

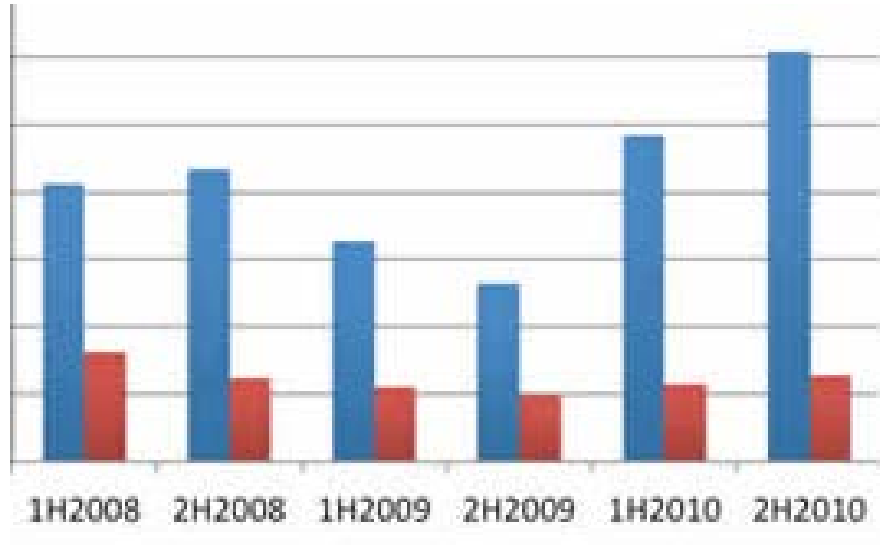
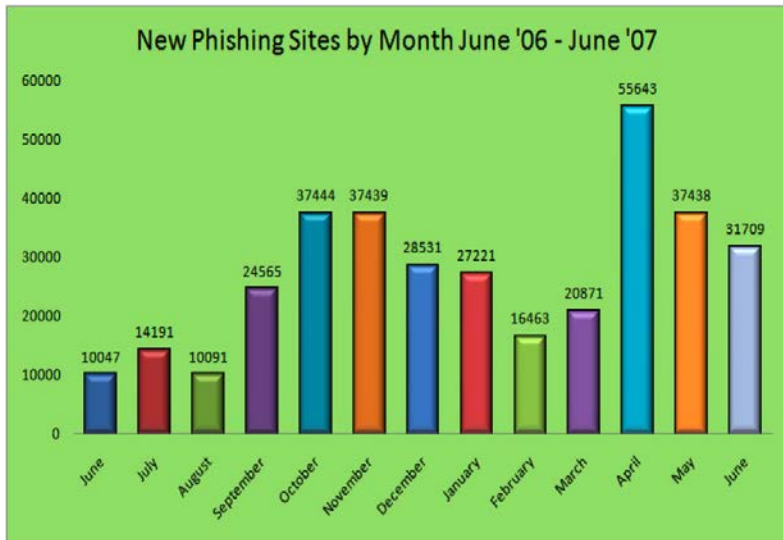
Data Mining the eCriminals: Interesting things lurking in APWG statistics

