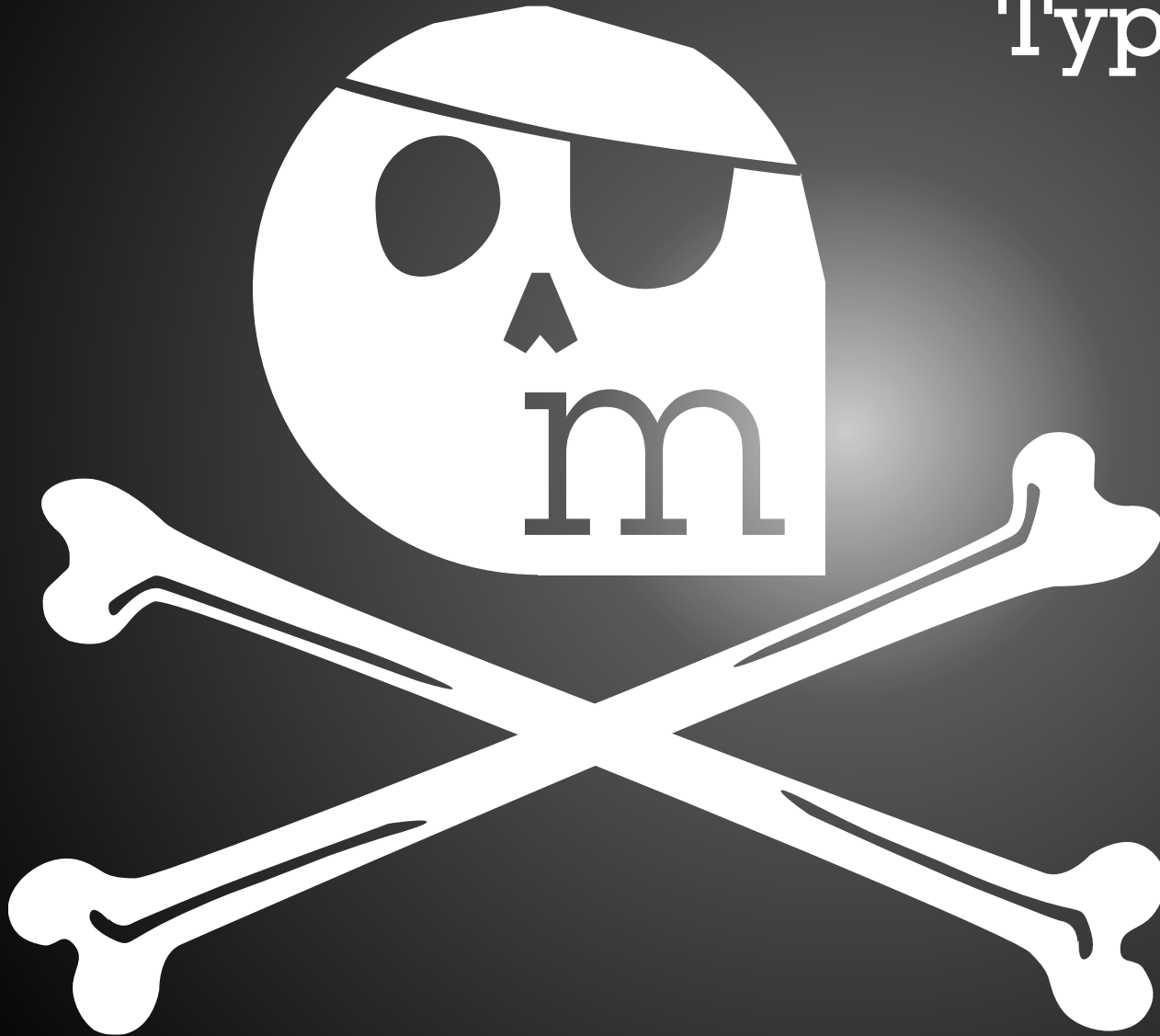


Get to know your PHY Type



What the heck is he talking about?



- Speed date
- Those PHY types.
- This could work!
- A tragedy in our relationship.
- Where have you been?
- We should let other know.
- What just happened?!?!
- Your turn.

Speed Date



- Name: Stoney Tuckness
- Age: 39
- Height: 6' 2"
- Hometown: Meridian, ID
- Employed by: MetaGeek, LLC
- Certifications: CWNA and CWAP
- Dislikes: Telemarketers and blister packaging
- Likes: Football, Whitewater rafting, snowboarding, running, beer, and Telemarketers in blister packaging.

