# Cyber [Crime War]

Connecting the dots

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# Agenda

- Who am !?
- CyberWar [Attack | Defense]
- CyberCrime [Attack | Defense]
- Past events revisited...
  - Connecting the dots
- Future

# Who Am I

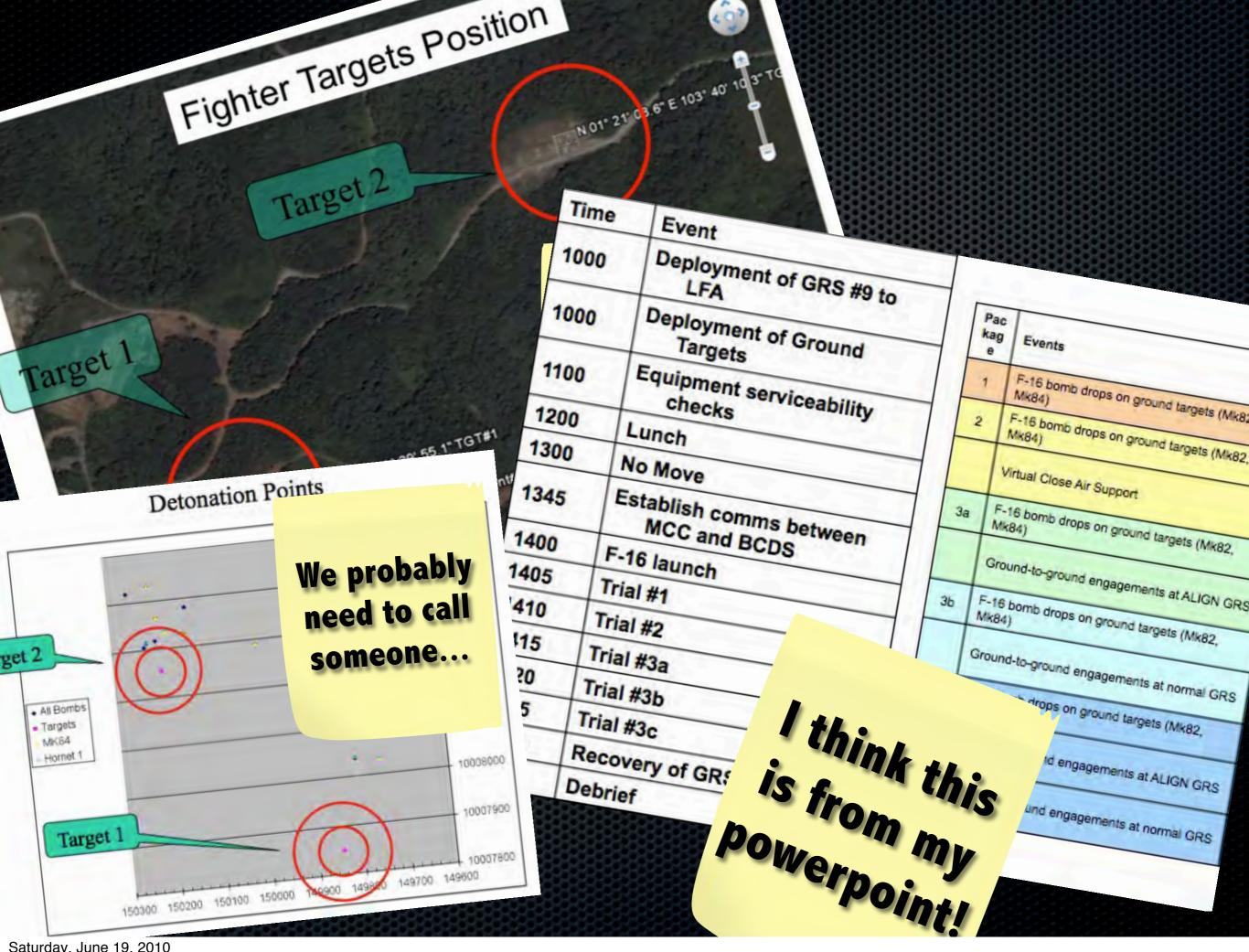


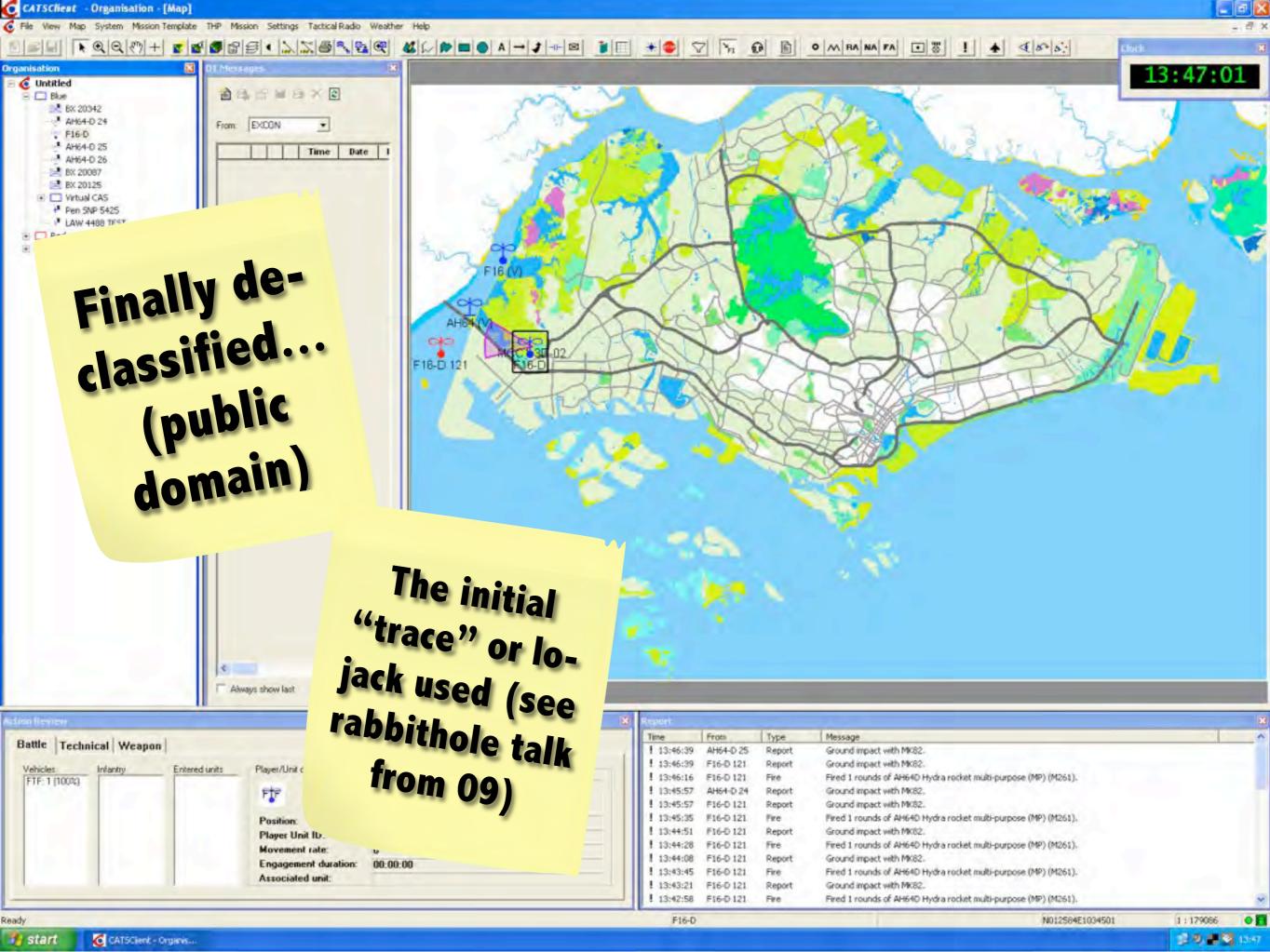
# This is NOT going to be





At least as far as last year's research is concerned...





# Hungry yet?

This was just the appetizer...

# Question 1: What is this?



# Perceptions may be deceiving...



War

Crime

#### War

#### Crime

- Government / state
- Official backing
- Official resources
- Financing
- Expertise?
- Exploits/Vulns?

- Private
- semi-official backing (think organized crime)
- Official resources
- Self financing?
- Established expertise (in-house + outsourced)
- Market for exploits

# CyberWar

"Cyberwarfare, (also known as cyberwar and Cyber Warfare), is the use of computers and the Internet in conducting warfare in cyberspace."

Wikipedia

# It did not happen yet Estonia being an exception?





This is not the **only** way!



But civilian are always at stake!



Neither is this...

Saturday, June 19, 2010

# Many faces of how CyberWar is perceived...



From McAfee's "Virtual Criminology Report 2009" Image caption:

"countries developing advanced offensive cyber capabilities"

# We'll focus on current players:



#### USA

- Thoroughly documented activity around cyberwar preparedness as well as military/government agencies with readily available offensive capabilities
- Massive recruiting of professional in attack/defense for different departments:
  - USCC (United States Cyber Command includes AirForce, Marines, Navy and Army service components)
  - NSA
  - Other TLA's...







#### Russia

- GRU (Main Intelligence Directorate of the Russian Armed Forces)
- SVR (Foreign Intelligence Service)
- **► FSB** (Federal Security Services)
- Center for Research of Military Strength of Foreign Countries
- Several "National Youth Associations" (Nashi)





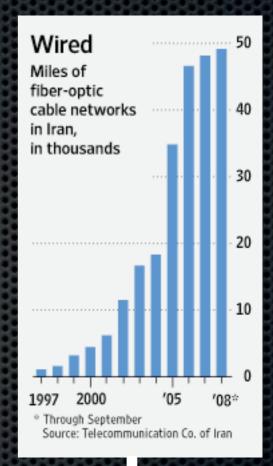
#### China

- PLA (People's Liberation Army)
  - Homework: read the Northrop Grumman report...
  - General Staff Department 4th Department -Electronic Countermeasures == Offense
  - GSD 3rd Department Signals Intelligence ==
     Defense
- Yes... Titan Rain...

#### Iran

- Telecommunications Infrastructure co.
  - Government telecom monopoly

Iranian Armed Forces





#### Israel

#### Israel Adds Cyber-Attack to IDF

Aviation Week's DTI | David Eshel | February 10, 2010

- This is going to be very boring... Google data only :-(
- IDF (Israel Defense Forces) add cyber-attack capabilities.
- C4I (Command, Control, Communications, Computers and Intelligence) branches in Intelligence and Air-Force commands
- Staffing is mostly homegrown trained in the army and other government agencies.
- Mossad? (check out the jobs section on mossad.gov.il...)



### CyberWar - Attack

Highly selective targeting of military (and critical) resources

In conjunction with a **kinetic** attack





OR

Massive **DDOS** in order to "black-out" a region, **disrupt** services, and/or push political agenda (propaganda)

