



Hamnet.es

Introducción a la red HSMM IP en EA
y aplicaciones EMCOM



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**How to communicate
when the world goes**

SILENT

GraywolfSurvival.com

Como sea!!!

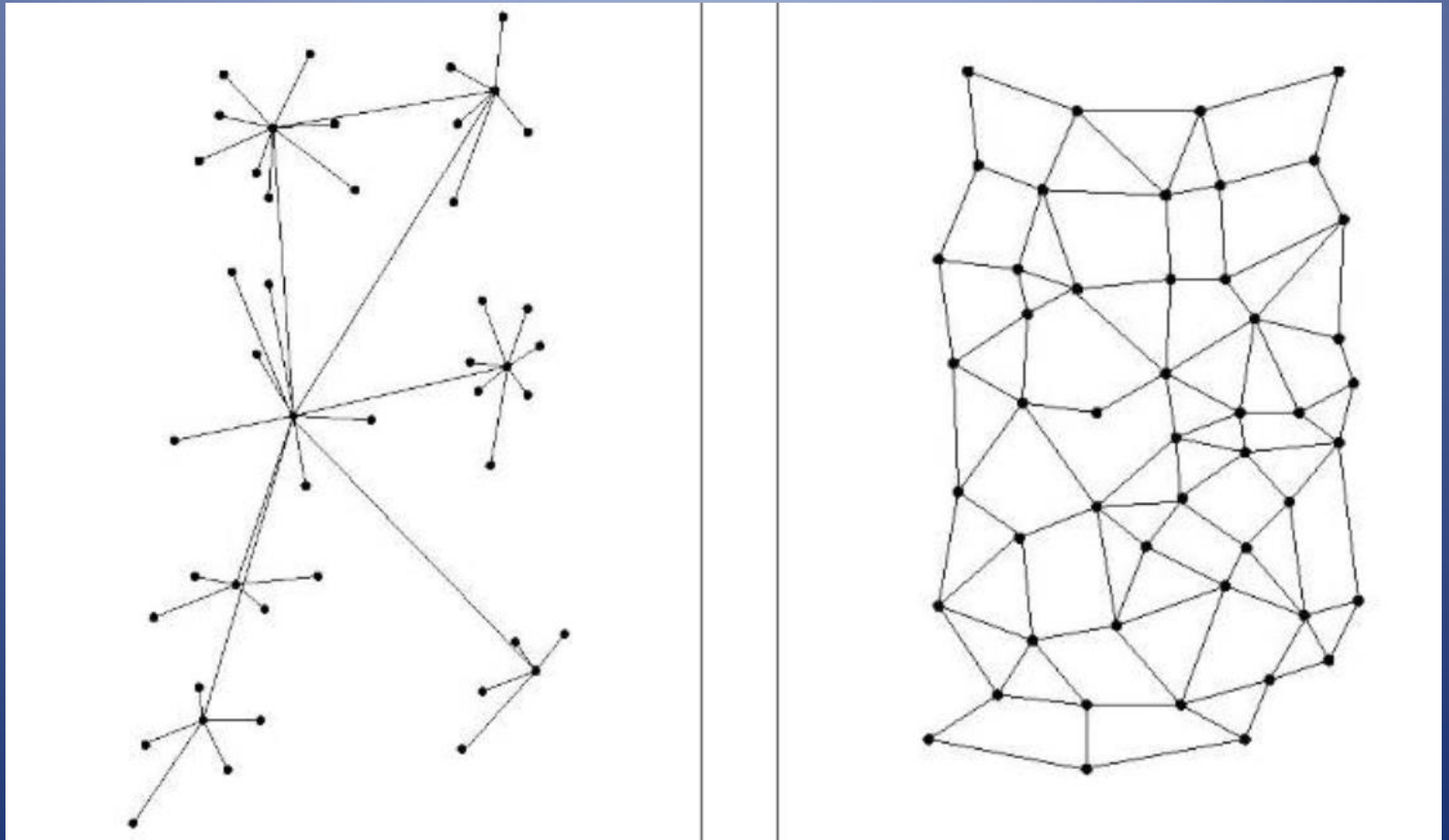
Resumen contenidos

