Iftach Ian Amit | September 2011

Pushing in, leaving a present and pulling out without anybody noticing

Iftach Ian Amit
VP Consulting

DC9723
CSA-IL Board member
IL-CERT Visionary

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whoami

- Not certified
- VP Consulting at Security-Art
- Hacker, researcher, developer
- I like crime, and war :-)
- DC9723, PTES, IL-CERT, IAF

Agenda

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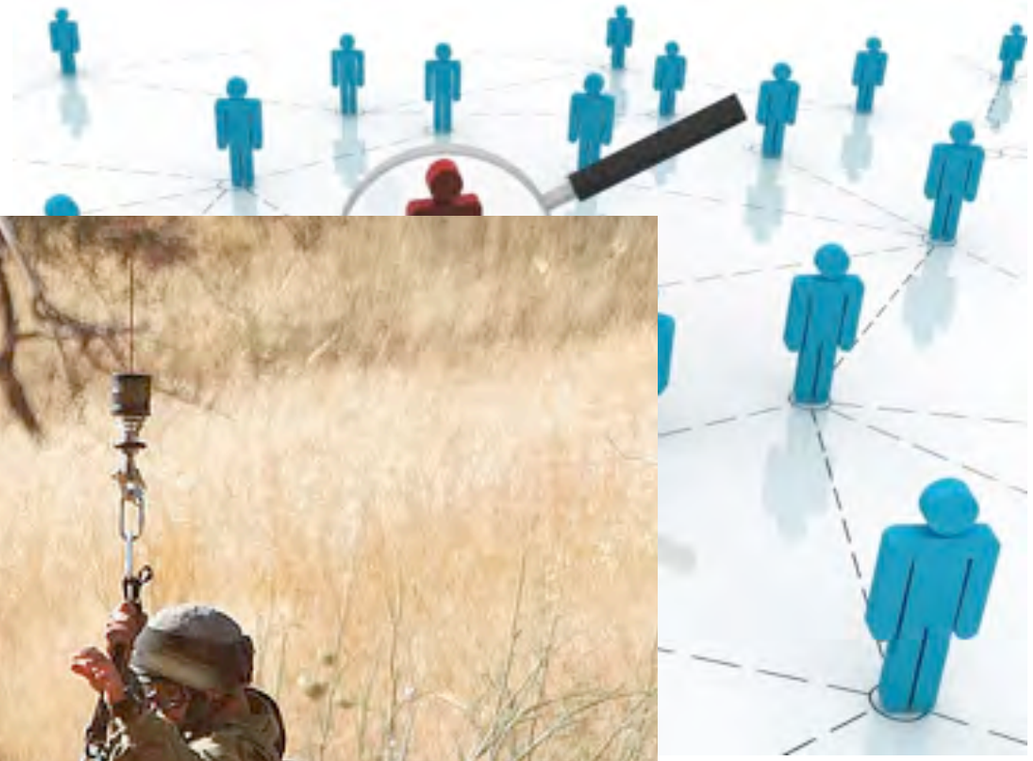
Going above and beyond traditional security

Agenda



I. Infiltration

- Technical factors
- Human factors
- Command & Control in loosely connected environments

Infiltration - Technical

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- Exploits! of what???

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- Exploits! of what???
  - Web, FTP, mail, SSL-VPN...
    - Will only get you the basic stuff
  - 3rd party tools used (LinkedIn, SalesForce, SaaS applications)...
  - Harder to get

    *although nice to have as reproducible on many targets

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Infiltration - Technical

The problem:

Small attack surface

Infiltration - Technical

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- **Attack surface** is much broader (spell Adobe, Symantec, WinZip, AOL, Mozilla, etc...)

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- "did you get my memo with the new price-list <link to .xls file>"
- You get the idea...

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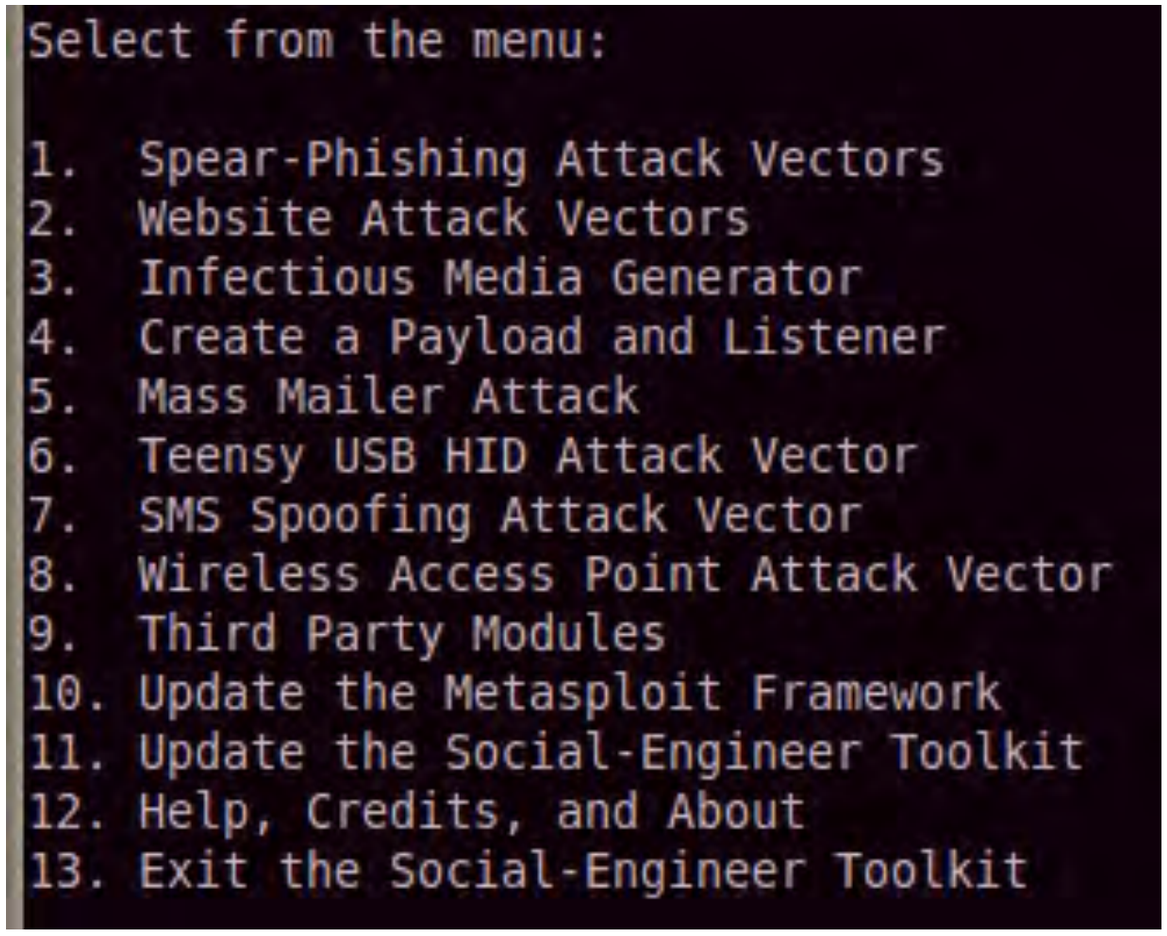

