

APRS Roundtable

K9WX – October 11, 2011

Download a copy of this presentation at
www.k9wx.net/downloads/aprs.pdf

Contact: k9wx@wildblue.net

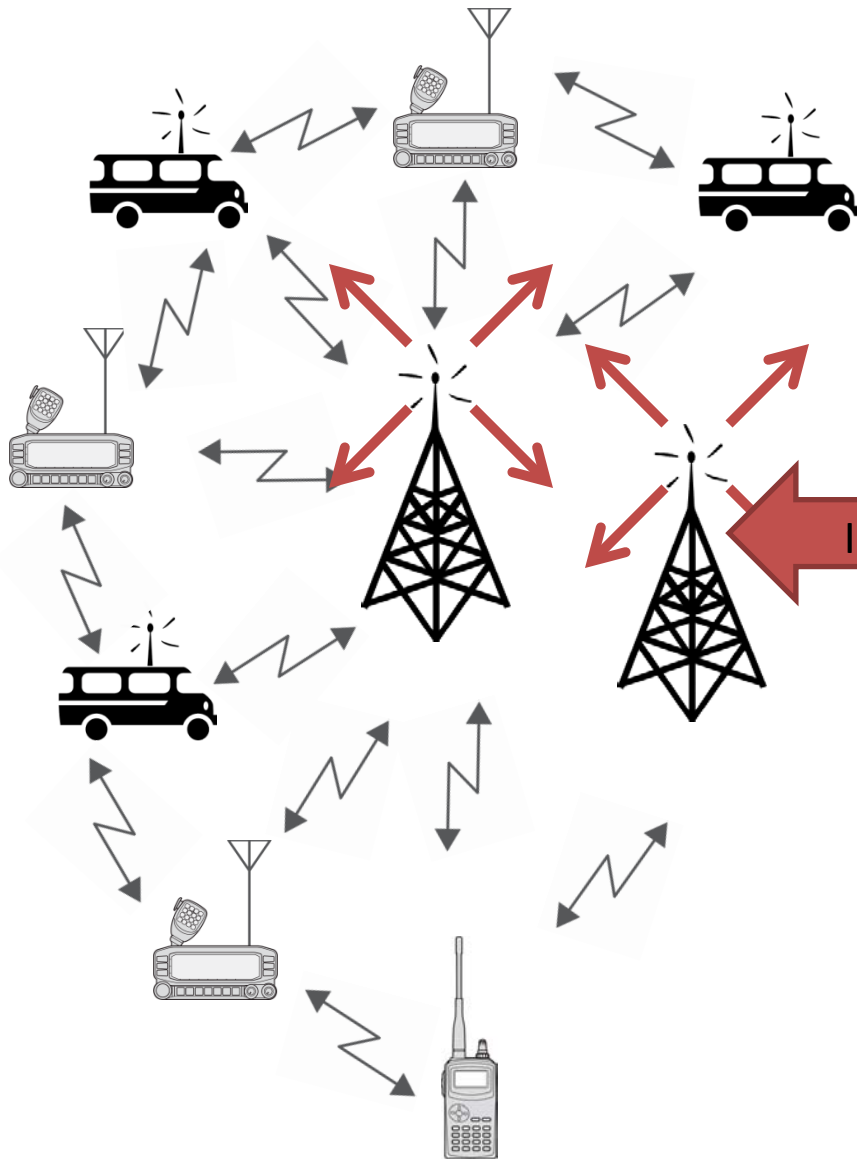
APRS Roundtable

K9WX – October 11, 2011

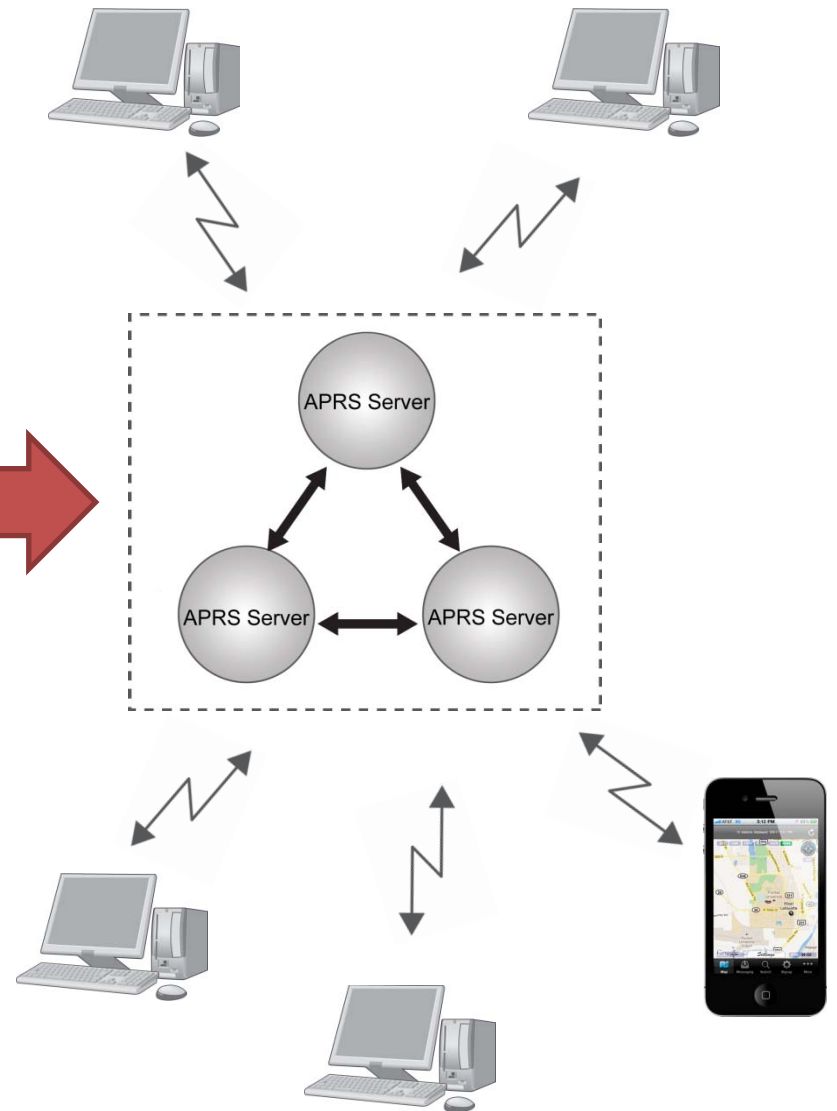
Automatic Packet Reporting System

Source: www.aprs.org and WB4APR

APRS-RF

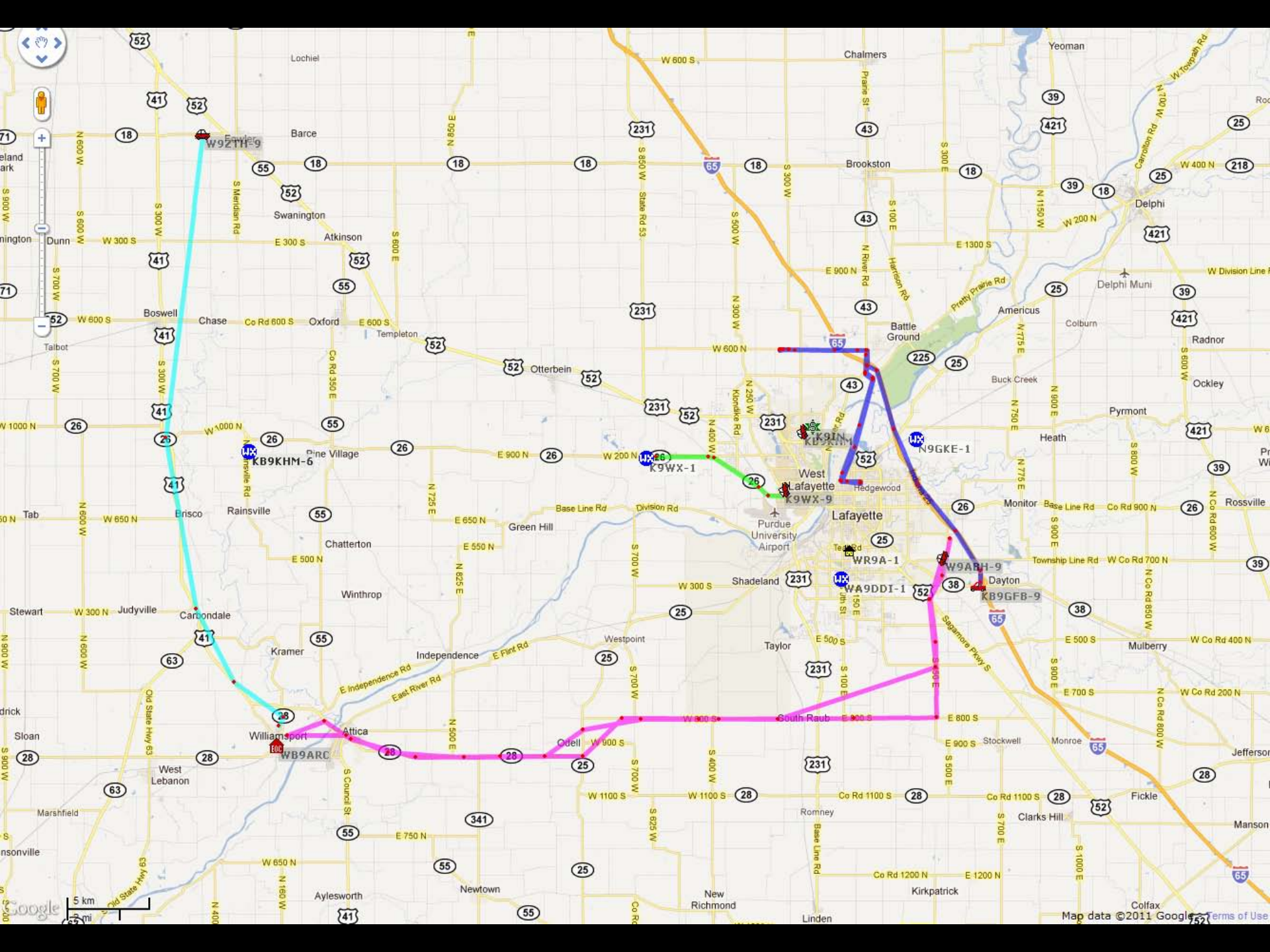


APRS-IS



