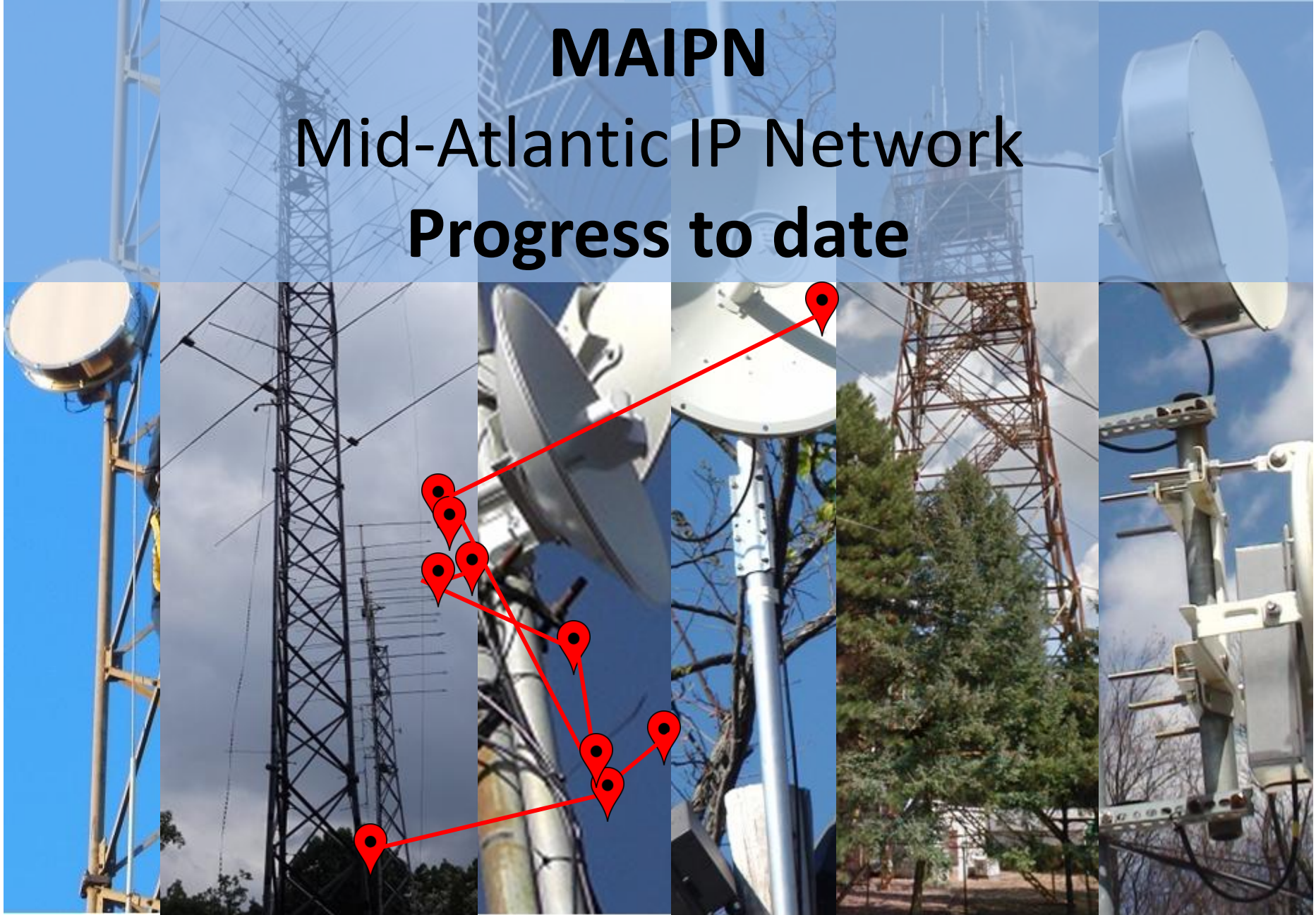


MAIPN

Mid-Atlantic IP Network Progress to date



Background

- 2004 HSMM Radio Equipment
- 2006 ARRL HSMM (High Speed Multi Media) Working Group
- 2007 Experiments In Virginias Shenandoah Valley
- 2007 WEN (SCEWN)
- 2008 Broadband-Hamnet, HSMM-MESH
- 2009 BCWARN, British Columbia Wireless Amateur Radio Network
- 2009 CPIN
- 2012 MARC, "HSMM-MESH"
 - Kevin Whipp, W3KDW, David Bern, W2LNX and Vic Nardo, WB2U
- 2012 HamWAN
- 2013 MAIPN
- 2015 AREDN

Goals

- I think in a perfect world we would be just an Radio Amateur ISP and would connect to our **served agencies** and they would never know we were active if their primary ISP failed. It would all be automatic fail-over.
- But there must be an air gap, so we need to replicate the computing infrastructure...
- “The only difference between ‘Networking’ and ‘Notworking’ is one letter.”
 - Craig Anderson N6YXK, WEN

Achieving our goals

- Goals
 - Support Auxiliary communications.
 - Sustainable out of bounds communications
 - To bring Churches, Shelters and other community groups into the communications network.
- How best to do this
 - Amateur Radio organization
 - Amateur radio resources
 - Amateur radio knowledge

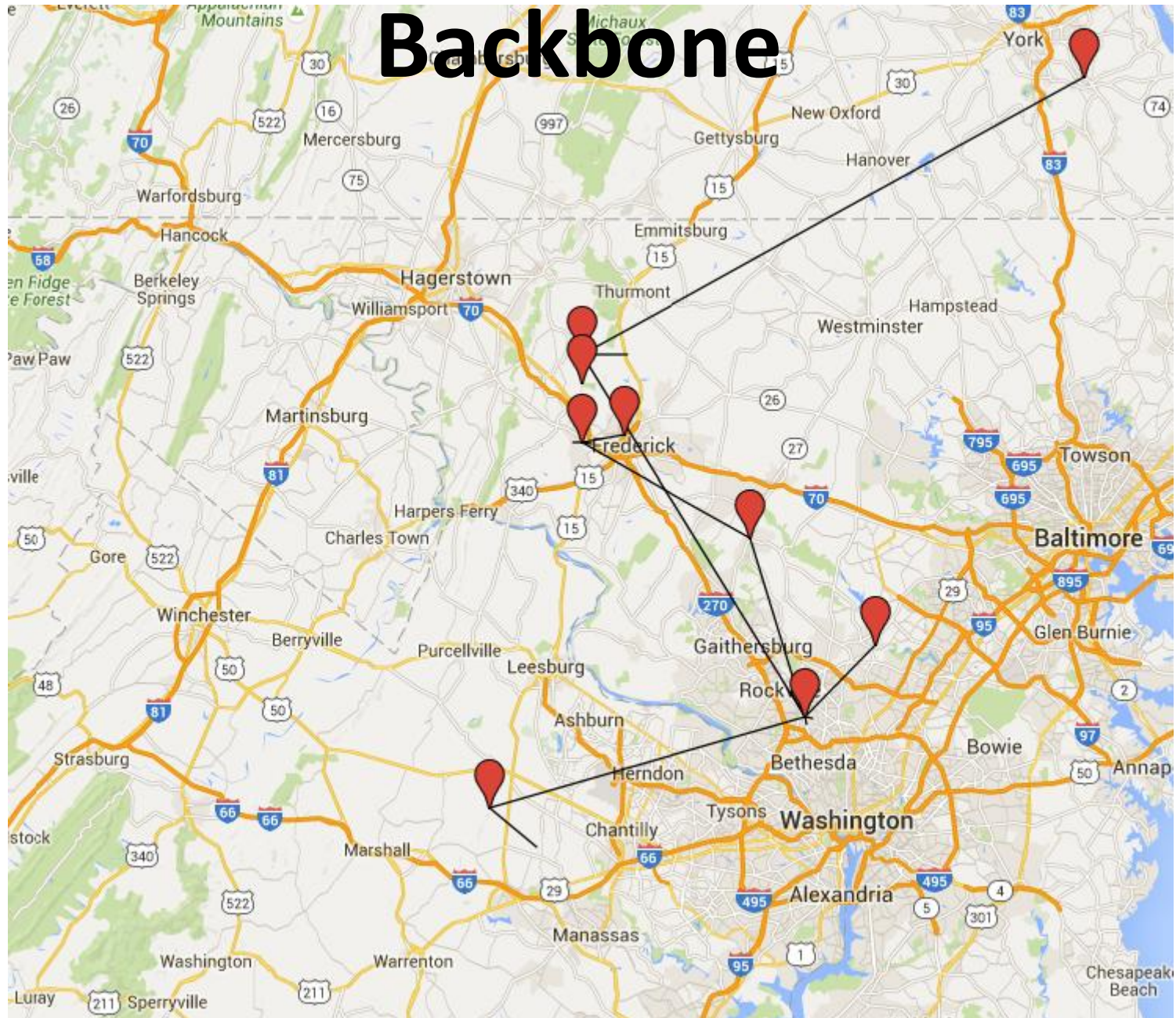
Steps on the way

- Presentations
- Equipment
- Node Locations
- Links
- Adding the services

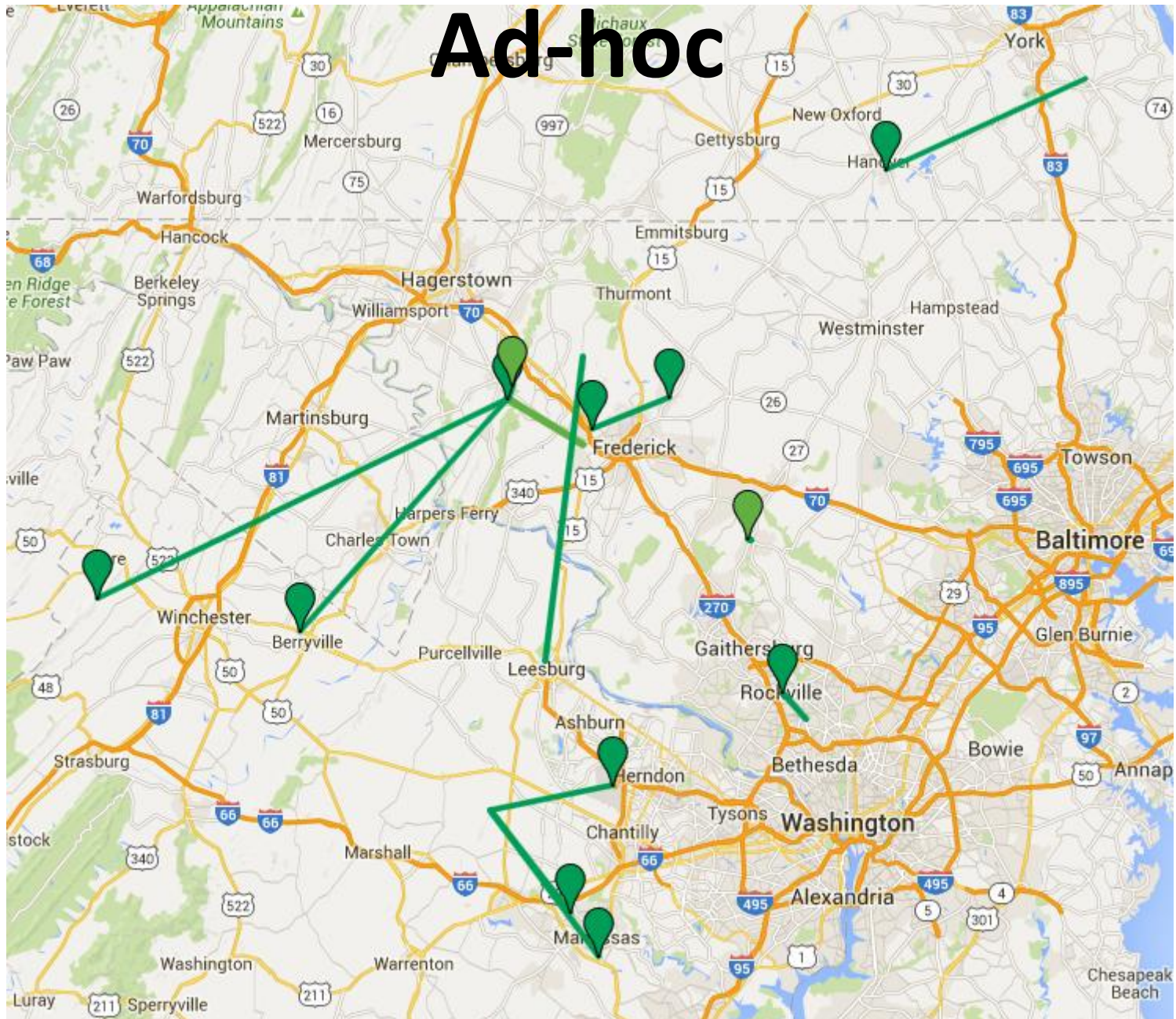
Provide ad-hoc remote links?

