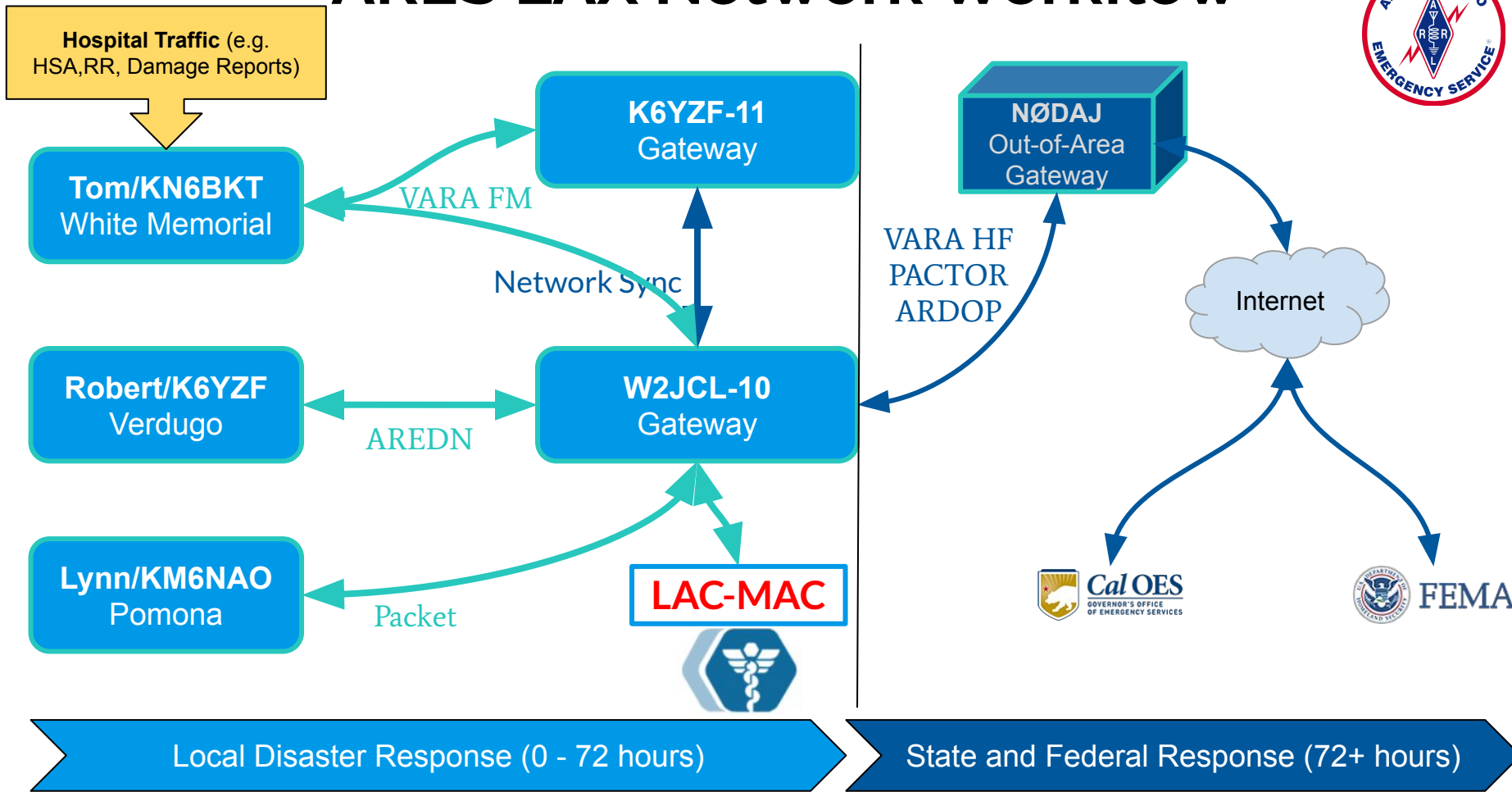

Chapter 3: Winlink Gateways

Emcomm Operating Principles

1. If you did not bring it, you don't have it.
 2. Simple is better than complicated.
 3. If it is not portable, it is expendable.
 4. You carry your own gear.
 5. There may not be any infrastructure left.
 6. Up and running on VHF in less than 15 minutes.
-

ARES LAX Network Workflow



Digital Mode Tips

How to make the most of your digital experience

- Upgrade to a better antenna
 - The single biggest factor is your antenna
 - Lower your power!
 - 20% is usually enough
 - Check your audio levels (or TNC deviation)
 - Most audio is too hot
 - 5 minutes is a long session
 - Keep your messages under 5kB whenever possible
-

Winlink Gateway Messages and Sessions



Gateway Message and Session

You must select

1. in the Message (Winlink Message),

and

2. in the Session (Winlink)

to send a message to a gateway successfully.

