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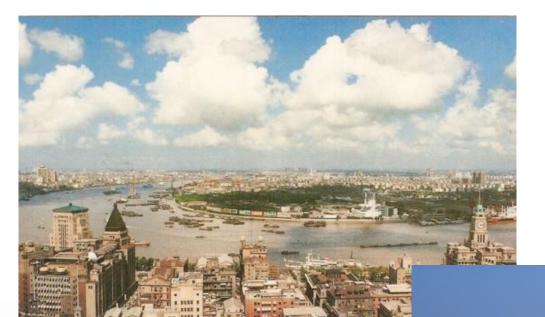
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An investigation into Chinese cybercrime

and the underground economy in comparison with the West





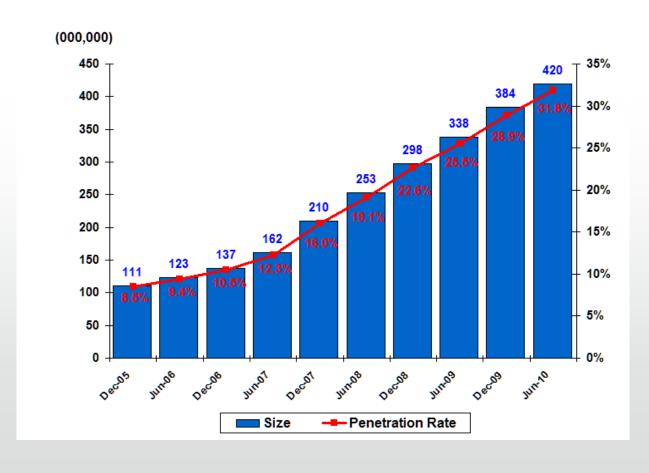




Internet in China



Chinese Internet Population Growth (June 2010)



China's Internet population is 420 million with only 31.6% penetration

UK's Internet population is 51 million but with 82.5% penetration



Social problems

- 94.9% of Chinese Internet users have monthly salary of 5000 RMB (£479) or below
- Huge inequality in income distribution (urban vs rural)
- Nationwide "admiration" for hacking:
 - Do you want to be a hacker? 86.72% Yes (9031 votes)
 - Should hackers use their skill to make profit? 53.82%
 Yes (7443 votes)
 - * The poll is placed on an article about how 18-20 year olds are making tens of thousands of RMB per month in the underground economy



Disgruntle IT industry

- In 2003 2009, between 86.4% 91% of IT employees are unhappy about their salary
- In 2009, IT had the lowest job retention rate
- Typical monthly salaries:
 - Web administration: 800-2000RMB (£75 £187)
 - Enterprise system admin: 2000–3500RMB (£187 £328)
 - Software developer (5 yr experience): 12000-15000RMB (£1,146 to £1433)

Source: Which level are you at? An investigation into the state of survival for the IT people, CNET News - http://www.cnetnews.com.cn/2010/0311/1659908.shtml



Cybercrime legislation in China

- The Criminal Law is the primary guideline for prosecution and sentencing (Articles 285-7)
- There are gaps and inadequacies e.g. max. punishment for invasion into <u>state systems</u> is < 3 years of imprisonment (Qi *et al.* 2009)
- From 2000 2009, 102 cybercrime offenders were reported in the People's Daily newspaper but only 13 were reported to have received official punishment. On the other hand, the U.S. has 65% prosecution rate. (Lu *et al.* 2010)



Booming underground economy?

- The net value of the Chinese underground economy is estimated to be reaching 10 billion RMB (US\$1.48 billion)
- Far larger than the estimated value of the Western underground economy US\$276million
- Malware on mobile devices also rising, reaching 1000 variants by the end of 2009
- The value of the mobile malware production chain is conservatively estimated to be around 1 billion RMB (US\$148 million)



Why study China?

- The threat of huge breeding ground of cybercriminals
- A potential safe haven with known issues in cooperation with Western law enforcement in tackling cybercrime
- The skill required to make profits in cybercrime is falling –
 presents an unprecedented opportunity for the poor
- Collapse of traditional boundaries anyone anywhere can be affected
- Political motivated hacking, "hacktivism" -> cyberwarfare?



Today's talk

The aim of this talk is to provide an open intelligence report on the state of cyber security in China.