Those PHY types



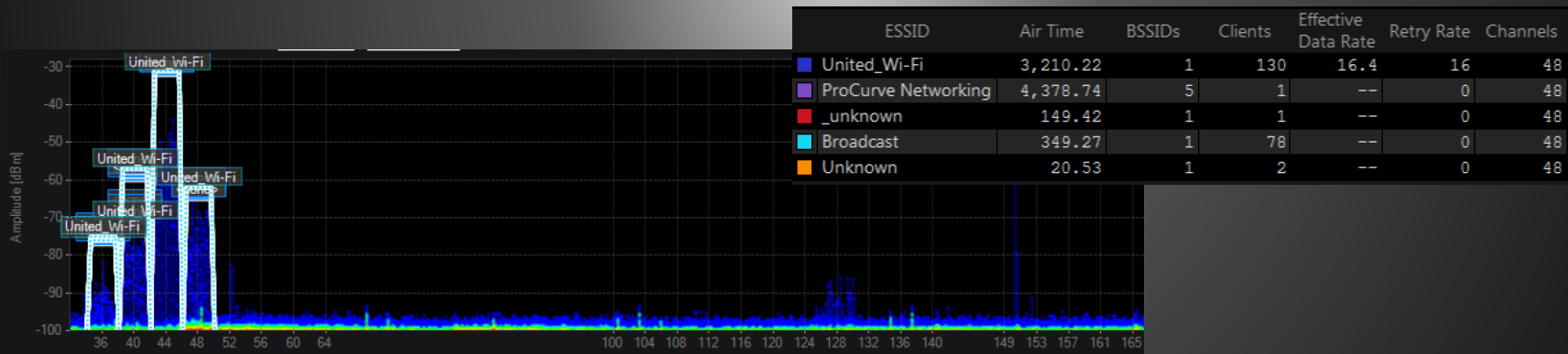
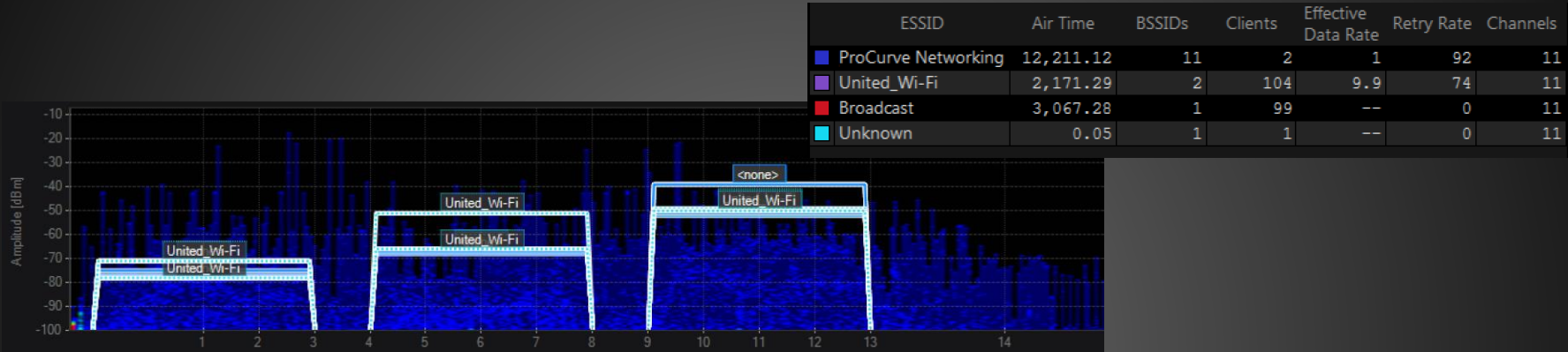
PHY Type	Year	Band	Backwards Compatible	Max Data Rate	Modulation	Channel Width	Spatial Streams
802.11	1997	2.4 GHz	Nope	2 Mbps	DSSS/FHSS (s quota used)	22 MHz	1
802.11b	1999	2.4 GHz	Yep	11 Mbps	HR-DSSS	22 MHz	1
802.11a	1999	5 GHz	Nope	54 Mbps	OFDM	20 MHz	1
802.11g	2003	2.4 GHz	Yep	54 Mbps	ERP-OFDM	20 MHz	1
802.11n	2009	2.4 or 5 GHz	Oh Yeah	300 Mbps	HT	20/40 MHz	1-3 (officially 4)
802.11ac	2014	5 GHz	802.11a/n	7 Gbps	VHT	Huge	1-8