Patrick Cain

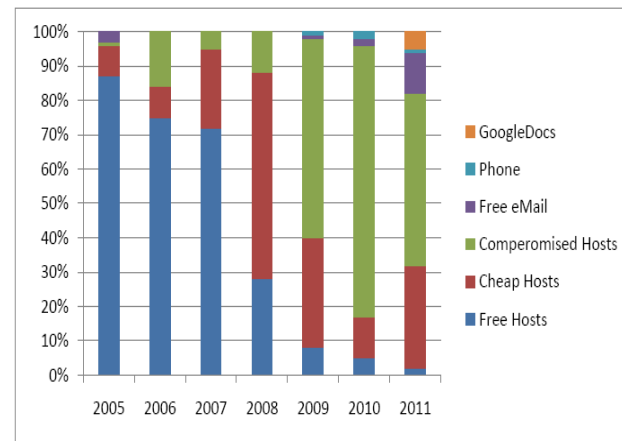
APWG



We Publish Statistics



RANK	TLD	TLD Location	# Unique Phishing attacks 2H2010	Unique Domain Names used for phishing 2H2010	Domains in registry Oct 2010	Score: Phish per 10,000 domains 2H2010
1	.th	Thailand	125	66	51,438	12.8
2	.ir	Iran	295	169	175,600	9.6
3	.ma	Morocco	73	34	36,669	9.3
4	.ie	Ireland	112	96	151,023	6.4
5	.tk	Tokelau	2,533	2,429	4,030,709	6.0
6 (tie)	.kz	Kazakhstan	49	28	50,534	5.5
6 (tie)	.cc	Cocos Islands	4,983	56	100,000	5.5
7	.in	India	523	421	791,165	5.3
8	.my	Malaysia	68	56	108,211	5.1
9	.hu	Hungary	385	255	642,000	4.7



Why Publish Stats?

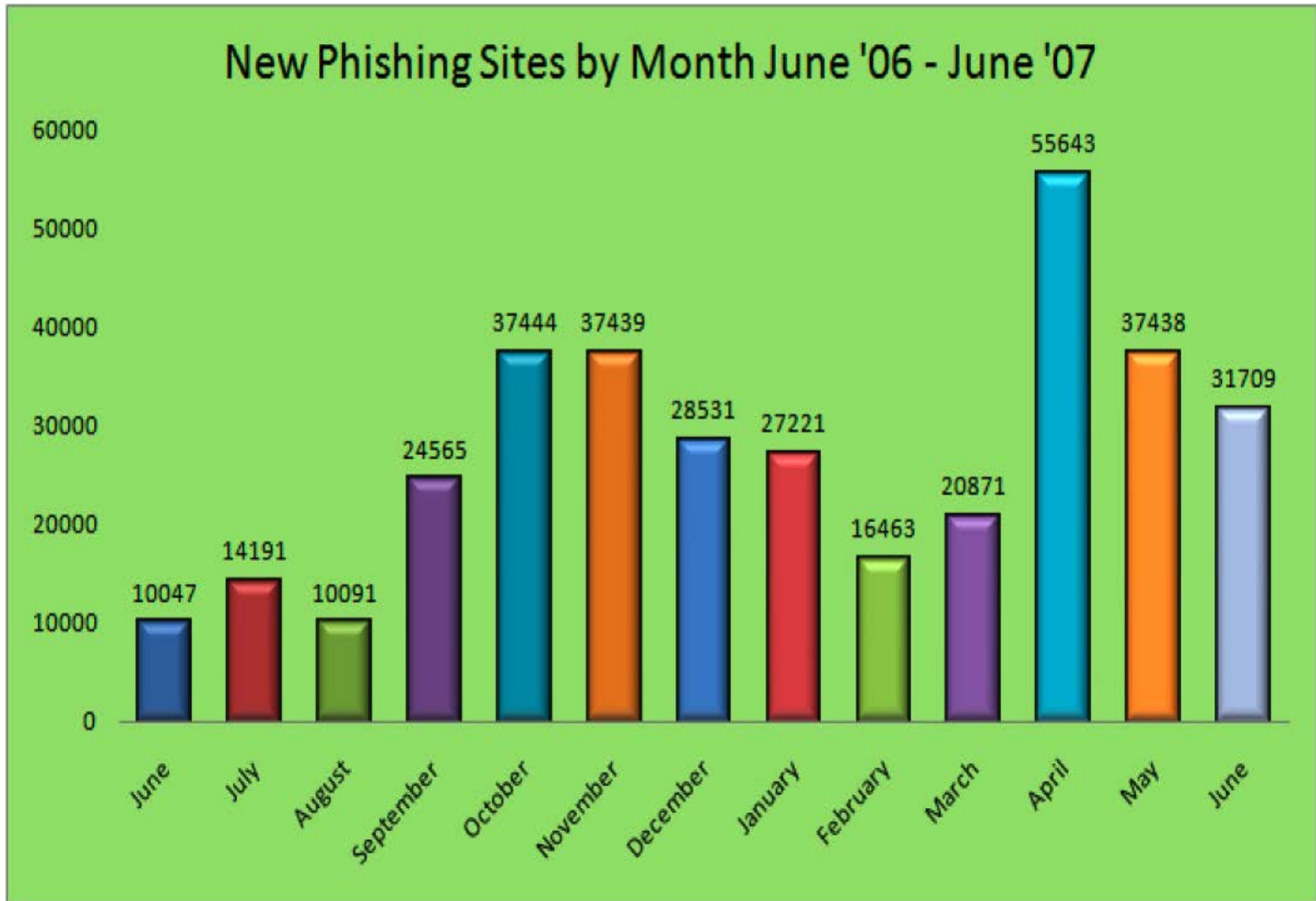
- To gauge how bad (or good) things are
- And, we're not trying to sell you something
 - Vendor neutral
- We're not trying to be alarmist
- It does allow for trending
- Can identify obvious areas for improvement

