

Velkommen til

Tendenser i sikkerhed

March 2011

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Slides are available as PDF

Give en update på udviklingen indenfor internetsikkerhed og sikkerhedstrusler

Give input til hvad I skal fokusere på

Jeg vil forsøge at gennemgå ting fra 2011

En potpourri af sikkerhedsemner - inspiration

Feedback og kommentarer modtages, dialog 😊



KI 17-21

Mindre foredrag mere snak

Mindre enetale, mere foredrag 2.0 med socialt medie, informationsdeling og interaktion

Largest DDoS Attack – 49 Gigabits Per Second

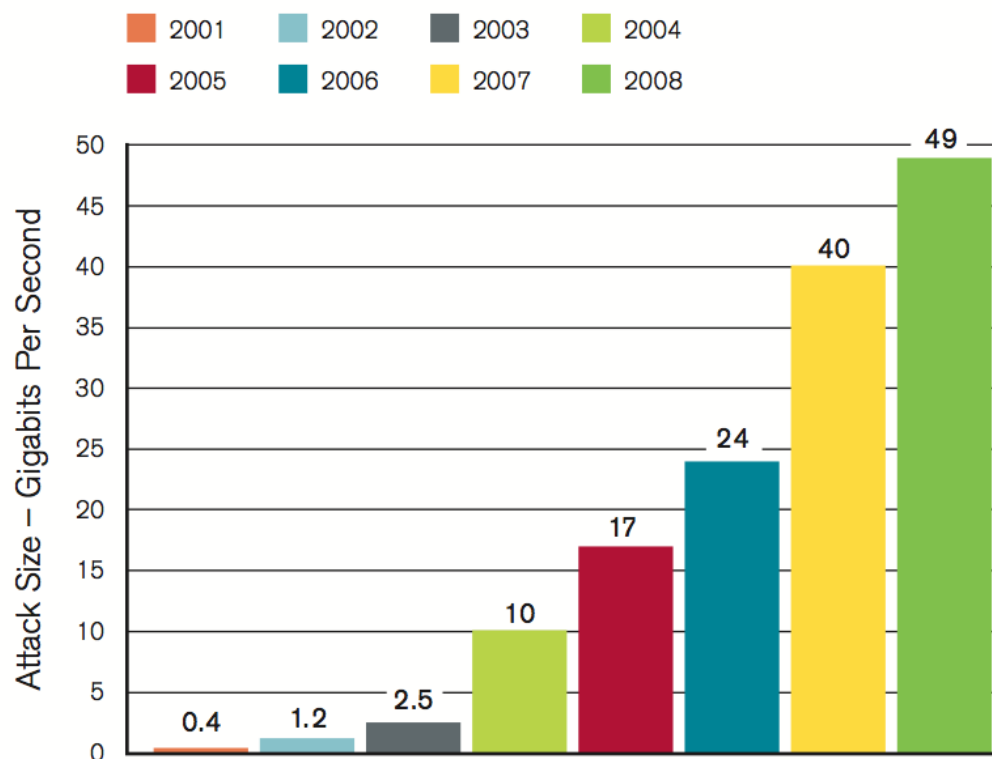


Figure 1: Largest DDoS Attack – 49 Gigabits Per Second

Source: Arbor Networks, Inc.

Kilde: <http://www.arbornetworks.com/report> 2009 rapporten

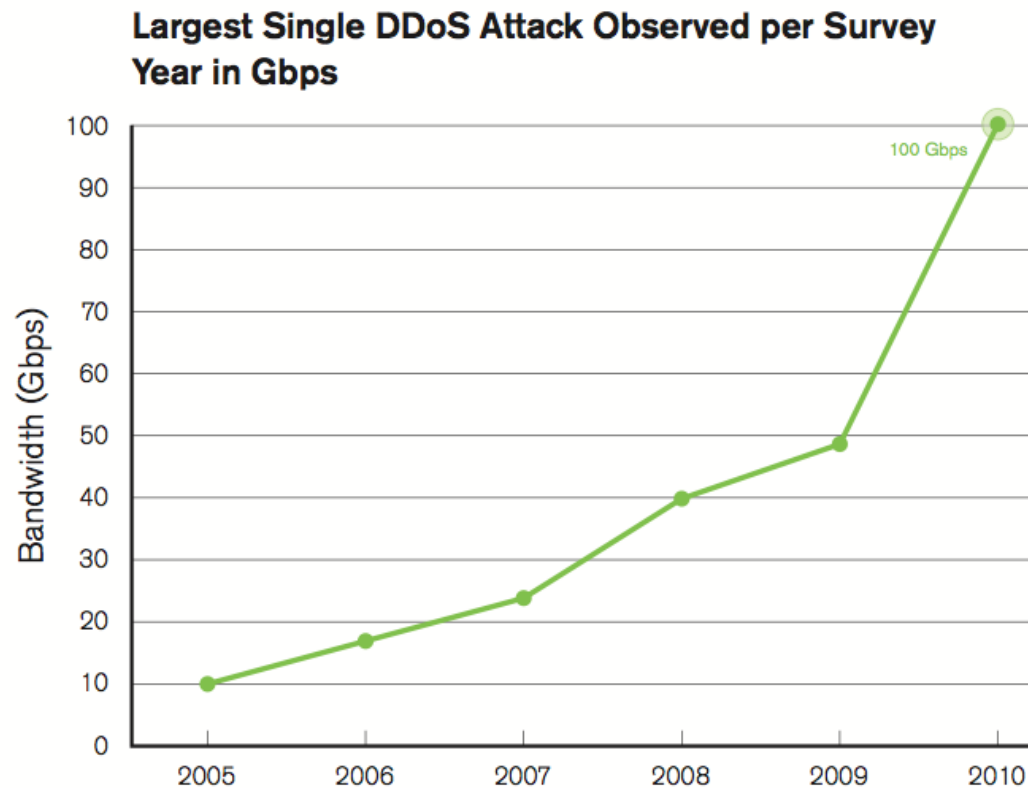


Figure 1

Source: Arbor Networks, Inc.