- Hacktivism in China
- Current model(s) of cybercrime
- The Chinese underground economy in detail

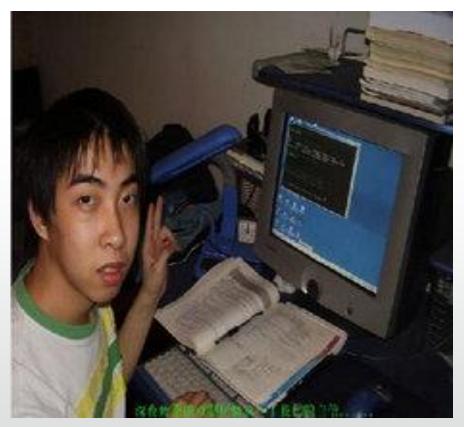
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Hacking and Hacktivism



"Goodwill" – founder of the Green Army





"Withered Rose" – his group HCPH rumoured to have written malware responsible for many espionage attacks



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Xiao Tian – attributed as the leader of a hacker group called "CN Girls Security Team"

百度一下

吧内搜索 | 帮助

◎进入i贴吧

◎贴子搜索



<u>百度贴吧</u> > <u>it吧</u> > 浏览贴子

切换到经典版



【中国女子安全小组正式成立】



想必爱好安全的女生如果逛过一些黑客论坛都会有深刻的体会,

安全界黑客站数不胜数,试问,直正能有100的容身之处有几家?

首先认识交流的群体都是男性,无法达到有效的沟通,其次安全界认为那些技术只有他们男生才 学的会才有资格学,

偶尔问一下他们问题,无不有鄙视的眼神,难道技术只是男生的专利?

· 天天 · 22位粉丝

Source: The Dark Visitor - http://www.thedarkvisitor.com

YesHack.com



Hacking

- Hacking is the essence of cybercrime
- Immensely popular in China
- Approximately 3.8 million registered users across just 19 forums
- Chinese government has begun cracking down on forums promoting malicious hacking in a bid to improve Web security
- Hacktivist groups have volunteered to help out with cleaning out malicious web pages



Chinese hacktivism

- The Chinese politically-motivated hacktivists first appeared in the mid-1990s when Internet first became publicly available in China
- They are a different kind of hacktivists in that they hack to defend the country, not against
- They have a strict code of conduct in not hacking within China
- Hacking is a way for them to voice their opinion on political matters thus not always destructive



Chinese nationalism + hacking

"Chinese nationalism is not just about celebrating the glories of Chinese civilization; it also commemorates China's weakness. This negative image comes out most directly in the discourse of China's Century of National Humiliation. Chinese books on the topic generally tell the tale of China going from being at the centre of the world to being the Sick Man of Asia after the Opium War (1840) only to rise again with the Communist Revolution (1949)...The discourse of national humiliation shows how China's insecurities are not just material, a matter of catching up to the West militarily and economically, but symbolic. Indeed, one of the goals of Chinese foreign policy has been to 'cleanse National Humiliation'."

Source: Callahan, W. (2004) National Insecurities: Humiliation, Salvation, and Chinese Nationalism



Famous groups (1)

- Green Army (绿色兵团):
 - The very first group of Chinese hacktivists
 - Attacked Indonesian websites in response to the Indonesian riots in 1997, which gained media attention and hero status
 - Disbanded in 2000 due to commercialisation into security consultancy (Nsfocus?)
 - May have regrouped on Isbase.net, a forum which uses the exact same name



Famous groups (2)

- Javaphile
 - Founded by a person known as Coolswallow
 - All members were students from Jiaotong University
 - Has a history of attacking foreign websites. The same university is rumoured to be behind the recent attacks on Google CN
 - Coolswallow is alleged to be an information security consultant for China's Public Security Bureau



Famous groups (2)





Peng Yinan a.k.a. "Coolswallow"



Famous groups (3)

- Honker Union of China (中国红客联盟):
 - One of the largest groups after the Green Army disbanded
 - Had around 80,000 members
 - Disbanded in 2004
 - Two groups are found to carry the same name:
 - Chinesehonker.org (honker.net)
 - Cnhonkerarmy.com

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Famous groups (3)





道,可道,非常道;名,可名,非常名。

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Famous groups (3)



Cnhonkerarmy.com



China VS Japan – Sept. 2010

• On 7th September 2010, a Chinese fishing boat was detained by Japan near the disputed Diaoyu Island

The Chinese government was outraged and so were the

honkers

A rally call for fellow honkers with list of targets, it is claimed to be a call from the founding members of the Honker Union of China.

