Ham Radio Communication without Internet.

16 April 2021

WHAT YOU SHOULD GET FROM THIS PRESENTATION

GOAL: ALL **ARES** WINLINK EXPRESS STATIONS SELECTS AND REGISTERS TWO MPS Stations. Only the EOC needs 3 stations.

OVERVIEW. The Winlink System is worldwide radio messaging to provide radio interconnection services that include email with attachments, position reporting, weather bulletins, emergency and relief communications, and message relay. The Winlink System uses amateur-band and/or government frequencies.

The normal usage is for a local Winlink user to contact a Radio Mail Server (**RMS**) using the software program Winlink Express and passes the message. That RMS then connects to and forwards the message to the Common Mail Server (**CMS**) via the internet. The CMS is a central depository for all messages. The destination user then contacts any RMS to download the message. The message is received and then deleted from the CMS.

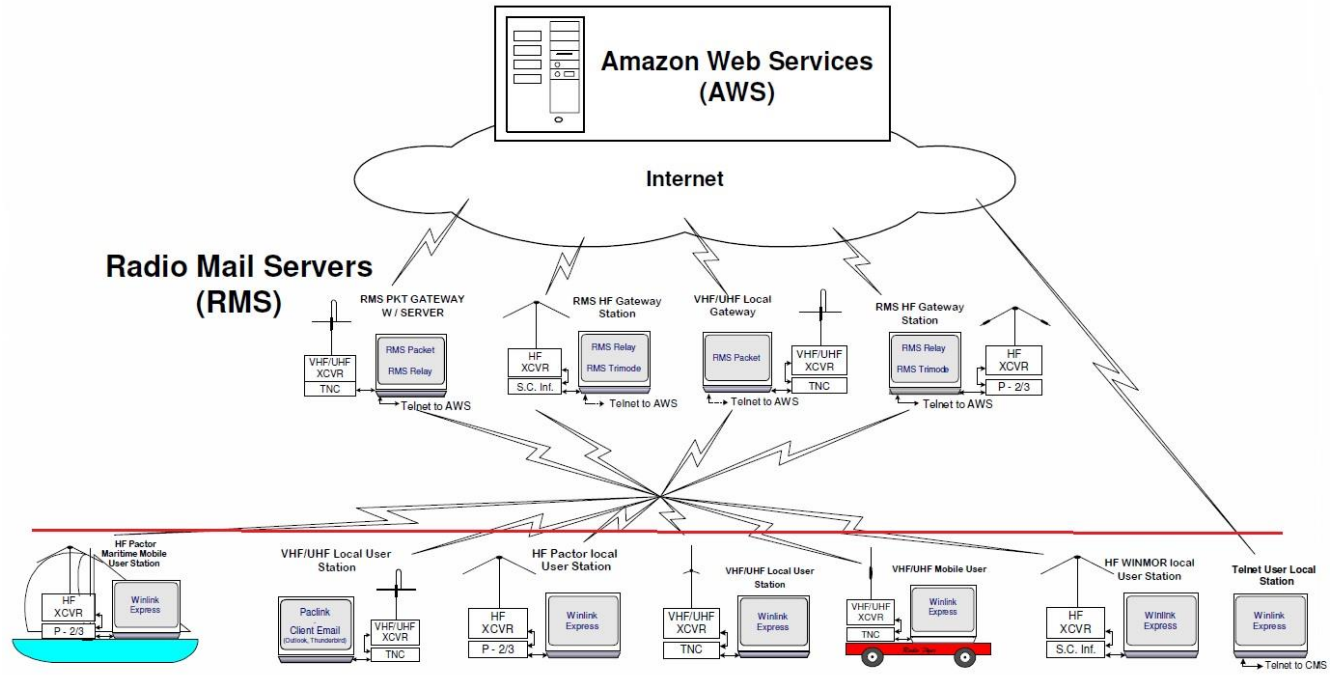
Notice that all RMS's are interconnected via the Internet. What happens when a large portion of the Internet is down? Then a sub-set of the RMS's called Message Pickup Stations (MPS's) comes into play. This is called the Hybrid MESH system, Radio Forwarding mode, or Radio Only Winlink Network . This presentation explains our usage of the System.