Infiltration - Human

And... being nice/nasty/
obnoxious/needy always
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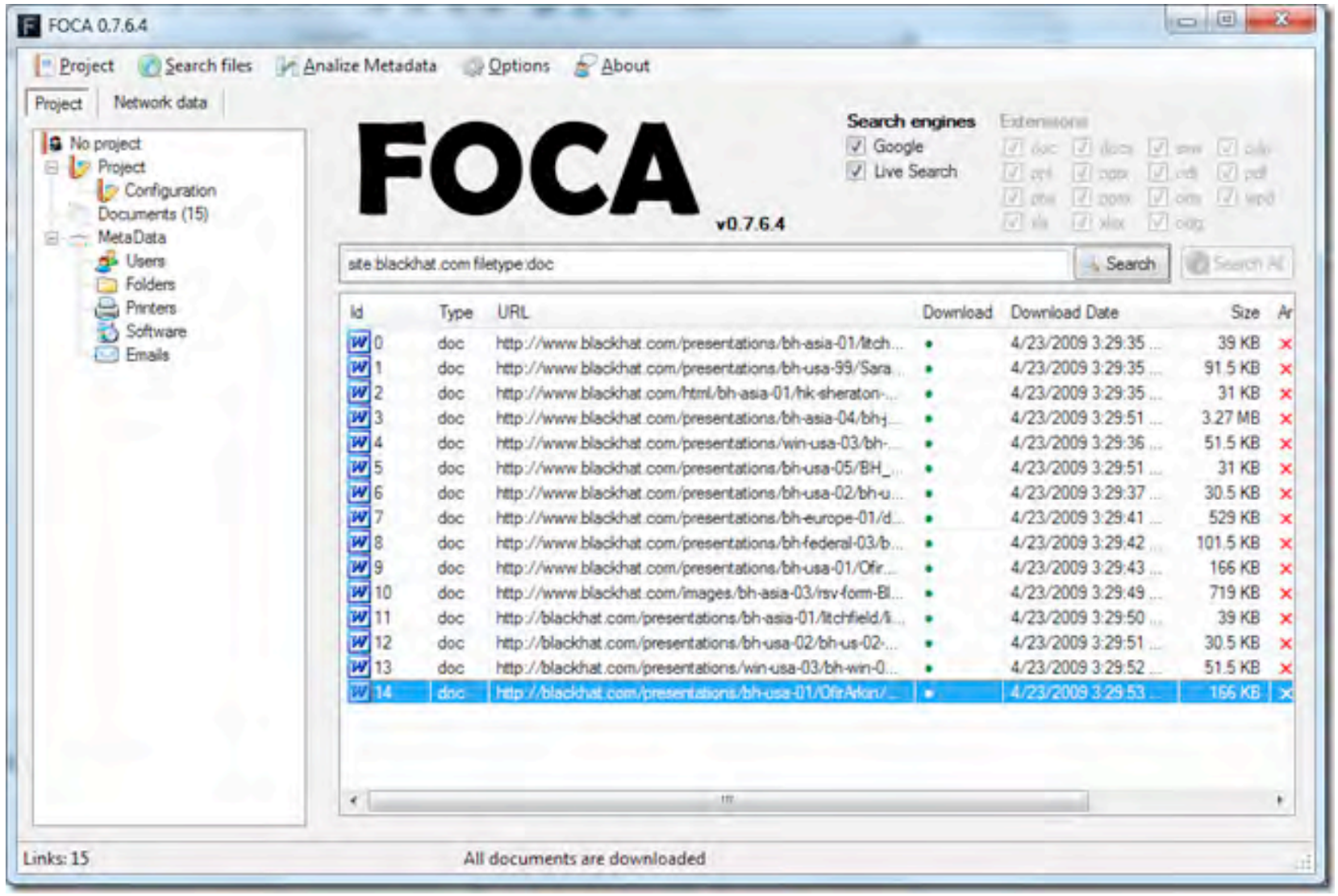
2. Data Targeting & Acquisition

- Weaponizing commercial tools
- Creating "APT" capabilities
- But first - targeting...

Step 1: Basic Intel

What is the target "willing" to tell about itself?



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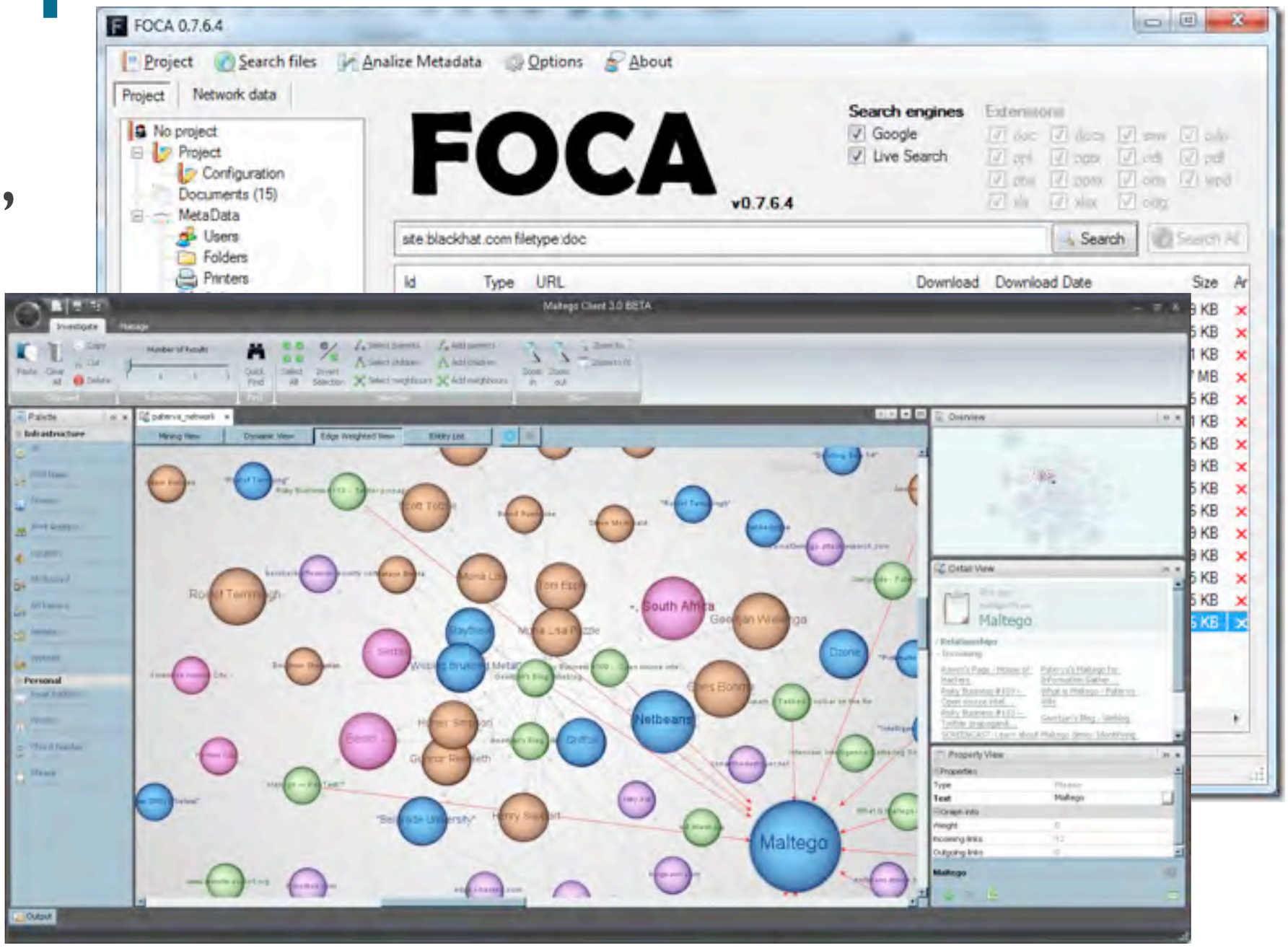

Who's your daddy?

And buddy, and friends, relatives, colleagues...

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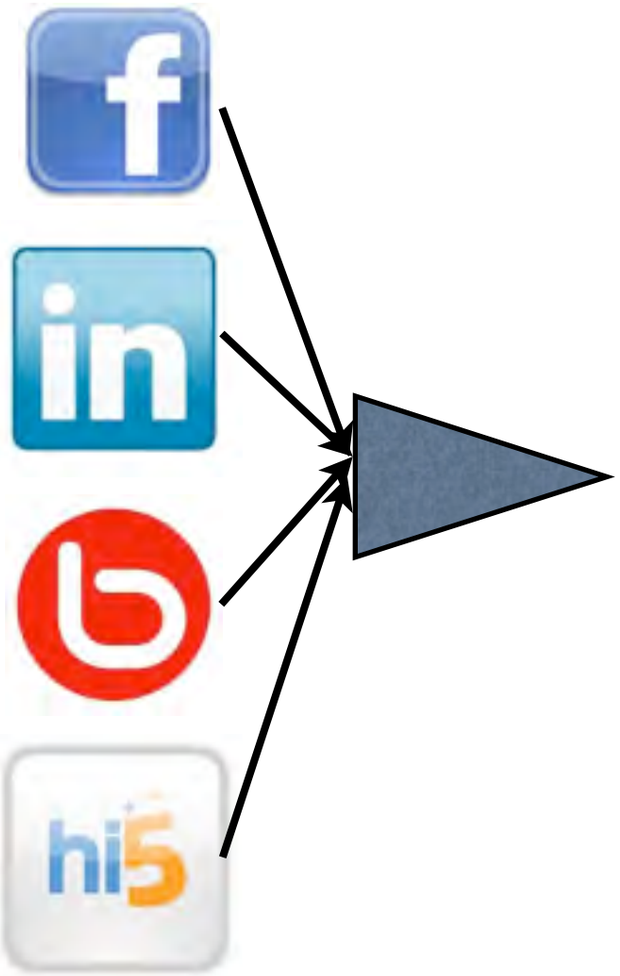