- One question, can we provide ad-hoc remote links at 5 GHz?
 - Red Cross, Frederick, MD – Overlook off Irongate Ln
 - Berryville – Boonsboro
 - Washington Monument State Park – KD3SU
 - Red Lion – Hanover Area ARA
 - Damascus volunteer fire Dept – Damascus Volunteer Fire Department Activity Center
 - And more...
- The Answer is **Yes!**

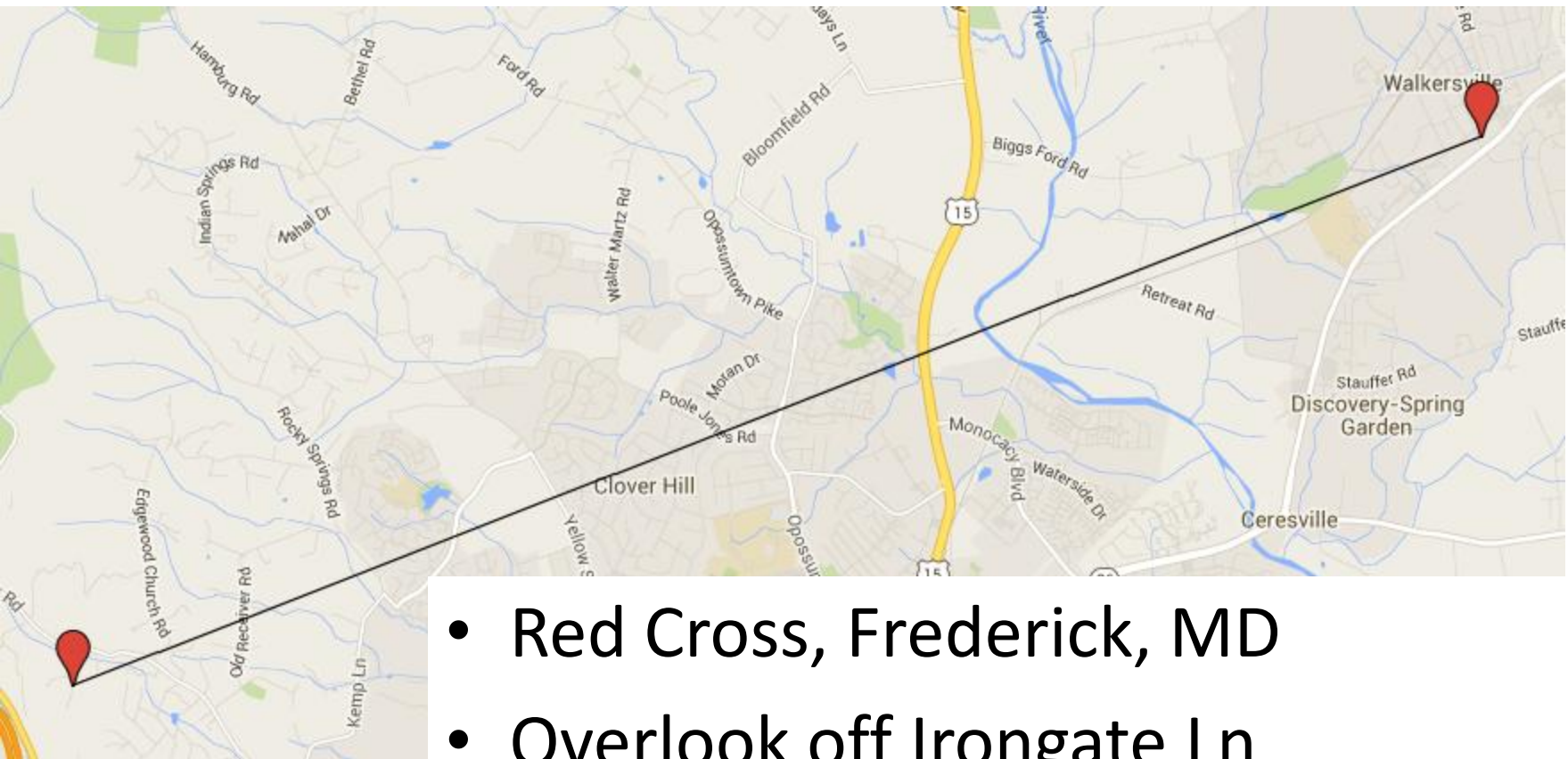
Backbone



Ad-hoc

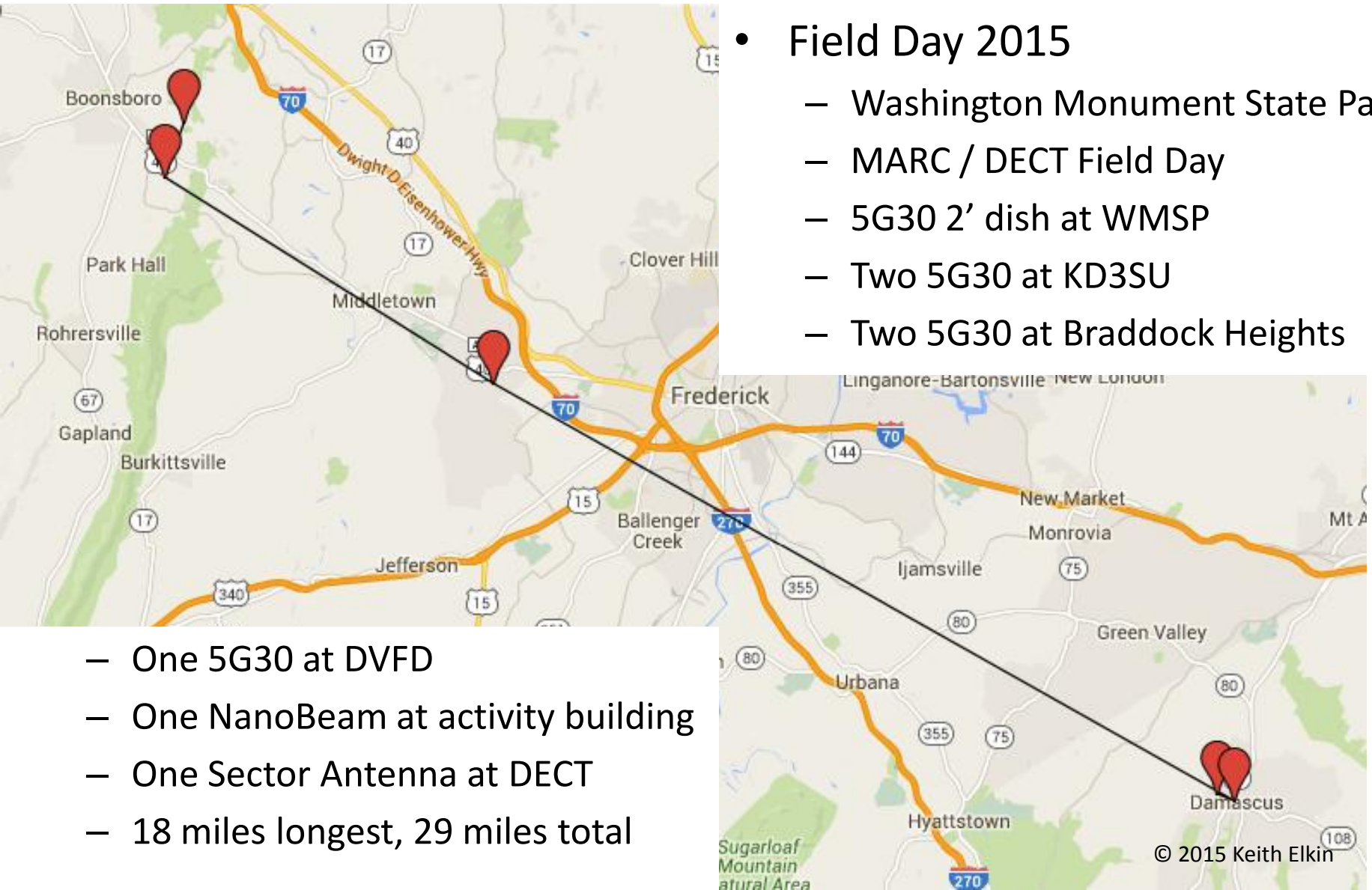


Red Cross 2014 - Remote Link



- Red Cross, Frederick, MD
- Overlook off Irongate Ln
- Two NanoBeams
- 7.79 miles

Field Day 2015 - Remote Link



- Field Day 2015
 - Washington Monument State Park
 - MARC / DECT Field Day
 - 5G30 2' dish at WMSP
 - Two 5G30 at KD3SU
 - Two 5G30 at Braddock Heights

- One 5G30 at DVFD
- One NanoBeam at activity building
- One Sector Antenna at DECT
- 18 miles longest, 29 miles total

Field Day 2015

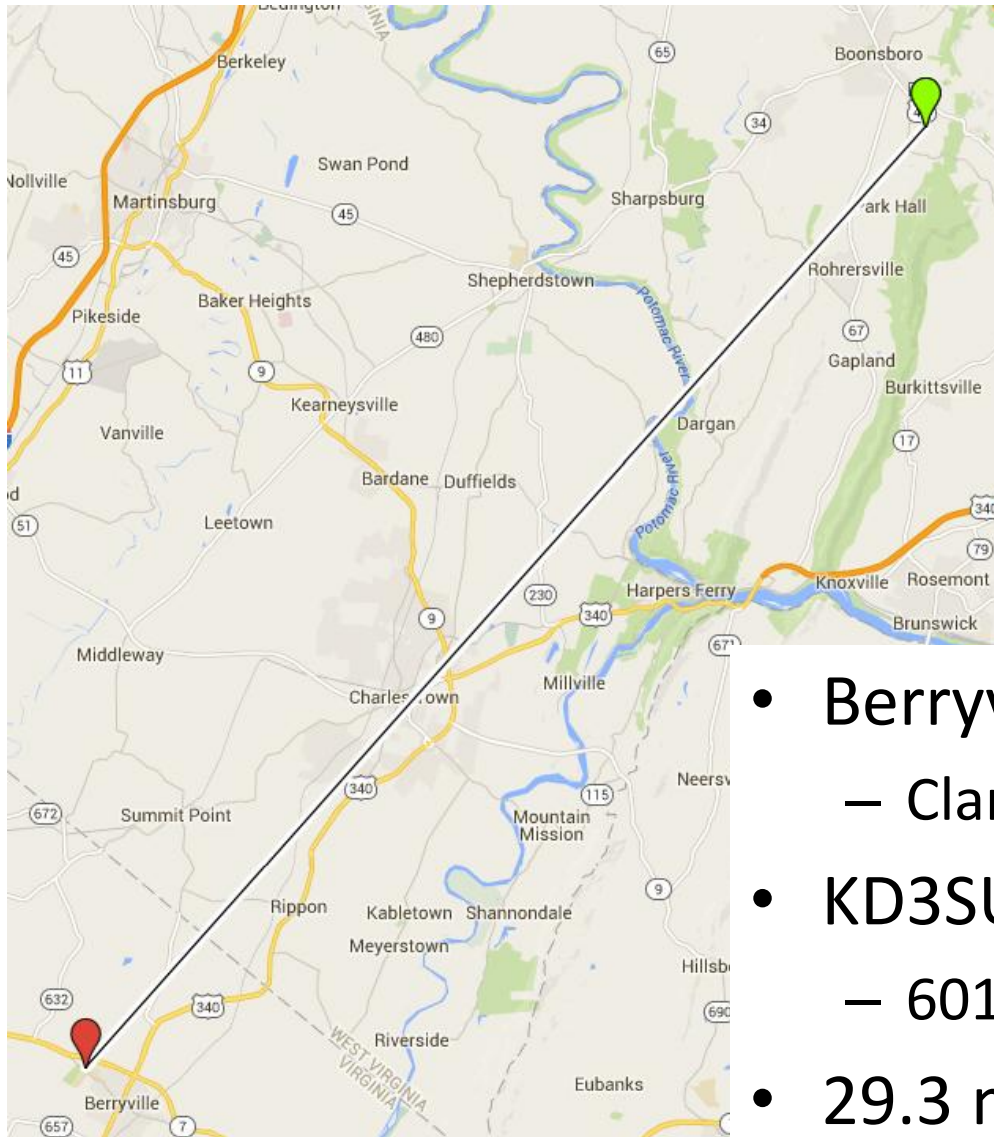
Randallstown Amateur Radio Club (RARC) - DECT Field Day