### CyberWar - Defense

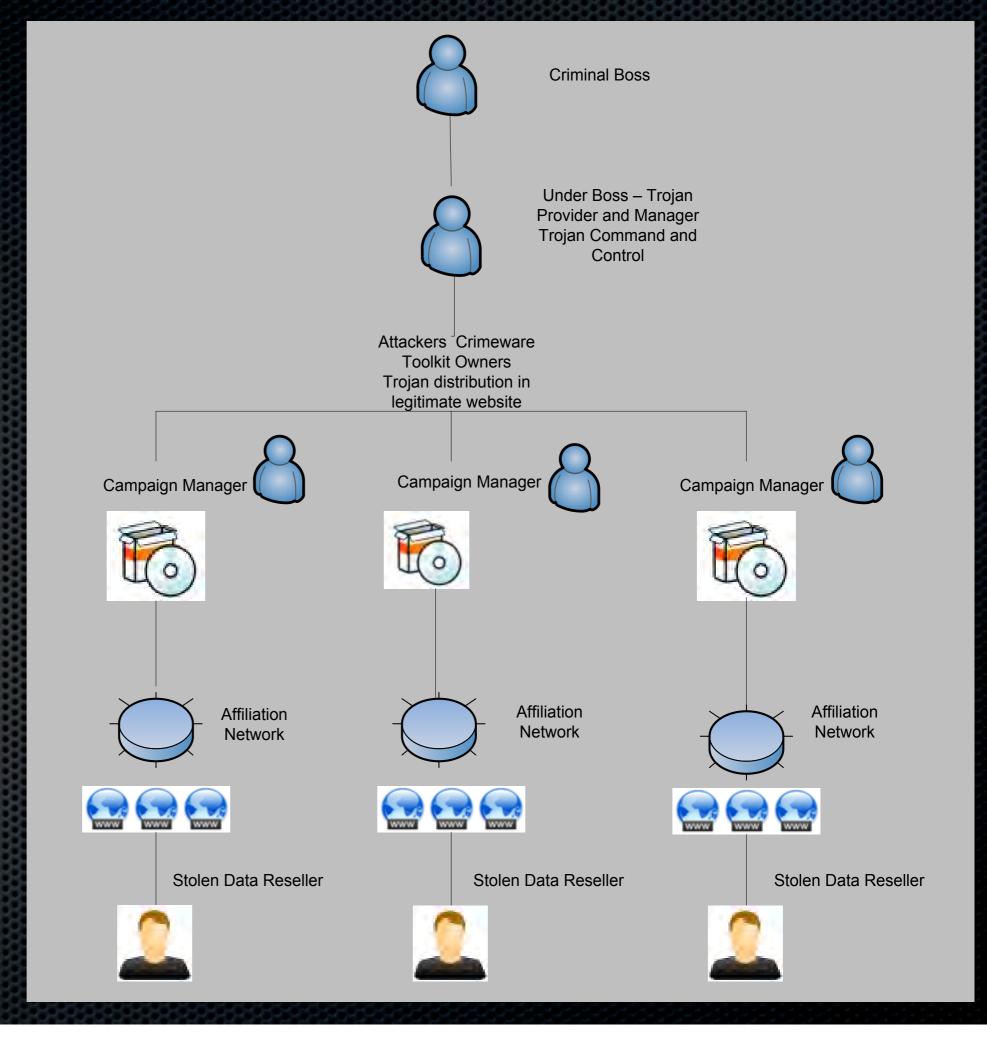
- Never just military
  - Targets will be civilian
- Physical and logical protections = last survival act
- Availability and Integrity of services
  - Can manifest in the cost of making services unavailable for most civilians



# CyberCrime



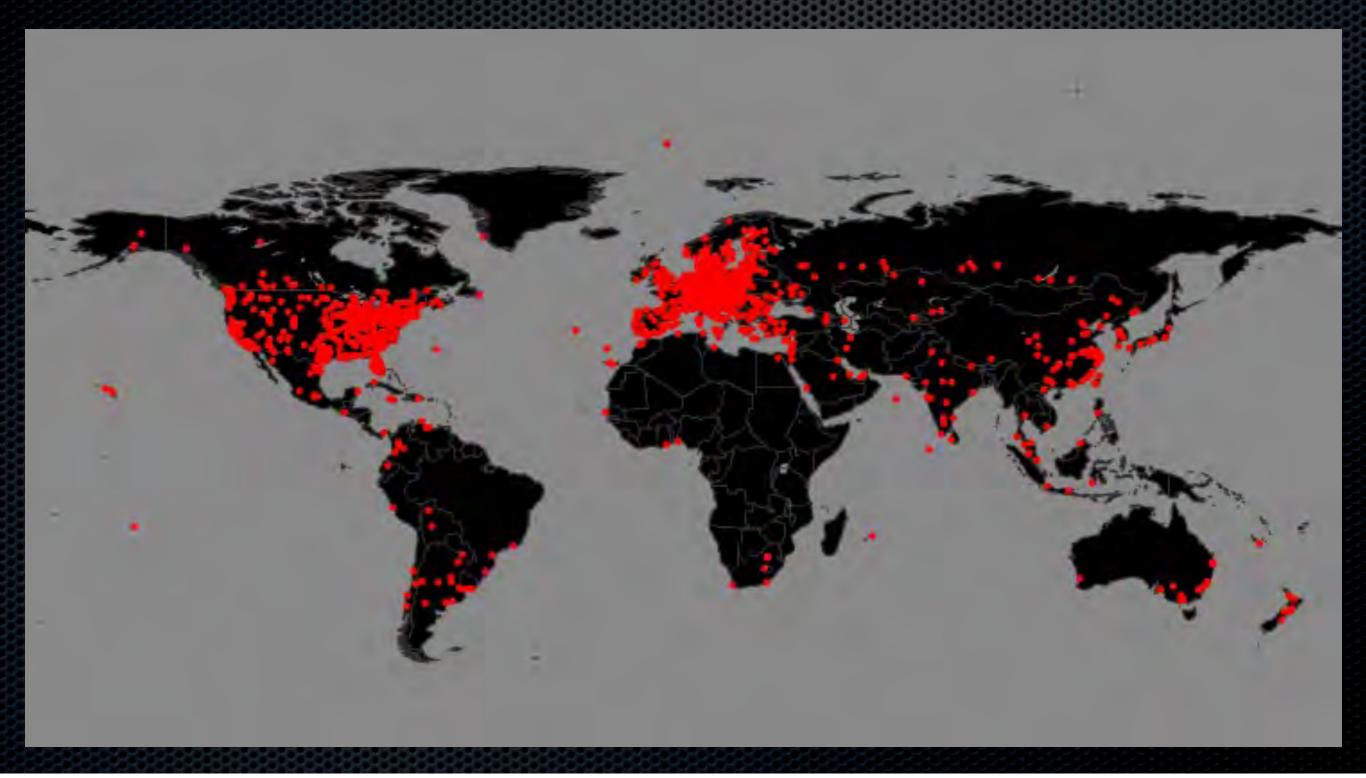
You want money, you gotta play like the big boys do...