This could work



- WW household Wi-Fi networks
 - Now: 439 million, 25 percent penetration
 - 2016: 800 million, 42 percent penetration
- 3X mobile broadband than conventional fixed broadband
 - up to 80% of traffic to all wireless devices may be offloaded to 802.11 networks
- 802.11 on Airplanes
 - Delta: 3,443
 - Southwest: 2,320
 - US Airways: 1,293
 - United: 519

Going places with 802.11

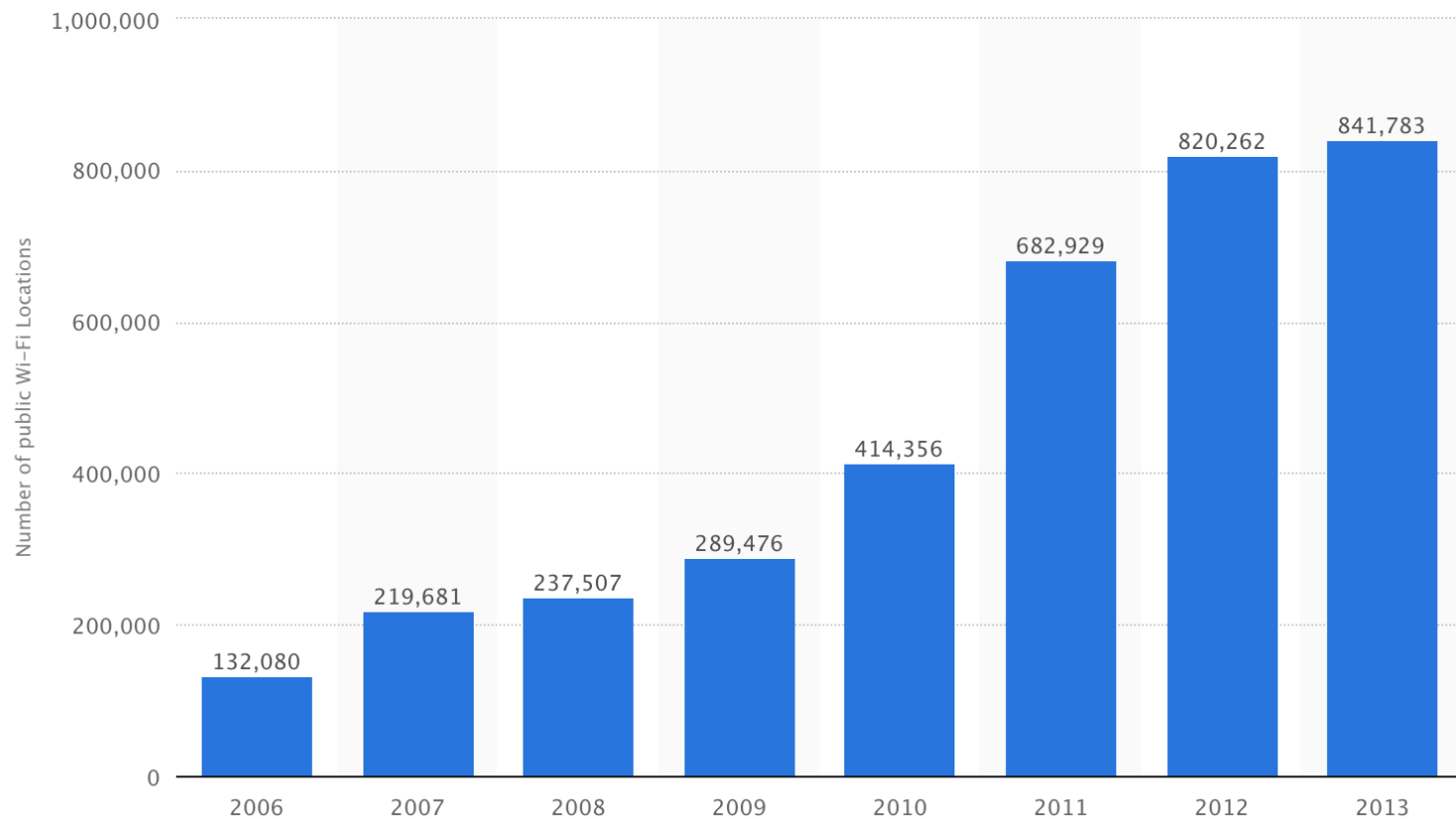


ESSID	AP Alias	Channels	Signal Strength (dBm)	BSSID Count	Security	Max Rate (Mbps)	Vendors	802.11
United_Wi-Fi		1, 6, 11, 36, 40, 44, 48	-32	12	Open	130.0	ProCurve Networking by HP	g. n
<none>		1, 6, 11, 36, 40, 44, 48	-31	60	WPA2-Personal	130.0	ProCurve Networking by HP	g. n

