FORTINET™

REAL TIME NETWORK PROTECTION

Dirty Money on the Wires: The Business Models of Cyber Criminals

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Presentation Objectives

- Identify different **Cyber Criminals profiles**
- Understand their **business models**, based quantified **examples**
- Recognize **the channels** through which cyber crime money is flowing
- Raise public awareness and industry anticipation on **mobile threats** based criminal business models

Agenda

- Cybercrime zoology
- Cyber criminals profiles
- The Marketplace
- The Currency
- The Business Models: schemes and numbers

Introduction

- Reported offenses are the tip of the iceberg
- FBI reported **$67 billion** in damages last year (US)
- NHTCU reported **£2.45 billion** (UK)
- Credit card fraud alone costs **$400 million** per year

Introduction (II)

- Famous quote from Valerie McNiven, US Treasury advisor on cybercrime:

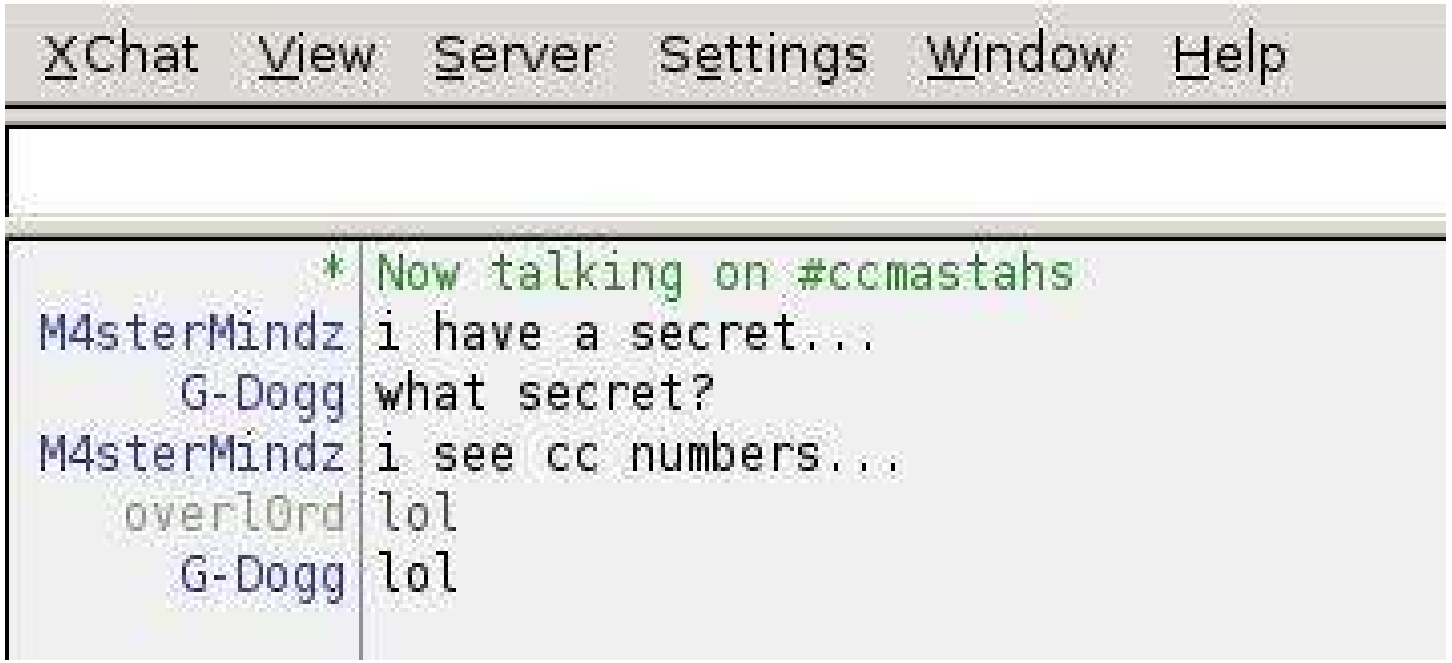
  "Last year was the first year that proceeds from cybercrime were greater than proceeds from the sales of illegal drugs, and that was, I believe, over $105 billion" [1]

