



# A Hailing Channel for Packet Radio

Winlink, APRS and Beyond

Bryan Hoyer - K7UDR

# Packet Channels

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- Band Plan
  - 10: 20 kHz channels on 2 m band
  - 20: 25 kHz channels on 70 cm band
  - How many do we use?

# Channel Paradox

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- Choosing a channel
- I want to connect to everyone else
- I don't want anyone else to use my frequency

# Hailing Channel

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- Designate a channel for hailing only
- Move your traffic to a different frequency

# It's Obvious

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- Do it Manually
  - HF Nets
  - Marine Channel 16
- or Automate it
  - Trunked Radio

# All We Have To Do Is...

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- *agree* on a Channel
- “Use the APRS Frequency,
  - that’s what it’s there for.”
- *Bob Bruninga*
- DCC, Atlanta, 2012

# APRS as The Hailing CH?

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- Situational Awareness
- Resources Beacon
- Already used for short messages
- Keeps traffic short, in the spirit of APRS
- IGate and RMS Gateway at the same time

# Advantages

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- Everyone is on the same channel
- Better spectrum utilization
- Ability to channel bond
- Turn 4 of the 25 kHz channels at 9600
- Into a single 100 kHz channel at 56 k



# Why Hasn't It Been Done?

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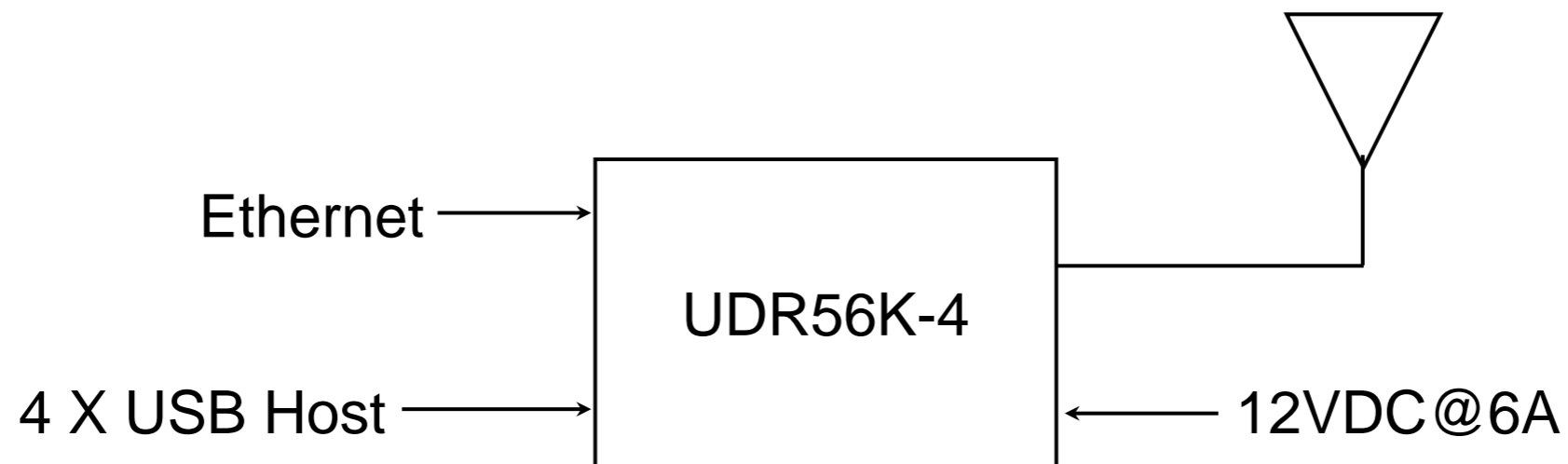
- We Need Computer Controlled Radios
  - Frequency Agile
  - Higher Bit Rates
  - Fast RX/TX Turnaround

# UDR56K

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## Universal Digital Radio

*Ethernet to RF  
in a Single Package*



# Specifications

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- 25 W, 70 cm Mobile Transceiver
- 4800 bps to 56 kbps
- AX25 Packet and D-STAR
- 800MHz Linux Server
- Web Interface from any Device
- PC, Laptop, Pad or Smartphone

Mode	MyCall	Channel	CallSign	Path	Frequency	PWR	Connect
APRS	NW7DR	Port Angeles	N7JN-10		440.800	10W	OK

S-Meter	UDR56K
RRR--	Connected

- Login
- Channels
- Mail Client
- Servers
- Help

Copy Current Settings to new channel

Click Headings to sort, shift click to secondary sort (requires javascript)

CH	Mode	Group	Name	Callsign	Path	Freq	PWR	Edit
1	RMS	Local	Cady	N7JN-10	DIGI	440.800	10W	<input type="button" value="Edit"/>
2	DD4K8	ARES	Blaine	W7BPO-10		434.500	25W	<input type="button" value="Edit"/>
3	DD56K	Local	Victoria	VE7RAH		434.250	5W	<input type="button" value="Edit"/>
4	APRS		Mobile	APRS	440.800 RELAY Wide1-1		5W	<input type="button" value="Edit"/>

