

**“PiGate – What this addition to the
Winlink E-mail system can bring to
your emergency communications
“tool-box”.**

PiGate is a tool that can provide limited email service to Hams and non-Hams during a disaster by using the Winlink E-mail system.

Pre Presentation/Demonstration

- At its core is the Raspberry Pi, a fully functional computer that can be used in many Amateur Radio projects.
- <http://www.raspberrypi.com/packages-list/item/71-raspbian-hamradio>

What will you need to build and
operate a PiGate?

The PiGate



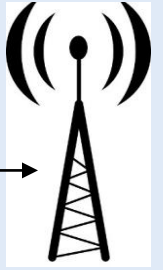
You can buy it
assembled and tested.

or

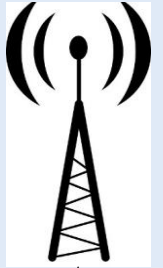
You can buy the components and assemble it
yourself which will require you to burn the image of
the operating system and all the applications and
programs

E-Mail Flow

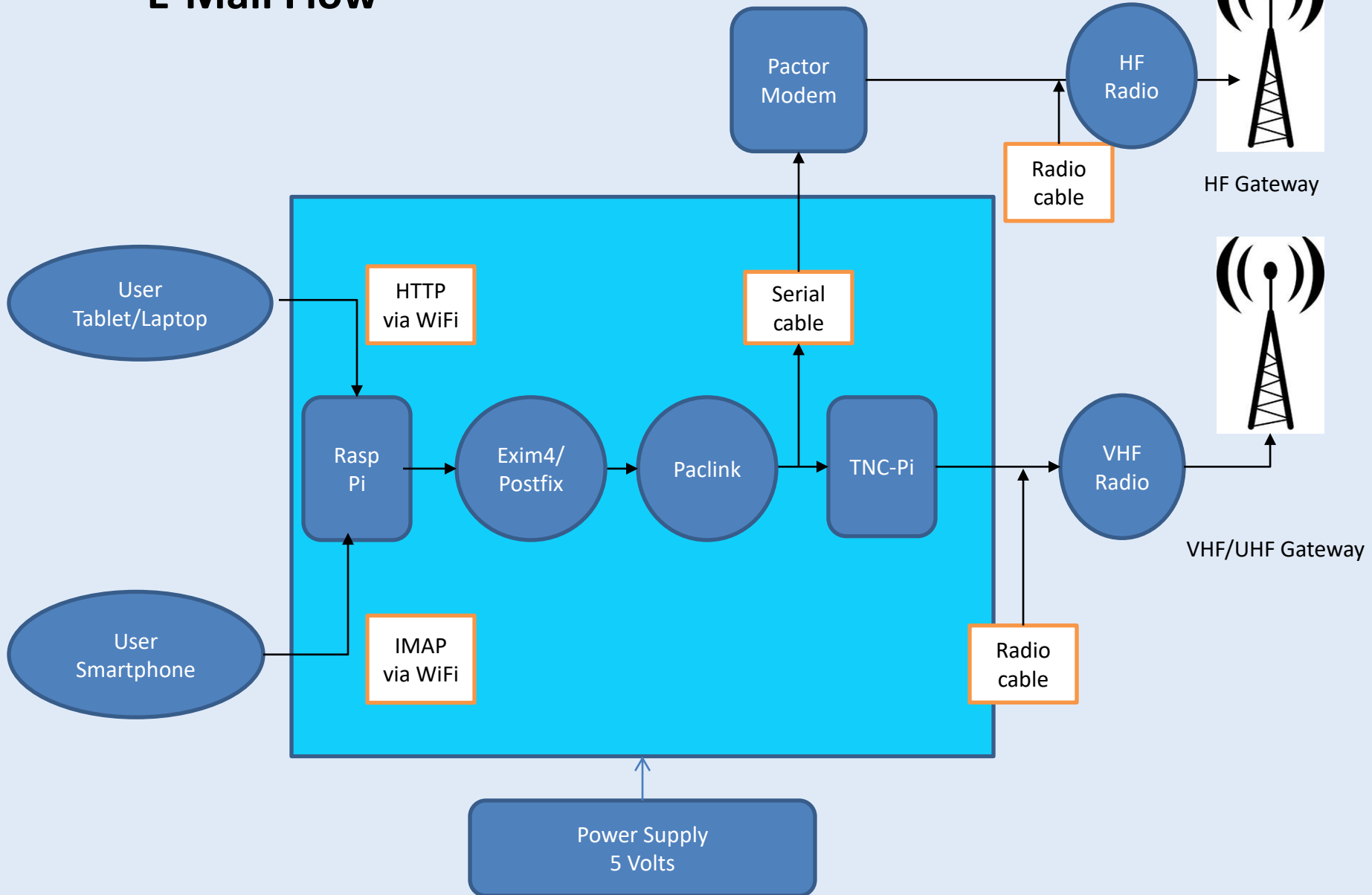
HF Radio



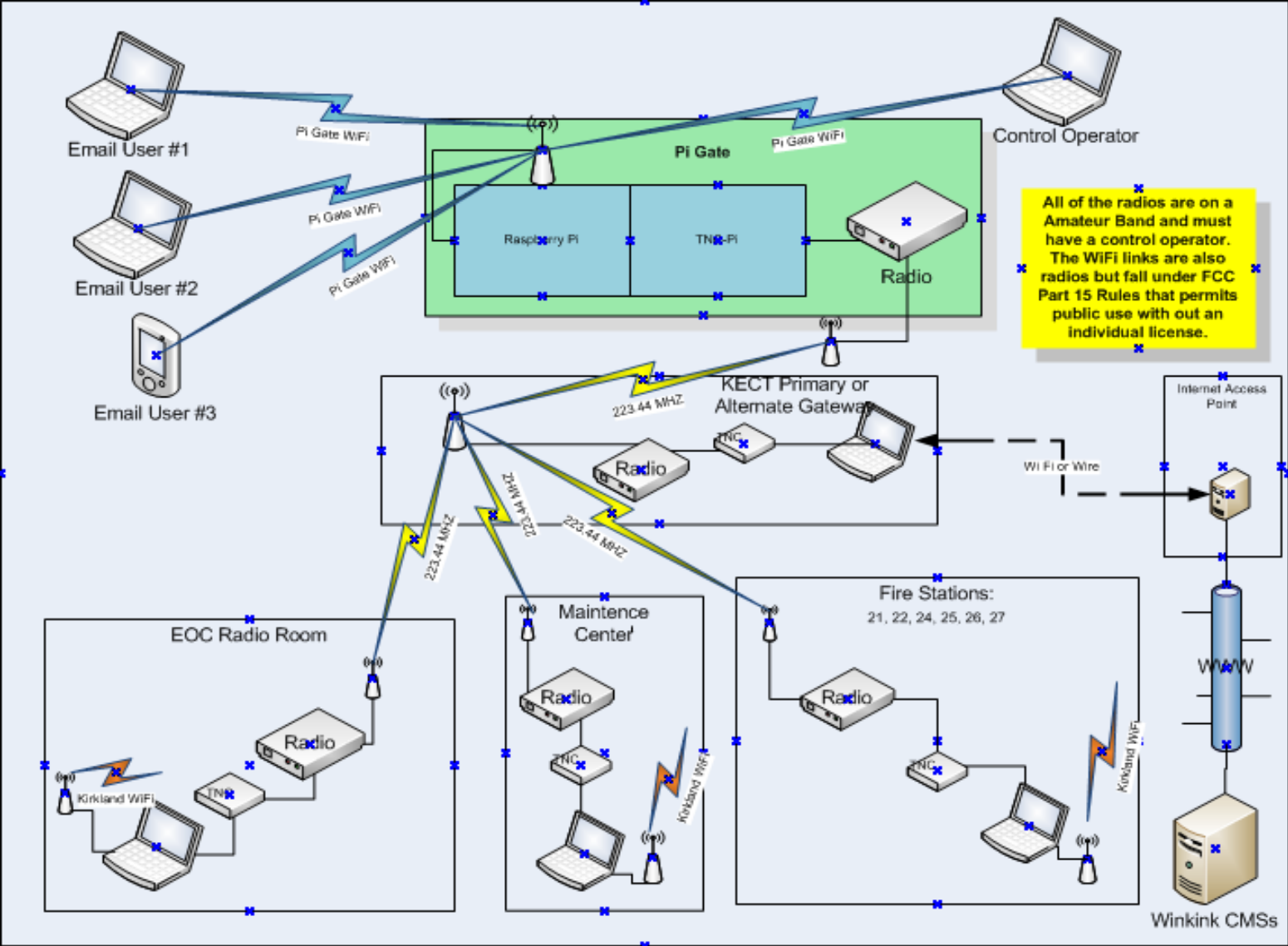
HF Gateway



VHF/UHF Gateway

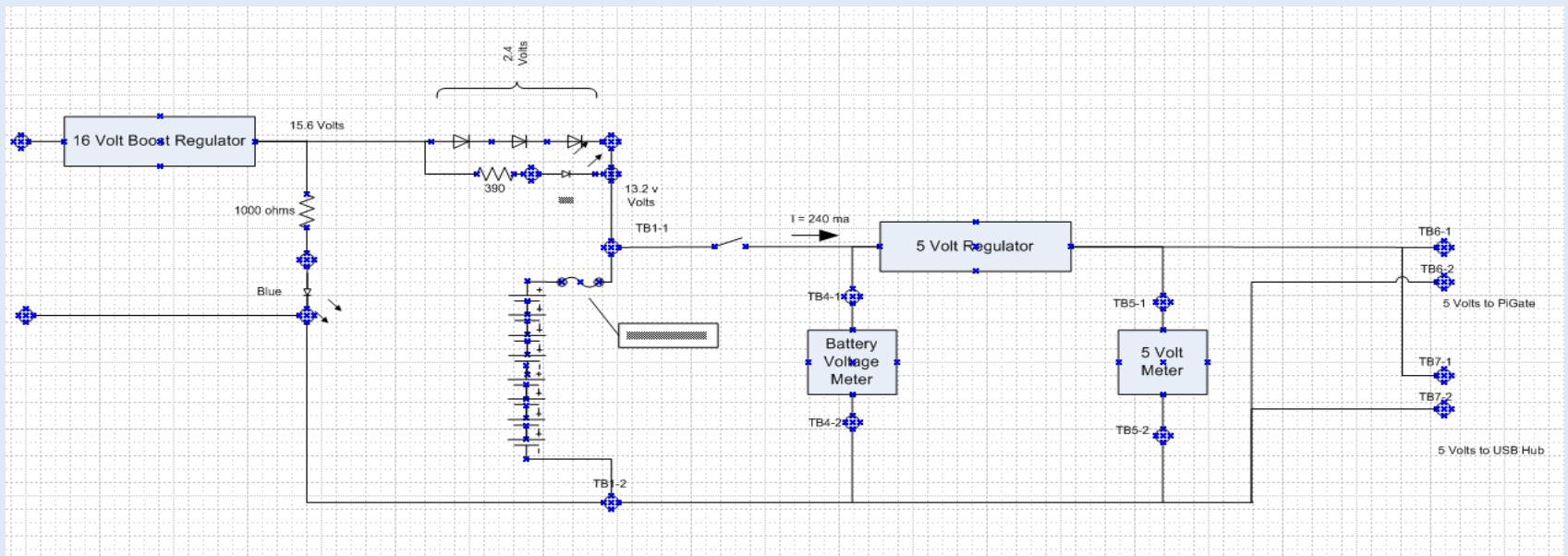


PiGate – As part of KECT



A non-interruptible power source

- The Raspberry Pi operating system and memory can be corrupted if there the power is lost during a write cycle.
- My approach is to have a primary battery and a way to charge and monitor the battery.