# CyberCrime - Attack

- Channels: web, mail, open services
- Targeted attacks on premium resources
  - Commissioned, or for extortion purposes
- Carpet bombing for most attacks
  - Segmenting geographical regions and market segments
- Secondary infections through controlled outposts
  - Bots, infected sites

# CyberCrime - target location

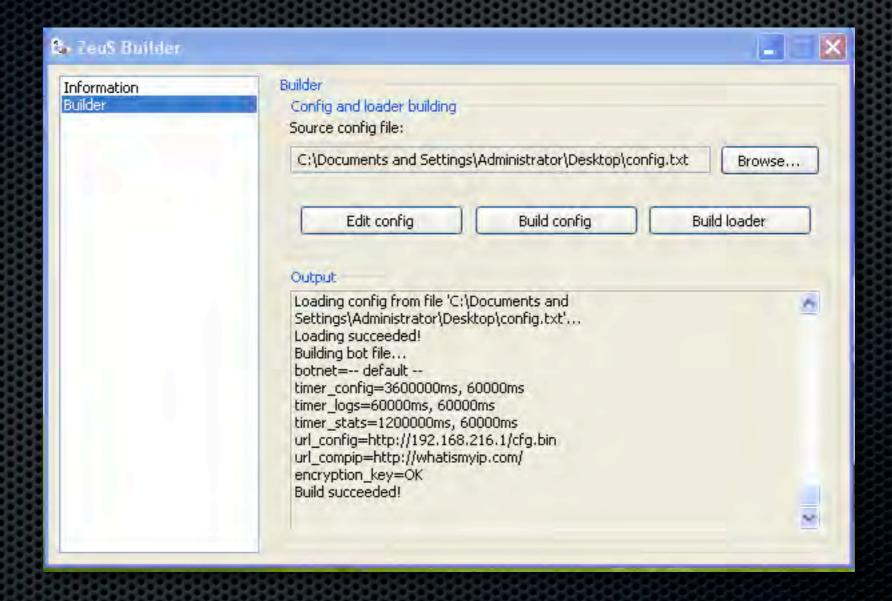


# CyberCrime - Locations



Major Cybercrime group locations

#### CyberCrime - Ammunition



== APT

#### ZeuS:: Statistics

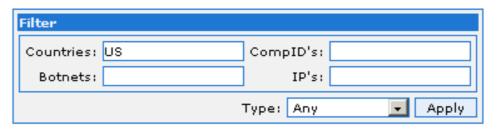
#### Information:

Profile: icen

GMT date: 24.04.2008 GMT time: 22:11:51



Information	
Total logs in database:	203
Time of first install:	16:10:06 26.03.2008
Total bots:	535



Result:									
# Cor	mpID	Ver/Botnet	IP	Country	Socks	Proxy	Screenshot	Online time Speed	
1 hor	me_5hm79aabb8_18ff5887	1.0.3.7/0	66.20.176.219	US	-	-	-	28:14:42 0	
2 hor	me_00e01ec4	1.0.3.7/0	70.189.43.6	US	-	-	-	28:14:49 0	
3 <b>e5</b> 8	8aeb3f9a6342e_0005cf1f	1.0.3.7/0	76.6.28.134	US	-	-	-	00:59:12 1.015	
4 500	026776334_03c9bf3f	1.0.3.7/0	71.88.41.203	US	-	-	-	11:00:04 0.172	
5 hor	me_cxl7f5jivt_3a19fa48	1.0.3.7/0	65.190.70.193	US	-	-	-	28:15:35 0	
6 gal	brail_00ebef3b	1.0.3.7/0	75.187.190.246	US	-	-	-	28:15:18 0	
7 mv	/d_00151288	1.0.3.7/0	66.24.74.225	US	-	-	-	03:56:03 0	
8 hic	ks_07ca460dc_0002c847	1.0.3.7/0	74.47.178.92	US	-	-	-	28:14:55 0	
9 <b>e</b> 5	19887_04d635e3	1.0.3.7/0	130.76.32.145	US	-	-	-	28:15:15 2.353	
10 hor	me_039e4185	1.0.3.7/0	67.49.216.74	US	-	-	-	24:28:25 0	
11 you	ur_co2y48tgdl_21540d33	1.0.3.7/0	70.180.173.188	US	-	-	-	03:28:31 0	
12 wa	5117d01_007de927	1.0.3.7/0	63.164.145.198	US	-	-	-	23:19:11 0	
13 <b>he</b> s	wlett_lydtpep_000d1b7d	1.0.3.7/0	67.175.12.135	US	-	-	-	06:04:26 0	
14 <b>e 1</b> 0	07306_00a67fc7	1.0.3.7/0	130.76.32.182	US	-	-	-	28:14:16 2.484	
15 jud	ly_1f2c4509	1.0.3.7/0	74.227.149.82	US	-	-	-	25:44:29 0	
16 <b>cac</b>	det64204_77f68ea1	1.0.3.7/0	68.58.242.15	US	-	-	-	00:24:09 0	
17 cer	ntral_y7uq1of_03fc9672	1.0.3.7/0	206.71.208.121	US	-	-	-	07:03:20 0	
18 <b>bry</b>	yan_pc_3e13a078	1.0.3.7/0	70.88.25.241	US	-	-	-	01:52:39 0.172	
19 win	nxp_00023fa1	1.0.3.7/0	69.246.194.0	US	-	-	-	28:15:32 0.27	
20 <b>wa</b>	5117d02_0027e2a1	1.0.3.7/0	63.164.145.198	US	-	-	-	28:15:34 0	
21 pri	vate_45878f3_000622ad	1.0.3.7/0	76.68.150.19	US	-	-	-	00:46:55 0	
22 <b>rek</b>	des_xtyg9nbe_17f5b01f	1.0.3.7/0	75.178.3.31	US	-	-	-	28:14:41 0	
23 <b>ton</b>	ny_f740f48227_00b21f7c	1.0.3.7/0	24.247.72.95	US	-	-	-	03:55:35 60.093	
24 ow	ner_f835edf4c_0003ffbe	1.0.3.7/0	65.12.138.38	US	-	-	-	03:14:38 0	
25 <b>tak</b>	ke_2067du80ff_1c1dbf98	1.0.3.7/0	75.100.193.124	US	-	-	-	28:14:39 0	
26 500	026403620_01f62ef5	1.0.3.7/0	74.197.114.250	US	-	-	-	00:02:54 0.219	
27 <b>lov</b>	refamily_000d186a	1.0.3.7/0	71.180.88.97	US	-	-	-	02:30:50 0	
28 <b>hul</b>	b_lab_11_0000dadf	1.0.3.7/0	68.190.65.92	US	-	-	-	00:46:12 0	
29 far	iba_05744139	1.0.3.7/0	75.56.211.191	US	-	-	-	28:15:26 0	
30 <b>do</b> i	rm_0002de02	1.0.3.7/0	74.170.82.94	US	-	-	-	08:40:34 0	
31 <b>d5</b>	wccbb1_0005840c	1.0.3.7/0	72.149.8.2	US	-	-	-	05:54:22 0	