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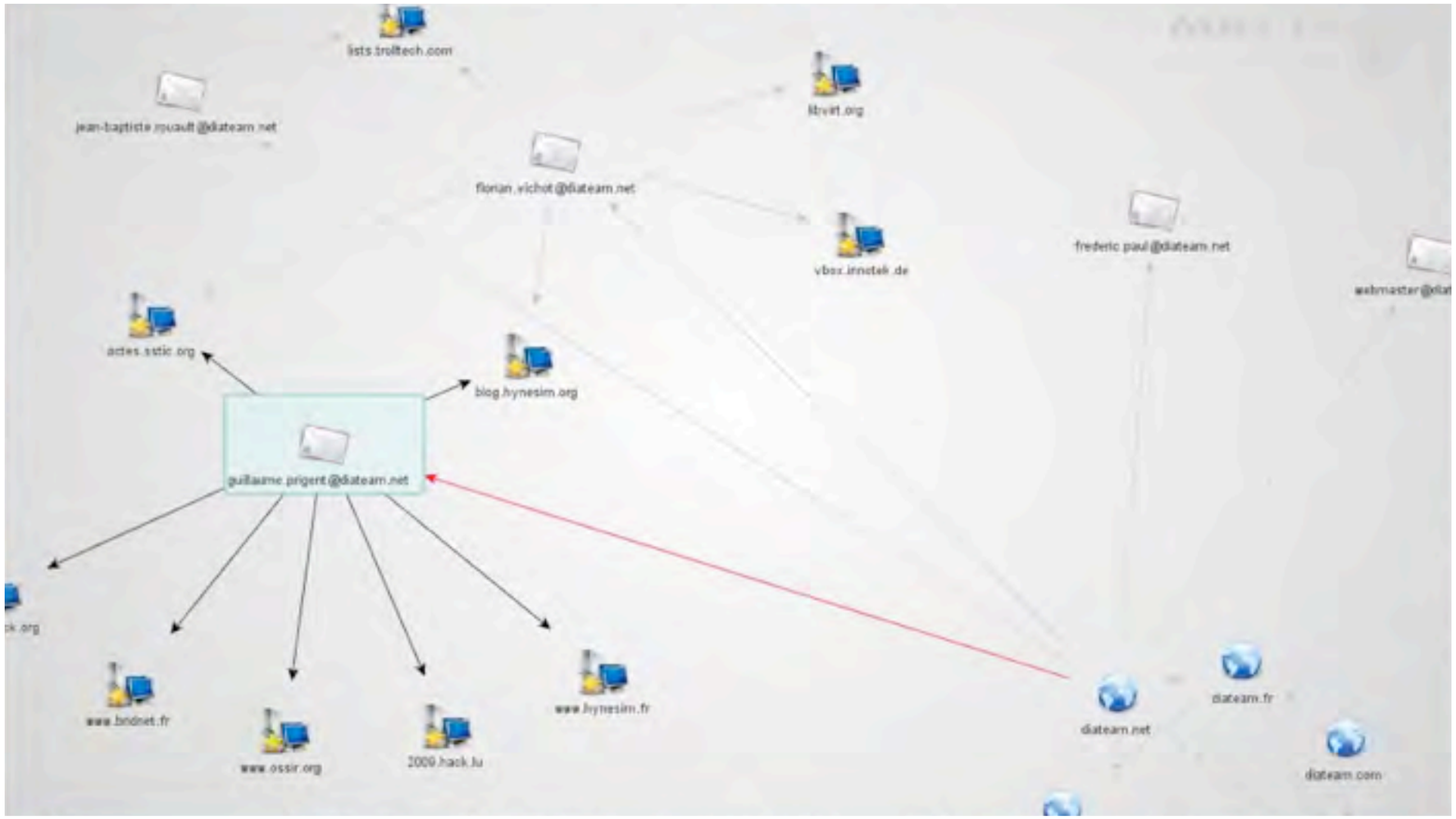
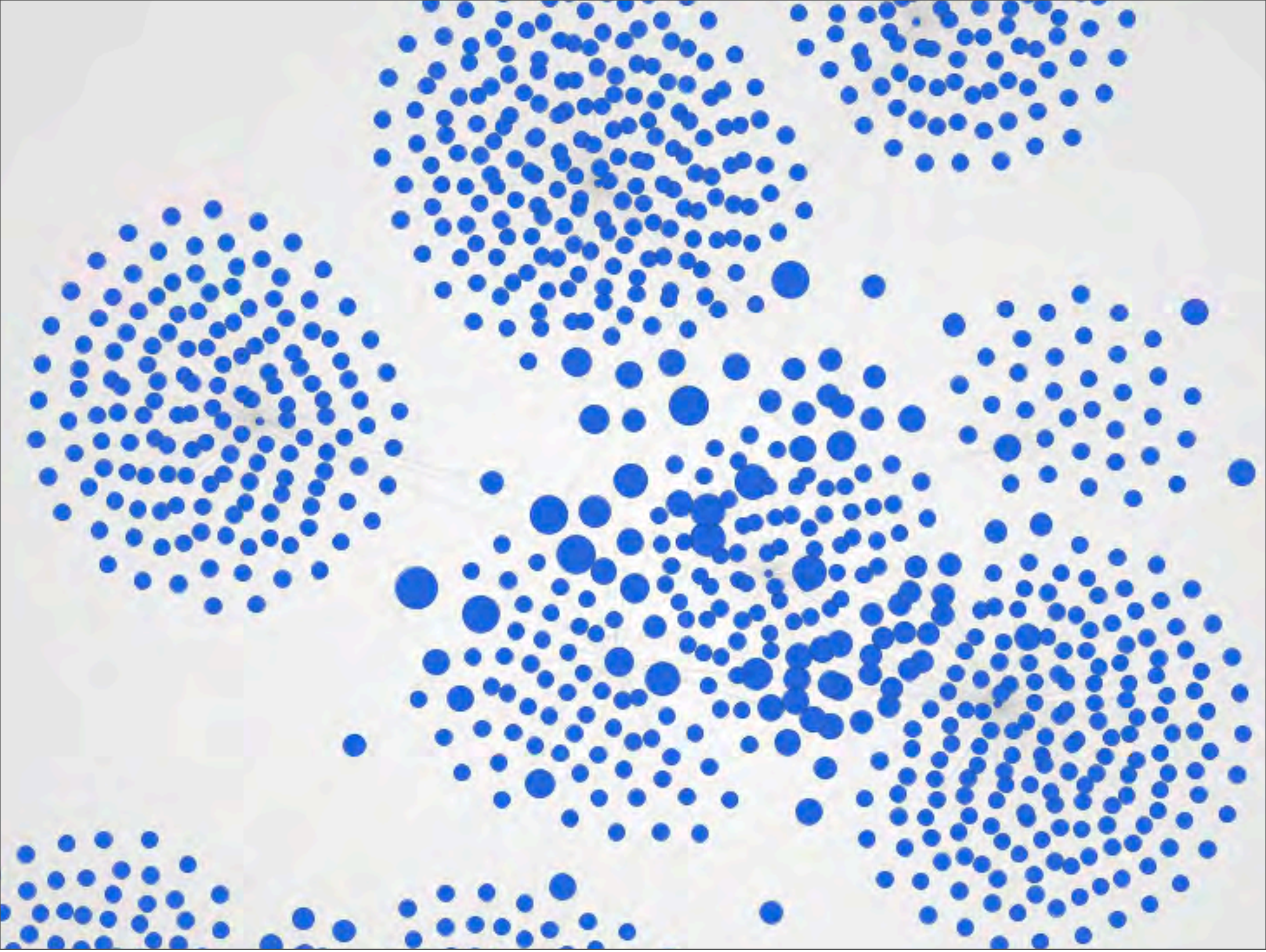
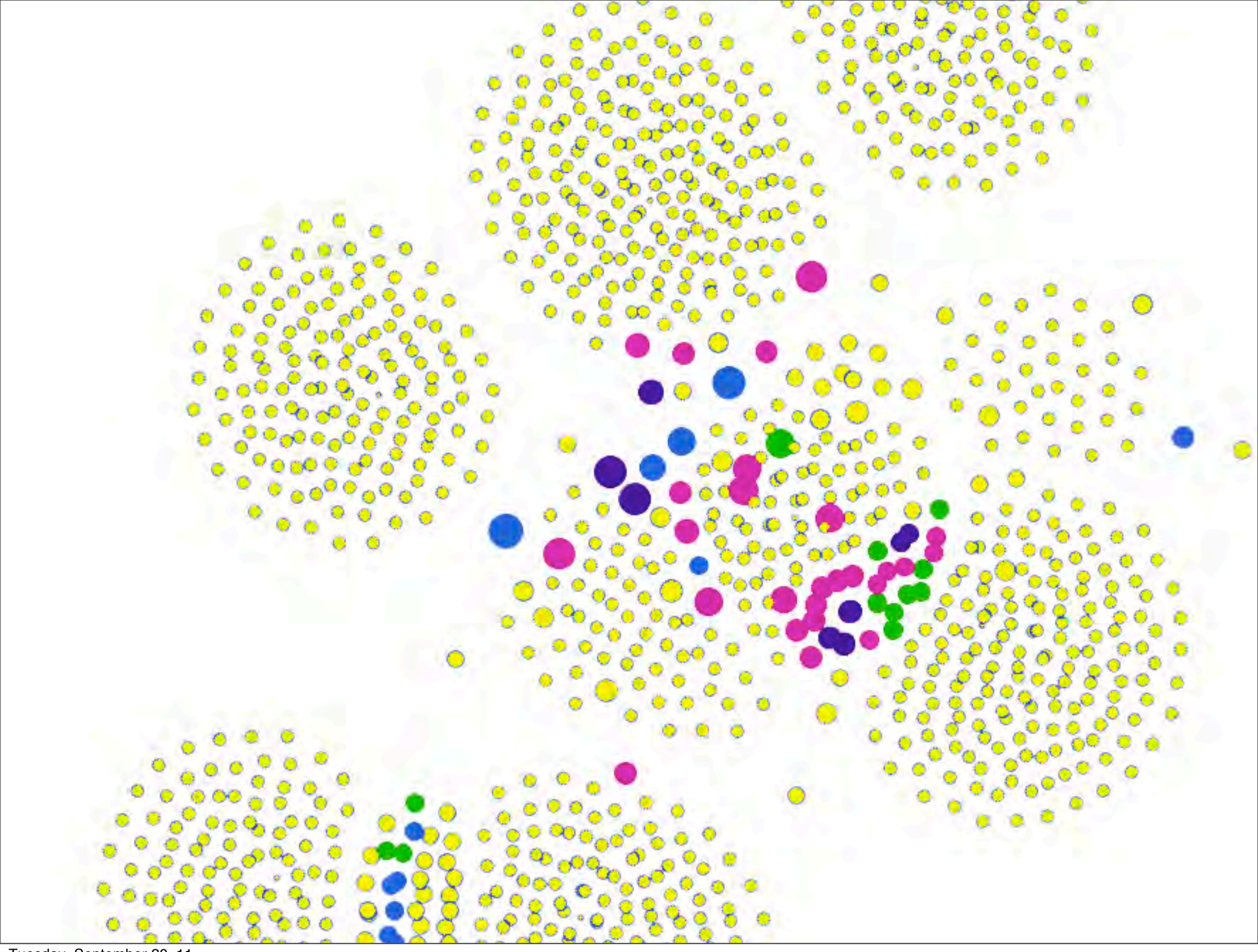




