The Honeyned P R O J E C T

HonEeeBox



Annual Workshop Private Day 22/03/2012

David Watson

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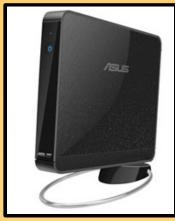


HonEeeBox Approach

- Build small, cheap, highly portable low interaction honeypots for distributed malware collection to a central location
- Deploy widely and internationally (100+)
- Centralised sample submission (anon opt)
- 'Outsource' malware binary analysis to Shadowserver, VirusTotal, etc
- Focus development on reporting and analysis UI, then data analysis
- Add p0f data, netflow, kippo, proxies, etc David Watson (david@honeynet.org.uk)

Asus Eee PC Box (B202)

- Intel Atom x86 CPU
- 1.6 GHz HT
- IGB RAM
- 160GB hard disk
- Standard PC I/O
- Hardware warranty
- Small, quiet, low power, easy to ship (Raspberry Pi?)



- Minimal Debian
 Squeeze installation
- Dionaea + HPFeeds
- Image or repos
- Live CD / USB / VM
- We ship it, you boot it and set locale

Deploying a HonEeeBox

HonEeeBox ISO URL HonEeeBox Instructions URL Burn ISO to USB and install in 5 minutes Done this for you already on hardware here

PROJECT



Liv

Live (Paileare) Live 686 Live 686 (failsafe) Text Install Text Expert Text Rescue Text Auto

Checking file systems...fsck from util-linux-ng 2.17.2 done. Mounting local filesystems...done. Activating swapfile swap...done. Cleaning up temporary files.... Setting kernel variables ...done. Setting up resolvconf.../etc/resolvconf/update.d/libc: Warning: /etc/resolv.conf is not a symbolic link to /etc/resolvconf/run/resolv.conf done. Setting up networking.... Configuring network interfaces...done. Cleaning up temporary files.... Setting console screen modes. Skipping font and keymap setup (handled by console–setup). Setting up console font and keymap...done. INIT: Entering runlevel: 2 Using makefile–style concurrent boot in runlevel 2. Starting enhanced syslogd: rsyslogd. Starting periodic command scheduler: cron. Starting system message bus: dbus. Starting OpenBSD Secure Shell server: sshd.

Debian GNU/Linux 6.0 debian tty1

<u>debian login: _</u>

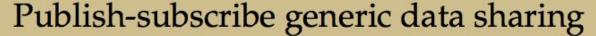


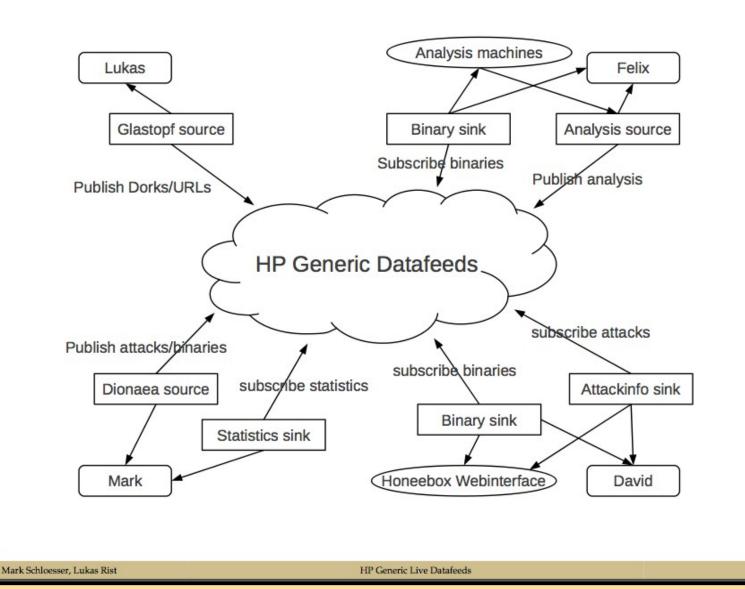
$\textbf{Nepenthes} \rightarrow \textbf{Dionaea}$

- C with glib
- LibEv events
- Embedded Python
- OpenSSL for TLS
- Udns (asynch)
- Curl and Libcfg
- SQL logging
- IPv6 support

