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Technical Evolution of Cyber crime

Just a few thoughts...



- The good'ol times....
 - ♣ From Mata Hari to Kim Possible ©



Traditional (Industrial) Espionage

- Stealing Information but how?
 - The cooperation of insiders was necessary but why should they do this?
- financial gain, revenge, dissatisfaction with company management, culture, religion

 Problem: The mole
- - recruitment is a big risk for the attacker, can report to security or friends, not easy to control (well, think of Mata Hari...)
- Break-ins and extortions are also common.
 - All these techniques are quite risky for the attacker as they require a lot of preparation and control.



Electronic devices

- Later electronic attacks became more and more typical.
 - **4** Wiretapping
 - ISDN D-Channel Attacks etc.
- concept behind this is trend-setting
 - ♣ Place a bug and go low risk, automatic system
 - data is delivered to a central device (like a tape recorder) which is positioned in a safe area
 - **BUT:** Only spoken word
- Next : key logger devices
 - Collecting keystrokes, placed between keyboard and computer
 - Static RAM or wireless technologies (even Burst Mode available)



Today most of the interesting data is stored on computer systems ...



Some Cases ...

- A virus caused data on Japanese nuclear power plants to leak on to the internet through a file-sharing platform, a report in the *Yomiuri Shimbun* says. The computer of an employee who was in charge of nuclear inspections was infected by a virus that reveals data through the Winny file-sharing (a Japanese only version) software. According to a report in the *Yomiuri Shimbun*, maintenance data equivalent to 31 floppy disks was leaked.
- The newspaper also said that this not the first time that information had leaked in this manner. Data on a police investigation in Hokkaido had been transmitted from an officer's PC last year while in March this year, private data about 50 patients who had undergone checks at Tokyo Medical and Dental University Hospital in Bunkyo Ward, Tokyo, were discovered to have leaked.



What happened?

The private computer of an employee who was in charge of nuclear inspections was infected by a virus that revealed data through the Winny file-sharing software (a very popular system primarily used in Japan)

The software (Winny) is responsible for other information leakages on government systems and it was earlier recommended by official sources, to

uninstall this product

♣ So lessons learned? Not really. The last report of a data leakage is from March 2006: "Ehime prefectural police have announced that confidential personal information on 4,400 people was included in files accidentally uploaded to the Internet via Winny file-sharing software



Some Cases ...

- According to a Reuters media report, a married couple accused of developing a Trojan horse to spy on top Israeli companies have been placed in custody by the Israeli police.
- Michael Haephrati, and his wife Ruth Brier-Haephrati, were arrested in May 2005 in London, accused of writing malicious spyware software which was bought by private investigators to help top Israeli businesses spy on their competitors.
- Companies probed by the Israeli authorities in connection with the case include mobile phone operators, Cellcom and Pelephone, and satellite television provider YES.



Customised Trojan Horses

- The incident in Israel was a perfect example for a custemized Trojan attack.
- The malware was brought to the customer on demo disks
- Trojan monitored keystrokes and collected different types of documents. All this data were send to several "Collector-Systems" – so called *drop zones*
- antivirus software was not able to detect the malware



Spear Phishing

- NISCC Briefing o8/2005 Issued 16 June 2005" reported targeted Trojan email attacks against MoP
- Example: Golf...
- the attacker spied on the private behaviour and hobbies of his target. Once his passion is identified, it is easy for the attacker, to customise an email that the target will trust.
- Spear Phishing is THE new Risk for Top Management or Politicians...or just for people like us ☺



Hiding the tracks...

- Modern Trojans are hard to find Anti Virus Software needs more then 5++ days to identify them.
 - hiding processes, files, connections
 - preventing anti-virus and operating system updates
 - kill running anti-virus processes and change personal firewall settings
 - anti debugging features
 - update functionality
 - ♣ Web based command & control (c&c) mechanism



Hiding the tracks

- AV Tools are signature based...
 - ♣ This is something like a fingerprint of the software. A signature is created by disassembling the virus, analyzing it and then identifying those sections of code that seem to be unique to the malware. The binary bits of those sections become the signature of the virus
- What does "unique to the malware" mean?
 - snapshot from one existing Binary
 - each variant is different
- So what about polymorphism?
- Packer & Co
 - a tool, to compress and / or encrypt EXE Files or parts of them



Bypassing Firewalls

For XP SP2 try :

- netsh.exe firewall add allowedprogram program = C:\kill.exe name = Jinks mode = ENABLE
 - Add a new program to allowed list
- netsh.exe firewall add portopening protocol = ALL port = 50 name = Jinks mode = ENABLE profile = ALL
 - Open all ports....
- So Commercial Products are better???
 - Well read http://phrack.org/issues.html?issue=62&id=13#article
 - http://rootkit.com/newsread.php?newsid=197 etc....
- Or use some tools...