[1] Reuters, 2005

Cybercrime Zoology

- Spamming
- Carding
- Phishing
- Herding
- Industrial Spying

Carding with your 6th Sense



Cybercrime Zoology

- Spamming
- Carding
- Phishing
- Herding
- Industrial Spying

Typical Phishing e-mail

From: Barclays Bank Security Department <online@barclays.co.uk>
To: [redacted]
Subject: Online Banking Safety Alert From Barclays Bank PLC
Date: Fri, 16 Jun 2006 20:05:07 +0200

BARCLAYS

Dear Customer,

Our comprehensive fraud-prevention program is one of the key reasons Barclays online services is a safe way to bank online.We believe that innovation and careful analysis is the way to beat fraud.
That's why Barclays bank has developed industry-leading models to review every transaction—and help detect suspicious activity.

WHAT TO DO NOW

Follow the below refrence to update your Barclays Online Banking

details:-

https://Update.barclays.co.uk/olb/q/LoginMember.do

Cybercrime Zoology

- Spamming
- Carding
- Phishing
- Botnet Herding
- Industrial Spying

Cyber criminals profiles

- **Coders**
  the skilled
- **Kids**
  the workforce
- **Mob**
  the puppet masters?
- **Drops**
  the mules

Coders – *the skilled*

- Aged between 20 and 25 years old
- 5+ years of experience in the hacking community
- Young self-made programmers or pro coders
- **Sell** ready-to-use tools or services to the **Kids**
- Fees are in the hundreds of USD
- Limited risks (disclaimers, etc...)
- Scam artists fall in that category

Kids – *the workforce*

- Aged from 13 to 20
- Hang around IRC carding channels
- Buy and re-sell basic bricks needed for scams
- 2 digits monthly income
- Rip offs are very common
- A few percentage of actual “doers”