Kind of getting around, quickly



Number of public Wi-Fi locations worldwide from 2006 to 2013





A tragedy in our relationship



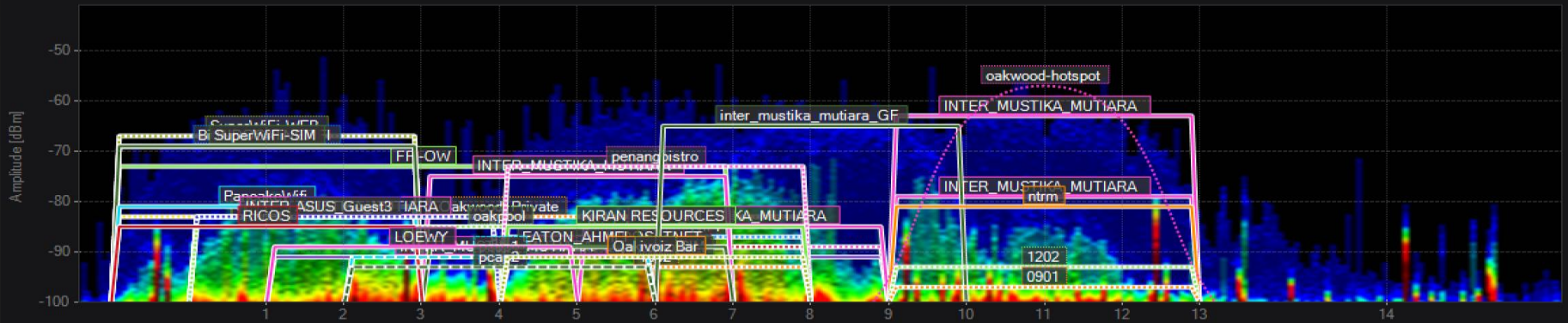
Networks Seen

- 802.11b only
 - US: 2.3%
 - non-US: 2,6%
- 802.11g only
 - US: 1.7%
 - non-US: 1,6%
- 802.11**b/g/n**
 - US: 98%
 - non-US: 97%

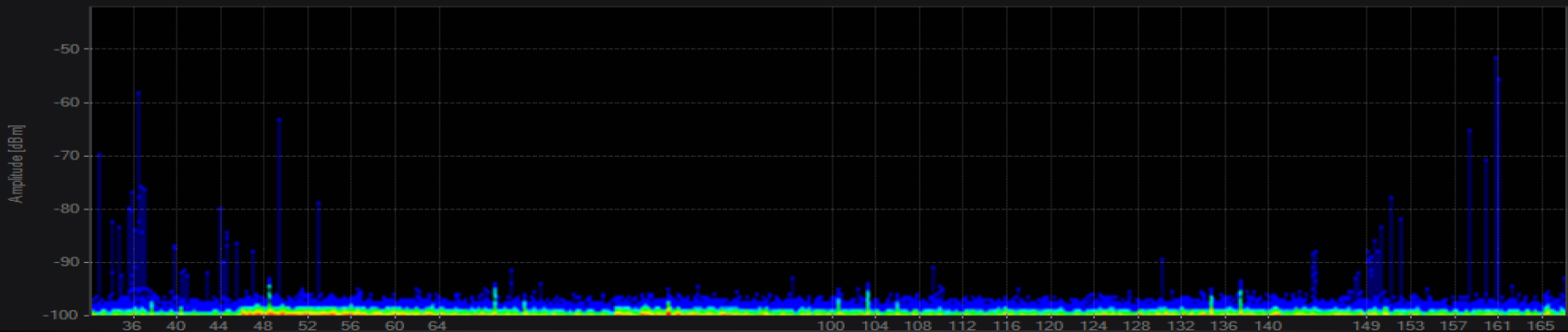
Where have you been?