I think. . .
. . .therefore I am.
- Rene Descartes

I'm on www.aprs.fi. . .
. . .therefore I am.
- K9WX



Topics to cover:

1. Basic setup for RF stationary operation
2. Basic setup for RF mobile operation
3. Basic setup for IGate stationary operation
4. Igate, mobile operation with the iPhone ap
5. A challenge

RF Activity Takes Place:

- 144.390 – ***THE*** North American APRS frequency
- Simplex
- Optional Tone = 100.0 (Voice Alert)
- AX.25 Packet Protocol in unconnected mode

RF Stationary Operation

Equipment Needed

- TNC (or sound card)
- 2M FM radio with cables
- Antenna
- Computer and comm software
- Don't need GPS!



Kantronics KPC3+ v8.3
TenTec #1220 FM 2M
No GPS!

RF Stationary Operation

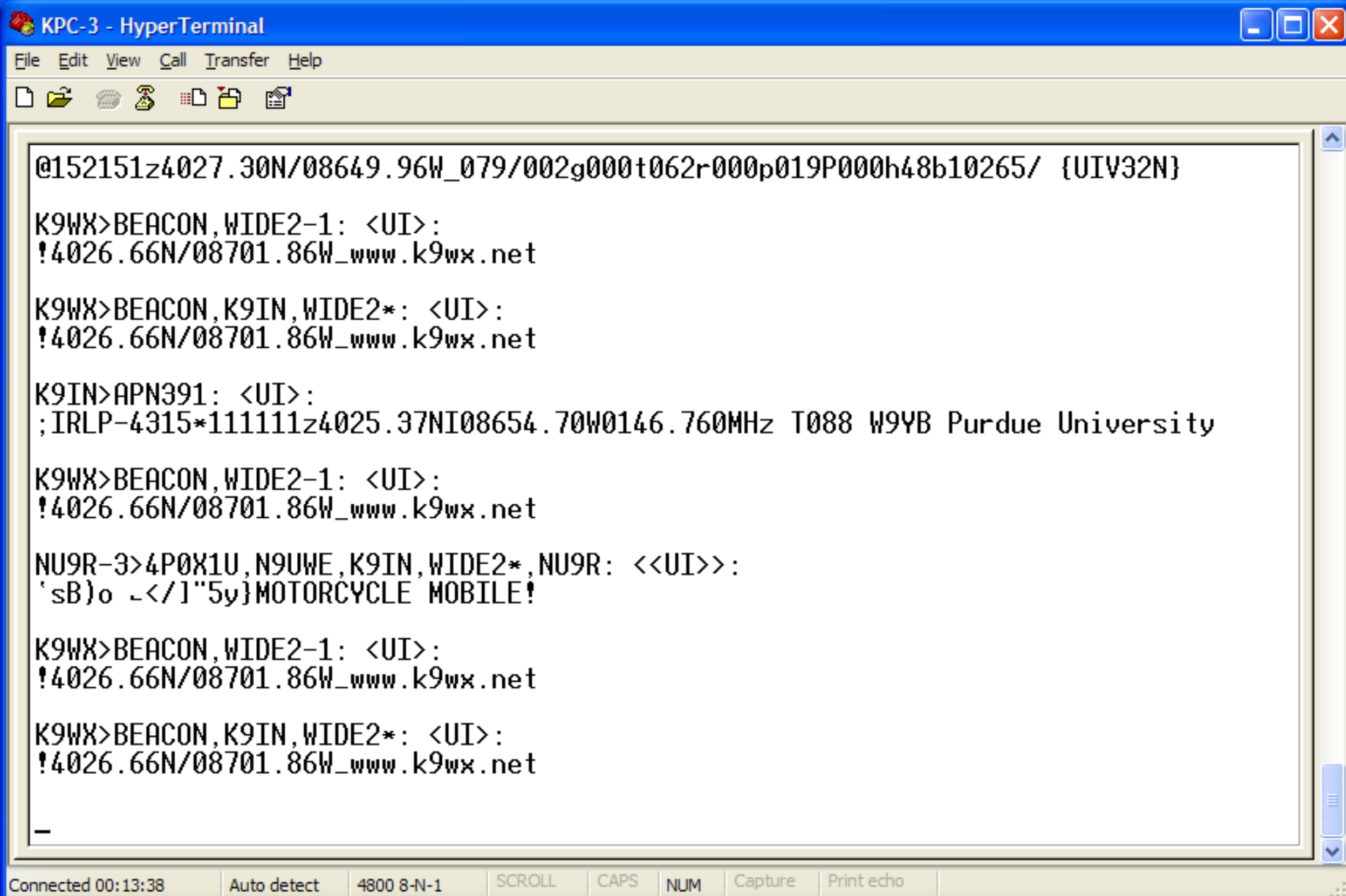
MYCALL = xxxxxx-n (n = 0-15) *(Notes 1,2)*