HTML Code Obfuscation

Web Attacker JavaScript excerpt - the HTML code is normally obfuscated with AntsSofts HTMLProtector:

//hp d00(s){if(!hp ok)return;document.write(s)}//--></SCRIPT>

```
[......]

<HEAD><SCRIPT LANGUAGE="JavaScript"><!--
document.write(unescape("%3C%53%43%52%49%50%54%20%4C%41%4E%47%55%41%47%45%3D%22%4A%6
1%76%61%53%63%72%69%70%74%22%3E%3C%21%2D%2D%0D%0A%68%70%5F%6F%6B%3D%74%72%75%65%3B%6
6%75%6E%63%74%69%6F%6E%20%68%70%5F%64%30%30%28%73%29%7B%69%66%28%21%68%70%5F%6F%6B%2
9%72%65%74%75%72%6E%3B%64%6F%63%75%6D%65%6E%74%2E%77%72%69%74%65%28%73%29%7D%2F%2F%2
D%2D%3E%3C%2F%53%43%52%49%50%54%3E"));//--></script>

// which translates to:

<SCRIPT LANGUAGE="JavaScript"><!-- hp ok=true; function
```



Example: TorPig

- The next step in worm technology evolution was TorPig., first seen in early 2006.
- The Trojan attempts to steal passwords, as well as logging key presses and open window titles to text files and periodically sends the collected information to a remote user via HTTP.
- The Trojan downloads and executes additional files from a remote site. Configuration files may also be downloaded which define further behaviors.
- Troj/Torpig-C automatically closes security warning messages displayed by common anti-virus and security related applications



Torpig - Overview

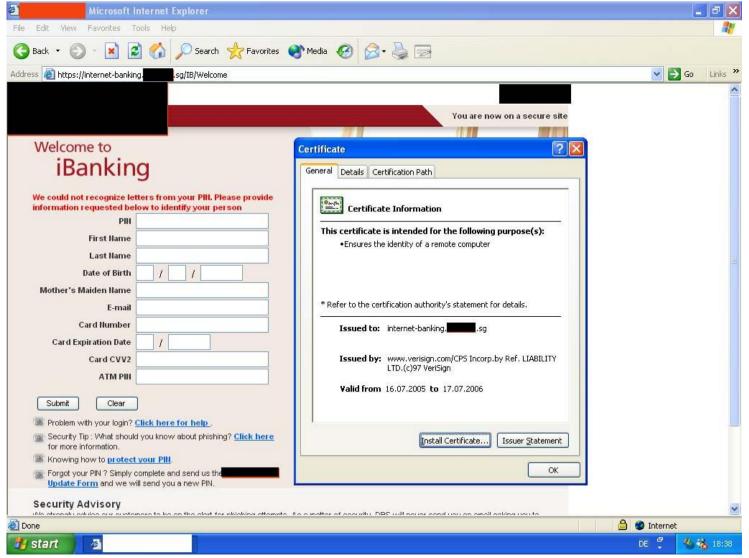
- How does it work?
 - ♣ The infected System connects to c&c Server
 - The trojan recieves a list (encrypted) of Triggerstrings (or Softwareupdates or a new c&c Server list
- Triggerstrings example:
 - *.inetbank.net/onlinebanking
 - DE|SPK.de Kontodetails homebanking*.de*
 - DE|izb.de Kontoart portal*.izb.de*
 - DE|pest.de Konto-Nr *vr-*ebanking.de*
 - but also: COM|gov.sg type SINGPASS* psi*.gov* singpass*.gov*



Trigger Mechanism

- If visiting a website which is under observation, the Trigger <u>bank.whereever.com.au /onlinebanking</u> will be passed to a c&c System.
 - GETconfig/check_domain.php?p1=2&p2= bank.whereever.com.au
- and returns as an answer the URL of a phishing site.
 - bank.whereever.com.au _corp.php
- After visiting the website. Using I-Frames and helper objects, (simple: writing directly to the render engine of the browser) the SSL Certificate of the original Site remains intact!!!