Control Operator

- The link between the PiGate and the RMS Gateway uses Amateur frequencies thus comes under Paragraph 93 of the FCC rules
- Even though the PiGate can be set to automatically poll the RMS Gateway, a control operator must be present any time the PiGate radio transmits.

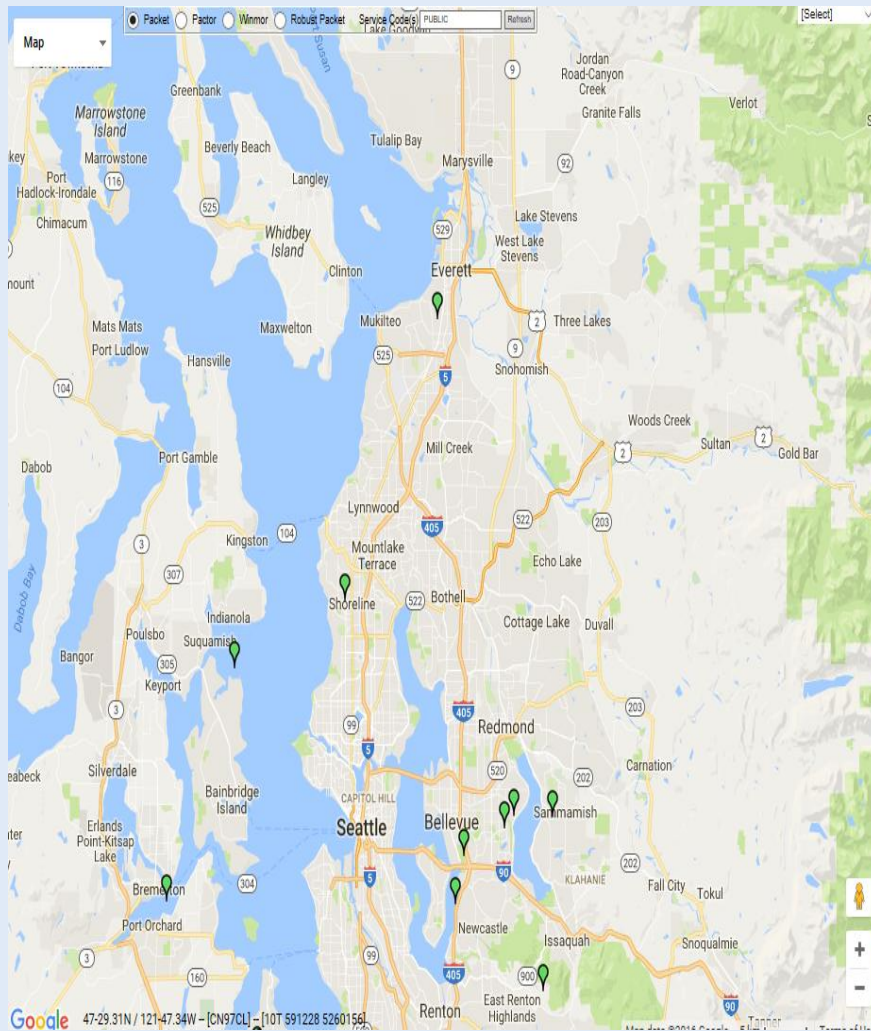
From the PiGate to the Central Mail Server

- The PiGate will have to be in range of a RMS Gateway or have access to an ether net connection to the internet.
- The gateway may be configured to accept the email and hold it until the internet connection is restored. (Beyond the scope of this presentation)