Various MODES of HF Communication without Internet

- National Traffic System (NTS) (CW)
- HF and Voice Nets
- GHz MESH systems
    - HAMWAN, Seattle and Canada
    - AREDN, Olympic Peninsula
        - Also called (Broadband-Hamnet (HSMM-Mesh)
- Satellite Systems, includes Winlink with Iridium GO
- Winlink using Peer to Peer, various methods.
- Winlink using an RMS as a Post Office, such as K6MBY's
- WINLINK HYBRID NETWORK
    - Also called Winlink Radio Only
    - Or MPS System

The rest of this Presentation will be about Winlink Hybrid System.

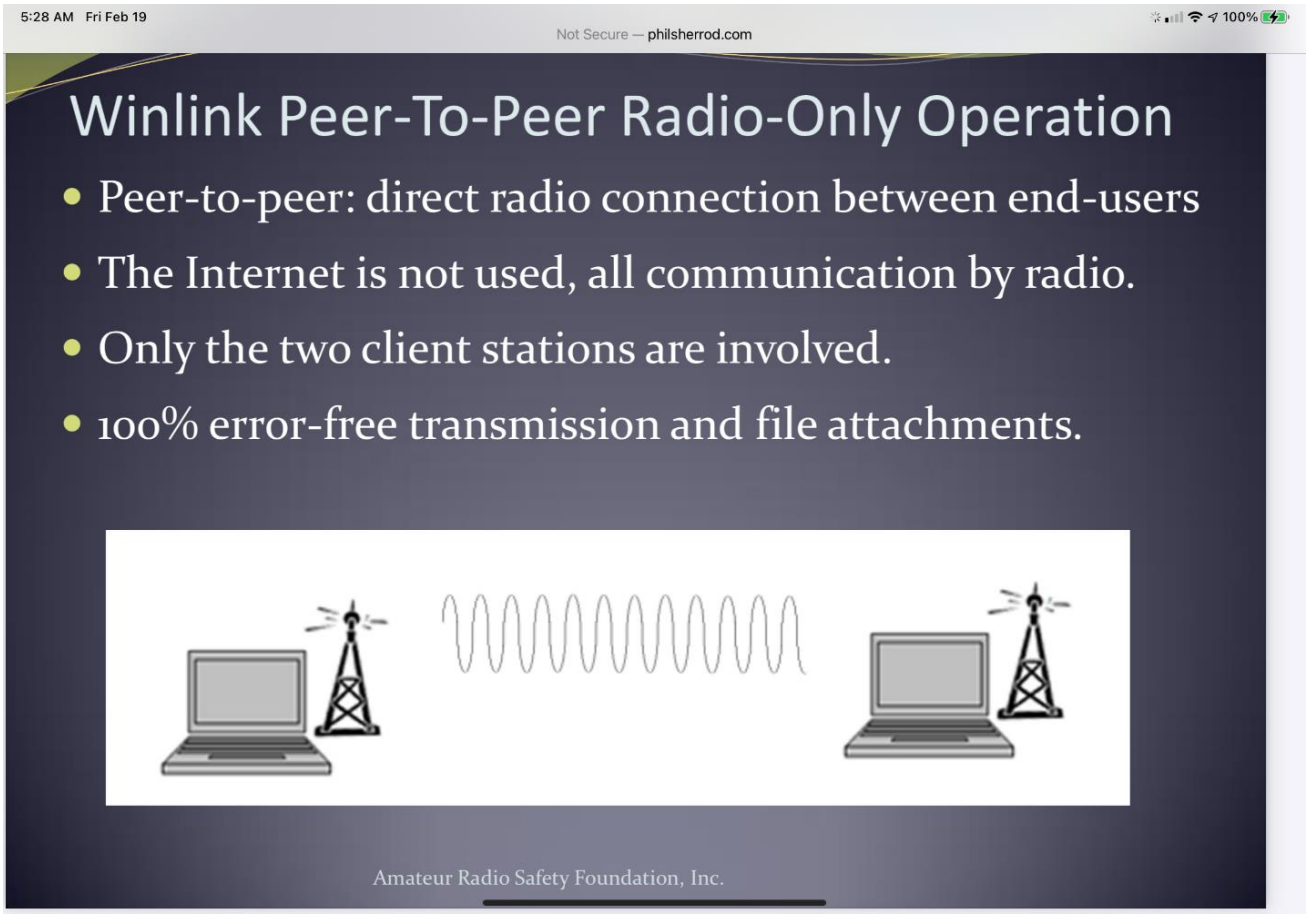
Normal Winlink Systems, Called Conventional in a lot of presentations.