UNPROTO = APRS VIA WIDE2-1 *(Note 3)*

BTEXT = !4026.66N/08701.86W_ *(Notes 4, 5, 6, 7)*

BEACON = 30

1. <http://aprs.org/SSIDs.txt>
2. <http://www.naprs.co.uk/faq.html>
3. <http://wa8lmf.net/DigiPaths/>
4. <http://www.aprs.net/vm/DOS/PROTOCOL.HTM>
5. <http://www.aprs.net/vm/DOS/SYMBOLS.HTM>
6. http://wa8lmf.net/aprs/APRS_symbols.htm
7. <http://www.aprs.org/symbols/symbolsX.txt>



Reasons for no Digipeat

1. No digipeater within range
2. Collision with another beacon on TX
3. Digipeater is in TX mode when I TX
4. Collision with another beacon on RX
5. No digipeater within range

FUNDAMENTAL UNAVOIDABLE FACT OF PACKET LIFE

“Roughly speaking, a given antenna installation and transmitter power will produce about 1/2 to 1/3 the RELIABLE range on APRS packet that it produces on FM voice.”

<http://wa8lmf.net/DigiPaths/>

Strategies for improving packet delivery success rate:

- Hi power
- Hi gain antenna
- Maximize antenna HAAT
- Short beacon text
- Don't beacon more than necessary

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RF MobileOperation

Equipment Needed

- TNC (or sound card)
- 2M FM radio with cables
- Antenna
- Computer and comm software
- GPS