<http://www.maipn.com/Articles/WashingtonMonumentFieldDay/FieldDay2015.htm>

© 2015 Keith Elkin

Berryville Hamfest- Remote Link



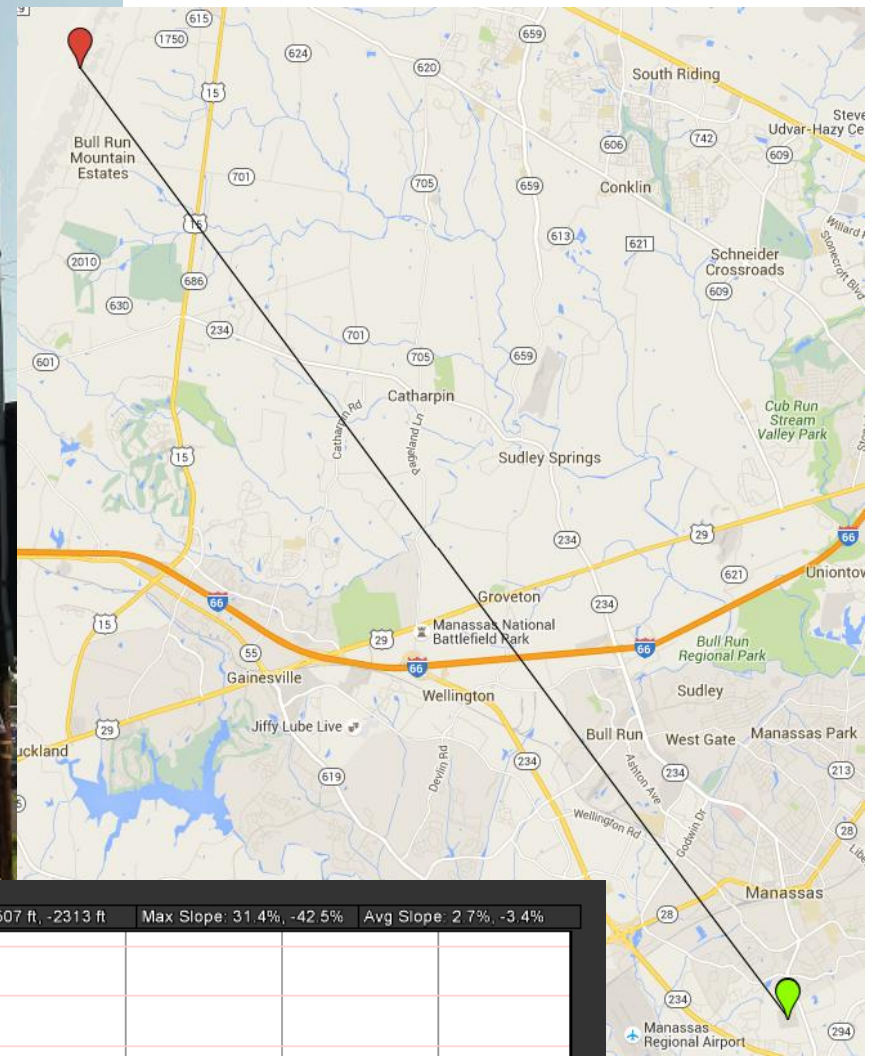
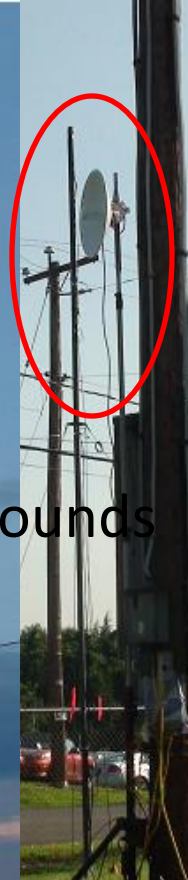
- Berryville Hamfest
 - Clarke County Ruritan Fairgrounds
- KD3SU - Gregory C Thornwall,
 - 6012 Moser Rd, Boonsboro, MD
- 29.3 miles

OVH Manassas Hamfest

Bull Run Mountain ARA
1708 Summit Drive
Haymarket, Va 2016

Prince William County Fairgrounds
10624 Dumfries Road
Manassas, Virginia

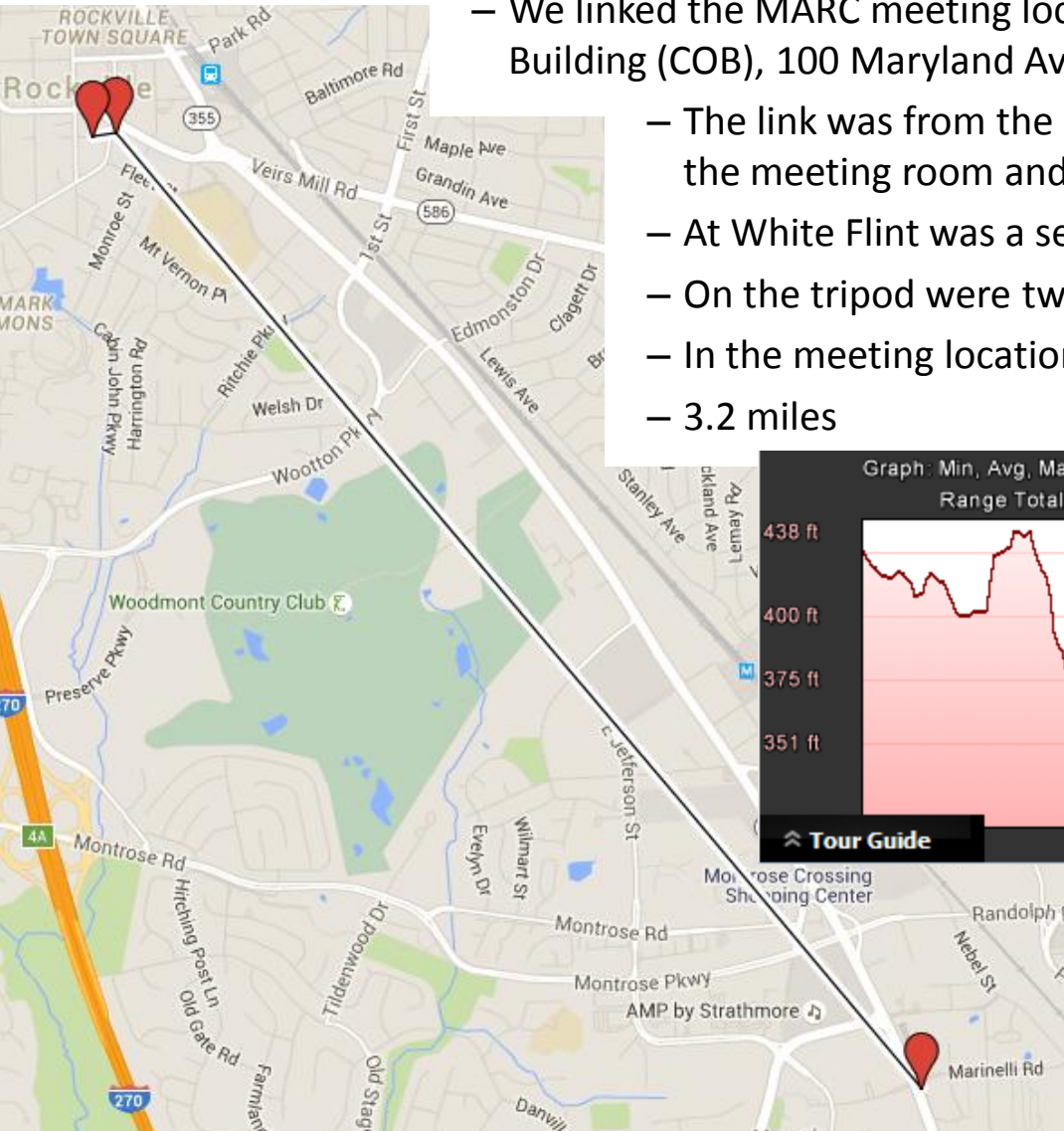
17 miles



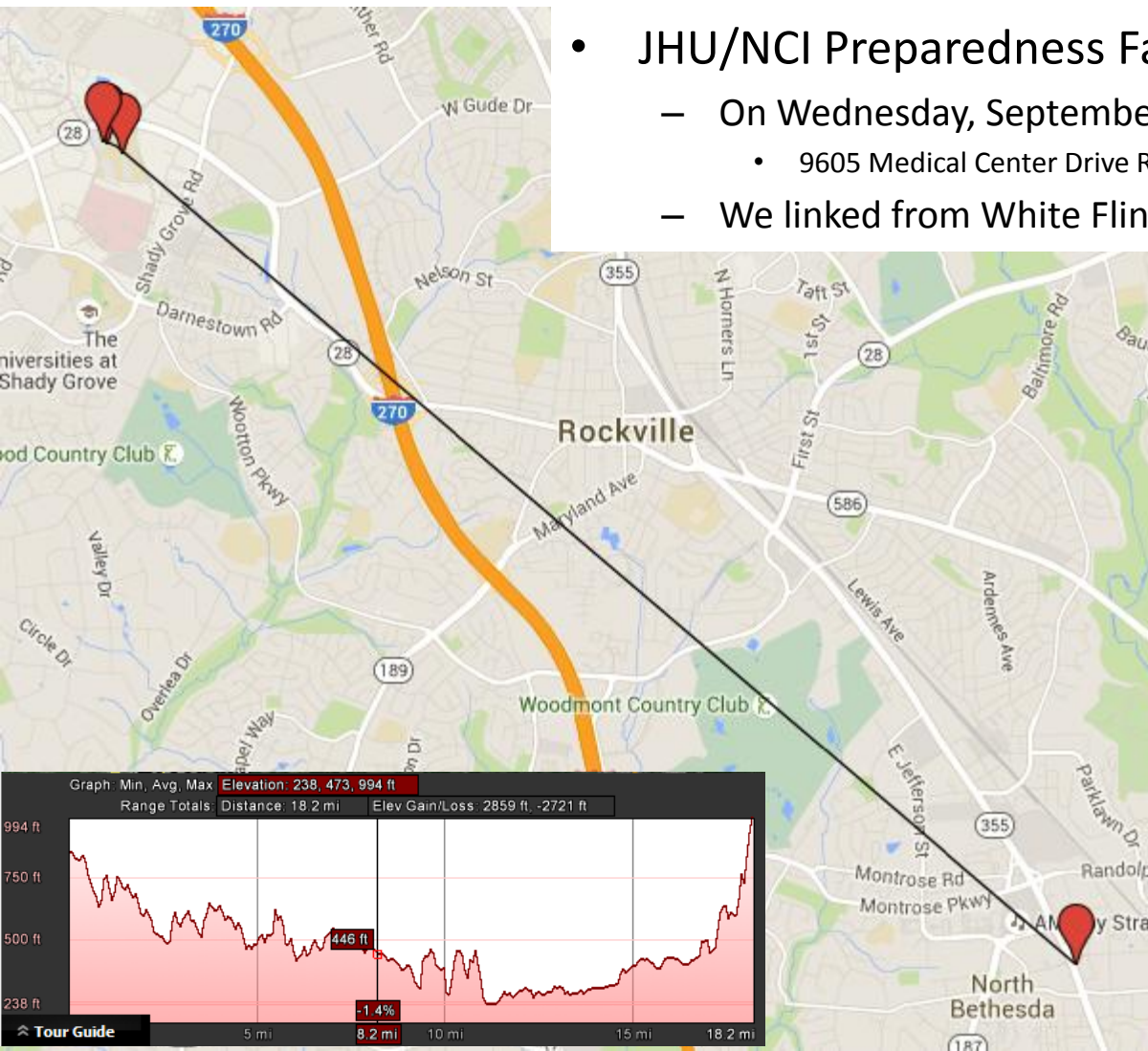
MARC Club meeting - Remote Link

– We linked the MARC meeting location at the Stella B. Werner Council Office Building (COB), 100 Maryland Avenue, Rockville, MD.