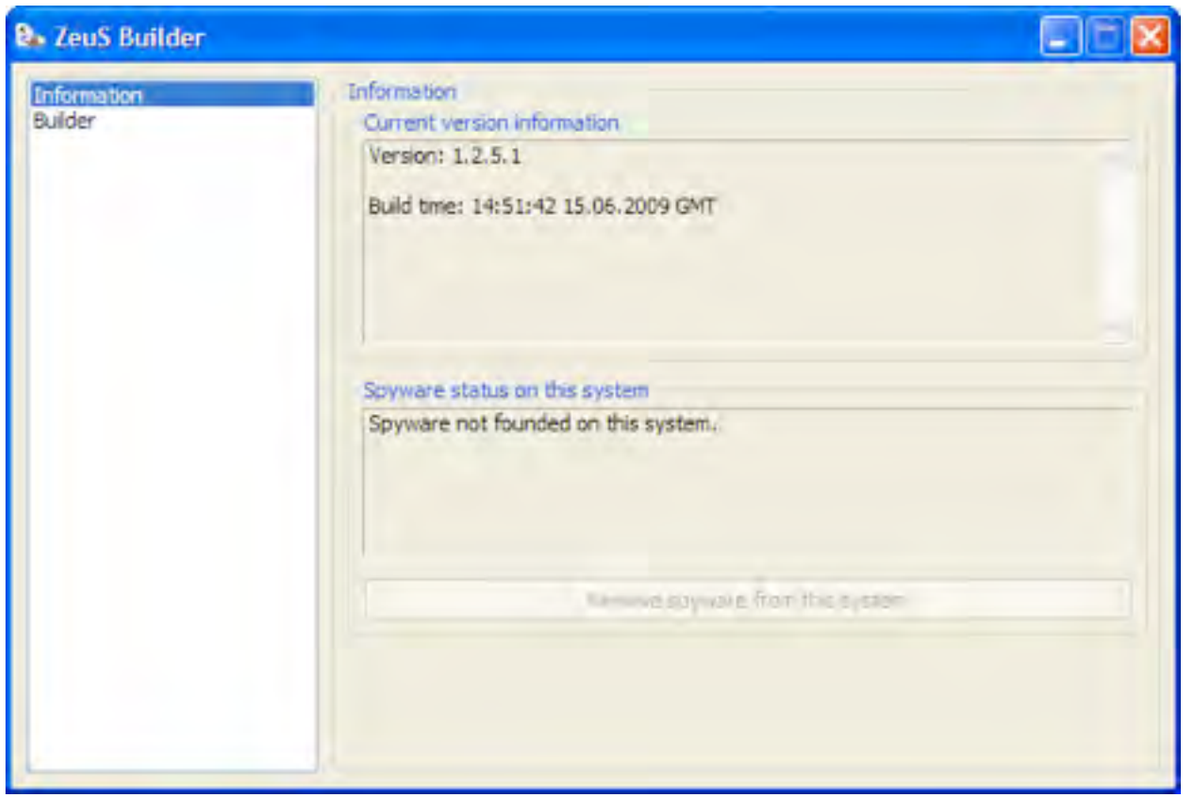


Select your target wisely

And then craft your payload :-)

Not as expensive as you think

- ZeuS: $3000-$5000
- SpyEye: $2500-$4000
- Limbo: $500-$1500



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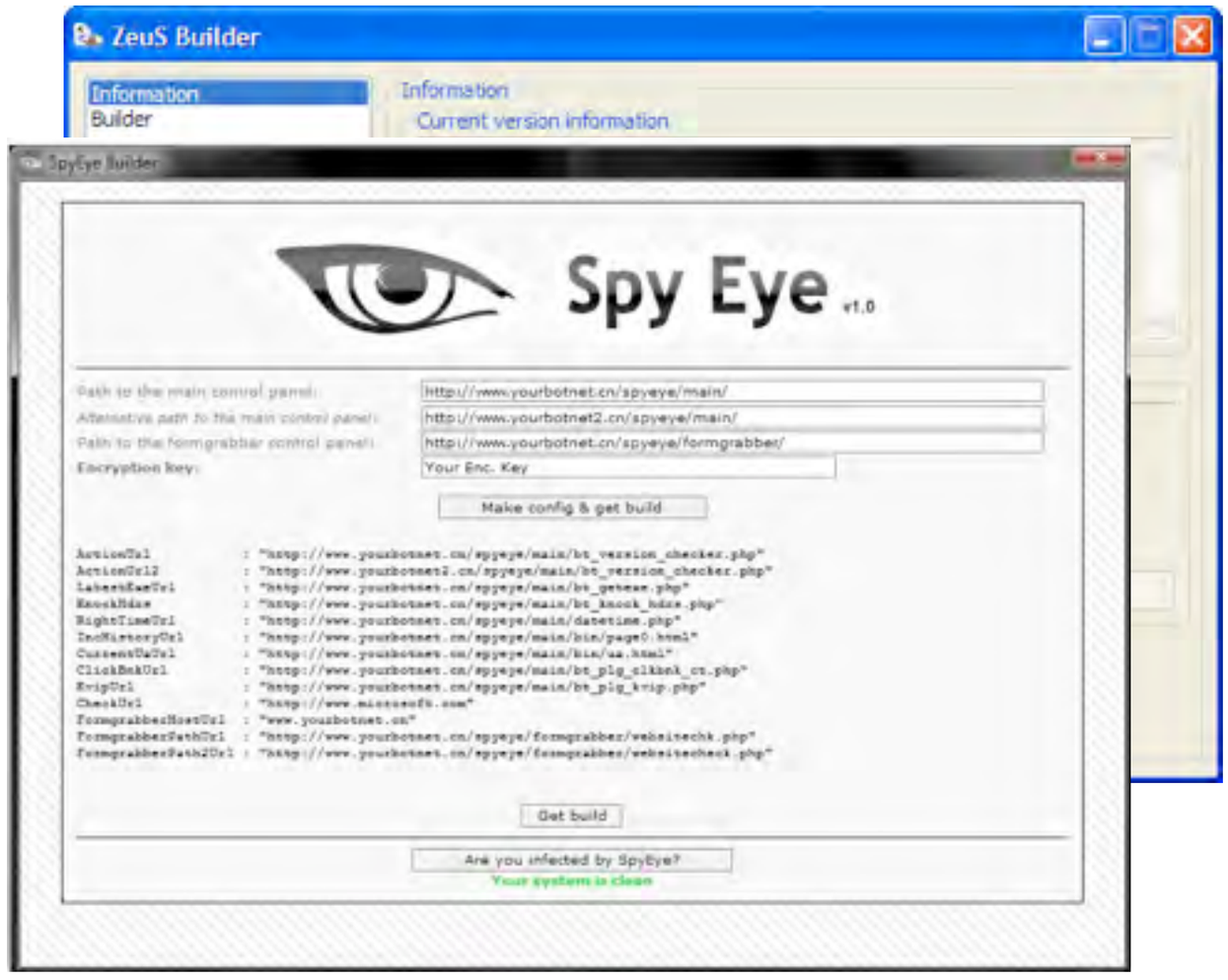

