Cybercrime :
a basis for cyberwar ?

"Cyberthreats – Cyberwar – Cyberdefence :
Pearl Harbor or a Death of thousand cuts ?"

Brussels, 19 November 2012

Presentation

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Police Federal Judicial Police

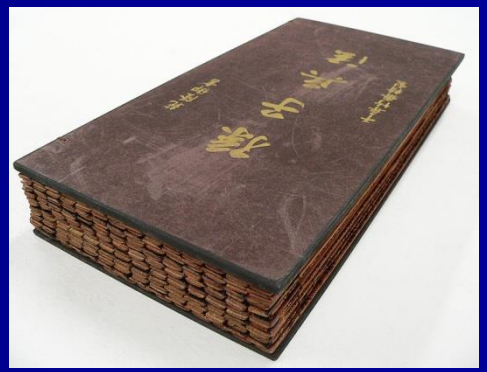
EUCTF European Union Cybercrime Taskforce

Chairman of the EU Cybercrime task force representing the organization of heads of national hightech crime units of the EU

FCCU

War ?

- Vom Krieg - Carl **Von Clausewitz** 19th C
  - War is the continuation of *Politik* by other means => Imposing your will to opponent
- Antoine-Henri **Jomini** => Occupy his territory
- Art of War - **Sun Tzu** (500 BC)
  - Find weak points
  - Be first to occupy terrain
  - Use deception & keep secrecy
  - Use spies



Goal of my presentation

- General trends in our society
- Analysis of "ordinary" cybercrime
  - Tools and techniques / infrastructure
- Can these be the "other means" ?
- Do they allow to engage in war according Sun Tzu's art of war ?

General trends today

- Evolution towards **e-society**
  - replace persons by e-applications
  - Interconnecting all systems (admin, industrial, control)
  - Mobile systems – Cloud
  - Social networks => new
- **IP** is **common platform** offered by **many ISPs** integrating telephony / data / VPN & all new apps =opportunities / Achilles tendon / scattered traces
- **Poor security** in **legacy** applications and protocols (userid+pw)=> identity fraud is easy
- **Enduser** is not yet educated to act properly

First conclusions ?

- Society is thus very **heavily depending** on ICT
- ICT = **important vulnerability** of modern society
- **End user** = weakest link => biggest danger
- Need to
  - Guarantee continuity of ICT functioning
  - Availability and integrity of data
- Data is more and more **in the cloud**
  - Accessible from all over the world
  - **Outside jurisdiction** of your country

Cybercrime today

What do criminals want ?

- *Become **rich / powerfull** rapidly, easily, very big ROI in an illegal way if needed*

- ***Destabilaze (e-)society** by causing troubles*

Cybercrime against citizens

- Creation of **false internet profiles**
- **Hacking** / abuse of internet accounts
- **Payment card** fraud (credit/debit/fuel)
  - Shouldersurfing / skimming / hacking DB
- **eBanking** fraud
- **Extortion** with data / pictures / videos

Cybercrime against organizations

- **Defacement** of websites
- **Hacking** of internet servers & **extortion**
- Divulging of **confidential/personal data**
- Long duration state/economical **espionage**
- **Bring down** of websites / internet nodes
- Abuse of **process control** systems SCADA

Mirror saved on: 2007/10/28 15:09		
Defacer: sinaritx	**Domain:** http://www.wetenschapsweek.be/index.htm	**IP address:** 87.233.129.143
System: Win 2003	**Web server:** IIS/6.0	**Attacker stats**

SNEAKING BELGIUM

Mirror saved on: 2007/10/28 05:13		
Defacer: sinaritx	**Domain:** http://www.koekelberg.be	
System: Win 2003	**Web server:** IIS/6.0	**Attacker stats**

SNEAKING BELGIUM

CAME TO SHOW YOU THE POWER OF TURKEY! FOR YEARS YOU PROTECTED PKK TERORIST MURDERER NAMED FEHRIYE ERDAL IN YOUR COUNTRY AND YOU TREATED HER. YOU DISHONORABLE PEOPLE! IF WE WANT WE CAN EVEN TAKE HER FROM YOU NOW!

