Preparing for Overseas Travel
Mobile Devices
International Mobile Coverage

AT&T GSM Coverage Maps -- http://maps.mobileworldlive.com/

GSM Coverage maps, demonstrative only ...
# Global Cellular Spectrum

<table>
<thead>
<tr>
<th></th>
<th>North America</th>
<th>South America</th>
<th>Europe</th>
<th>Asia</th>
<th>SE Asia</th>
<th>Africa</th>
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<tbody>
<tr>
<td><strong>GSM</strong></td>
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</tr>
<tr>
<td>Voice</td>
<td>850, 1900</td>
<td>850, 900</td>
<td>900</td>
<td>800, 900, 1500, 1700</td>
<td>850</td>
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<tr>
<td>Data</td>
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<td>1800, 1900</td>
<td>1800, 1900, 2100, 2600</td>
<td>1900, 2100, 2300, 2400</td>
<td>1900, 2100</td>
<td>1900, 2100</td>
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<tr>
<td><strong>CDMA</strong></td>
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<tr>
<td>Voice</td>
<td>800, 850, 1900</td>
<td>800, 900</td>
<td>450</td>
<td>800</td>
<td>~</td>
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<tr>
<td>Data</td>
<td>700, 1600, 1800, 1900</td>
<td>1900</td>
<td>2100</td>
<td>1700, 2100</td>
<td>~</td>
<td>2100</td>
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## Today’s Best Smartphones for Globetrotters

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>BlackBerry Q10/Z10</td>
<td>BlackBerry Q10/Z10</td>
<td>BlackBerry Q10/Z10</td>
</tr>
<tr>
<td>iPhone 5c/5s</td>
<td>iPhone 5c/5s</td>
<td>iPhone 5c/5s</td>
</tr>
<tr>
<td>HTC One</td>
<td>HTC One</td>
<td>HTC One</td>
</tr>
<tr>
<td>Samsung Galaxy S5</td>
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Today’s Best Hotspots for Globetrotters

<table>
<thead>
<tr>
<th>3G/4G</th>
<th>Overdrive Pro 3G/4G</th>
<th>3G</th>
<th>Elevate 4G</th>
<th>ZTE International Mobile Hotspot</th>
<th>Fivespot Global 3G</th>
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</thead>
</table>
## Rough International Rates

<table>
<thead>
<tr>
<th></th>
<th>SMS</th>
<th>MMS</th>
<th>EU/UK</th>
<th>Asia</th>
<th>UAE</th>
<th>S.America</th>
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<tbody>
<tr>
<td><strong>at&amp;t</strong></td>
<td>$0.50</td>
<td>$1.30</td>
<td>$1.39/</td>
<td>$2.29/</td>
<td>$2.89/</td>
<td>~$2.99/</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$.99</td>
<td>$1.99</td>
<td>$2.29</td>
<td>$1.99</td>
</tr>
<tr>
<td><strong>Sprint</strong></td>
<td>tx: $.50</td>
<td>$20.48/MB</td>
<td>$1.29</td>
<td>~$2.19</td>
<td>$4.99</td>
<td>~$2.29</td>
</tr>
<tr>
<td></td>
<td>rx: $.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>verizon</strong></td>
<td>tx: $.50</td>
<td>$20.48/MB</td>
<td>$1.29/</td>
<td>$1.99</td>
<td>$2.89/</td>
<td>$3.99</td>
</tr>
<tr>
<td></td>
<td>rx: $.05</td>
<td></td>
<td>$.99</td>
<td></td>
<td>$2.29</td>
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</tr>
</tbody>
</table>
## Notable Networks by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>North America</th>
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<th>Europe</th>
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<tbody>
<tr>
<td><strong>GSM</strong></td>
<td>at&amp;t</td>
<td>T-Mobile</td>
<td>Claro</td>
<td>O₂</td>
</tr>
<tr>
<td></td>
<td>T-Mobile</td>
<td></td>
<td></td>
<td>docomo</td>
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<tr>
<td></td>
<td>América Móvil</td>
<td></td>
<td></td>
<td>China Mobile</td>
</tr>
<tr>
<td></td>
<td>Rogers</td>
<td></td>
<td></td>
<td>India</td>
</tr>
<tr>
<td></td>
<td>Movistar</td>
<td></td>
<td></td>
<td>Airtel</td>
</tr>
<tr>
<td><strong>CDMA</strong></td>
<td>Verizon</td>
<td>Sprint</td>
<td>América</td>
<td>SK Telecom</td>
</tr>
<tr>
<td></td>
<td>Bell</td>
<td></td>
<td>Móvil</td>
<td></td>
</tr>
</tbody>
</table>
Renting Devices
Satellite Phones

- $500-$1,500 each
- $1.50-$15/minute
- Coverage differs by network
Voice Alternatives

- Phone rental
- AT&T “Call International” app
- VoIP (Skype, FaceTime, Google Voice)
- UMA
- Lync
- Bria
Will this get better?

Yes.