Kilde: <http://www.arbornetworks.com/report> 2010 rapporten

Key finding:

Application-Layer DDoS Attacks Are Increasing in Sophistication and Operational Impact

IDC and mobile/fixed wireless operators in particular are reporting significant outages, increased OPEX, customer churn and revenue loss due to application-layer DDoS attacks. These attacks are targeting both their customers and their own ancillary supporting services, such as DNS, Web portals, etc.

...

Conclusions

We further note that the fastest-growing category of ISPs-mobile and fixed wireless broadband operators-are also the least-prepared organizations in terms of network visibility, network control, and overall ability to successfully defend themselves and their customers against attack. These operators are balancing an overwhelming array of threats with conflicting budget pressures and business objectives.

Mere komplekse trusler, betyder det flere firewall?

- Application-Layer DDoS Attacks Are Increasing in Sophistication and Operational Impact
- Mobile/Fixed Wireless Operators Are Facing Serious Challenges to Maintaining Availability in the Face of Attacks
- Firewalls and IPS Devices Are Falling Short on DDoS Protection
- DNS Has Broadly Emerged as an Attack Target and Enabler
- Lack of Visibility into and Control over IPv6 Traffic Is a Significant Challenge
- Chronic Underfunding of Operational Security Teams
- Operators Continue to Express Low Confidence in the Efficacy of Law Enforcement
- Operators Have Little Confidence in Government Efforts to Protect Critical Infrastructure

Kilde: <http://www.arbornetworks.com/report> februar 2011

The Mobile Network in 2010 and 2011

Global mobile data traffic grew 2.6-fold in 2010, nearly tripling for the third year in a row. The 2010 mobile data traffic growth rate was higher than anticipated. Last year's forecast projected that the growth rate would be 149 percent. This year's estimate is that global mobile data traffic grew 159 percent in 2010.

...

Last year's mobile data traffic was three times the size of the entire global Internet in 2000. Global mobile data traffic in 2010 (237 petabytes per month) was over three times greater than the total global Internet traffic in 2000 (75 petabytes per month).

...

There will be 788 million mobile-only Internet users by 2015. The mobile-only Internet population will grow 56-fold from 14 million at the end of 2010 to 788 million by the end of 2015.

Kilde: *Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2010 - 2015*

HBGary's website has been defaced and its CEO Aaron Barr has had his social media accounts hijacked and his personal information leaked online - all in retribution for his claims that he had infiltrated Anonymous, the loosely-affiliated collective of hacktivists.

HBGary founder Greg Hoglund has told Krebs on Security that Anonymous "didn't just pick on any company, but we try to protect the US government from hackers. They couldn't have chosen a worse company to pick on." For its part, Anonymous contends that HBGary couldn't have picked a worse group to pick on.

Emails kan hentes/læses på nettet

Social engineering og adgang via firewall

Kilder: mange nyhedssites på internet

http://www.readwriteweb.com/archives/anonymous_hacks_security_company_hbgary_dumps_5000.php

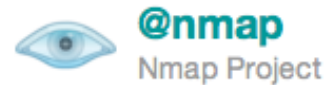


This domain has been seized by Anonymous under section #14 of the rules of the Internet.

Greetings HBGary (a computer "security" company),

Your recent claims of "infiltrating" Anonymous amuse us, and so do your attempts at using Anonymous as a means to garner press attention for yourself. How's this for attention?

You brought this upon yourself. You've tried to bite at the Anonymous hand, and now the Anonymous hand is bitch-slapping you in the face. You expected a counter-attack in the form of a verbal brawl (as you so eloquently put it in one of your private emails), but now you've received the full fury of Anonymous. We award you no points.



HBGary planned to BLOW THE BALLS
OFF OF NMAP! <http://bit.ly/nmapballs>

11 Mar via web ☆ Favorite ↻ Retweet ↩ Reply

Retweeted by [dobinrutis](#) and 100+ others

http://hbgary.anonleaks.ch/greg_hbgary_com/13401.html

Kilder: Nmap tweet og mailinglist

Der er mange pointer at lære fra HBGary

Social Engineering rockz! Uddannelse!

Alle er et mål, evt. som springbrædt ind til andre

Anonymous er en flok forkælede møgunger? helte? egoer? løst knyttet gruppe, tæt knyttet gruppe?

Hacktivism er okay, bare det rammer Scientology?

... flere pointer?

Hacking er ikke cool og koster mange resourcer!

Open Letter to RSA Customers

Arthur W. Coviello, Jr.

Like any large company, EMC experiences and successfully repels multiple cyber attacks on its IT infrastructure every day. Recently, our security systems identified an extremely sophisticated cyber attack in progress being mounted against RSA. We took a variety of aggressive measures against the threat to protect our business and our customers, including further hardening of our IT infrastructure. We also immediately began an extensive investigation of the attack and are working closely with the appropriate authorities.