RF MobileOperation

Equipment Needed

- “Multi-function” 2M FM radio
 - Internal TNC
 - Internal GPS (maybe)
- Antenna

Kenwood D710

Green Light Labs GPS-710

<http://www.greenlightlabs.com/>





<http://panavise.com>

<http://www.pro-fit-intl.com>







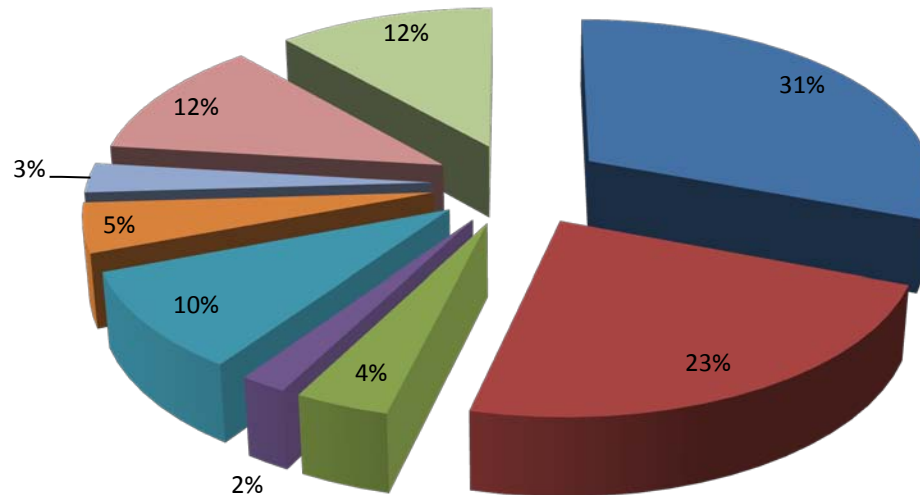
<http://www.byonics.com>

<http://www.argentdata.com>

Mobile APRS Installed Base

Saturday September 17, 2011 9:00 EST
200 Mile Radius of K9WX

- KNWD D700
- KNWD D710
- KNWD D7
- KNWD D72
- YAESU FTM350
- YAESU VX8R
- YAESU VX8G
- Byonics
- Argent





Overlays Map ▼



Digitized by Google

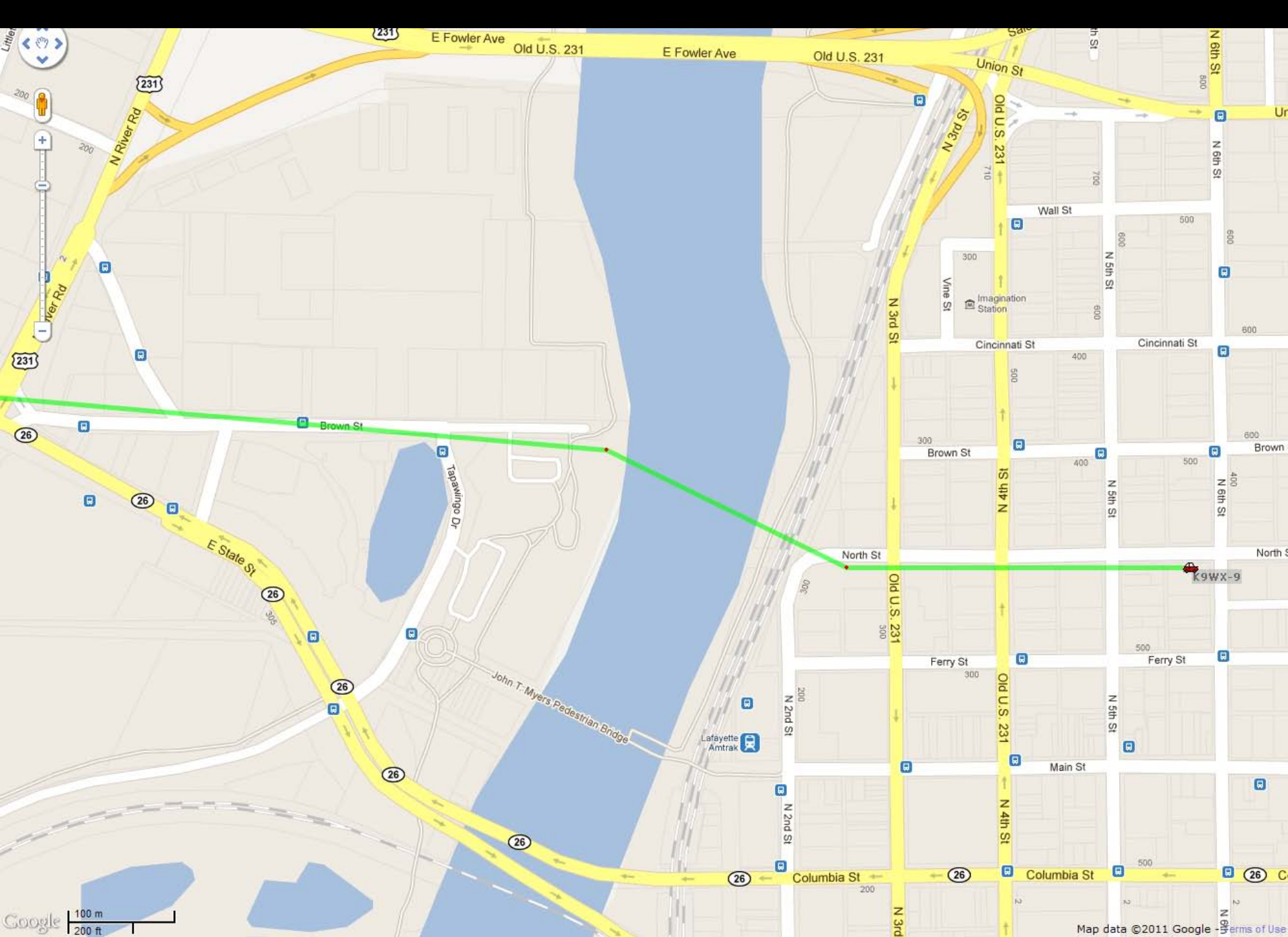
2 km
2 mi

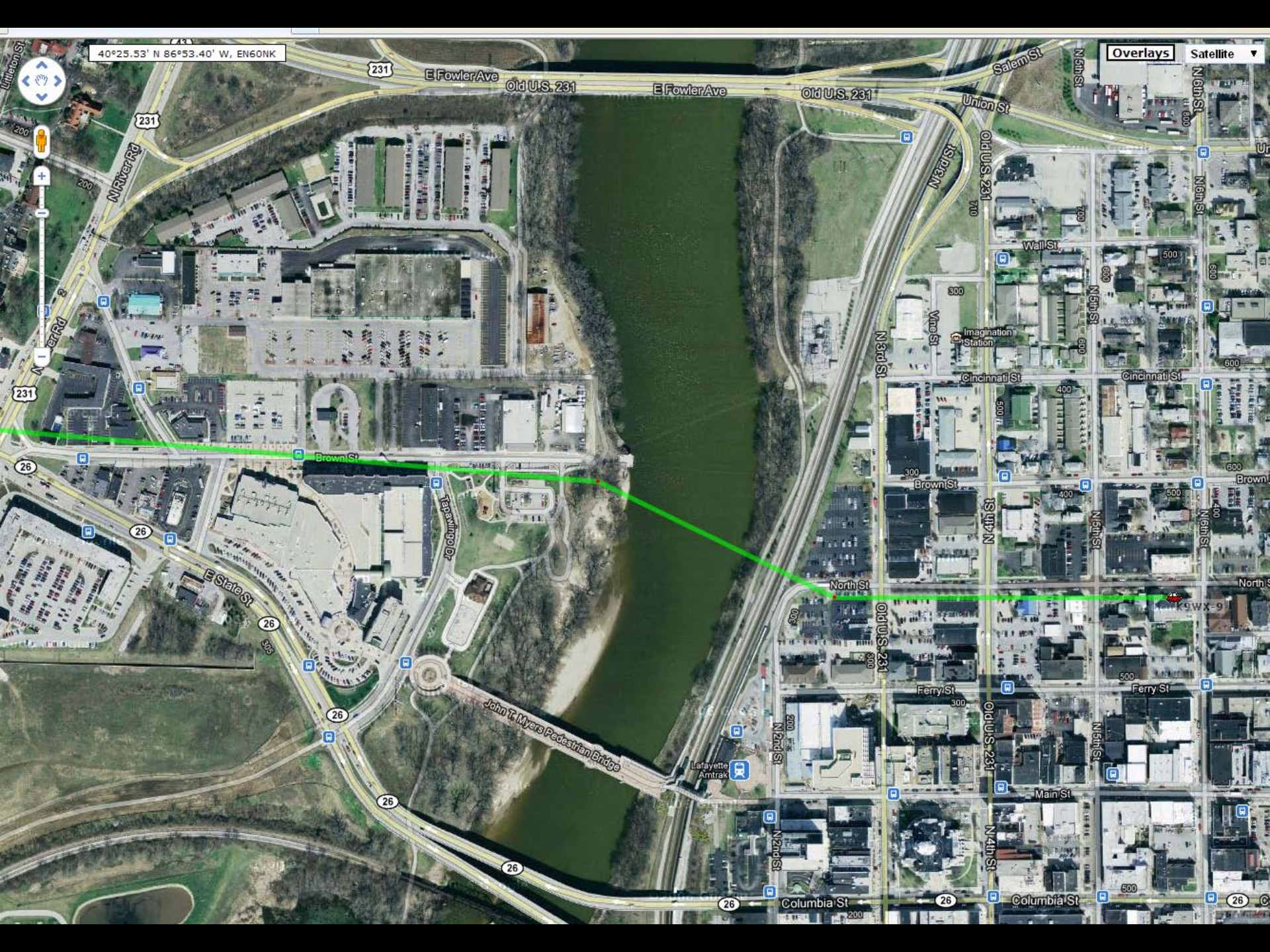
Map data © 2011 Google [Terms of Use](#)

SmartBeaconing