鉴于2010年9月18日这个有纪念意义的日子

决定对日本各大扭曲抗战历史。拥护台独的站点进行大规模的反抗 计日本鬼子知道中国人不再沉没。中国在崛起

今天,面对日本的种种作为我们深感遗憾,作为炎黄子孙的我们,作为任何一个有骨气的中国人,我们都不应该再沉默了,我们要用我

今天,因对日本的种种作为我们体感觉感慨的,我们美国的我们不为任何一个有肯气的中国人。我们都不应该再加起了。我们要用我们自己的方式,给日本敲响一个响亮的警钟,中国人民不是软弱可欺的!

在此原中国红客联盟(http://www.honker.net)核心号召广大爱国青年,广大电脑爱好者,广大黑客技术人员,于9月18日对日本发动网络作战,主要以瘫痪日本各大干线路由器和各大政府及商业网站为主(到时候会发布目标及方式)!届时还会组织我们的安全技术小组对日本各大网站挂上我们的旗帜,瘫痪日本服务器,删除数据,给日本来一次沉重的打击

请愿意参加此次行动的朋友到 加群5209614 基础成员请在群共享熟悉武器并下载DF-5战术核导弹.exe 1.1MB ,DDOS强力 killertop版.EXE 28.5KB ,阿拉丁UDP攻击器V2.1.exe 1.3MB ,用此工具需时间统一才能发挥最大功力,核心入侵组成员将使用其他方法入侵!工具为内部专用!

去看我们的前期计划和准备.并加入我们的小组.和各战队备案! 长期攻击对象为,美 ,日 ,印尼,印度,越南,菲律宾。。 官方核心群27437332 邀请加入制

附:目标

http://www.kantei.go.jp首相官邸

http://www.jinji.admix.go.jp人事院

http://www.clb.admix.go.jp内阁法制

http://www.sorifu.go.jp总理府

http://www.jftc.admix.go.jp公正取引委员

http://www.npa.go.jp警察厅

http://www.kouchoi.go.jp公害等调整委员

http://www.kunaicho.go.jp宫内厅

http://www.somucho.go.jp总务厅





More on the rally call

- Amateur hackers were also invited
- Ready-made tools were distributed for use by amateurs
- Skilled hackers were responsible for other types of intrusions
- QQ groups were set up for sharing and discussion
- YY Team Voice channel was also used for collaboration



Chinesehonker.org (honker.net)

- The administrator of honker.net dismisses the rally call
- He described such attacks as futile and of low strategic value for the country
- Such attacks
 would bring
 unnecessary
 pressure on the
 country and an
 excuse for other
 nations to
 attack China





Cnhonkerarmy.com

- On the other hand, cnhonkerarmy.com announced on the 15th Sept. that they had launched attacks on Japan since 12th Sept. and had achieved success
- Cnhonkerarmy.com also suffered attacks from Japanese hackers in retaliation
- Attacks stopped after intervention from the Chinese government due to increasing pressure from foreign media
- No announcements of any arrests



Cnhonkerarmy.com



Message on defaced websites by cnhonkerarmy.com



Attribution to Chinese government

- No direct link to the Chinese government
- The hacking community is unlikely to be an official part of the Chinese military's plan on information warfare because:
 - Difficulty in command and control
 - Difficulty in maintaining secrecy and surprise
 - Difficulty in precision targeting
- Rather, the government prefers to recruit talents from the hacking community and universities (e.g. Coolswallow)

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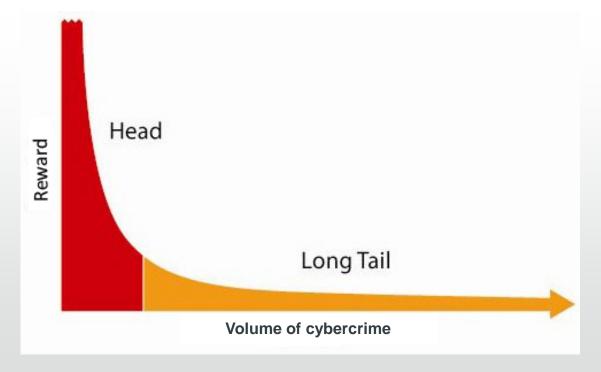
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Model(s) of cybercrime