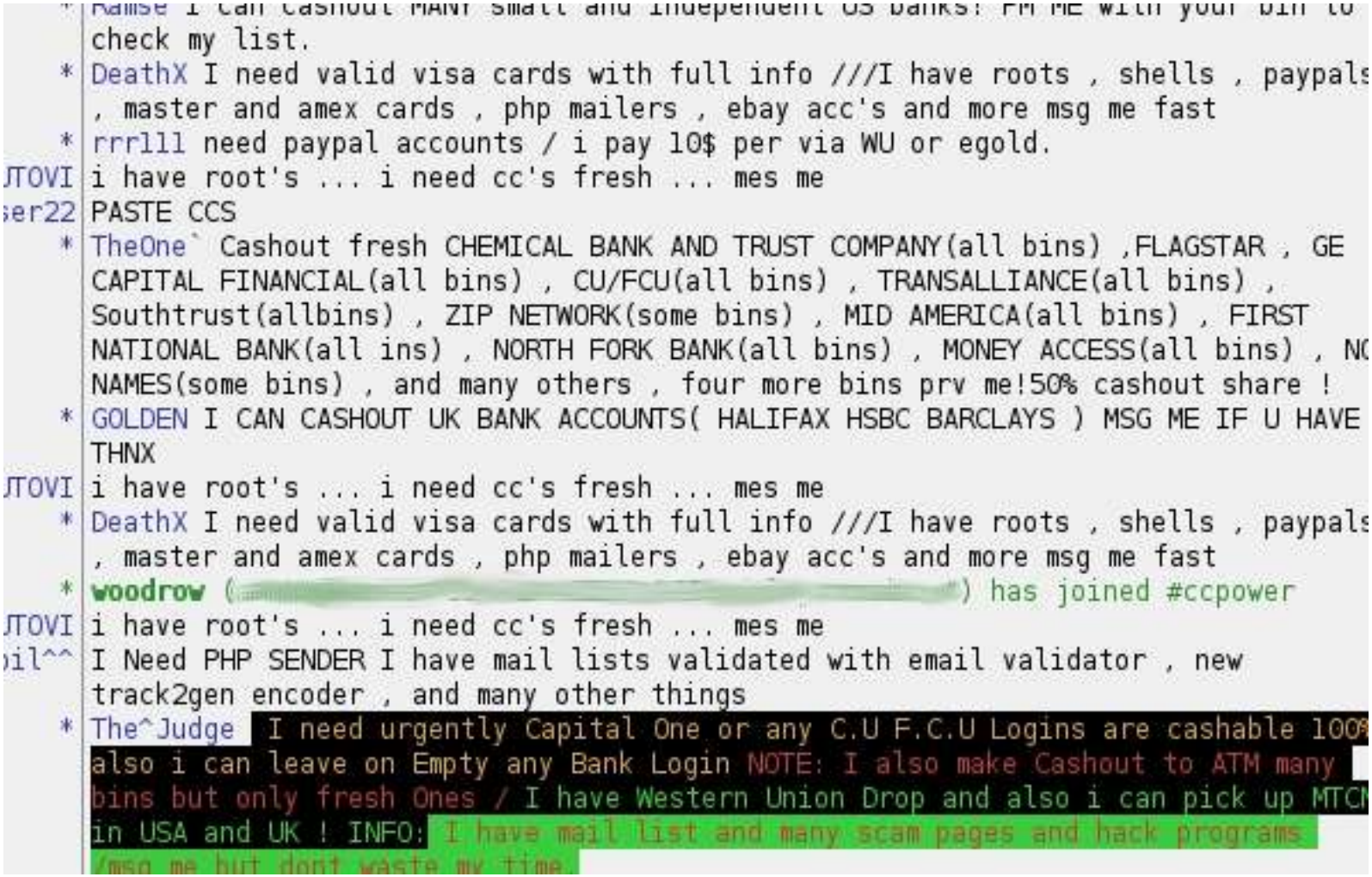
Mob – *the puppet masters?*

- Bringing in-depth inputs about the real mafia raises issues
- Staying in the strict boundaries of the law
- Bigger investigation means
- Years-long infiltration commitment, possibly on the field
- One of the undeniable cybercrime back-ends

Drops – *the mules*

- Older than **Kids**
- Turn **virtual** money into **real cash**
- Transfers are done to their **legal bank account**
- Keep **50%** and **wire back** the rest of the cash
- Importance of **Webs of Trust**
- Live in countries with “no digital laws”

The Marketplace: IRC



The Currencies

- e-gold
  - Anonymity
  - Irreversibility
  - Independence
- Wired cash
  - Irreversible
  - Crosses borders instantly
  - Fairly anonymous