- The link was from the White Flint location via a 10 foot tripod outside the meeting room and then into the meeting room.
- At White Flint was a sector antenna
- On the tripod were two Nanobeams
- In the meeting location was another Nanobeam.
- 3.2 miles



NCI Preparedness Fair - Remote Link



- JHU/NCI Preparedness Fair

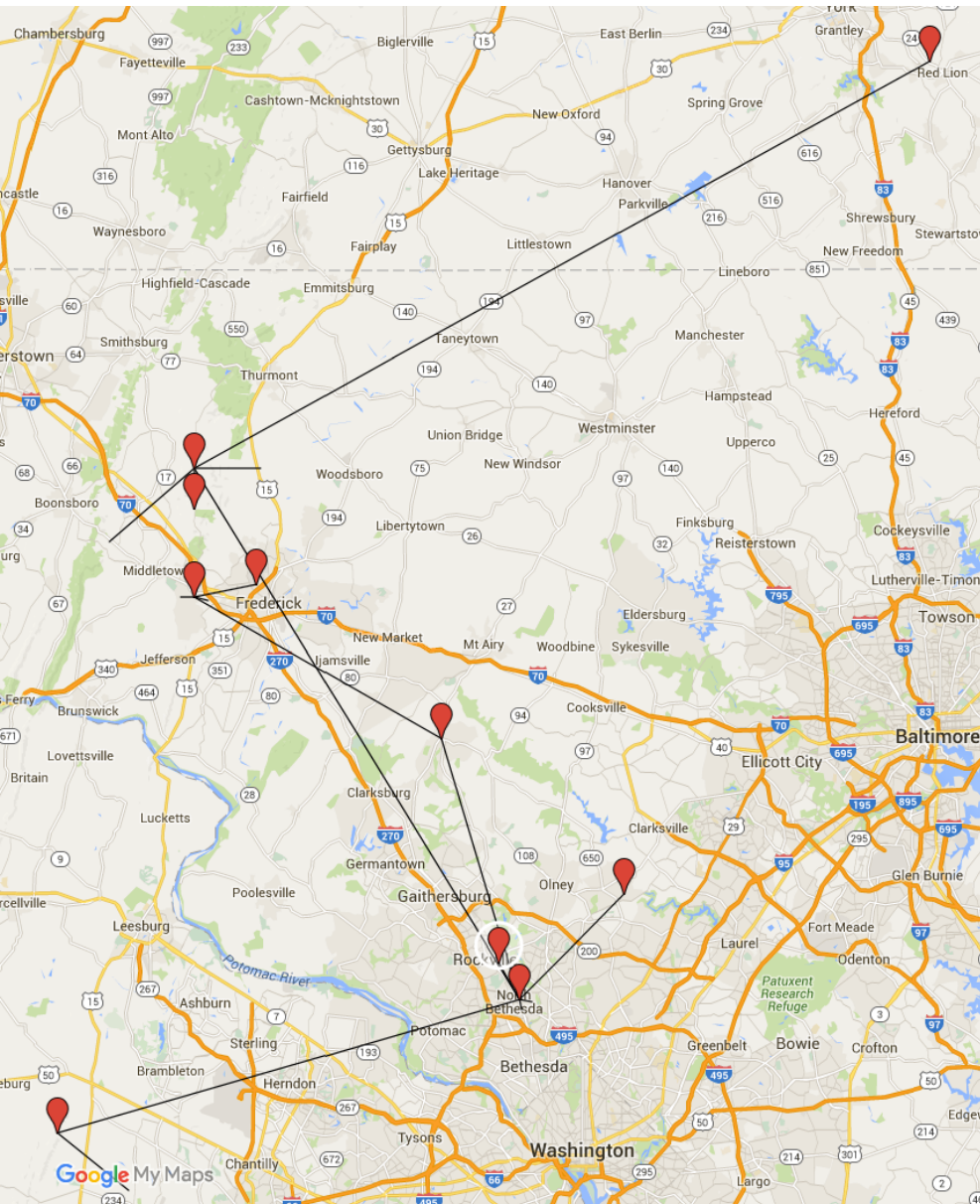
- On Wednesday, September 16 from 1100 to 1400 local,
 - 9605 Medical Center Drive Rockville, MD 20850
- We linked from White Flint to the roof of the NCI building

- Participants

American Red Cross, Johns Hopkins University, MARC, Montgomery County ACS, Montgomery County Community Emergency Response Team, Montgomery County Office of Emergency Management and Homeland Security, MAIPN, NCI Emergency Response Team, NCI Emergency Management and Physical Security Branch, NIH Division of Emergency Management, National Library of Medicine's Disaster Information Management and Research Center, U.S. Public Health Service Commissioned Corps

- 6 miles total

MAIPN Backbone today



- WN3R - Red Lion (53.6)
- WN3R - White Flint (39.9)
- KB3TCB - Braddock Heights
- Braddock Heights - Auto West
- Braddock Heights - KD3SU
- Braddock Heights – Damascus
- Damascus - White Flint
- White Flint – Haymarket (31 miles)
- Haymarket KE2N/W4BRM
- 130 miles MAIPN backbone
- The longest distance, including CPIN is **218** miles

www.MAIPN.com (I)

MAIPN will compliment needed functions on the backbone

- Documents
- Applications
- Manuals
- ownCloud
- easyRTC
- Phone service

Documents (9/26/2015)
[Phone numbers](#) [Trustees](#) [MAIPN](#)
[Remote Rig Control](#), [Al Taylor](#), [KN3U](#)

Applications
[live-view \(guest@kb3tcb.com,guest\)](#)
 Run airControl 2 using server 173.166.180.188:9081 (guest,guest)








Examples of possible backup manuals, if the normal access is not available.

Software Manuals **Hardware Manuals**
[WebEOC 7.4 User Manual \(pdf\)](#) [Network Extender User Manual \(pdf\)](#)
[TM1000A Manual \(pdf\)](#)

Examples of possible backup services, if the normal access is not available.

Services

Each major location has a set of mirrored services.
 Each location has managed switch and a VoIP phone.

Braddock Heights	KB3TCB	DECT	KE2N	WN3R	White Flint	
Web Server Map server Camera (use IE) Camera UVC Pro (use Chrome)	Document Server Map server Camera 1 (guest/guest) Camera 2 (guest/guest) Camera3 (guest/guest)	Document Server Camera	Document Server Map server Camera   	Document Server Map server Camera ownCloud easyRTC Weather station email server SIP phone	Document Server Map server  ownCloud easyRTC Weather station email server SIP phone	
ownCloud easyRTC Weather station email server SIP phone	ownCloud easyRTC  email server  ext: 6001	SIP phone	Weather station email server  ext: 6004		email server SIP phone	
ARCS (K3WX)	KD3SU	East 1	West 1	South 2	East 2	North 2
SIP phone	SIP phone	SIP phone	SIP phone	SIP phone	SIP phone	SIP phone

www.MAIPN.com (II)

Examples of possible backup documents if the normal access is not available.

[EOP Support Material](#)

Montgomery County, MD

[Emergency Operations Plan \(EOP\)](#) [Local Emergency Center Contacts and Hotline](#)

Virginia

[Local Emergency Managers Directory](#)

Examples of possible backup software, if the normal access is not available.

Downloads

\

[PDF reader](#)

Ubiquiti firmware

[unifi-video](#) [UniFi](#) aircontrol-v2.0

[jxpiinstall](#) [ipscan24](#)

GrandStream Firmware [HT502 1.0.14.1](#)

Network

Login as (guest/guest)

Device	Mode	Model	Device	Mode	Model
BRADFRMDKB3TCB	AP	Rocket M5	KB3TCBFRMDBRAD	STA	Rocket M5
BHFRMDKD3SU	STA	Rocket M5	KD3SUFIRM	(Field Day)	
BHFRMDMark	STA	Rocket M5			
BHFRMDDECT	AP	Rocket M5	MikeFRMDBH	STA	Rocket M5
WFlintMOMDDECT	AP	Rocket M5	DECTMOMDBH	STA	Rocket M5
WFlintMOMDNorthSA	AP	Rocket M5	DECTMOMDWFlint	STA	Rocket M5
WFlint_SouthSA	AP	Rocket M5		STA	Rocket M5
KB3TCB Omni	AP	Rocket M5		STA	Rocket M5
WFlintMOMDKE2N	AP	Rocket M5	KE2NPRWVAWFlint	STA	Rocket M5 GPS
KE2N_EastSA	AP	Rocket M5		STA	Rocket M5
WFlintMOMDWN3R	AP	Rocket M5	WN3FRMDWFlint	STA	Rocket M5
WFlintMOMDK3WX	AP	Rocket M5	K3WXMOMDWFlint	STA	Rocket M5
WFlintMOMDNIH	AP	Rocket M5	NIHMOMDWFlint	STA	Rocket M5
WN3RFRMDPCINRLY	STA	Rocket M5		AP	Rocket M5
WN3RFRMDWFlint	AP	Rocket M5		STA	Rocket M5
WN3RFRMDEast	AP	Rocket M5		STA	Rocket M5
WN3RFRMDWest	AP	Rocket M5		STA	Rocket M5
WN3RFRMDL_eesburg	AP	Rocket M5		STA	Rocket M5
WN3RFRMDSouthSA	AP	Rocket M5		STA	Rocket M5
WN3RFRMDNorthSA	AP	Rocket M5		STA	Rocket M5

- Documents
- Applications
- Repositories
 - Software, updates, manuals
- Access to infrastructure

The Rocket M5 (Repeater++)

The screenshot displays the web interface for a Rocket M5 GPS device. The top navigation bar includes tabs for MAIN, WIRELESS, NETWORK, ADVANCED, SERVICES, and SYSTEM. The 'Status' section provides detailed information about the device's configuration and performance. Key parameters include the device model (Rocket M5 GPS), device name (BRADFRMDKB3TCB), network mode (Bridge), wireless mode (Access Point WDS), SSID (KB3TCB_BRAD), security (none), version (v5.6.2 (XM)), uptime (13 days 20:18:56), and date (2015-07-30 03:19:49). The channel/frequency is set to 169 / 5845 MHz with a 10 MHz channel width and a frequency band of 5840 - 5850 MHz. The distance to the client is 4.2 miles (6.8 km). The TX/RX chains are 2X2 with a TX power of 27 dBm. The AP MAC is 00:27:22:2A:80:F7, and there is 1 connection with a noise floor of -94 dBm and a transmit CCQ of 95.9%. The airMAX feature is enabled with a quality of 48% and a capacity of 17%. The airSelect and airSync features are disabled. The GPS signal quality is 90%, with a latitude of 39.418076 and a longitude of -77.500801. The altitude is 282 m. The LAN0 and LAN1 ports are unplugged. The 'Monitor' section shows throughput graphs for WLAN0 and LAN1. The WLAN0 graph shows RX at 17.6 kbps and TX at 64.6 kbps. The LAN1 graph shows RX at 51.0 kbps and TX at 13.0 kbps. A 'Refresh' button is located at the bottom right of the monitor section.

