

Cyber[Crime|War] Connecting the Dots

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Agenda

- Who am I?
- CyberWar [Attack | Defense]
- CyberCrime [Attack | Defense]
- History revisited
 - Connecting the dots...
- Future



Who Am I



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Going above and beyond traditional security

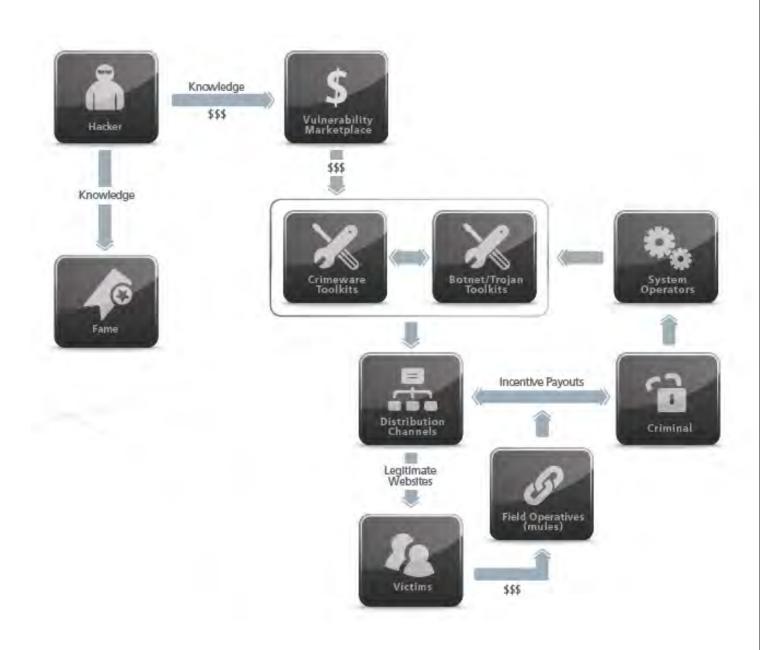
Picking up where we left off

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



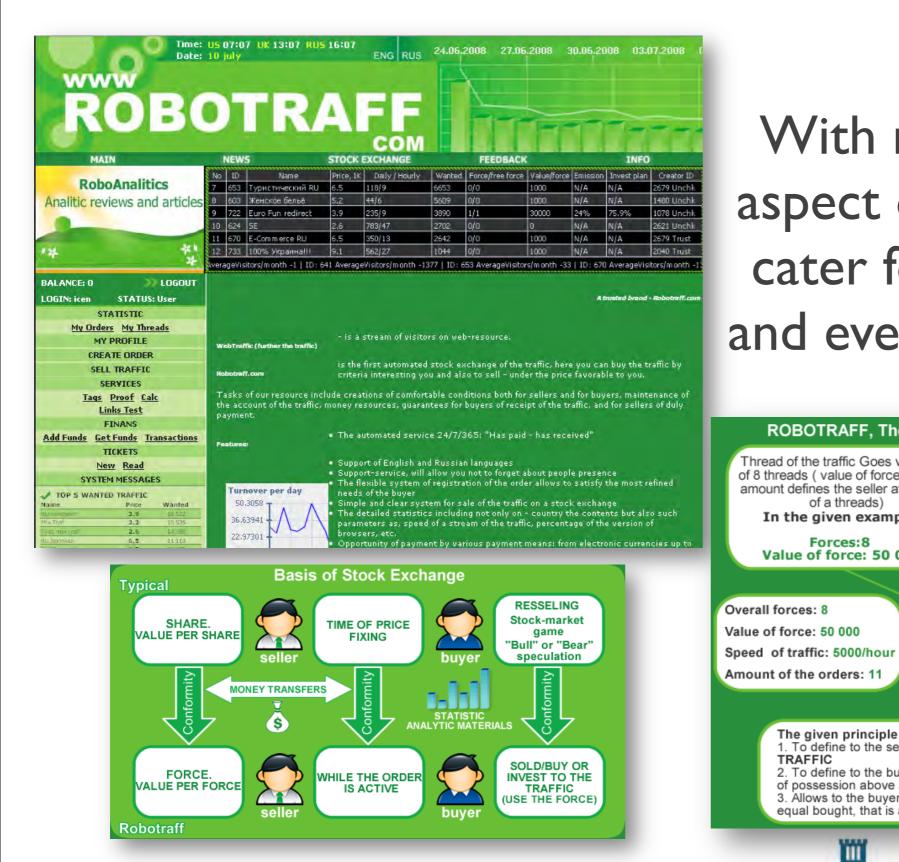
We took a trip down the rabbit hole

Only to find that we are facing a business as organized as a Fortune 500 one





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With markets for each aspect of the business to cater for tools, services and even bringing in leads

ROBOTRAFF, The description of a principle of force and value of force

Thread of the traffic Goes with force of 8 threads (value of force and their amount defines the seller at creation of a threads)

In the given example:

Forces:8 Value of force: 50 000 Some buyer who has bought the traffic with force equal 3-threads (for volume in 150 000 units). Thus, these threads go only one given order. So if to take, that the traffic speed is 5000 units per hour, the speed of the traffic on the given order will be:

(5000/8) *3 =1875 units per hour

The rest basic thread of the traffic which goes to other users, with force equal 5-threads. Thus, these 5 threads are distributed in regular intervals on all other orders. Under the same conditions for 10 other orders, speed equal will be:

((5000/8)*5)/10=390 units per hour

The given principle allows:

- To define to the seller at what volume to give the buyer the big speed. ISSUE of the **TRAFFIC**
- 2. To define to the buyer of a ratio of volume of purchase (at a constant price) and a share of possession above a thread - BUYING UP of the TRAFFIC
- 3. Allows to the buyer having though only force of a stream to resell the traffic in volume equal bought, that is a basis of stockjobbing - RESELLING



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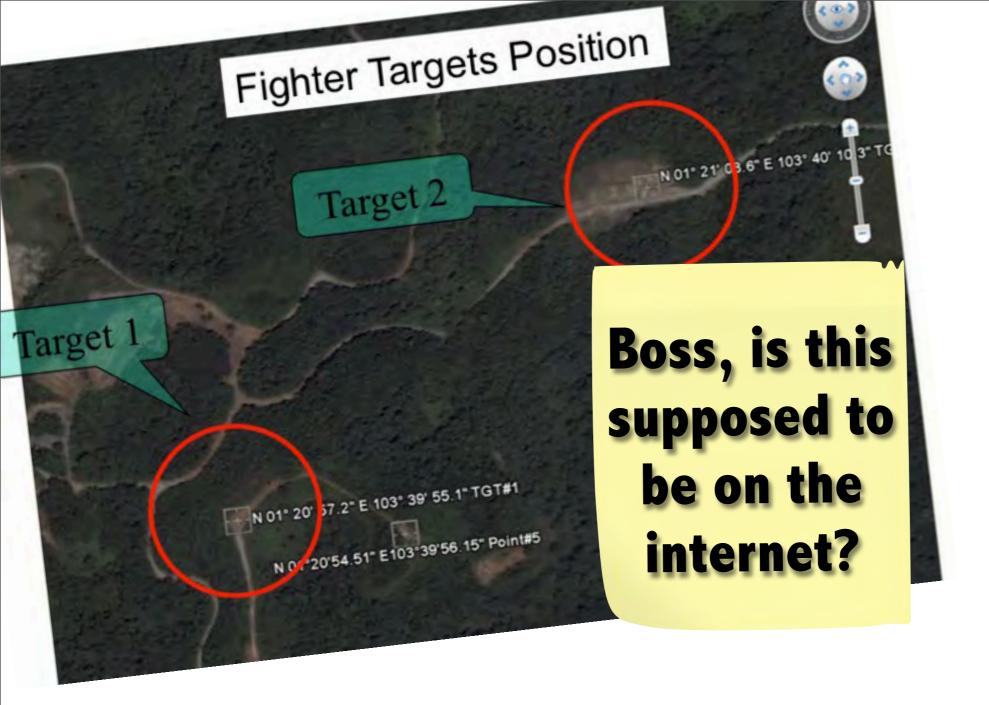
BUT!

Something didn't make too much sense in the data



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Target 1	
)
	201 EE 1" TGT#1
	N 01° 20' 57.2" E 103° 39' 55.1" TGT#1 N 01° 20'54.51" E103° 39'56.15" Point#5
	N 01-20-54.51

	Tin	ne Event				
	100	Deployment of GRS #9 to				
	100	Deployment of Ground Targets				
t#5	1100	Equipment serviceability checks				
	1200	Lunch				
	1300	No Move				
	1345	Establish comms between MCC and BCDS				
	1400	F-16 launch				
	1405	Trial #1				
	1410	Trial #2				
	1415	Trial #2-				
	1420	Trial #3b				
	1425	Trial #3b Trial #3c Recover				
	1430	Recover S 6				

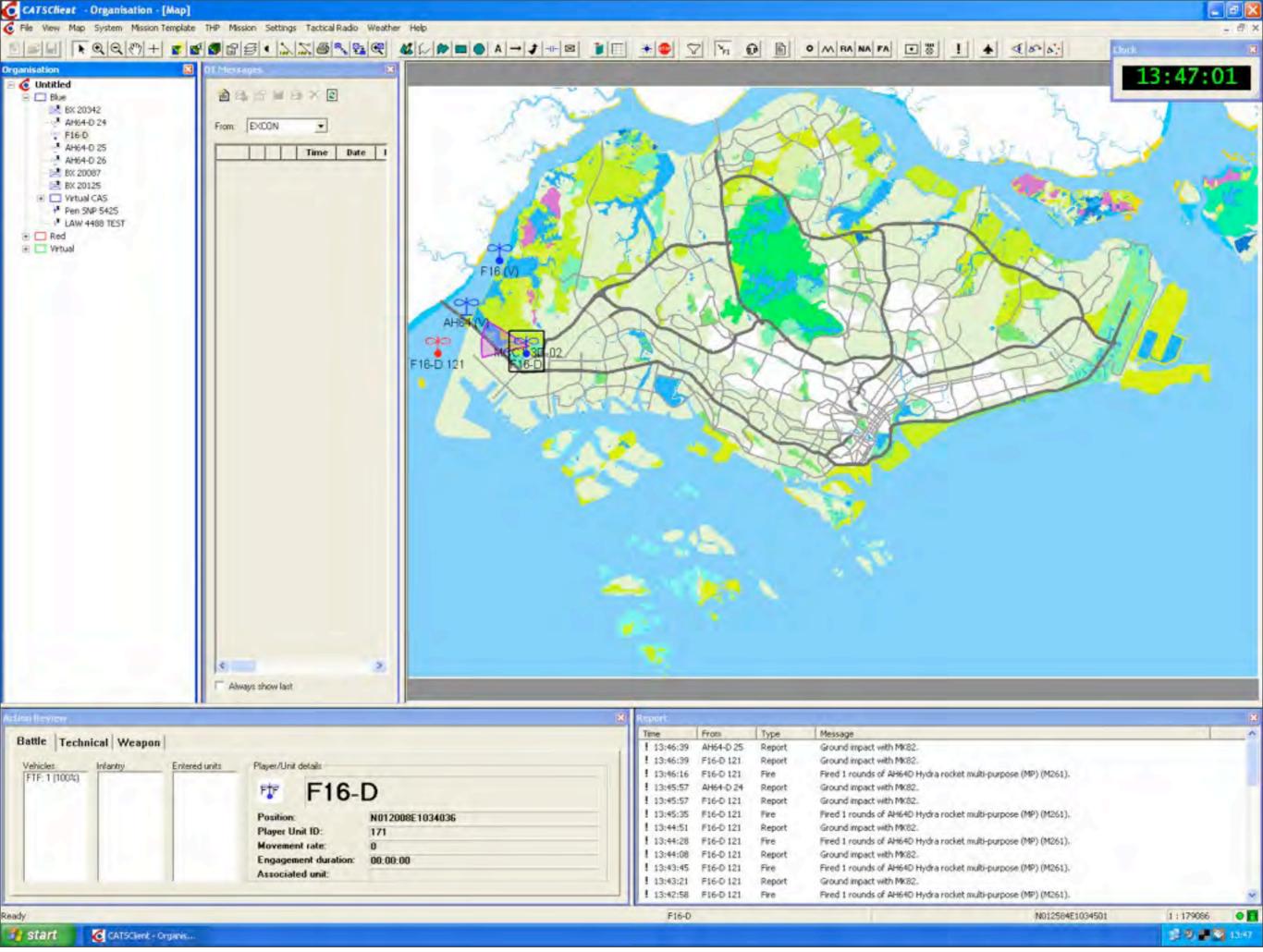
1000	Deployment of GRS #9 to LFA	-	P	ac	T
000	Deployment of Ground Targets	-		g	Events
100	Equipment serviceability checks	-	2	-	F-16 bomb drops on ground targets (Mk82 Mk84) F-16 bomb drops on ground targets (Mk82, Mk84)
200	Lunch			+	
00	No Move				Virtual Close Air Support
45	Establish comms between MCC and BCDS	1	За		F-16 bomb drops on ground targets (Mk82, Mk84)
0	F-16 launch			G	round-to-ground engagements at ALIGN GR
5	Trial #1	3	ь	F-	16 bomb drops on ground targets (Mk82,
0	Trial #2				
5	Trial #0	-	1	- 11	ound-to-ground engagements at normal GRS
23	Trial #3b			107	6 bomb drops on ground targets (Mk82,
				ou	ind-to-ground engagements at ALIGN GRS
	Recover 5		~		
	Debrief Dom		Gr	our	nd-to-ground engagements at normal GRS
	Recover IS from My Debrief Powerpo:				
	Debrief Powerpoint!				
	8	Sove	an	d	beyond traditional security