Characteristics of cybercrime

- Well organised transnational underground markets with labour specialisation and healthy competition
- Targets the long tail of crime (higher volume, low in value)





Cybercrime in the West

- U.S. and Russian cybercriminals form the majority although there are people from all parts of the world including U.K. and Turkey
- Underground markets mainly exist on online forums but also on IRC channels
- Very well organised and sophisticated
- Hierarchical management preferred (communism?)
- Carding oriented the unauthorised use of third party credit card details for personal gain



Carding forum - Shadowcrew

FOR THOSE WHO WISH TO FLAY IN THE SHADONS Profile © Login to check your private messages Login				
The time now is Tue Sep 03, 2002 5:03 pm shadowcrew Forum Index View unanswered posts				
	Forum	Topics	Posts	Last Post
Discussion Forums				
	Identification Technical discussion on Novelty Identification, 2nd ID, Passports, and the like.	116	667	Tue Sep 03, 2002 4:50 pm <u>Deck</u> ◆■
	Cyberspace Discussion about online anonymity and tools to hide your online presence.	26	89	Tue Sep 03, 2002 4:59 pm <u>Deck</u> ◆■
	Credit Discussion concerning credit cards, credit bureaus, credit reports, and credit services.	9	40	Mon Sep 02, 2002 6:29 pm <u>Deck</u> + ■
	Qualification Discussion of Diplomas, Employment References, Job searches, Transcript, Etc	4		Tue Sep 03, 2002 5:42 am Onthefringe →B
	The Lounge Anything goes in this forum. Take your battles and personal matters into the lounge.	13	53	Tue Sep 03, 2002 4:39 pm <u>Deck</u> →B
Vendors and Reviews				
	Vendors/Reviews Find out what vendors offer and who delivers.	15	77	Tue Sep 03, 2002 3:33 am
	Scamming Bastards Tell everyone who ripped you off and maybe save the newbies a few dollars.	5	10	Sun Sep 01, 2002 9:40 pm beng +■
Archives				
	Tutorials and How-To's Learn from those who came before you.	57	75	Tue Sep 03, 2002 11:47 am Onthefringe →B
Forum BS				<i>ii.</i>
	Forum Discussion Suggestions, complaints, bitches, moans, whatever.	26	182	Sun Sep 01, 2002 10:16 pm <u>fusi0nX</u> →B
	Trashed Topics You don't want your thread to end up here!	2	2	Fri Aug 30, 2002 12:37 am <u>kidd</u> +B



Carding forum - Darkmarket



- Darkmarket founded in the U.K. by JiLSi (Renukanth Subramaniam)
- Around 2500 members
- Shutdown by FBI in 2008 after a lengthy undercover operation
- Resulted in over 60 arrests in a dozen countries including the U.K.



Cybercrime in the West

Hierarchical Administrators are responsible for the management of the forum and making long term strategic deicisions. They are also responsible for managing the forum members including rewards and structure of punishments when appropriate. Western Administrators Carding Moderators are responsible for the management of the sub-forums within a forum which either fall into their expertise/ **Forums** or geographical location. They specify the rules for posts as well as removing, inappropriate ones. The duty of the reviewers is to examine and/or test illicit merchandises as well as services for which members of the forum desire to become a vendor. Reviewers Reviewed vendors are those who have/ been referenced by reviewers and are deemed as trustworthy. Reviewed vendors Members