EVERYTHING ABOVE THE RED LINE IS NOT AVAILABLE WITHOUT INTERNET.

The fastest and most accurate NON- Internet Only method is Peer to Peer.

It can handle very large files.



The next RF only method is an RMS as a Post Office Station.

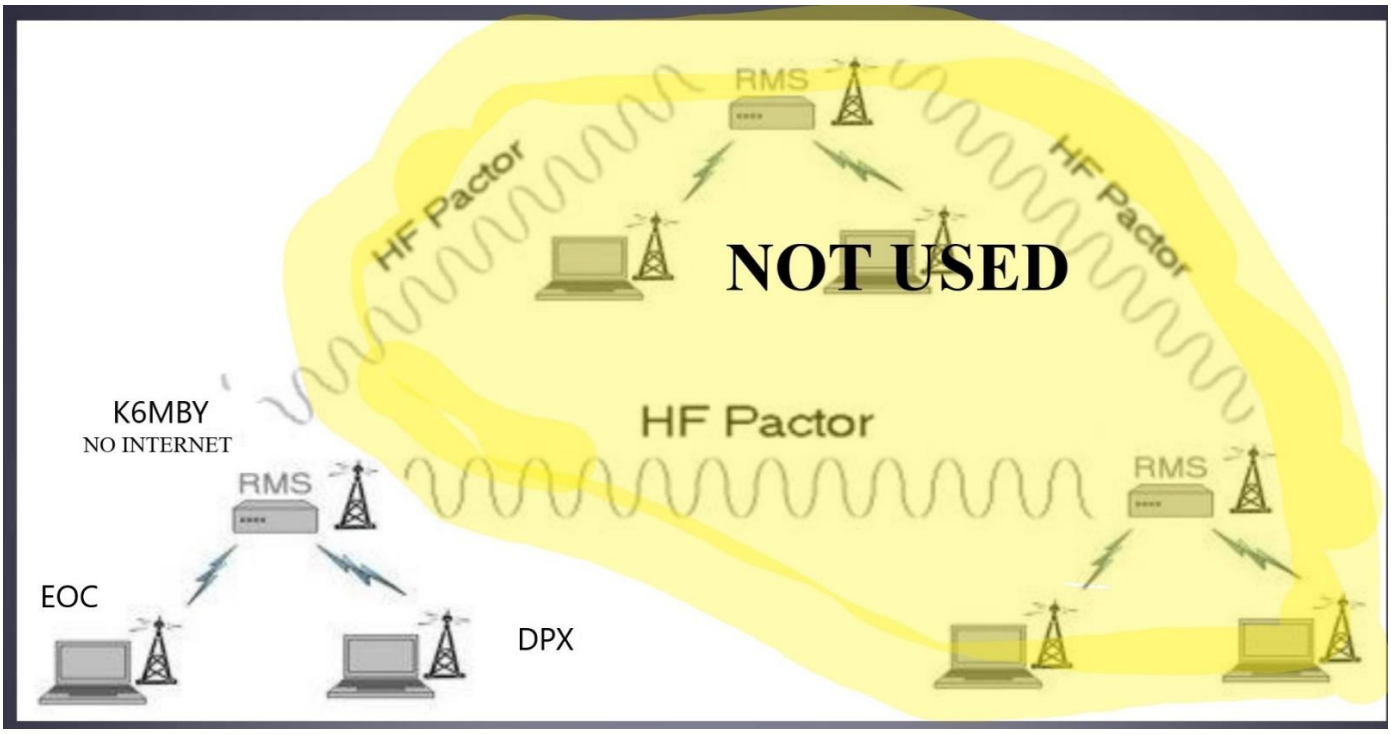
(This does not require MPS Stations.)

Bob's K6MBY's RMS Station Automatically becomes a Post Office Station,

Bob has chosen to do three things for us in his RMS Station setup.