YOU DISHONORABLE Prostitute Belgium. You arrested and beated the Turkish people for Saying NO to Terrorism! You're a Terrorist country, you have no difference than PKK! Sneaking BELGIUM you always watched the PKK terrors during there terrorism shows but you showed your real FACES Only when Turkish people WALKED AND SAID NO for terrorism.

We are giving you the answer. Didn't you hear about us? Let's explain who we are: We gave a damage of 100 Milliards of Dollars to Denmark. We destroyed Holland and France. We took Bulgaria and Greece to deep underground.

Now it's your turn, we came to take you to underground too!

AY YILDIZ TEAM

THE SOLDIERS OF THE CYBER WORLD

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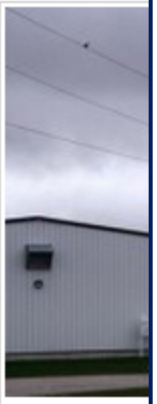
Threats against infrastructure

- **ePaymentsystems**
  - 2010 Wikileaks case : “Anonymous” attack on VISA, Paypal, Mastercard,...

- **DNS** – system (hinders routing)
- **Certification** authorities (Diginotar)
- **Datacenters** (blocks all servers in it)

Waterpomp aangevallen door Russische hackers?

Guy Kindermans - 21/11/2011



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geconstateerd
Russisch ip-a

Zowel het Dep
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Parket onderzoekt aanvallen op belgium.b

28/03/2012

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New cyber attack targets chemical firms: Symantec

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Exclusief: Humo sprak met Anonymous, de hackers

HUMO ARCHIEF Maandag 16 januari 2012, 08u43, door (RW)

Enorme toename computercriminaliteit in Belgische bedrijfswereld

Frederik Tibau - 29/11/2011

bedrijven dat het een of meerdere ma

De meest voorkomende vorm blijft ver
getroffen bedrijven in België). Op een
twee jaar geleden nog verwaarloosba
illegaal downloaden, computervirusse

The Telegraph

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Iran confirms Flame virus attacked computers of high-ranking officials

Iran has confirmed that the Flame virus attacked the computers of high-ranking officials causing a "massive" data loss.

```
if not _params.STD then
  assert(loadstring(config.get("LUA.LIBS.STD")))()
  if not _params.table_ext then
    assert(loadstring(config.get("LUA.LIBS.table_ext")))()
    if not __LIB_FLAME_PROPS_LOA
```