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1530



	Pa ka e	
	1	F-16 bomb drops on ground targets (Mk8 Mk84)
2		F-16 bomb drops on ground targets (Mk82
		Virtual Close Air Support
3	а	F-16 bomb drops on ground targets (Mk82, Mk84)
		Ground-to-ground engagements at ALIGN G
36		F-16 bomb drops on ground targets (Mk82,
		Ground-to-ground engagements at normal GR
	F	-16 bomb drops on ground targets (Mk82,
		ound-to-ground engagements at ALIGN GRS
		ound-to-ground engagements at normal GRS



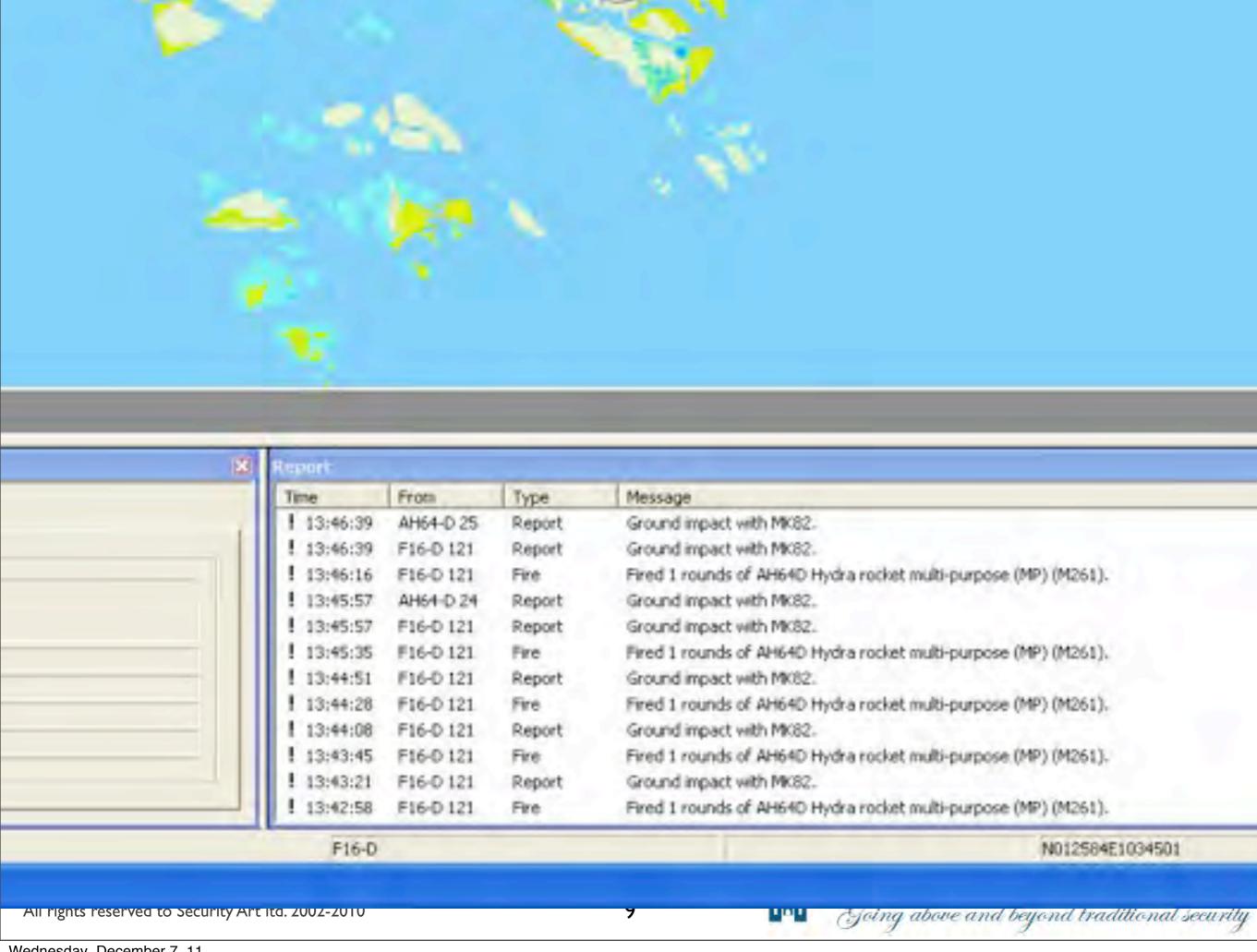


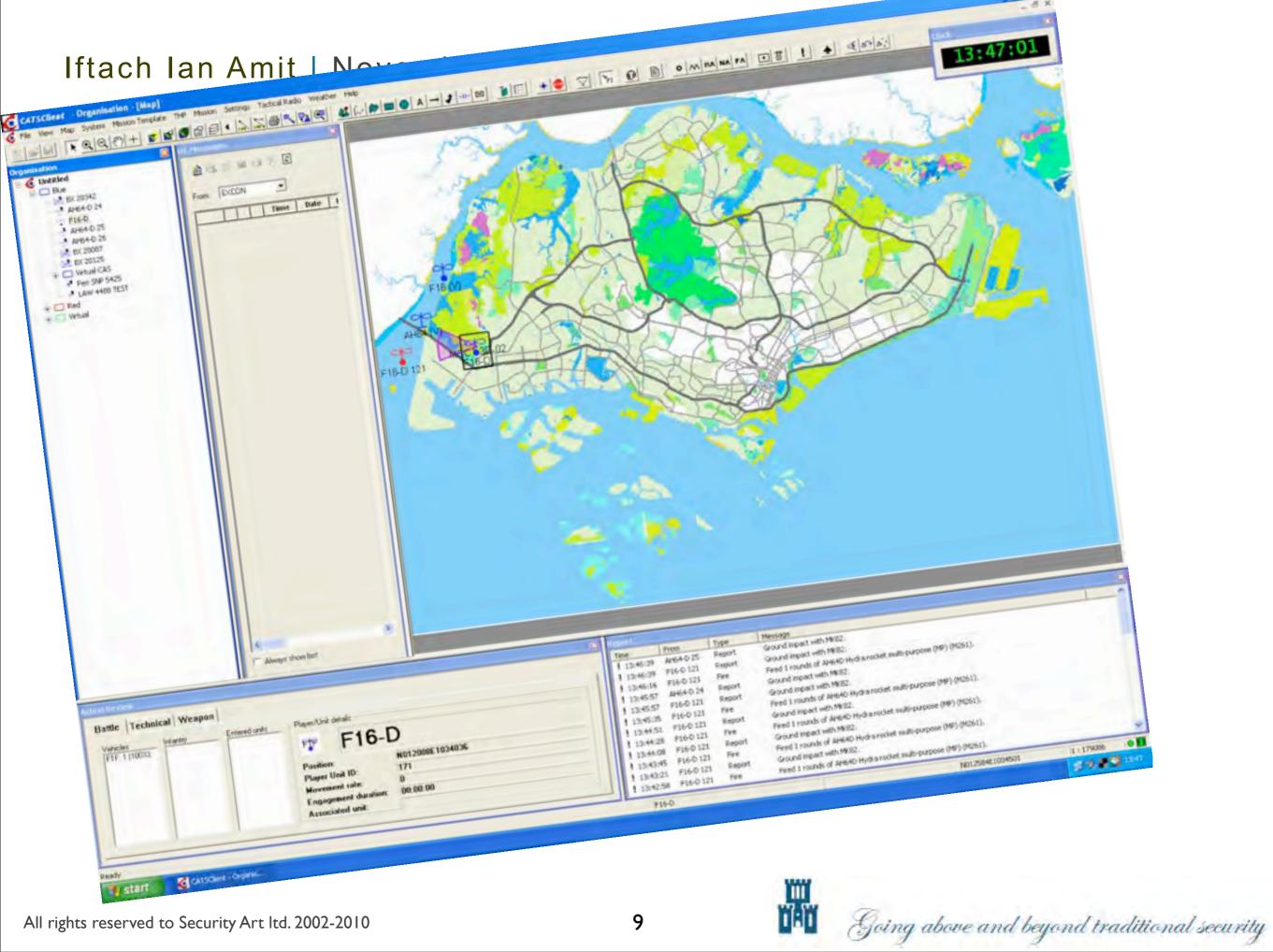
F16-D

13:42:58









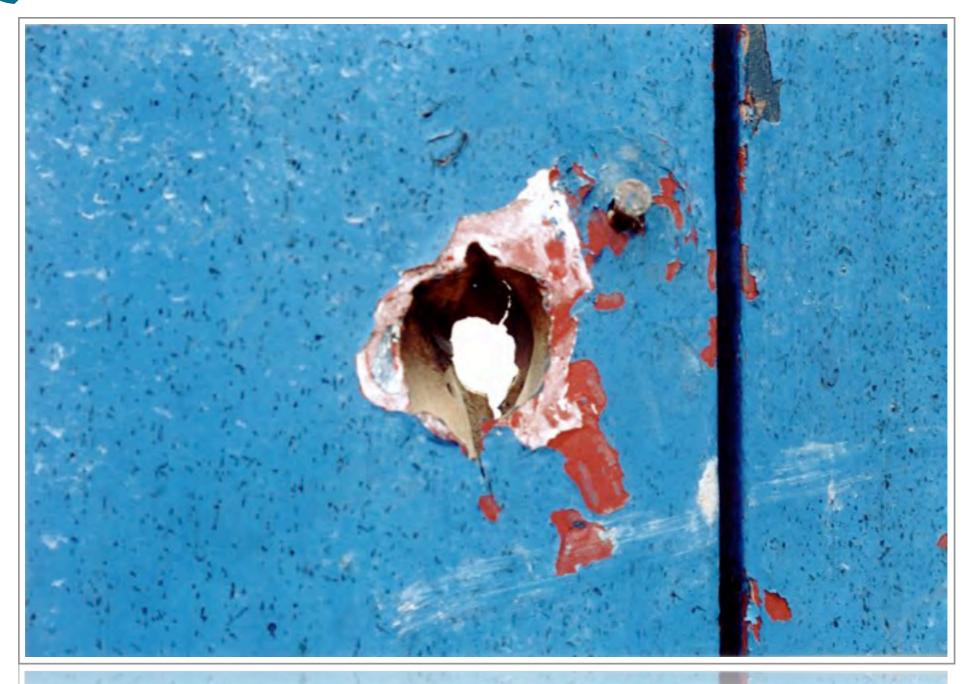
Hungry yet?

That was just the appetizer...



Question I:What is this?

Question I: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 (org. crime)
- Official resources
- Self financing?
- Established expertise (inhouse + outsourced)
- Market for exploits



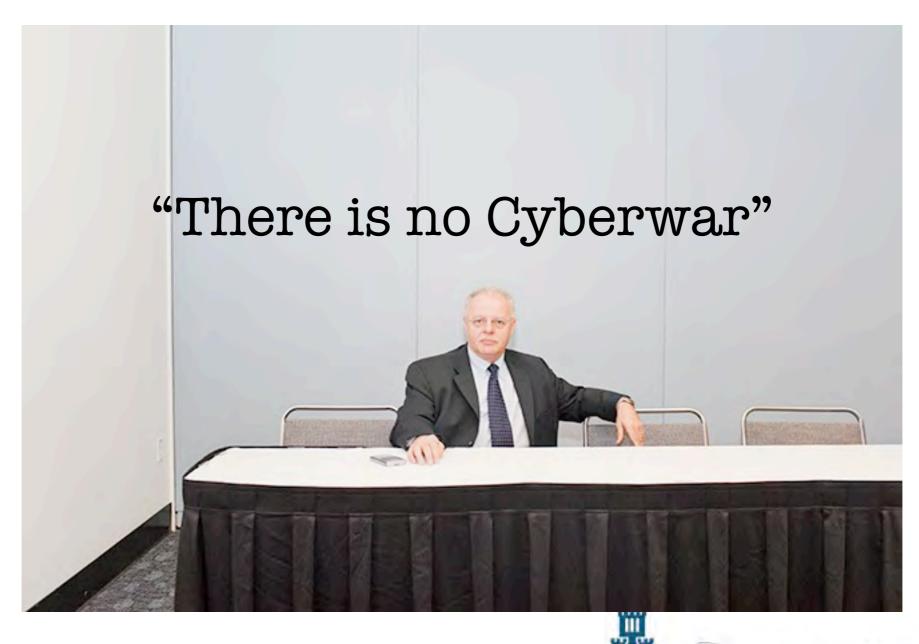
CyberVVar

"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?