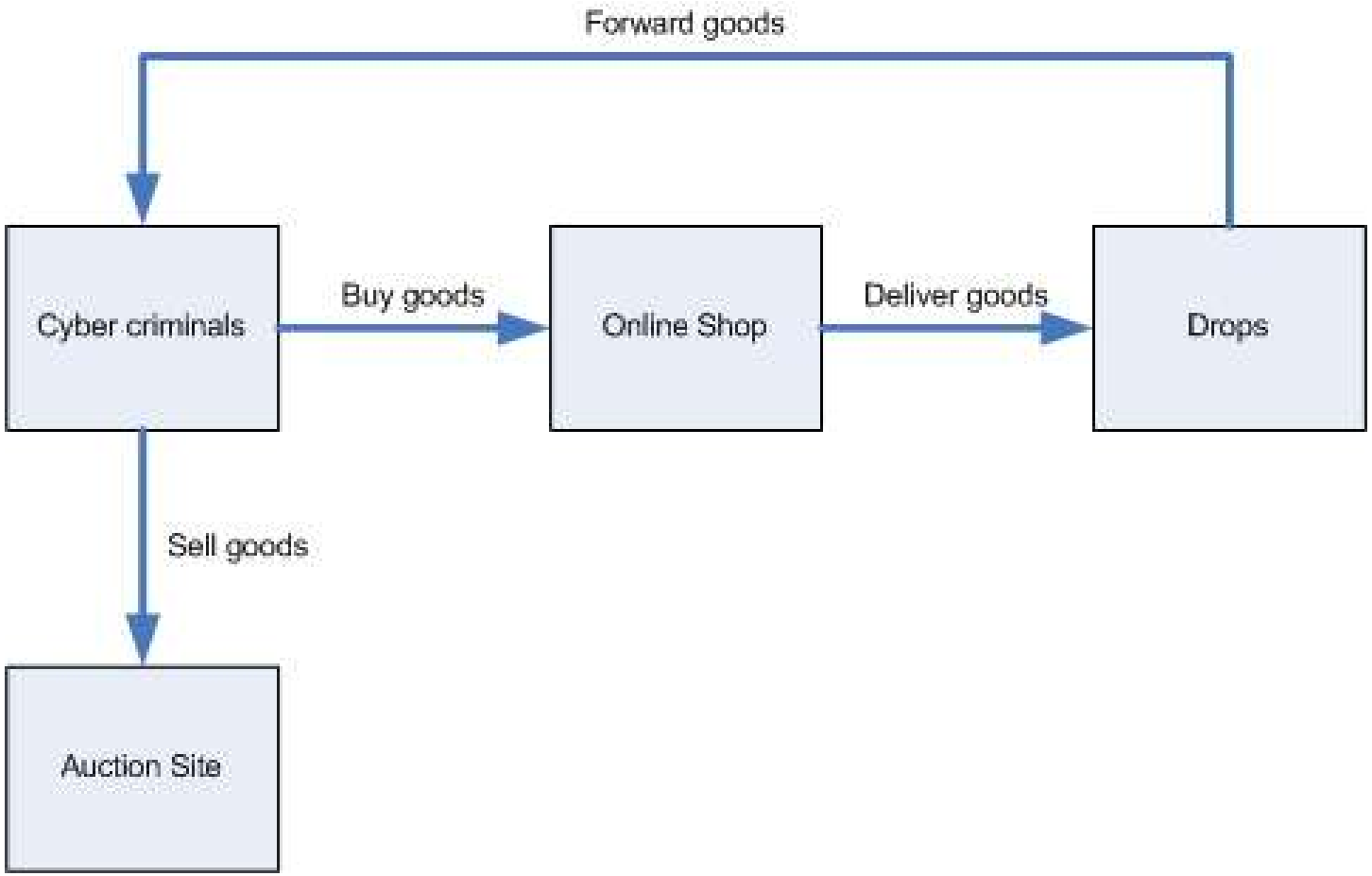
Carding Business Model

- A “CC Full” costs $2 to $5 (payable by e-gold)
- Around 80% of CCs traded on IRC are not valid
  ⇒Importance of Webs of Trust
- CCs are bought by packs
  ⇒Resembles a drug deal

Carding Business Model: The Hidden Truth

G-Dogg	That's a joke dude. What can u do anyways with stolen cc?
sk4tan	buy stuff.

Carding Business Model: Scheme



Carding Business Model: By the Numbers

- Costs
  - Buying 40 valid CC info: **$200**
  - Bribing 10 drops to forward one package per week: **$800**
  - Drops to cyber criminal packages delivery costs: **$800**
- Profits
  - Selling the goods on eBay: **$16,000 (**$400 per package)

- Total Cost, monthly: **$1,800**
- Total Profit, monthly: **$16,000**
- Net Gains, monthly: **$14,200**
- Productivity index (Profits/Costs): **8.9**