- Adjusts beaconing rate based on speed and changes in direction.

<http://www.hamhud.net/hh2/smartbeacon.html>





40°25.53' N 86°53.40' W, EN60NK

Overlays Satellite

231

E Fowler Ave

Old U.S. 231

E Fowler Ave

Old U.S. 231

Union St

Old U.S. 231

Wall St

Imagination Station

Cincinnati St

Ward St

North St

Brown St

Ferry St

Main St

Columbia St

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E State St

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John T. Myers Pedestrian Bridge

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Decay Algorithm

Stopped [knots]

Knots (1.9 km/h, 1.2 mi/h)

Proportional Pathing

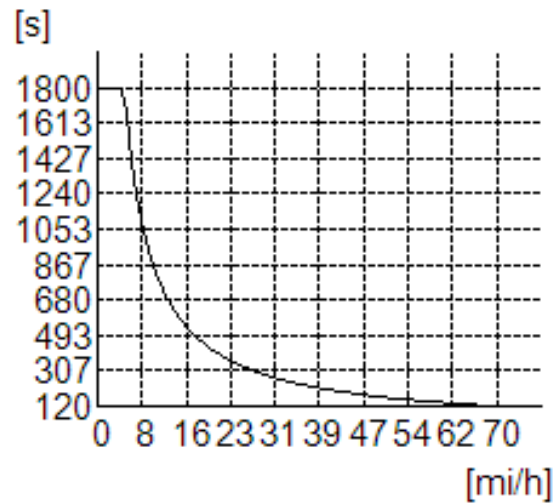
Moving [knots]

Knots (5.6 km/h, 3.5 mi/h)