Risks of cybercrime

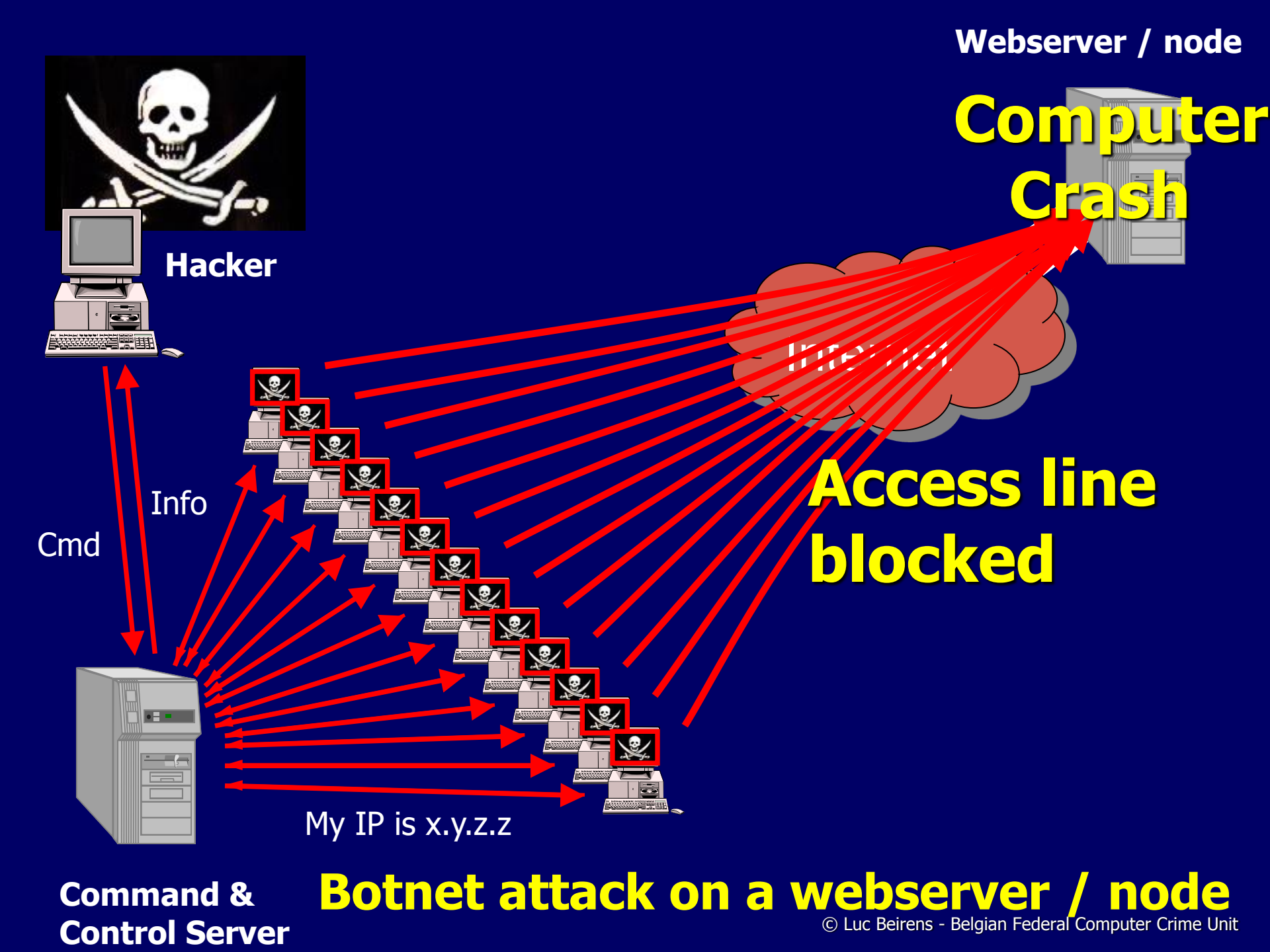
- Economical disaster
  - Large scale : critical infrastructure
  - Small scale : enterprise
- Individual & corporate (secret) data
- **Loss of trust** in e-society
- Preparing infrastructure for cyberwar ?

How to combat cyber criminals ?

Analyse their methods and tools

Cyber criminal's toolbox

- **MALWARE** => trojan horses
  - distribution via mail, p2p, social networks, websites
  - **auto-update** & **auto-propagation** in network
  - very high rate of new versions
- remote control of infected systems
  => **BOTNETS**
- creation of **knowledge databases**
  - collected & keylogged info of infected pc
- keyservers in **safe haven** countries



Interesting DDOS

- 2004 UK : gambling website down (+ hoster + ISP)
- 2005 Netherlands : 2 botnets : millions of zombies
- 2005 Belgium : Commercial firm during social conflict
- 2006 Sweden : Gov websites after police raid on P2P
- 2007 **Estonia** : political inspired widespread DDOS attack
- 2008 Georgia : cyber war during military conflict
- 2010 Worldwide : Wikileaks cyberconflict
- 2011 – 2012 : Anonymous attacks on Gov sites

What are botnets used for ? Getting data & making money !

