



Internet Connections

2013 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
- Trip planning
- Information lookup
- Photo storage
- Web site browsing
- Instant Messaging
- Web site updates
- Tweeting

How much do you use the Internet?

Things RVers should not even think of using the Internet for:

➤ 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

Library Internet Connection

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 Excede 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
- Less viable as unlimited plan depart



Smartphone Hotspot Connection

Sprint

❖ 2 GB Plan

- \$10.00/month over the voice package for smart phone data
- \$30.00 Hotspot function (4G)

*dynamic market, often changing

Smartphone Hotspot Connection

AT&T

❖ 2 GB Plan

- \$25.00/month over the voice package for smart phone data
- \$20.00 tethering fee

*dynamic market, often changing

Smartphone Hotspot Connection

Verizon

- ❖ “unlimited” 5 GB Plan
 - \$29.99/month over the voice package for smart phone data
 - \$29.99 tethering fee for another “unlimited” 5 GB data
- ❖ Included in Share Everything Plan

*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

- ❖ Addition of air-card capable wireless router extends connection to multiple PCs, \$85-\$250
- ❖ External Amplifier and Antenna, \$250-\$340
- ❖ Complete, well equipped Air-Card system could be \$315-\$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

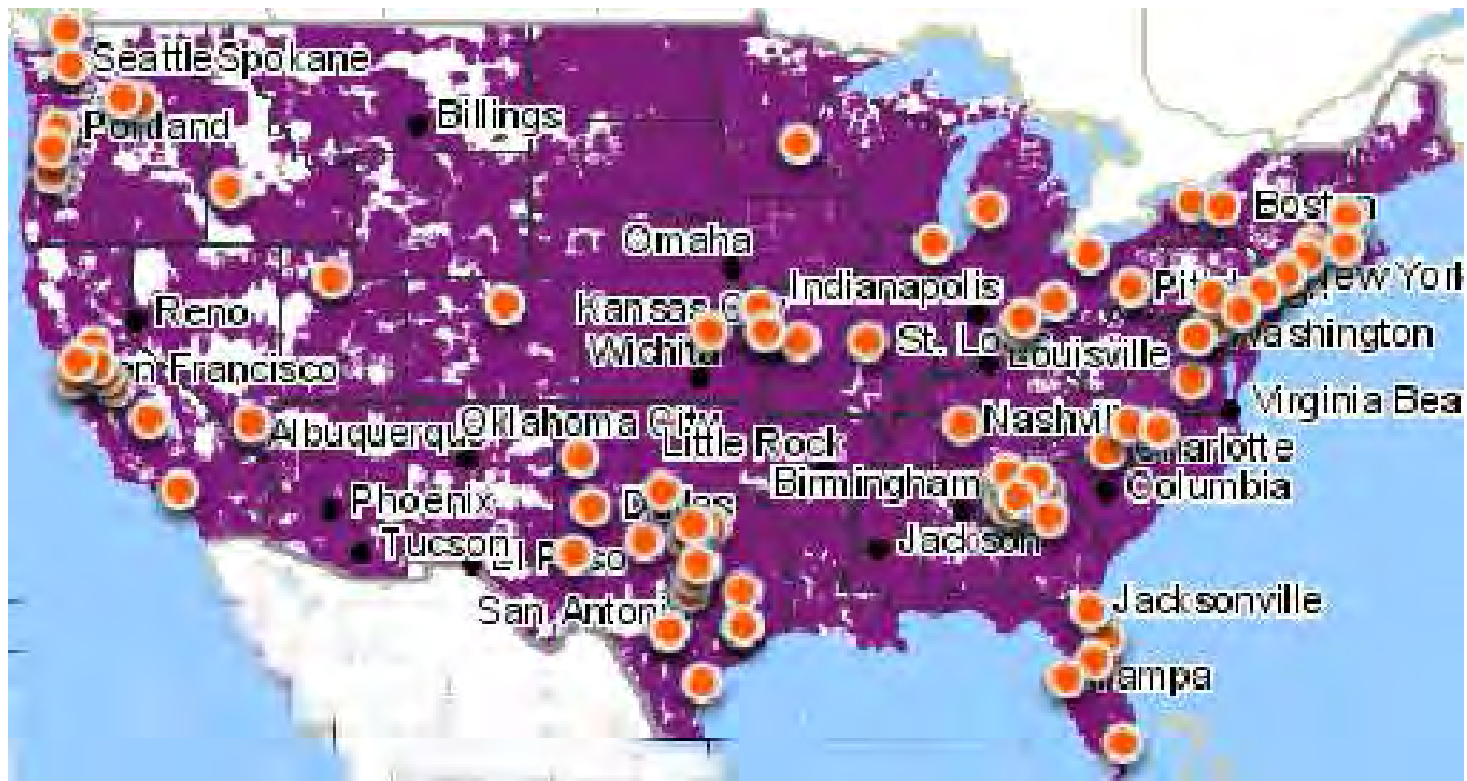
Air-Card Issues - Coverage

Our 2010 Trip



Air-Card Issues - Coverage

Sprint Wireless



Air-Card Issues - Coverage

Sprint Wireless with trip



Air-Card Issues - Coverage

AT&T Wireless



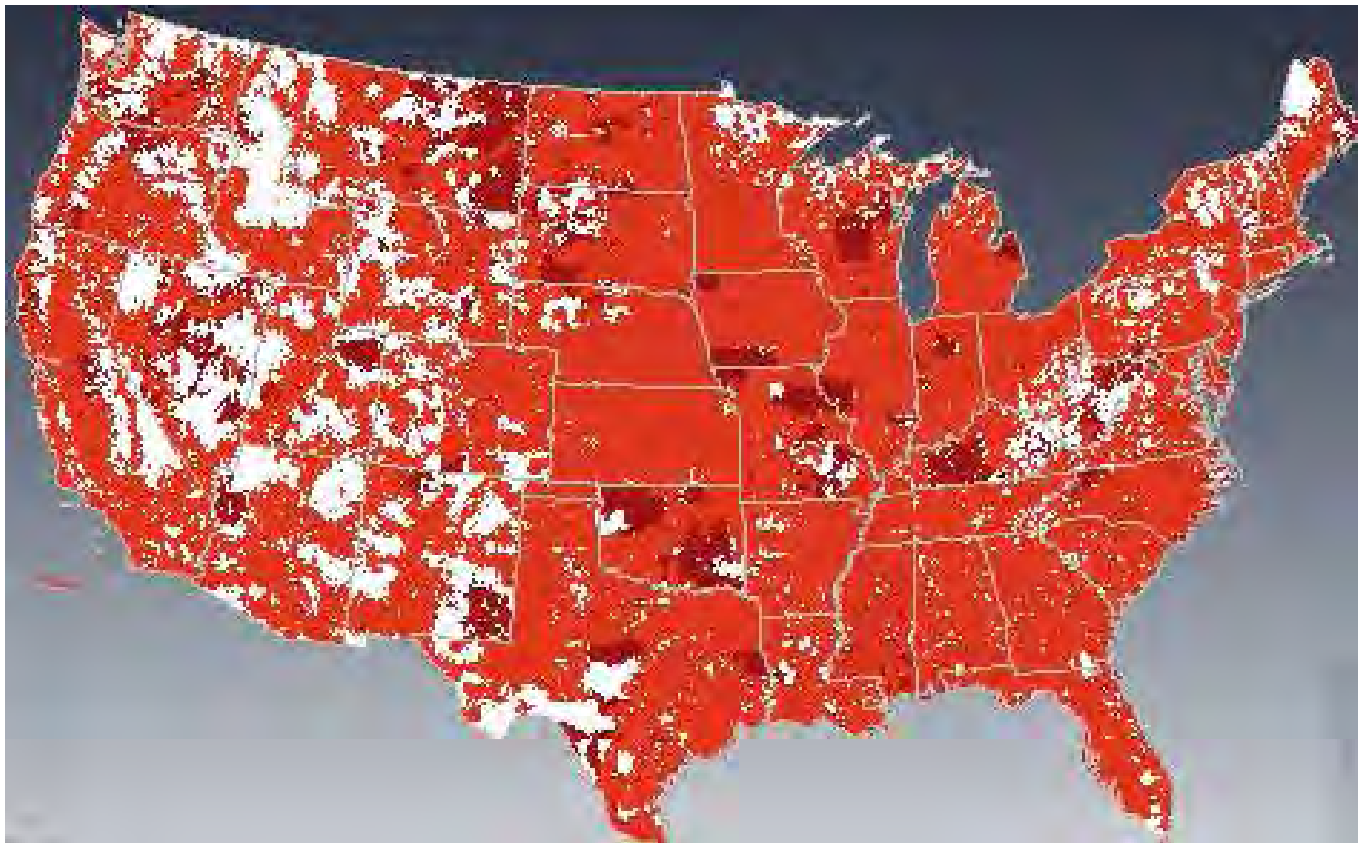