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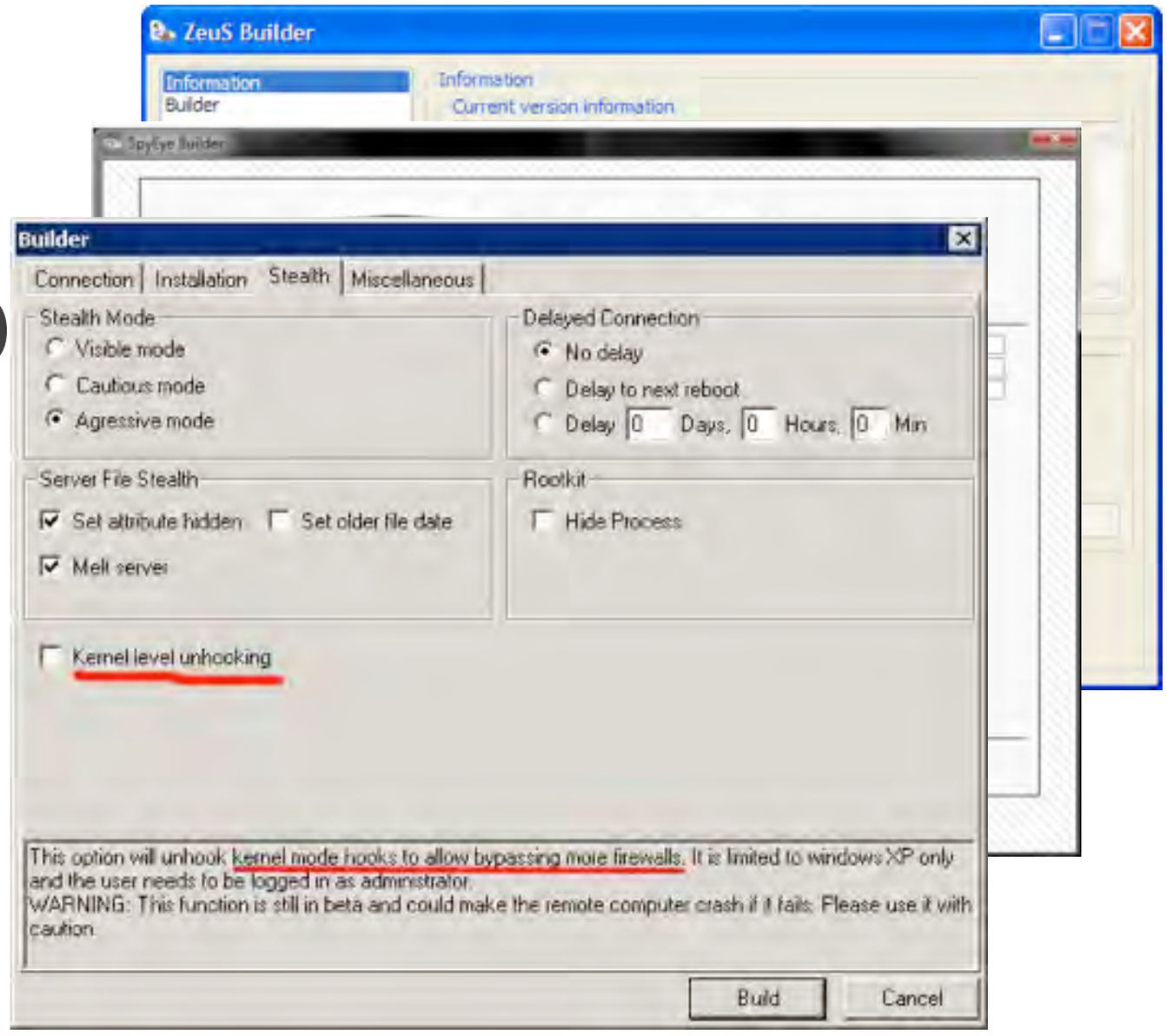

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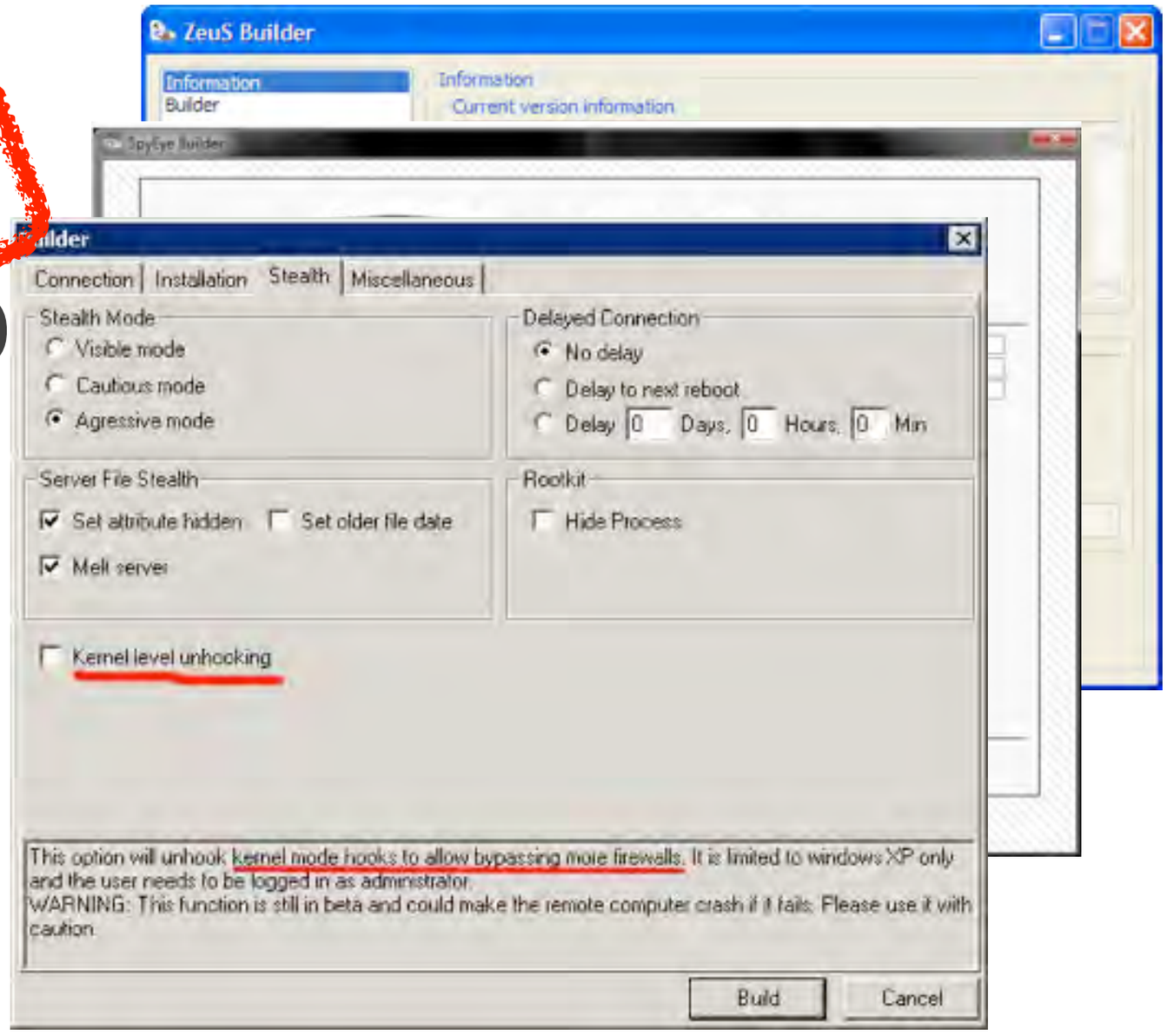