Going above and beyond traditional security

It **did not** happen yet RSA being an exception?



Going above and beyond traditional security

It **did not** happen yet RSA being an exception?





This is not the **only** way!



But civilian are always at stake!



Neither is this...



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Many faces of how CyberWar is perceived...

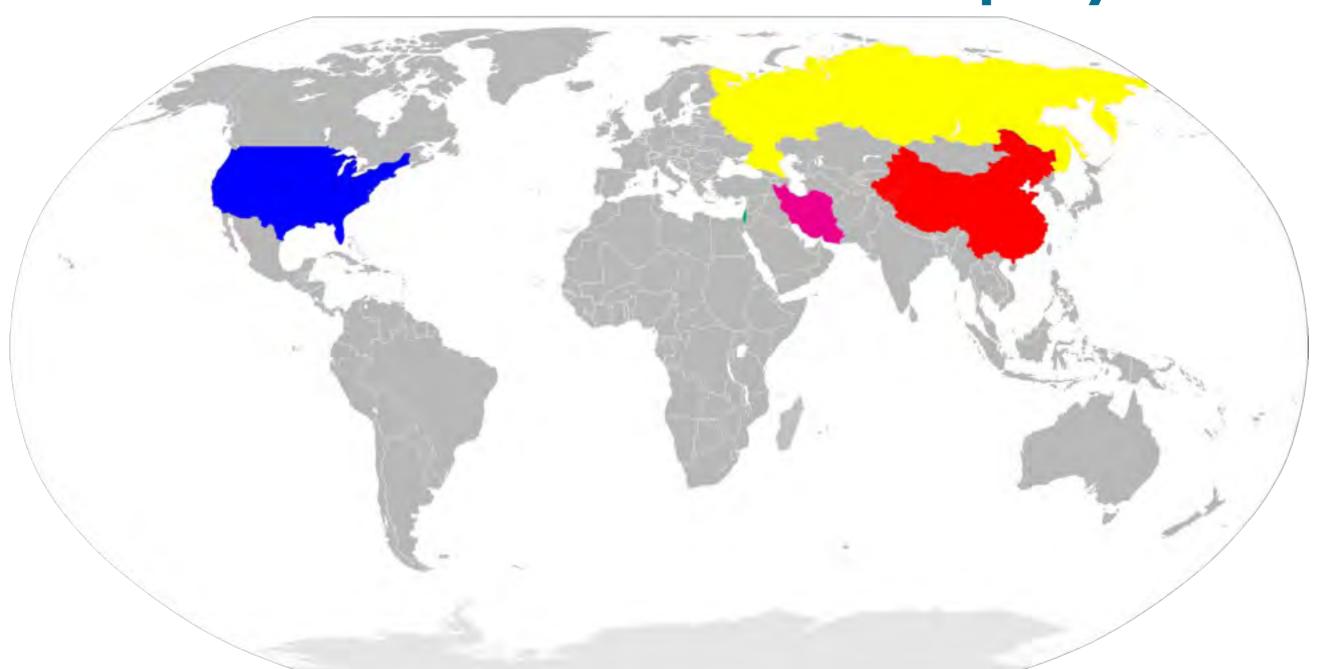


From McAfee's "Virtual Criminology Report" Image caption: "countries developing advanced offensive cyber capabilities"

18



We'll focus on current players:



And no, here size does **NOT** matter...

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)





Wednesday, December 7, 11

China

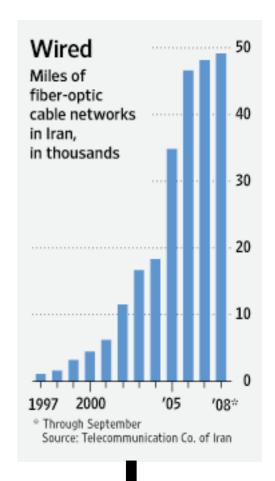
- PLA (People's Liberation Army)
 - Homework: read the Northrop Grumman, and the "Project 2049 Institute" reports!
 - General Staff Department 4th Department -Electronic Countermeasures == Offense
 - GSD 3rd Department Signals Intelligence
 == Defense
- Yes...Titan Rain...



Iran

- Telecommunications Infrastructure co.
 - Government telecom monopoly

Iranian Armed Forces







Israel

- 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...)

Israel

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 Israel Adds Cyber-Attack to IDF

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

CyberWar - Attack

Highly selective targeting of military (and critical) resources

In conjunction with a **kinetic** attack





CyberWar - Attack

Highly selective targeting of military (and critical) resources

In conjunction with a **kinetic** attack







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**)

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25

CyberVVar - 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

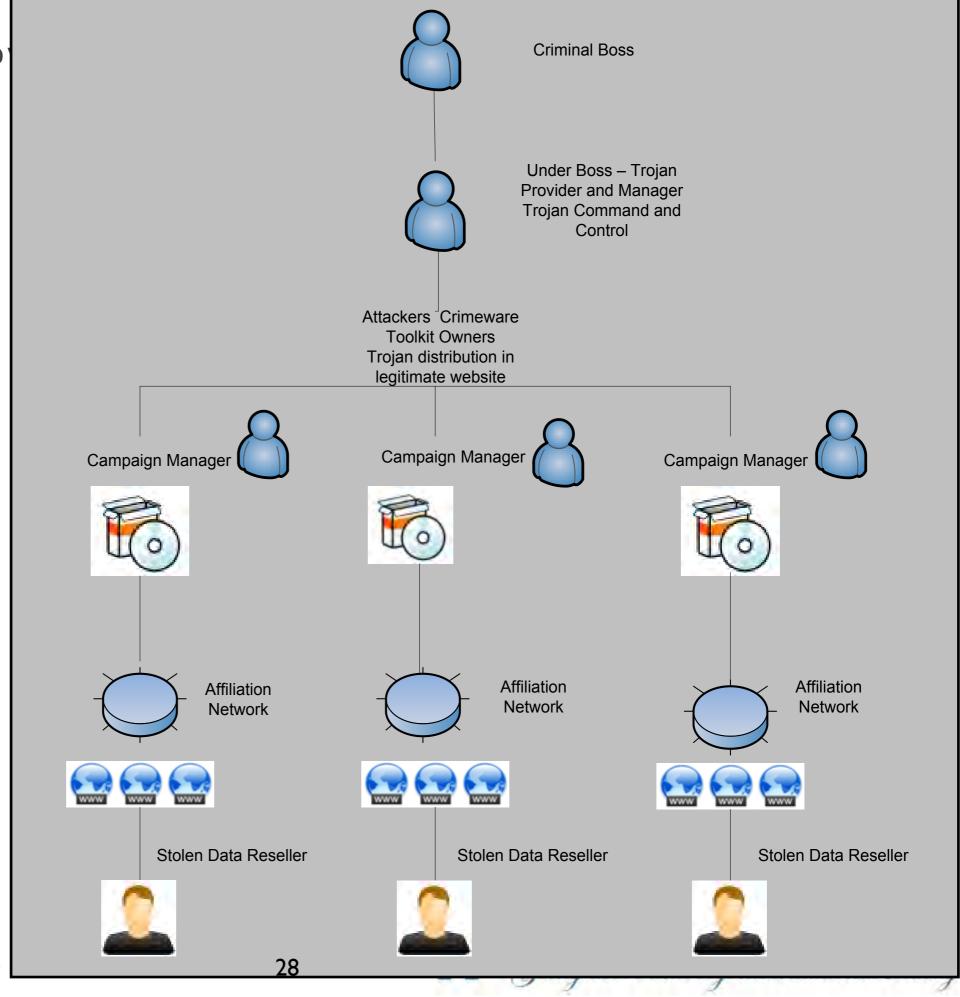






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You want money, you gotta play like the big boys do...



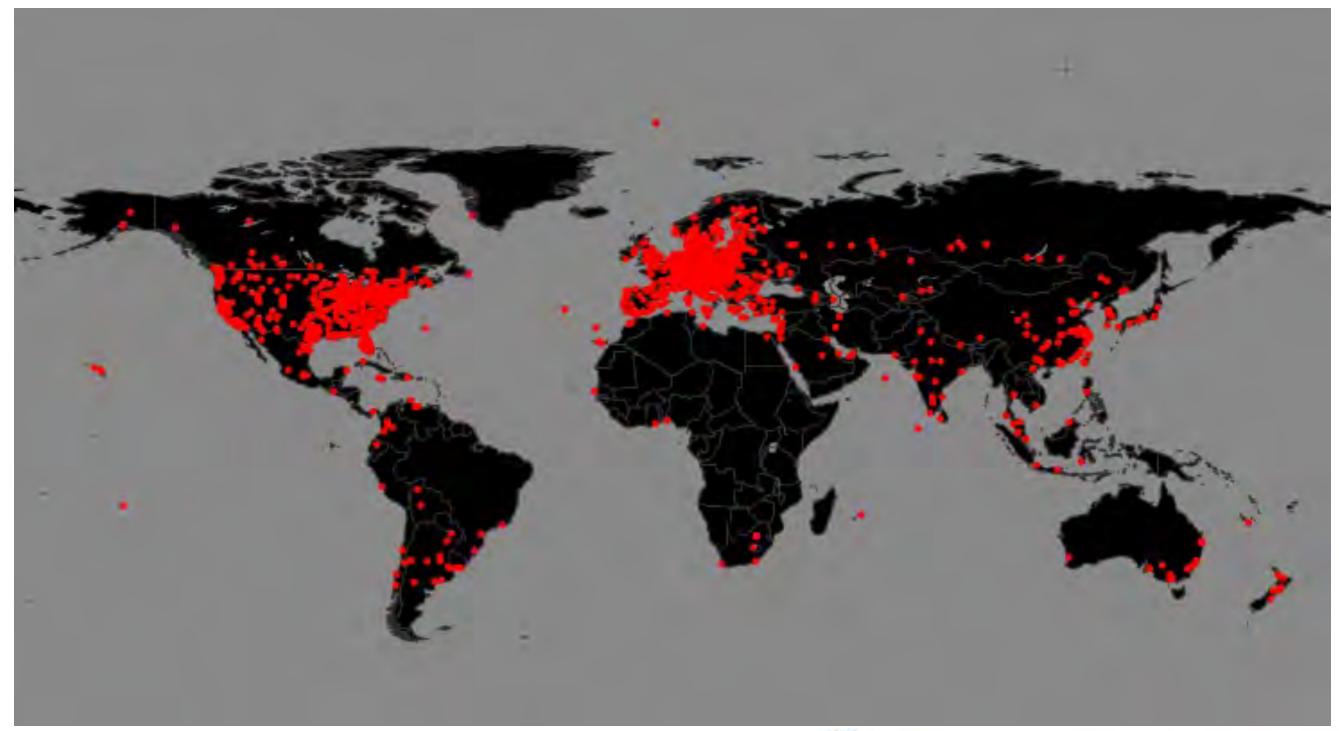
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CyberCrime - Attack

