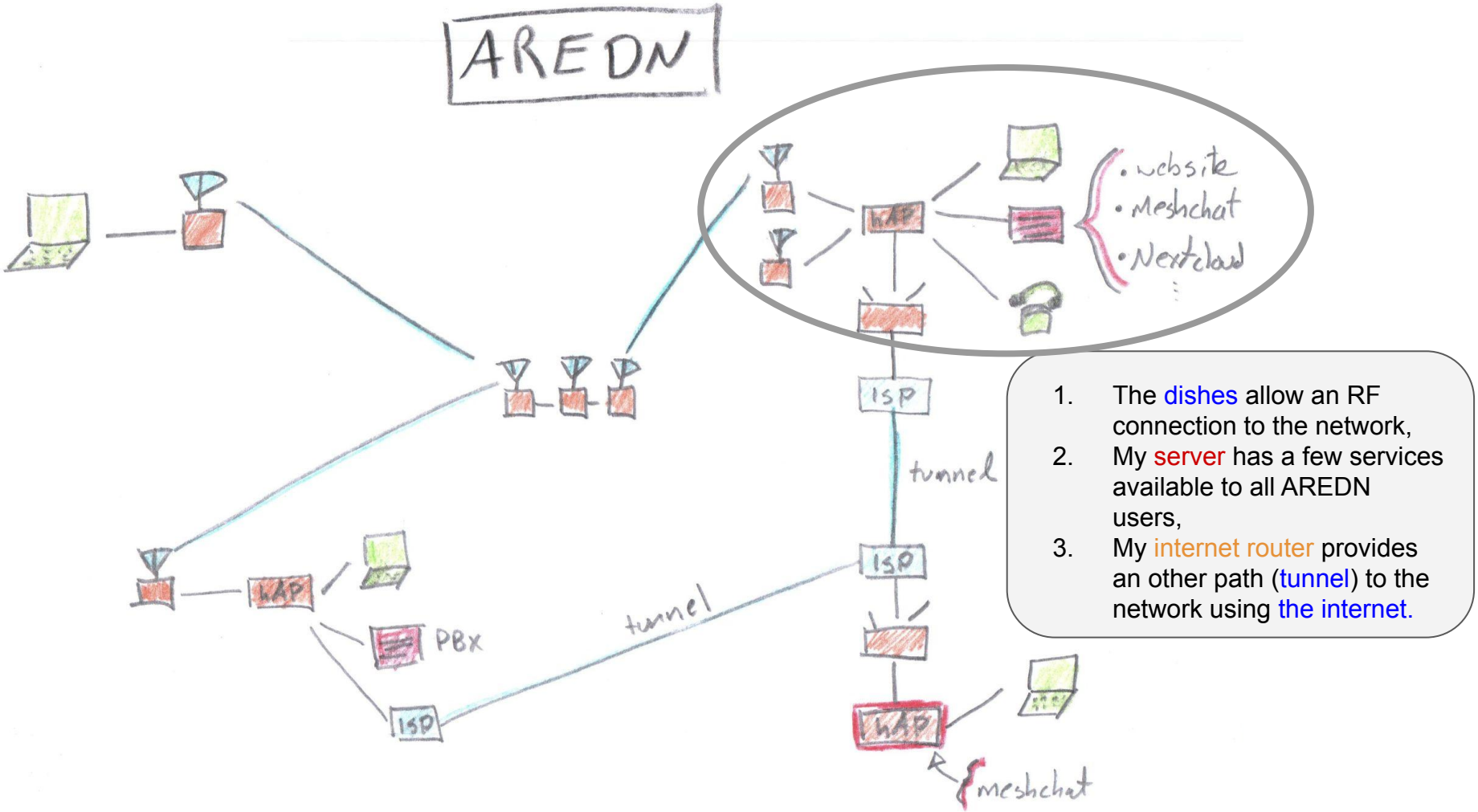


On the top left is the setup we used during the demo:
A computer was connected to a dish which integrated a sort of router with an antenna.
And it connected to Mt. Benson, which has a mix of sector antennas and point-to-point dishes.