#### CyberCrime - Defense

- Anti [ Virus | Malware | Spyware | Rootkit | Trojan ]
  - Seriously?

File 90a4ab818f492d67a8c1d5efae8e2147f received on 2010.03.16 16:58:07 (UTC)

Current status: finished Result: 0/42 (0.00%)

- Firewalls / IDS / IPS
  - Seriously?
    - Brought to you by the numbers 80, 443, 53...
    - **■** SSL...

#### How do these connect?

Claim: CyberCrime is being used to conduct CyberWar

Proof: Let's start with some history...

### History - Revisited...

#### **Estonia**

You read all about it.

Bottom line: **civilian** infrastructure was targeted Attacks originated mostly from **civilian** networks

# History - Revisited...

#### Israel

Cast led 2nd Lebanon war
Palestinian TV hacked - propaganda



# Cast-Led, 2nd Lebanon war (Israel and mid-east)

All attacks on

Israeli Arabic

targets

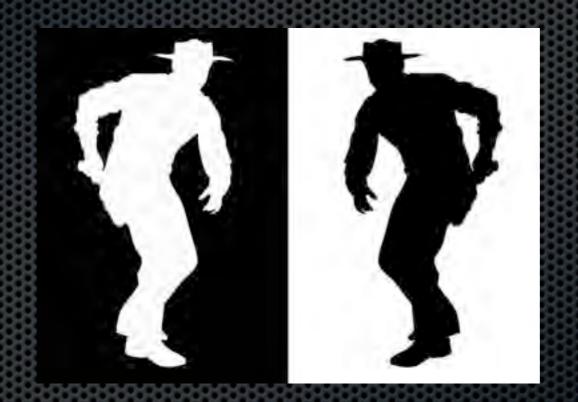
are **Attributed** to

#### Hacktivists



#### Mid-east crime-war links

#### ARHack



Hacker forum by day

Cybercrime operations by night







#### Buying/Selling cards for 1/2 their balance

Selling 1600 visa cards

أدوات الموضوع ▼ ابحث فكِ الموضوع ▼ تغييم الموضوع ▼ طريفة عرض الموضوع ▼	
رقم المشاركة : 1	PM 12:55 ,12-31-2009
و 1601 فيسا كاره بـ مقابل ************************************	معلومات العضو
شباب ارید ابادل 1601 فیسا کارد کلهم صالحین و فیهم فلوس	هاکر 00 :: عنو جدد ::

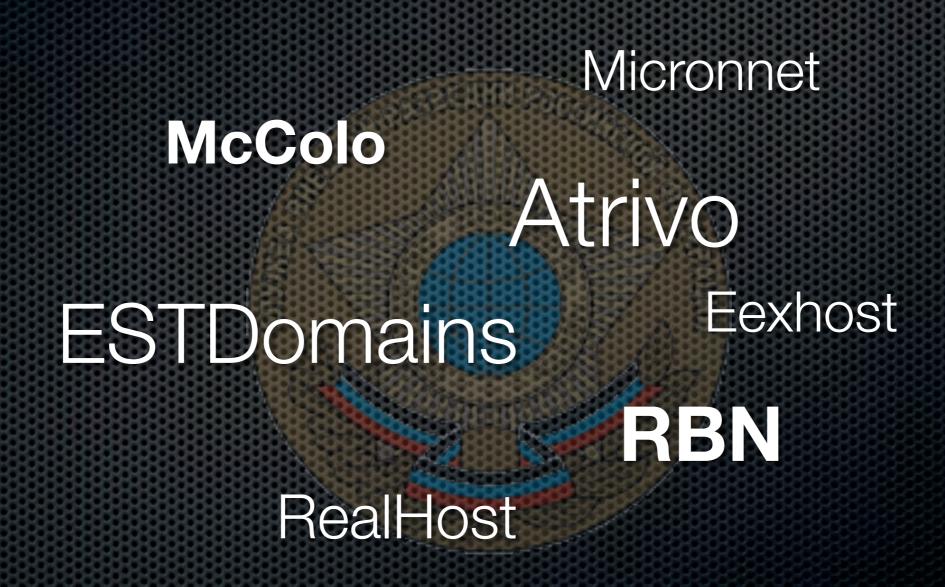
## History - Revisited...