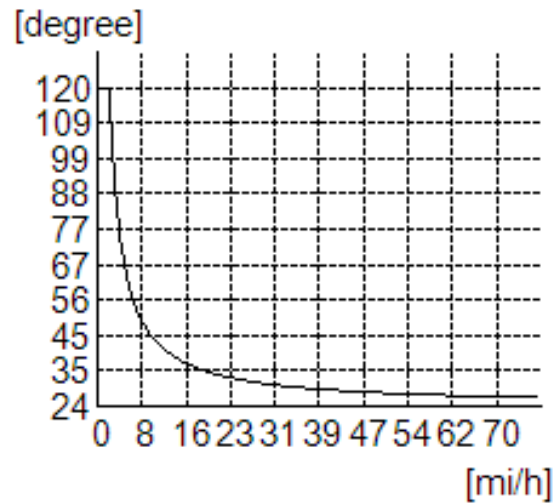
SmartBeaconing Parameters

Low Speed [mi/h] 5	Slow Rate [min] 30	Turn Angle [degree] 24
High Speed [mi/h] 70	Fast Rate [sec] 120	Turn Slope [10degree/ Speed] 20
		Turn Time [sec] 30

Rate Curve



Turn Angle vs Speed



Voice Alert

Aka “Mobile Ham Radar”

- Set TX for CTCSS of 100.0
- Set RX for Tone 100.0
- Leave the volume turned up on your APRS channel
- Make a quick call on 144.39 and QSY
- Some newer radios insert second band frequency in your beacon

<http://aprs.org/VoiceAlert3.html>

Topics to cover:

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- 5. A challenge

APRS-IS Client Software



APRSIS32

- Freeware
- Native support for OSM
- Smaller user base

UIView32

- Donation
- Must purchase or make own maps
- Large user base
- Mature
- No longer in development

APRS-IS Client Software



APRSIS32

- Freeware
- Native support for OSM
- Smaller user base

<http://www.ui-view.org>

<http://aprsisce.wikidot.com/start>

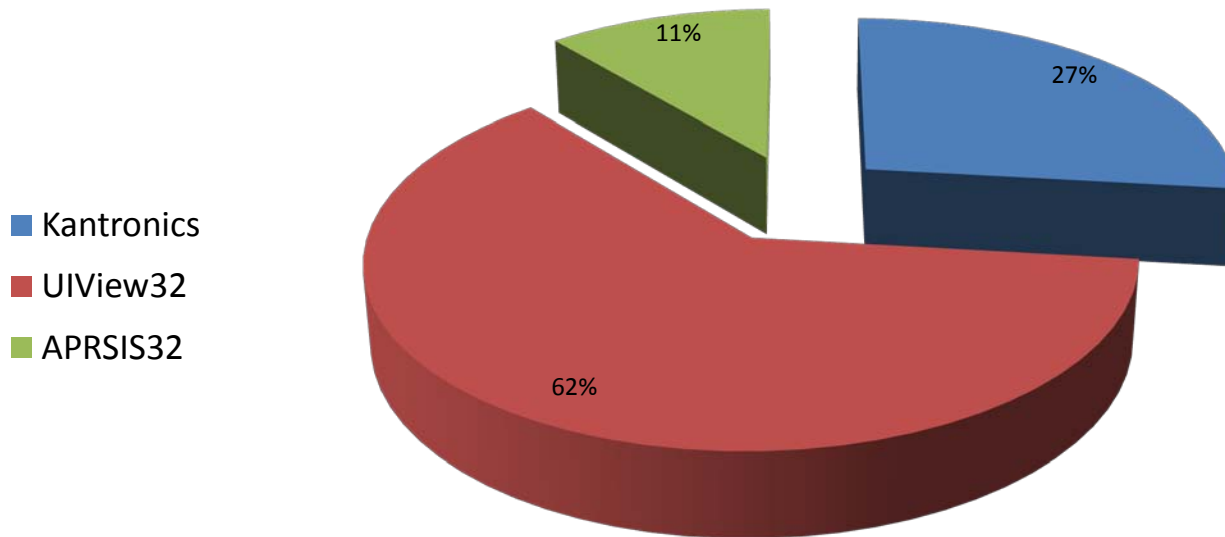
-See 2 videos for basic setup

- OMG feature set
- Active listserv
- Poorly documented
- Basic setup works “out-of-the-box”
- Some set-up requires manual edit of the XML file

APRS Client Software Installed Base

Saturday September 17, 2011 9:00 EST

200 Mile Radius of K9WX



APRSIS32 IGating Secrets

- TNC must be in KISS mode
- Learn about XML file editing
<http://aprsisce.wikidot.com/editing-xml-configuration>
- Edit XML file for TNC
<http://aprsisce.wikidot.com/tnc-kpc-3>
- Edit XML file for WIDE1 or WIDE2
<http://aprsisce.wikidot.com/digipeating>

Topics to cover:

- ✓ Basic setup for RF stationary operation
 - ✓ Basic setup for RF mobile operation
 - ✓ Basic setup for iGate stationary operation
4. iGate ,mobile operation with the iPhone ap: OpenAPRS
 5. A challenge