Just make sure to pack

Experienced travelers
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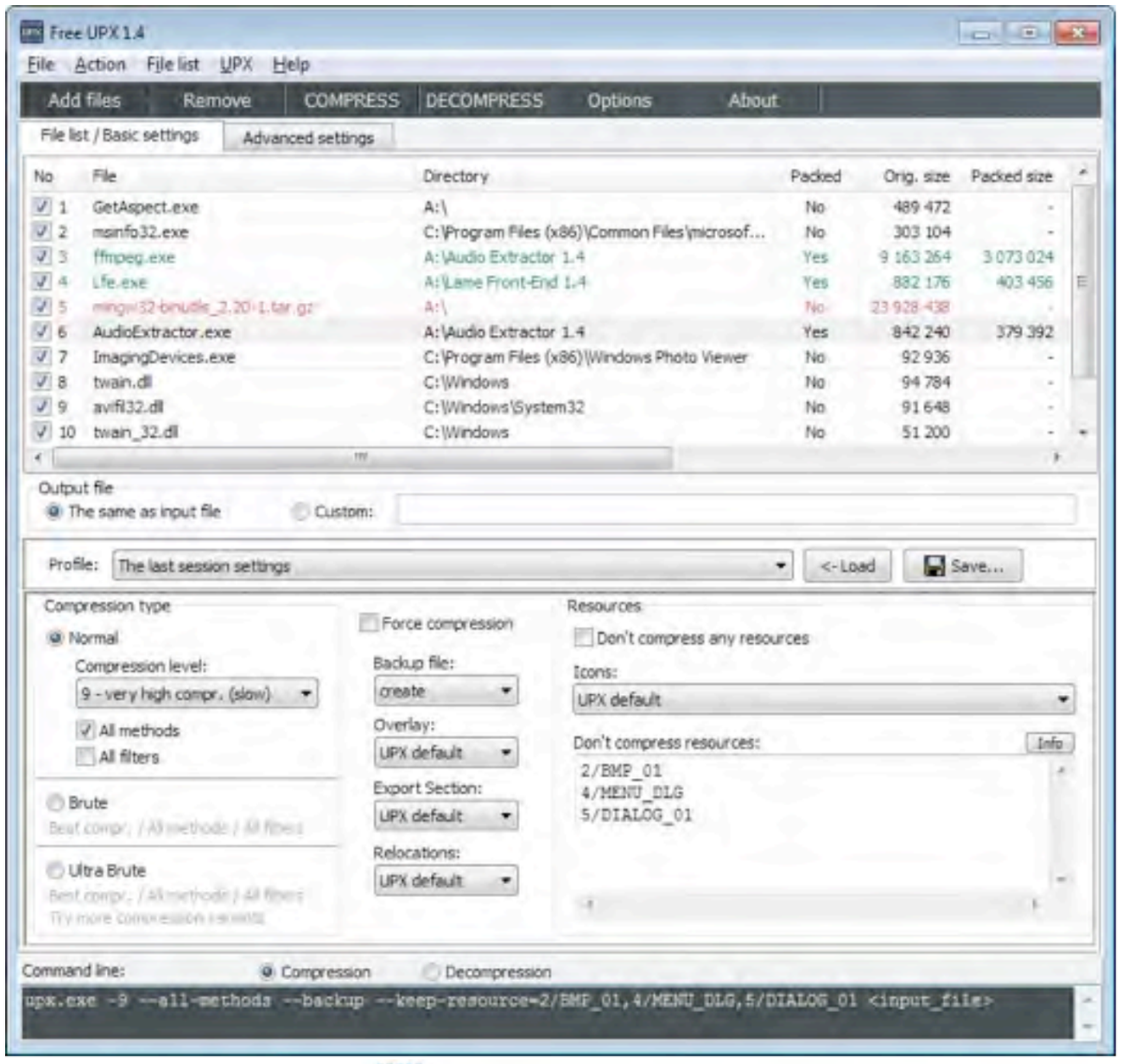

And set measurable goals

- File servers
- Databases
- File types
- Gateways (routes)
- Printers

From mass infection to APT

Mass infection:
5-6 days before
detection

APT:
5-6 months before
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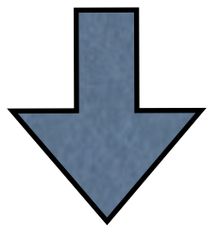

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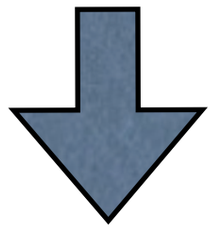


From mass infection to APT

Mass infection:
5-6 days before detection

Frequent updates

APT:
5-6 months before detection

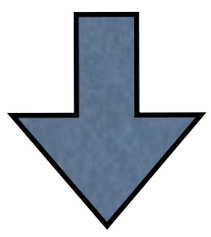
No* updates

* Almost

From mass infection to APT

PATIENCE

Mass infection:
5-6 days before detection



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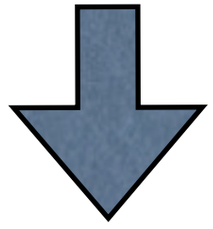

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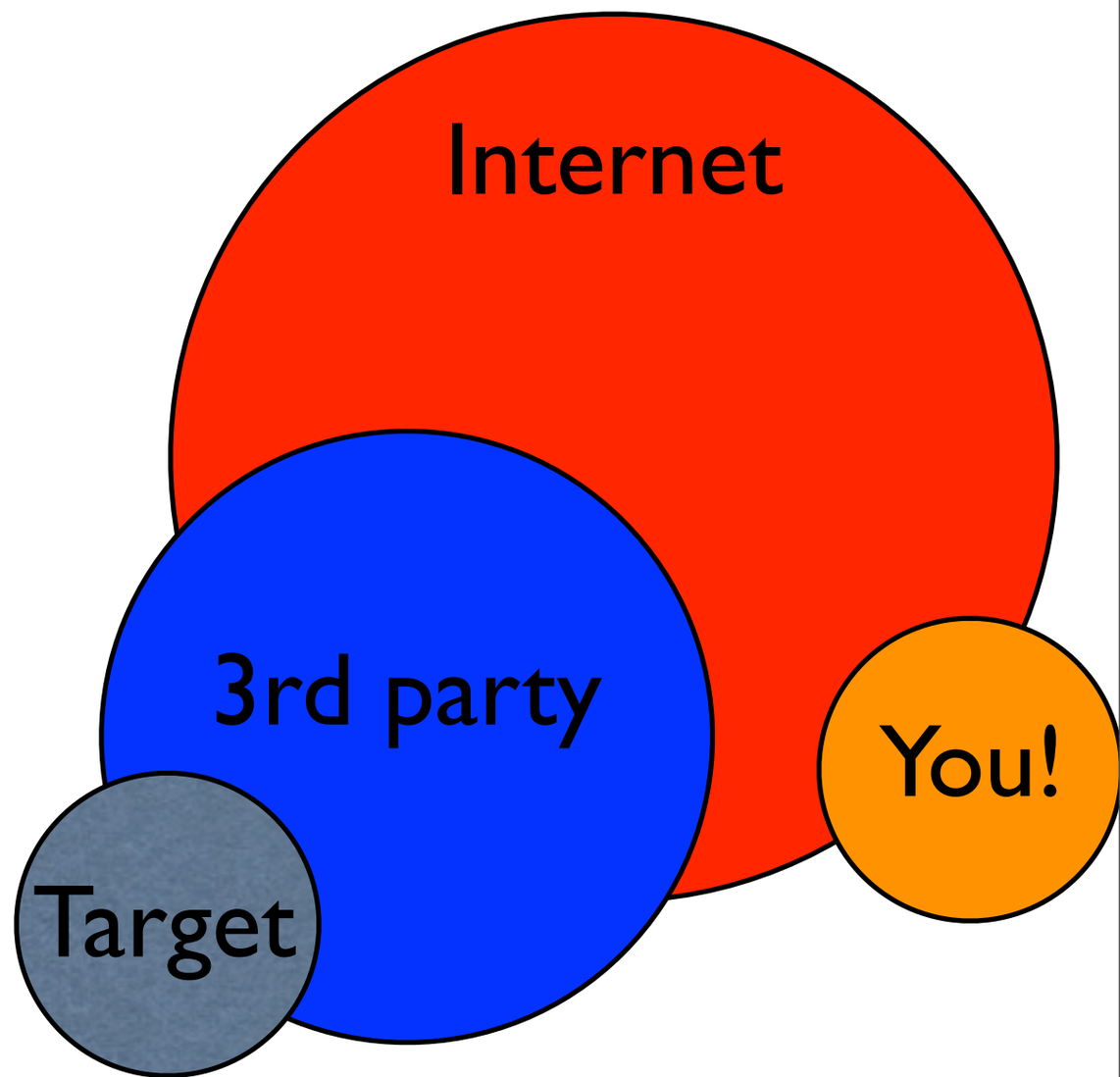
- What happens when you are so far behind?
- Just use your friends (peers)
  - Expect a one-way command scheme.
  - Exfiltration is a different animal...