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Ideas with TorPig

- Lets have a look on the following trigger strings:
 - 4 1. COM|abc.com secret|confidentialinternal*.abc.com*
 - 4 2. DE|pharma*.de .mdb *target-*internal.de*
 - 4 3. COM intranettype Document target.company*.com
- In (1) the Trojan collects classified data, triggered by the keyword Secret or Confidential from the internal server,
- in (2) a MS Access Database from the intranet of target.com is transferred to a collector system.
- The attacker can also manipulate the intranet web server.



Cz Stats	STATISTICS EXPLOITS EXPLOITS	DITS BOTS USERS FILE SHARING
Browse Signatures Add Signature	Parse Logs/Forms	
Ftp access for logs Host Username Password	Options All	
Tans Tan Counter 3 Total Tans 2		
!https://banking*.	de/cgi/login.cgi^tan;!https://*commer:	Total bot's 15857
	t:customerID,pin;!bankingports *kontor	Bot Options Preview \$t:!https://banking*.de/cgi/lo
	Misc http:// /c.php	Not Crypted
	Secondary URL'S	
Post Data Exclude Filter Content-Disposition;b=Passe Include Filter pass;psw;login;account;user;	Popups	EUIPF11CQUZGDBoZV1dbXVxYUhwbU: Crypted
	In-Page Popup	
	ScreenShots	Slide



Garbage Collection...

- All the Trojans around not only manipulate systems, they also collect randomly data from infected systems which has to do with credit cards, accounts, personal information, passwords, University Accounts etc
- Portal Accounts, Company VPN Data, Governmental Sites...
- Data is sold via BBs or P2P or ICQ ...



Trojaner collecting Data...

- 00003: [IP:300.87.50.200 18.04.2006 01:19:50 nt]
- 00005: destination=https%3A%2F%2Fwebmail.xxx.edu.sg%2 Fexchange%2F&flags=2&username=STAFF%5Cmzxia o&password=pattyxxxxxx&domain=STAFF&forcedownlevel=o&trusted=o
 - https://webmail.xxx.edu.sg/exchweb/bin/auth/owalogon.asp? url=https://webmail.xxx.edu.sg/exchange/&reason=
 - **4** 000008:
 - [-- webmail.xxx.edu.sg/exchweb/bin/auth/owaauth.dll --]



Trojaner collecting Data...

- URL:https://www.singpass.gov.sg/npin/redirectLogin.do?npin_data1=48 3643A6D479505CB8BC29B687C36E91AC40F11967DFC565B706BF42587 6A4D1724C8758BBF0850803FF3D070C3F087C7F24143F9DFCFECA078F4 9F02E89F700B1D98C46C1C06A443238729BA8E2AB3239A8CEBABB458 5947FB9C1D43BAF9E80A8F098309B24EDE0BEF3E269DFCE9A72CFED 97EB984F6F72B039BB482087243F&npin_data2=7CC59ED4642DF0D111 E20ED2E5A585A77F892F428336C2F124EAA87D460B6F323FE72E3ABBB 8EB4893B7B869470C14BF97398B79EEC136A8E4A3D7DBC410ABB57507 0021F4955CEC86995C204CB2D5247AC39A8B73D6D834A17726
- oooo5: action=submitLoginSingPassID
- oooo6: firstSingPassIDChar=S
- oooo7: partialSingPassID=1000075ztxt_access_id=S1234256J&txt_password=S1 234256J&action=PROCESS&page=CNELOGIN&app=SNBLOGIN&versio n=v12&cmd_ok.x=o&cmd_ok.y=o
- [-- psi.gov.sg/NASApp/tmf/TMFServlet --]

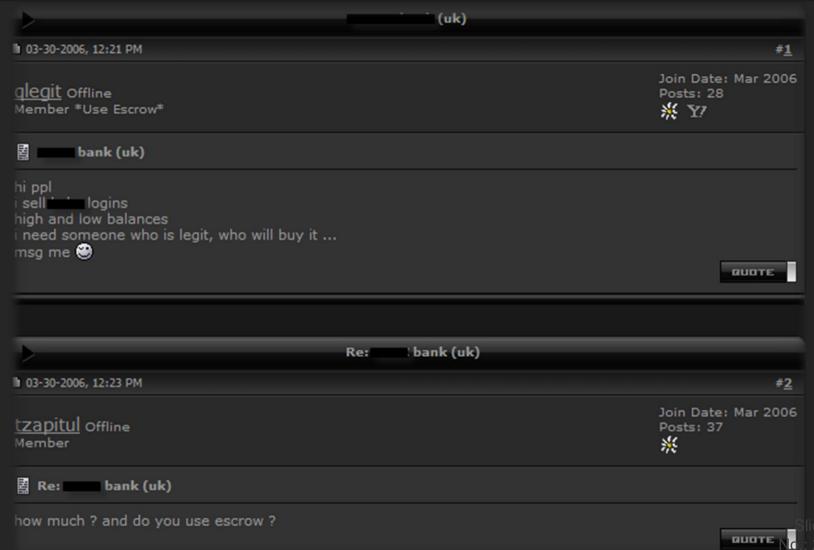


Collecting Data – WHY?