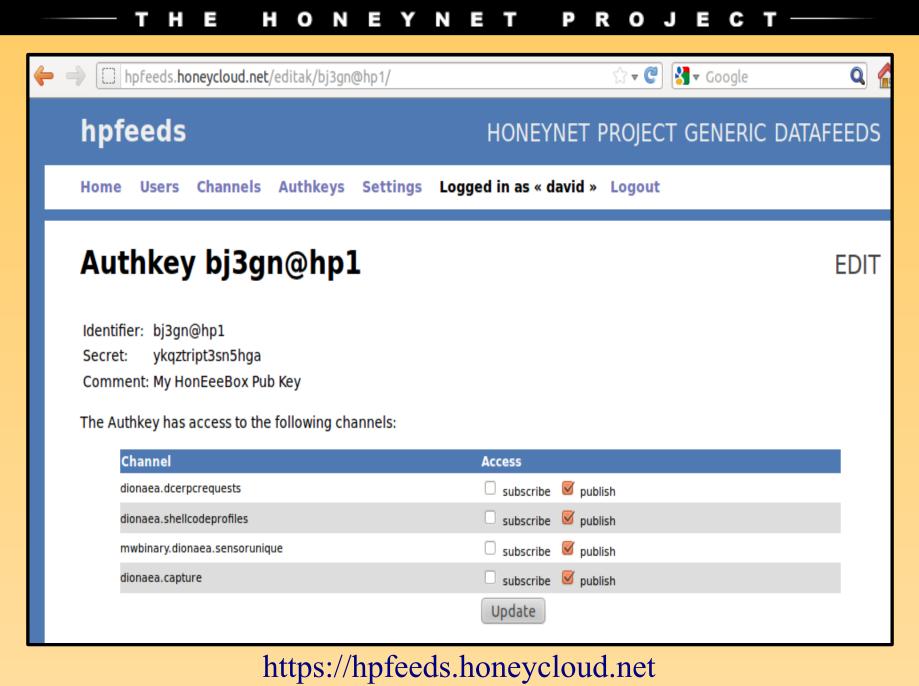
- SMB/CIFS protocol emulation for (unknown) RPC calls
- Generic shellcode detection via LibEmu
- Actions on shellcode profile (windows shell, file download) via LibEmu execution







5 of 11



pythonfeed.py --hosthpfeeds.honeycloud.net -p 10000 -c dionaea.capture -i your-sub-authkey-identifier -s your-pubauthkey-secret subscribe

pythonfeed.py --hosthpfeeds.honeycloud.net -p 10000 -c dionaea.shellcodeprofiles -i your-sub-authkey-identifier -s your-pub-authkey-secret subscribe

pythonfeed.py --hosthpfeeds.honeycloud.net -p 10000 -c dionaea.dcerpcrequests -i your-sub-authkey-identifier -s yourpub-authkey-secret subscribe

pythonfeed.py --hosthpfeeds.honeycloud.net -p 10000 -c
mwbinary.dionaea.sensorunique -i your-sub-authkey-identifier s your-pub-authkey-secret subscribe

😻 Example HonEeeBox Reporting Interface using Ext-JS - Mozilla Firefox

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🔇 🔍 😴 💥 🏠 🗋 https://honeeebox.net/demo_schema1/

🔎 Most Visited p Getting Started 🔊 Latest Headlines

Attack Summary Panel

Total Attacks: 3409 (+36)Juur Total Attacker IPs: 1202 (+28)Total Victim IPs: 167 (+17) .stat.allul Total MD5sums: 566 (+22)Juur Sensors: 10 (4) automatian AV Undetected: 4015 / 28579 (14.0%)

HONEYNET

Attack Browser				×	Google Maps Google Earth Virustotal Anti-Virus Sandbox Graphs PicViz Heatmap Cuttlefish
ID Time	Attacker IP	Victim IP	MD5sum	Download	Norriev Map Satellite Hybrid Terrain
3381 03 Oct 2009 14	:49:47 80.41.76.228	80.203	fd28c5e1c38caa35bf5e1987e6167f4c	tftp://80.41.76.228:69/ssms.exe	
3382 03 Oct 2009 15	:19:32 💶 88.8.235.161	88.96.	c636db42a58de90f6e2f62484bc935f9	ftp://1:1088.8.235.161:25832/runs.exe	Bergen Falun Cave Tu
3383 03 Oct 2009 17	:13:57 📕 71.1.81.9	192.168.1	2fa0e36b36382b74e6e6a437ad664a80	tftp://71.1.81.9:69/ssms.exe	+ Uppsala Norritaje
3384 03 Oct 2009 17	:30:36 🔳 80.130.64.149	80.203	697f001bc330ab483d77a707cd40c8d9	tftp://80.130.64.149:69/ssms.exe	
3385 03 Oct 2009 18	:11:58 📕 80.62.34.192	80.203	98eb0fdadf8a403c013a8b1882ec986d	tftp://80.62.34.192:69/ssms.exe	Stavanger / Friendstad Stavanger / Visiterie Stockholm Stavanger /
3386 03 Oct 2009 18	:32:11 🔳 80.144.39.99	80.203	14a09a48ad23fe0ea5a180bee8cb750a	tftp://80.144.39.99/ssms.exe	Utdevalla Skove
3387 03 Oct 2009 18	:59:00 📕 80.131.240.234	80.203	3228f8bc721572422c268f244476dbb8	tftp://80.131.240.234:69/ssms.exe	Kindiansand Visiterink visiterink
3388 03 Oct 2009 19	:36:48 📕 80.136.238.168	80.203	ea55dd10c429dc57041e465c834b7089	blink://80.136.238.168:51617/rxLndg==	Chieberg G Bord Jankapra
3389 03 Oct 2009 20	:06:59 80.62.169.53	80.203	697f001bc330ab483d77a707cd40c8d9	tftp://80.62.169.53:69/ssms.exe	Autor Verse Verse
3390 03 Oct 2009 20	:19:04 📕 80.85.106.120	80.203	f4a200f7818dfb166b9a3d238ac55a2d	tftp://80.85.106.120/ssms.exe	Edinburgh Edinburgh
3391 03 Oct 2009 20	:53:55 💶 80.36.127.228	80.203	3228f8bc721572422c268f244476dbb8	tftp://80.36.127.228/ssms.exe	Kiapeňavn [©] Kristanstad Kiapeda
3392 03 Oct 2009 21		88.96.	c636db42a58de90f6e2f62484bc935f9	ftp://1:1088.26.131.7:9942/runs.exe	Londonderry Glasgow Derry United United
	:44:33 📲 80.47.43.79	80.203	bf3e95a24e203f680465e165ba4a02b1	tftp://80.47.43.79/ssms.exe	Benast Kingdom
3394 03 Oct 2009 22		80.203	fcab6c9d17b2a3330f20ee2194c869fa	tftp://80.85.105.216/ssms.exe	tsie offian
3395 04 Oct 2009 06		80.203	3228f8bc721572422c268f244476dbb8	tftp://80.131.233.227:69/ssms.exe	Dublin Prestone e P
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Time:	Sat Oct 03 2009 17:30:36 GN	4T+0100 (GMT Daylight T	īme)		Guineer Argen Tour Ocheans Munchen Budgest Debrace Nantes Budges Dury Schweiz Cutana' Gazz
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SHA512:	bf53a6773dc2cca07c3855e6b	9ee18b57781dcd915563	2ab61e9a3074dd1ef5e		Gion Santarde Politikation Politication Poli
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Done					Disabled