- 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

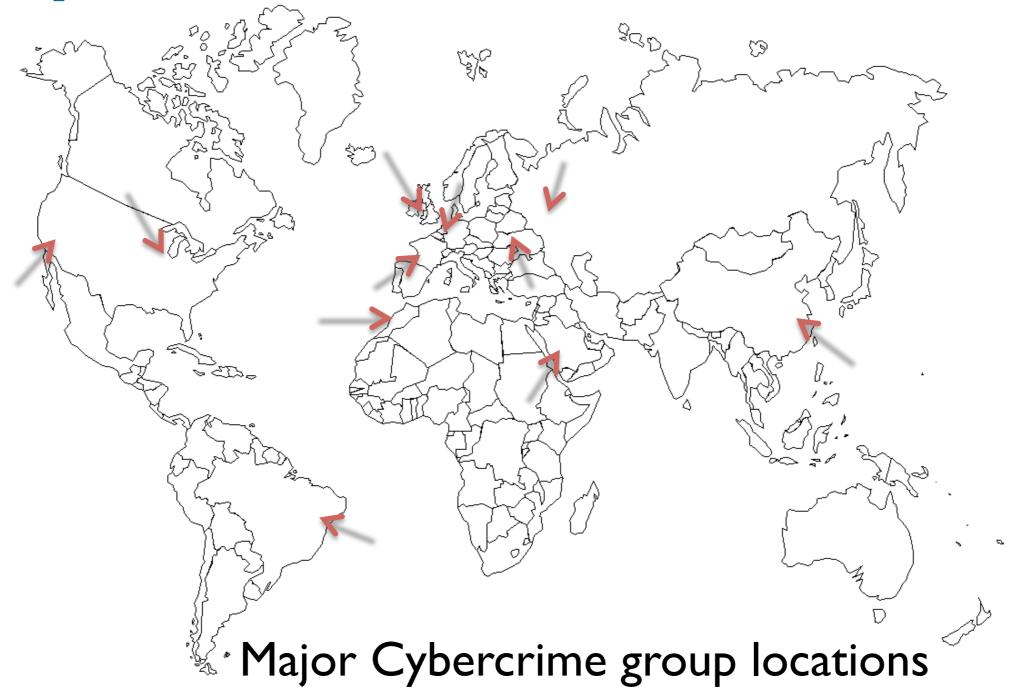


CyberCrime - target locations

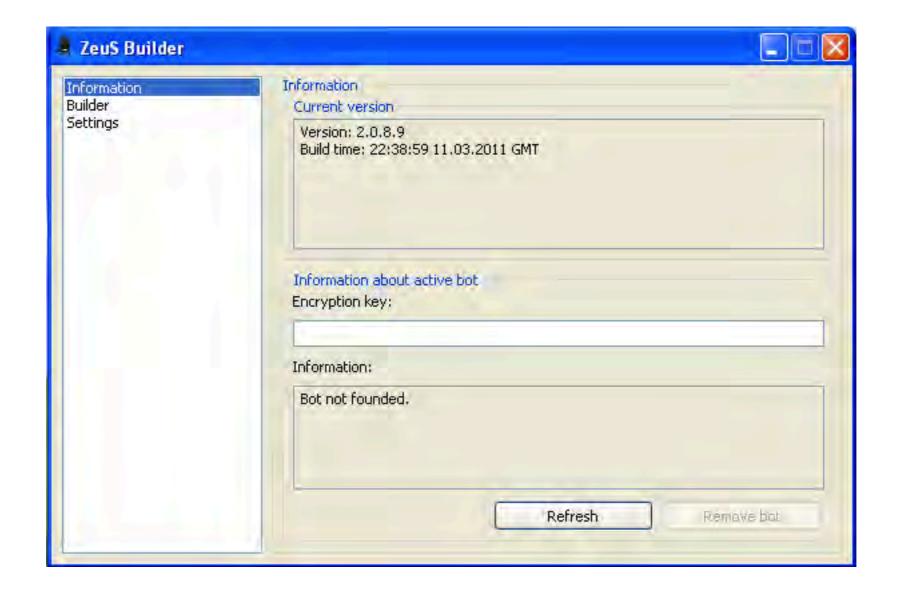




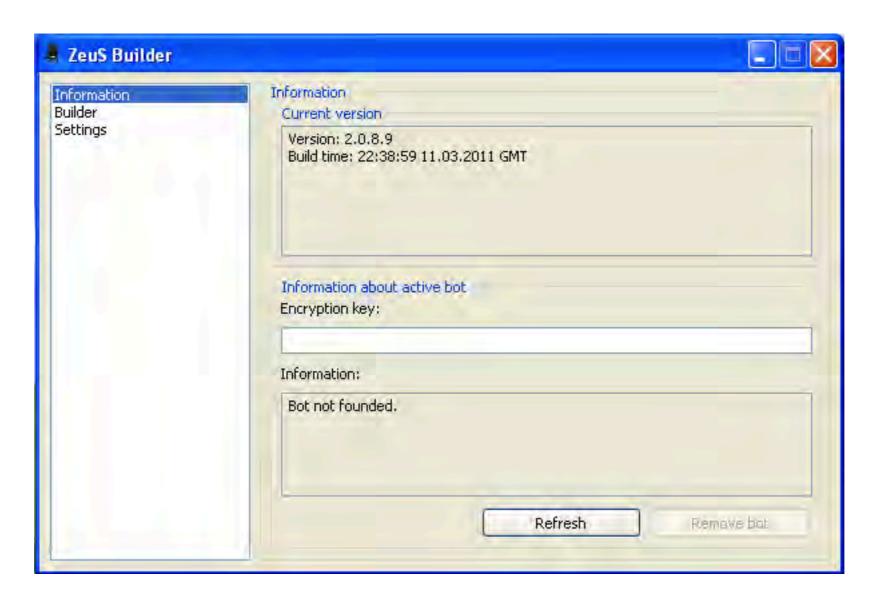
CyberCrime - Locations



CyberCrime - Ammunition

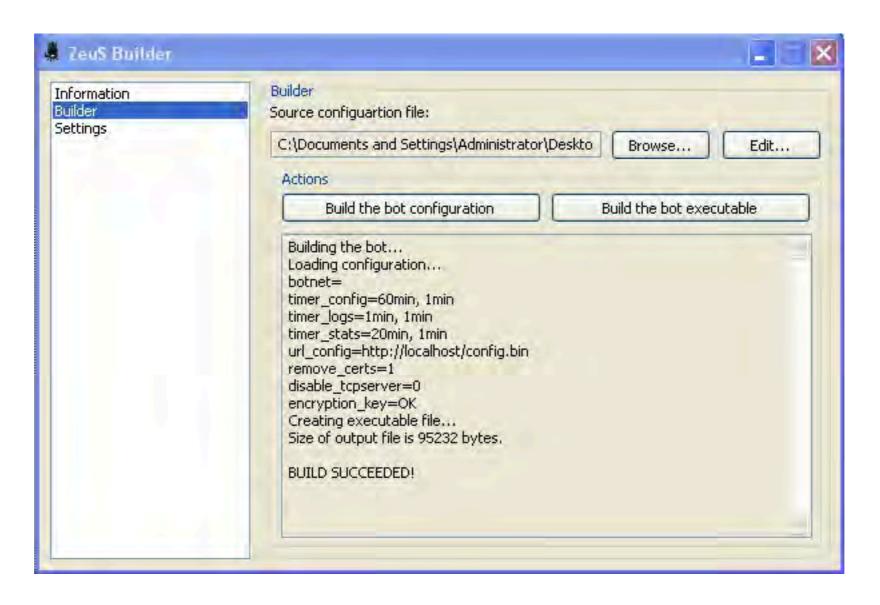


CyberCrime - Ammunition



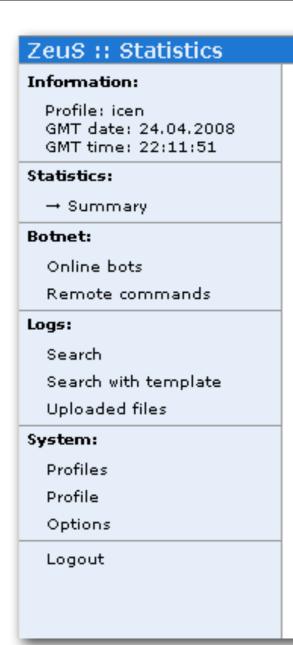


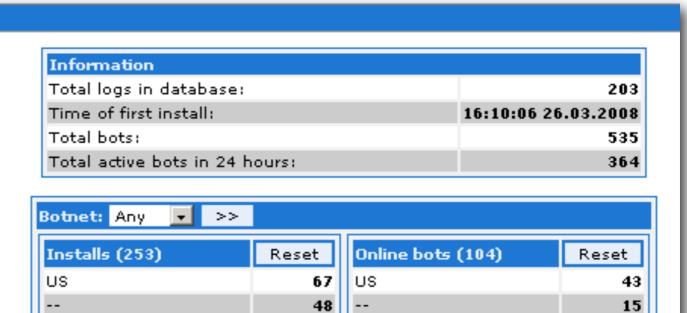
CyberCrime - Ammunition





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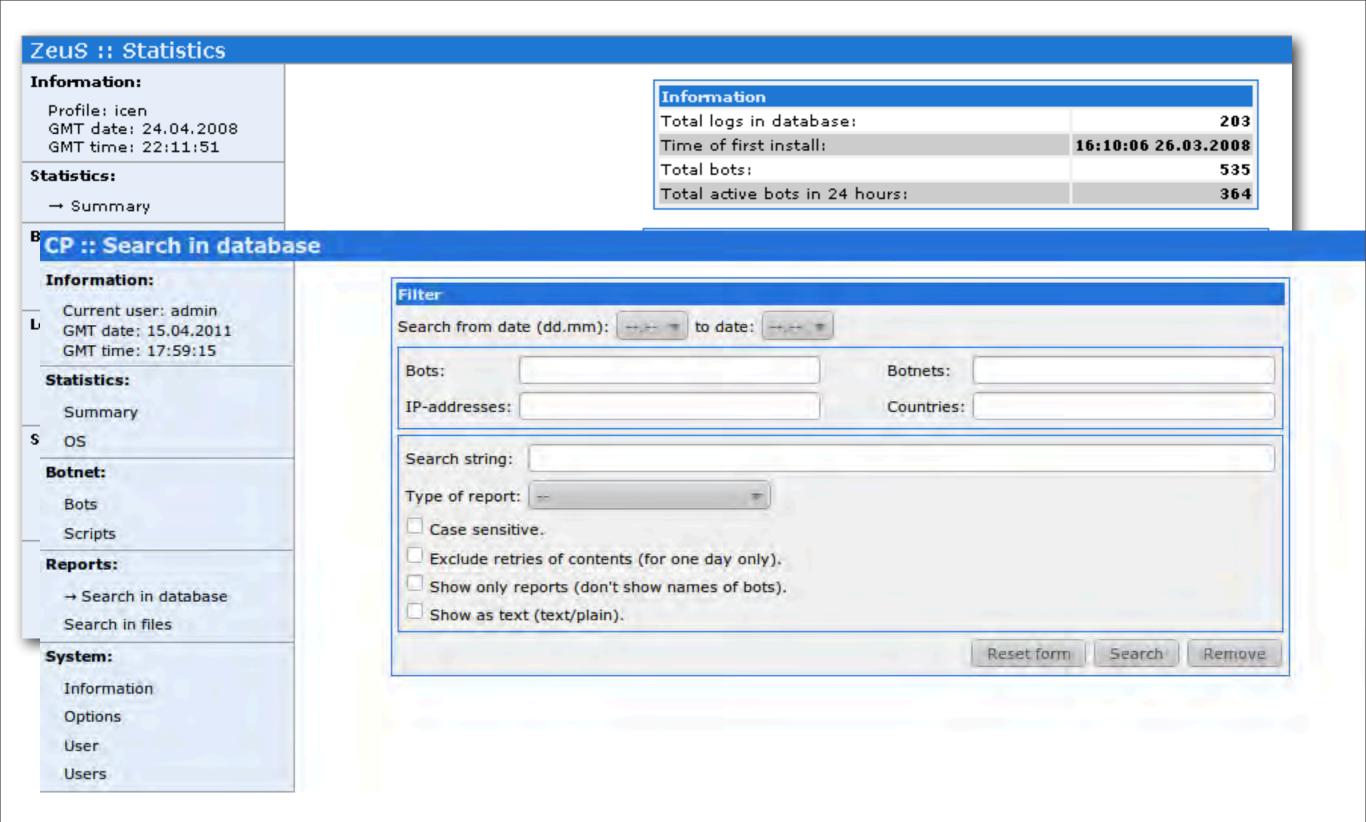
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CO

RU





33

Anti [Virus | Malware | Spyware | Rootkit | Trojan]

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



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

File name:

bot.exe

Submission date:

2011-04-15 18:16:04 (UTC)

Current status:

finished

Result:



Anti [Virus | Malware | Spyware | Rootkit | Trojan]

Seriously?

File name:

bot.exe

Submission date:

2011-04-15 18:16:04 (UTC)

Current status:

finished

Result:

0/42 (0.0%)

Firewalls / IDS / IPS



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

File name:

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Result:

- Firewalls / IDS / IPS
 - Seriously?



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Result:

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

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

File name:

bot.exe

Submission date:

2011-04-15 18:16:04 (UTC)

Current status:

finished

Result:

- 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...



Estonia

You read all about it.