Note: det er ikke RSA **algoritmen** men firmaet **RSA**

Kilder:

<http://www.rsa.com/node.aspx?id=3872>

Our investigation has led us to believe that the attack is in the category of an Advanced Persistent Threat (APT). Our investigation also revealed that the attack resulted in certain information being extracted from RSA's systems. Some of that information is specifically related to RSA's SecurID two-factor authentication products. While at this time we are confident that the information extracted does not enable a successful direct attack on any of our RSA SecurID customers, this information could potentially be used to reduce the effectiveness of a current two-factor authentication implementation as part of a broader attack. We are very actively communicating this situation to RSA customers and providing immediate steps for them to take to strengthen their SecurID implementations.

Aka SQL injections?

Kilder:

<http://www.rsa.com/node.aspx?id=3872>

We have no evidence that customer security related to other RSA products has been similarly impacted. We are also confident that no other EMC products were impacted by this attack. It is important to note that we do not believe that either customer or employee personally identifiable information was compromised as a result of this incident.

Kan vi stole på vores SecureID tokens nu?
- og hvad med NemID?

Kilder:

<http://www.rsa.com/node.aspx?id=3872>

http://www.schneier.com/blog/archives/2011/03/rsa_security_in.html

<http://computersweden.idg.se/2.2683/1.374749/rsa-hacket-hotar-25-000-foretag>

<http://securosis.com/blog/rsa-breached-secureid-affected>

<http://www.cs.columbia.edu/~smb/blog//2011-03/2011-03-18.html>

Adobe Flash problems, player security issues & exploits - 2011

Google Chrome offers to help stop Flash security problems - March 2011

Google have extended their flash security sandbox to allow Adobe flash to take advantage of it. Google have also enhanced plug-in security by notifying the user of out-of-date plug-ins that may cause vulnerabilities.

Flash security vulnerabilities affects Microsoft Excel - March 2011

A flash security issue is currently being exploited by hackers by embedding malicious SWF files into Microsoft Excel spreadsheets. These are then emailed to unsuspecting users. All major OS's are affected by this flash security flaw.

USB flash security compromised by major design flaw - February 2011

Secure flash drives manufactured by some of the big brand flash memory-makers can be sent an 'unlock' flag to the devices which makes them unlock without requiring the password. The system is inherently insecure because when the secure flash drive software authenticates the supplied password it sends an 'unlock' flag to the drive (a common 'conditional jump'), which can be patched to unlock the device.

Adobe flash security sandbox bypassed - January 2011

Adobe flash player security has been bypassed by a security researcher who used a file request to a network machine. Adobe flash problems were meant to be minimized by use of the sandbox but the security researcher detailed how this could be easily bypassed by a malicious person.

Kilde: <http://www.locklizard.com/adobe-flash-security.htm>

Gentagelse fra sidst

Description

PDF Dissector is a GUI-based PDF malware analysis tool that was specifically built to assist PDF malware analysts.

To achieve this, PDF Dissector bundles everything malware analysts need for PDF malware analysis into a single tool. PDF Dissector has a PDF file format parser that was specifically built to detect malicious PDF files. It provides ways to quickly search through the elements of PDF files. It has a built-in JavaScript interpreter to execute malicious scripts and it has an Adobe Reader emulator to make sure that all features of malicious scripts are correctly executed.

The plugin architecture of PDF Dissector makes it possible to customize and automate PDF Dissector with plugins and scripts written in Java, Python, or Ruby.

Flash og PDF har (igen) haft ekstremt mange problemer i 2010, resulterer i kommercielle tools til analyse - 250EUR single user license!

PDF Dissector is a GUI-based PDF malware analysis tool that was specifically built to assist PDF malware analysts.

Kan vi undvære Flash og PDF?

Kilde: internet og <http://www.zynamics.com/dissector.html>

<http://blog.didierstevens.com/2010/09/26/free-malicious-pdf-analysis-e-book/>



Safari <http://clicktoflash.com/>

Firefox Extension Flashblock

Chrome extension called FlashBlock

Internet Explorer 8: IE has the Flash block functionality built-in so you don't need to install any additional plugins to be able to block flash on IE 8.

FlashBlock for Opera 9 - bruger nogen Opera mere?

FlashBlockere til iPad? iPhone? Android? - hvorfor er det ikke default?



An important consideration is that IPv6 is quite likely to be already running on the enterprise network, whether that implementation was planned or not. Some important characteristics of IPv6 include:

- IPv6 has a mechanism to automatically assign addresses so that end systems can easily establish communications.
- IPv6 has several mechanisms available to ease the integration of the protocol into the network.
- Automatic tunneling mechanisms can take advantage of the underlying IPv4 network and connect it to the IPv6 Internet.

Kilde:

http://www.cisco.com/en/US/prod/collateral/iosswrel/ps6537/ps6553/white_paper_c11-629391.html



For an IPv4 enterprise network, the existence of an IPv6 overlay network has several of implications:

- The IPv4 firewalls can be bypassed by the IPv6 traffic, and leave the security door wide open.
- Intrusion detection mechanisms not expecting IPv6 traffic may be confused and allow intrusion
- In some cases (for example, with the IPv6 transition technology known as 6to4), an internal PC can communicate directly with another internal PC and evade all intrusion protection and detection systems (IPS/IDS). Botnet command and control channels are known to use these kind of tunnels.