David Watson (david@honeynet.org.uk)

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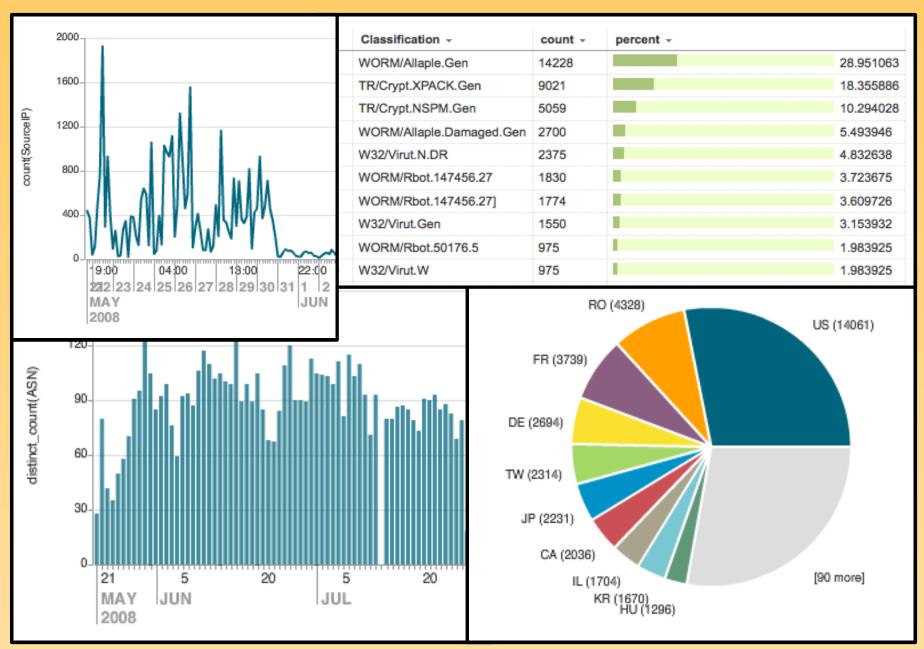
PROJECT