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

Israel

Operation Orchard



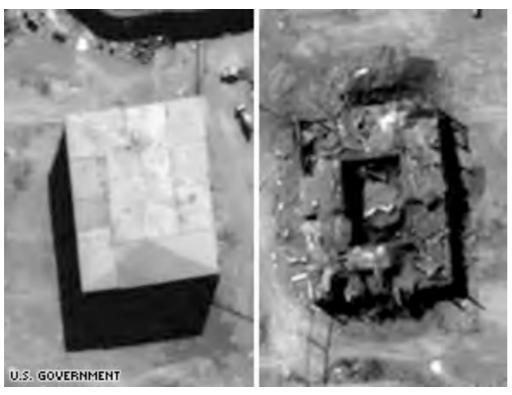
Source: Der Spiegel

September 6th, 2007 Source: http://en.wikipedia.org/wiki/ Operation_Orchard



Israel

Operation Orchard



September 6th, 2007 Source: http://en.wikipedia.org/wiki/ Operation_Orchard



Source: Der Spiegel



Mid-east crime-war links

ARHack





Hacker forum by day

Cybercrime operations by night



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Political post





Buying/Selling cards for 1/2 their balance





Buying/Selling cards for 1/2 their balance

Selling 1600 visa cards



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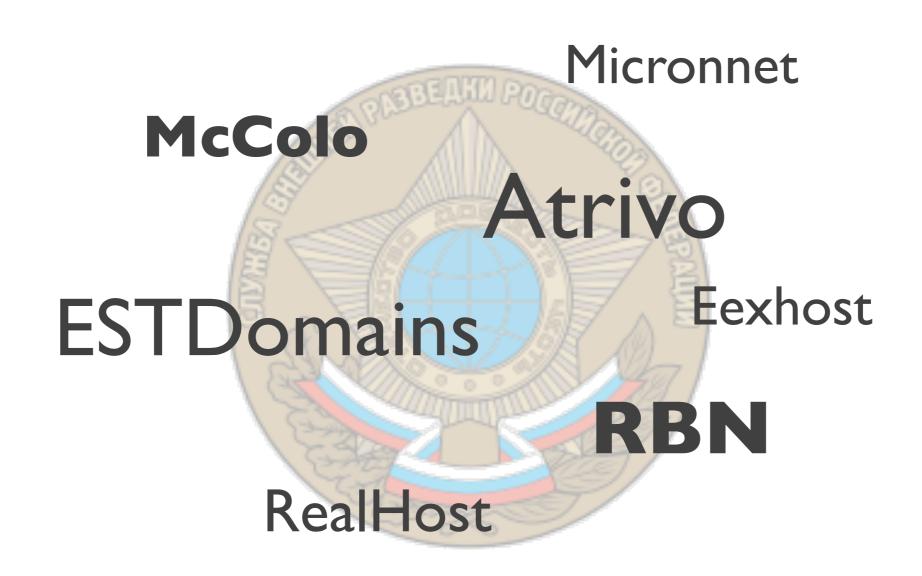
Georgia

More interesting...

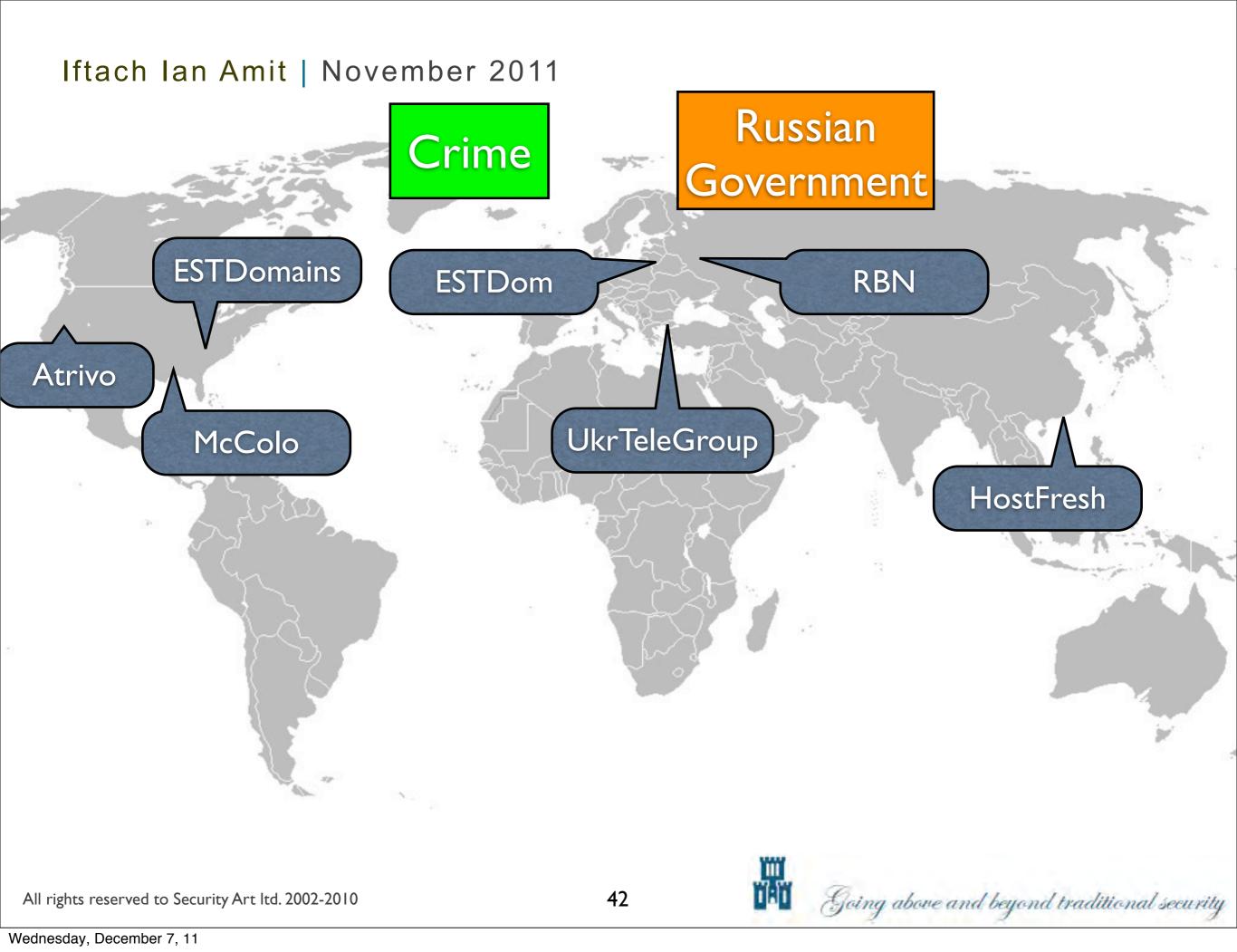
Highly synchronized **Kinetic** and **Cyber** attacks Targets still mostly **civilian**Launched from **civilian** networks