Kilde:

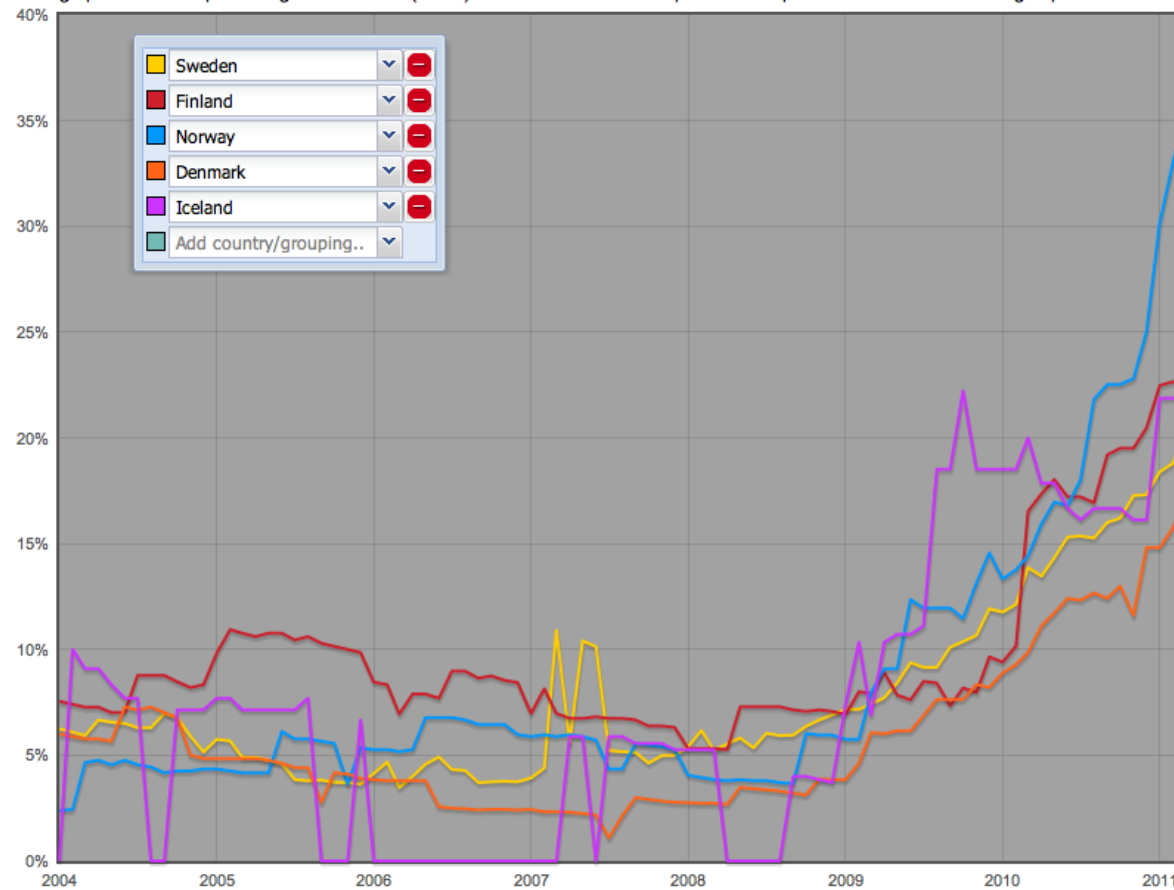
http://www.cisco.com/en/US/prod/collateral/iosswrel/ps6537/ps6553/white_paper_c11-629391.html



IPv6 Enabled Networks

permalink: <http://v6asns.ripe.net/v/6?s=SE;s=FI;s=NO;s=DK;s=IS>

This graph shows the percentage of networks (ASes) that announce an IPv6 prefix for a specified list of countries or groups of countries



Software and tool releases:

- Nmap 5.50: Now with Gopher protocol support! Januar 2011 nmap.org
- Metasploit Framework 3.6 gratis på <http://www.metasploit.com/>
- BackTrack 5 til Maj? <http://www.backtrack-linux.org>
- Suricata 1.1 beta 1, December 2010 <http://www.openinfosecfoundation.org/>
- <https://github.com/chrislee35/team-cymru> queries Team Cymru's ASN, Malware, and FullBogon services
- <https://www.c0decafe.de/loki.html> new Loki - ikke alt er layer 7

I'm so excited about NSE that I made it the topic of my presentation with David Fifield last summer at Defcon and the Black Hat Briefings. You can watch the video at <http://nmap.org/presentations/>.

Since Nmap 5.21, we've more than doubled the number of NSE scripts to 177 and NSE libraries jumped from 30 to 54. They're all detailed at <http://nmap.org/nsedoc/>.

Meanwhile, we added 636 OS fingerprints and 1,037 version detection signatures to Nmap since 5.21, bringing the totals to 2,982 and 7,319, respectively. No other tool comes close.