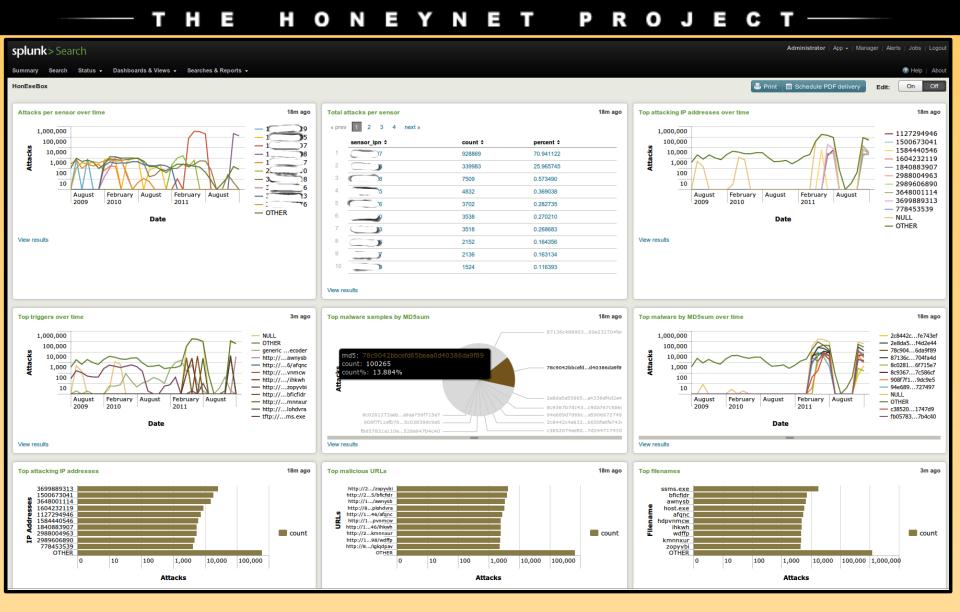
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THE HONEYNET PROJECT

HonEeeBox Summary											
Total Attacks: 56 Marcha Total Source IPs: 6 Marcha Total Target IPs: 1 Marcha Total MD5sums: 7 Marcha											
Attacks				Google Map Googe Earth Sandbox A	Anti-Virus Graphs PicViz Heatmap Cuttlefish						
ID Time	Attacker IP	Victim IP	MD5sum	Download		и, и, и и т					
1 20 Mar 2009 17	22:37 50.232.61.243	64.236.114.1	la2c0e6130850f8fd9b9b5309413cd00	ftp://70.232.61.243							
The second second second second	22:37 64.236.114.1	64.236.114.1	e399196c959235c23f71ac2c5ab1192d	ftp://l:1088.204.18	Scan Summary	File Changes	Reg				
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4 20 Mar 2009 17	22:37 127.255.255.255	64.236.114.1	8f4e8e31fcdbf9635791ab009defe1b5	creceive://211.200.	Analysis Number	1					
5 20 Mar 2009 17	22:37 📓 87. 17. 73. 69	64.236.114.1	f5f55437982c893ae8b9cb8187d47256	creceive://87.17.73	Parent ID	0					
6 20 Mar 2009 17	22:37 📓 87. 17. 73. 69	64.236.114.1	11d31a4ebd7260193ffe8da9bb79156a	creceive://87.17.73	Process ID	1340					
7 20 Mar 2009 17	22:37 📕 118. 165. 49. 147	64.236.114.1	e8d4d8cde15ef310305955c943c0d1c2	ftp://a:a@118.165.4	Filename	H:\EuTeAmo.exe					
8 20 Mar 2009 17	. 22:37 70. 232. 61. 243	64.236.114.1	1a2c0e6130850f8fd9b9b5309413cd00	ftp://70.232.61.243	Filesize	222720 bytes					
9 20 Mar 2009 17	. 22:37 64. 236. 114. 1	64.236.114.1	e399196c959235c23f71ac2c5ab1192d	ftp://1:1088.204.18	MD5	79e2133fcc5b201b89a6680a7d289f6f					
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11 20 Mar 2009 17	22:37 🛛 127. 255. 255. 255	64.236.114.1	8f4e8e31fcdbf9635791ab009defe1b5	creceive://211.200.	Termination Reason	NormalTermination					
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13 20 Mar 2009 17	222:37 📓 87.17.73.69	64.236.114.1	11d31a4ebd7260193ffe8da9bb79156a	creceive://87.17.73	Stop Time	00:54.453					
14 20 Mar 2009 17	22:37 📕 118. 165. 49. 147	64.236.114.1	e8d4d8cde15ef310305955c943c0d1c2	ftp://a:a@118.165.4	Detection	OK (ClamAV)					
15 20 Mar 2009 17		64.236.114.1	<u>1a2c0e6130850f8fd9b9b5309413cd00</u>	ftp://70.232.61.243	сом	COM Create Instance: H:\WINDOWS\system32\ieframe.dll, Prog COM Create Instance: H:\WINDOWS\system32\urImon.dll, Progl					
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19 20 Mar 2009 17	22:37 🔛 87.17.73.69	64.236.114.1	f5f55437982c893ae8b9cb8187d47256	creceive://87.17.73		H:\WINDOWS\system32\RPCRT4.dll					
🛛 🖣 Page 🚺 🖓	of 3 🕨 🕅 🤃 IP:	MD	5:		H:\WINDOWS\system32\Secur32.dll H:\WINDOWS\system32\comctl32.dll						
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Trigger:	ftp://anonymous:bin@192.168.	1.64:5554/16745 up.exe									
MD5sum:	1a2c0e6130850f8fd9b9b5309	413cd00									
SHA512:	8e1e40dedb4aa57ae5c89a75	iaca26a813ce5622e3710	49ddbc916552d1c00b48								
File Type:	PE32 executable for MS Windo	ws (GUI) Intel 80386 32-b	it			H:\WINDOWS\system32\msctfime.ime H:\WINDOWS\system32\msctfime.ime					
Attacker IP:	1189625331					H:\WINDOWS\system32\WS2_32.DLL					
Victim IP:	1089237505					H:\WINDOWS\system32\appHelp.dll					
Filename:	16745_up.exe					H:\WINDOWS\system32lieframe.dll H:\WINDOWS\system32liASCTF.dll					
Country:	US					New Files					
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ASN:	1331										

