

Internet Connections

2012 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?

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

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
 - ❖ 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

➤ Speeds

❖ Transfer rates

- 256 kbs/ - 1.2 mb/s download
- 256 kb/s- 768 kb/s upload
- Higher rates coming up to 10 mb/s download

❖ Latency

- ~ 1,700-1,800 ms

Satellite Internet Connection

➤ dishNET (Hughesnet, Exede)

❖ CONUS Satellites

- Access your assigned satellite anywhere in North America

❖ Spot Beam Satellites

- Can move across country by having assigned satellite changed

Satellite Internet Connection

- CONUS is more suited to RVing
- Spot Beams has been used by RVers
 - ❖ Need to contact operators to switch satellites can be difficult in non-cell coverage areas

Satellite Internet Connection

- dishNET general understanding
 - ❖ Officially dishNET is only available at fixed locations
 - Moving RV setups are not recognized by dishNET
 - dishNET knows there are RVers, it just isn't geared to support mobile setups.
 - You don't call dishNET for setup help
 - You call dishNET when something is broke

Satellite Internet Connection

- dishNET general understanding
 - ❖ You get your dishNET account through a Mobile supplier
 - The Mobile supplier delivers the first level of support
 - Knowledgeable of mobile setups
 - Datastorm is a Mobile supplier
 - I called my Mobile supplier once in 5 years

Satellite Internet Connection

- Cost considerations
 - ❖ Upfront costs
 - Datastorm automatic rooftop system, \$5000 installed as low as \$1000 used plus installation
 - Modem, dish for house, \$300
 - Tripod setup new, \$1200-\$1500
 - Used setup \$300-600
 - Shipping costs?



Satellite Internet Connection

- Cost Considerations continued
 - ❖ Upfront costs continued
 - More used equipment available as users convert over to air-cards
 - ❖ Monthly subscription \$40-\$80+

Satellite Issues – Data Traffic

- The whole system is being repackaged with 10GB and 20 GB plans
- Looks like the new packaging will be something like this for a 10 GB Cap plan
 - 5GB normal time
 - 5GB 2:00AM -7:00 AM

Satellite Issues – Data Traffic

- New highspeed dishNET service in Central US
- Old Hughshet and Exede cover the rest of the country under the dishNET label

Satellite Issues - setup

- Datastorm Automatic Roof Mount
 - ❖ Turn on and it locks in in a few minutes
 - ❖ Highly subject to camp site obstructions (trees)

Satellite Issues - setup

- Ground Tripod System
 - ❖ Physical setup time
 - 20-45 minutes depending on setup procedures
 - ❖ Ability to move around obstructions
 - trees
 - ❖ Tools can make the setup easier
 - BirDog Meter (\$300)
 - Laptop or Netbook (\$90)

Satellite Issues

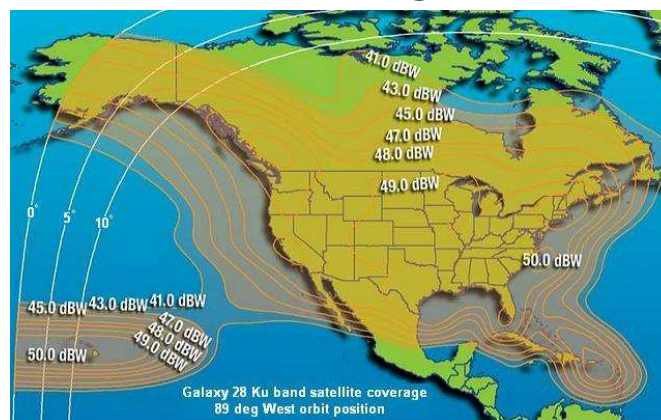
- Note -
 - ❖ Only HNS7000/S modems for mobile use
 - ❖ HNS9000 modems are spot-beam
 - Can only be used in home address area.
 - ❖ New modems will only be spot beam

Satellite Issues Border Connect

- Near Border usage
 - ❖ Safe from roaming charges
 - ❖ Most of Canada
 - ❖ Northern Mexico
 - ❖ Most of Alaska

Satellite Issues Border Connect

- Near Border Coverage



Smartphone Hotspot Internet Connection

Smartphone Hotspot Connection

- Options
- Acts like an Air-Card Mini-Hotspot
- Wireless only connections
- Wireless only connections



Smartphone Hotspot Connection

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

Smartphone Hotspot Connection

- AT&T
 - ❖ 2 GB Plan
 - \$25.00/month over the voice package for smart phone data
 - \$20.00 tethering fee

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

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, \$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



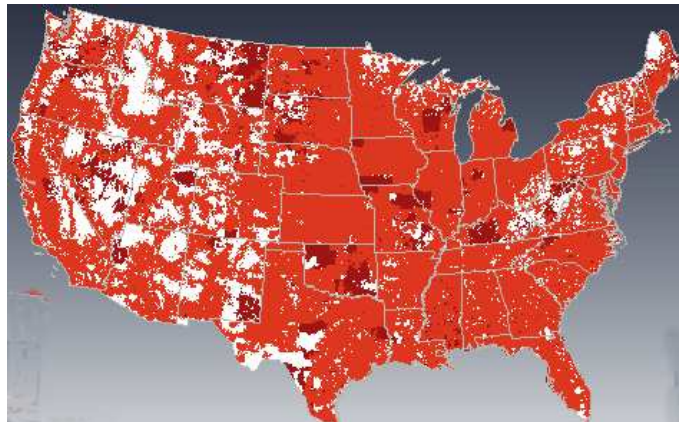
Air-Card Issues - Coverage

AT&T Wireless with trip



Air-Card Issues - Coverage

Verizon Wireless



Air-Card Issues - Coverage

Verizon Wireless with trip



Air-Card Issues - Coverage

- 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
	Droid Razr HD

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
 - \$5.00/MB AT&T
 - \$2.00/MB Sprint

Air-Card Issues – Border Connect

- Border connections
 - ❖ Close to Canadian and Mexican Borders.
 - Incredibly high roaming charges.
 - Mexico
 - \$5.12/MB Verizon
 - \$5.00/MB AT&T
 - \$2.00/MB Sprint

Air-Card Issues – Deals

- ❖ Millenicom Verizon 20 GB Plan
 - \$59.95/month no contract.
 - \$49.95 Startup Fee
 - Currently not on website
 - Probably can get if you have an appropriate modem

- ❖ Millenicom Verizon 3G/4G Plan

Air-Card - 4GL?

- Will 4G improve coverage issues?
 - ❖ No

 - ❖ 4G represents faster data transfer

Air-Card Issues – Deals

- ❖ Millenicom 3G Advanced Plan
 - 20 GB usage.
 - \$59.95/month no contract.
 - \$49.95 Startup Fee
 - \$99.99 for Modem
 - Verizon is undocumented carrier

- ❖ Note Unlimited plans are Sprint

Air-Card Issues – Deals

- ❖ Millenicom 3G/4G Hotspot Plan
 - 10 GB 4G/10 GB 3G
 - \$69.95/month no contract.
 - \$49.95 Startup Fee
 - \$99.99 for MIFI device
 - Only MIFI at the moment
 - Verizon is undocumented carrier

Discussion

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