2.4 GHz – A bit busy (Indonesia)



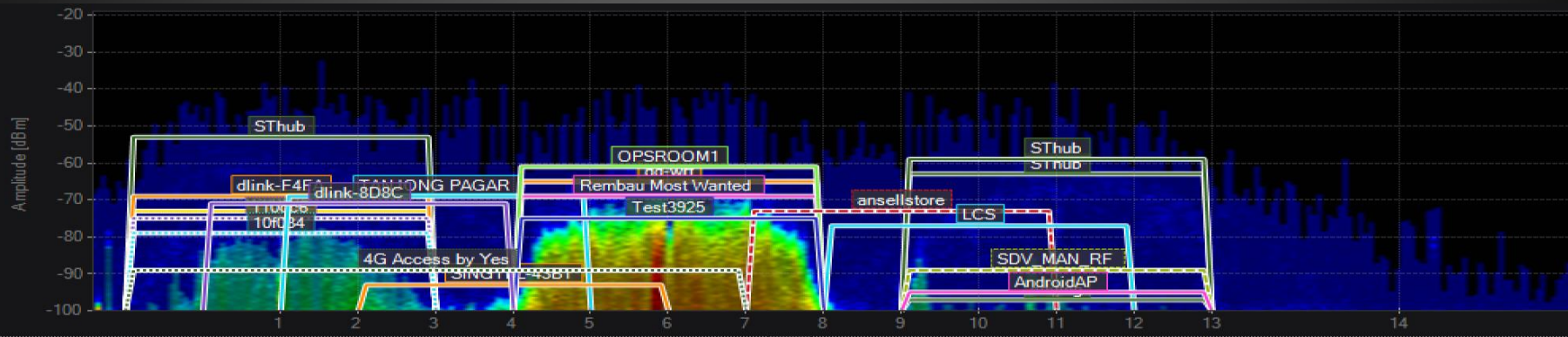
5 GHz - Ummm?



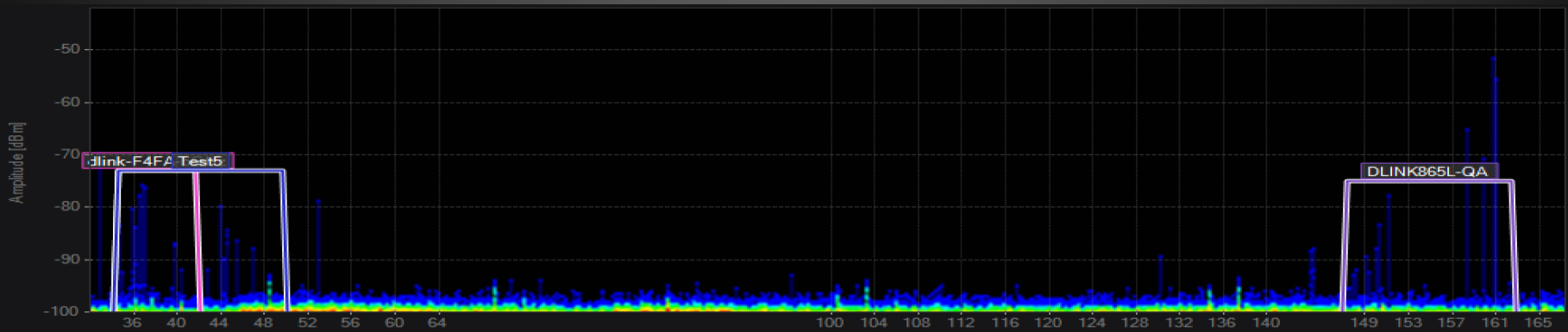
Where have you been?



2.4 GHz – Little of everything (Singapore)



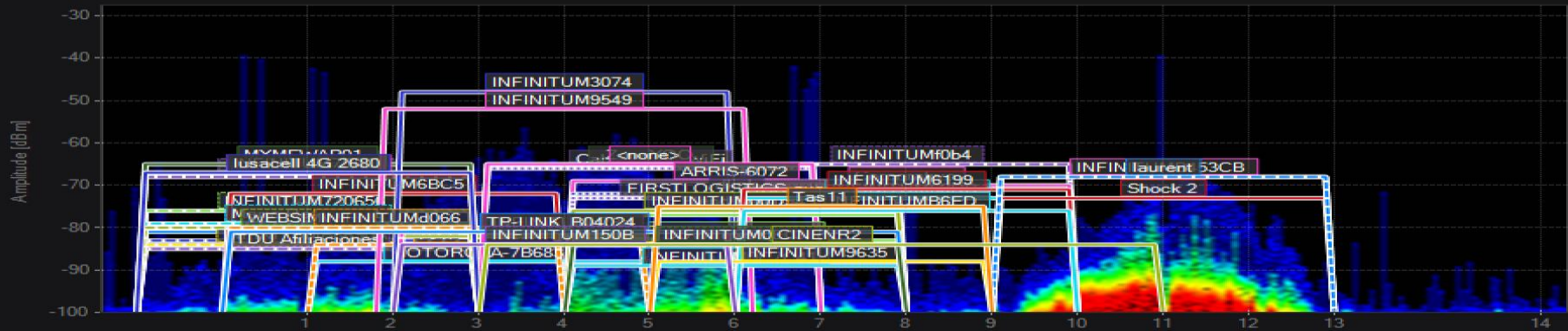
5 GHz – Better but no need to be so close