- Collect and sell
 - **4** Customers are org. Crime Scene
 - Customers are Terrorist
 - and also: articles of exchange...
- RISK : False identity
 - set up some social Background
 - 4 to pretend to be an "old boy" at University...
 - faking IDs, Credit Cards etc.
- Today: Database instead of flat files, encryption, "shopping applications"



Business Portal...







MyFip

- ♣ Myfip is a network worm discovered in August of 2004.
- designed solely for the purpose of intellectual property theft.
- Collects the following Data
 - .pdf Adobe Portable Document Format
 - .doc Microsoft Word Document
 - .dwg AutoCAD drawing
 - sch CirCAD schematic
 - .pcb CirCAD circuit board layout
 - .dwt AutoCAD template
 - .dwf AutoCAD drawing
 - .max ORCAD layout
 - .mdb Microsoft Database





Mainwebsite :

4 netg18.com, registered to a user in Tianjin.

Sample source IP addresses:

- 4 60.26.0.0/24 CNCGROUP Tianjin province network
- 4 221.198.15.10 CNCGROUP Tianjin province network
- 4 218.69.195.108 CNCGROUP Tianjin province network

Sample collector IP addresses used:

- 4 202.104.237.179 CHINANET Guangdong province network
- 4 221.196.118.219 CNCGROUP Tianjin Province Network



Bot Net Shopping & Marketing



Professional reconnaissance- controlled software

Multi -3ksplo1t: the concealed load EXE- program from the remote resource with the subsequent starting of this program on the local disk of visitor.

Daunlonder: it is intended for the concealed load arbitrary WIN32 EXE- file from the remote resource with the subsequent starting of this file on the local disk.

Products, accessible today:

| Web-Attacker |

| RootLauncher |

Installation of our products on your site!

We is exerted service on the installation of our products for all buyers WebAttacker and RootLauncher v2.5! [installation charge: y5\$]

Program for reselleroy (New)

Service is not accessible (repair)

What you do obtain?

- High percentage (commission) from each license WebAttacker and RootLauncher, sold by you
- · Technical support
- Publication of your information in the list of the certified partners

What you do obtain?

- · You should buy the product
- Technical support
- It is not necessary to worry about tuning of programs and administration of the server
- · Our specialists will dispose everything for you

It is in more detail... Slide



Bot Net Shopping...

Program for resellerov

Earn to \$180 from each sale!

Proposal, the salesmen of software

You buy license to products WebAttacker and RootLauncher with the reduction, and then resell to its clients on the fixed price of producer. Thus you obtain commission from each sale, and in this case you can render any additional services your clients, assigning arbitrary prices on them (for example, custom-made modifications, redizayn, installation).

Already from sale to the second license WebAttacker and RootLauncher you will earn \$100!

What you do obtain?

- . High percentage (commission) from each license WebAttacker and RootLauncher, sold by you
- Technical support
- Publication of your information in the list of the certified partners

For the buyers of several licenses of the program products WebAttacker and RootLauncher is provided the system of reductions

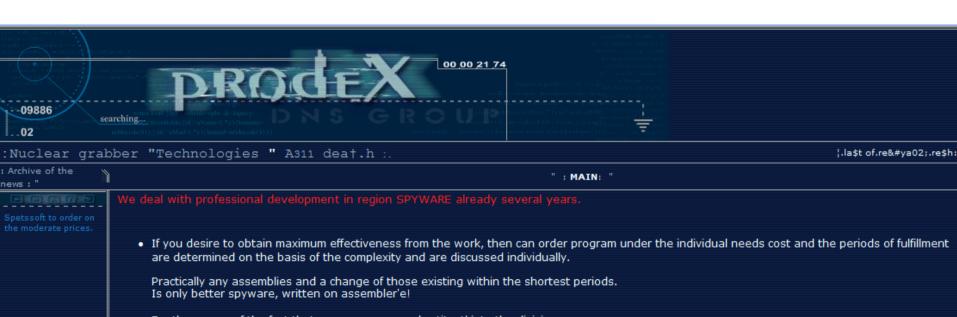
Product	the y-aya license	2-aya - shch-aya the license	6-10	10+	
WebAttacker	\$250.00	\$200.00 (each)	\$160.00 (each)	\$140.00 (each)	
RootLauncher "PE"	\$150.00	\$125.00 (each)	\$100.00 (each)	\$80.00 (each)	
RootLauncher "EE"	\$100.00	\$85.00 (each)	\$70.00 (each)	\$50.00 (each)	
RootLauncher "LE"	\$50.00	\$45.00 (each)	\$35.00 (each)	\$30.00 (each)	