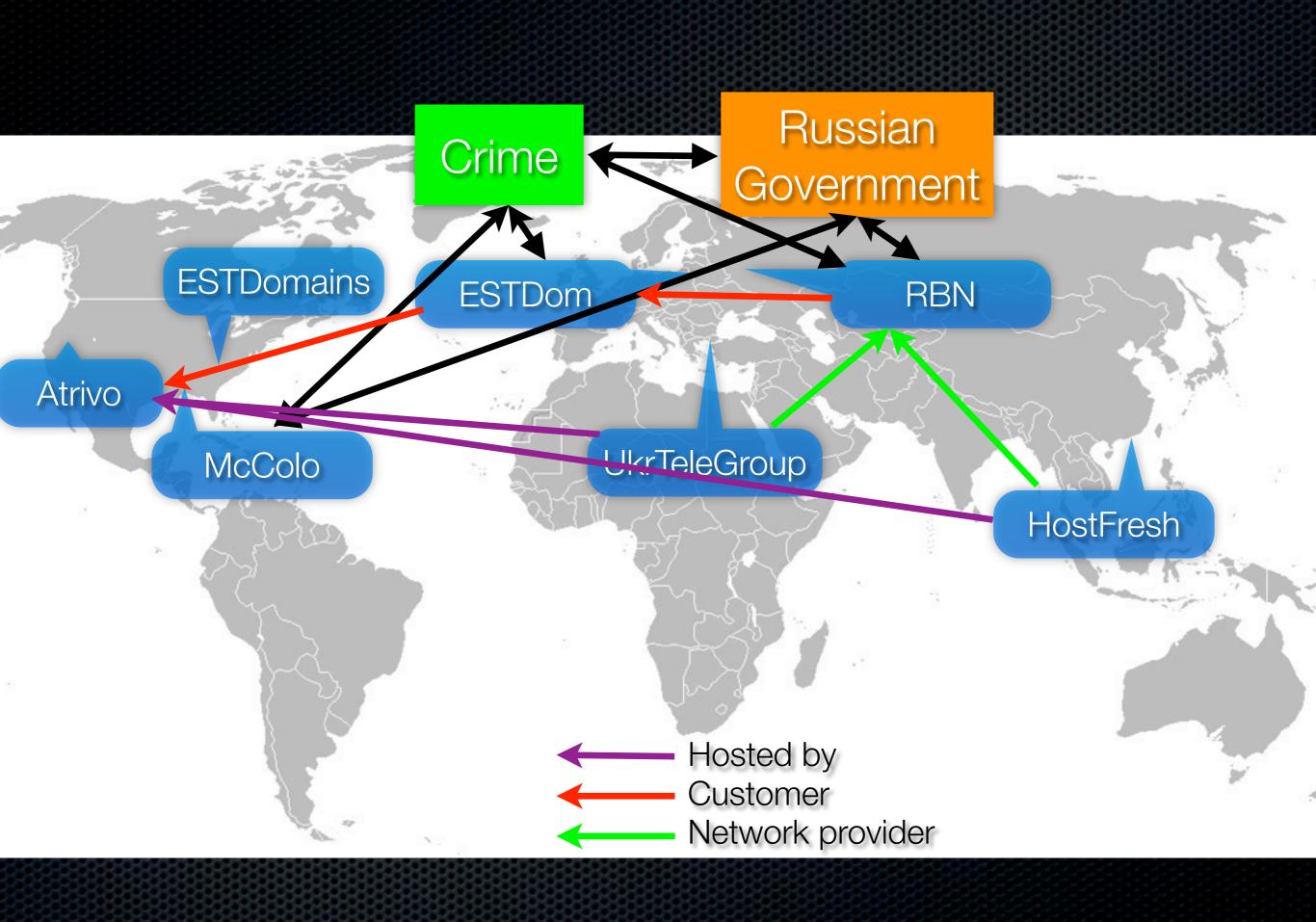
#### Georgia

More interesting...

Highly synchronized **Kinetic** and **Cyber** attacks Targets still mostly **civilian**Launched from **civilian** networks

## Russian Crime/State Dillema





## Remember Georgia?

Started by picking on the president...

```
flood http www.president.gov.ge flood tcp www.president.gov.ge flood icmp www.president.gov.ge
```

- Then the C&C used to control the botnet was shut down as:
  - Troops cross the border towards Georgia
  - A few days of silence...

## Georgia - cont.

Six (6) new C&C servers came up and drove attacks at additional Georgian sites

> www.president.gov.ge newsgeorgia.ru www.parliament.ge os-inform.com www.kasparov.ru apsny.ge hacking.ge mk.ru news.ge tbilisiweb.info newstula.info

■ BUT - the same C&C's were also used for attacks on **commercial** sites in order to extort them (botnet-forhire)

#### Additional sites attacked:

- Porn sites
- Adult escort services
- Nazi/Racist sites

- Carder forums
- Gambling sites
- Webmoney/Webgold/etc...

## History - Revisited...

#### Iran

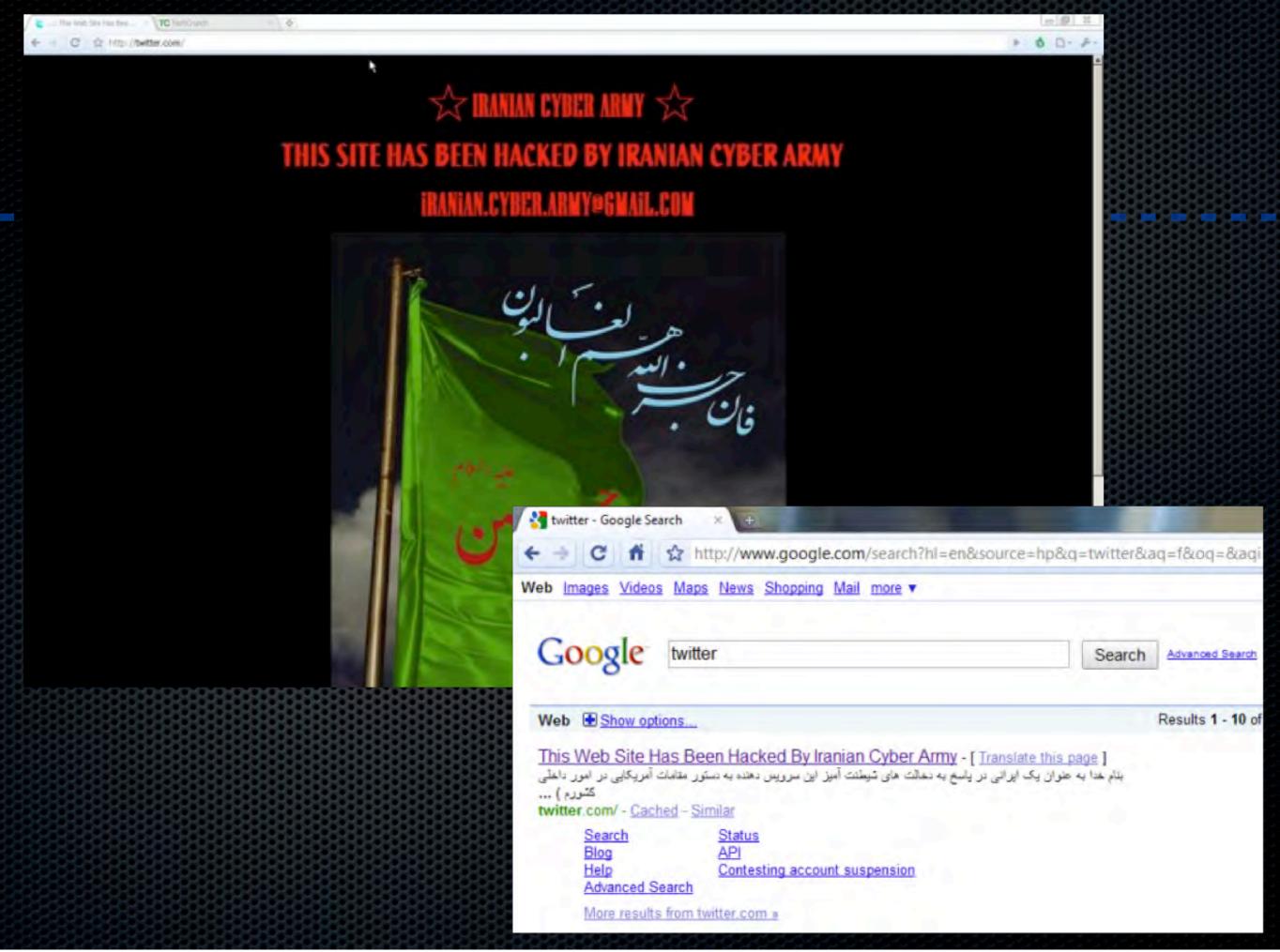
2009 **Twitter** DNS hack attributed to Iranian activity.

