

## Emcomm structure using three radios for each location

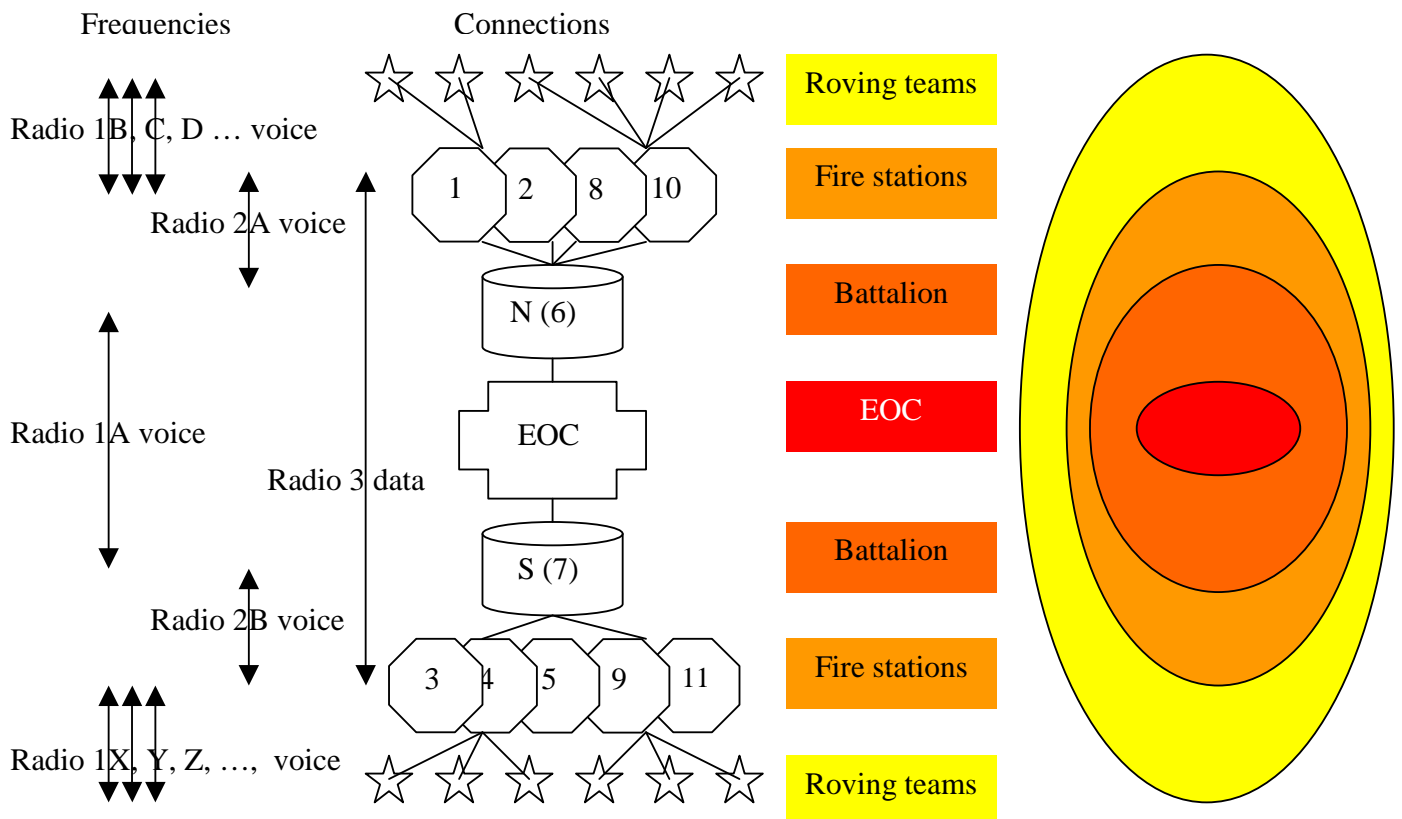
Goal: build effective emcomm structure with three radios (144, 222, 440 MHz, triplexer, triband antennas)

**Requirements:** this proposal assumes that we have

- A Fremont EOC which talks directly to Fire battalions
- Two Fremont battalions (North, Station 6 and South, Station 7) which talk to EOC and (on another radio) to the other fire stations
- Fire stations talking to the battalions and (on another radio) to roving stations
- A packet (digital data) net which covers EOC and all fire stations
- A resource frequency

The setup described in here assumes that Fremont shares a resource frequency with the other Tri-City members. Command/message net will be Fremont only.

Diagram of how stations would be interlinked. Each onion layer must be able to talk to its direct neighbors. Data (packet) reaches everyone (except rovers)



The following permutations would be feasible with three radios.

MHz	EOC	N/S battalions	Fire stations	Rovers
144	Packet			
220		Voice		
440	Voice		Voice	

+: crowded 2m band is avoided, only one channel used

–: Rovers might only have 2m handhelds (many hams today have dualbanders, though)

MHz	EOC	N/S battalions	Fire stations	Rovers
144	Voice		Voice	
220	Packet			
440		Voice		

+: Old ARES band plan could be reused

–: 2m will probably be swamped, communication may be difficult

–: Not much use made of of 70 cm resources

MHz	EOC	N/S battalions	Fire stations	Rovers
144	Resource net	Voice		
220	Packet			
440	Voice		Voice	

+: crowded 2m band is avoided, only two channels are used (one each battalion to the fire stations)

+: EOC can use 2m radio to monitor resource frequency (!)

–: Rovers might only have 2m handhelds (many hams today have dualbanders, though)

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The third scenario offers probably the best use of the available resources.

## **Bandplan research**

### ***144 – 148 MHz:***

packet 145.01, .03, .05, .07, .09, with .01 inter-LAN

simplex: 146.40 – 146.58, 147.42 – 147.57; nat'l simplex calling 146.52

### ***222 – 225 MHz:***

packet: 223.52 – 223.64

simplex: 223.40 – 223.52; calling: 223.50

### ***420 – 450 MHz***

packet: 100kHz bandwidth 430.05, .15, .25, .35, .45, .55, .65, .85, .95

packet: 25kHz bandwidth 431.025, 440.975, 441.000, 441.025, 441.050, 441.075

simplex: 445.90 – 446.10, 446.50; nat'l simplex calling: 446.00

*(bandplan lists 445.00 – 447.00 simplex shared, NARCC took most of that as inputs; due to PAVE\_PAWS not of these frequencies should still be available)*

***Do be completed:*** Which of those are already in use by our neighbors?

## **Options**

- The described setup with three radios, each on a different band, works in every position.
- It may be beneficial to have additional radios (handhelds?) at the EOC and the battalions.

## **Resource sharing with Newark and Union City**

“Resource”: radio amateur making himself or herself available.

We assume we will share our resource frequency with Newark and Union City as practiced every Tuesday night. However we need to modify the process so that resources will be diverted to the right location (frequency) once they checked in. Checkin therefore must contain resource location, and a procedure to handle the resource must be established.

### **What additional hardware do we need?**

We have already 2m and 70cm devices.

We need

- 1.25m radios
- triband roof antennas
- triplexers
- optional: smaller and less heavy switching power supplies

This obsoletes

- Dual band antennas
- Duplexers
- Optional: Linear power supplies

Sell off to interested radio amateurs to help finance new equipment?

**Think about common Go-Box design.**