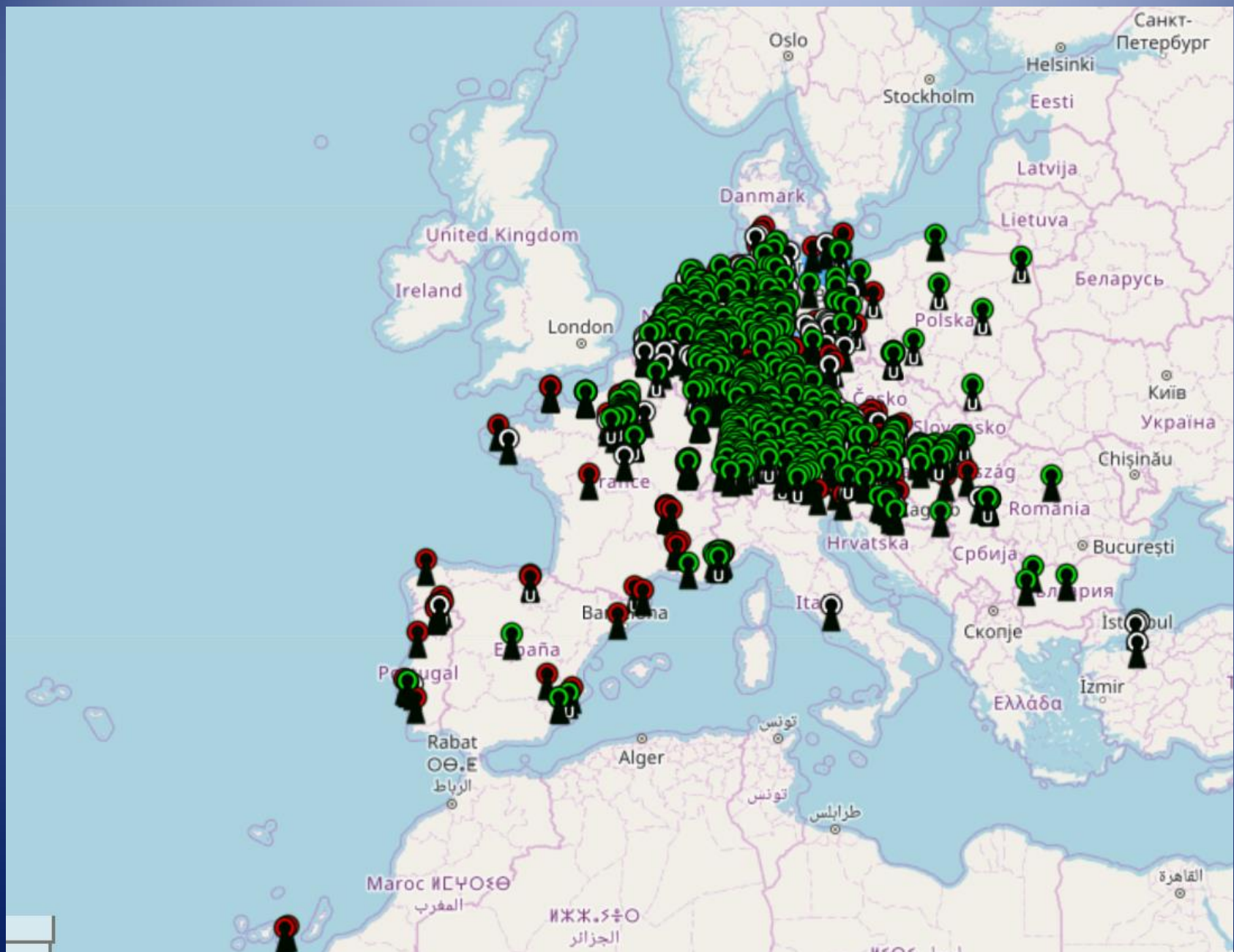
- Hamnet en el mundo: Europa y USA: HSMM-BB, Hamwan, AREDN
- Hamnet.es
- Topología AP-station Topología Mesh-wds
- Protocolos enrut. BGP-OLSR
- Hamserver Pi, Mikrotik, Openwrt
- Los demás sistemas siguen siendo validos (voz analógica, DMR, Aprs, fldigi, winlink, etc.).