- [Everybody has a problem with them]

Phishing Terminology

- Phishing – Using social engineering to extract personal data or credentials from a victim.
- A phishing campaign is composed of:
 - Lures – A message used to entice a victim to respond.
 - “I am your bank. Give me your password.”
 - Collector - System used to collect and hold personal data and credentials
 - Credentials
 - Bank or system passwords
 - Tax numbers, birth dates, etc
 - Takedown – Disable collector

Total Number of Lures Seen



Total Number of Lures Seen

- Counting the number of (unique) lures and brands and collectors was fun...
... for a little while ☹️
- The goal was to educate banks that phishing was real
 - It worked. Then the stats lost their luster
- Now, the stats are based on domains and TLDs
 - A twice-yearly global phishing domains report is published
 - Use the stats to let registries compare themselves
 - .com & .net account for about 50% of all phish

Attacks and Domains for 3 Years

	<u>2H2007</u>	<u>1H2008</u>	<u>2H2008</u>	<u>1H2009</u>	<u>2H2009</u>	<u>1H2010</u>	<u>2H2010</u>
Phishing Domain Names	-	47,342	56,959	55,698	126,697	48,244	67,677
Unique campaigns	28,818	26,678	30,454	30,131	28,775	28,646	42,624
TLDs used	145	155	170	171	173	177	183
IP-based phish	5,217	3,389	2,809	3,563	2,031	2,018	2,318
Malicious reg domains	-	-	5,561	4,382	6,372	4,755	11,769
IDN domains	10	52	10	13	12	10	10

