Internet Connections

Caveats

Dynamic changing industry

Created a month ago

What used to be doesn't mean the future

Created 8/2010

How much do you use the Internet?

Just for e-mail

Or….

How much do you use the Internet?

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

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
- Air-Card
- Satellite

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

➢ Virtually gone as an option
➢ Very slow
  ❖ very little Internet traffic is not graphical
➢ Few parks have provisions for the phone connection
➢ Some cellphones can be used as a dongle

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

➢ 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

➢ 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

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%

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

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

Air-Card Internet Connection

➢ Options
   ❖ Air-Card 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
    - ❖ Smart Cellphone
        - ▪ Acts like an Air-Card Mini-Hotspot
        - ▪ Wireless only connections
        - ▪ Data plans about the same as an Air-Card

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 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

- ➢ 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

- ➢ Since your Air-Card is powered by your PC or router, the ability to connect to a cell tower is generally going to be better than your cellphone
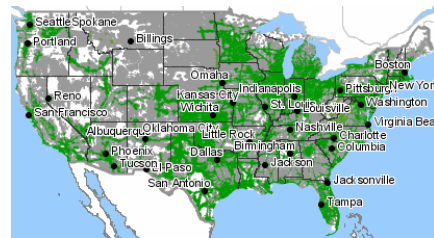
Air-Card Issues - Coverage
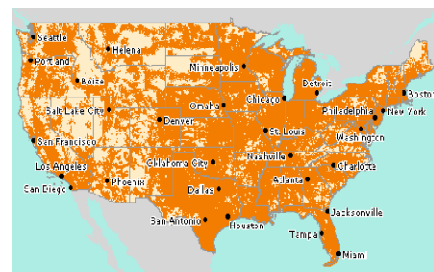### Our 2010 Trip

Air-Card Issues - Coverage
Sprint Wireless

Air-Card Issues - Coverage
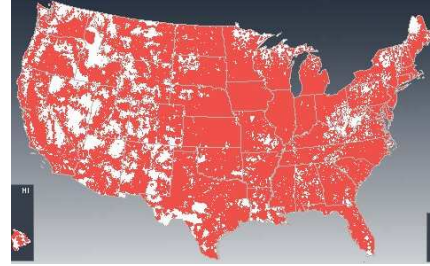### Sprint Wireless with trip

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 has the widest geographic coverage
➢ Still not everywhere

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 – Tethered Phone

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

Air-Card Issues – Tethered Phone

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

Air-Card Issues – Tethered Phone

➢ 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 Issues – Deals

  ❖ Millenicom Verizon 10 GB Plan
    ▪ $59.95/month no contract.
    ▪ $49.95 Startup Fee
    ▪ $99 Air-Card purchase

Air-Card - 4GL?

➢ Will 4G improve coverage issues?
  ❖ No
  ❖ 4G represents faster data transfer

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
  ❖ Latency
    ▪ ~ 1,700-1,800 ms

Satellite Internet Connection

➢ Hughesnet
  ❖ CONUS Satellites
  ❖ Access your assigned satellite anywhere in North America
➢ Wild Blue
  ❖ Spot Beam Satellites
  ❖ Can move across country by having assigned satellite changed

Satellite Internet Connection

➢ Hughesnet more suited to RVing
➢ Wild Blue has been used by RVers
  ❖ Need to contact operators to switch satellites can be difficult in non-cell coverage areas

Satellite Internet Connection

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

Satellite Internet Connection

- Hughesnet general understanding
  - You get your Hughesnet 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 $60-$80+

Satellite Issues – Data Traffic

- Satellite only counts download data
- Fair Access Policy (FAP) Hughesnet
  - Each subscription plan has a rolling 24 hour download data limit
    - Ex: 200MB, 425MB, etc.
  - Exceed the limit and you are "Fapped"
    - Radical slow down of speed for 24 hours
      - Less than dial-up

Satellite Issues – Data Traffic

- Data traffic not counted from 2-7AM East Coast Time
  - Time for update downloads
- Once a month "sorry" reset token
  - Additional tokens for a fee
- Fapping is automatic
  - No unexpected billing charge

Satellite Issues – Data Traffic

- Wild Blue uses a similar plan on a monthly basis

9

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)
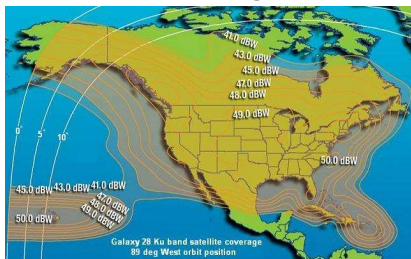
Satellite Issues

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

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

Discussion

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