Includes a GPS → Device Model: Rocket M5 GPS

AP MAC: 00:27:22:2A:80:F7

Connections: 1

Noise Floor: -94 dBm → Noise Floor -95dbm

Transmit CCQ: 95.9 %

airMAX: Enabled

airMAX Quality: 48 %

airMAX Capacity: 17 %

airSelect: Disabled

airSync: Disabled

GPS Signal Quality: 90 %

Latitude / Longitude: 39.418076 / -77.500801

Altitude: 282 m

Channel/Frequency: 169 / 5845 MHz

Channel Width: 10 MHz

Frequency Band: 5840 - 5850 MHz

Distance: 4.2 miles (6.8 km)

TX/RX Chains: 2X2

TX Power: 27 dBm

WLAN0 MAC: 00:27:22:2A:80:F7

LAN0 MAC: 00:27:22:2B:80:F7

LAN1 MAC: 02:27:22:2B:80:F7

LAN0 / LAN1: Unplugged / 100Mbps-Full

Monitor

Throughput | Stations | Interfaces | ARP Table | Bridge Table | Routes | GPS Details | Log

WLAN0

LAN1

RX: 17.6kbps

TX: 64.6kbps

RX: 51.0kbps

TX: 13.0kbps

Refresh

Includes a GPS

Freq: 5845

Channel Width 10MHz

Noise Floor -95dbm

Wireless

The screenshot shows the 'Basic Wireless Settings' page in the airOS interface. The page is titled 'rochet M5 GPS' and 'airOS'. The navigation menu includes 'MAIN', 'WIRELESS', 'NETWORK', 'ADVANCED', 'SERVICES', and 'SYSTEM'. The 'WIRELESS' tab is selected. The settings are as follows:

- Wireless Mode: Access Point
- WDS (Transparent Bridge Mode): Enable
- SSID: KB3TCB_BRAD
- Country Code: United States
- IEEE 802.11 Mode: A/N mixed
- Channel Width: 10 MHz
- Frequency, MHz: auto
- Extension Channel: None
- Frequency List, MHz: Enable 5845
- Calculate EIRP Limit: Enable
- Antenna Gain: 0 dBi
- Cable Loss: 0 dB
- Output Power: 27 dBm
- Data Rate Module: Default
- Max TX Rate, Mbps: MCS 15 - 65/72.2 Auto

Annotations with blue arrows point to the following elements:

- 'Access Point' points to the 'Wireless Mode' dropdown.
- 'SSID: KB3TCB_BRAD' points to the SSID text field.
- 'AP and Station' points to the 'WDS (Transparent Bridge Mode)' checkbox.
- 'Power 27dbm(500 mW)' points to the 'Output Power' slider and text field.

- This is the backbone, it is **not** HSMM-MESH
 - All links have one Access Point and one Station
 - These are Daisy chained together
- In HSMM Mesh, all radios talk to all radios

Network

rocket M5 GPS airOS™

MAIN WIRELESS NETWORK ADVANCED SERVICES SYSTEM Tools: [v] Logout

Network Role

Network Mode: Bridge [v]
Disable Network: None [v]

Configuration Mode

Configuration Mode: Simple [v]

Management Network Settings

Management IP Address: DHCP Static IPv6: Enable

IP Address: 44.127.8.120
Netmask: 255.255.248.0
Gateway IP: 44.127.8.1
Primary DNS IP:

IP: 44.127.8.120

The AMPRNet (**A**Mateur **P**acket **R**adio **N**etwork) is a name used by amateur radio operators for computer networks connected over amateur radio. The class A 44 netblock of 16.7 Million IP addresses was set aside for amateur radio users worldwide

Services

The screenshot shows the 'Services' configuration page in the airOS interface. The page is divided into several sections, each with its own set of configuration options:

- Ping Watchdog:** Includes checkboxes for 'Enable', input fields for 'IP Address To Ping', 'Ping Interval' (300 seconds), 'Startup Delay' (300 seconds), 'Failure Count To Reboot' (3), and a 'Save Support Info' checkbox.
- SNMP Agent:** Includes checkboxes for 'Enable', input fields for 'SNMP Community' (public), 'Contact', and 'Location'.
- Web Server:** Includes checkboxes for 'Enable' and 'Secure Connection (HTTPS)', input fields for 'Secure Server Port' (443), 'Server Port' (80), and 'Session Timeout' (15 minutes).
- SSH Server:** Includes checkboxes for 'Enable' and 'Password Authentication', input fields for 'Server Port' (22) and 'Authorized Keys' (Edit...).
- Telnet Server:** Includes checkboxes for 'Enable' and an input field for 'Server Port' (23).
- NTP Client:** Includes checkboxes for 'Enable' and an input field for 'NTP Server' (0.ubnt.pool.ntp.org).
- Dynamic DNS:** Includes checkboxes for 'Enable', a dropdown for 'Service' (dyndns.org), and input fields for 'Host Name', 'User Name', and 'Password' (with a 'Show' checkbox).
- System Log:** Includes checkboxes for 'Enable', 'Remote Log', and 'TCP Protocol', and input fields for 'Remote Log IP Address' and 'Remote Log Port' (514).
- Device Discovery:** Includes checkboxes for 'Discovery' and 'CDP', both of which are checked.

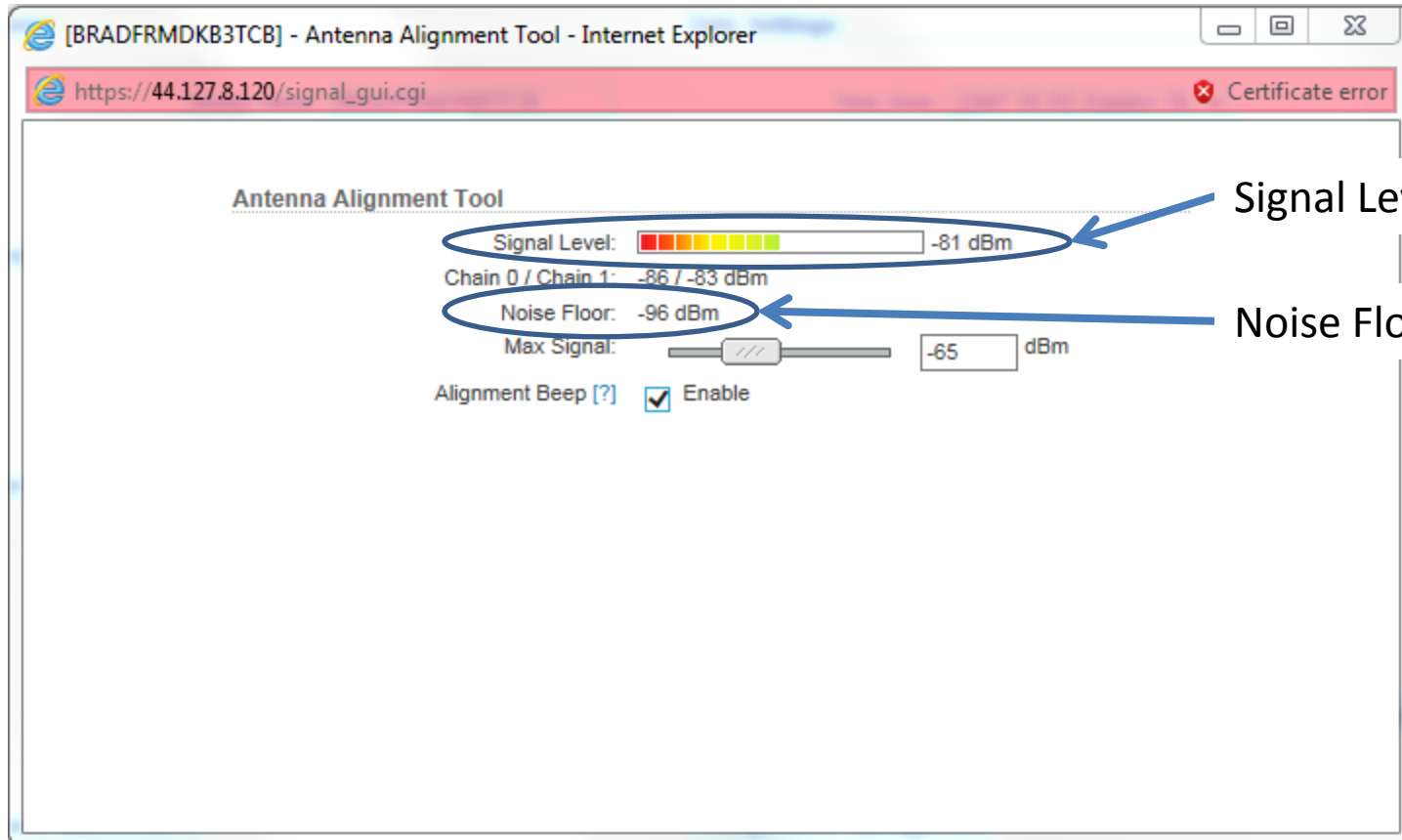
A 'Change' button is located at the bottom right of the configuration area.

- Ping
- Web Server
- Telnet
 - remote computer administration
- Dynamic DNS
- Device Discovery
- SNMP Agent
 - Simple Network Management Protocol
- SSH Server
 - Secure Shell, is a encrypted network protocol
- System Log

Tools

- There are useful tools built in each radio
- Antenna Alignment
- Site Survey
- Discovery
- Ping
- Traceroute
- Speed Test
- airView

Antenna Alignment



Speed Test

Between 44.127.8.36 and 44.127.8.149

Network Speed Test

Select Destination IP: specify manually

User:

Password:

Remote WEB Port:

Show Advanced Options

Direction:

Duration: seconds

Test Results

RX: 42.98 Mbps

TX: 50.48 Mbps

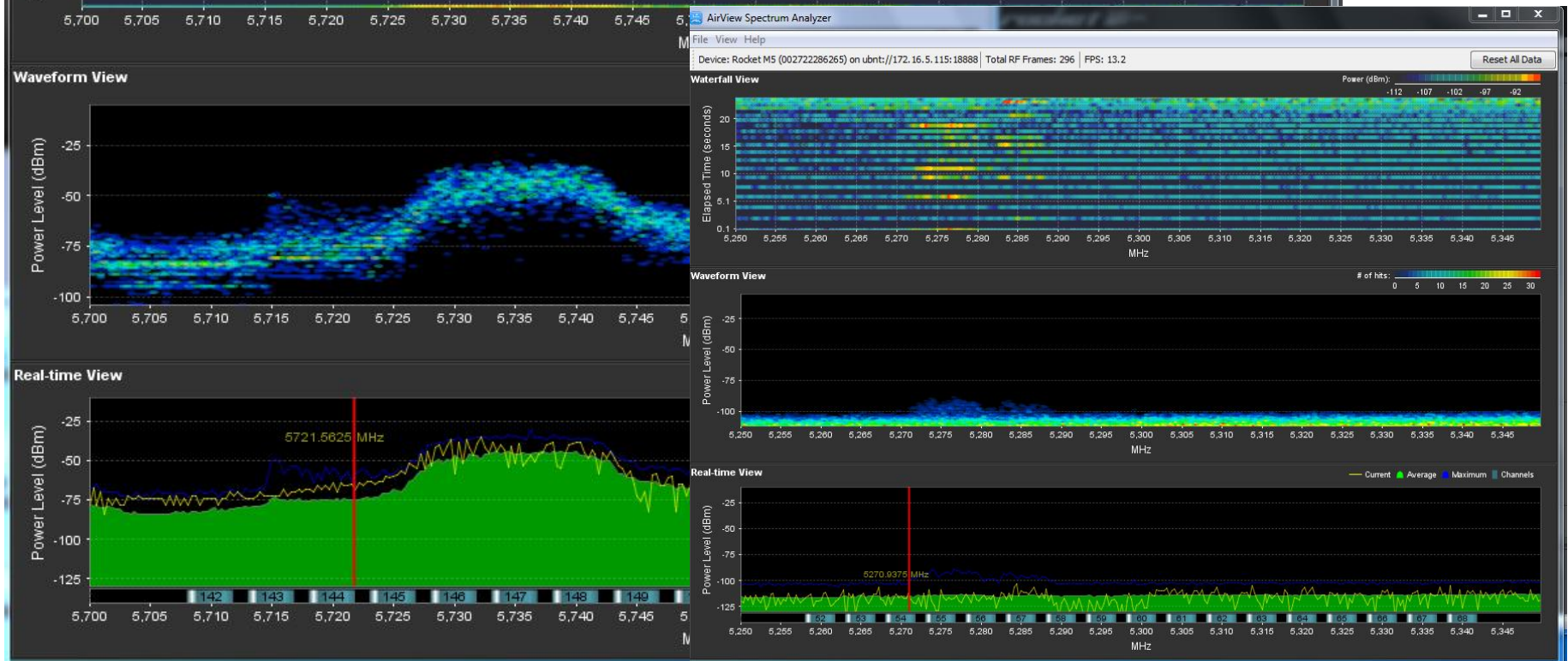
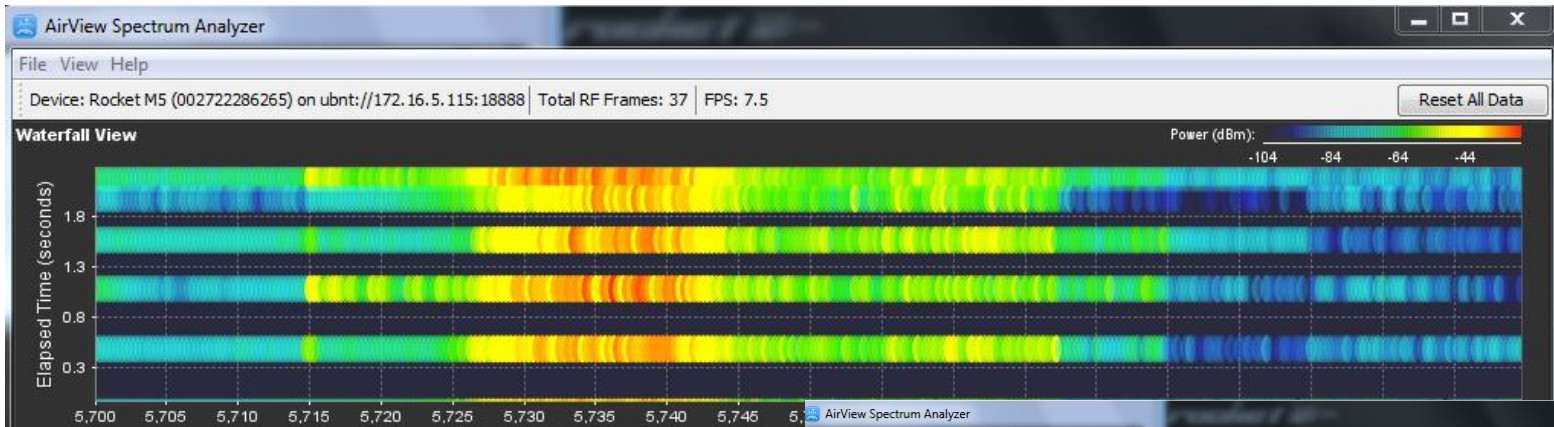
Total: 93.46 Mbps

Warning! If traffic shaping is enabled on either device, the speed test results will be limited accordingly.

Run Test

53.46 Mbps

Spectrum Analyzer



Applications I

- airControl
 - network management
- Open Street Maps
 - compliment to Google
- ownCloud
 - Compliments DropBox
- easyRTC
- CAD ticketing
 - computer Aided Dispatch software
w/training database
- VoIP

Applications II

- A wiki server
 - briefings, Operational Period Plans
- IRC Chat Servers
- A Web Server
 - ICS Forms in PDF
 - Web ICS Forms
 - VoIP & phone list
 - Remote network printer list
 - Download
drivers, software, user account database, VPN
Server
- Infrastructure Network Monitoring

Possible Applications

- Sahana
 - GIS-enabled databases
- OpenMeetings
 - Audio/video/whiteboard web-conferencing server
- Usenet NetNews
 - redundant servers with newsgroups that can be based around Incidents and ICS org structures
- Xastir
 - a distributed, shared map, report/track damage reports and deployed personnel
- OBS
 - Open Broadcaster Software, centralized video re-distribution
- Network Printing

airControl main panel

The screenshot displays the Ubiquiti airControl 2 interface. At the top, there's a navigation bar with 'Discover', 'All 81', 'Online 24', 'Offline 0', and 'Not Monitored 57'. Below this is a table of devices with columns for Device Name, Wireless Mode, SSID, Signal Strength, Frequency, IP, Product, Status, and Firmware Version. The 'KE2N SIP Phone Interface' is highlighted. Below the table, there are tabs for 'Statistics', 'Charts', and 'Events'. At the bottom, a 'Device Summary' section shows details for the selected device, including its name, SSID, status (online), uptime, and signal strength.

Device Name	Wireless Mode	SSID	Signal Strength	Frequency	IP	Product	Status	Firmware V
KE2N SIP Phone Interface	Station	W4BRM	-51 dBm	5180 MHz	44.127.8.36	NanoStation M5	online	5.6.2
BRADFRMDK3B3TCB	Access Point	KB3TCB_BRAD	-82 dBm	5845 MHz	44.127.8.120	Rocket M5 GPS	online	5.6.2
KB3TCBFRMDBRAD	Station	KB3TCB_BRAD	-79 dBm	5845 MHz	44.127.8.121	Rocket M5	online	5.6.2
BHFRMDDECT	Access Point	DECT_BRAD	-67 dBm	5675 MHz	44.127.8.130	Rocket M5	online	5.6.2
DECTMOMDBH	Station	DECT_BRAD	-67 dBm	5675 MHz	44.127.8.131	Rocket M5	online	5.6.2
WFlintMOMDDECT	Access Point	WFlint_DECT	-69 dBm	5845 MHz	44.127.8.134	Rocket M5	online	5.6.2
DECTMOMDWFlint	Station	WFlint_DECT	-70 dBm	5845 MHz	44.127.8.135	Rocket M5	online	5.6.2
WFlintMOMDNorthSA	Access Point	WFlint_NorthSA	-96 dBm	5700 MHz	44.127.8.138	Rocket M5	online	5.6.2
WFlint_SouthSA	Access Point	WFlint_SouthSA	-96 dBm	5730 MHz	44.127.8.140	Rocket M5	online	5.6.2
WFlintMOMDK2N	Access Point	WFlint_KE2N	-71 dBm	5290 MHz	44.127.8.144	Rocket M5	online	5.6.2
KE2N_PRWVA	Station	WFlint_KE2N	-71 dBm	5290 MHz	44.127.8.145	Rocket M5 GPS	online	5.6.2
KE2N_EastSA	Access Point	W4BRM-ESA	-65 dBm	5735 MHz	44.127.8.147	Rocket M5 GPS	online	5.6.2
KE2N_Command	Station	W4BRM-ESA	-60 dBm	5735 MHz	44.127.8.148	NanoStation M5	online	5.6.2
KE2N-WAP	Access Point	W4BRM	-53 dBm	5180 MHz	44.127.8.149	NanoStation M5	online	5.6.2
WFlintMOMDWN3R	Access Point	WFlint_WN3R	-74 dBm	5500 MHz	44.127.8.150	Rocket M5	online	5.6.2
W3NR01	Station	WFlint_01	-96 dBm	5300 MHz	44.127.8.151	Rocket M5	online	5.6.2
WN3RFRMDWest	Access Point	WN3R_West	-96 dBm	5155 MHz	44.127.8.152	Rocket M5	online	5.6.2
WFlintMOMDK3WX	Access Point	WFlint_K3WX	-70 dBm	5815 MHz	44.127.8.156	Rocket M5	online	5.6.2
K3WXMOMDWFlint	Station	WFlint_K3WX	-71 dBm	5815 MHz	44.127.8.157	Rocket M5	online	5.6.2
WFlintMOMDNIH	Access Point	WFlint_NIH	-96 dBm	5200 MHz	44.127.8.158	Rocket M5	online	5.6.2
WN3RFRMDWFlint	Station	WFlint_WN3R	-70 dBm	5500 MHz	44.127.8.163	Rocket M5	online	5.6.2
WN3RLeesburg	Access Point	WN3R_Leesburg	-96 dBm	5735 MHz	44.127.8.164	Rocket M5 GPS	online	5.6.2
WN3RFCMDNorthSA	Access Point	WN3RFCMDQ03	-96 dBm	5660 MHz	44.127.8.166	Rocket M5 GPS	online	5.6.2
KN3UMOMDWFlint	Station	WFlint_WN3R			44.127.8.231	Rocket M5 GPS	not monitored	5.6.2
BHFRMDK3SU	Station	KD3SU_BH	-96 dBm	5740 MHz	44.127.9.127	Rocket M5	online	5.6.2
RDLNYCPAQ03	Access Point	RDLNYCPAQ03			172.16.5.161	Rocket M5	not monitored	5.5.10
WN3RFRMDRDLN	Station	RDLNYCPAQ03			172.16.5.166	Rocket M5	not monitored	5.6.2
MPEPPABKQ01	Station	EPMPPALEQ02			172.16.5.167	Rocket M5	not monitored	5.5.6

Device Summary

Device Name: **KE2N SIP Phone Interface** | Status: **online** | Unchecked Alerts: 0 | Signal Strength: **-51 dBm**

SSID: **W4BRM** | Uptime: 1 day 16:18:54 | Noise Floor: -90 dBm

Naming Standards

WflintMOMDDECT	Access Point	Wflint_DECT	 -69 dBm	5845 MHz	44.127.8.134	Rocket M5	 online
DECTMOMDWflint	Station	Wflint_DECT	 -70 dBm	5845 MHz	44.127.8.135	Rocket M5	 online