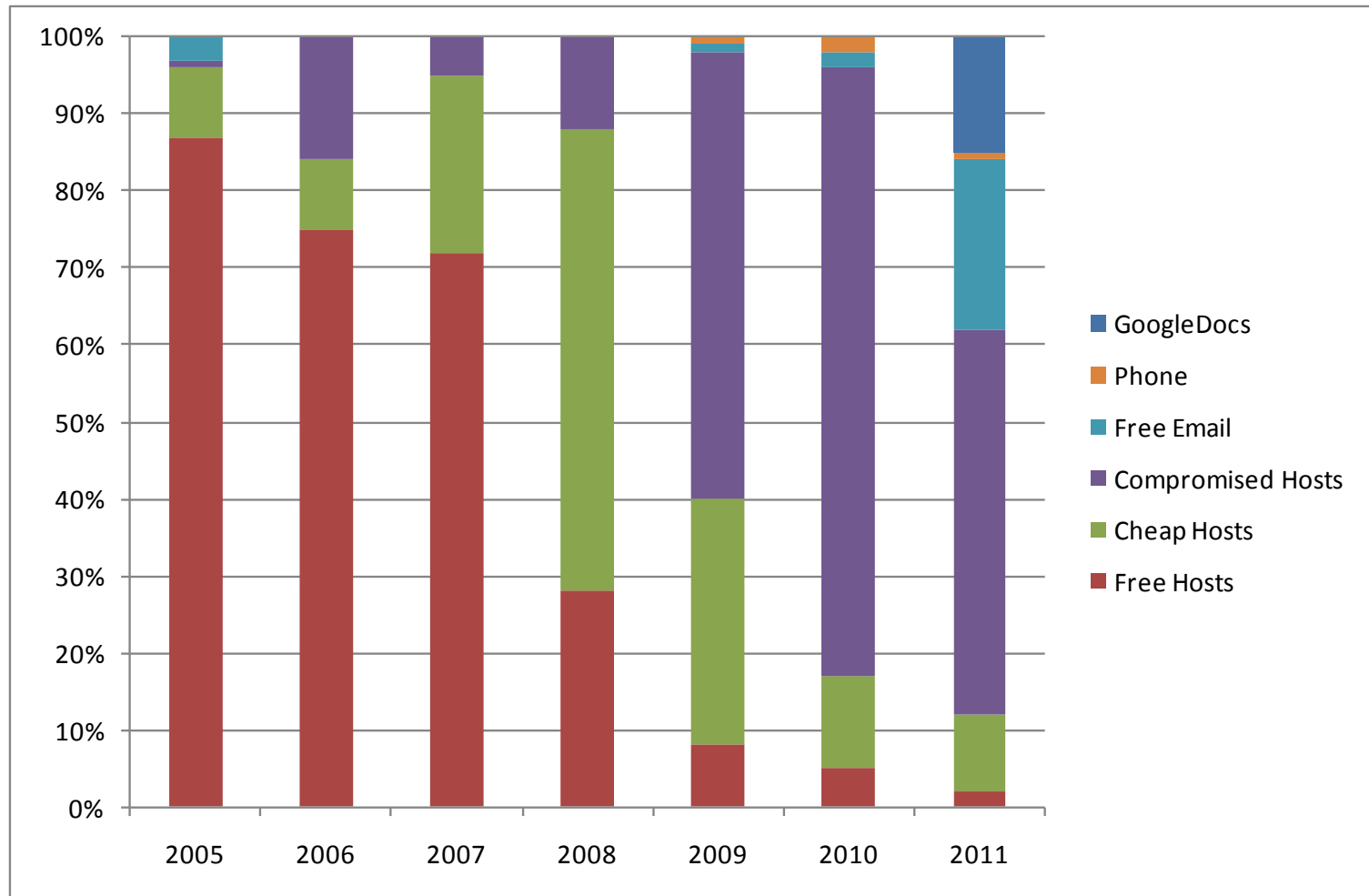
Detail from the 2H2010 Report

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9	.hu	Hungary	365	255	542,000	4.7