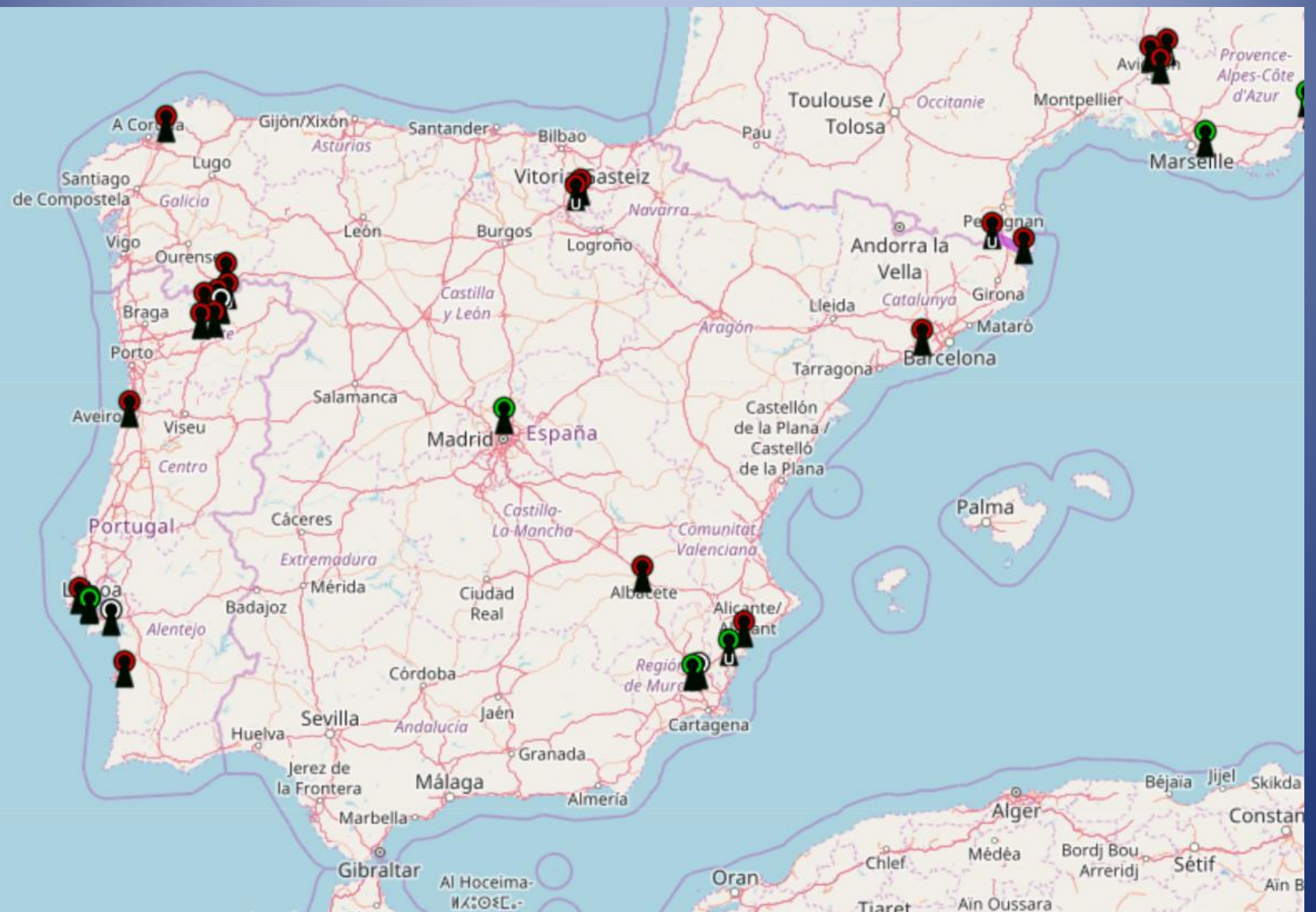
Para entrar ya!!

- Pide tu acceso VPN a hamnet.es
- Es gratuito durante toda la feria!!
- Y después también
- hamnet.es@gmail.com
- Mail con tu nombre e indicativo
- Te instalas el cliente mumble, chuletas en la pagina del proyecto

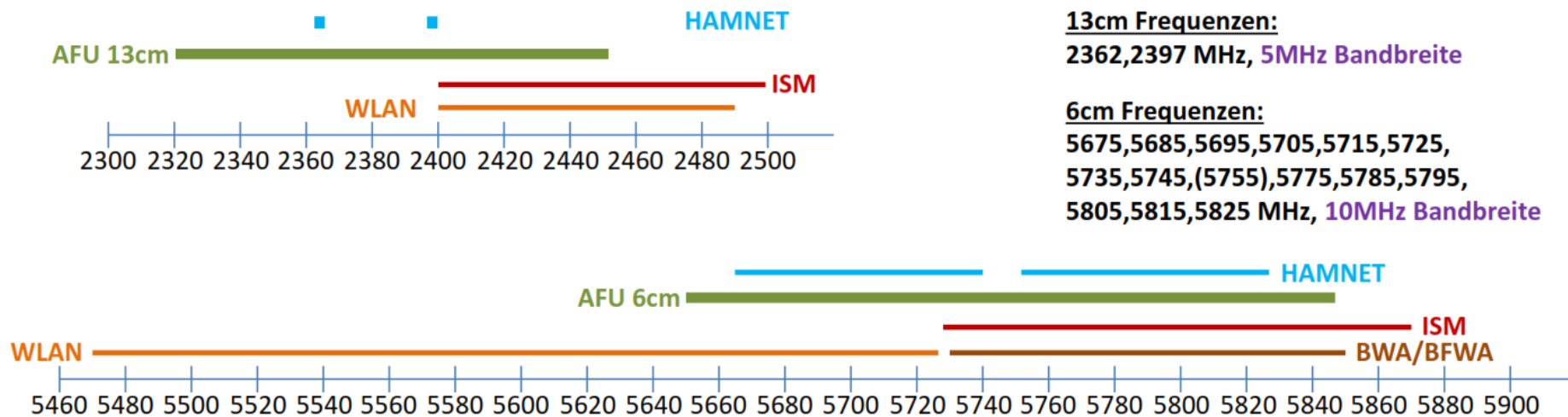
Mesh-Ptp







Bandas de frecuencia



Protocolos ip

- Proviene del ejército americano, como requerimiento, para ser capaces de que la información pueda ser entregada en caso de caída de cualquier nodo de la red.

