



Internet Connections

2014 National HDT Rally

Caveats

Dynamic changing industry

What used to be doesn't mean the future

How much do you use the Internet?

Just for e-mail

Or....

How much do you use the Internet?

- E-mail
- Face Book
- Google Plus
- Blog reading
- Blog Writing
- E-Shopping
- Sexting
- Trip planning
- Information lookup
- Photo storage
- Web site browsing
- Instant Messaging
- Web site updates
- Tweeting

How much do you use the Internet?

What you don't use the Internet for as a RVer.

➤ Movies

➤ Television

How much do you use the Internet?

Probably somewhere in between,

But more than just e-mail

So the Internet is probably important
to you

Internet Connection Options

- Local Library
- Dial-up
- Park Wi-Fi
- Satellite
- Smartphone Hotspot
- Air-Card



Library Internet Connection

Library Internet Connection

- Inconvenient at best
 - ❖ Library hours
 - ❖ Limited Terminal Time
 - ❖ Some Libraries have Wi-Fi accessible from outside
- Cost Considerations
 - ❖ Virtually none except time



Dial-up Internet Connection

Dial-up Internet Connection

- Virtually gone as an option
- Very slow
 - ❖ very little Internet traffic is not graphical
- Few parks have provisions for the phone connection
- Cellphones used to be used as a modem

Dial-up Internet Connection

➤ Cost Considerations

- ❖ ISP Subscription, \$10-\$20 a month
- ❖ Possible long-distance charges in the typical remote areas of RVing.
- ❖ Minutes consumed when using a cellphone on a dongle



Park Wi-Fi Internet Connection

Park Wi-Fi Internet Connection

- Becoming very available
 - ❖ Often included in rental fee, nothing is free
- Availability does not guarantee usability
 - ❖ Not enough bandwidth for the number of users – growing problem
 - ❖ Quality of equipment can lead to outages

Park Wi-Fi Internet Connection

- Example statistics of Wi-Fi Availability

Days	Wi-Fi Available	Wi-Fi used	Wi-Fi Bad	Satellite used
186	131	108	23	78
	70%	58%	18%	42%

Park Wi-Fi Internet Connection

➤ Cost Considerations

- ❖ Maybe no additional costs
 - Wi-Fi access included in site fee
- ❖ Maybe an access fee
 - Example: Tengo, maybe \$5 a day
- ❖ Maybe hardware cost for external antenna, radio.

Park Wi-Fi Internet Connection

➤ Speeds

❖ Transfer rates

- 0 - 54 Mb/s to park router
- 64 kb/s – 8 Mb/s back haul

❖ Latency

- ~ 100 ms



Satellite Internet Connection

Satellite Internet Connection

- Connectivity virtually anywhere
 - ❖ Dense trees might get in the way
- Faster than dial-up, slower than Wi-Fi and usual air-card connections



Satellite Internet Connection

Reality

- HughesNet is closing down CONUS (US Wide) satellites, the only viable option for RVers
- The new Hughesnet/Dishnet satellite offerings are spotbeams, meant for fixed locations.

Satellite Internet Connection

➤ WildBlue

- ❖ Spotbeam service used to be offered to RVers by calling in to change locations.
- ❖ Merger with Exede has removed the RV option



Smartphone Hotspot Internet Connection

Smartphone Hotspot Connection

- Options
- Acts like an Air-Card Mini-Hotspot
- Wireless only connections
- Apps that extend access to dataplan



Smartphone Hotspot Connection

➤ Sprint

❖ 3 GB Plan

- \$34.99/month over the voice package for smart phone data

➤ AT&T and Verizon

❖ App just uses data from your dataplan

*dynamic market, often changing



Air-Card Internet Connection

Air-Card Internet Connection

- Fits most users
- Cellular connectivity is not everywhere
- Easy setup – just plug in



Air-Card Internet Connection

➤ Speeds

❖ Transfer rates

- 0 - 3 mb/s

❖ Latency

- ~ 300-400 ms

Air-Card Internet Connection

- Cost Considerations continued
 - ❖ Addition of air-card capable wireless router extends connection to multiple PCs, \$85-\$250
 - ❖ External Amplifier and Antenna, \$150-\$340
 - ❖ Complete, well equipped Air-Card system could be \$215-\$500

Air-Card Internet Connection

➤ Issues

- ❖ Coverage
- ❖ Data traffic allocation
- ❖ Border connections

Air-Card Issues - Coverage

- Most people relate their air-card problems to reception.
- Actually, the problems are generally related to transmission. The cell towers have more power and are located higher than you.
- The ability for your air-card to receive is far better than the ability of your air-card to transmit back to the cell tower.
- Generally your air-card has a better chance of communicating with the cell tower than your cell phone. Your air-card is powered by the PC while your cell phone relies on its batteries and therefore is conservative on transmission power usage.
- A big issue is how close to the cell tower are you. In other words, what is the coverage of your carrier?