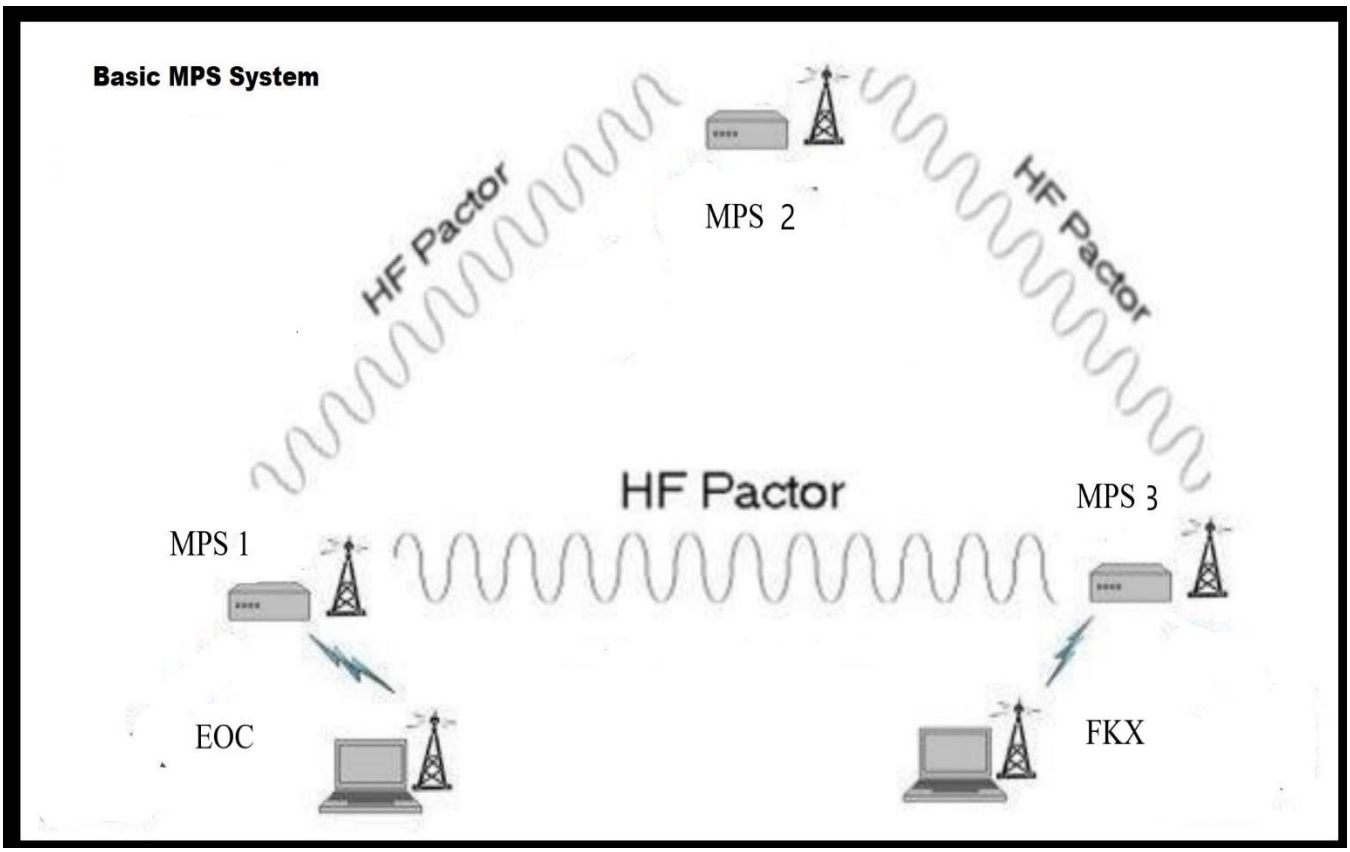
1. In the conventional with Internet all mail is forwarded via the CMS.
2. With the Internet down his station acts as a Post Office.
    a. Mail is stored on his server.
        - If the message recipient station connects to Bob's station, they will download their own mail directly.
3. If the internet is restored then all of the mail left on Bob's server will be sent to the CMS.
4. File size of attachments can be larger.

That's it, and the only way quicker to transfer messages is via Peer to Peer.



BASIC CONCEPT OF THE HYBRID SYSTEM

(NO INTERNET)



- A duplicate message will be forwarded to the other MPS that you have selected.
- Your choices must be chosen 24 hours or more ahead of time. This is so all MPS stations have information on all participants.
- Once your message has been downloaded it will be removed from all associated MPS's.
- File size of attachments need to be small. ICS-213's are OK. Pictures are not.

All RMS's are not MPS's. Ordinary RMS's may switch to radio only mode with a loss of the internet. They all do not provide all the services that Bob's does. To be an MPS they are required to have a backbone PACTOR connection. See Attachment 1.