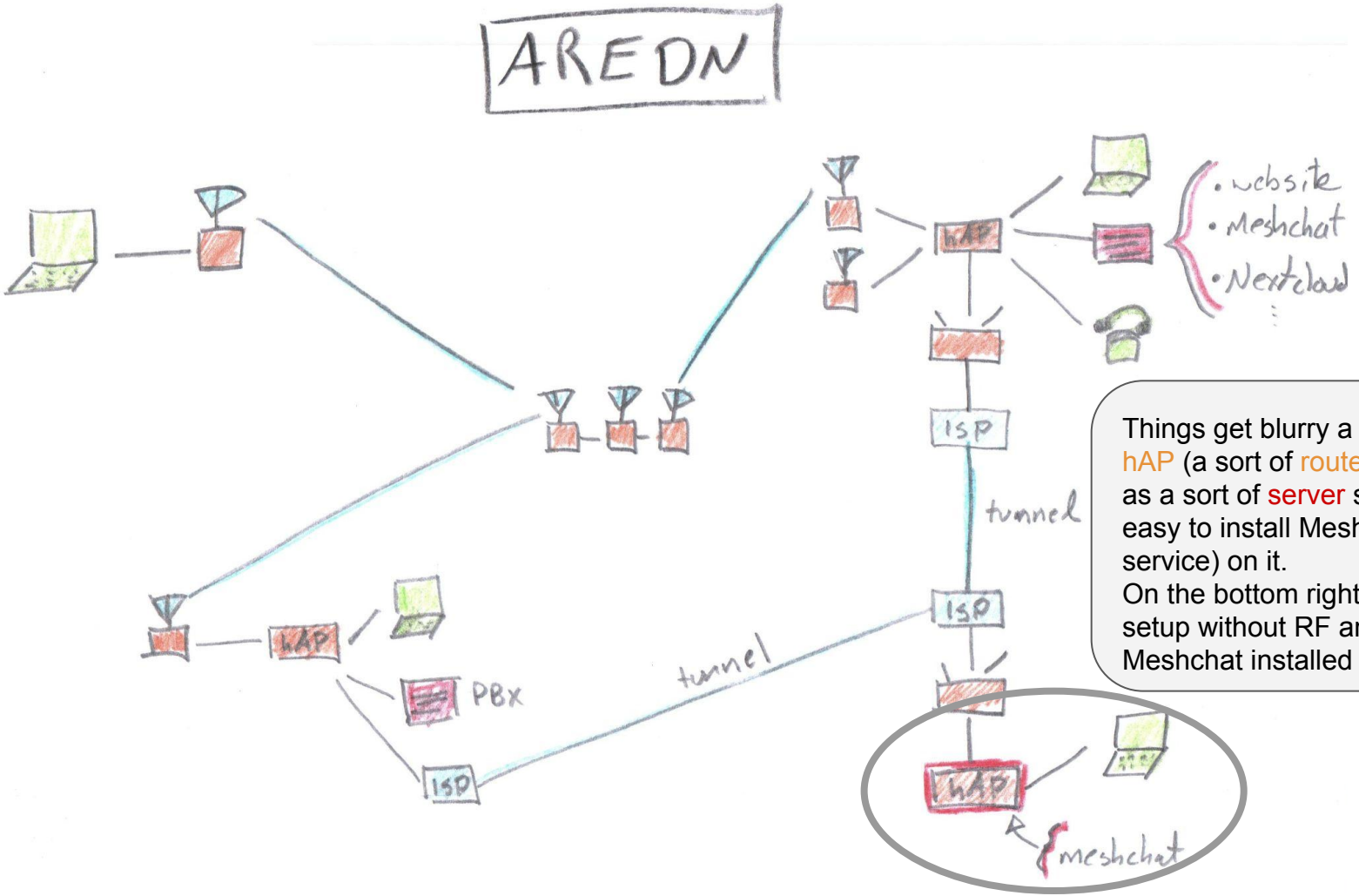


On the top right is my setup at home. The hAP connects to three types of devices:

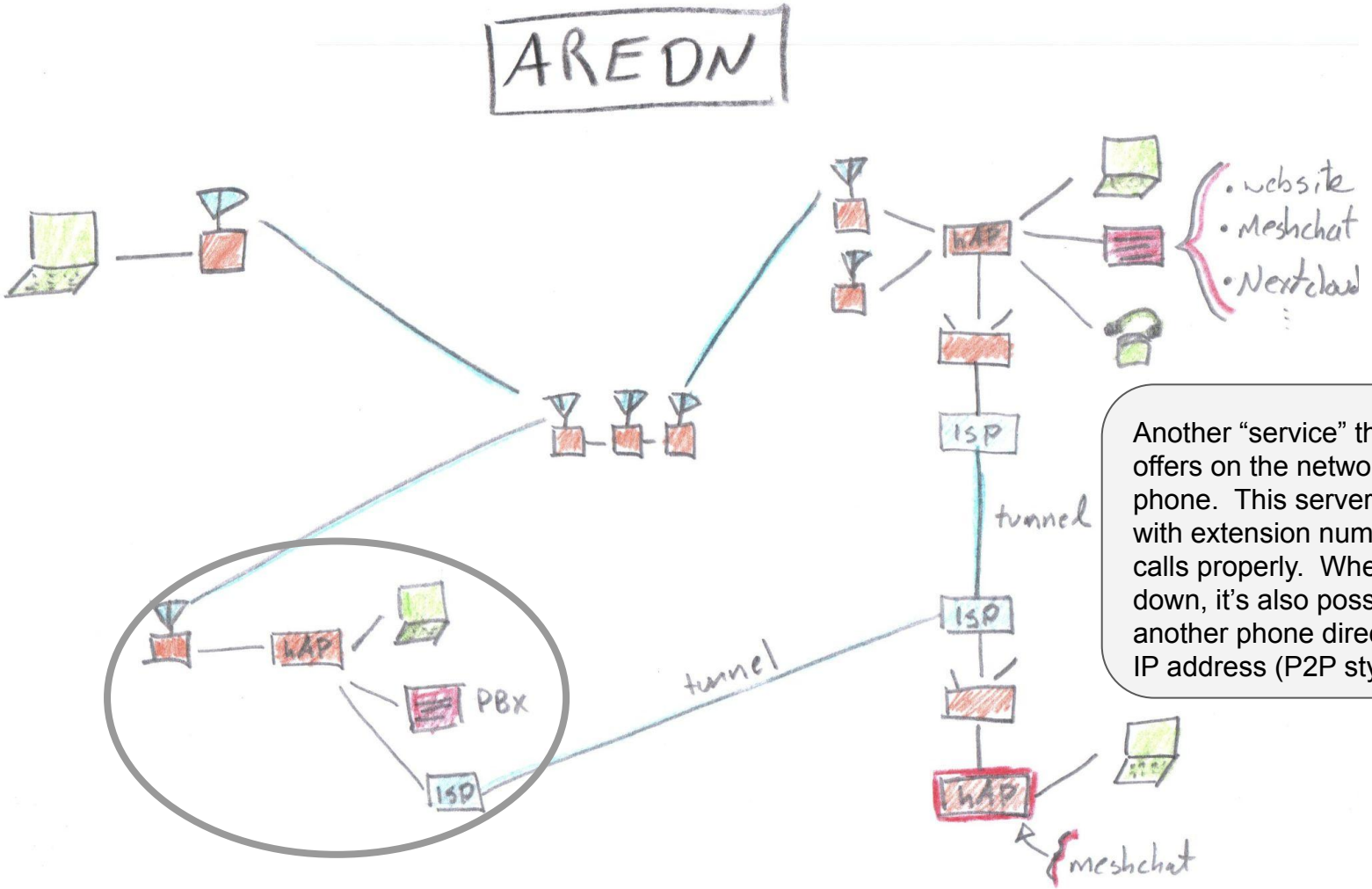
1. dishes at the top of the tree,
2. my devices (computer, server, VOIP phone)
3. My internet router



1. The dishes allow an RF connection to the network,
2. My server has a few services available to all AREDN users,
3. My internet router provides an other path (tunnel) to the network using the internet.



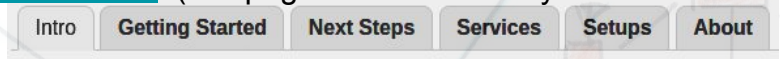
Things get blurry a bit because the hAP (a sort of router) can also act as a sort of server since it's very easy to install Meshchat (a chat service) on it.
On the bottom right, you see a setup without RF and with Meshchat installed on the hAP.



Another “service” that someone offers on the network is a PBX for phone. This server assigns stations with extension numbers and routes calls properly. When the PBX is down, it’s also possible to call another phone directly using their IP address (P2P style).

For more information:

- Start here: https://wcaredn.ca/ (this page is maintained by our west coast group) and navigate the tabs at the top from left to right:



- About MeshChat: https://wcaredn.ca/services/meshchat/
- About VOIP Phone: https://wcaredn.ca/services/voip/
- About using Winlink over AREDN: https://wcaredn.ca/services/winlink/
- Who is connected to who:
  - Live Map: https://worldmap.arednmesh.org/#9/49.1876/-123.6622
  - Network Topology: https://wcaredn.ca/setups/topology/ (or see next page)

Network Topology (from Nov 18, 2023). Red lines are Internet Tunnel links, and blue lines are RF links.