Kilde: Januar 2011 <http://nmap.org>

Nping check TCP socket connection

```
hlk@pumba:nmap-5.51$ nping -6 www.solidonetworks.com
```

```
Starting Nping 0.5.51 ( http://nmap.org/nping ) at 2011-03-04 10:18 CET
SENT (0.0061s) Starting TCP Handshake > 2a02:9d0:10::9:80
RECV (0.0224s) Handshake with 2a02:9d0:10::9:80 completed
SENT (1.0213s) Starting TCP Handshake > 2a02:9d0:10::9:80
RECV (1.0376s) Handshake with 2a02:9d0:10::9:80 completed
SENT (2.0313s) Starting TCP Handshake > 2a02:9d0:10::9:80
RECV (2.0476s) Handshake with 2a02:9d0:10::9:80 completed
SENT (3.0413s) Starting TCP Handshake > 2a02:9d0:10::9:80
RECV (3.0576s) Handshake with 2a02:9d0:10::9:80 completed
SENT (4.0513s) Starting TCP Handshake > 2a02:9d0:10::9:80
RECV (4.0678s) Handshake with 2a02:9d0:10::9:80 completed
```

```
Max rtt: 16.402ms | Min rtt: 16.249ms | Avg rtt: 16.318ms
TCP connection attempts: 5 | Successful connections: 5 | Failed: 0 (0.00%)
Tx time: 4.04653s | Tx bytes/s: 98.85 | Tx pkts/s: 1.24
Rx time: 4.06292s | Rx bytes/s: 49.23 | Rx pkts/s: 1.23
Nping done: 1 IP address pinged in 4.07 seconds
```


2011-03-07: Metasploit 3.6.0 Released! We are excited to announce that version 3.6.0 of Metasploit Pro, Metasploit now ships with 648 exploit modules, 342 auxiliary modules, and 23 post modules.

8 new exploits and 12 auxiliary modules have been added since the last point release.

Husk også Armitage GUI til Metasploit <http://www.fastandeasyhacking.com/>

Kilde:

http://www.metasploit.com/redmine/projects/framework/wiki/Release_Notes_360

team-cymru

The team-cymru gem connects to several of Team Cymru's public services: bogon lists, IP to ASN mappings, and malware hash checking.

```
c = Cymru::ASNClient.new
res = c.lookup("130.207.244.251").to_s => "2637      | 130.207.244.251 | 130.207.0.0/16      | US | arin      | 1988-10-10"

c = Cymru::Bogon.new
c.bogon?("127.0.4.1") => true

c = Cymru::Malware.new
c.lookup("cbcd16069043a0bf3c92fff9a99cccdc") => MalwareResult instance, .hash will be the hash, .timestamp will be the r

c = Cymru::TwitterFeed.new
c.messages.each do |date, tweet|
  puts date
  puts tweet
  puts
end
```

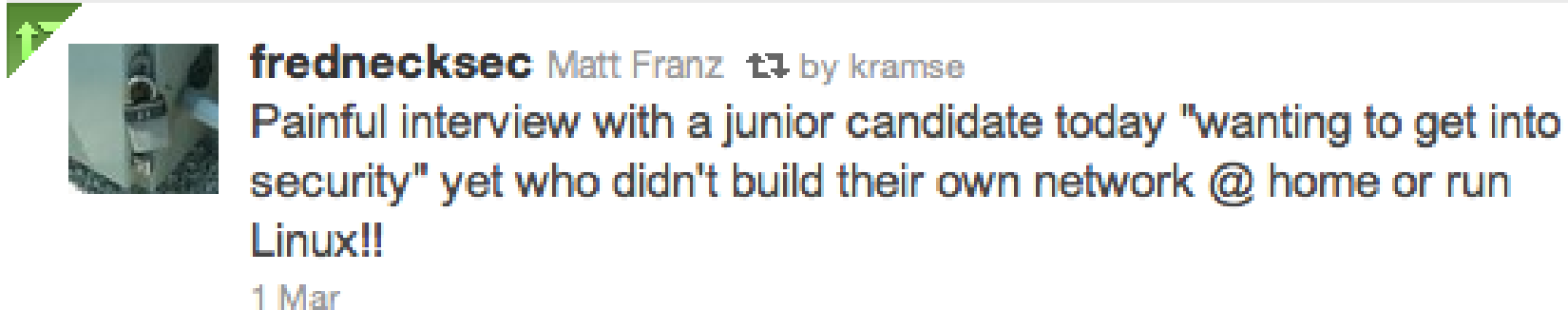
Kilde: <https://github.com/chrislee35/team-cymru>

At the beginning LOKI was made to combine some stand-alone **command line tools**, like the `bgp_cli`, the `ospf_cli` or the `ldp_cli` and to give them a **user friendly, graphical interface**. In the meantime LOKI is more than just the combination of the single tools, it gave its modules the opportunity to base upon each other (like **combining ARP-spoofing from the ARP module with some man-in-the-middle actions, rewriting MPLS-labels for example**) and even inter operate with each other. (Fremhævning: HLK)

<https://www.c0decafe.de/loki.html> Loki

<http://www.packetstan.com/2011/02/running-loki-on-backtrack-4-r2.html>

"Yersinia is a network tool designed to take advantage of some weakness in different network protocols. It pretends to be a solid framework for analyzing and testing the deployed networks and systems."<http://www.yersinia.net/>



Skal du igang med sikkerhed?



Installer et netværk, evt. bare en VMware, Virtualbox, Parallels, Xen, GNS3, ...

Brug BackTrack, se evt. youtube videoer om programmerne

Quote fra Jurassic Park <http://www.youtube.com/watch?v=dFU1AQZB9Ng>

DNSSEC nøgle(r)

(Bruger-id: DKHM1-DK)

Domænenavn ▾	Nøgle-ID	Algoritme	Hashingalgoritme	Hash
<input type="checkbox"/> net.dk	9880	RSASHA256	SHA-1	
<input type="checkbox"/> net.dk	9880	RSASHA256	SHA-256	

Slet nøgle

Opret nøgle

Tilbage til Selvbetjeningens forside

DNSSEC - nu også i Danmark

Du kan sikre dit domæne med DNSSEC - woohooo!