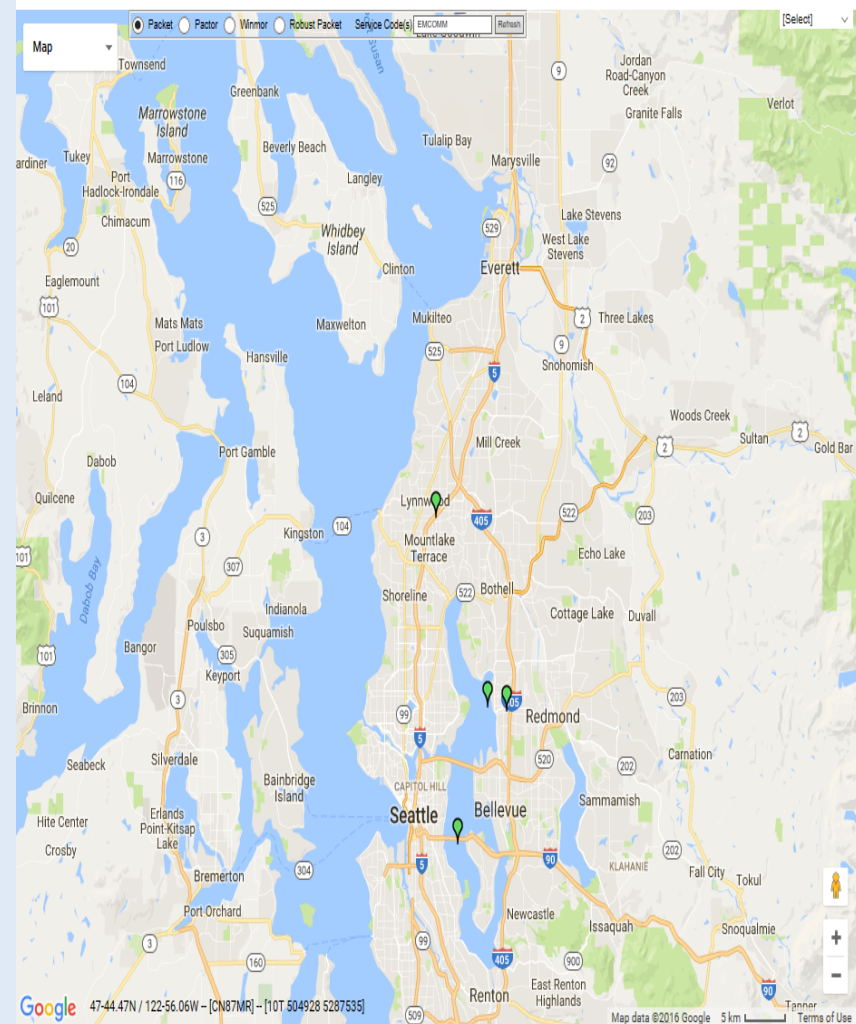
Gateways in the area (12/22/16)