Adware Planting Business Model

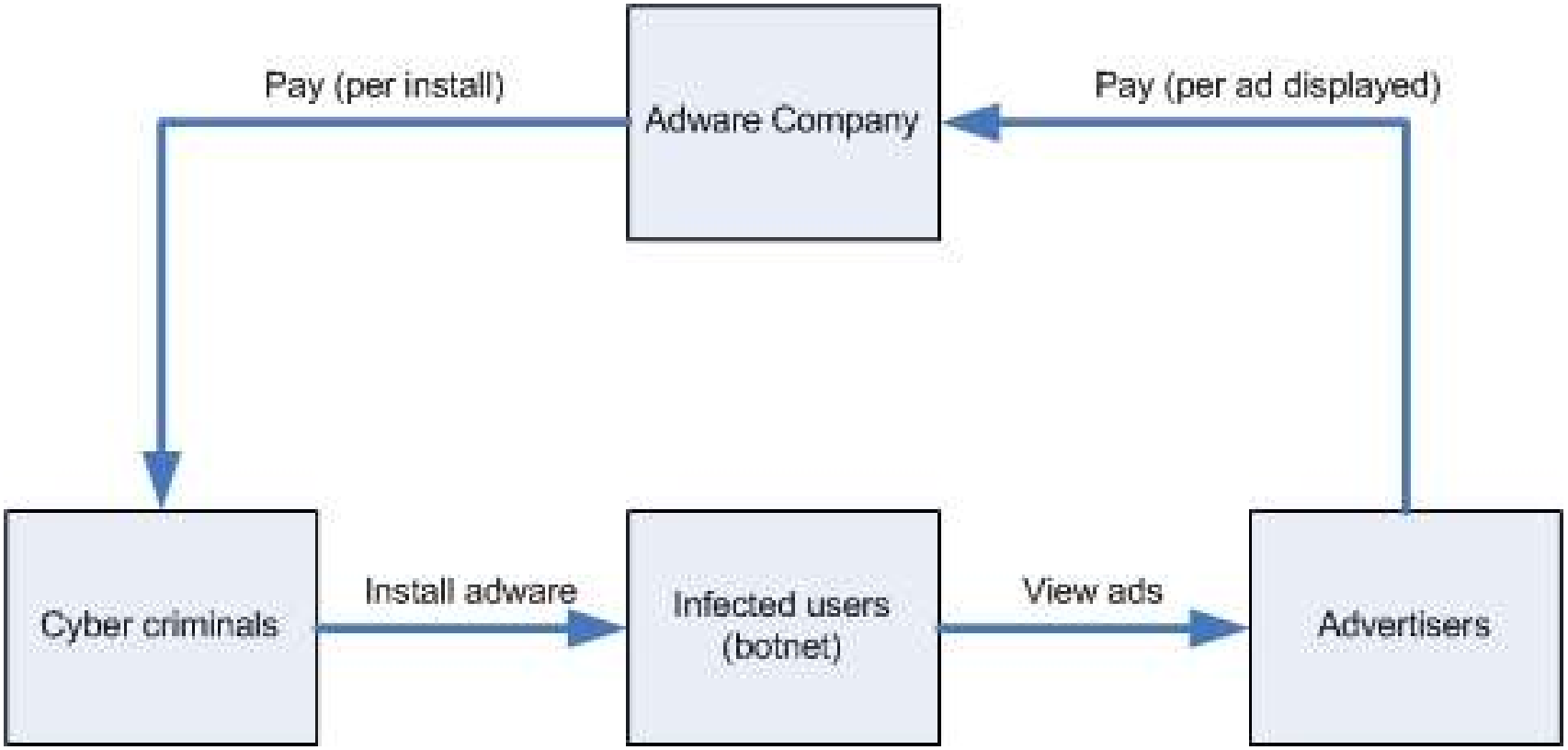
- Tightly linked to Spyware/Adware companies BM:

  Adware company ‘A’ edits a software that displays ads

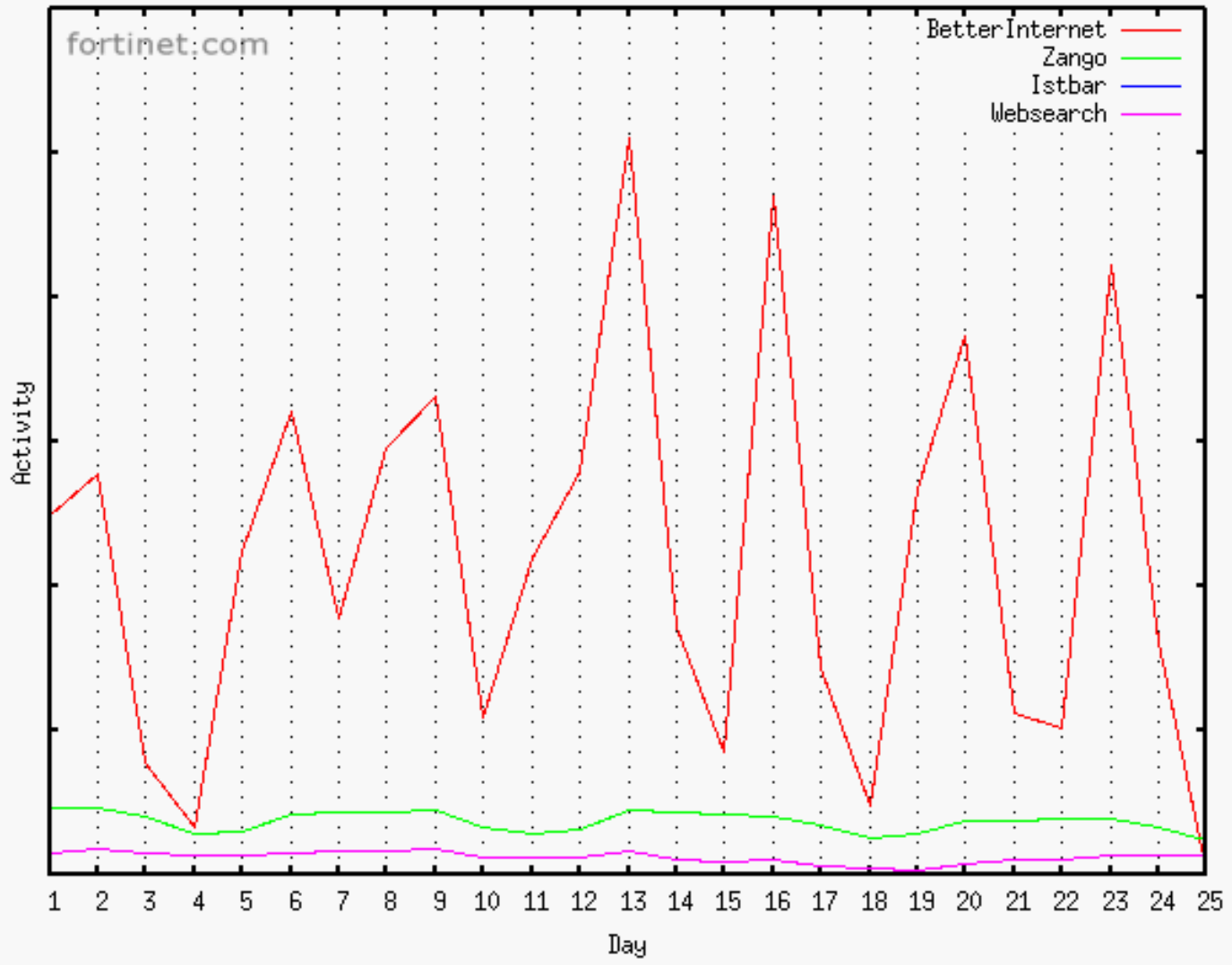
  Advertisers pay company ‘A’ to get their ads displayed