Air-Card Issues - Coverage

- AT&T, "We cover 97% of Americans
 - ❖ 97% of Americans does not map to geographic area coverage.
 - ❖ RVers tend to be away from large metropolitan areas.
- Interstate highways have good coverage
- National Park land is very poor on cellular coverage

Air-Card Issues - Coverage

Sprint Wireless



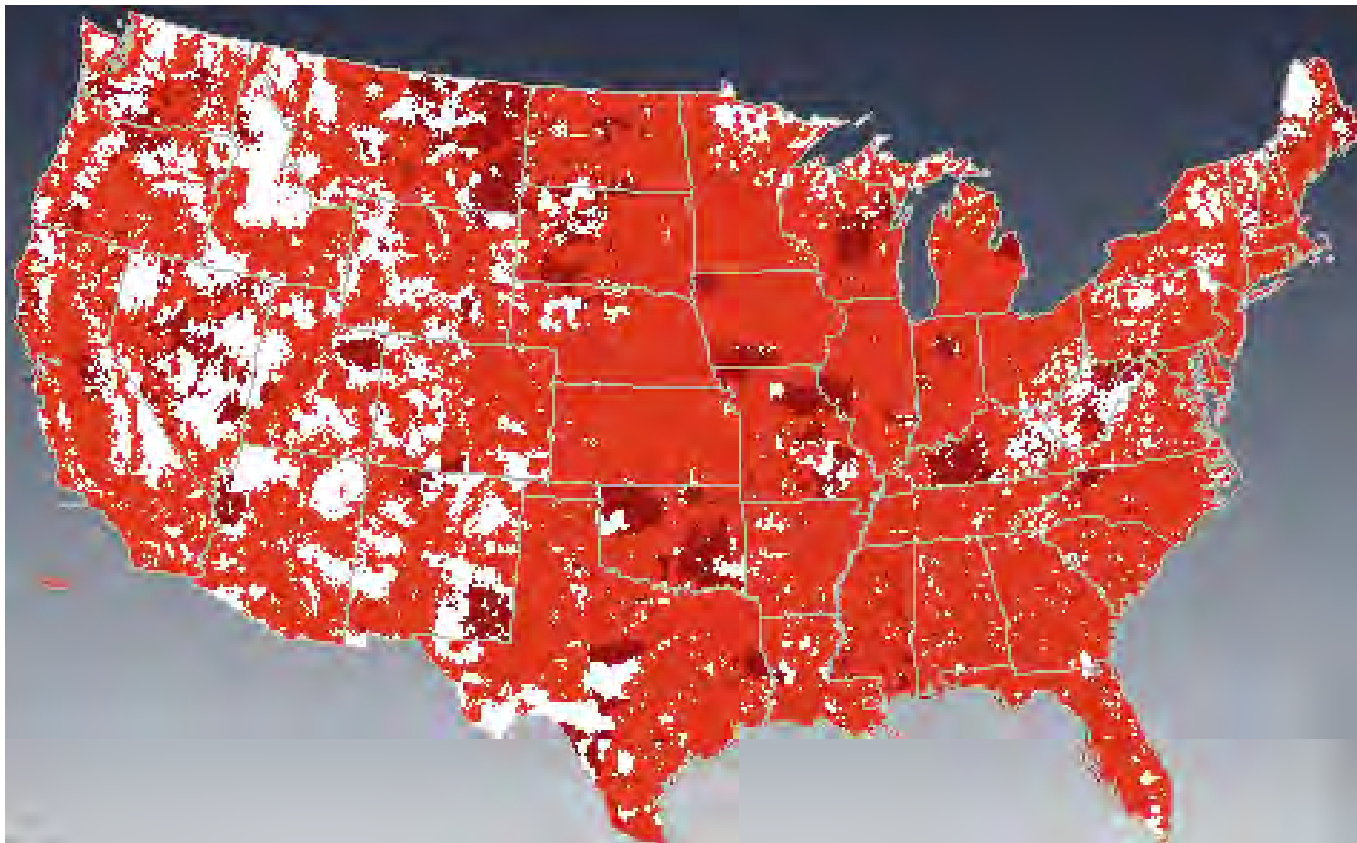
Air-Card Issues - Coverage

AT&T Wireless



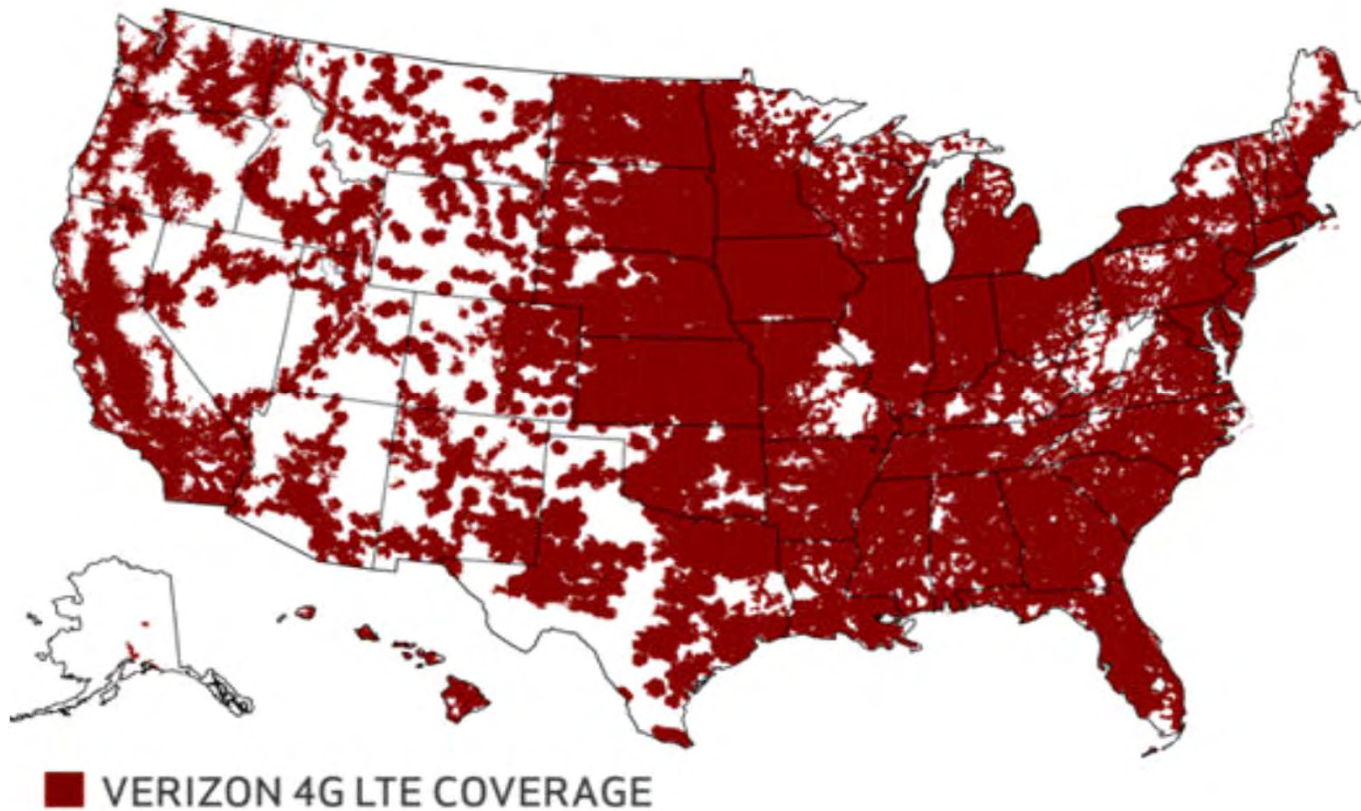
Air-Card Issues - Coverage

Verizon Wireless



Air-Card Issues - Coverage

Verizon Wireless 4G



Air-Card Issues - Coverage

- Of the three, Verizon still has the edge on geographic coverage
- Still not everywhere

Air-Card Internet Connection

➤ Options

❖ MIFI Mini-Hotspot

- Air-Card and wireless router combined
- Less flexibility than a regular Air-Card and an air-card capable router
- Wireless only connections



Air-Card Internet Connection

➤ Options

- ❖ Air-Card capable wireless router
 - Allows multiple PCs to share connection
 - Allow Cat-5 wire connections to devices like printers