From Winlink - <http://www.winlink.org/>

Public

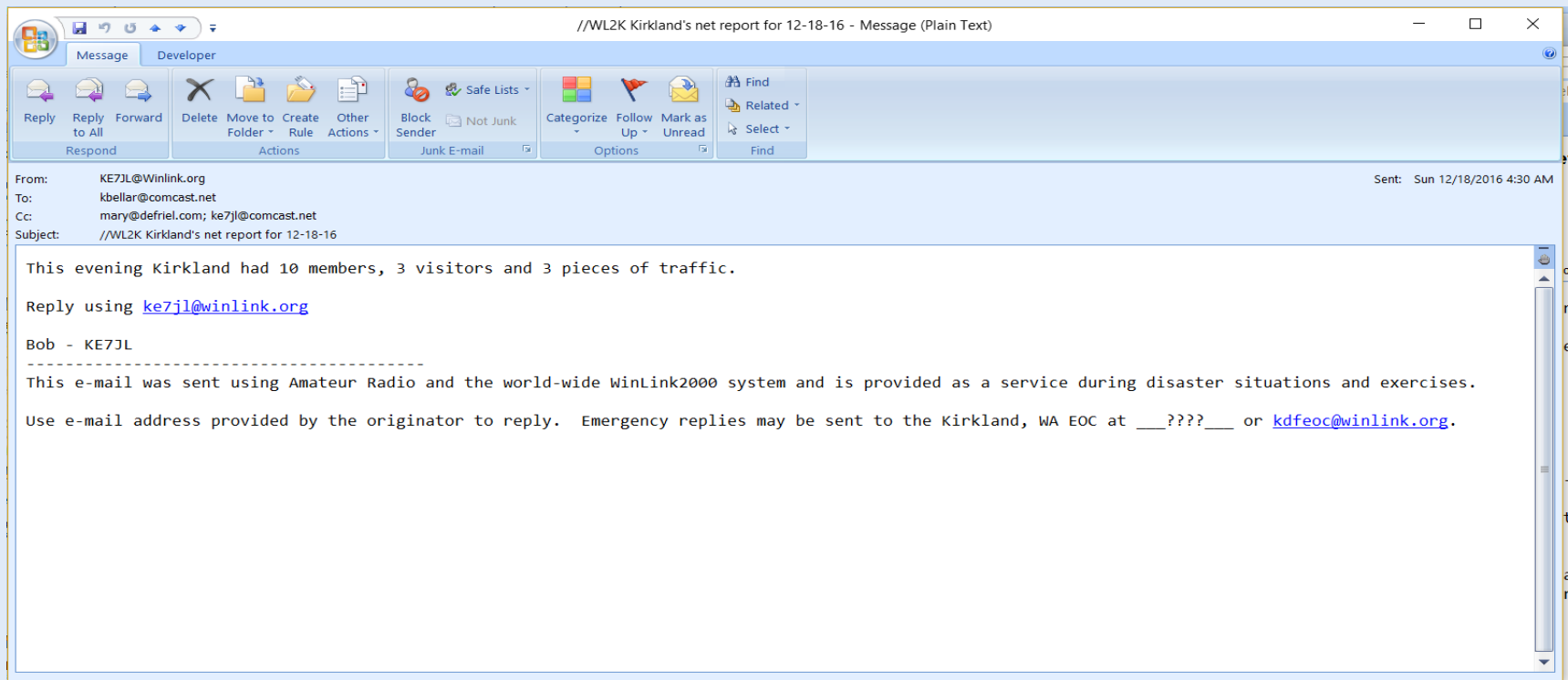


EMComm



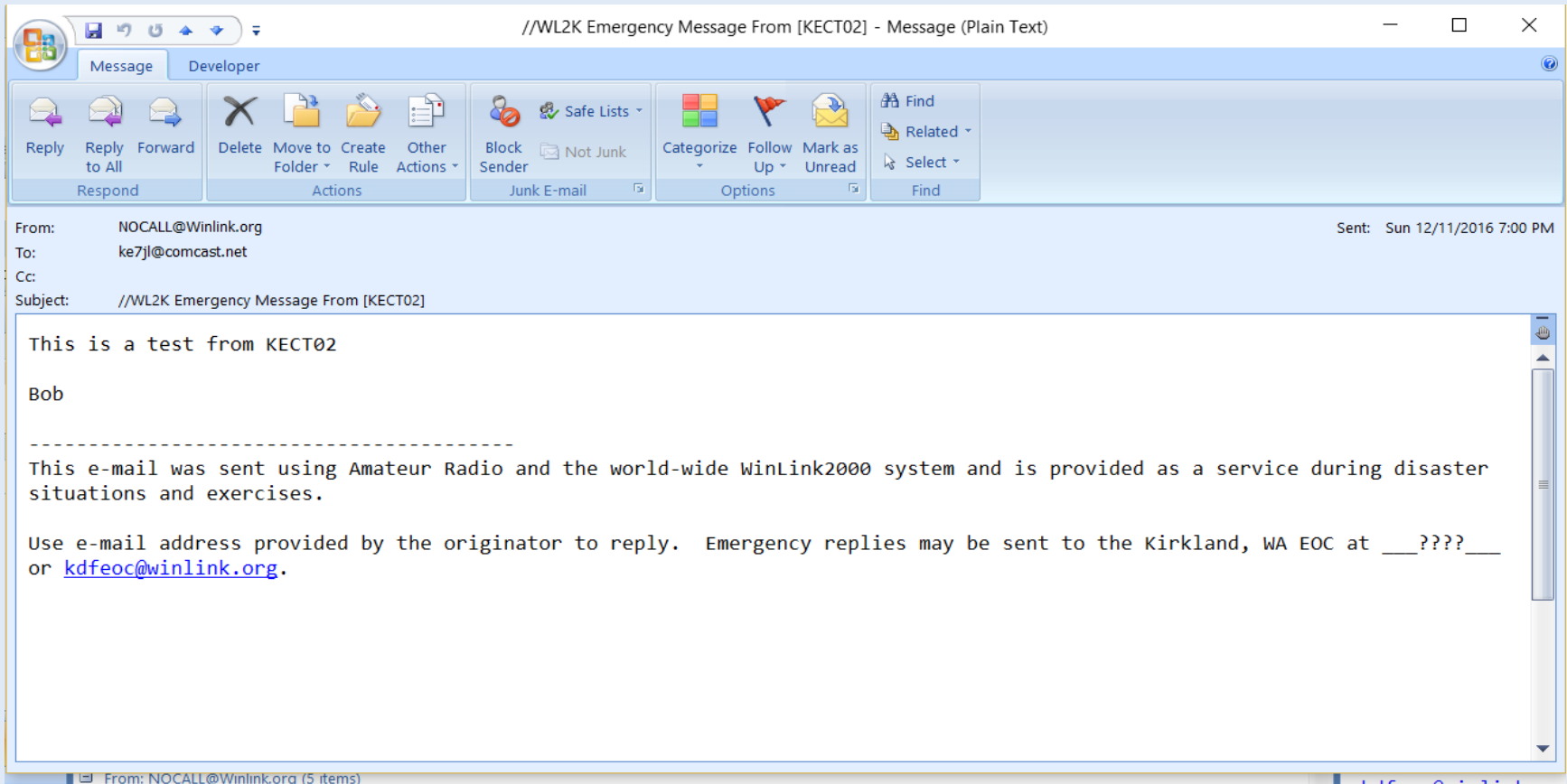
E-Mail user – Control Operator

- The Control Operator can send and receive e-mails using his/her the Winlink.org email address.



All other E-Mail users

- The e-mail will go out using the control operator's Winlink.org email address. At this time, the recipient will not be able to directly reply because the sender does not have a Winlink Email account.
- Example:



Conclusion before we finish: There is a lot to learn.

1. Start with the Winlink Email System.
 - a. Winlink Express
 - b. RMS Packet Gateway if one is not within range
2. Raspberry Pi / Linux
3. PiGate integrated applications

On to the Demo

- The demonstration and discussion will be interrupted and continued in the Radio Shack to facilitate the licensing session.
- This material will be included in the Kirkland Emergency Communications Team's integrated Winlink Training. LWHC members will be invited to attend these sessions.