Det betyder en tillid til DNS som muliggør alskens services.

Kilde:

<https://www.dk-hostmaster.dk/english/tech-notes/dnssec/>

The 'S' in HTTPS stands for 'secure' and the security is provided by SSL/TLS. SSL/TLS is a standard network protocol which is implemented in every browser and web server to provide confidentiality and integrity for HTTPS traffic.

Nu vi snakker om kryptering - SSL overalt?

Kan vi klare det på vores servere? ■

Google kan:

<http://www.imperialviolet.org/2010/06/25/overclocking-ssl.html>

Men alt for få gør det

■

Næste spørgsmål er så hvilke rod-certifikater man stoler på ...

Ægypten, Sudan, Tunesien, ...

Den der kontrollerer ISPerne kontrollerer trafikken

Facebook revolutionerne

Blokering er umulig, men det forsøges

Spredning af falsk information

Kilde: <http://irevolution.net/2011/02/10/facebook-for-repressive-reg>

Fjern allerede nu de ting som du ved er dårlige, du ved dem fra 2010 ...
Jeg arbejder stadig på at få kunderoutere over på SSH som management

Sørg for at indsamle config fra enheder, hvis nu en switch stack skulle crashe ...

Sørg for at have adgang til de rigtige ressourcer hos dine leverandører og partnere

Kommunikér sikkert - brug HTTPS til alt
- der findes flere gode add-ons/extensions som tvinger SSL

Hvad skal I bruge tiden på - planlægge fremtiden

Har du beredskab til sommeren, se på ressourcer - er der fyret medarbejdere

Kast ansvar fra dig? Har du reelt ressourcer til at udføre arbejdet forsvarligt

Afdække afhængigheder - hvem er din organisation afhængige af - CSC vs PROSA?!

Configuration Management, Patch management og automatiseret sikkerhedstest
Start evt. med RANCID, NeXpose Community Edition og Metasploit fra BackTrack

Trenden går mod komplekse infrastrukturer, mere af den og højere krav

Kunderne vil have høj opetid, fordi internet teknologier er forretningskritiske

Kunder der ikke betragter netværket som forretningskritisk lider tab

Kunderne har ikke *nok* netværk til at have fuldtidsansatte

Hvad skal der til for at tilbyde Managed Security Services

In computing, managed security services (MSS) are network security services that have been outsourced to a service provider.

Kilde: http://en.wikipedia.org/wiki/Managed_security_service

Opgaver som tidligere blev håndteret in-house, eller ignoreret:

Event opsamling og analyse, Email scanning, Anti-virus og spam,

Firewall opsætning, drift og konfiguration

Audit af netværk løbende, som en service - aktive pentest, paper review

Netværksopsætning internt, STP, RSTP, stacks, LACP, LLDP, ...

Netværksopsætning eksternt, BGP, LC-SC, single-mode, mono-mode, multi-mode, link-net, PI, PA, RIPE

Angreb DoS, DDoS m.v.

Definition af nye produkter - hvad får kunden

Kommunikation, både ved ændringer, problemer, opfølgning

Det er en omstilling for os at definere produkterne, men sundt

Kunderne er ikke vant til at overlade så meget til os

Hvem har reelt kontrollen? kan man out-source sikkerhed?

Ansvar - SLA dækker jo opetid, hvad med brud på sikkerheden

Virtualisering af sikkerhed



Following are the main sections defined by the standard as the basis for penetration testing execution:

- Pre-engagement Interactions
- Intelligence Gathering
- Threat Modeling
- Vulnerability Analysis
- Exploitation
- Post Exploitation
- Reporting