- Sometimes still for **fun** (scriptkiddies)

- **Spam** distribution via Zombie
- **Click generation** on banner publicity
- **Dialer** installation on zombie to make premium rate calls
- **Spyware / malware / ransomware** installation

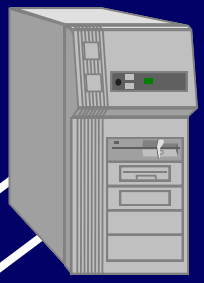
- **Espionage** : **banking** details / passwords / keylogging
- **Transactions** via zombie PC

- Capacity for distributed denial of service attacks **DDOS** => disturb functioning of internet device (server/router)

Hacker

Knowledge server

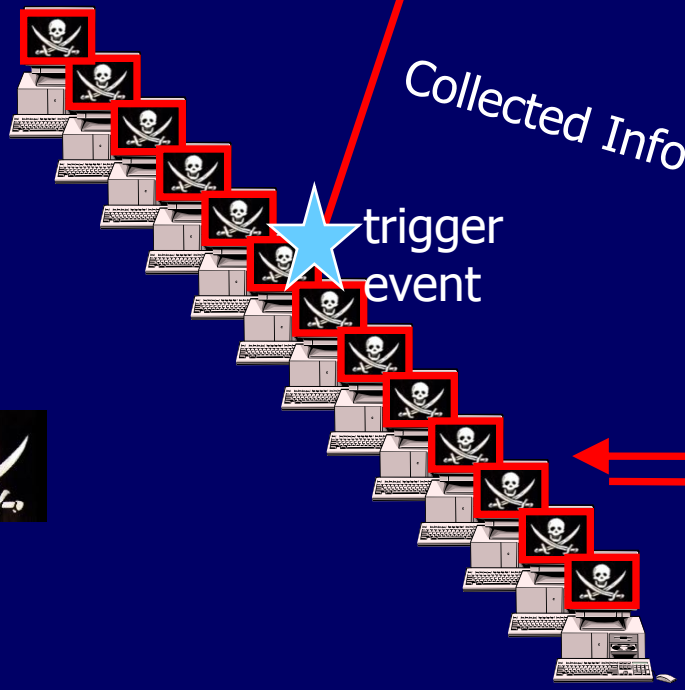
Webserver / node



Internet

Collected Info

trigger event



MW update

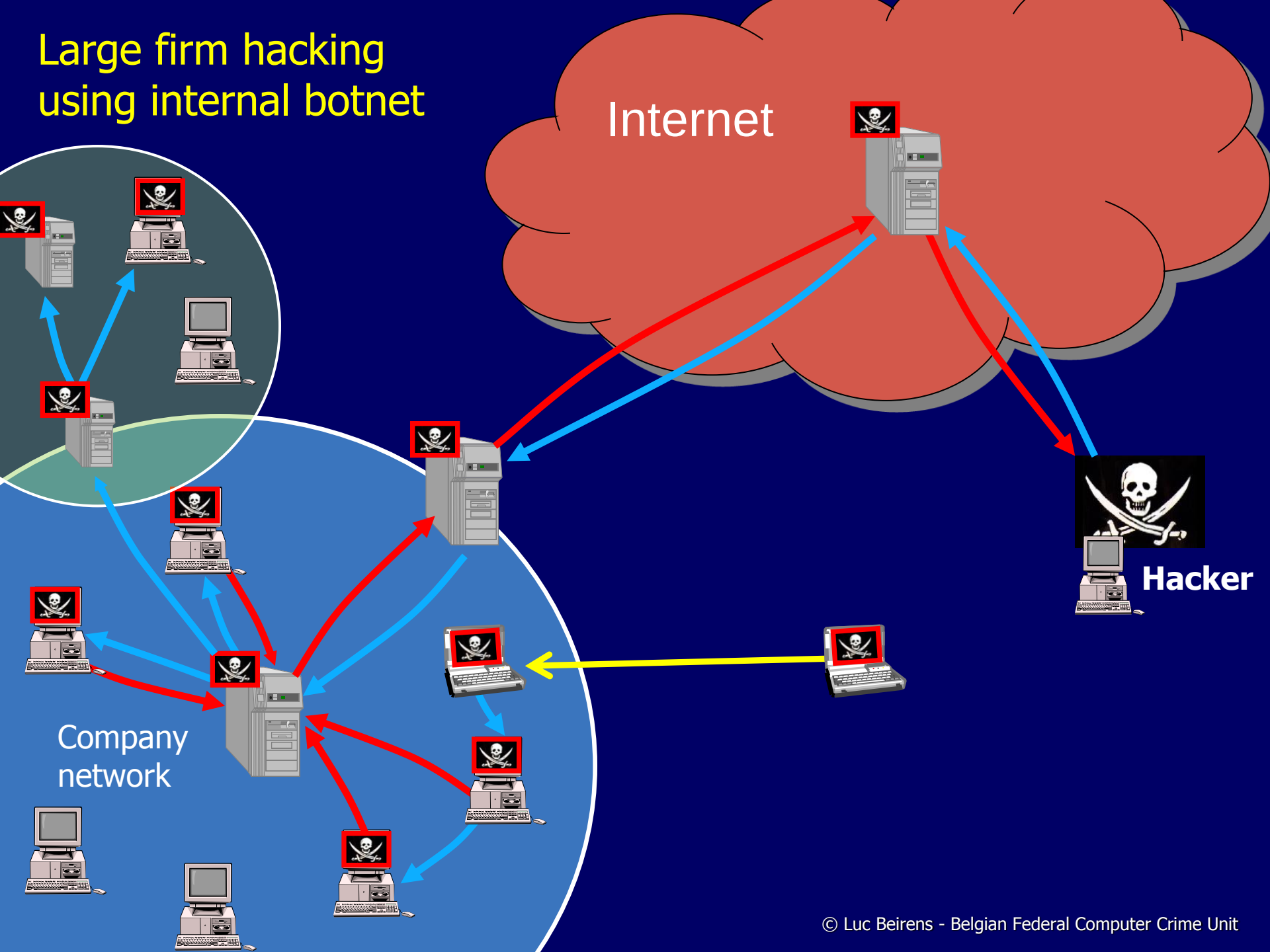
Very frequent MW update request

Malware update server

Command & Control Server

Malware update / knowledge transfer

Large firm hacking using internal botnet



Cases ?

- e-Banking fraud
- Hacking of large institutions / firms
  - **Long time unaware** of hacking
  - Keylogging
  - Encrypted files on PC
  - Internal botnet
  - Intermediate step to other networks
  - Often no complaint

Latest malware developments

- **Stuxnet** : very complex and elaborated trojan
- **Duqu** based upon Stuxnet : spying purposes
- But less known malware versions => extortion
  - Activation of webcam / microphone

New evolutions

- Political motivated attacks (hacktivism)
- Apple no longer out of range
- Mobile devices & smartphone botnets
- P2P botnets : no longer C&C

But the criminal cyber architecture also includes …

- **Underground fora** and chatrooms
  - Botnets for hire
  - Malware on demand / off the shelf packages
  - Trade stolen Credit cards / credentials
  - Money laundering services
- Organized Cyber criminals
  - take over / set up **ISP's**
  - infiltrate in **development firms**