Related websites

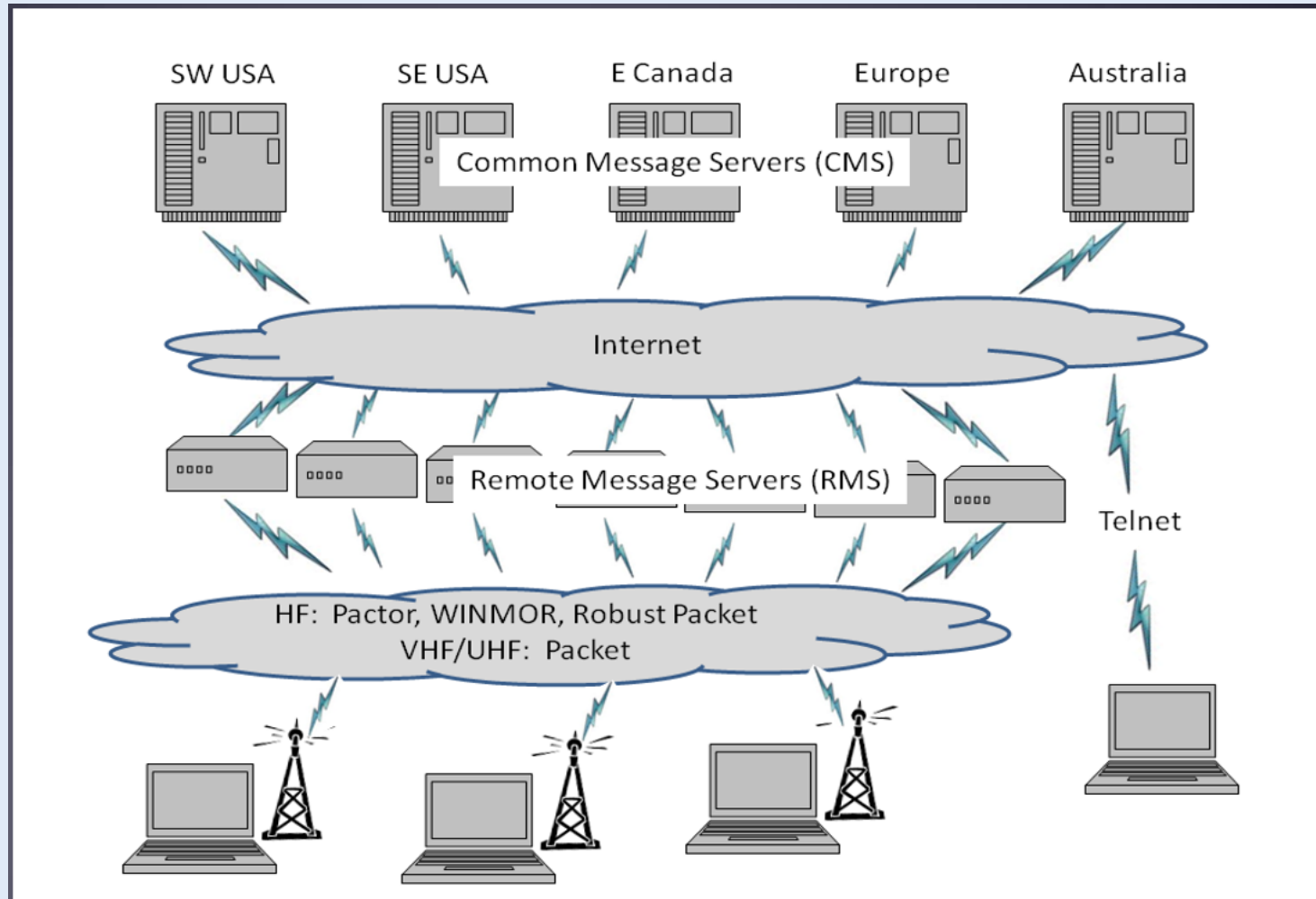
- For details about PiGate <http://www.pigate.net/>
- For details about the Winlink Email System <http://www.winlink.org/>
- For tutorials on Raspberry Pi / Linux <http://www.toptechboy.com/>