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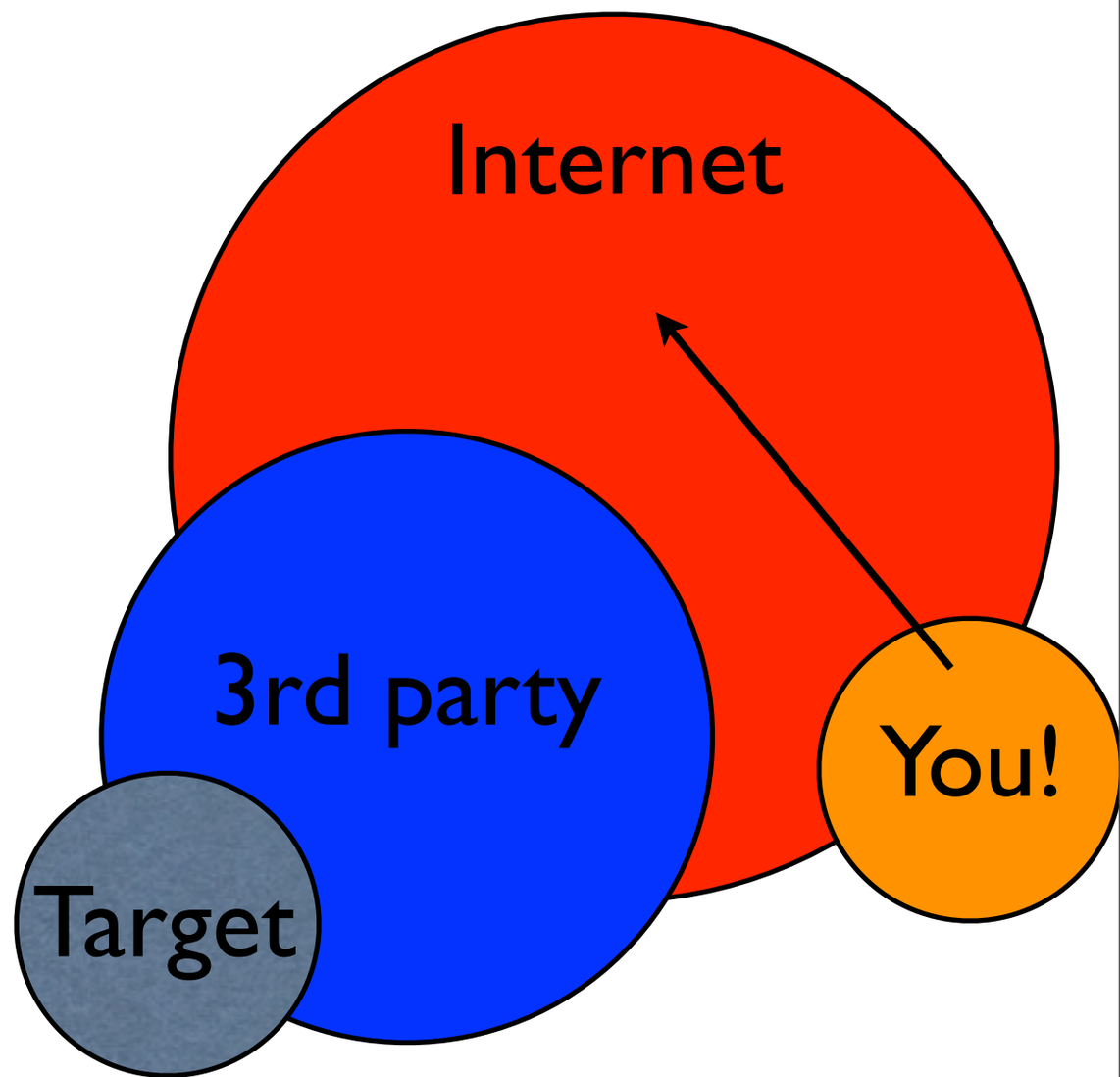

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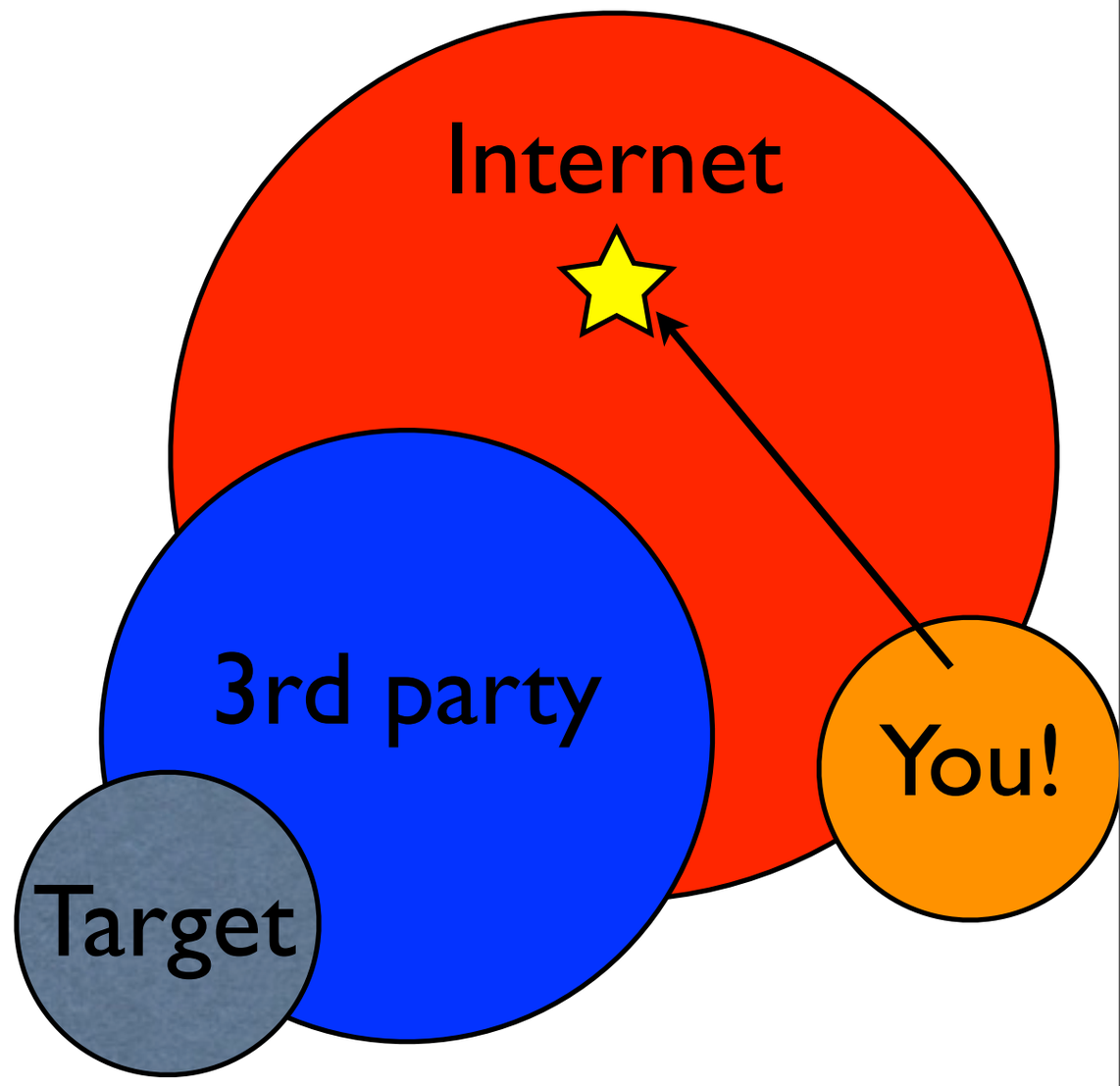

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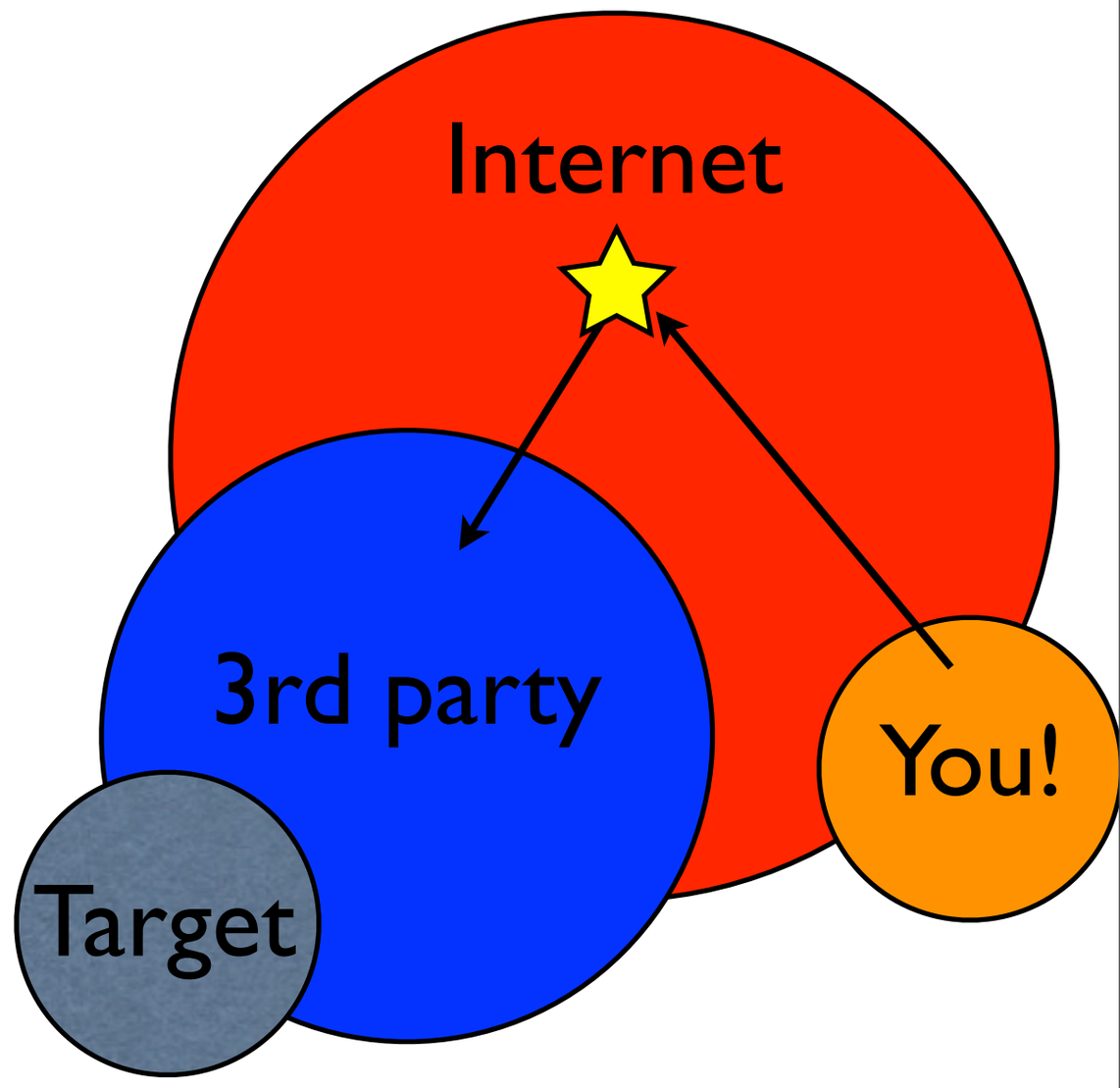