Winlink Message

Enter a new message

Close Select Template Check-In HSA ResReq Attachments Post to Outbox Spell Check Save in Drafts

From: K6OLI Send as: Winlink Message Request message receipt Set Defaults

To: W2JCL;KN6BKT;

Cc: K6OLI@arrl.net

Subject: Express Check In [Net Check In]-K6OLI-ARLINGTON

Attach: RMS_Express_Form_Winlink_Check_In_Viewer.xml;

-

ARES LAX Check-in
Status: [Net Check In]
Date/Time: 2020-8-2 16:34
Initial Assigned Operators: K6OLI
Location: ARLINGTON
GPS Coordinates:
Band Used: VHF
Session Type: Vara FM
Call/Tactical Sender: K6OLI

Comments:

--- Below Info Used for Copy to Spreadsheet ---

TAB Delimited:
2020-8-2 16:34 K6OLI K6OLI ARLINGTON VHF Vara FM

Winlink Message

Enter a new message

Close Select Template Check-In HSA ResReq Attachments Post to Outbox Spell Check Save in Drafts

From: K6OLI Send as: Winlink Message Request message receipt Set Defaults

To: W2JCL;KN6BKT;

Cc: K6OLI@arrl.net;

Subject: Express Check In [Net Check In]-K6OLI-ARLINGTON

Attach: RMS_Express_Form_Winlink_Check_In_Viewer.xml

Winlink Message
Radio-Only Message
Peer-to-Peer Message

Enter Recipient address

Select Send as

Click Post to Outbox

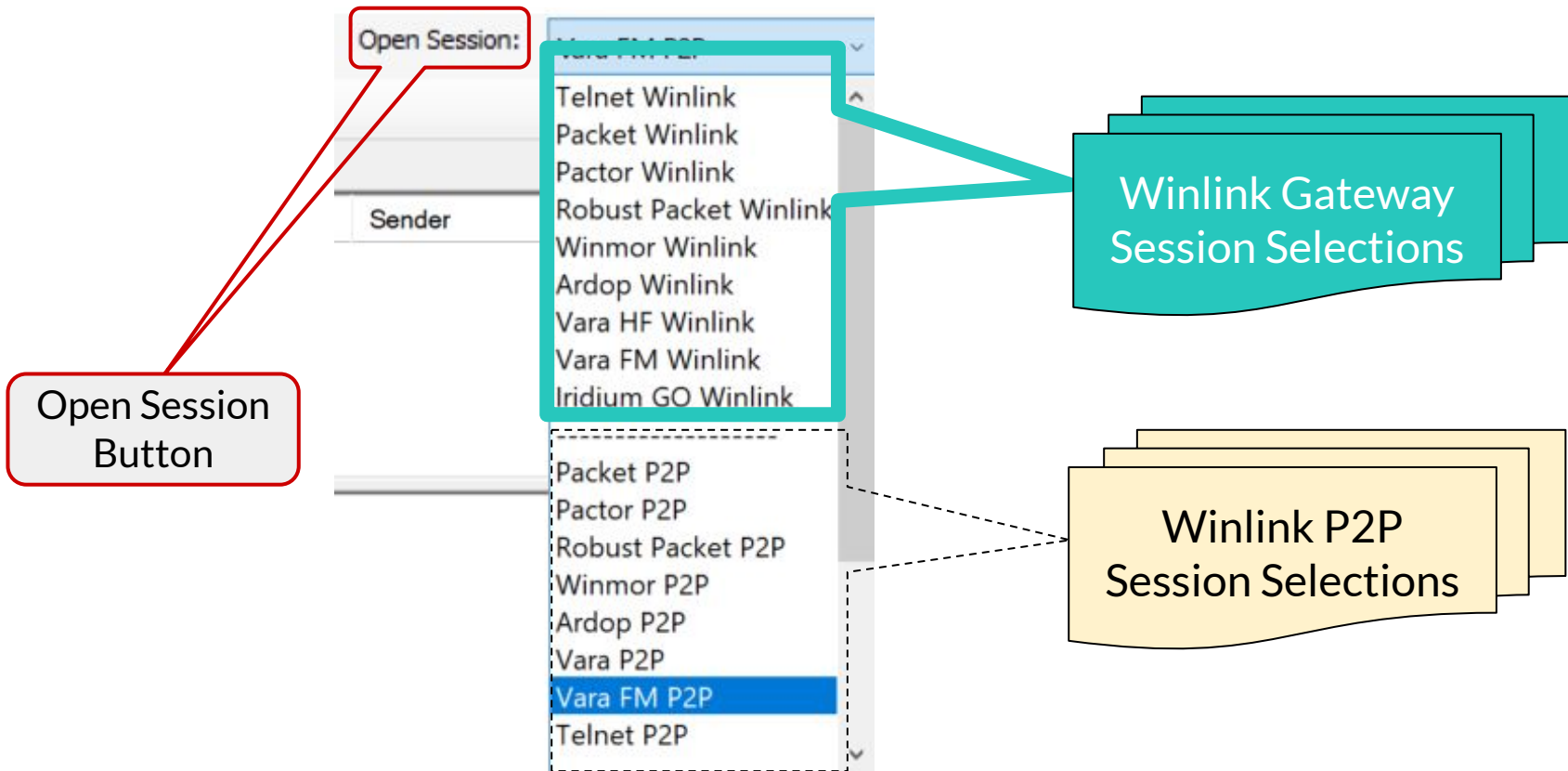
Note:

- Send as resets after form submission. Double check!
- Ham calls: just enter call sign
- Multiples: semicolon separates

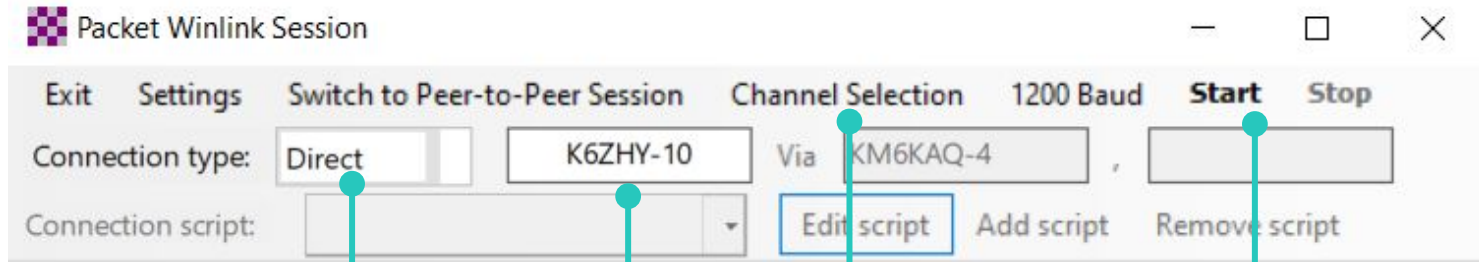
Winlink (Gateway) Session

Vara FM Channel Selector						
Exit	Select Channel	Update Table Via Internet	Update Table Via Radio			
Stations found within 160 kilometers of your grid square.						
Callsign	Frequency (MHz)	Baud	Grid Square	Group	Distance (km)	Bearing (Degrees)
K6YZF-11	145.030	1200	DM04VD	EMCOMM	007	270
K6ZHY-10	145.070	1200	DM04XC	PUBLIC	010	124
KN6BKT-10	144.420	1200	DM04XC	EMCOMM	010	124
KN6BKT-10	145.630	1200	DM04XC	EMCOMM	010	124
NR6V-10	145.070	1200	DM04RF	PUBLIC	039	283
W0DHG-10	145.090	1200	DM04QD	PUBLIC	046	270
NH6WR-12	145.050	1200	DM13LM	PUBLIC	123	125

Winlink Gateway Session Selections



Packet Winlink Session



Select **Direct**

Enter **Gateway** address

Channel Selection

Click **Start**

Note:

Digipeaters are only available for Packet.

Verify frequency and **listen** before clicking Start.

Packet Channel Selector

Exit Select Channel Update Table Via Internet Update Table Via Radio

Stations found within 160 kilometers of your grid square.