Air-Card Issues - Coverage

AT&T Wireless with trip



Air-Card Issues - Coverage

Verizon Wireless



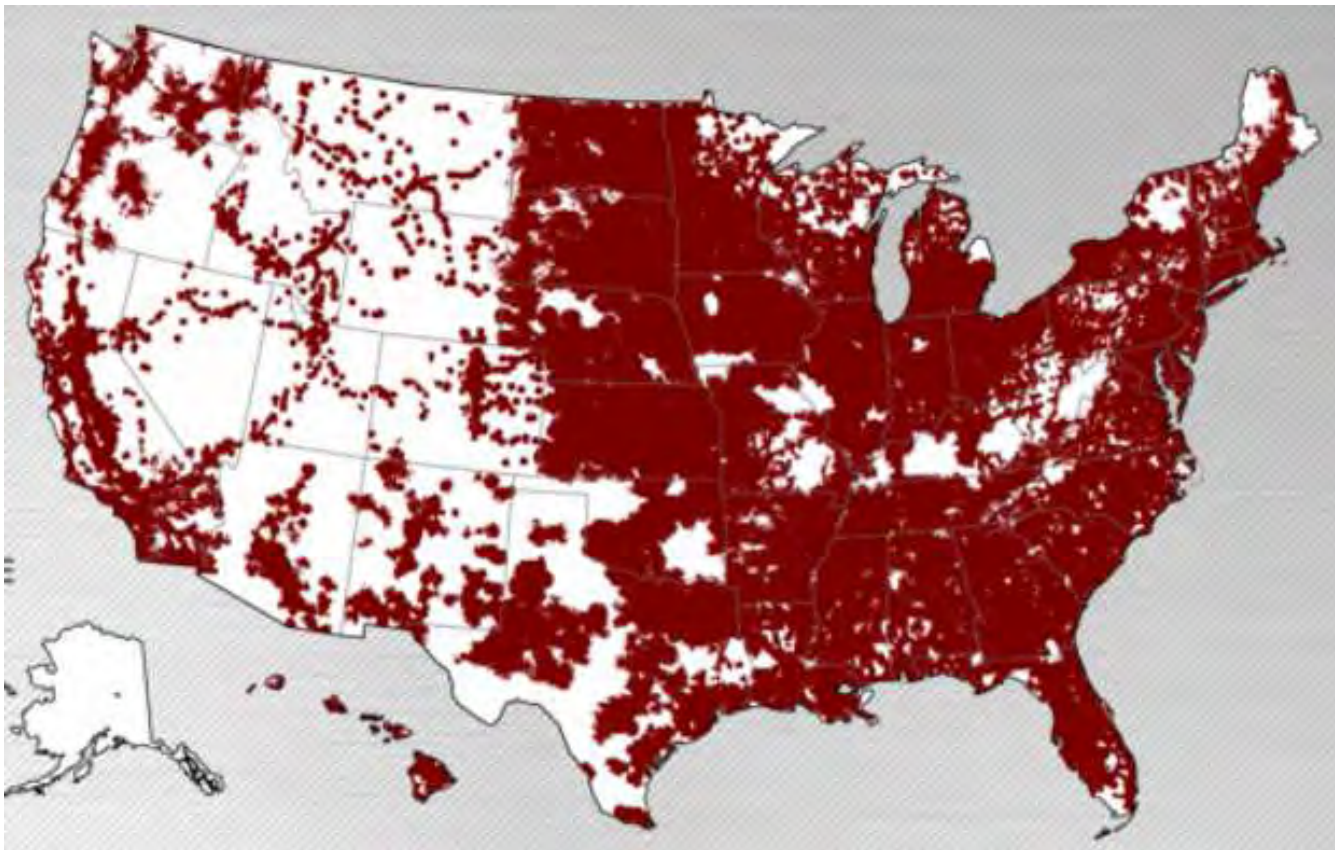
Air-Card Issues - Coverage

Verizon Wireless with trip



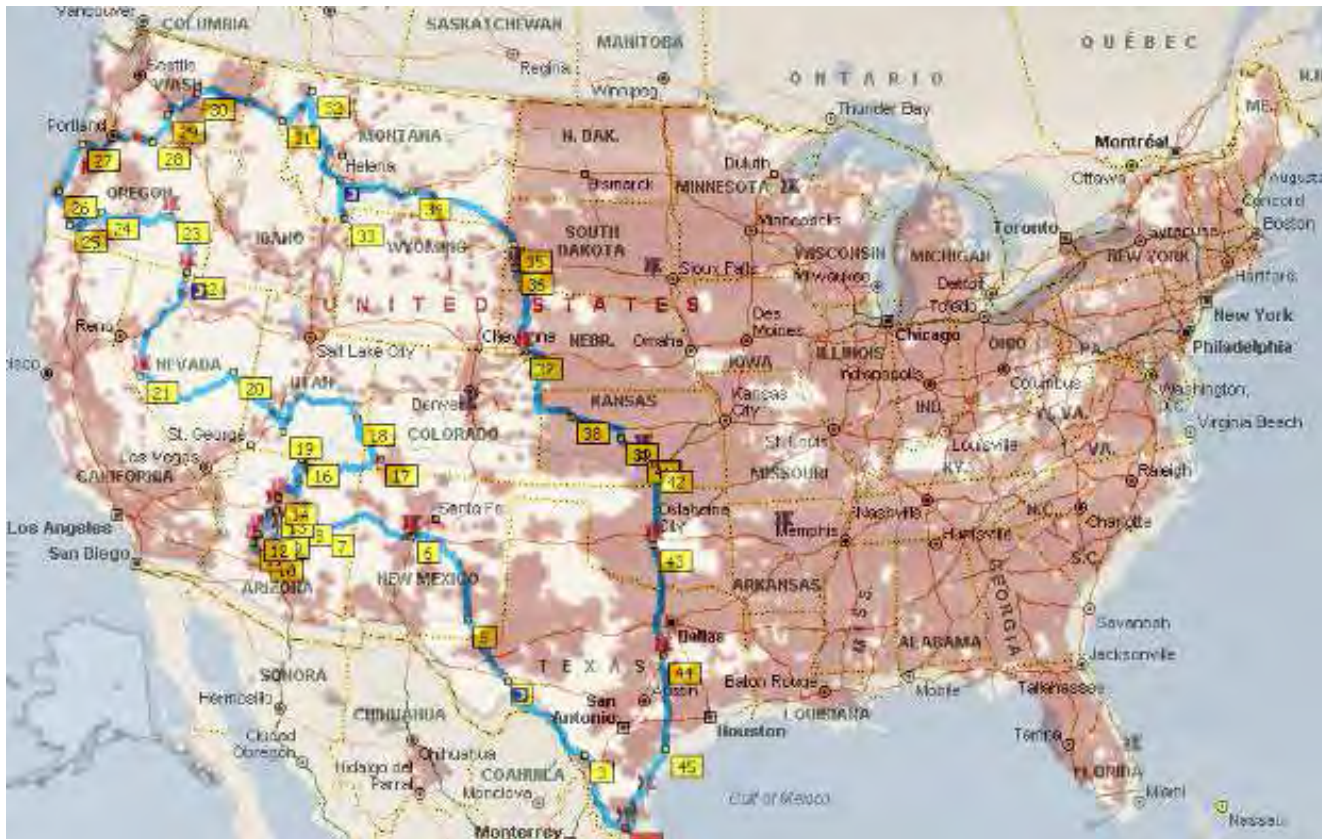
Air-Card Issues - Coverage

Verizon Wireless 4G



Air-Card Issues - Coverage

Verizon Wireless 4G with trip



Air-Card Issues - Coverage

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

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

- ❖ 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

MIFI Mini-Hotspot

- Does the MIFI have enough connections?
- Some MIFIs only support 5 wireless devices
- An extreme count

Wired	Wireless
Desktop PC	Laptop
Hopper HDDVR Receiver	Laptop
Joey HD Remote	Kindle
Hotspot Router	Kindle Fire
Truck Computer	Droid Bionic
	Samsung Note II

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

Options

- ❖ External Amplifier and Antenna continued
 - Amplifier cost \$180-\$270
 - Antenna cost \$70
 - Plus some cable

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.
 - ❖ 5 GB is enough for most general use.
 - ❖ May be an issue
 - ❖ Example: 8 GB of monthly data traffic
 - Monthly subscription \$60
 - 3 GB overage \$150
 - Month cost \$210

Air-Card Issues – Data Traffic

Data traffic allocation continued

- ❖ Use two air-cards for 10 GB.
 - Monthly subscription \$120
- ❖ Really bad case - 14 GB of data traffic
 - Three air-cards = \$180
 - \$60 subscription + \$450 overages fee = \$510

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

- \$69.95/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

Discussion

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