Lots of RF Propagation and analysis goes into selecting the best path to send the message to your listed MPS stations. This is done when the message is received.

Disadvantages of the HYBRID Method.

• If a destination MPS on the message path is down or busy, radio-only routing will try to route around it. But this adds additional delay, and there is the potential for messages not reaching the MPS at all. Therefore, it is less reliable than other Modes.

• The Radio at the MPS maybe unavailable while it is passing on the traffic to the next MPS. (But, some stations have a separate radio for message forwarding).

• Recipients can download their messages only from their selected and registered MPS.

My suggestions for Picking your MPS Stations.

a. Pick only two. This is highly recommended by the Administrators.
b. Choose ones which you can reliably connect.
c. One station outside of the Tsunami zone.
d. The other off the Peninsula.

When done, write down your two choices. You might include, The Call Signs, Center and Dial frequencies, and their locations. See my chart attached.

CHART OF MY MPS STATIONS AND THEIR FREQUENCIES.

CALLSIGN	ASSOC USERS	BEARING	DISTANCE	STATE	MODE	80M	40M	30M	20M
K7RHT	38	127	136 Mi	WASH.	VARA	3586.5	7101.7	10143	14108
N0DAJ	22	147	1106 MI	ARIZONA	VARA	3597	7103 (1)	10147	14103 (1)
					VARA 500		7108 (2)		14115 (2)

NOTE: Shown are Center Freq's. To get the Dial Freq Subtract 1.5 KHz. EXAMPLE 3586.5 becomes dial of 3585.0

WHAT ABOUT SPEED OF MESSAGE TRANSFER

A. Fastest is Peer to peer. (Unless a MESH system is available).
   VHF, Especially VARA-FM, if available then HF
B. Source Peer > RMS PO Box (Bob's RMS) > Destination Peer
   Can be VHF > PO Box then > HF to destination (We still need to test this)
C. Then Peer > MPS via the same MPS station > Peer
D. Then Peer > MPS > Another MPS > Destination Station

I know, sounds like a lot of work. In a real event I believe you will be glad of the preparation you have done.

There are a lot of tutorials on Winlink.org. Some searching is required. I like

https://winlink.org/content/overview_winlink_hybrid_network

You must download and unzip this weird named file.

If you are really interest in too much information that I accumulated while preparing this article let me know. I'll send you a link to my one drive folder labeled MPS PRESENTATION.