  Company ‘A’ pays its partners/affiliates for each install of the Spyware/Adware on end-users computers

Adware/Spyware planting Business Model: scheme



Adware/Spyware planting Business Model: Stats



Adware/Spyware planting Business Model: By the Numbers

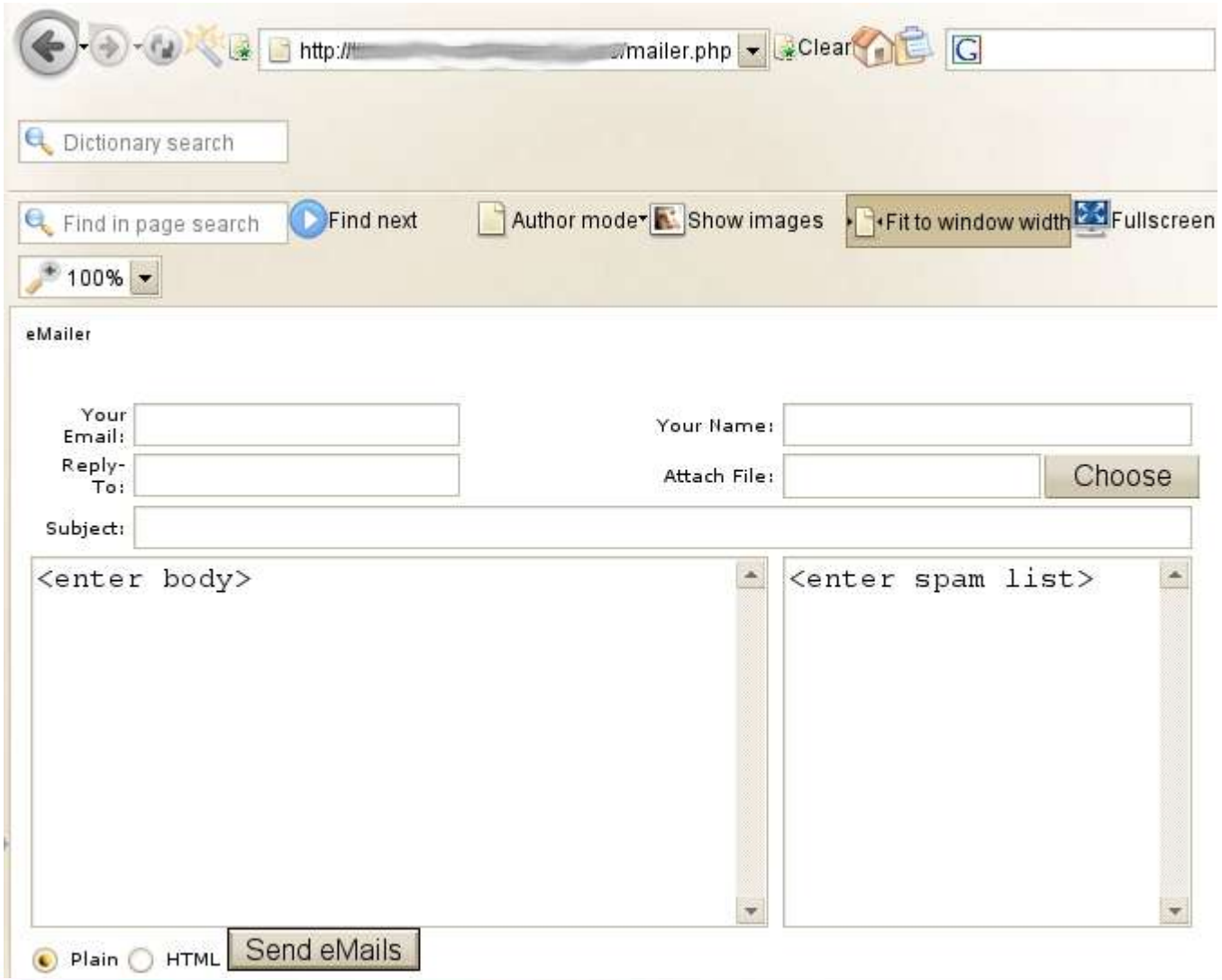
- The costs involved mainly sum up to building a botnet:
  - "Root" to host the Command & Control channel: **$15**
  - Stolen CC to register the domain name of the C&C: **$2**
  - Bot source: **$2**
  - Making it go through main AV for 1 or 2 days: **$100**
  - Fresh spam list (i.e. list of active e-mail addresses): **$8**
  - A fistful of mailers to spam out 100K mails for 6 hours: **$30**