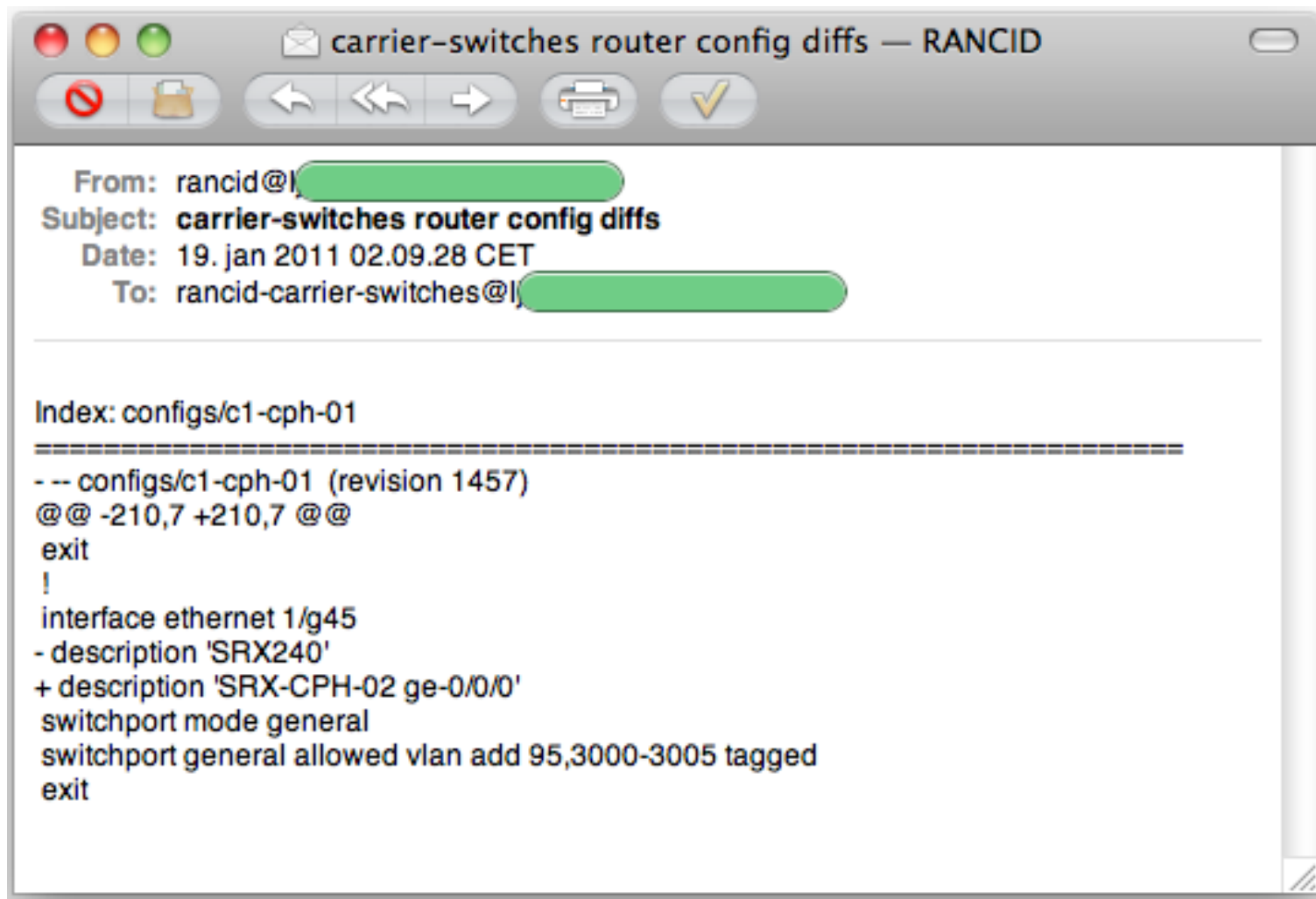
Konkurrent til ISECOM Open Source Security Testing Methodology Manual?

Kilde: http://www.pentest-standard.org/index.php/Main_Page

```
[rancid@ljh routers]$ cat router.db
mx-lux-01:juniper:up
mx-lux-02:juniper:up
...
[rancid@ljh routers]$ crontab -l
# run config differ hourly
07 0-23/2 * * * /usr/local/rancid/bin/rancid-run
# clean out config differ logs
50 23 * * * /usr/bin/find /usr/local/rancid/var/logs -type f -mtime +2 -exec rm {}
```

RANCID will then fetch configurations, and more, and put it into version control SVN/CVS

Changes are emailed to an email alias



Kender I NIST special publications?

SP 800-119 Feb. 22, 2010 DRAFT Guidelines for the Secure Deployment of IPv6
God fordi den forklarer hvad IPv6 er

SP 800-58 Jan 2005 Security Considerations for Voice Over IP Systems
Giver næsten et design der kan bruges direkte, giver svar på spørgsmål du selv har glemt at stille

<http://csrc.nist.gov/publications/PubsSPs.html>



PROSA afholdt fredag 17. september - til lørdag 18. september Capture the Flag

Distribueret CTF med 6 hold og arrangørerne i Aalborg

Sjovt og lærerigt - gentages helt sikkert

Kilde: <http://prosa-ctf.the-playground.dk/>

Get ready! Lær debuggere, perl, java at kende, start på at hacke

Hvad glemte jeg? Kom med dine favoritter 😊

Henrik Lund Kramshøj
hlk@solidonetworks.com

`http://www.solidonetworks.com`

You are always welcome to send me questions later via email

Husk at sige DK-NOG

Nyt firma, konsolidering

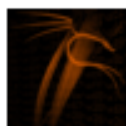
Flere DNS, Luxembourg, flere kunder Luxembourg

DNS TCP queries, IPv6 DNS, DNS reply-size testing

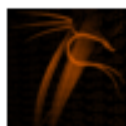
DNSSEC

IPv6, APNIC løber tør i år.

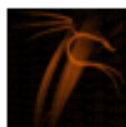
Bogon filter updates, BGP IPv6 filters, update



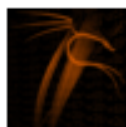
exploitdb [webapps] – BPAffiliate Affiliate Tracking
Authentication Bypass Vulnerability: <http://bit.ly/9LOC3K>
about 5 hours ago via twitterfeed



exploitdb [webapps] – BPDIRECTORY Business Directory
Authentication Bypass Vulnerability: <http://bit.ly/c4TeLz>
about 5 hours ago via twitterfeed



exploitdb [webapps] – BPCONFERENCEREPORTING Web Reporting
Authentication Bypass Vulnerability: <http://bit.ly/cM61AK>
about 5 hours ago via twitterfeed