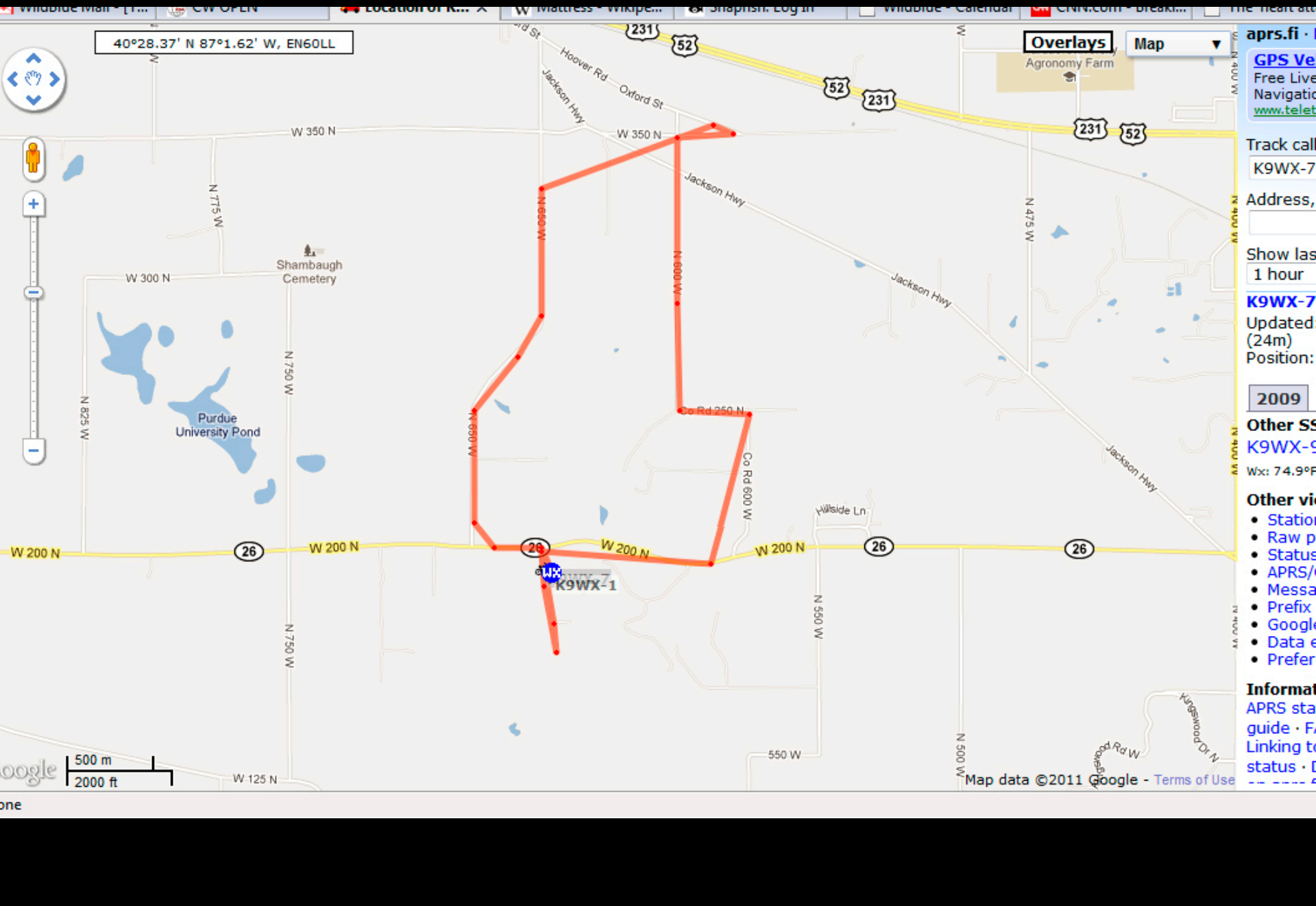
Topics to cover:

- ✓ Basic setup for RF stationary operation
- ✓ Basic setup for RF mobile operation
- ✓ Basic setup for iGate stationary operation
- ✓ iGate ,mobile operation with the iPhone ap: OpenAPRS

5. A challenge

Challenge:

- Fill up the map: use software to beacon your station to APRS-IS and APRS-RF
- Fill in the coverage: use software to IGate RF traffic as a WIDE1 (RF digipeating optional)



40°28.37' N 87°1.62' W, EN60LL

Overlays
Agronomy Farm

Map

aprs.fi
GPS Ve
Free Live
Navigation
www.telet

Track call
K9WX-7

Address,

Show las
1 hour

K9WX-7
Updated
(24m)
Position:

2009

Other SS
K9WX-9

Wx: 74.9°F

Other vie

- Station
- Raw p
- Status
- APRS/
- Messa
- Prefix
- Google
- Data e
- Prefer

Informa

APRS sta
guide · F
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Map data ©2011 Google - Terms of Use

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Download a copy of this presentation at
www.k9wx.net/downloads/aprs.pdf

Contact: k9wx@wildblue.net

References: www.aprs.org/doc/APRS101.PDF
<http://aprs.org/aprs11.html>
<http://aprs.org/aprs12.html>