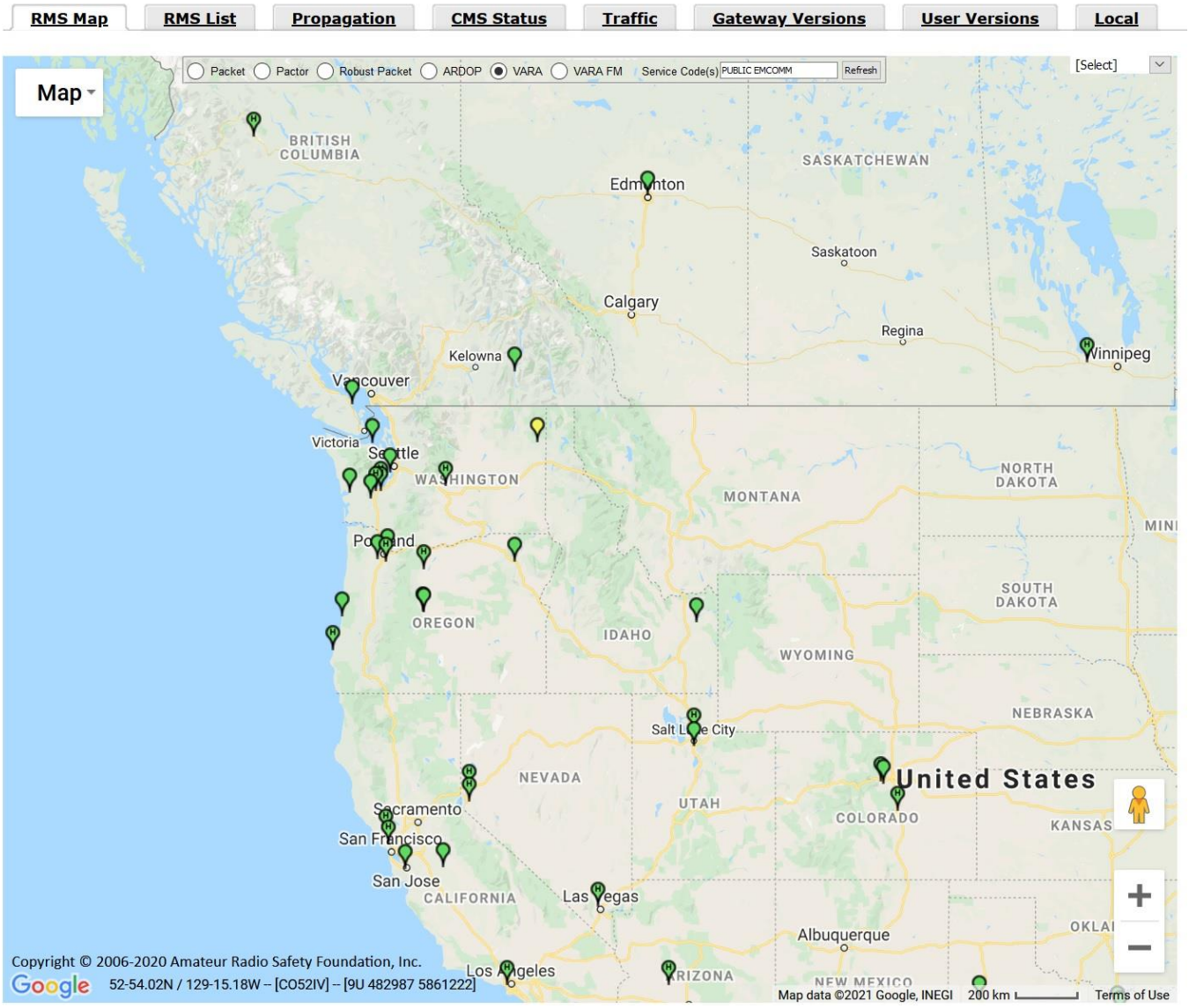
73, Bill Carter, W7WEC

ANY QUESTIONS?