Hamserver pi

- Betriebssystem für den Raspberry Pi (Raspbian)
- Webserver für HAMNET-Seiten (Nginx, PHP)
- CMS-System zur Webseitengestaltung (GetSimple)
- Besucherstatistik für den Webserver (HitCount)
- Widget zur Suchmaschinen-Anbindung (YaCy)
- FTP-Server für die Dateiübertragung (ProFTPD)
- APRS-RX-iGate mit DVB-T-Stick (PyMultimonAPRS)
- Audio-Server für Sprachkonferenzen (Mumble)
- Video-Server für HAMNET-ATV (Icecast)
- TeamTalk für Audio, Video, Chat (TeamTalk)
- Chat-Server für Instant-Messaging (Prosody)

Hamserver Pi

- Mail-Server mit Webmail-Client (Citadel)
- VoIP-Server für HAMNET-Telefonie (Asterisk)
- APRS-Server als Gateway zum APRS-IS (aprrsc)
- SDR-Server mit DVB-T-Stick (OpenWebRX)
- Relaissteuerung/EchoLink-Gateway (SvxLink)
- Relaisvernetzung via TCP/IP (SvxServer)
- VPN-Client zur HAMNET-Anbindung (PPTP)
- HAMNET-Gateway (Forwarding/Masquerade)
- EchoLink Proxyserver (EchoLinkProxy)

Hamserver Pi

- Se puede instalar FLDIGI, BPQ, JNOS, JITSY, Wiki, forum, blog wordpress, etc.
- En todos los servicios se pueden habilitar salas, conferencias, foros, etc. De EMCOM

Mikrotik

- RouterOS

admin@192.168.88.251 (BHI-RB450) WinBox v5.4 on RB450 (mipsbe)

Safe Mode Uptime: 00:04:40 Memory: 14.0 MiB CPU: 1% Hide Passwords

RouterOS WinBox

Interfaces
Wireless
Bridge
PPP
Switch
Mesh
IP
IPv6
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
MetaROUTER
Make Supout.tif
Manual
Exit

Package List

Name	Version	Build Time	Scheduled
routeros-mipsbe	5.4	May/27/2011 10:22:06	
advanced-tools	5.4	May/27/2011 10:19:47	
dhcp	5.4	May/27/2011 10:19:55	
hotspot	5.4	May/27/2011 10:20:23	
ipv6	5.4	May/27/2011 10:20:19	
mpls	5.4	May/27/2011 10:20:11	
ppp	5.4	May/27/2011 10:20:05	
routerboard	5.4	May/27/2011 10:21:10	
routing	5.4	May/27/2011 10:20:06	
security	5.4	May/27/2011 10:19:54	
system	5.4	May/27/2011 10:19:43	
wireless	5.4	May/27/2011 10:21:00	

12 items

Terminal

```
MMM      MMM      KKK      TTTTTTTTTT      KKK
MMMM     MMMM     KKK      TTTTTTTTTT      KKK
MMM MMMM MMM III KKK KKK RRRRRR 000000 TTT III KKK KKK
MMM MM  MMM III KKKKK RRR RRR 000 000 TTT III KKKKK
MMM III  KKK KKK RRRRRR 000 000 TTT III KKK KKK
MMM     MMM III KKK KKK RRR RRR 000000 TTT III KKK KKK

MikroTik RouterOS 5.4 (c) 1999-2011 http://www.mikrotik.com/

[admin@BHI-RB450] >
```



Openwrt

Overview Status System Services **Network** Changes: 0 Essentials Administration

Overview Status System Services **Network**

Interfaces Wifi Switch DHCP Leases Hostnames Static Routes Firewall VnStat Traffic Monitor Wake on LAN QoS

WAN AP2 AP3 WCL **LAN** HENET

Interfaces - LAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names of several network interfaces separated by spaces. You can also use VLAN notation INTERFACE.VLANNR (e.g.: eth0.1).

Common Configuration

General Setup IPv6 Setup **Physical Settings** Firewall Settings

Bridge interfaces ☒ creates a bridge over specified interface(s)

Enable STP ☒ Enables the Spanning Tree Protocol on this bridge

Interface

☒ Ethernet Adapter: "eth0" ([lan](#))

☒ Ethernet Adapter: "eth1" ([wan](#))

☒ Ethernet Adapter: "sit0" ([wcl](#))

☒ Wireless Network: Client "xmff" ([ap3](#))

☒ Wireless Network: Master "xmff-5" ([lan](#))

☐ Custom Interface:

MTU

MAC-Address

IP-Aliases

This section contains no values yet

DHCP Server

General Setup **Advanced Settings**

Ignore interface ☒ Disable DHCP for this interface.

Start
Lowest leased address as offset from the network address.

Limit
Maximum number of leased addresses.

Leasetime
Expiry time of leased addresses; minimum is 2 Minutes (2m).