(I hope)

- VoLTE, SIP, etc
- Universal (and semi-reasonable) data plans
- Telepresence
- Death of the phone call
Laptops
Power & Adapters

• Most chargers can handle a range of power inputs
• Plug adapters frequently necessary
• Make friends at the airport – take outlet extenders
Ruggedized Laptops

Dell Latitude E6420 XFR
$4532

Dell Latitude E6420 ATG
$1949
(Remote) Support

- The best support is the kind you bring with you ...
- The reality is ... remote support!

  - Reliability/Security?
  - Remote support is not always a logistical possibility
    - Provide clients with the means to support themselves
    - “Cheat sheets”
    - (administrative credentials?)

- Dell, Lenovo, and Apple provide international hardware warranty services
  - Dell (additional cost): 512-728-7424
  - Lenovo (no additional cost): 1800-465-7990
  - Apple (no additional cost): 1800-879-9375
The 3AM Call...

When all else fails, *redundancy*!

- Bring:
  - Batteries
  - Chargers
  - Laptops
Other basic redundancy:

- Physical copies of:
  - Support info
  - Travel info
  - Business essentials
International Wi-Fi & Network Access

- Internet is not always ubiquitous
- Not all protocols are always available
- Connections aren’t always reliable

Set appropriate expectations!
International Cellular Hotspots

**Verizon**

*Domestic:* $42.99 unlimited/$30.00 2GB
*International:* Domestic + $30 25MB / $82 70 MB
*Device:* AC30 VZW Fivespot Global Ready
*Device Cost:* $0.00

**AT&T**

*Domestic:* $43.00 5GB
*International:* $197.79 200MB (takes place of)
*Device:* Mobile Hotspot Elevate 4G
*Device Cost:* $69.99
Security
Know the local laws & environment!

- Accessing foreign websites is illegal in Belarus
- Encryption (including SSL) is sometimes illegal in Iran
- China does extensive monitoring & blocking
- See: Freedom House Internet report
  - [http://is.gd/oLE7AX](http://is.gd/oLE7AX)
greatfirewallofchina.org
Test any website and see real-time if it's censored in China!

Test your site

Test results for wharton.upenn.edu
Beijing
Shenzhen
Inner Mongolia
Heilongjiang Province
Yunnan Province

All servers were able to reach your site. This means that your site should be accessible from within mainland China.

greatfirewallofchina.org
Test any website and see real-time if it's censored in China!

Test your site

Test results for Facebook

No servers were able to reach your site. This means that your site is most likely NOT accessible from within mainland China.
The benefits of traveling light ...

Traveling Light in a Time of Digital Thievery
By NICOLE PERLROTH
Published: February 10, 2012

SAN FRANCISCO — When Kenneth G. Lieberthal, a China expert at the Brookings Institution, travels to that country, he follows a routine that seems straight from a spy film.

He leaves his cellphone and laptop at home and instead brings “loaner” devices, which he erases before he leaves the United States and wipes clean the minute he returns. In China, he disables Bluetooth and Wi-Fi, never lets his phone out of his sight and, in meetings, not only turns off his phone but also removes the battery, for fear his microphone could be turned on remotely. He connects to the Internet

http://nyti.ms/ywN9yO
Why travel light?

- Laws vary from country to country
- Officials can sometimes *compel* access
- Some countries encourage border officials to obtain data for local industry
How to travel light

- Dummy devices
- Dummy drives
- Clever encryption
- Remote access
The safest data...

...is no data.
Export Regulations

• “ECLs govern how information, technologies, and commodities can be transmitted overseas to anyone, including U.S. citizens, or to foreign nationals in the U.S.”

• Include physical (i.e. laptops, phones) and non-physical (i.e. software, data) items.

• Elizabeth Peloso, Director of Export Compliance

  • [http://www.upenn.edu/researchservices/exportcontrols.html](http://www.upenn.edu/researchservices/exportcontrols.html)
Encryption

- E-mail Encryption (encrypts messages in transit)
  - PGP
  - SecureShare and SecureSpace as alternatives

- Device Encryption
  - Software vs Hardware
  - Windows: BitLocker (software/hardware), PGP (software/hardware)
  - Mac: Filevault (software), PGP (software)

- File Encryption
  - Windows: BitLocker
  - Mac: Filevault
Security

• How secure are 3rd party file share services? (not very!)
  • Fortunately, there’s Œ³336I oΠ
• Password Vaults
  • IdentityFinder
  • KeyPass
• VPN
• The Caveman technique
Connecting securely

- VPN services
- Data & sync schedules
- Keep Bluetooth & WiFi off when not in use
VPN options

• **TSS-SRA** ($150/yr, PPTP/SSL/fileshare/RDP/browser)
  - Direct campus access, fileshare access

• **WiTopia** ($39.99/yr PPTP, $69.99/yr PPTP/OpenVPN/IPSec VPN)
  - 31 countries, various ports, SMTP relay

• Many others
  - VyprVPN, StrongVPN, proXPN
WiTopia
https://www.witopia.net/
Using Caution while Syncing

Sometimes it is wise to disable automatic sync & push notifications

For security AND financial reasons!
Additional cautions while doing:

• Software installations via download
• Software updates & version compatibility
• BIOS & firmware updates
Even the best security fails ...

• Don’t overlook the need for physical security!
  • Hotel safes may not be safe!
• Laptop Lojacks
  • Computrace
• Computer case locks
Q&A