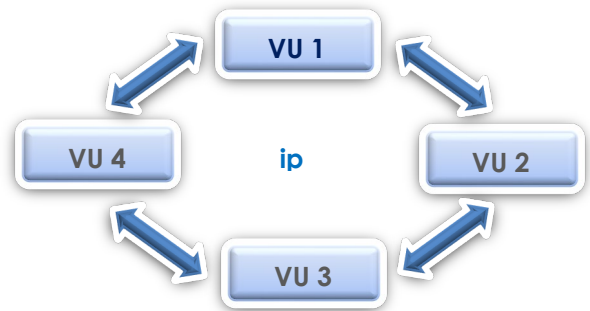


# VMF NETWORK ARCHITECTURE BASICS

## Datasheet

Most VMF systems use MIL-STD-188-220 Combat Net Radio (CNR) protocols. These are applicable to most media including SINCGARS Very High Frequency (VHF), single frequency Ultra High Frequency (UHF) and HAVEQUICK II. The system employs the Open Architecture OSI 7-layer model principle, although not all of those layers are present in CNR systems. Essentially this is an 'Ethernet' type of system. A single VMF User is usually referred to as a VU.



A Subnetwork using intranet protocol (ip)

### Ethernet Principles

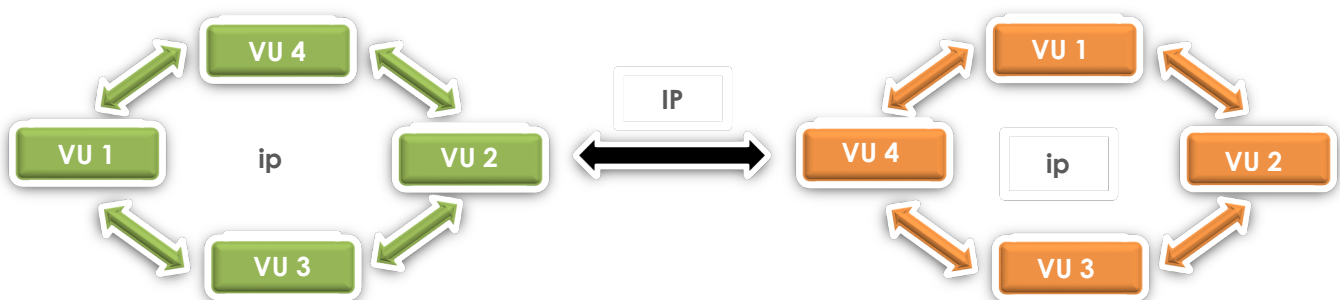
- All VUs 'listen' to the net (or subnet)
- VUs only process data that has their **Individual Address**, a **Group Address** to which they belong or a **Global Address**
- A VU with data to transmit must wait until the net is **Not Busy**
- To prevent simultaneous transmissions by more than one VU, an agreed **Network Access Control** algorithm is used by all VUs to add a different Network **Access Delay** to each VU
- On large nets this can result in significant delays to access the network
- On small nets, such as those used for Close Air Support (CAS) with typically no more than 6 x VUs, this has proved not to be a problem

### Network Architecture 1

- **Subnetwork** - all VUs on a specific frequency or channel
- This forms a **Local Area Network (LAN)**
- Typically uses **intranet protocol (ip)**
- Usually within LOS but CNR relay mechanisms are available

### Network Architecture 2

- **Net** - multiple Subnetworks typically joined via **IP Routers** (VU 2 & VU 4) to form a **Wide Area Network (WAN)**
- **Network** - numerous WANs connected by **IP Routers**



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