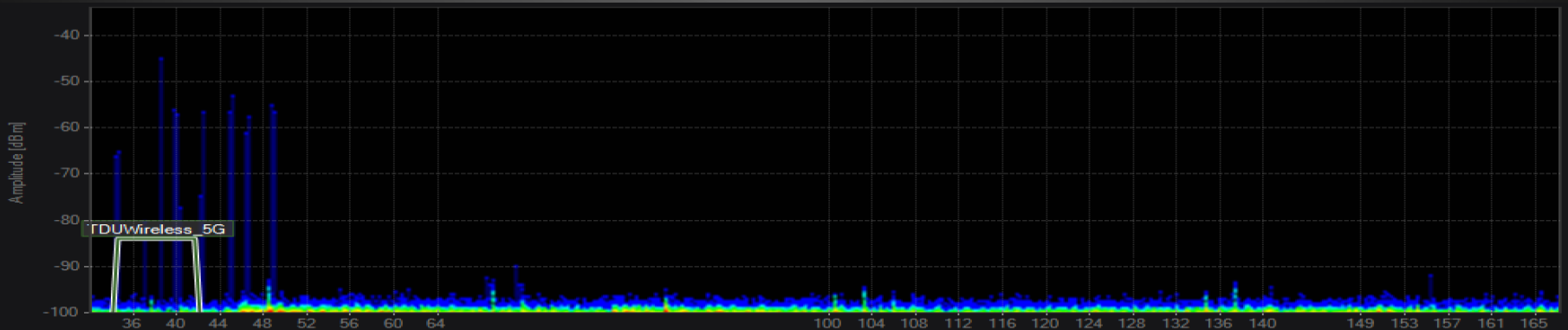
Where have you been?



2.4 GHz – Something is not right (Mexico)



5 GHz – So lonely.



We should let people know.



Networks Seen

802.11a only

- US: 4.0%
- non-US: 2,9%

802.11n only

- US: 18.3%
- non-US: 7,1%

WEP Security

- US: 10.8%
- non-US: 9,8%



We should let people know.



Minimum data rate >1

- US: 35%
- non-US: 18,3%

802.11ac Thing

- It is coming in waves
- Bringing multi-user MIMO
- 100's of clients/Adaptors available
- Up to 7 Gbps data rates

What we have seen

- General
 - 1 network in Korea
- Managed
 - US: 18.9%
 - non-US: 8,6%



What just happened?!?!



- This 802.11 thing will work
 - Over 400 million house now, 800 million by 2016
 - Over 800,000 public Wi-Fi hotspots
- 802.11b and 802.11g – still needed?
- Out of Spectrum?
 - Network setup is still hap-hazard
- 802.11ac is coming but still low 5GHz usage



**THANK YOU,
ANY QUESTIONS?**

Data Sources



In-House: MetaGeek application analytics

Web Research

- ITU (International Telecommunication Union)
 - http://www.itu.int/net/pressoffice/press_releases/2013/36.aspx#.VBJjTLywKUQ
- Broadband Commission for Digital Development
 - <http://www.broadbandcommission.org/Documents/bb-annualreport2013.pdf>
- Consumerist
 - <http://consumerist.com/2013/06/25/which-airlines-have-the-most-wifi-enabled-flights/>
- Statista
 - <http://www.statista.com/statistics/268374/number-of-public-wi-fi-locations-worldwide-since-2006/>
- Strategy Analytics
 - <https://www.strategyanalytics.com/default.aspx?mod=pressreleaseviewer&a0=5193>
- Informa
 - http://www.wballiance.com/wba/wp-content/uploads/downloads/2012/07/16_WBA-Industry-Report-2011-Global-Developments-in-Public-Wi-Fi-1.00.pdf