Powered by LuCI Trunk (v0.10+svn)

Contains the following hosts:

Host-IP	M	Hostname	Type	Site	Radio parameters / Comment	E
44.132.128.6		bb-ea4gpz.eb5jeq	Routing-Tunnel	eb5jeq	Elche area Alicante Spain	25
44.132.128.161		bbp-ea5idn.eb5jeq	Routing-Tunnel	eb5jeq		60
44.132.128.165		bb-ea5fsj.eb5jeq	Routing-Tunnel	eb5jeq		60
44.132.128.225		router.eb5jeq	Service	eb5jeq	Mikrotik RB750UP	60
44.132.128.226		bpqax25.eb5jeq	Service	eb5jeq	AX25 Netrom node BPQ32 v 6.0.8.1 - Hp ML330G3..	60
44.132.128.227		uxserver.eb5jeq	Service	eb5jeq	DNS Aliases: web.eb5jeq - Web server -Linux Ub..	60
44.132.128.228		jnos.eb5jeq	Service	eb5jeq	DNS Aliases: box.eb5jeq - Jnos 2.0j ampr.org a..	60
44.132.128.229		piserver.eb5jeq	Service	eb5jeq	Raspberry Pi 2+ Hamserver Pi 1.4 - web server..	60
44.132.128.230		ipcam1.eb5jeq	Service	eb5jeq	DNS Aliases: video1.eb5jeq - Outdoor IP videoc..	60
44.132.128.241		dchp.eb5jeq	Service	eb5jeq	User access dchp	60
44.132.128.242		ap1.eb5jeq	Service	eb5jeq	AP Bridge - Radio parameters: Station,Mikrotik..	60
44.132.128.243		ap2.eb5jeq	Service	eb5jeq	AP Bridge - 2,4 ghz AP Planned	60
44.132.128.244		pc1.eb5jeq	Service	eb5jeq	STATION PC User workstation	60
44.132.128.245		pc2.eb5jeq	Service	eb5jeq	STATION PC user workstation - Voip SIP phone ..	60
44.132.128.246		dhcp-44-132-128-246.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.247		dhcp-44-132-128-247.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.248		dhcp-44-132-128-248.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.249		dhcp-44-132-128-249.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.250		dhcp-44-132-128-250.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.251		dhcp-44-132-128-251.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.252		dhcp-44-132-128-252.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.253		dhcp-44-132-128-253.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s
44.132.128.254		dhcp-44-132-128-254.eb5jeq	DHCP-Range	eb5jeq	assigned dynamically	0s

23 entries.

Coste

- Nuevo:
- Router mikrotik 75 euros
- Raspberry pi 35 euros
- Antena + radio 5ghz 44+ 20 euros
- Surplus de proveedores WISP, mas barato

EMCOM

- Grupos USA:

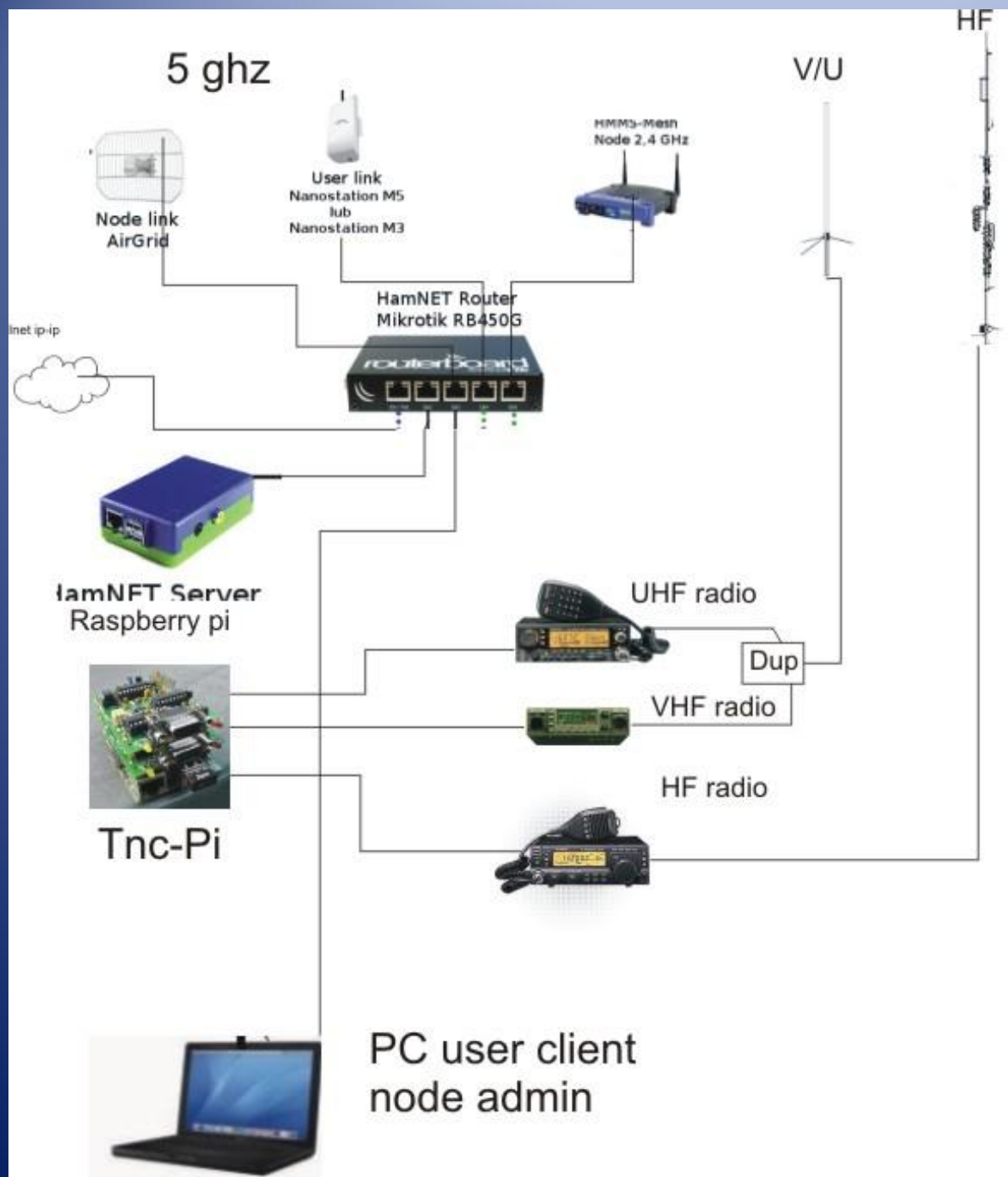
ARES, RACES, MARS

AREDN, NBEMS

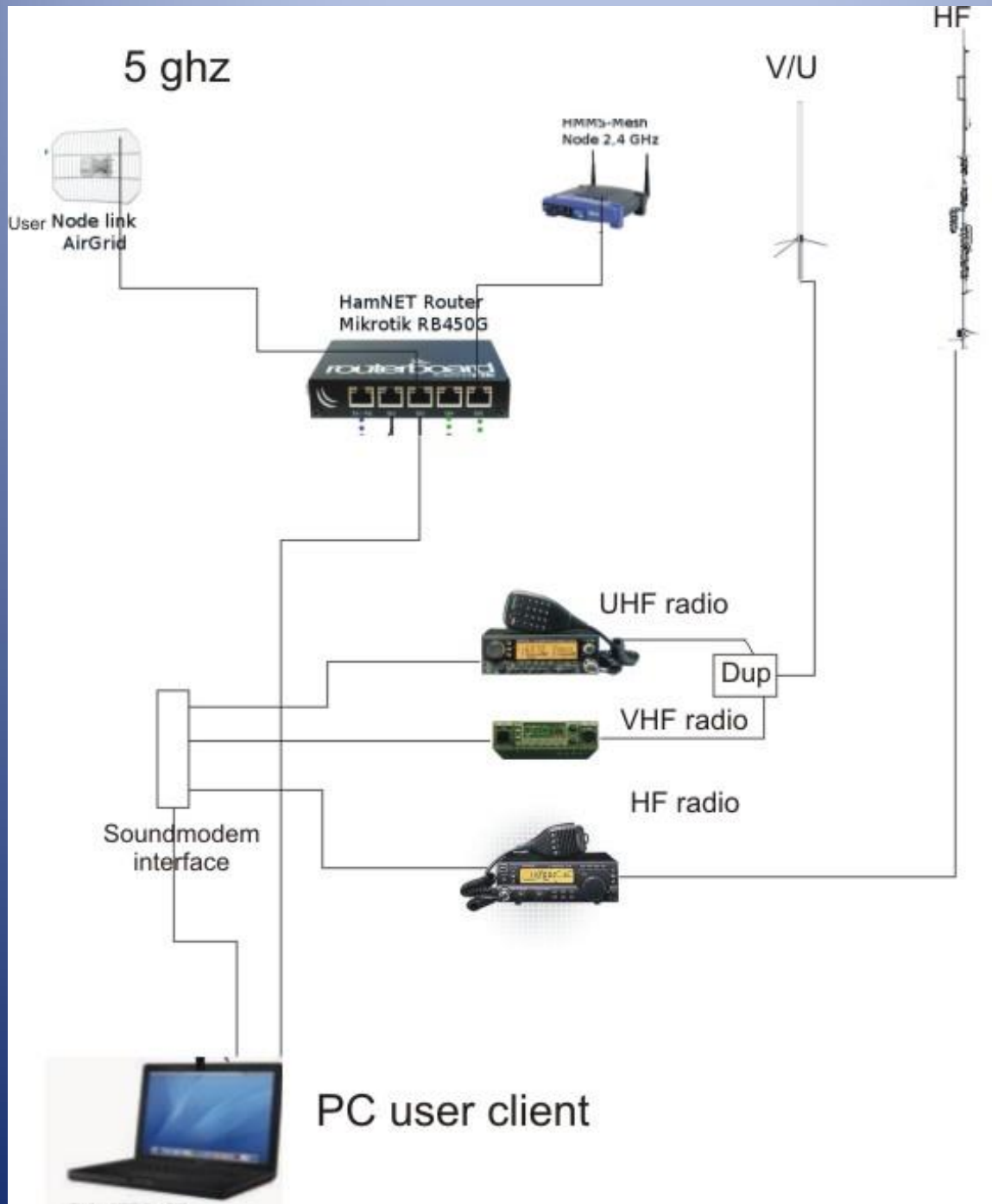
- España:

- Remer, Ure emcom

- Redes oficiales (Gov y dipus (protcivil), Mil (UME), autonomías y aytos.(Tetra). Servicios emergencia, Policía, GC, PM, forestal, etc.