Typical management hierarchy in Western carding forums



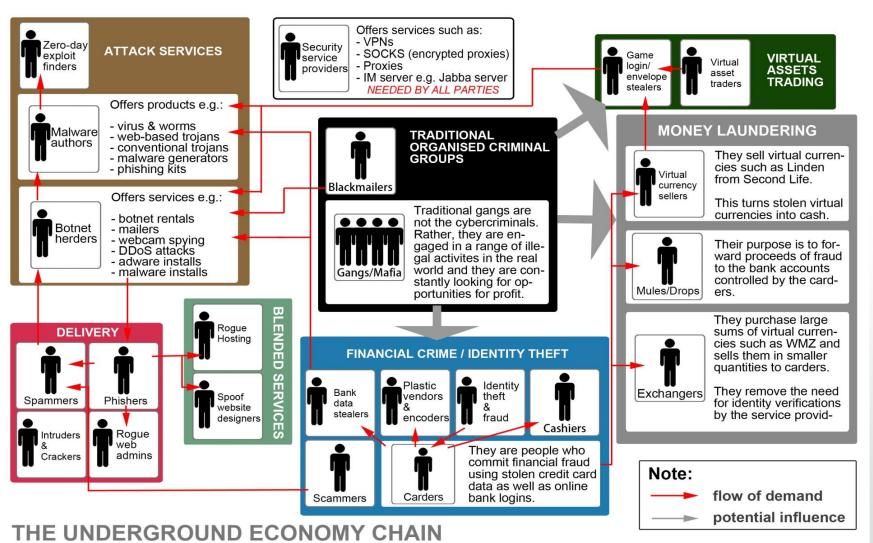
Cybercrime in the China

- Chinese cybercriminals prefer a more decentralised model with little or no central management (democracy?)
- Network of temporal relations rather than a hierarchical system of power delegation and fixed role assignments
- Trading via publicly available tools such as QQ and Baidu Tieba
- Theft of virtual assets more common than carding
 - In 2008, Zhuge et al estimated value of virtual asset trading solely on Taobao is worth approx. 223 million RMB (£20.8 million)



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A general model of cybercrime





Money laundering

 To add layers in the flow of money in order to obscure the true source of funding

• Money mules – people who receives and forwards the

proceeds of fraud

凡夫俗子(387781962) 02/09/2010 08:33:40

有在深圳做卡片的吗

砸锅卖铁上网(110770779) 02/09/2010 10:07:09

(1)本团队长期做欧美广告联盟,需用大量英国银行帐号代收,佣金为所收联盟款的 15%,6年中已有和英国的伦敦,曼彻斯特,爱丁堡等留学生和出国人员的成功合作案 例!欢迎有意向者合作赚钱.PS:底气不足者谢绝垂询!

(2)由于中国本土从2007年起无法注册网银NETELLER, 所以本团队需要收购一些NETELLER帐户, 欢迎有老NETELLER帐户或者在海外新注册并且认证的帐户来出售, 价格如下: 普通认证的帐户一律35英镑或者人民币350, 申请到NET+ card的帐户, 连同NET+ card, 价格为100英镑或者人民币1000.

垂询:唯一QQ:110770779 电话:+86013773914288 丁志荣 YM:simonbfv@yahoo.com (本人较忙,谢绝回答一些诸如:NETELLER未认证的要不要,NETELLER是什么网银等一些低级问题!)

An advert to recruit Chinese overseas students in the U.K. to act as money mules

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The Chinese underground economy



Baidu Tieba (1)



The "visa" bar most popular for carding.

Rippers are also published here.

Baidu Tieba (http://tieba.baidu.com) is a public message board hosted by Baidu.



Baidu Tieba (2)



Adverts are usually short in length.

QQ numbers are left for further negotiations.



and Computer Science

QQ IM and Group



Free.

Merge between social groups with IM.

Perfect tool for undergrou nd traders.



Forum



A Westernlike carding forum.

Launched in July but has only 59 registered members to date.



Others



Zombie machines "Flesh Chicken" are sold on Taobao, China's equivalent to eBay.

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Prices (1)

- Carding goods are similarly priced as those observed in the West
- Chinese tracks are more expensive than Western tracks