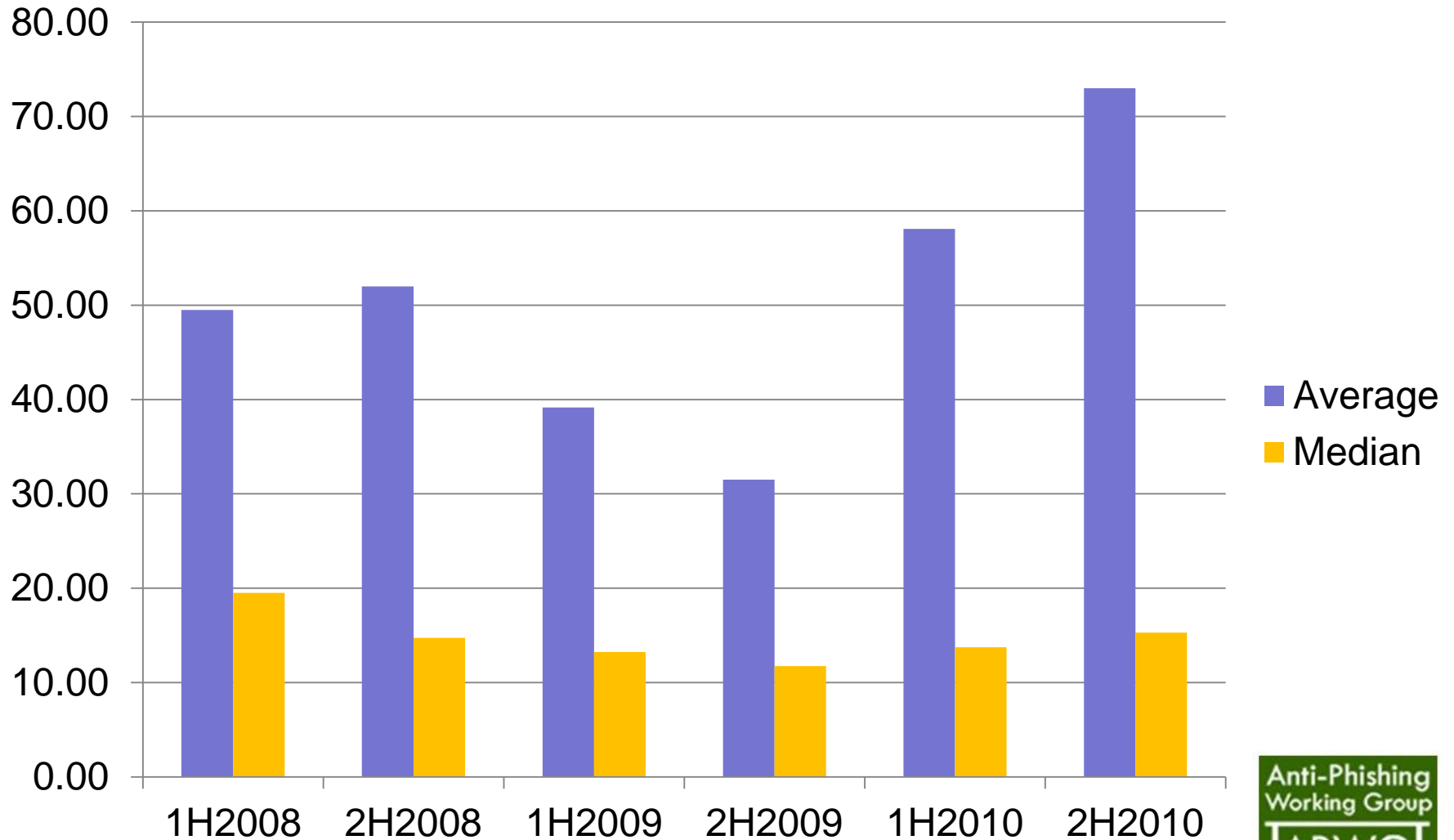
Many Years as a Trend

Year	1H2008	2H2008	1H2009	2H2009	1H2010	2H2010
1	<i>Hong Kong</i>	Venezuela	Peru	Thailand	Thailand	Thailand
2	Thailand	Thailand	Thailand	Korea	Korea	Iran
3	Belize	Belize	Belize	Ireland	Ireland	Morocco
4	Venezuela	Soviet Union	<i>Belgium</i>	<i>Belgium</i>	Poland	Ireland
5	<i>Chile</i>	Romania	Romania	Romania	Chile	Tokelau
6	Romania	<i>Chile</i>	Taiwan	Malaysia	Malaysia	Korea
7	Liechtenstein	Korea	Korea	.eu	Greece	Cocos Islands
8	.name	Vietnam	<i>Chile</i>	Iran	Romania	India
9	Taiwan	Russia	Ireland	Poland	Vietnam	Malaysia
10	Korea	Taiwan	Malaysia	Mexico	Czech Rep	Hungary

Type of Credential Collection Sites



Collector Site Uptimes



The future of Statistics

- The numbers and pictures are nice....

...but what are we REALLY trying to do?

Adventures in Statistics

- One use of the stats is to convince the banks, governments, polizei, etc, that there is a problem
 - ... and to calm down the media hounds
- Phishing, spam, CC fraud, etc used to be distinct
 - Now, organized crime is involved
 - Even minor groups have turned into cooperatives
 - It's now lumped up as Electronic crime (eCrime)
- Everybody knows the numbers are increasing
 - But they're only our numbers
 - How do we get to see a bigger picture?

The real purpoe of stats... 😊

- The goal it to catch the bad guy
- How do we get countries to devote resources to eCrime?
- How do we get LEA's attention?
 - We need justice's attention
- How do we get Justice's attention?
 - Define risks; education
 - Sounds like a paper.. 😊 (Has it been done before?)

What got into Pat?