Political connections are too obvious to ignore (elections)

Timing was right on:

UN Council **Decisions** 

Protests by leadership opposition in Tehran



## Iran-Twitter connecting dots

- Twitter taken down December 18th 2009
- Attack attributed eventually to cyber-crime/vigilante group named "Iranian Cyber Army"
- Until December 2009 there was no group known as "Iranian Cyber Army"...
- BUT "Ashiyane" (Shiite group) is from the same place as the "Iranian Cyber Army"



## Iran-Twitter - Ashiyane

- Ashiyane was using the same pro-Hezbolla messages that were used on the Twitter attack with their own attacks for some time...
- AND the "Iranian Cyber Army" seems to be a pretty active group on the Ashiyane forums www.ashiyane.com/forum

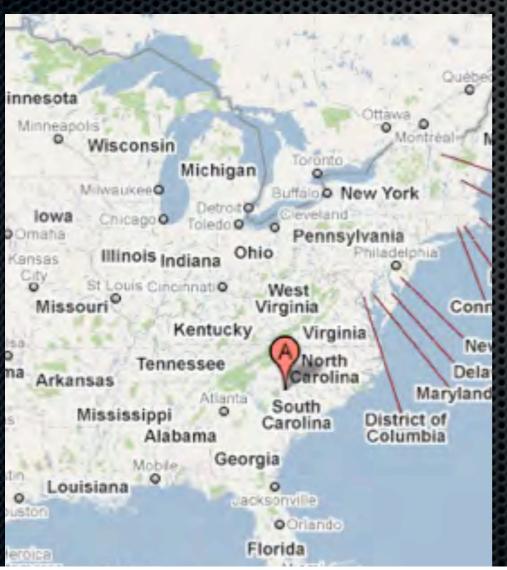
Let's take a look at how Ashiyane operates...

## On [Crime|War] training

## Ashiyane forums WarGames



# Wargame targets includes:





## Back to [Crime War] Links:

What else happened on the 18th?

Iranians seize Iraqi oil well on border, Iraq says Baghdad in talks to decide next move with Tehran over oil well No. 4

BAGHDAD, Dec. 18, 2009

Iraq: Iranian Troops Seized Oil Well

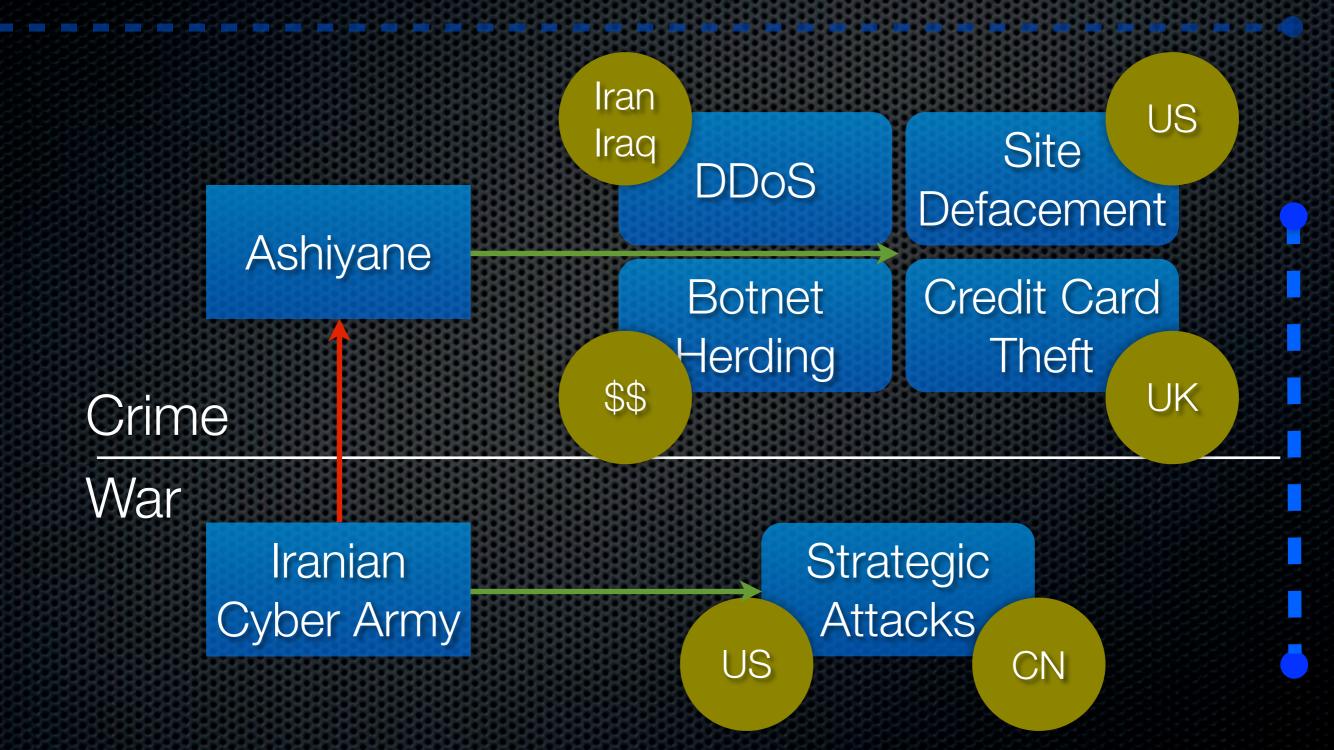
Iraq's Foreign Minister Says Well Along Disputed Southern Border Taken by Soldiers; Spokesman Says Iran Violated Sovereignty