	Goods	Western Price (USD)	CN Price (USD) per unit
UK credit cards + cvv2		\$0.50 - \$12	Normal - \$3.7 - \$5 With 3D- \$22 - \$44
US cn	edit cards + cvv2	\$0.50 - \$12	Normal - \$1.7 - \$2
FR cre	edit cards + cvv2	\$0.50 - \$12	Normal - \$5.9
CN cr	edit cards + cvv2	\$0.50 - \$12	Normal – \$17
UK 101/201		N/A	Track 101: Classic = \$1.47 per track Gold = \$1.76 per track Platinum = \$2.06 per track
			Track 201: Classic = \$1.34 to 1.63 per track Gold = \$1.63 to \$2.08 per track Platinum = \$1.93 to \$2.53 per track U.S. Discover = \$15
US 10	01/201	N/A	Track 101: Classic = \$1.26 per track Gold = \$0.89 to \$1.71 per track Platinum = \$1.19 to \$1.937 per track
FR 101/201		N/A	Track 201: V/M = \$11.9 per track
Japan 101/201		N/A	Track 201: JCB = \$14.89 V/M = \$10.42
Dumps		\$4 - \$150	\$74.46
Banklogins		\$15 - \$850	Bank BOA Us: Balance \$7000 = \$300 Balance \$14000 = \$500
D)	Price (USD)	per unit	Balance \$18000 = \$800
	Target China banks (ICBC and BC):		Bank HSBC (US):

Goods	Western prices (USD)	Price (USD) per unit		
Trojans (木马)	\$15 - \$40	Target China banks (ICBC and BC):		
		\$22.33		
Anti-security(木马免杀)	N/A	Guaranteed effective:		
		For 10 days = \$14.89		
		For one month = \$29.78 to \$44.67		
Trojan generator	N/A	\$4.46-\$298		

Dankridde	(US):	
Balance \$120	00 = 400	
Balance \$28	000 = 1000	
Bank HSBC	(UK):	
Balance GBP	8000 = \$300	
Balance GBP	17000 = \$700	



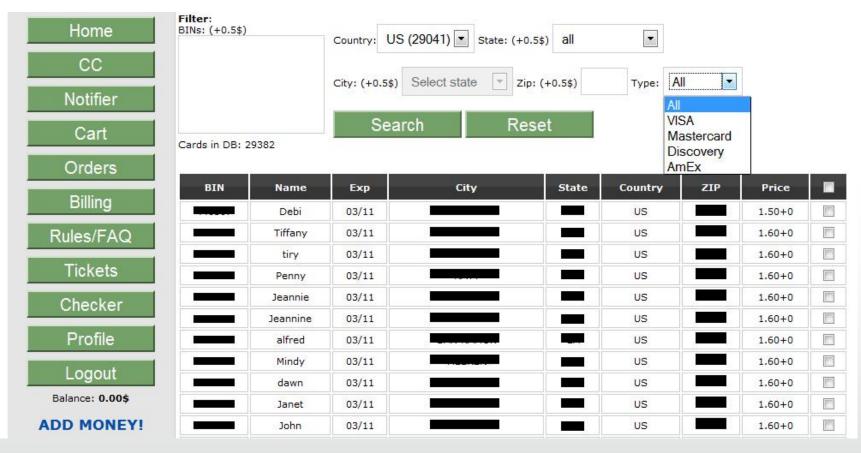
Prices (2)

Services	Western Price (USD)	CN Price (USD) per unit
Zombie sales	A botnet can be sold for	\$0.11 – \$0.22 per zombie
	\$550 including hosting	\$15 for 1000 household zombies
		\$15 for 1500 traffic
		zombies/Internet caf ézombies
		\$15 for 500-700 zombies with
		webcam control
DDoS attacks (DDoS 攻击)	\$60 - \$80 per day	\$89 to\$298 (24 hour attack)
Money laundering/Mule	N/A	50:50 split
service/Cashier		
Hacking training/tutorial	N/A	\$22 to \$149 (per student)
IP address	N/A	10,000 IPs = \$18

- Zombie machines are sold/rented individually as well as in batch. Pricing also differs by location as well as webcam control.
- DDoS attacks more expensive than in the West



Prices (3)



Track stores such as ltdcc.com eliminates language barriers between Chinese and Western carders.

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Conclusion



Conclusion

- Hacking in China is immensely popular and hacktivists are perceived as national heroes
- Chinese government clearly shows leniency towards the hacktivists
- Cybercrime in China is flourishing rapidly, with victims being those in the West
- Chinese cybercriminals do trade with those in the West
- Baidu and QQ are main facilitators of cybercrime in China



Useful literatures

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Zhuge, J. et al. (2007) Characterizing the IRC-based Botnet Phenomenon. IN: *Peking University & University of Mannheim Technical Report*. Available from: http://www.honeynet.org.cn/downloads/publication/TR IRC Botnet.pdf.

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Thank you!