Nodo emcom



Usuario

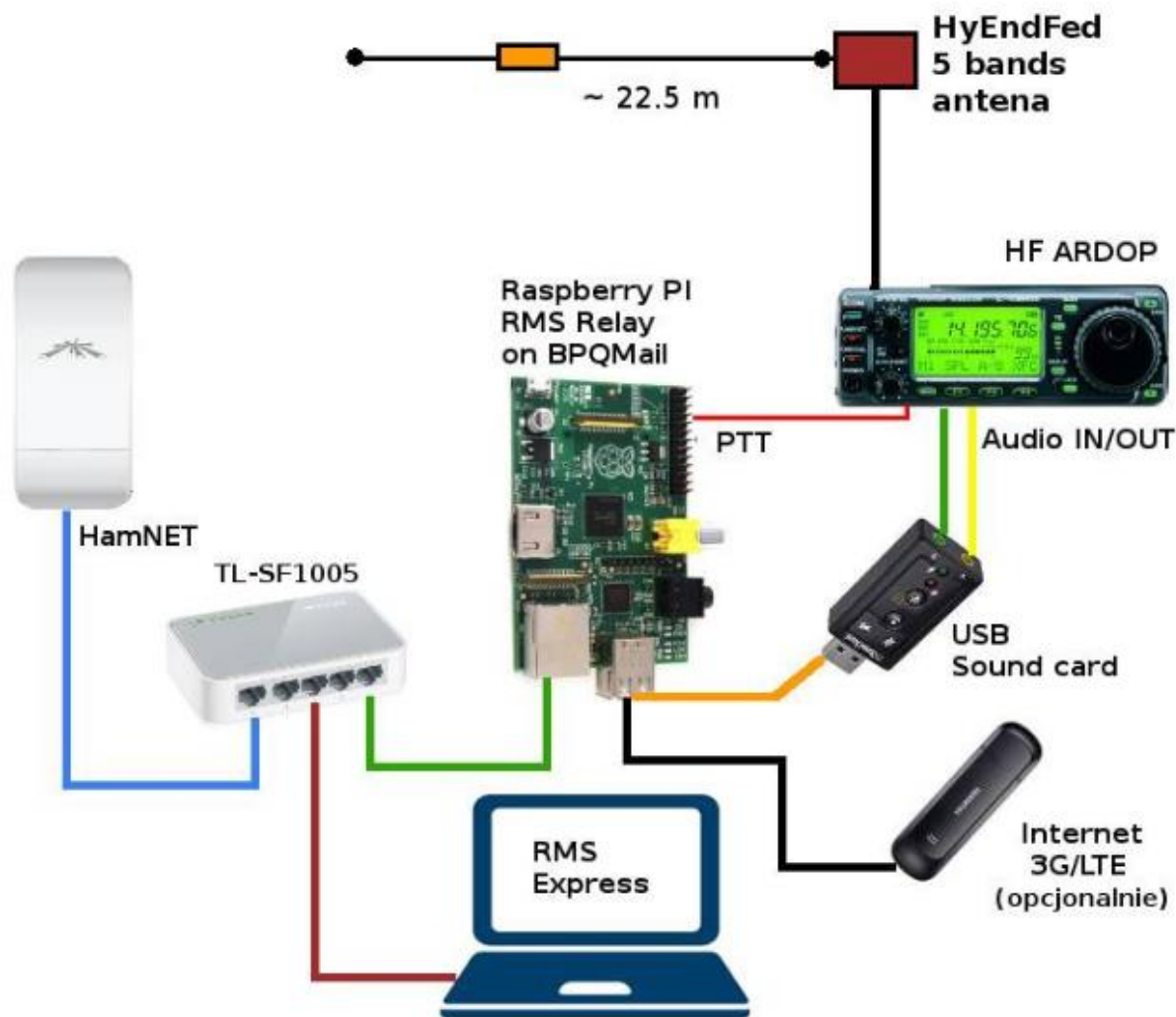
Guía de documentos

- Red 44 Alex EA5HJX
- Hamnet DG8NGN
- Hamnet DL DL8SCU
- USA AREDN: Auxcom-emcom K6AH
- Hamnet Polonia: Hamnet-mesh, integración winlink-hamnet SP2ONG
- NBEMS (USA Integración HF Vuhf fldigi - hamnet)
Intro_nbems y advanced W3YJ
- Fldigi basics para emcom
- Pigate: móviles, emcom KD0QYN
- HSMM-BB en emcom
- En <ftp://piserver.eb5jeq.es.ampr.org/iberradio2017>

indice de powerpoints

- red44 <https://hamnetspain.wordpress.com/documentacion/>
- hamnetmumd8ngn.pdf
- Einfuehrung_HAMNET_150112_P06.pdf (saltar)
- aredn auxcomemcom K6AH Hamvention 2017 - 12x9 v2.pdf
- HamNETenPolonia.pdf (saltar)
- HamNET-Winlink_EmcomenPolonia.pdf (saltar)
- Introduction_to_NBEMS_ARRL.pdf
- Advanced_NBEMS_3_0.pdf
- fldigi basics.pdf
- va3bcomeshnov2014bbhnmcom.pdf
- PiGate.ppt