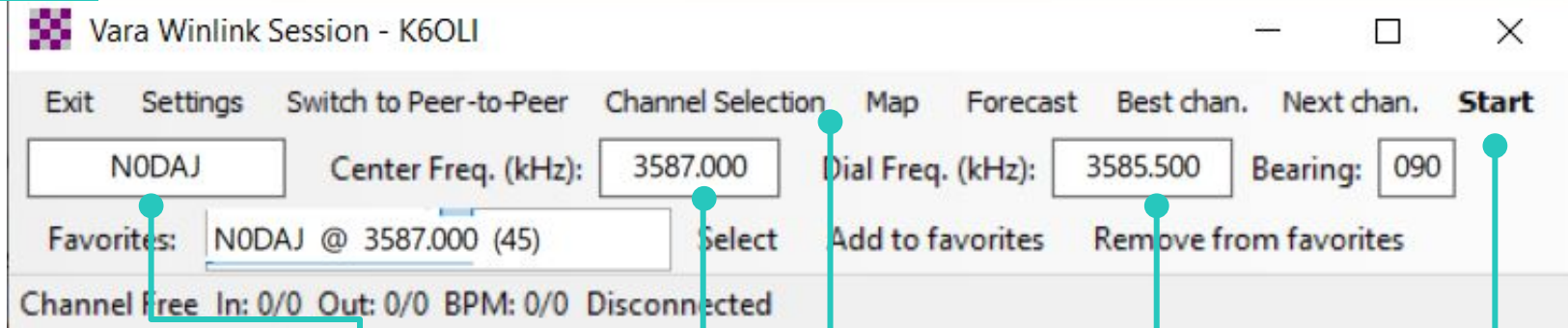
Callsign	Frequency (MHz)	Baud	Grid Square	Group	Distance (km)	Bearing (Degrees)
KA6ECT-10	145.050	1200	DM04WD	EMCOMM	000	000
KA6ECT-10	431.125	9600	DM04WD	EMCOMM	000	000
W2JCL-10	145.050	1200	DM04WC	EMCOMM	006	180
K6YZF-11	145.030	1200	DM04VD	EMCOMM	007	270
W6GSW-10	431.125	9600	DM04WB	EMCOMM	010	180
W6GSW-10	145.050	1200	DM04WB	EMCOMM	010	180
K6ZHY-10	145.070	1200	DM04XC	PUBLIC	010	124
KN6BKT-10	144.420	1200	DM04XC	EMCOMM	010	124
K6CCR-10	431.125	9600	DM04TA	PUBLIC	027	238
AJ7C-10	431.125	9600	DM04TA	PUBLIC	027	238
K6CCR-10	145.050	1200	DM04TA	PUBLIC	027	238
AJ7C-10	145.050	1200	DM04TA	PUBLIC	027	238
KK6SMD-10	145.050	1200	DM03XU	PUBLIC	034	166
NR6V-10	145.070	1200	DM04RF	PUBLIC	039	283
K6IRF-10	145.050	1200	DM14DC	PUBLIC	039	098
K6IRF-10	441.500	9600	DM14DF	PUBLIC	040	077
K6JGL-10	145.050	1200	DM03TU	PUBLIC	041	215

Winlink Channel Selection

Example: Packet

Update Table Via Internet

VARA HF Winlink Session



Enter Gateway address

Enter Center Frequency

Channel Selection

Set USB Dial Frequency on radio

Click Start

—

Winlink on HF

Winlink HF Tips

- **USB:** digital modes are upper sideband, even on 40m & 80m
 - **ALC:** watch your ALC levels. $\frac{1}{3}$ for VARA HF, less for Ardop
 - **Filters:** 3kHz filter for wide modes
 - **Bandwidths available:**
 - VARA HF: 500Hz & 2300Hz
 - Ardop: 500,1000 & 2000Hz
-

Winlink Channel Selection

Example: VARA HF

Update Table Via Internet

Path Reliability Estimate

HF Channel Selector

Exit Select Update Via Internet Update Via Radio Map Forecast SFI All RMS

Callsign	Frequency (kHz)	Mode	Grid Square	Hours	Group	Distance (km)	Bearing (Degrees)	Path Reliability Estimate	Path Quality Estimate
AJ7C	3597.000	V2300	DM04TA	00-23	PUBLIC	27	238	99	99
AJ7C	7102.000	V2300	DM04TA	00-23	PUBLIC	27	238	96	96
AJ7C	14108.000	V2300	DM04TA	00-23	PUBLIC	27	238	92	92
KO0000	3591.500	V2300	DM26JG	00-23	PUBLIC	355	048	85	50
KO0000	3606.000	V500	DM26JG	00-23	PUBLIC	355	048	85	50
KO0000	3587.000	V2300	DM26JG	00-23	PUBLIC	355	048	85	50
KO0000	3584.000	V500	DM26JG	00-23	PUBLIC	355	048	85	50
XE2BNC	3591.700	V2300	DM12MM	00-23	PUBLIC	211	149	72	47
AB7AA	7103.400	V2300	DM42KH	00-23	EMCOMM	682	106	71	46
N0DAJ	3584.000	V500	DM34OA	00-23	PUBLIC	491	090	70	45
K7DAV	7104.500	V2300	DN40BX	00-23	PUBLIC	937	034	69	45
N0DAJ	3587.000	V2300	DM34OA	00-23	PUBLIC	491	090	70	45
K6SDR	7103.700	V2300	CM87RX	00-23	PUBLIC	581	318	64	45
KD6OAT	7097.000	V500	DN40BO	00-23	PUBLIC	904	036	70	45