Advanced websites

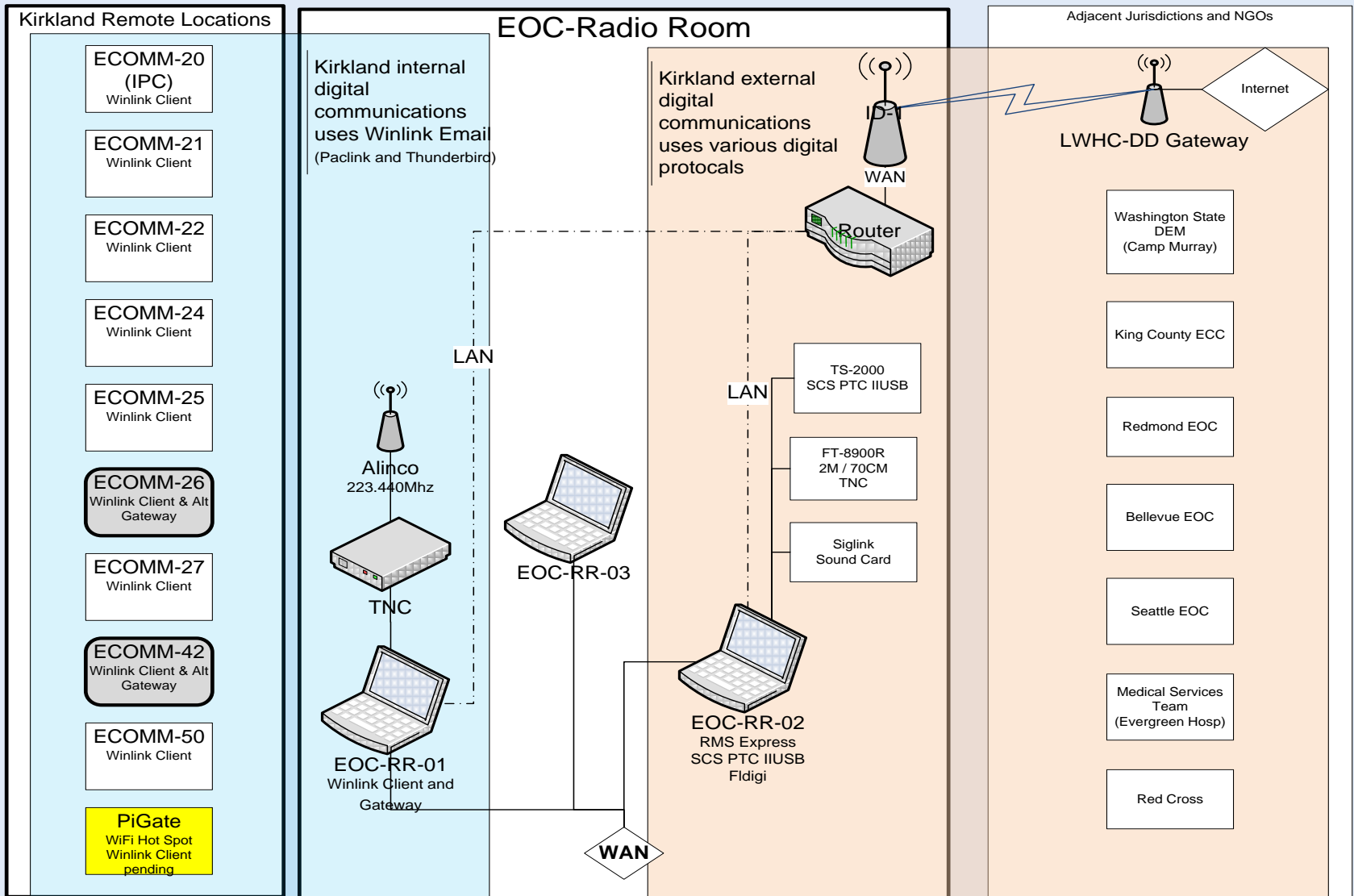
- <http://tnc-x.com/TNCPi.htm>
- <http://k4gbb.serveftp.com/docs/tncpi.html>
- <http://k4gbb.serveftp.com/docs/Raspberry.html>
- http://bazaudi.com/plu/doku.php?id=plu:install_plu
- <https://samhobbs.co.uk/raspberry-pi-email-server>
- <https://learn.adafruit.com/setting-up-a-raspberry-pi-as-a-wifi-access-point/overview>
- <http://www.raspberryconnect.com/raspbian-packages-list/item/71-raspbian-hamradio>

For Discussion as needed

Review of the Winlink Email System



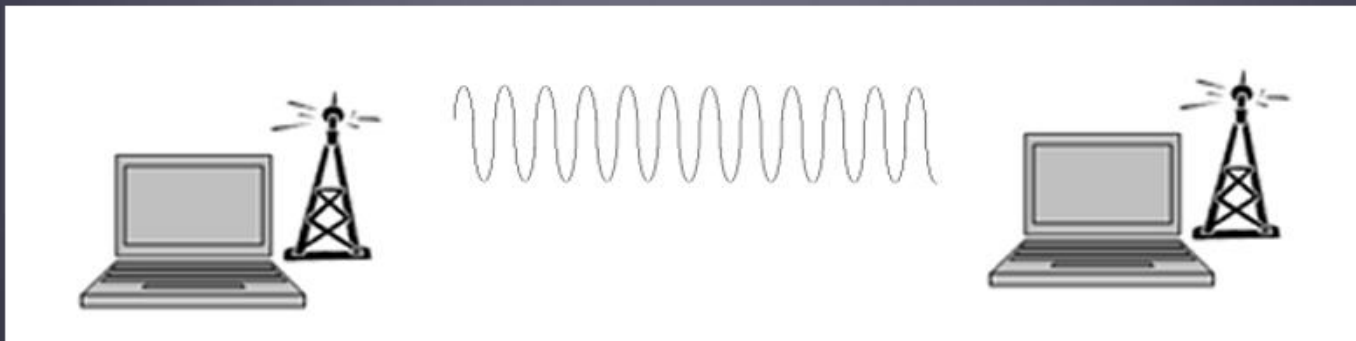
Overview of the KECT Winlink System



Peer to Peer

Winlink Peer-To-Peer Radio-Only Operation

- Peer-to-peer: direct radio connection between end-users
- The Internet is not used, all communication by radio.
- Only the two client stations are involved.
- 100% error-free transmission and file attachments.