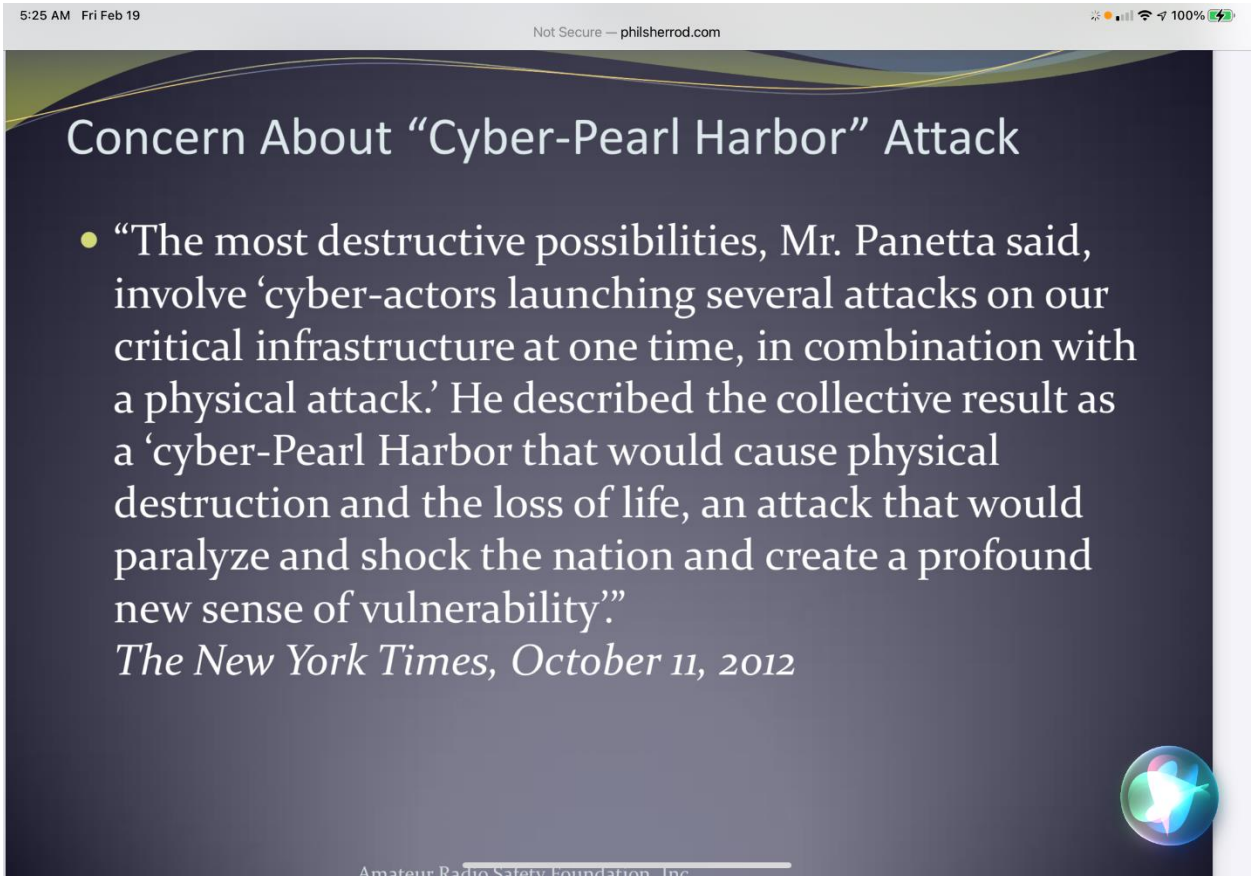
Attachment 1

MAP OF VARA HF STATIONS

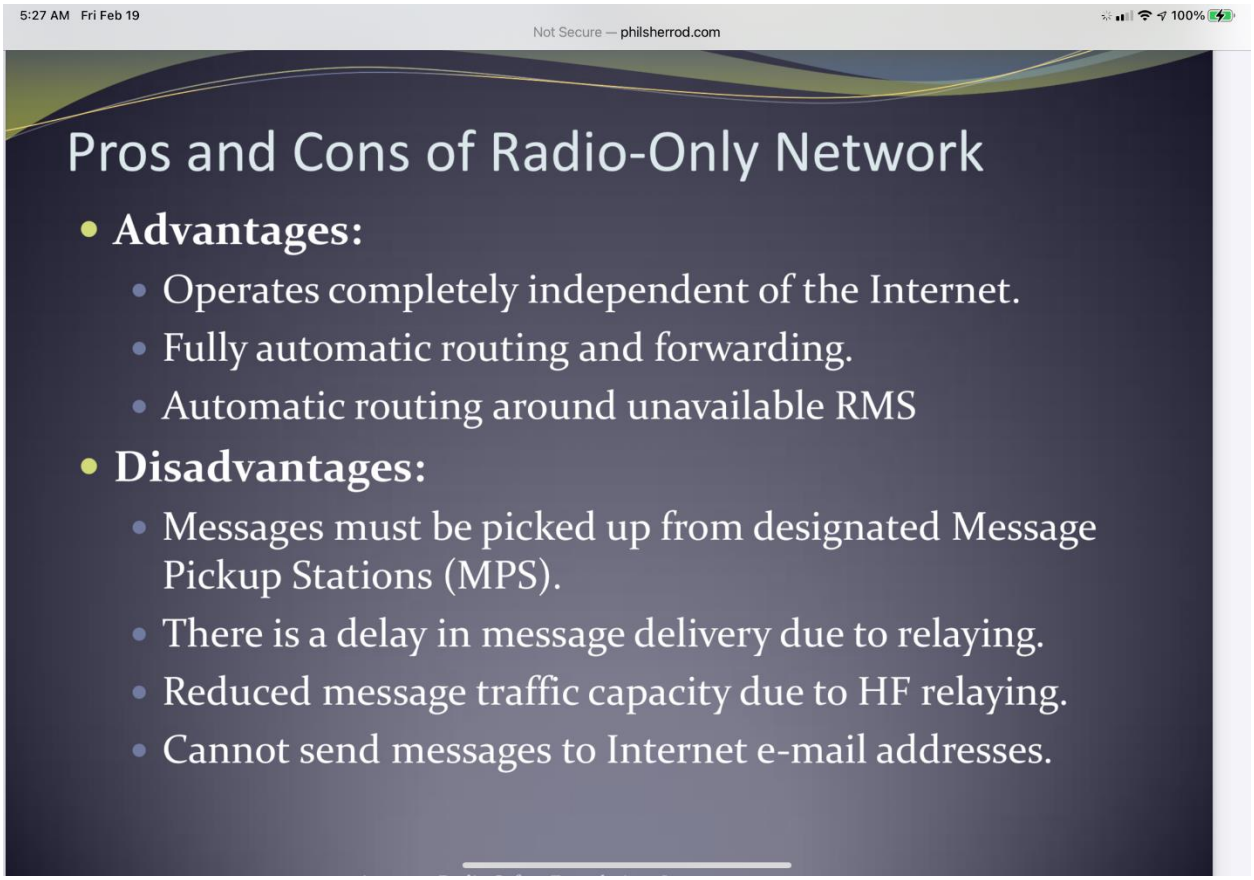
The ones we are interested in are the green ones with an “H” in it. Those are the Hybrid MPS stations. In other words, not all RMS Stations are MPS Stations.