^{*}reductions act independently of the time of the acquisition of additional licenses. If you already acquired one license to the product, and you want to purchase dopolnitel'nuyu(ye), then you will obtain reductions independently of that, when you will buy additional licenses.

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Bot Net Shopping



On questions of acquisition spyware be turned

ICQ:

mail:

orpse@a311.org

 For the survey of the fact that we can propose, obratitest' into the division the technology

finished assemblies -

Nuclear grabber™

A -311 death backdoor™ (spyware on the basis of bekdora)

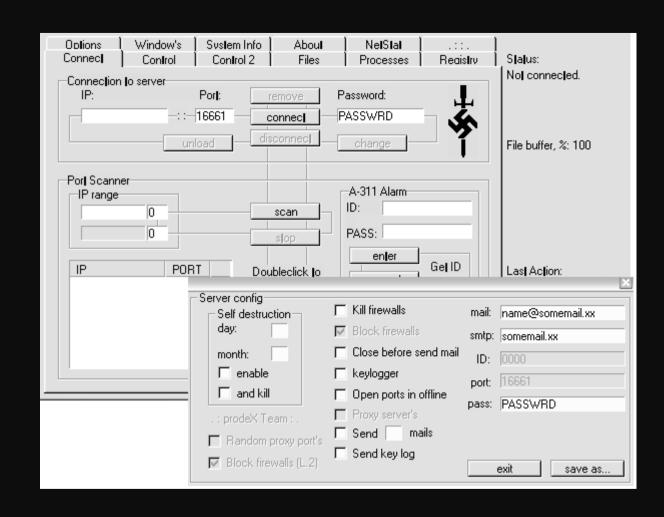
*** in us broad price band and when desired can be selected spyware, which will maximally approach under your needs and possibilities

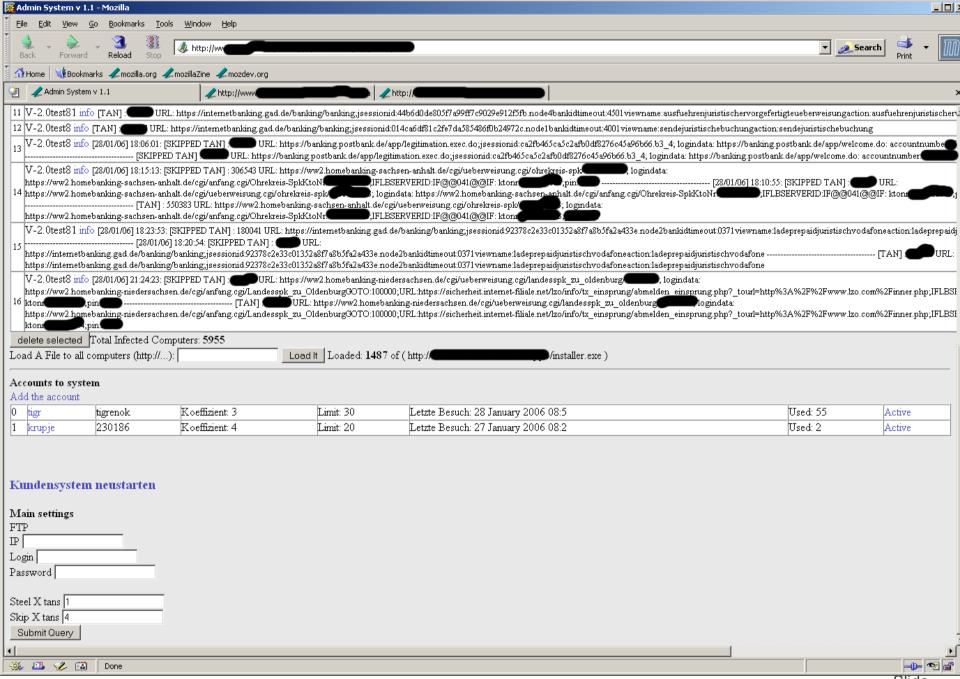
News

/06.05.2006/ " the respected clients, on any questions not you polenites' to otpisyvat' to me in PM of forums, since they can disappear in offlin'e ICQ communication!