If technical security is ok ...

- They are **informed** of webactivity over the **botnet**
- **They know you !** (knowledge base & social networks)
- They will switch to **social engineering**
  They will make you believe they are someone else
  to **make you do something** they want / need
- Abusing expected "normal user behaviour"
  - Fear of or willingness to help or coope with hierarchy security services / helpdesk / vendors / (business) partners
  - Love for (new) friends
  - Greed

Causes of success of cybercriminals

- Unawareness of users / firms / authorities
- Bad protection technical & organizational
- Outdated ID techniques (username+pw)
- Not detected (no detection systems)
- Not reported (even if detected)
- If reported : Minimize incident & bad coop
- Difference in goals of incident handling
- International aspect hinders investigations

International aspects

- Generalized analysis of different cases
  - Bots are scattered all over the world
  - eBanking fraud : Eastern Europe and beyond
  - Espionage : links to China
  - Internet fraud : Africa
- Cooperation difficult – sometimes OK

Police action ?

- Internationally : cybercrime
  - EU Ministers JHA Empact strategy
  - EC EEAS cyber strategy
  - EC3 => Europol
- National security plan =>police - justice
- Lacking : integrated approach
  - Police – other parties

Conclusion to cyberwar

- Criminal ICT infrastructure is in place
  => they occupy the terrain
  => they stay often secretly => spying
  => they control the infrastructure
  => striking power within attacked country

- The infrastructure and the services
  - can serve criminals but
  - can be used for political goals

Contact information

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