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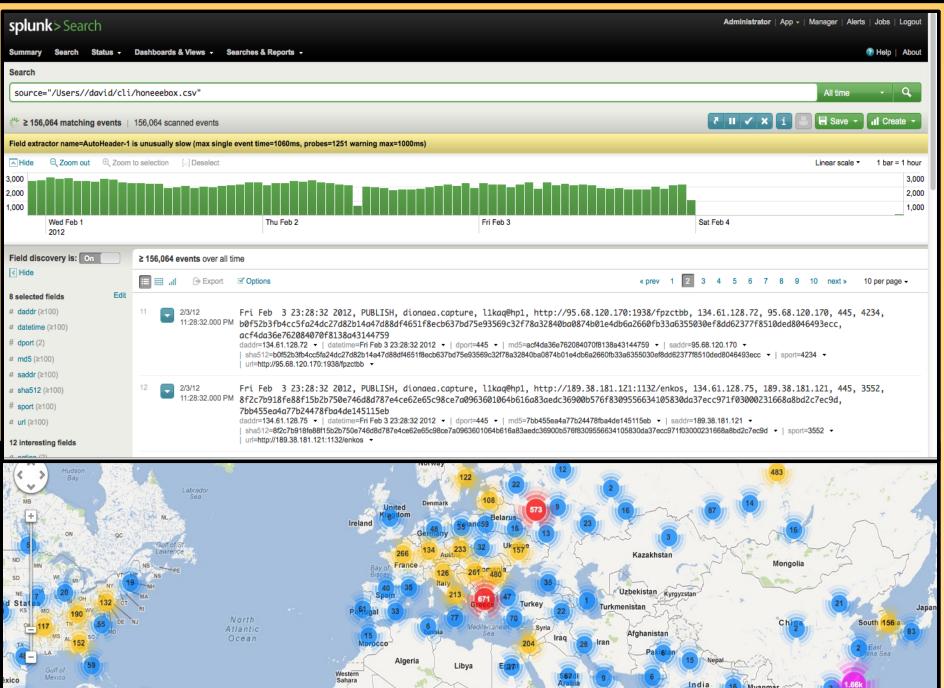




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- THE HONEYNET PROJECT-



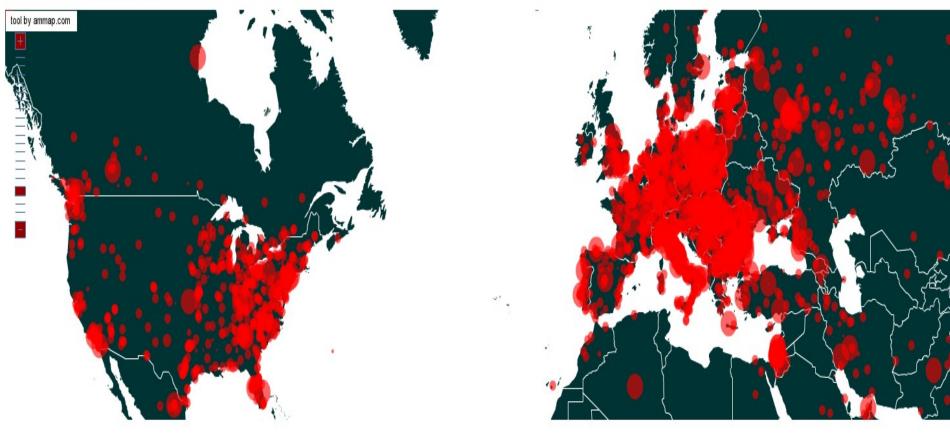
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splunk > Splunk for use with AMMAP