- We hang out internationally
 - We try and get countries to take eCrime seriously
 - How do we get cops/gov'ts actionable?
- Lots of people use our stats as a driver for change
 - But get/give different conclusions
 - are the current stats meeting the 'mission'?
 - I wondered if we were looking at the stats 'big picture' wrong

A Diversion

- Interaction with the UN eCrime Commission convinced us that some organizations, companies, and member-states will never report any type of specific eCrime statistics.
- This is bad
 - Stats help countries prioritize response
 - Stats help plan response actions
 - Our stats won't help (non-country specific) you!
- It will get worse
 - APT, night dragon, cheese slider, etc
- What's a crime fighter to do?

Modify Our Current Stats?

- Define the risks to an organization from the internet
 - Kind of like what ISO/IEC 27032 may do
- Refine some (general) threats from those risks
- Identify threat-specific malicious behaviour

- Report stats as ‘threats and risks’ based
 - We’ll need new types of reporting
 - And more people to report things
 - Or not. Use it ‘internally’, too

So how could this be useful?

- I volunteered to lead an effort to write an “Internet Threat Assessment” to help our friends and us come up with useable stats, understand the risks, and educate justice ministries.
- This is live research; views welcome
 - ‘Live’ as in still changing

The Top-Level Risks

- Financial Loss
- Data Misuse
 - Proprietary
 - Personal
- Content Controls
 - Content Restrictions
 - Access to Prohibited Content
- Business Interference
- Loss of Network Control
- Distribution of Prohibited Speech
- Loss of Privacy
- (Reputation)
- (People/Knowledge)

Digging into the Risks/Threats

- Financial Loss
 - Fraudulent transactions
 - Improper Credential Use
 - Laundering Activities
 - Extortion
- Proprietary Data Misuse
 - Possession
 - Corruption, Deletion
 - Misuse
 - Cyber Stalking
- Personal Data Misuse
 - Possession
 - Alteration
 - Misuse/Trafficking?
 - Falsification
- (Controlling Content)
- Access to Prohibited Content
 - Illegal porn
 - Pirated artistic works
- Distribution of Prohibited Speech
 - Hate speech
 - Death threats
 - Cyber-bullying
- Business Interference
 - DOS
- Loss of Network Control
 - Network Service Unavail – (DOS)
 - Network Compromised
- Loss of Privacy
 - Data Aggregation

Down to the Details

- Map the Risks to likely attacks
 - Using CAPEC mappings (initially)
- Describe how to determine, collect, report those attacks
 - Let people do it themselves
 - Maybe convince some collusion to get area statistics

Risks vs Participants

Risk	Company	Government	Person	Alien
Financial Loss	✓	✓	✓	
Data Misuse	✓	✓		
Proprietary	✓	✓		
Personal	✓	✓	✓	
Controlling Content				
Access to Prohibited Content	✓	✓	✓	
Restrictions	✓	✓	✓	
Distribution of Prohibited Speech	✓	✓	✓	
Business Interference	✓	✓		
Loss of Network Control	✓	✓		
Personal Data Misuse		✓	✓	
Loss of Privacy	✓	✓	✓	

The Path Forward

- Flush out a document
 - Humorously called: Internet Risk Assessment
 - Why do a doc? Set the tone; define vocabulary
 - Use it as a tool to educate our ‘friends’
- Longer-term
 - Get more data (from others) into the stats
 - Provide our squishy-stats in a more general form so we track evolution.

Our overall next steps

- Run an eCrime IODEF Pilot this fall to see if this all works
 - Multi-country, multi-language, multi-grief
 - Can we report and understand set scenarios
 - See if we can collect the new types of stats
- (unrelated) Figure out how to measure eCrime

Other Event Info

- CrimeFighters want more data in our stats
 - Collect more data items
- As we slop data around, there's more to agree on...
 - Data Sharing Restrictions
 - The attack 'method'
 - The 'impact' of the attack
- LEO guidance on data to put in a report
- Watch ITU-related and other efforts

Additional Information

- Special thanks to
 - Greg Aaron of Afilias
 - Rod Rasmussen of Internet Identity
- For the Global Phishing Report

- All reports are available on
 - <http://apwg.org/resources.html>

Thank you

Pat Cain

Resident Research Fellow

APWG

pcain@antiphishing.org