BCWARN

British Columbia Wireless Amateur Radio Network

> *lan Procyk, VE7HHS Duncan Meakins, VE7NEO*

11 Years ago this summer...

Kelowna Firestorm 2003 – Photo By Neil King, VA7DX



- Firestorm 2003 proved that traditional networks / methods are too slow for practical health and welfare messaging
- EOC's are increasingly reliant on rich media:
 - GIS
 - Satellite photos
 - Location based services
 - File exchanges / "LAN dropbox"
- A way to showcase amateur radio in a new and more relevant way to the emergency management community



Paul, VE7TL and Martin, VA7HYD pass digital messages during exercise in 2012

The Idea...

- 1. Link amateur radio clubs and their stations in EOC's
- 2. Provide high speed access to RMS via telnet
- 3. Provide private VoIP phone system to these sites

BCWARN itself would remain a collection of clubs who are all striving to achieve the same goal. There would be no formal "BCWARN" society.

Not for private or commercial use!



First BCWARN Link being installed, VE7HHS on the tower at NWARC ~2005

Is It possible?

Summer 2005 Very first long distance test to Nanaimo...

In preparation for demonstration to Nanaimo Amateur Radio Club, I booked a room on the top floor of the Coastal Inn in the Nanaimo Harbor. I hung the BCWARN dish off the balcony to see if I could get a connection to the newly installed radio at Mount Seymour, some 80km away.

I did, it worked, we made calls!!

But...



Build it and they will come...

• Started building in the summer of 2005

- Connectivity started with providing local clubs, a high speed tie into the Winlink System + VOIP
- Repeater site connectivity
- Regular presentations to clubs follow



Friends in High Places... With Lots of Space...





40 Years of evolution



BCWARN Core Team – 11+

- 1. Geoff Armstrong, VE7KA
- 2. Ian Procyk, VE7HHS
- 3. Dave Cameron, VE7LTD
- 4. Bob Holowenko, VE7WNK
- 5. Duncan Meakins, VE7NEO
- 6. Drew Elvins, VA7DRW
- 7. Lee Woldanski, VE7FET
- 8. Neil King, VA7DX
- 9. Jeremy Cohoe, VA7NSA
- **10. Matthew Currie, VE7MJC**



Our Approach

- Education of amateur community / "selling the concept"
- If you want to participate it's typically a 50/50 split
- Funds raised by clubs primarily via grants / general revenue
- Some hardware provided by UBC IT (diverted from recycling)
- Every participating club / EOC / Organization participating gets:
 - Cisco 3550 demarcation router/switch
 - Cisco IP Phone
 - Wireless Access Point





a place of mind THE UNIVERSITY OF BRITISH COLUMBIA



Simon Fraser University

 Existing allocation of IPs 206.12.104.0/22 (1022 IPs) provided by Autonomous System (AS) 271 (BCNET)



• 1Gbps tie at UBC – 100Mbps @ SFU

As of July 16th AMPRnet allocation of 44.135.210.0/21 (~2000 IPs)

Amateur Radio Digital Communications

Managing the AMPRNet[™] — TCP/IP Networking for Amateur Radio



Hardware

Originally 2.4GHz radios from WiLAN

 Requirements grew, migrated most links to 5GHz using equipment from UBNT

 Need better / rugged hardware for long-haul shots to BC's interior





Mount Seymour Repeater Site

The BCWARN Service Set



Other Services Under Investigation

 Remote HF (RX at low noise locations)

• K3/K30

Pigremote



Other Services Under Investigation

- Re establishing some of the wide area repeater systems that began falling apart in the late 90's.
- This time using an IP backbone between sites to provide audio path



Network Admin / Monitoring



- Secure Wiki
- Mix of commercial & open source monitoring software



Network Admin / Monitoring



Notice the fades over long over water links

Amateur Organizations Participating

- New Westminster Amateur Radio Club
- New Westminster EOC
- Burnaby Amateur Radio Club
- Coquitlam Amateur Radio Club
- North Shore Amateur Radio club
- TPARC
- VECTOR
- NARA
- EPComm
- BCFMCA
- NSARC
- SEPAR



Organizations Participating / Joining the Network

- Provincial Emergency Program
- Municipal EOCs
- Vancouver Coastal Health
- Provincial Health Services Authority
- BC Ambulance Service
- ECOMM











BCWARN Network Status



Backup Satellite Access

- Backup WAN connectivity to BCWARN
- Ku-band Satellite access with IP-Access
 International as provider
- Idirect modem capable of up to 30Mbps



BCWARN In the Future

- System wide team meetings (town halls)
- System wide testing during exercises
- Connections to Victoria & BC interior (common disaster recovery location)
- Connections to HAMWAN
- Further expansion of network on Vancouver Island and Fraser Valley and the SIRG sites





RF link status

http://www.bcwarn.net/intermapper/rf-map.html

Current System map plotted in Radio Mobile
 <u>http://tinyurl.com/l4gv4vh</u>



Geoff, VE7KA

Thanks...

X

Contact US: bcwarn.net@bcwarn.net

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Backup Slides

Homebrew Az/EL rotator for fixed/portable operation