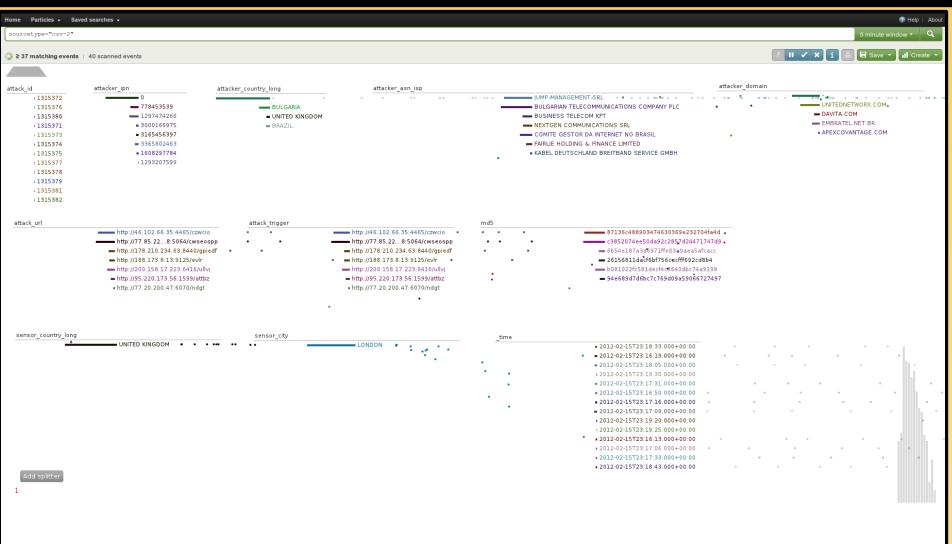
AMMap 🗸	
AMMAP View Actions -	
search	

Activity Map

The Activity Map shows the count of IPs by geo



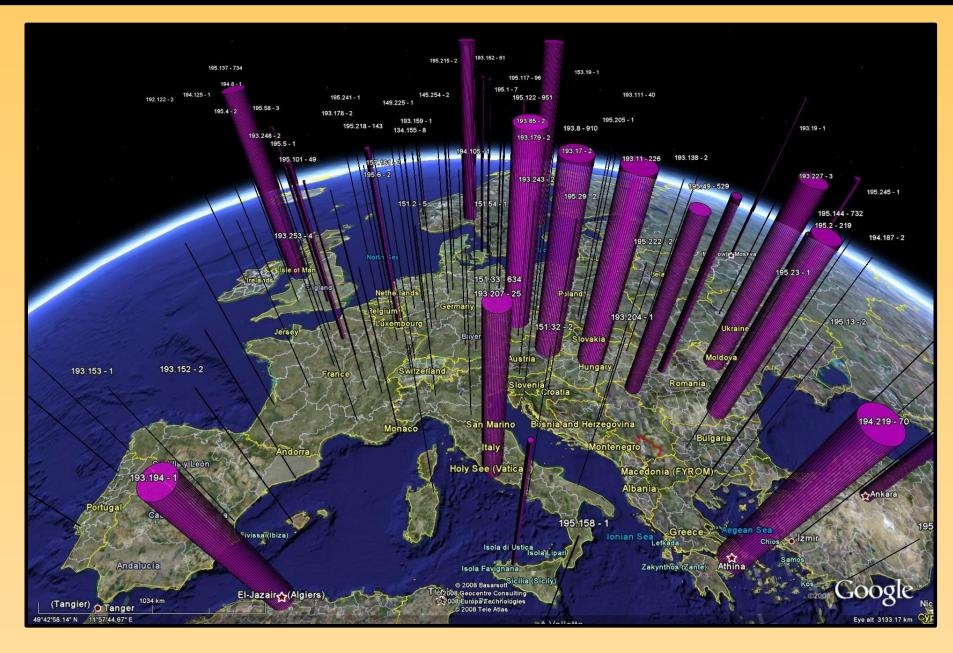
— ТНЕ НОМЕУМЕТ РКОЈЕСТ—



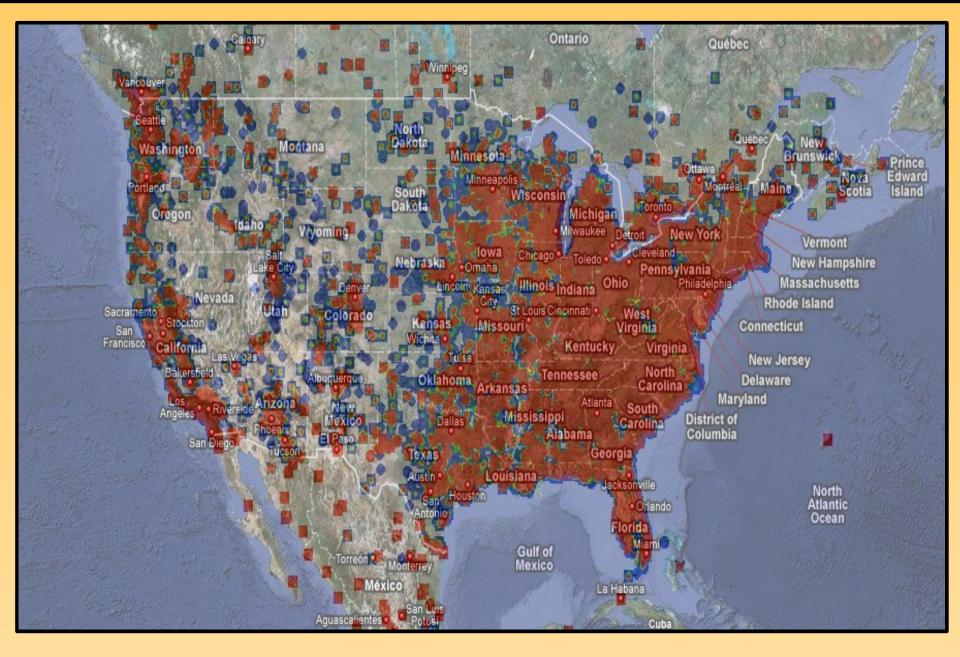
HonEeeBox Future

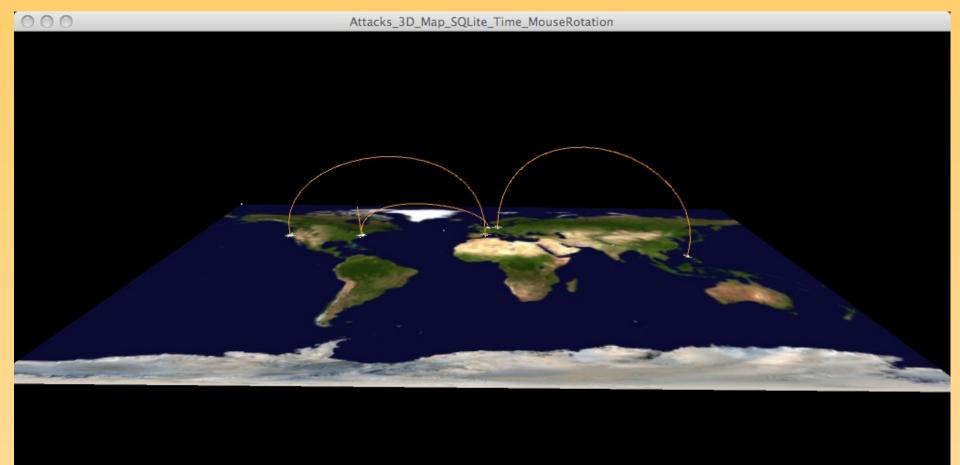
- Splunk dashboad enterprise license from Taiwan :-)
- Old prototype UI using ExtJS & MySQL backend
- Moving to Django/Python + HPFeeds from now