- *Total Cost*: **$157** (once)
- *Total Profit*: 0.4 x 5000 x 8 = **$16,000** (monthly)
- *Gain*: **$15,843** (first month)
- *Productivity index (Profits/Costs)*: **102** (first month)

Phishing Business Model: Phase 1, the Phishing Operation

- *Costs covering the actual Phishing operation:*
  - Phishing Kit: Scam letter + scam page: **$5**
  - Fresh spam list: **$8**
  - A fistful of php-mailers to spam out 100K emails for 6 hours: **$30**
  - Hacked site for hosting scam page for a couple of days: **$10**
  - Valid cc to register domain name: **$10**
- *Total costs for the phishing operation*: **$63**

Phishing Business Model: php-mailer



Phishing Business Model: Direct 2 Inbox

virus_peete	is this phpmailer direct to inbox?
G-Dogg	whut u mean direct to inbox?
virus_peete	i mean does it send emails direct to target inbox
G-Dogg	where else is it supposed to send emails to? Detroit?
*	virus_peete has quit (Quit: Leaving)

Phishing Business Model: Big Phish

Phishing Business Model: Selling the Stolen Credentials

- *Total Cost*: **$63**
- *Total Profit*: **$200 - $2,000**
- *Gain*: **$137 - $1,937**
- *Productivity index (Profits/Costs)*: **3.17 - 31.7**

Phishing Business Model: Cashing the money via drops

- Assuming:
  - typical drops charging 50%
  - a "rip-off rate" of 0.5
  - total stolen balance from $10,000 to $100,000

- *Total Cost*: **$63**
- *Total Profit*: **$2,500 - $25,000**
- *Productivity index (Profits/Costs):* **40 - 400**

Phishing Business Model: Cashing the money via offshore accounts

- Breaks down to 3 steps involving 2 layers of anonymity:
  - Buying e-gold with the stolen account
  - Loading debit cards issued by offshore companies
  - Withdrawing cash
- *Total Cost*: **$9,863**
- *Total Profit:* **$100,000**
- *Gain*: **$90,137**
- *Productivity index (Profits/Costs):* **10**