Band From 07/31 00:30 UTC to 07/31 06:30 UTC (6 hours)

All

Map

Evan WH6ECG:

- 20m, 40m, 80m on VARA HF
- 5W - 15W local comms
- 10W - 50W out-of-area
- Battery

North
Pacific
Ocean

HI

Mexico

United States

Cuba

Puerto Rico

Northwestern
Passages

Hudson Bay

Canada

Labra

ON

QC

NU

NT

YT

SK

MB

NL

MT

ND

MN

SD

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IN

OH

ID

WY

CO

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Labra

Hudson Bay

Canada

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—

**Mind Your
Downstream
Circuit Capacity !**

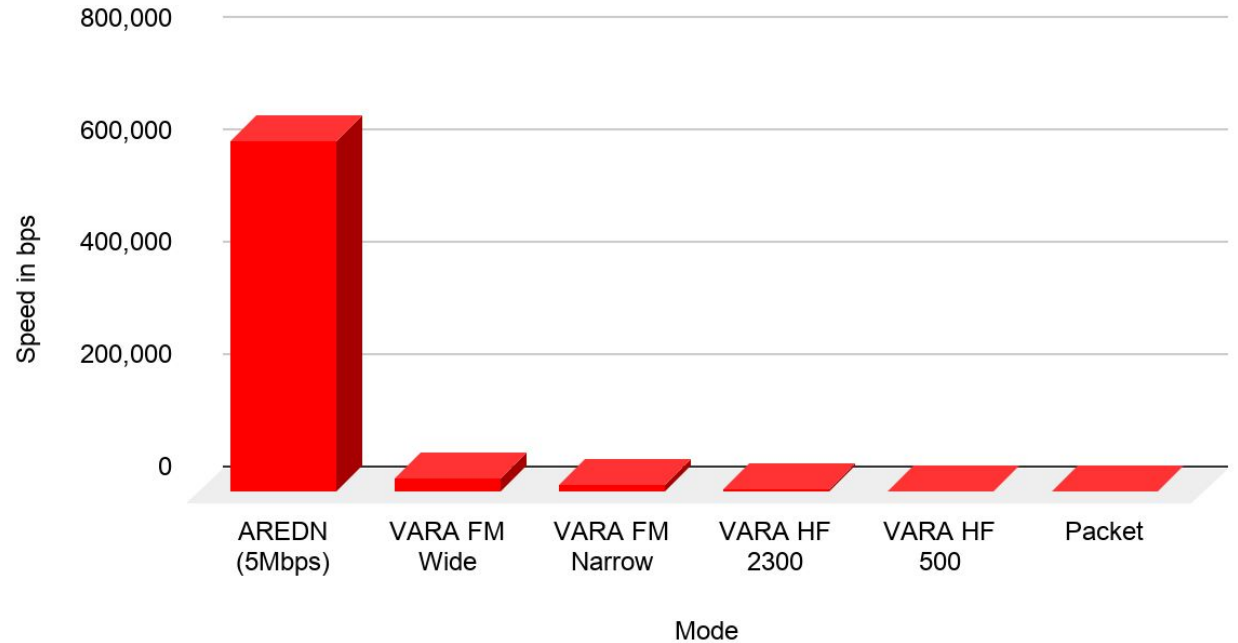


Speed comparison

The slowest leg determines file size!