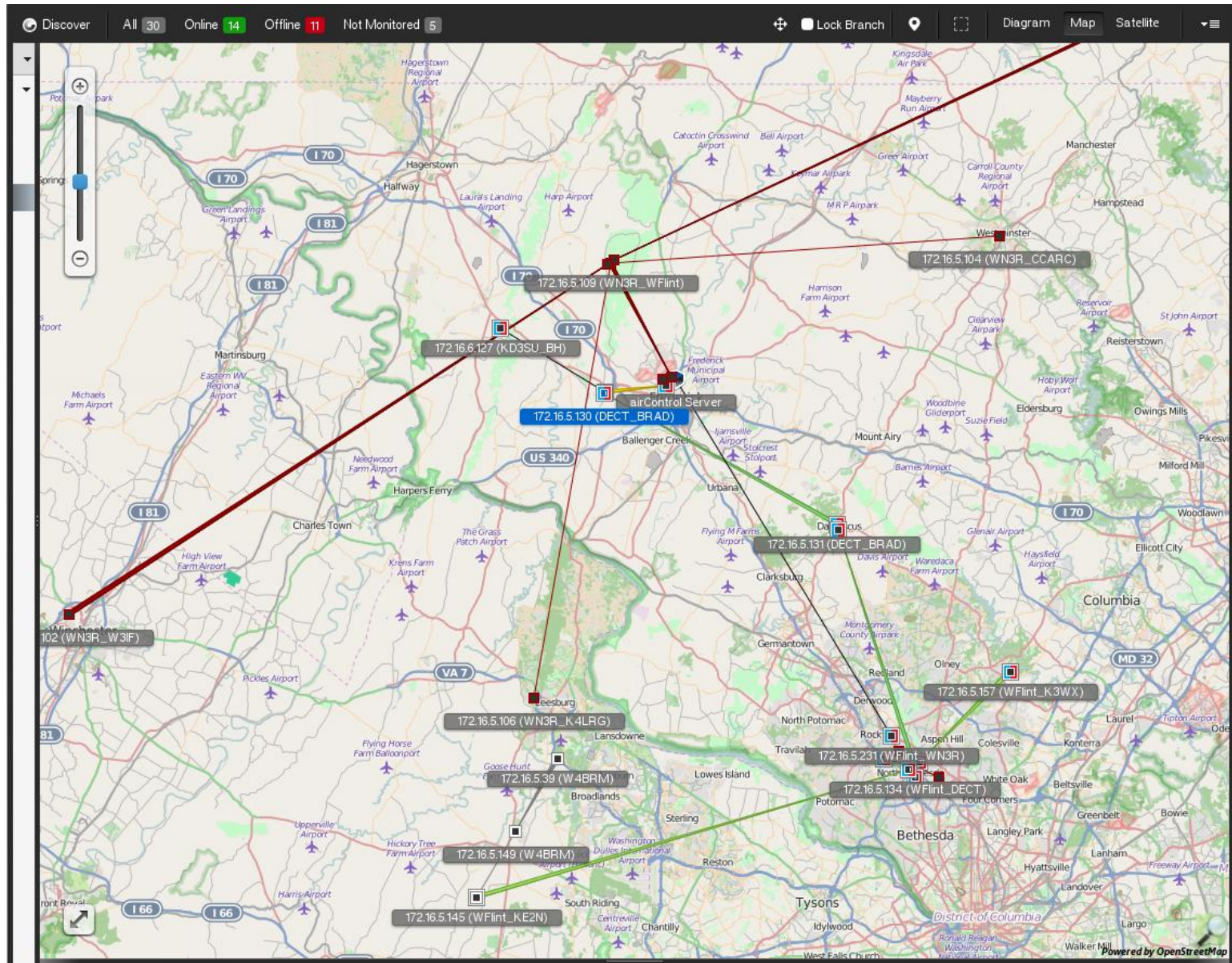
- Link between DECT & White Flint
- Device name: **WflintMOMDDECT**
 - Access Point
 - White Flint, Montgomery County, Maryland
- Device name: **DECTMOMDWflint**
 - Damascus, Montgomery County, Maryland
- SSID: Wflint_DECT
 - Both radios have the same SSID
- Center Frequency: 5845
 - Both radios have the same SSID

airControl main panel

KE2N SIP Phone Interface	Station	W4BRM	-51 dBm	5180 MHz	44.127.8.36	NanoStation M5	online	5.6.2
KE2N-WAP	Access Point	W4BRM	-53 dBm	5180 MHz	44.127.8.149	NanoStation M5	online	5.6.2
WFlintMOMDKE2N	Access Point	WFlint_KE2N	-71 dBm	5290 MHz	44.127.8.144	Rocket M5	online	5.6.2
KE2N_PRWVA	Station	WFlint_KE2N	-71 dBm	5290 MHz	44.127.8.145	Rocket M5 GPS	online	5.6.2

- Station – Access Point pairs
- -75 dbm
 - Good for a client
- -65 dbm
 - Good for the backbone

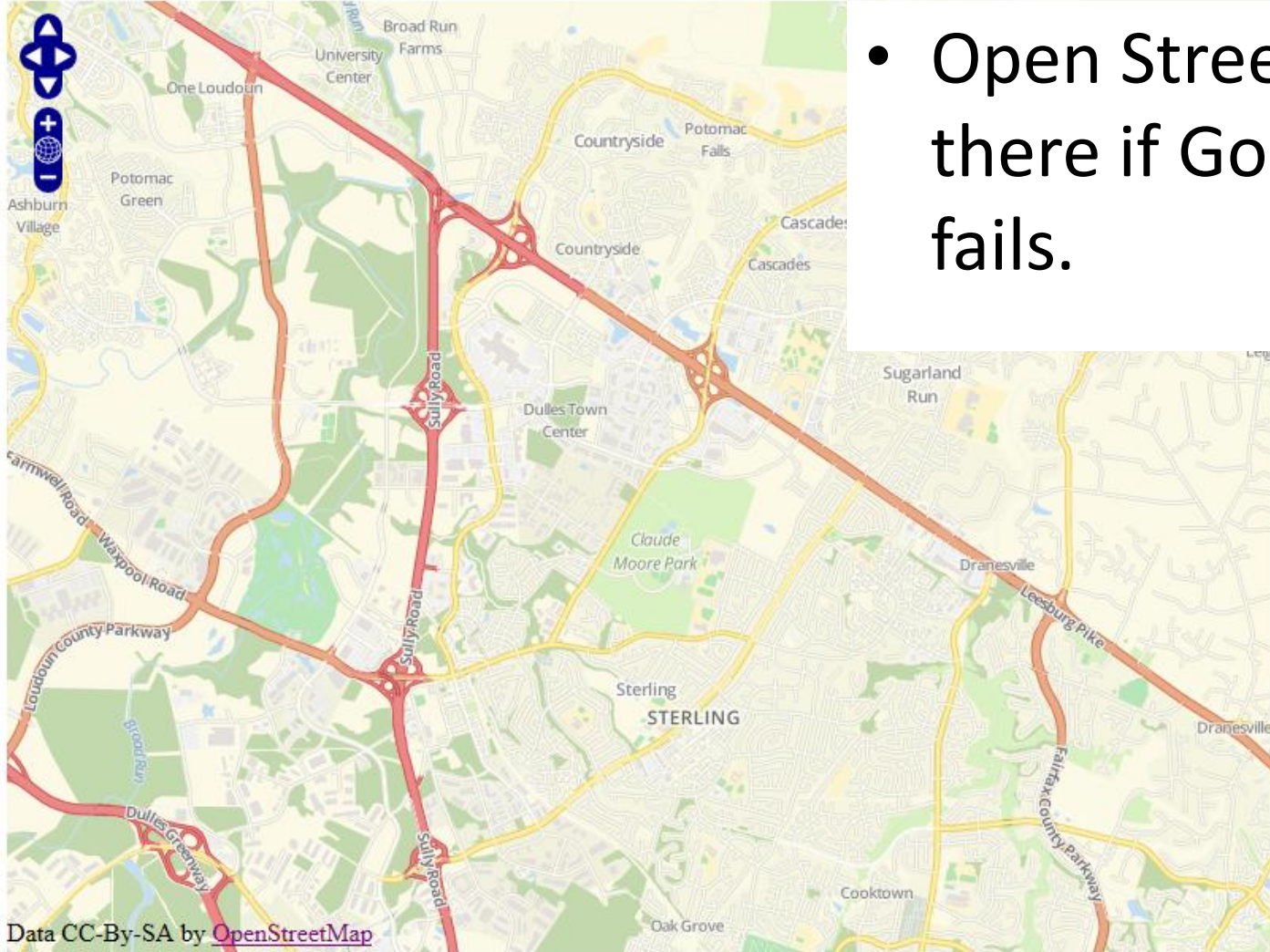
airControl map



Open Street Maps

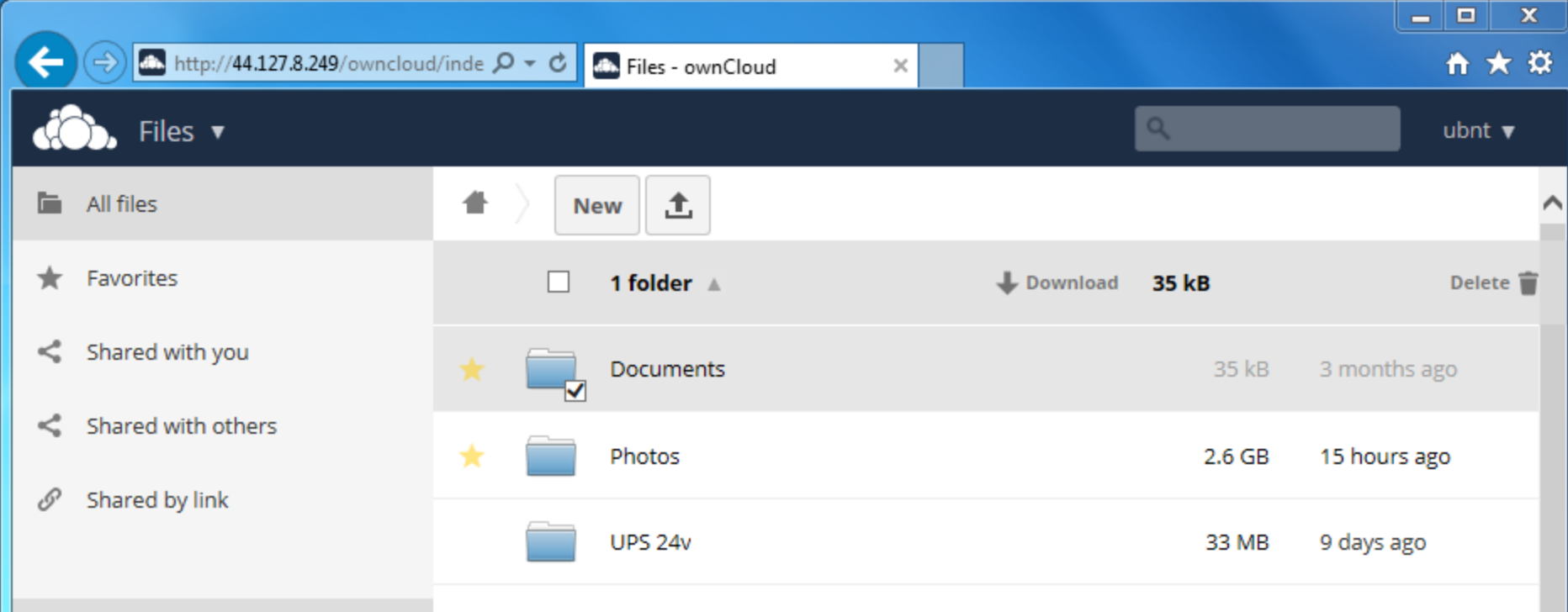
HTML page with an embedded map - Open Street Map - MAIPN

Search:



- Open Street Maps is there if Google maps fails.

ownCloud



The screenshot shows the ownCloud web interface in a browser window. The address bar displays `http://44.127.8.249/owncloud/index`. The interface includes a navigation sidebar on the left with options like 'All files', 'Favorites', 'Shared with you', 'Shared with others', 'Shared by link', and 'Settings'. The main content area shows a file browser with a 'New' button and an upload icon. Below this, there is a summary for '1 folder' with a size of '35 kB' and a 'Download' button. A list of folders is displayed:

Folder Name	Size	Last Modified
Documents	35 kB	3 months ago
Photos	2.6 GB	15 hours ago
UPS 24v	33 MB	9 days ago

At the bottom left, the 'WebDAV' section shows the address `http://44.127.8.249/owncloud/` and a note: 'Use this address to access your ownCloud via WebDAV'. Below it, another address is shown: `http://44.127.8.249/owncloud/index`.

- A DropBox like File sharing server
 - This file sync and share server provides access to your data through a web interface, sync clients or WebDAV while providing a platform to view, sync and share across devices easily.

Video Monitoring



- Ubiquiti airCam
- 1 UVC-Pro
- 2 Aircam
- HIPAA requirement?

easyRTC

The screenshot shows the EasyRTC Landing Page with a navigation bar containing 'Local Demos', 'Documentation', and 'Support: Discussion Group'. The main heading is 'EasyRTC Landing Page'. Below it, a congratulatory message states: 'Congratulations! With EasyRTC installed you are on the road to creating your own WebRTC enabled applications. The easiest way to run these demos to create two browser windows and open an instance of a particular demo in each. Please make sure that Skype or other programs aren't using your webcam before starting the video chat demos.'

Local EasyRTC Demos

These are the easy very basic demos.

Demo	Chrome	Opera	Firefox	Safari	Edge	Internet Explorer	Opera Mini	Android
Instant Messaging	✓	✓	✓	✓	✓	✓	✓	✓
Data Channel Messaging	✓	✓	✓	✓	✓	✓	✗	✗
Simple Video+Audio	✓	✓	✓	✓	✓	✓	✗	✗
Multiparty Chatroom	✓	✓	✓	✓	✓	✓	✗	✗

More technical demos that illustrate particular capabilities.