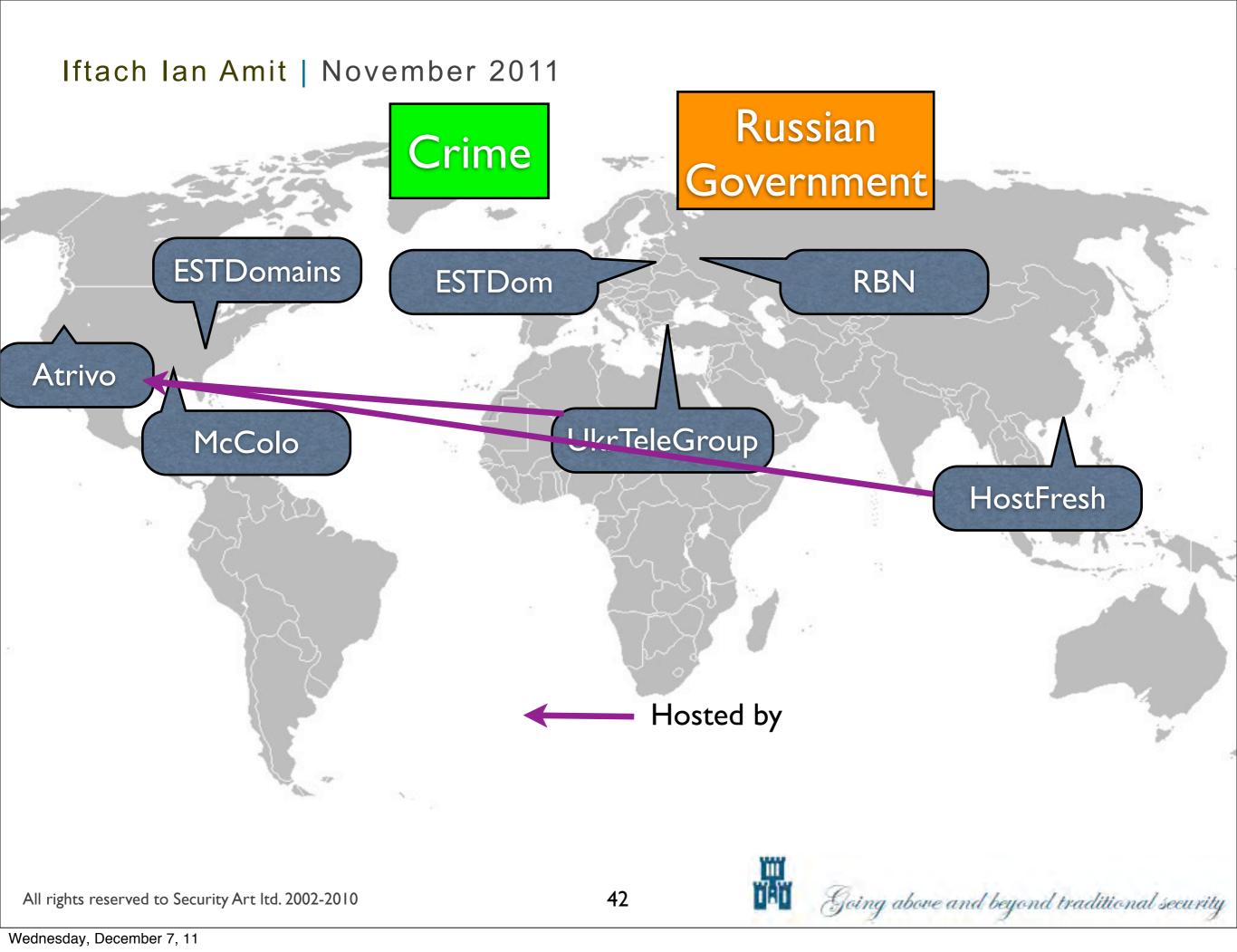


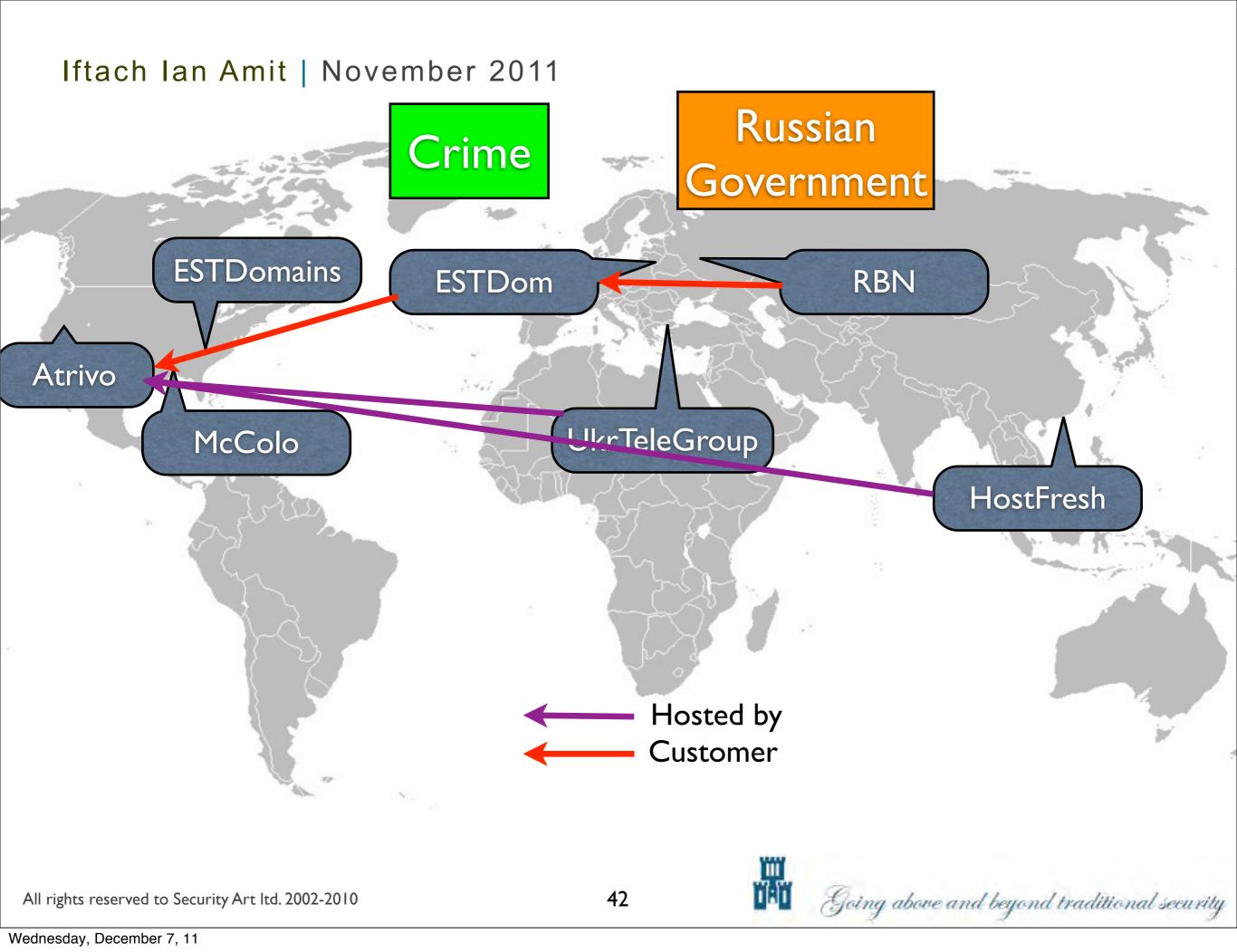
Russian Crime/State Dillema

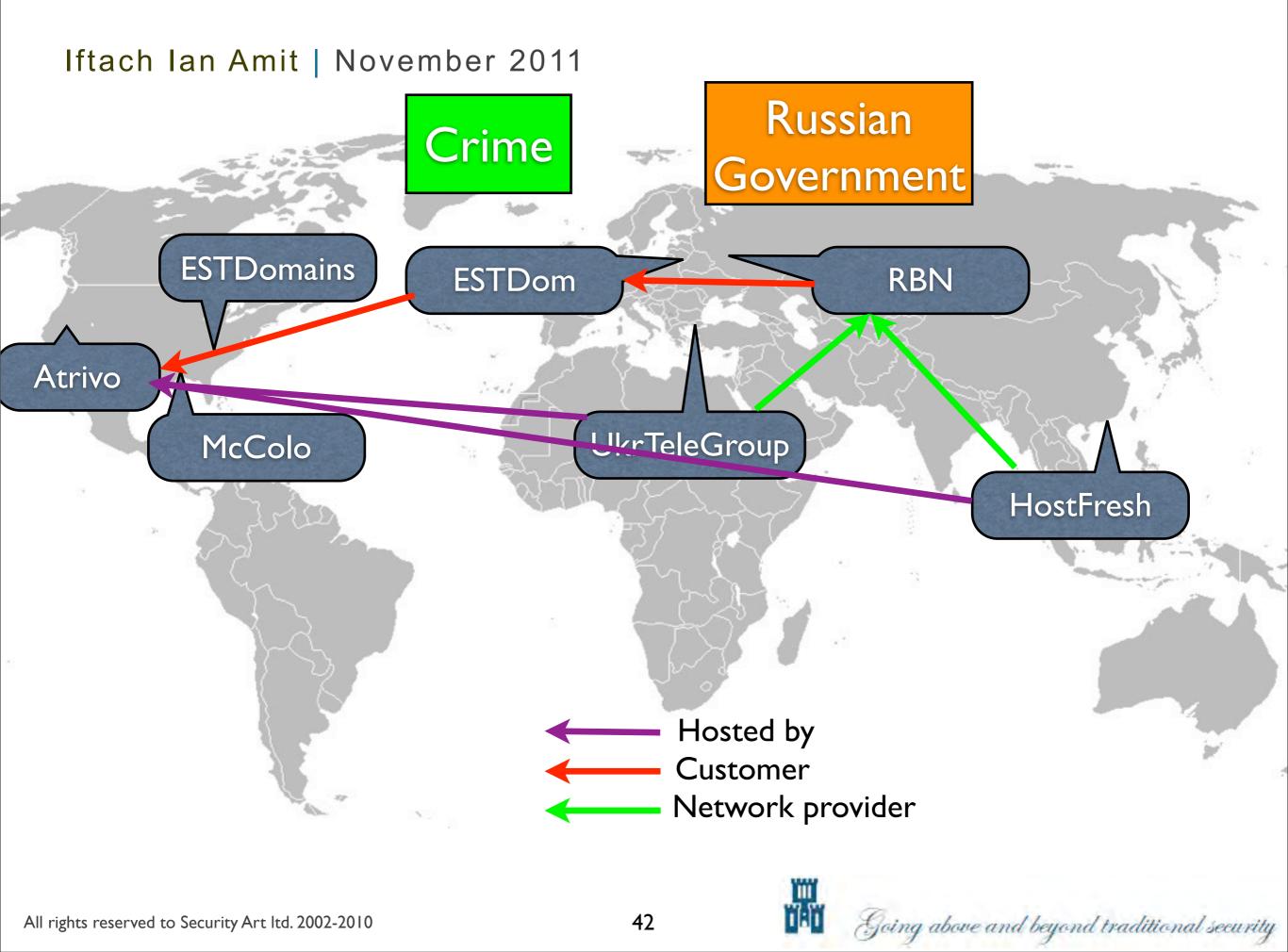


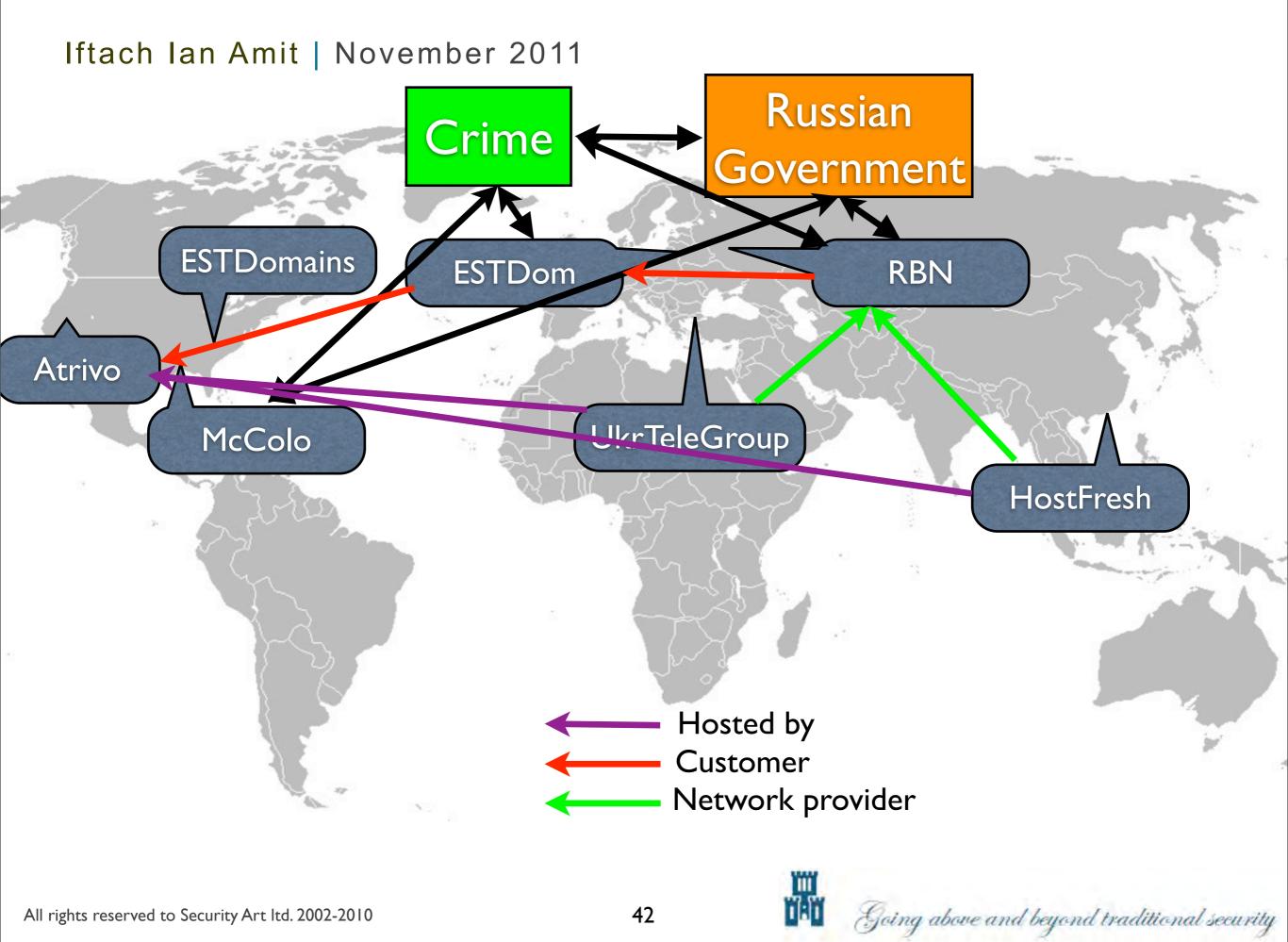












Remember Georgia?

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...



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

> www.parliament.ge www.parliament.ge apsny.ge news.ge tbilisiweb.info newsgeorgia.ru

os-inform.com www.kasparov.ru hacking.ge mk.ru newstula.info skandaly.ru



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 BUT - the same C&C's were also used for attacks on commercial sites in order to extort them (botnetfor-hire)

Additional sites attacked:

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

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



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BTW - Guess who were the owners of all the Georgian ISPs?(Russia)





• Final nail in the coffin:



- Final nail in the coffin:
- The city of Gori

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 - DDoS hits all municipal sites August 7th 2008 at 22:00



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 7th 2008 at 22:00
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History - Revisited...

Iran

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

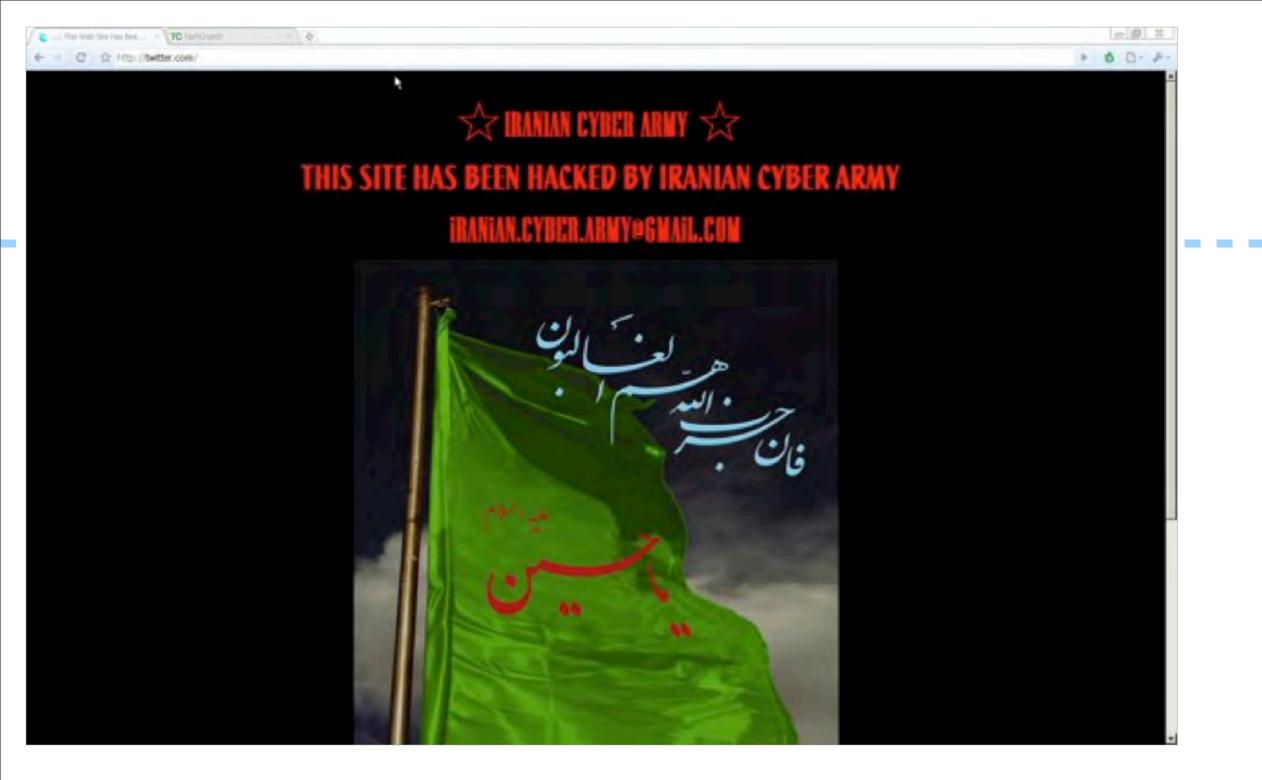
Political connections are too obvious to ignore (elections)