- Centralised repository of sensor data
- Improve collaborative development, data sharing and data analysis with the rest of the community
- Continuous data source for UI and data viz R&D
- Anonymized student data feeds for GSoC, etc

- THE HONEYNET PROJECT-



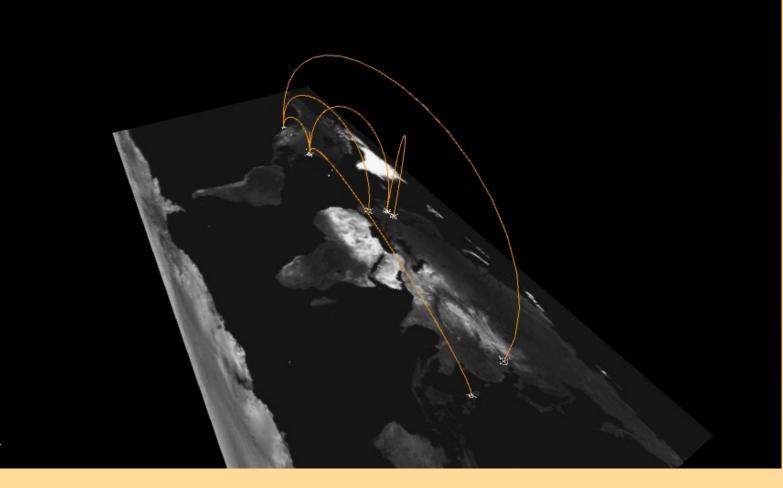
THE HONEYNET PROJECT



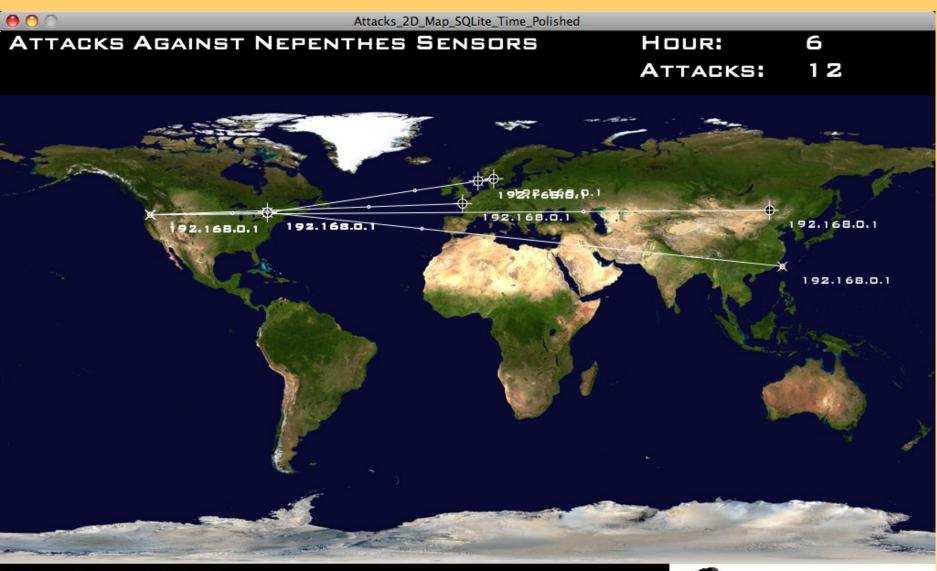


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Attacks_3D_Map_SQLite_Time_BW_Rotating