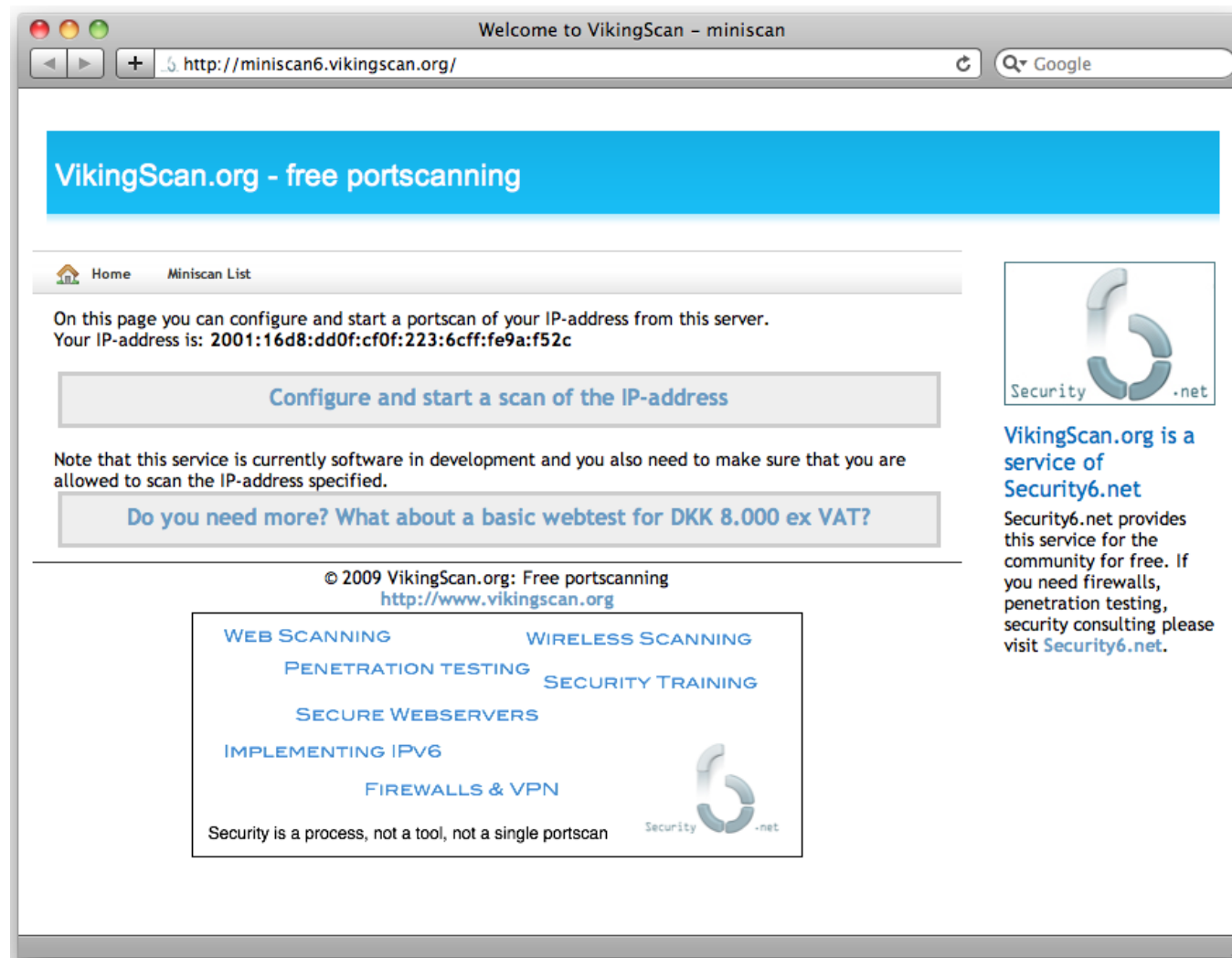
exploitdb [webapps] – BPREALESTATE Real Estate
Authentication Bypass Vulnerability: <http://bit.ly/bYx2aY>
about 5 hours ago via twitterfeed



sans_isc [Diary] Mac OS X Server v10.6.5 (10H575) Security
Update: <http://support.apple.com/kb/HT4452>, (Tue, Nov
16th): <http://bit.ly/azBrso>
about 7 hours ago via twitterfeed

Nye kilder til information:

har twitter afløst RSS? NB: favoritsite <http://isc.sans.edu/index.html>





- Henrik Lund Kramshøj, IT-sikkerhed og internet samurai
- Email: hlik@solido.net Mobil: +45 2026 6000
- Cand.scient fra Datalogisk Institut ved Københavns Universitet, DIKU
- CISSP og CEH certificeret
- 2003 - 2010 Selvstændig sikkerhedskonsulent
- 2010 Stifter og partner i Solido Networks ApS

Følgende kurser afholdes med mig som underviser

- IPv6 workshop - 2 dage
Introduktion til Internetprotokollerne og forberedelse til implementering i egne netværk.
- Wireless teknologier og sikkerhed workshop - 1-2 dage
En dag med fokus på netværksdesign og fornuftig implementation af trådløse netværk, samt integration med hjemmepc og virksomhedsnetværk.
- Hacker workshop 2 dage
Workshop med detaljeret gennemgang af hackermetoderne angreb over netværk, exploitprogrammer, portscanning, OpenVAS m.fl.
- Forensics workshop 2 dage
Med fokus på tilgængelige open source værktøjer gennemgås metoder og praksis af undersøgelse af diskimages og spor på computer systemer
- Moderne Firewalls og Internetsikkerhed 2 dage
Informere om trusler og aktivitet på Internet, samt give et bud på hvorledes en avanceret moderne firewall idag kunne konfigureres.

Se mere på <http://www.solidonetworks.com>