So, let's spy a bit...

- First : You need a good Trojan, something like TorPig
 - It's flexible and gives an excellent return on malware investment (ROMI)
- We only want to spy, not to manipulate. So we don't need any sophisticated tool to capture sessions or extract forms
- To be on the safe side, we order all of this from our Russian Solutions Provider. Investment is between 200US\$ and 3000 US\$. Delivery is fast and secure, and we will also receive a bill.



A little SpyHoTo...

- Dropzone: Use internal test systems in the company, nobody will recognize them...
- How to infect the targets?
 - Setup an internal Website with some nice pics from the last social event, party, Lisa's Baby, Jacks Puppies... etc. Don't forget Webattacker or something similar.
 - prepare some fancy USB Sticks with some presentations and the Trojan
- **WAIT**
- At the end of the Week, use your IPod to copy the Payload from the Drop Zones



Update Troy's

Some Trends 2007

- Modular Systems
- 4 New kid on the block: Nuklus Toolkit from Russia
 - Modules can be installed on demand
 - Trojan is just a stub. New modules can be installed later, or developed for special purpose.
- Targeting Certificates
- ♣ Forget virtual Keyboards ⊗
 - Brazilian Troy records area of _mouse_cursor_position
- Bad guys become more and more organized



Nuklus Webinterface

9 = 3						
STATISTICS	SEARCH	ROUTINES	BotNet CONFIGURER	SETTINGS	IP2LOCATION	LOGOUT
EARCH MECHANISM						
I'M LOOKING FOR:				\$0 0	IN	FullLink
			Date from: to:	r S	DB	Normal -
			Protected Storage search			
			Result in text file			
						Do SEARCH!
MY SQL-QUERY:			SELECT * FROM id_logger WHERE Module = \'CertGrabbe	er\'		
	j					Do SEARCH!
			Result in text file			
			[Link squeezing] [Grabs] [Cert squeezing]			
P: Module Full Link: Data: Size file: 2322; Filename: cert.pfx; Type: application/octet-stre Status e rror: 0; Link to file: http:// Pa ssword for file: [Configure Bot]		ne Stamp: 2007-02-12 1	2:43:13 Country: INDONESIA Region: JAKAF	RTA RAYA (DJAKARTA RA	YA) City: JAKARTA	
D: 060c1f10 P: Module	: CertGrabber Ti n	n eStamp: 2007-02-12 1	2:43:45 Country: INDONESIA Region: JAKAF	RTA RAYA (DJAKARTA RA	YA) City: JAKARTA	
Full Link:						
Data: Size file: 2322; Filename: cert.pfx; Type: application/octet-stre Status e	eam;					

Certs/060c1f10/1.pfx;

[Configure Bot]

ssword for file:

rror: 0; Link to file: http://





- Website Security
 - More than 60% of all systems are vulnerable against XSS Attacks or SQL Injection
- Qualification of web developer is increasing...
- Patchmanagement hmm what do you mean ???



Update Espionage

- Groups in China are targeting European small and medium Business
 - Industrial Espionage is not only targeting the big Corps – also the SME's are an interesting – and easy – target
 - Zero Protection against zero day Exploits....

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More News ...

D&B Israel launches industrial espionage system

- (Israel Business Arena Via Thomson Dialog NewsEdge)
- D&B Israel has won a license from the Ministry of Justice to launch an industrial espionage system that will provide the business sector with new war tools against competitors.
- The D4 system will combine knowledge and alerts about customers both inside and outside the enterprise system, knowledge on movement of customers to competitors, and tools for reducing bad debts and focused marketing, including cross-referencing of customer data.
- The system will provide an alternative to non-segmented knowledge or knowledge from many sources, which was previously collected through surveillance companies but not received in real time nor cross-referenced.



Do not trust...

MessageLabs and Counterpane reported in April this year, that 61% of computers have "some type" of spy ware or ad ware installed, and that the use of Trojans for spying on competitors is quite common.

INDIA ACCUSES US OF SPYING

- By Konstantin Kornakov Jul 31 2006
- After several high profile arrests within the Indian security forces, the country's government has decided to lodge an official protest with the US embassy in New Delhi. Indian authorities accuse the US of using a joint Indian-US cyber security forum as cover for spying activities in which several senior national security officials were involved.

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