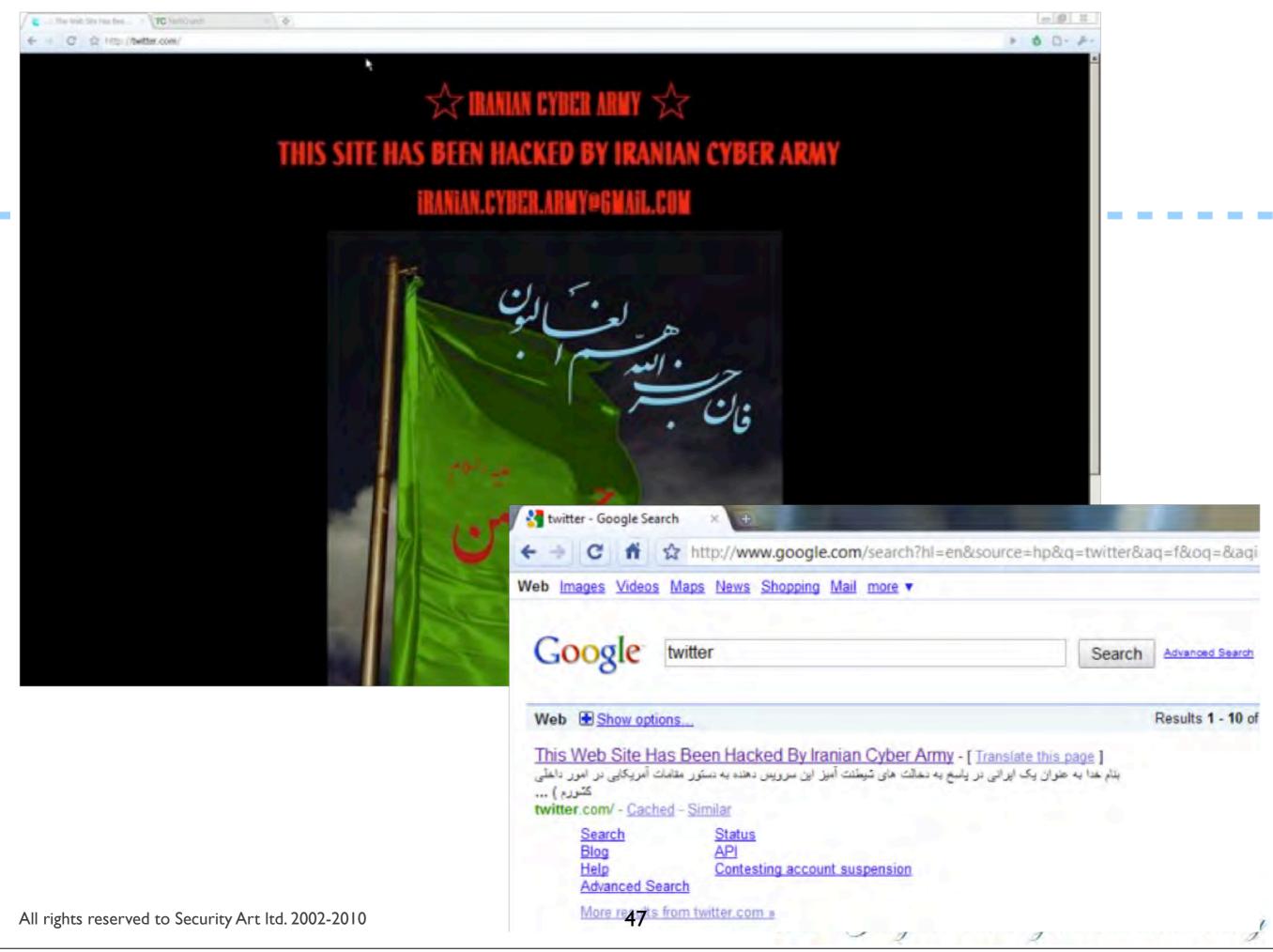
Timing was right on:

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"

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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

On [Crime | War] training

Ashiyane forums WarGames

Wargame target : http://www.chestergas.com/news.asp?id=13 ببینم کی می تونه نوشته تو جدول رو Edit کنه



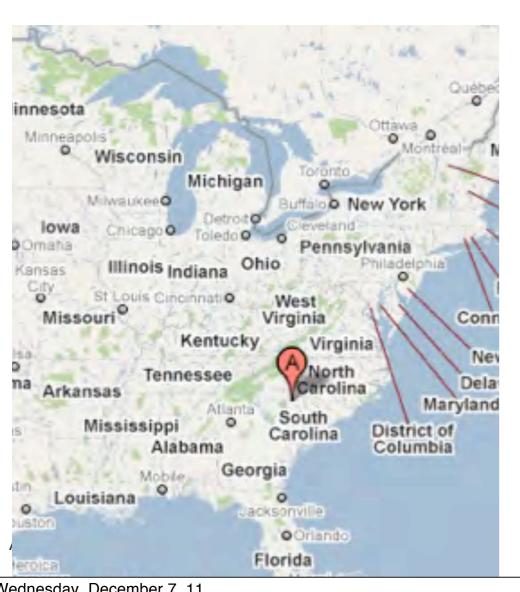
51

On [Crime War] training

Ashiyane forums WarGames



Wargames targets includes:





Back to [Crime | War] Links:

What else happened on the 18th?



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



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



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



Back to [Crime|War] Links:

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

Iranian Troops Occupy Oil Field in Iraq, Stoking Tension

Later on - Baidu takedown with the same MO (credentials)