TX	RX	RETRYs	ThruPut
None	K7UDR	4	88%

GPS	VDC	Temp	UTC
48.05.31:-123:00:05	12.6	30.5	08:28:45

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# Both a Client and Server

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- With an Internet Connection
  - Winlink RMS Gateway
  - APRS IGate
  - D-STAR Gateway
- Or standalone as a client
  - APRS, SMS, email and D-RATS

# Sites, Our Most Valuable Resource

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- At Every Site:
  - Increase speed 8X on 440
  - Combine APRS, Winlink and D-STAR
  - Bridge to 2m/1200

# Fixed Installation

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- Internet Connection
  - Wired LAN
  - Bullet to LOS LAN
  - Cellular via USB dongle
- Acts as a relay or mesh node when the Internet goes down

# Mobile Application

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- Add via USB
  - GPS
  - WiFi AP
  - Send receive SMS or email from your pad
- Cellular Dongle and become a mobile gateway



# UDR Adoption

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Pre-Orders Opened April 1  
~200 units in a dozen countries on 3 continents  
in the first 2 weeks

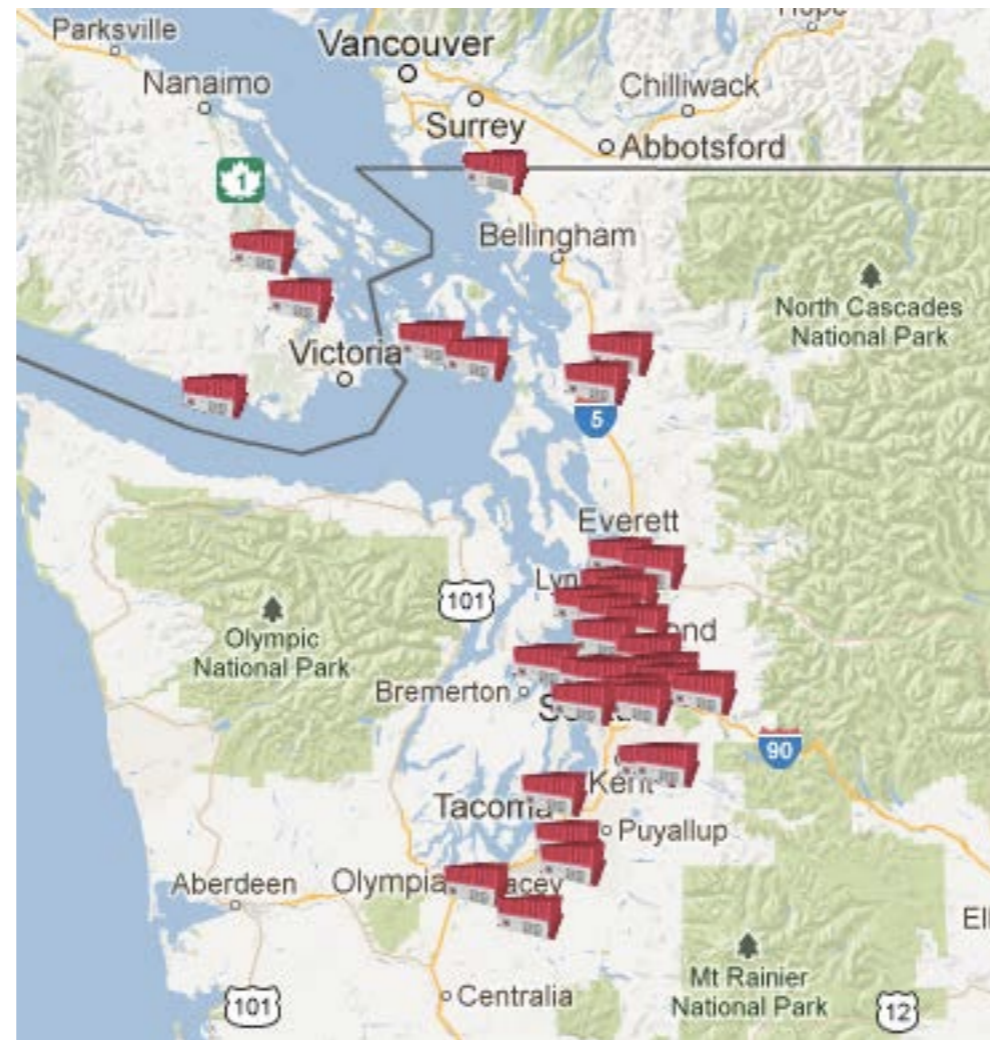
Orders	Units	Winlink	RMS-GW	Tracker	IGate	D-STAR	Linux	AMBE
157	195	50	41	51	65	112	94	65
		31%	26%	32%	41%	71%	59%	41%

# USA



# Puget Sound

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Pre-Order your UDR thru April and  
receive 10-15% off

[www.NWDigitalRadio.com](http://www.NWDigitalRadio.com)