Timestamp	Callsign	BaseCallsign	GridSquare	Frequency	Mode	Hours	Sysop	QTH
041834Z	VA7LKC-10		CN78XT	144.970 MHz	Packet 1200	00-23		Duncan, BC, Canada
041903Z	KB7APU-10		CN85PQ	144.940 MHz	Packet 1200	00-23		vancouver, wa, usa
041804Z	K7GJT-10		CN85RP	144.940 MHz	Packet 1200	00-23		Vancouver, WA, USA
041803Z	K7GJT-10		CN85RP	223.700 MHz	Packet 1200	00-23		Vancouver, WA, USA
041804Z	K7GJT-10		CN85RP	441.525 MHz	Packet 9600	00-23		Vancouver, WA, USA
041850Z	K7YFJ-10		CN85RS	144.920 MHz	Packet 1200	00-23		Vancouver, Washington, USA
041850Z	K7YFJ-10		CN85RS	223.700 MHz	Packet 1200	00-23		Vancouver, Washington, USA
041850Z	K7YFJ-10		CN85RS	441.525 MHz	Packet 9600	00-23		Vancouver, Washington, USA
041742Z	KF7DJC-10		CN86MP	145.630 MHz	Packet 1200	00-23		Winlock, WA, USA
1/4/2017	K7MM-10	K7MM	CN87QN	145.630 MHz	Packet 1200	00-23	Dan Ransom	Port Orchard, WA, USA
1/4/2017	K7JMM-10	K7JMM	CN87RR	223.420 MHz	Packet 1200	00-23	Jason Maher	Suquamish, WA, USA
1/4/2017	K7NHV-10	K7NHV	CN87SK	144.350 MHz	Packet 1200	00-23	Al Francisco	Vashon, WA, USA
1/4/2017	W7VMI-10	W7VMI	CN87SK	145.070 MHz	Packet 1200	00-23	Al Francisco	Vashon, WA, USA
1/4/2017	WA7FW-10	WA7FW	CN87TH	144.930 MHz	Packet 1200	00-23	Stephen Marth	Federal Way, Wa, King
1/4/2017	W7AUX-10	W7AUX	CN87TS	145.050 MHz	Packet 1200	00-23	Gary Harrison	Shoreline, WA, USA
1/4/2017	W7EAT-10	W7EAT	CN87UA	145.050 MHz	Packet 1200	00-23	Stan Nelson	Eatonville, WA, USA
1/4/2017	K7JGM-10	K7JGM	CN87UK	223.460 MHz	Packet 1200	00-23	Jim Monson	Seattle, WA, USA
041741Z	W7ACS-10		CN87UO	440.850 MHz	Packet 1200	00-23		Seattle, WA, USA
041913Z	N7RDE-10		CN87UT	145.030 MHz	Packet 1200	00-23		Lynnwood, WA, USA
1/4/2017	K7RFH-10	K7RFH	CN87VJ	145.630 MHz	Packet 1200	00-23	Rich Hand	Kent, WA, USA
041723Z	K7CST-10		CN87VJ	144.950 MHz	Packet 1200	00-23		Kent, WA, USA
1/4/2017	W7MIR-11	W7MIR	CN87VN	430.825 MHz	Packet 1200	00-23	David Giuliani	Mercer Island, WA, USA
1/4/2017	KE7ARH-10	KE7ARH	CN87VO	144.950 MHz	Packet 1200	00-23	Don Marshall	BELLEVUE, WA, USA
1/4/2017	WA6PXX-10	WA6PXX	CN87VO	145.790 MHz	Packet 1200	00-23	David Giuliani, WA6PXX	Mercer Island, WA, USA
1/4/2017	WA6PXX-10	WA6PXX	CN87VO	440.825 MHz	Packet 1200	00-23	David Giuliani, WA6PXX	Mercer Island, WA, USA
041833Z	K7KFD-12		CN87VQ	223.440 MHz	Packet 1200	00-23		Kirkland, WA, USA
041845Z	K7KFD-15		CN87VQ	223.440 MHz	Packet 1200	00-23		Kirkland, WA, USA
041905Z	KE7JL-10		CN87VQ	223.440 MHz	Packet 1200	00-23		Kirkland, WA, US
1/4/2017	WA7DEM-11	WA7DEM	CN87VW	440.825 MHz	Packet 1200	00-23	Scott Honaker	Everett, WA, USA
041910Z	N57C-10		CN87WH	145.030 MHz	Packet 1200	00-23		Auburn, WA, USA
041829Z	N7UFC-10		CN87WK	144.950 MHz	Packet 1200	00-23		Renton, WA, US
1/4/2017	W7EFR-10	W7EFR	CN87WN	144.950 MHz	Packet 1200	00-23	Jon Bromberg	Sammamish, WA, USA
1/4/2017	N7CFO-10	N7CFO	CN87WO	145.690 MHz	Packet 1200	00-23	Lynn	Bellevue, WA, USA
1/4/2017	N7CFO-11	N7CFO	CN87WO	223.480 MHz	Packet 1200	00-23	Lynn	Bellevue, WA, USA
041833Z	KC7KEY-10		CN87XI	145.030 MHz	Packet 1200	00-23		Maple Valley, WA, USA
1/4/2017	NK7N-10	NK7N	CN87XL	145.010 MHz	Packet 1200	00-23	Kronberg, Sean K	Issaquah, Washington, United States
1/4/2017	W7EFR-12	W7EFR	CN87XO	145.630 MHz	Packet 1200	00-23	Jon Bromberg	Sammamish, WA, USA