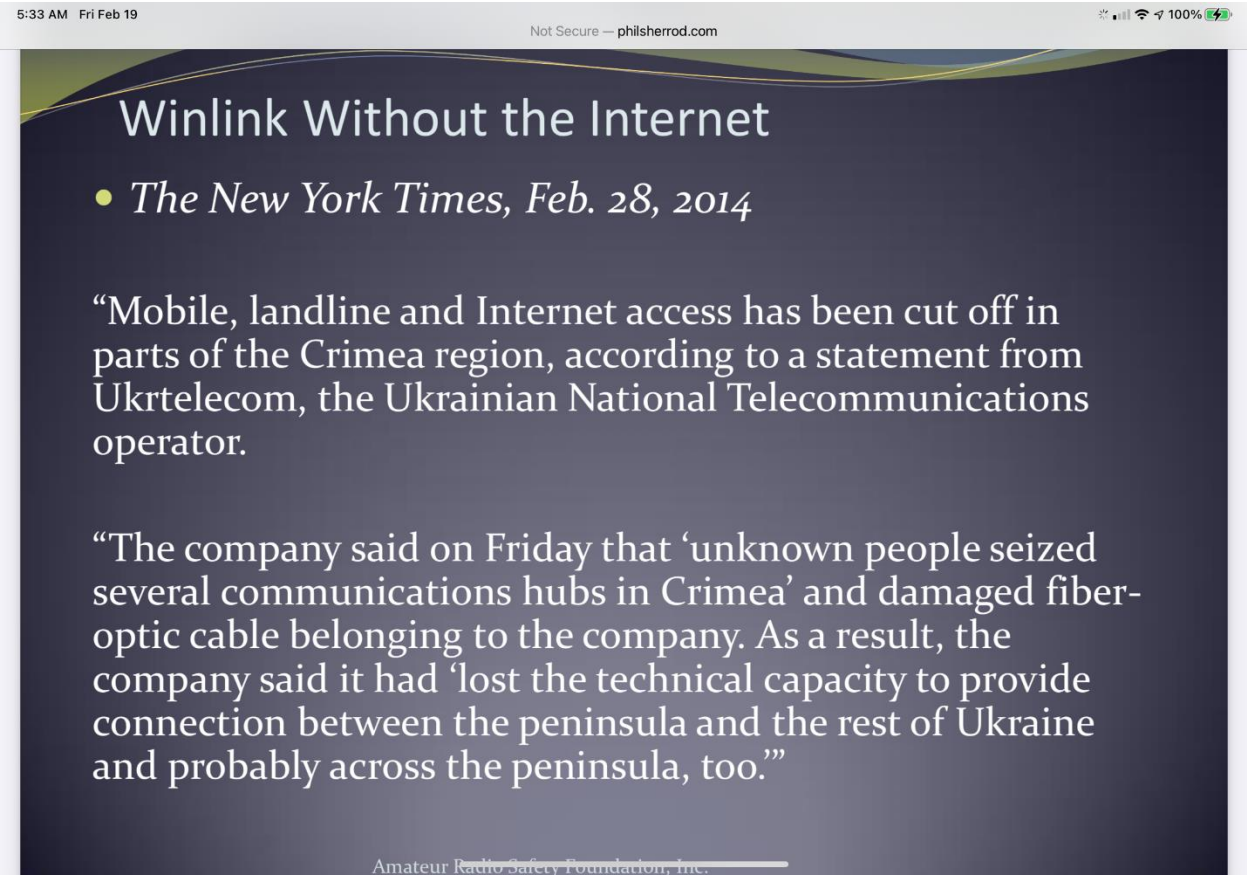


Attachment 2



ATTACHMENT 3



ATTACHMENT 4

Example of Major impact of loss of Internet.