Nepenthes Samples Hour: 5

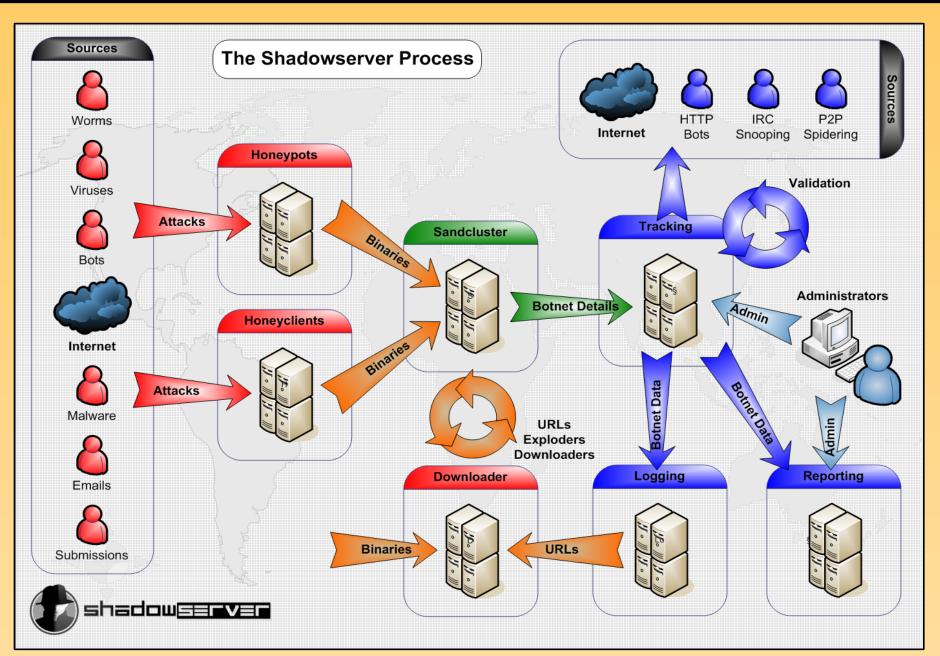


The Honeynet



HonEeeBox Future

- 30-40 sensors today, want 100+ by end Q1 2012
- Cover low data regions like China, Iran, Korea
- Aim to demonstrate 100+ low interaction distributed sensor nodes with zero day detection operating 24/7
- Giving out hardware or arranging to ship final sensors to members today
- Have budget to pay for hardware shipping / tax
- Will have given 135 HonEeeBoxes to members
- Understand this isn't pushing the boundaries!
- HonEeeBox a baseline foundation service for the Project, like gas, electricity or water utilitities



HonEeeBox Participation

- 1+ unfiltered public IP addresses (more is better)
- 1+ networked x86 PC/server(s) to boot ISO or USB key or space to host HonEeeBox sensor hardware
- Be willing to submit basic attack data (SRC IP, download URL, MD5, timestamp, binary)
- Be willing to share collected malware samples with all participants, Project members and partners / sponsors
- Accept submissions from existing Dionaea sensors
- Funding for additional sensor deployment
 - Regional, CERT, industry, academic, etc
- Always need sponsorship (buy more hardware, etc) ;-)

Will HonEeeBox Succeed?

- Designed and built entire system (Live ISO)
- Sourced \$40k hardware, paid for shipping/tax
- Developed next gen Dionaea honeypot
- Created HPFeeds data transport layer
- Signed packages for one command updates and rolling out new features like Kippo, proxy
- Trivial, free data access to all members
- Splunk dashboard next month, GUI after that
- Human/risk problem, not technical or logistics David Watson (david@honeynet.org.uk)

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EVERYONE:

We want each chapter to deploy at least one HonEeeBox sensor Ideally one HonEeeBox sensor per country Takes 5 minutes Minimum effort/risk Hardware now **GET INVOLVED TODAY!**



Getting Hardware Now

- We have 20 HonEeeBoxes here at Facebook
- We have another 14 in Taiwan to ship too
- Who wants one and will actually deploy it and contribute data immediately (in April)?
- Please don't take one if:

you have no public unfiltered IP addresses you know you won't contribute data!

you already have one, unless there are spares

Please do take one and help everyone else :-)

The Honeyned P R O J E C T

HonEeeBox

http://www.honeynet.org Any Questions?