Demo	Chrome	Opera	Firefox	Safari	Edge	Internet Explorer	Opera Mini	Android
Instant Messaging + Rooms	✓	✓	✓	✓	✓	✓	✓	✓
User Supplied Socket.io	✓	✓	✓	✓	✓	✓	✓	✓
Video+Audio HD 720p	✓	✓	✗	✗	✗	✓	✗	✗
Video Only	✓	✓	✓	✓	✓	✓	✗	✗
Audio Only	✓	✓	✓	✓	✓	✓	✗	✗

- **WebRTC** (Web Real-Time Communication) is an API definition drafted by the World Wide Web Consortium (W3C) that supports browser-to-browser applications for voice calling, video chat, and P2P file sharing without the need of either internal or external plugins.

easyRTC

easyRTC

[Local Demos](#) | [Documentation](#) | [Support: Discussion Group](#) | [EasyRTC.com](#)

EasyRTC Demo: Simple Video+Audio

The application provides a simple audio-video chat using the `easyrtc.easyApp` method.

Connection is handled using an `onload` statement in the body. Requests are automatically accepted.

To hang-up on a call, hover your mouse over the upper right of the video, and click on the 'X' which appears at the top right of other person's video object.

The Demo

You click this link



AllStar

Allstar Monitor II

(Works with Chrome, Firefox and Opera)



About 1900

Login

Allmon is a web site for monitoring and managing ham radio [Allstar](#) and [app rpt](#) node linking and [RTCM clients](#). This is version 2 of Allmon which has a number of internal and UI improvements. (see changes below)

These pages dynamically display any remote nodes that are connected to it. When a signal is received the remote node will move to the top of the list and will have a green background. The most recently received nodes will always be at the top of the list.

- The **Direction** column shows IN when another node connected to us and OUT if the connection was made from us.
- The **Mode** column will show Transceive when this node will transmit and receive to/from the connected node. It will show Rx only if this node only receives from the connected node.

Please feel free to [download Allmon2](#) for your own site. Enjoy!

Site by WD6AWP.

VoIP Server

Grandstream
Innovative IP Voice & Video

Apply Changes | English | admin

2015-11-30 15:12 UTC-05:00

Status >> PBX Status >> PBX Status

PBX Status [-]

- PBX Status
- Active Calls

System Status

System Events

CDR

Trunks [-]

No Trunks defined

Extensions [-]

All Analog IAX SIP Ring Groups

Voicemail Groups

Status	Extension	Name/Label	Message	Type
●	6000	Al Taylor	Messages: 0/3/0	SIP
●	6003	Keith KB3TCB	Messages: 0/0/0	SIP
●	6004	Ken Jamrogowicz	Messages: 0/0/0	SIP
●	6001		Messages: 0/0/0	SIP
●	6005	Dick WN3R	Messages: 0/0/0	SIP
●	6006	test02 test02	Messages: 0/0/0	SIP

Total: 6 Show: 1/1 Go to: Go First Prev Next Last

Conference Rooms [-]

Interfaces Status [-]

USB SD Card

LAN

FXS 1 2

FXO 1 2 3 4

Queues [-]

Parking Lot [-]

No Parking Lot defined

- I am using this for quick portable demonstrations and Asterisk on the backbone.

VoIP video phone

- 3-in-1 device
- The GXV3275 IP Video Phone combines a 6-line IP video phone with a video conferencing solution and the functionality of an Android. HD video
 - Gigabit ports
 - web browser

GXV3275

-- Enterprise Phone Administration Interface

Status Account Advanced Settings Maintenance

Network Settings

Wi-Fi Settings

Time Settings

Web/SSH Access

Upgrade

Syslog

Logcat

Debug

Language

TR-069

Contacts

LDAP Book

Broadsoft

Device Manager

Address Type : DHCP Static IP PPPoE

DHCP

Host name(Option 12) :

Vendor Class ID(Option 60) :

Static IP

IP Address : . . .

Subnet Mask : . . .

Default Gateway : . . .

DNS Server 1 : . . .

DNS Server 2 : . . .

PPPoE

PPPoE Account ID :

PPPoE Password :

Alternate DNS Server : . . .

Second Alternate DNS Server : . . .

Enable LLDP : Yes

Layer 3 QoS for SIP :

Layer 3 QoS for Audio :

Layer 3 QoS for Video :

Layer 2 QoS 802.1Q/VLAN Tag :



Infrastructure

The screenshot displays the Mikrotik WinBox WebFig interface for configuring an Ethernet interface. The browser address bar shows `http://44.127.8.3/webfig/`. The page title is "WebFig v6.33.1 (stable) Ethernet Quick Set".

























The configuration is organized into sections:

- Configuration:** Mode is set to Router and Bridge.
- Internet:** Address Acquisition is set to Automatic, Static, and PPPoE. The IP Address is 192.168.1.196, Netmask is 255.255.255.0 (/24), and Gateway is 192.168.1.1. There are "Renew" and "Release" buttons.
- Local Network:** IP Address is 44.127.8.3, Netmask is 255.255.248.0 (/21), and DHCP Server is checked. The DHCP Server Range is 44.127.8.36/30. NAT is also checked.
- VPN:** VPN Access is unchecked, and the VPN Address is 5d6905db82e1.sn.mynetname.net.
- System:** Router Identity is MikroTik-2-KE2N.

At the bottom right, there are buttons for "Updates", "Reset Configuration", "Password...", and "Apply Configuration".

- Mikrotik routers

There are 84 radios on the MAIPN and CPIN networks

Status	Name	IP	Manufacturer	MAC address
▶ 	T60	44.127.8.122	FOXCONN	00:15:58:82:34:D9
	KE2N-Shack	44.127.8.129	ASUSTek COMPUTER INC.	54:A0:50:6F:FB:B6
▶ 	44.127.8.130	44.127.8.130	Ubiquiti Networks, INC	24:A4:3C:A4:25:04
▶ 	44.127.8.131	44.127.8.131	Ubiquiti Networks, INC	24:A4:3C:A4:1E:E2
▶ 	44.127.8.134	44.127.8.134	Ubiquiti Networks	04:18:D6:C6:70:6A
▶ 	44.127.8.135	44.127.8.135	Ubiquiti Networks	04:18:D6:C6:6F:E1
▶ 	44.127.8.138	44.127.8.138	Ubiquiti Networks	04:18:D6:E4:77:EE
▶ 	44.127.8.140	44.127.8.140	Ubiquiti Networks	04:18:D6:E4:7A:38
▶ 	44.127.8.144	44.127.8.144	Ubiquiti Networks	04:18:D6:C6:70:6B
▶ 	44.127.8.145	44.127.8.145	Ubiquiti Networks	00:27:22:28:65:2D
▶ 	44.127.8.146	44.127.8.146	Ubiquiti Networks, INC	24:A4:3C:3C:02:1A
▶ 	44.127.8.147	44.127.8.147	Ubiquiti Networks	00:27:22:28:68:16
▶ 	44.127.8.148	44.127.8.148	Ubiquiti Networks, INC	24:A4:3C:60:9A:43
▶ 	44.127.8.149	44.127.8.149	Ubiquiti Networks, INC	24:A4:3C:60:9C:93
▶ 	44.127.8.150	44.127.8.150	Ubiquiti Networks	04:18:D6:C6:6D:C3
▶ 	44.127.8.151	44.127.8.151	Ubiquiti Networks	04:18:D6:C6:6D:BB
▶ 	44.127.8.152	44.127.8.152	Ubiquiti Networks	04:18:D6:C4:CC:6B
▶ 	44.127.8.156	44.127.8.156	Ubiquiti Networks	04:18:D6:C6:6D:B5
▶ 	44.127.8.157	44.127.8.157	Ubiquiti Networks, Inc.	44:D9:E7:28:04:B3
▶ 	44.127.8.158	44.127.8.158	Ubiquiti Networks	04:18:D6:C6:6D:CC
▶ 	44.127.8.163	44.127.8.163	Ubiquiti Networks, Inc.	44:D9:E7:54:5E:9E
▶ 	44.127.8.164	44.127.8.164	Ubiquiti Networks	00:27:22:2A:83:8B
▶ 	44.127.8.166	44.127.8.166	Ubiquiti Networks	00:27:22:C6:E5:DC
▶ 	44.127.8.210	44.127.8.210	Dell Inc.	00:24:E8:3E:5B:10

CAD Ticketing

- Features
 - Any browser, any web server, any OS.
 - Under continuous development and upgrade since 1994.
 - Free (although donations gratefully accepted!) and Open Source.
 - Oriented to use by volunteer and career teams with budget 'challenges' and limited availability for formal training.
 - Capabilities based on user needs and feedback.
 - Chat, maps, directions, GPS tracking, extensive email/SMS/messaging capabilities.
 - In world-wide use; provisions for adapting to local terminology and language.
 - Use with mobile devices.
 - Optional member administration module.
 - A no-Internet option.

CAD Ticketing

Tickets 2.12 A beta on **Tickets Demo Server** Logged in: kevin Perm's: Super Module: add Time: 13:21 [Logout](#)

[Situation](#) [New](#) [Units](#) [Fac's](#) [Search](#) [Reports](#) [Config](#) [SOP's](#) [Chat](#) [Help](#) [Log](#) [Full scr](#) [Links](#) [Board](#) [Mobile](#)

Adding a new call to the system.

New Call
(mouseover caption for help information)

Location:

City: **St:** MD

Phone:

Nature: TBD **Priority:** normal

Protocol:

Synopsis:

911 Contacted:

Reported by: * TBD

Incident name: * 6/ TBD

Scheduled Date:

Facility?: Incident at Facility Receiving facility

Run Start: 2010 - 11 - 28 - 13 : 21 **Status:** Open


Run End:

Disposition:

Incident Lat/Lng: * **USNG:**

[History](#) [Cancel](#) [Reset](#) [Next](#)

[Lookup](#)



Map [Satellite](#) [Hybrid](#) [Terrain](#)

Grid

Anne Arundel County

CAD Ticketing

Mobile Unit Tracks

Mobile Units

Click line or icon for information

Name	Description	Status	M #	As of
A. Mobile #1/M1	APRS mobile unit	available	●	Nov-19 06:58
B. Mobile #2/M2	APRS Mobile unit	available	●	3 Nov-28 15:31
C. Mobile #3/M3	APRS Mobile unit	available	●	35 Nov-28 18:21

Mobility: stopped: ● moving: ● fast: ● silent: ● APRS time

Here, you can see that Unit B is stopped, and Unit C is moving.

Mobile unit tracking screen.

Units: HAM Radio » Fire Dept » test »

Live Streaming Video

- Wowza Streaming Engine Advantage:
 - High-Quality On-Demand and Live Video and audio Streaming
- Any Media to Any Device Anywhere
- Convert video formats and adaptive bitrate streaming.
- Deploy on Premises or in the Cloud
- Latest Standards
 - MPEG-DASH, Apple HLS,
 - Adobe HDS, video codecs



and there is more to do!

- More Nodes
- Remote Rigs
- Repeater Linking
- Weather
- Remote Power Control
- Radio/Audio streaming, Feeds
- RemoteBase
- Winlink
- Safety Check-In
- EchoLink, IRLP, APRS Digipeater, D-Star
- VLANs, Firewalls
- HIPAA & PCI standards
- Depiction
- WebEOC

References

- <http://www.depiction.com/>
- <http://www.ticketscad.org/>
- <https://www.intermedix.com/product/product-webeochhttps://www.nh.gov/safety/divisions/hsem/documents/webeoc-user-guide.pdf>
- https://dl.ubnt.com/guides/airOS/airOS_UG.pdf
- <http://hamradio.arc.nasa.gov/meetings/SCEWNatAARC.html>
- <http://slidegur.com/doc/11869/central-pa-ip-network--cpin->
- <https://www.wowza.com/>

Questions

- This presentation and Links are at:
 - <http://www.MAIPN.com/>
- Send your questions and suggestions to:
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