BUSINESS | DECEMBER 19, 2009

Iranian Troops Occupy Oil Field in Iraq, Stoking Tension

More recently - Baidu taken down with the same MO (credentials)

## Mapping Iran's [Crime|War]



## History - Revisited...

#### China

- Great Chinese Firewall doing an OK job in keeping information out.
- Proving grounds for many cyber-attackers
- Bulletpfoof hosting (after RBN temporary closure in 2008 China provided an alternative that stayed...)

## China ... connecting the dots

January 12th - Google announces it was hacked by China

Not as in the "we lost a few minutes of DNS" hacked...

"In mid-December we detected a highly sophisticated and targeted attack on our corporate infrastructure originating from China that resulted in the theft of intellectual property from Google" (David Drummond, SVP @Google)

## China ... connecting the dots.

January 12th - Adobe gets hacked. By China.

"Adobe became aware on January 2, 2010 of a computer security incident involving a **sophisticated coordinated attack** against corporate network systems managed by Adobe and other companies" (Adobe official blog)

Same MO: 0-day in Internet Explorer to get into Google, Adobe and more than 40 additional companies

## China ... connecting the dots..

The only problem so far - the attacks all have the sign of a CyberCrime attack. All the evidence points to known crime groups so far.

"It was an attack on the technology infrastructure of major corporations in sectors as diverse as **finance**, **technology**, **media**, **and chemical**" (Google enterprise blog)

## China ... connecting the dots...

Criminal groups attack companies in order to get to their data so they can sell it (whether it was commercial or government data!)

US Response: "We look to the Chinese government for an explanation. The ability to operate with confidence in cyberspace is critical in a modern society and economy." (Hillary Clinton, Secretary of State)

## China ... connecting the dots....

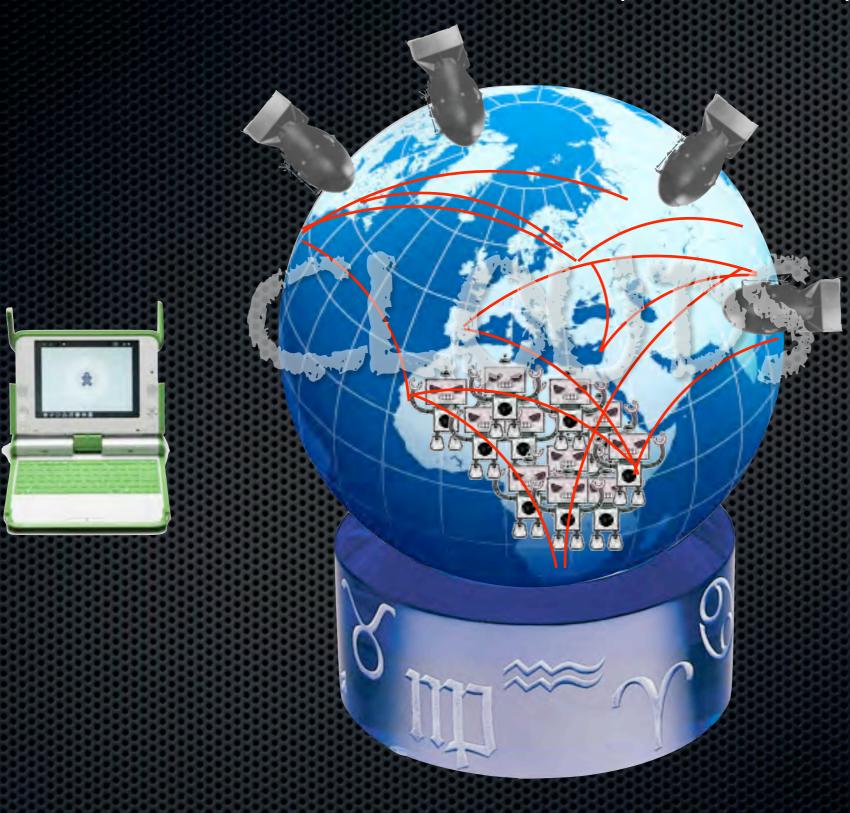
#### The China move:

Use of criminal groups to carry out the attacks provides the perfect deniability on espionage connections (just like in the past, and a perfect response to clinton).

Targets are major US companies with strategic poise to enable state interest espionage

Information sharing at its best:

### THE FUTURE (Illustrated)



## Summary

#### Good

Formal training on cybersecurity by nations

#### Bad

Commercial development of malware still reigns



Good meet Bad: money changes hands, less tracks to cover, criminal ops already creating the weapons...

## Summary

#### THE FUTURE

LACK OF LEGISLATION AND COOPERATION ON MULTINATIONAL LEVEL IS CREATING DE-FACTO "SAFE
HAVEN" FOR CYBERCRIME. <- FIX THIS!

TREATIES AND ANTI-CRIME ACTIVITIES MAY PROVE TO BE BENEFICIAL. <- NUKES?

## Thanks!

Q & A

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