Ashiyane

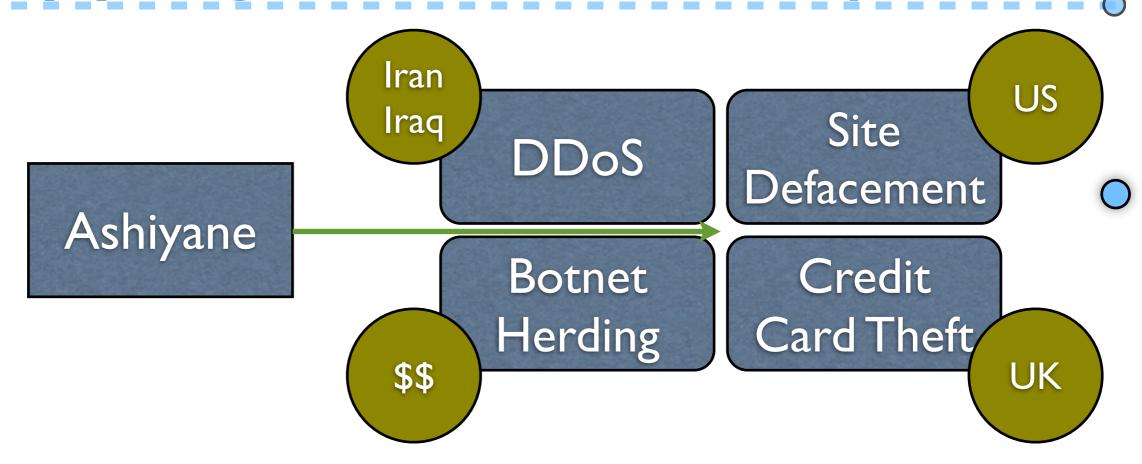


Ashiyane

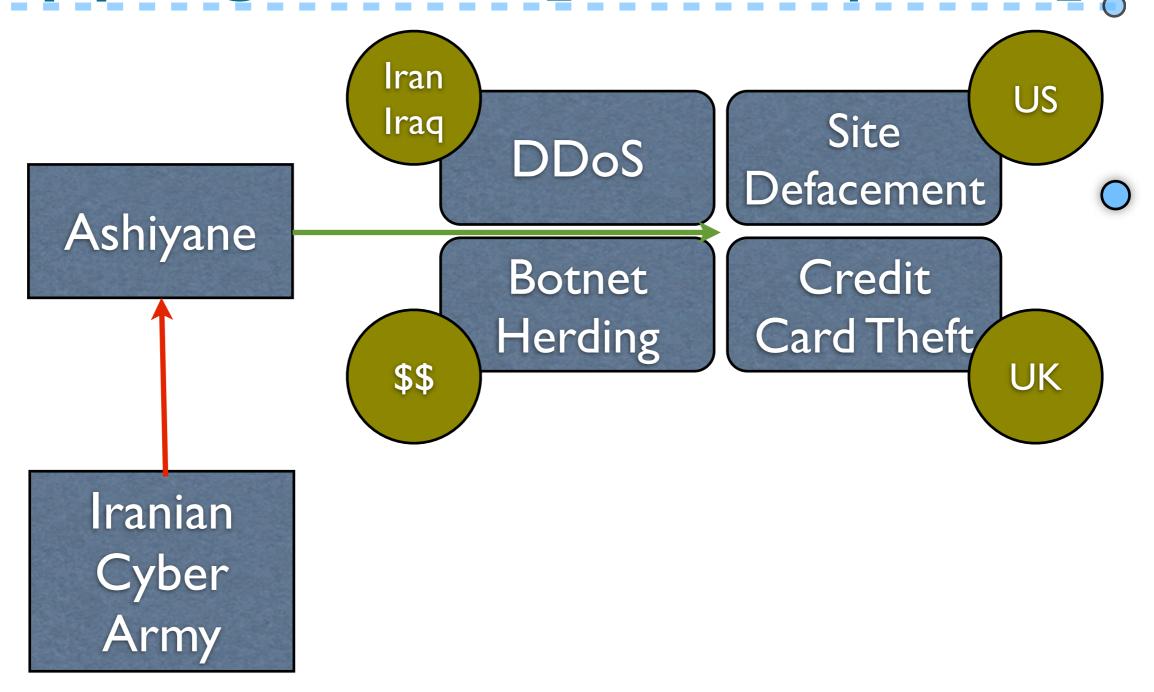
Botnet
Herding

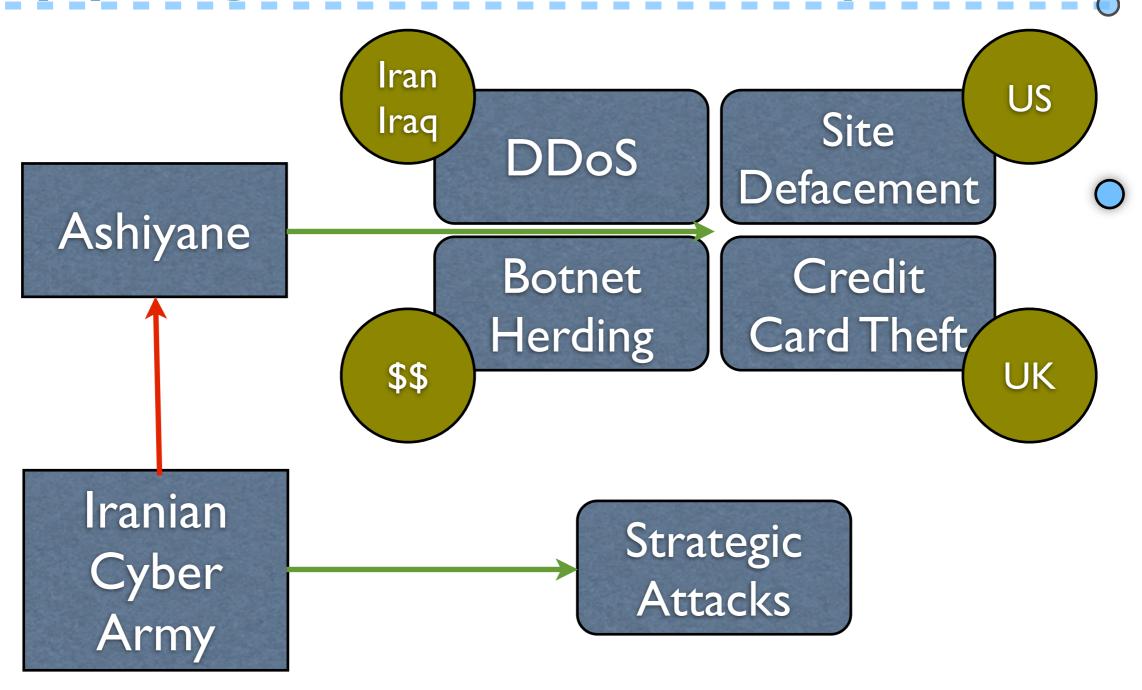
Site
Defacement

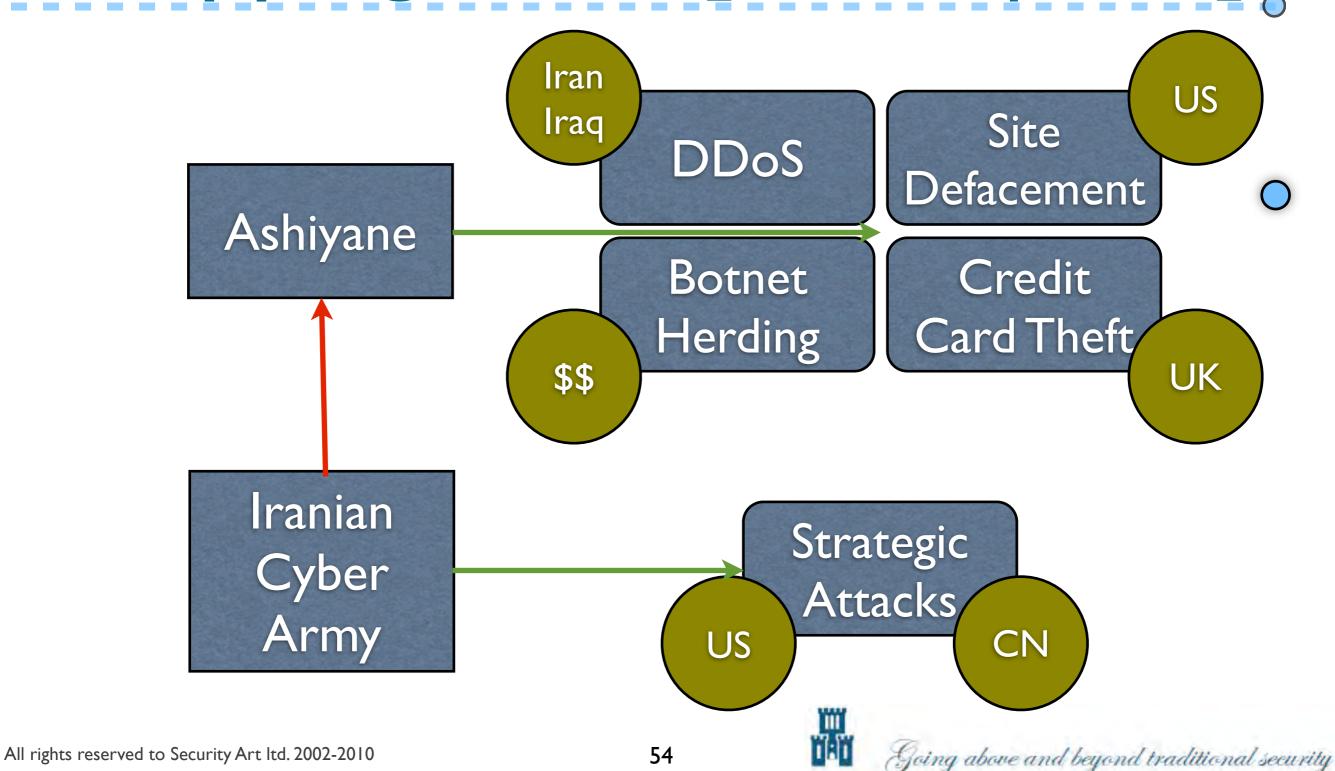
Credit
Card Theft





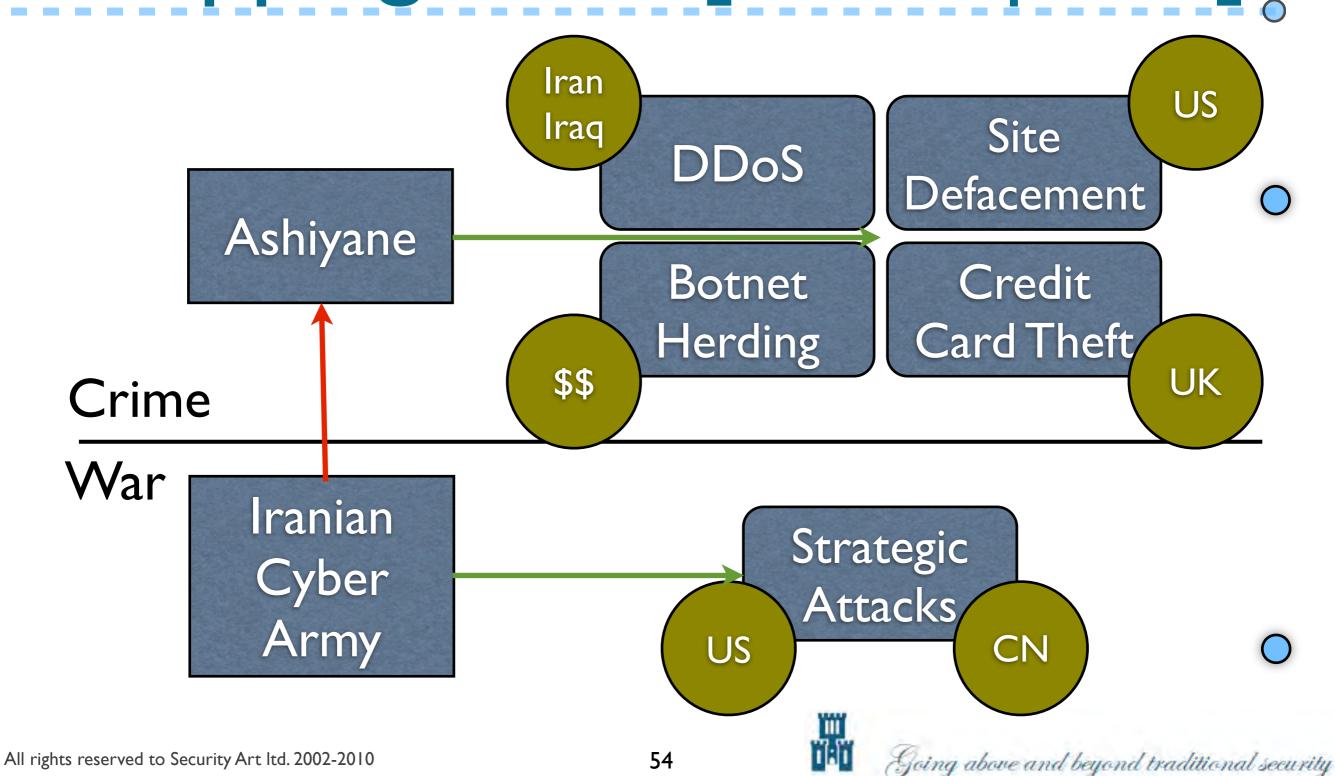




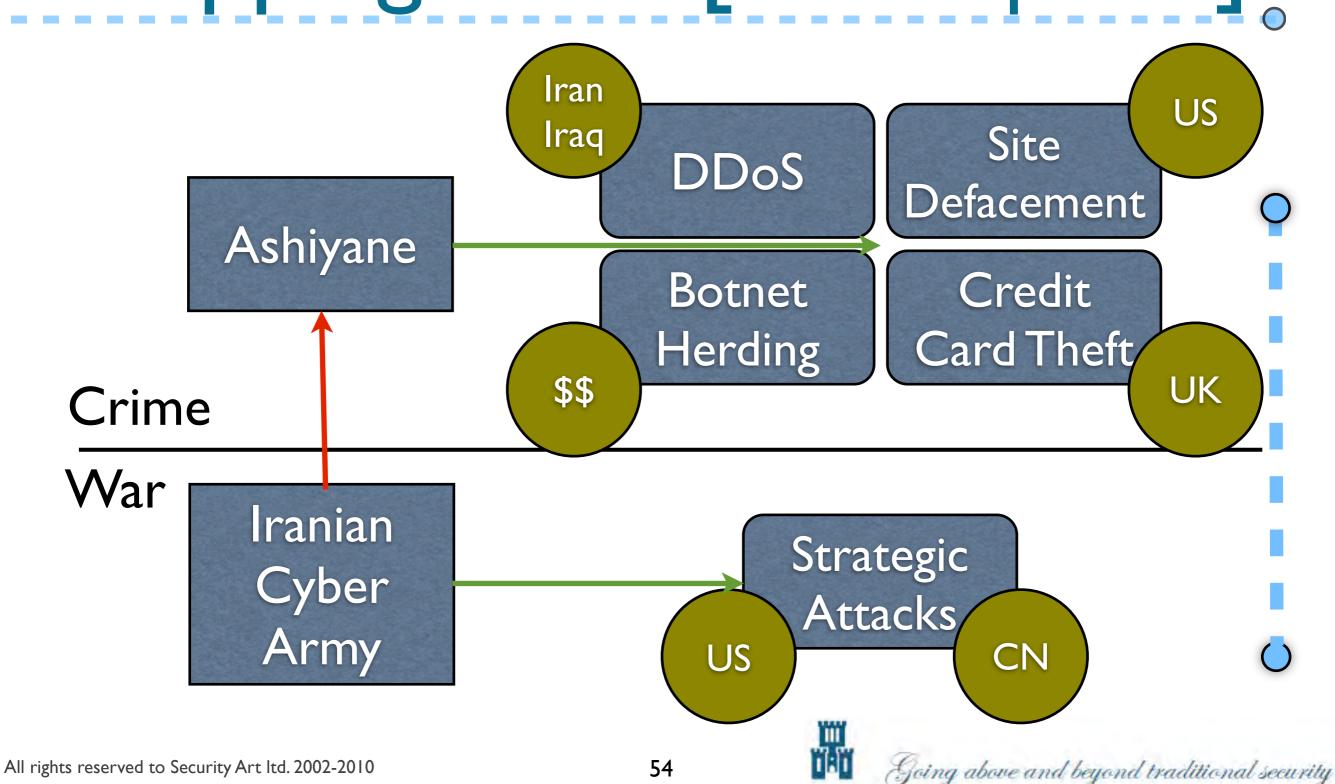


Wednesday, December 7, 11

Mapping Iran's [Crime|War]



Mapping Iran's [Crime|War]



Iran - the unspoken



Iran - the unspoken

Stuxnet



Iran - the unspoken

Stuxnet

• There, I've said it



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...)

Chinaconnecting 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.

lanuary 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

Chinaconnecting the dots...

Problem: Attacks all carry the signs of Cybercrime...

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)

Going above and beyond traditional security

Chinaconnecting the dots....



Chinaconnecting the dots....

The China move:



Chinaconnecting 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).



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China.

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Anecdote - a
professor in one of the
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admitted that the school network
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60

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Information sharing at its best:

STATE

Crime



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Win Win

Going above and beyond traditional security

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Who are they?

- Started from 4chan in 2003
- Formed a more hacktivist setup early 2008
- Originally focused against civil liberty violations and the Church of Scientology
- Maintain "anonymity"
 - Which now means problems...

Everyone is anonymous.

No way to know if they are truly from the "core" group.

Attack galore...









RE: #opFacebook I've been saying this for months: I don't know who created that operation but I highly doubt it will be fruitful.



Example of how the "brand" is abused:

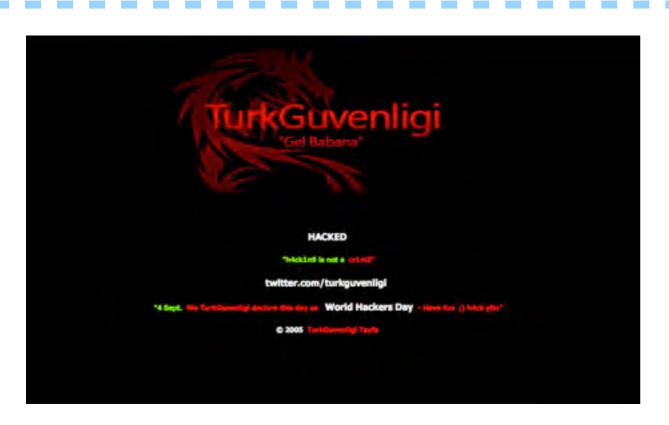
- An "OP" video uploaded on Nov 4th warning the Israeli government about an upcoming attack
- Gov. website DDoS'd on Nov 6th (minor traffic), caused rolling issues (HW+SW), sites unavailable for few hours.





A hacker group known to be used by the Turkish government for launching "political" actions.

Daily activities focus on petty crime and defacements...





Far from the original Anonymous manifesto, yet highly effective as a tool for launching attacks with minimal attribution trail!



















Summary

Good

Formal training on cybersecurity by nations

Bad

Commercial development of malware still reigns

Summary

Good

Formal training on cybersecurity by nations

Bad

Commercial development of malware still reigns

Ugly

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 MULTI-NATIONAL LEVEL IS CREATING DE-FACTO "SAFE HAVEN" FOR CYBERCRIME. <- FIX THIS!

TREATIES AND ANTI-CRIME ACTIVITIES MAY PROVE TO BE BENEFICIAL. <- TRANSLATE TO POLITICS/LAW!

Thanks! Q & A

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70