- VARA FM Wide: 100 kb/min
- VARA FM Narrow: 50kB/min
- VARA HF 2300: 20kB/min
- Packet/VARA HF 500: 5kB/min

Speed in bps vs. Mode



Gateways and Sysops



Doug NØDAJ

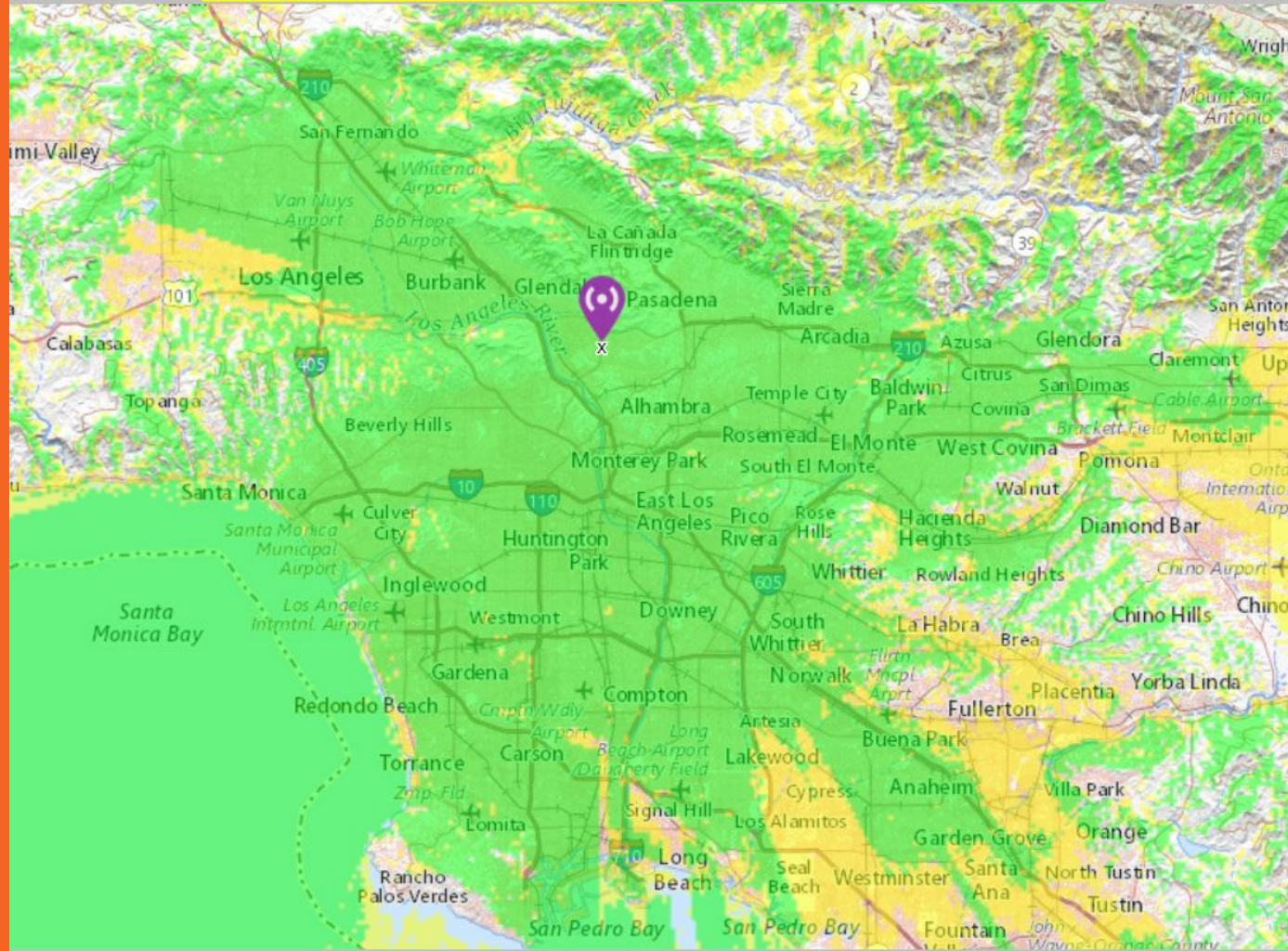


0.50 μV 12485 km^2

11852961 pop

1.58 μV 9056 km^2

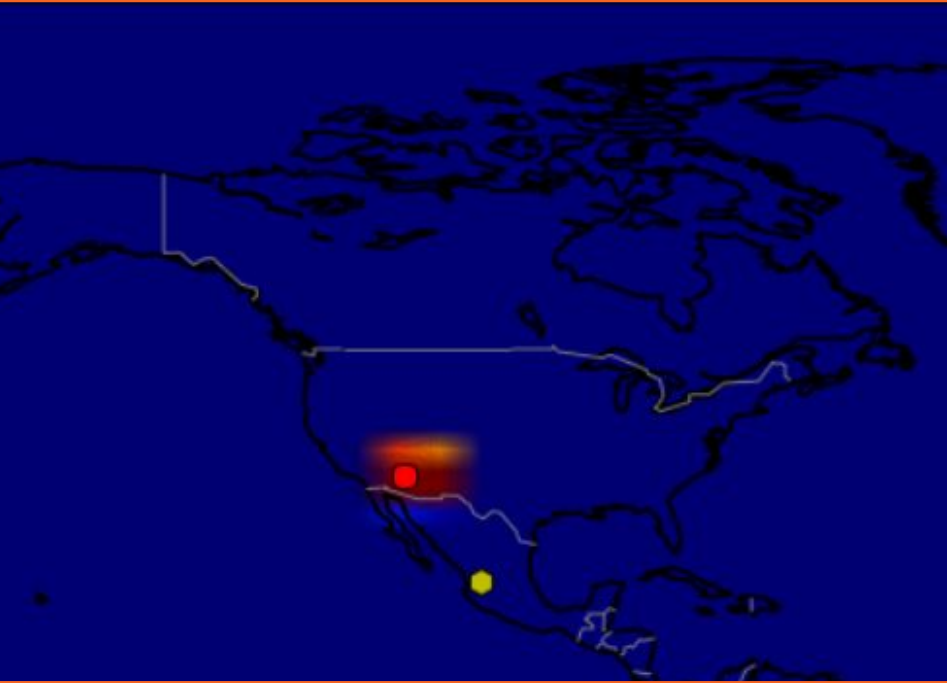
9203536 pop



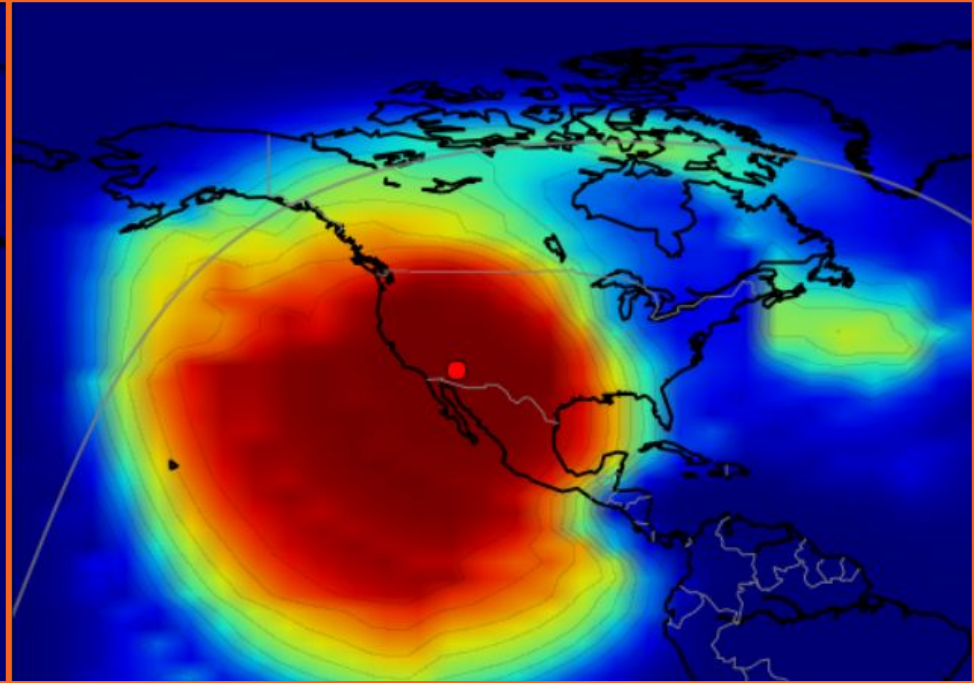
K6YZF-11

- VARA FM
- Packet Backup
- 30W
- 6dB Omni
- Battery
- Solar

NØDAJ: 80m July Coverage

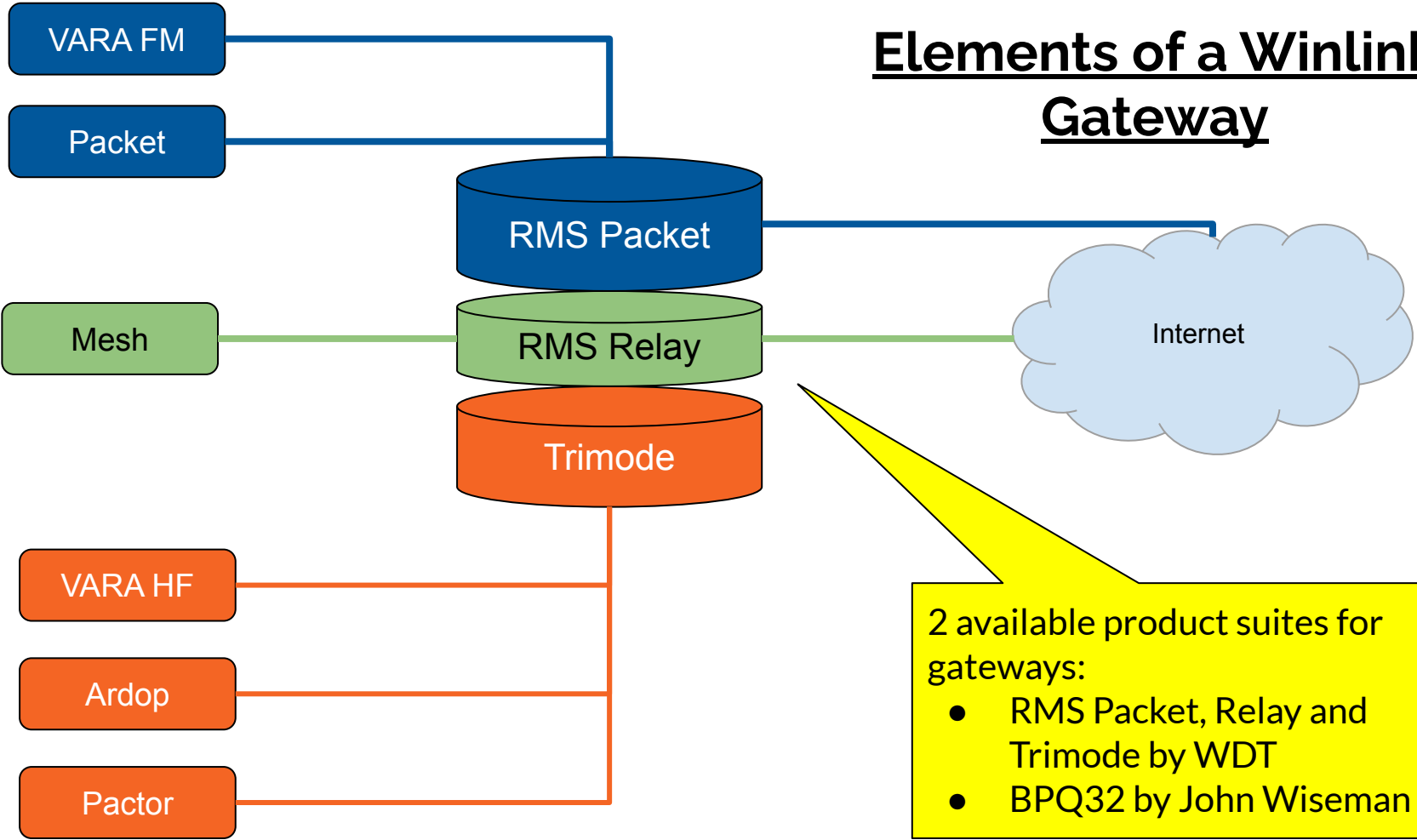


Noontime, PDT



2300 PDT

Elements of a Winlink Gateway



Gateway Success



- **Respect the gateways**
 - Limit your traffic
 - Adjust your equipment properly
 - Listen before you transmit
- **Commit the time, effort and money**
- **Avoid setting up “Zombie” Gateways**
- **Gateways + training = user base**

Thank your Sysops!

Parting Thoughts

Winlink & Exercises



Exercises

- **Regular** exercises to sharpen skills and experiment
- **Relevant** exercises keep people involved
- **P2P** is powerful for training and troubleshooting

Winlink

- Winlink is **dynamic**, ergo, use it often to stay current
- Accounts expire after **400 days** of non-use
- All your traffic is publicly visible for **21 days**

Exercise 3

Compose, post and send a Winlink message via a VHF or HF gateway.

3 Step Process:

1. **Compose** a new message
 - a. Select **Send As: Winlink Message**
2. **Post:** Post message to Outbox
3. **Send:**
 - a. Open a **Winlink Session**
 - b. Select a **Gateway** and
 - c. **Start** the connection to send



Thank you from ARES LAX!