A word on the Mafia

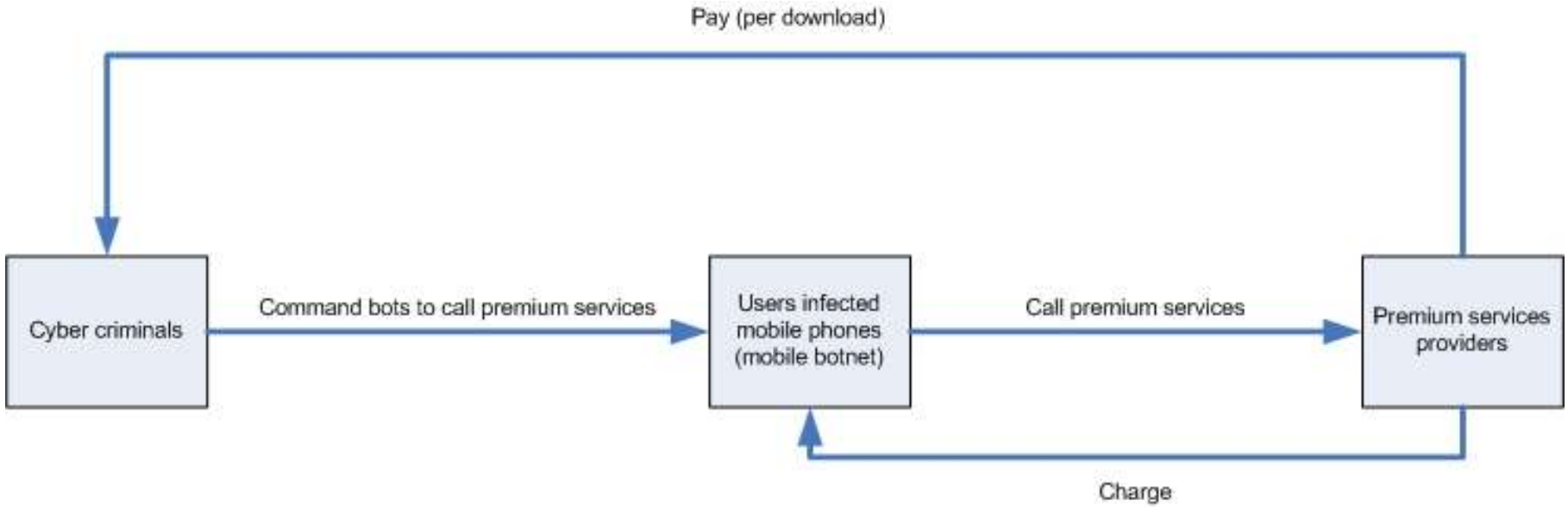
- Stolen credentials buyers?
- Have their own, safe, local drops
- Productivity becomes outstanding (**400**+)
- Comparison with heroin business:
  - 10 kg of opium costs **$100 - $1000**
  - Produces 850 gr of pure heroin
  - Each individual dose of 0.085 grams is sold **$100**

  => Productivity Index: $1 M / $1000 = **1000**

Future Threats: Mobile Phones abuse or The Return of Dialers

- Dialers date back from old analogic modem days
- Back then, botnets were not popular, and above all, not meant to generate money
- Today, smartphones make the dangerous encounter Dialers / Botnets possible

Mobile Phones Dialers Business Model: Scheme



Mobile Phones Dialers Business Model: Possible Scenario by the Numbers

- A botnet herder controls a botnet featuring 5,000 zombies, all running on infected mobile phones
- Advertise his botnet on IRC
- The owner of an offshore ringtones compagny offers **$500** e-gold to have each bot download 10 ringtones from his company
- Assuming each ringtone costs $2, this almost instantly generates a raw income of 5,000 x 2 x 10 = **$100,000** (P.I. = 200)

Conclusion

- Profit and productivity yielded by cyber criminal activities sometimes surpass those of illegal drugs business
- Is combating this possible? (I.e. will “good prevail over evil”?)
- Main point of failure: The lack of congruency among laws relative to digital acts in the world, and questionable law enforcement cooperation
- One axis to combat phishing: user education

Add-on: what Fortinet does against Phishing?

- Fortinet Fortigates: 3 layers of protection

  Antispam engine

  Antivirus engine

  Webfiltering service

Questions?

(No, I do not drive a Mercedes 600SL)