Winlink - hamnet



Atraer al publico joven

- Comunidad Maker (raspberry pi, arduino,etc.)
- Móviles, ordenadores, etc.
- Filosofía software libre, developers
- Incluir los modos digitales en los ejercicios.
- Actividades de aventura: ejercicios en la Montaña, trekking, BTT.
- Actividades Field Day

Conclusiones

- HSMM Hamnet, puede ser una ayuda muy valiosa para trafico información de mucho ancho de banda=alta velocidad (ficheros grandes, video, acceso de la población, etc.) complementario al envío de los datagramas por HF/V/UHF.
- El coste es mínimo
- Podemos atraer al publico joven
- Incentiva el despliegue a nivel nacional

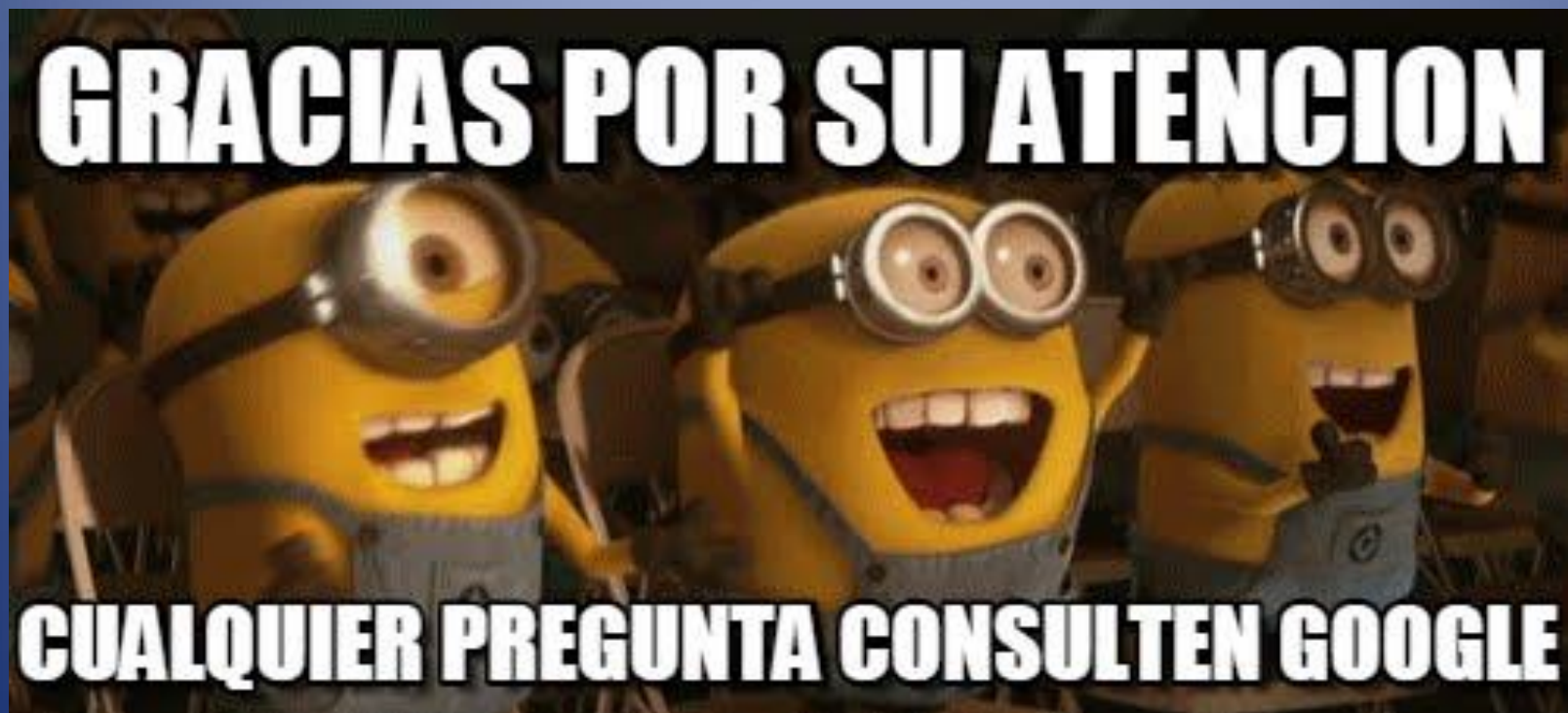
Agradecimientos

- Dani EA5GPZ
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- Alex EA5HJX
- David CT1DRB (hamnet.pt)
- Jann DG8NGN
- el resto grupo del proyecto hamnet.es
- Grupo Emcom Ure

Mas info

- Web del proyecto
- www.hamnet.es
- Lista de correo, wiki, etc.
- Dentro de hamnet:
- Foro, wiki, Nets mensuales mumble

Gracias por su atención



Preguntas



**WHEN
ALL
ELSE
FAILS...**



Four circular icons with yellow backgrounds and red borders, each containing a black symbol crossed out with a red lightning bolt, indicating failure: a telephone handset, a mobile phone, a laptop, and a satellite dish.

**AMATEUR
RADIO**



Three small triangular icons in the bottom right corner: a green triangle with a white checkmark, a yellow triangle with a black lightning bolt, and a red triangle with a white cross.