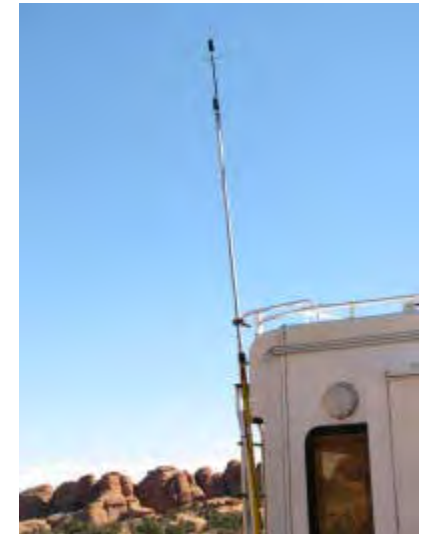
Air-Card Internet Connection

➤ Options

❖ External Amplifier and Antenna

- External Antenna on the roof will have a better “view” of the cell tower.
- Amplifier puts out a stronger signal than the Air-Card
- The strongest signal would be from a “wired” amplifier with a cable from the Air-Card to the Amplifier
- Wireless Amplifier is more convenient as cellphones can use it too

Air-Card Internet Connection



Some of the external cell antennas are short enough to be mounted permanently on the roof of your RV.

Longer ones need mounts that can be taken down for travel.

Air-Card Internet Connection



Another option is to use a device that you can raise from inside your RV, like if you have a “Batwing” or similar TV antenna.

This can be used for Wi-Fi and Air-Card antennas.

Air-Card Internet Connection

➤ Options

❖ External Amplifier and Antenna continued

- At this moment, wired amplifiers are only available (at a reasonable cost) for 3G.
- 4G wired amplifiers are coming....soon
- Wilson Sleek best alternative at the moment

Air-Card Internet Connection

➤ Cost Considerations

- ❖ Air-card usually included with 1-2 year subscription
- ❖ Monthly Subscription, generally \$60 a month, maybe as low as \$50
- ❖ Additional fees for exceeding monthly data traffic allocations
 - Unlimited plans are not available now, will go away with plan changes

Air-Card Issues – Data Traffic

- Data traffic allocation
 - ❖ Air-Cards count data downloaded and uploaded.
 - ❖ Most dataplans now are tailorable to your usage needs in 2 GB increments

Air-Card Issues – Border Connect

➤ Border connections

❖ Close to Canadian and Mexican Borders.

- Incredibly high roaming charges.
- Canada
 - \$2.05/MB Verizon
 - \$15.00/MB AT&T
 - \$2.00/MB Sprint \$19.45/MB 4G

Air-Card Issues – Border Connect

➤ Border connections

❖ Close to Canadian and Mexican Borders.

- Incredibly high roaming charges.
- Mexico
 - \$5.12/MB Verizon
 - \$19.97/MB AT&T
 - \$4.10/MB Sprint / \$19.45/MB 4G

Air-Card Issues – Deals

- ❖ Millenicom Hotspot Plan
 - \$89.95/month no contract.
 - \$49.95 Startup Fee
 - 3G/4G MiFi
 - \$99.99 for MiFi
 - \$15.00 Shipping

- ❖ Note Unlimited plans are Sprint

Air-Card - 4GL?

- Will 4G improve coverage issues?
 - ❖ Maybe
 - It appears that in some areas, 4G has better reception than 3G
 - ❖ 4G represents faster data transfer

A new Air-Card Option

➤ Verizon 4G LTE Broadband Router with Voice

❖ MIFI on steroids

- Air-Card and wireless router combined
- Had three Ethernet connections
- 10 Wireless connections
- Can have a phone line



A new Air-Card Option

- \$20 a month, a data device added you your Everything Verizon plan.
- \$30 a month, a data device and a phone line.
 - Connect wireless phones.



A new Air-Card Option

Comparison to Millenicom (for an existing Verizon Everything Plan user)

Millenicom = \$89.99 for 20 GB

Verizon Broadband Router (\$20.00) +
14GB additional data (\$70.00) = \$90



A new Air-Card Option

➤ Positives

- Get granular data increases
 - 2GB versus 20GB
- Stronger Signal
- Need antenna only, no amplifier



A new Air-Card Option

➤ Negatives

- 4G Only
- No Ethernet WAN Port
 - No connection to roof radio (Bullet, etc.)



An October 2014 Promotion

Verizon and AT&T are offering double (30 for 15) dataplans for plans over 15GB

- At this rate, very competitive to Millenicom
- It is a promotion, guaranteed only to the end of the contract

Discussion

- How important is connection
- How important is speed
- How important is cost