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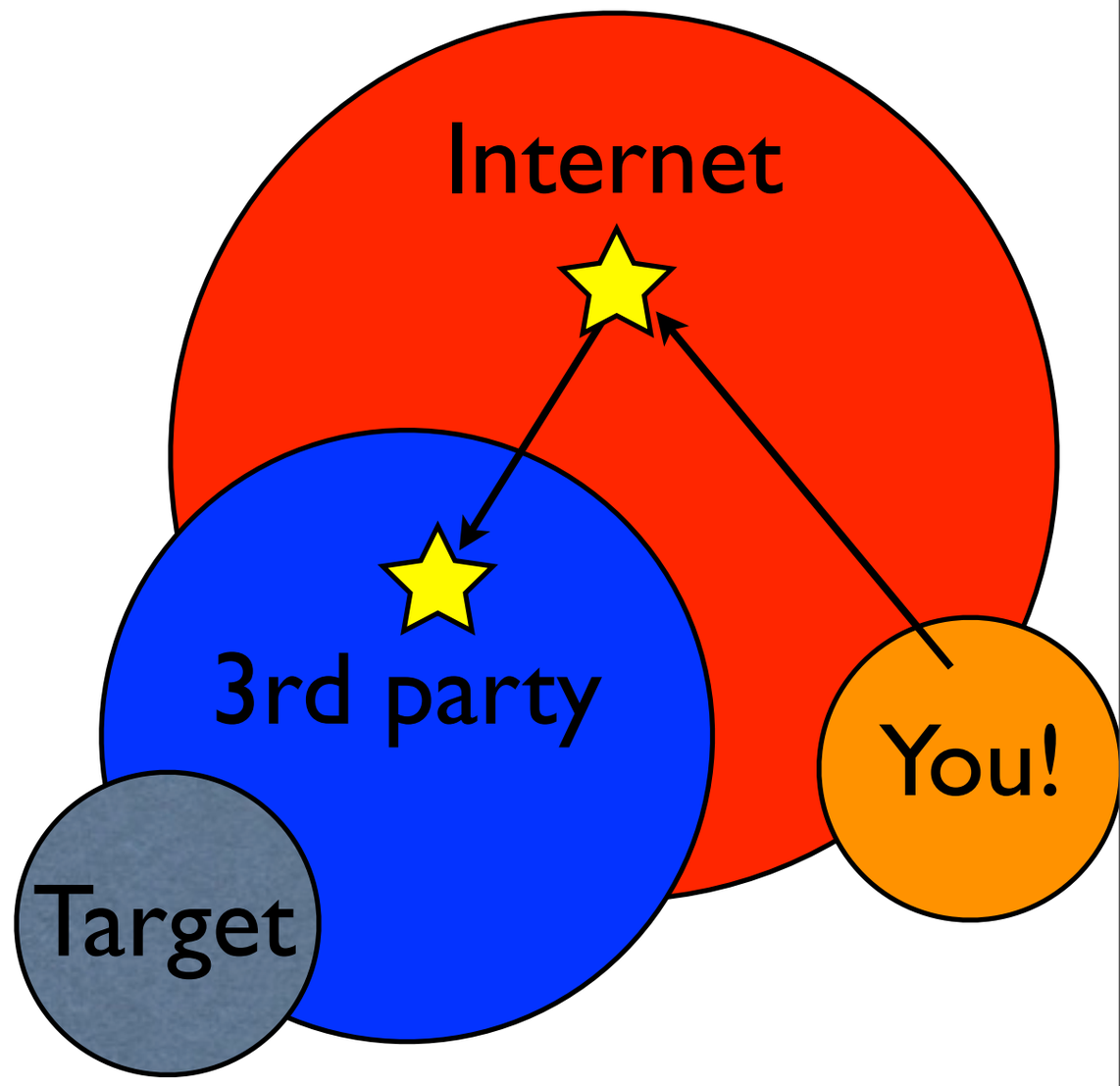

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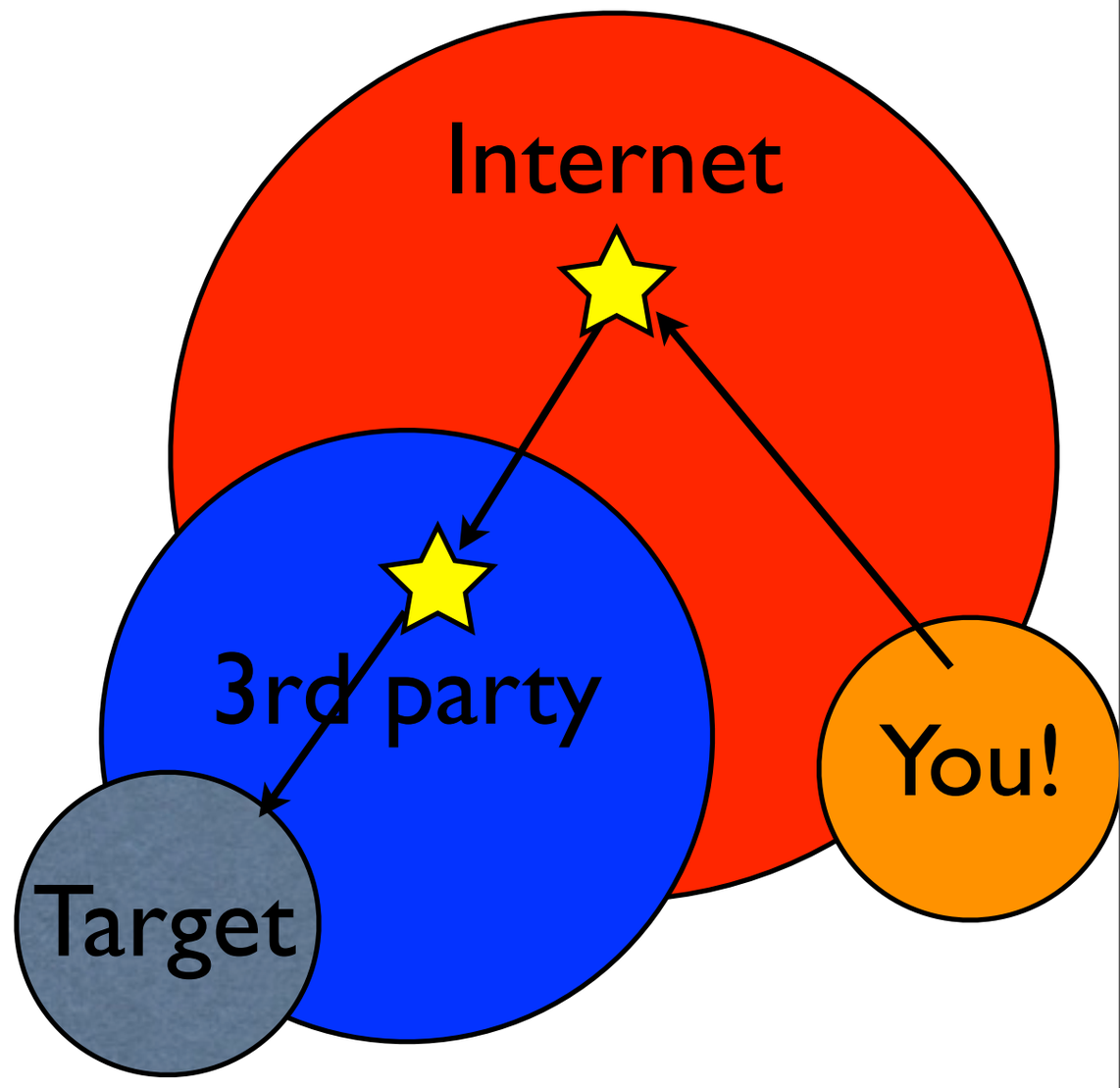

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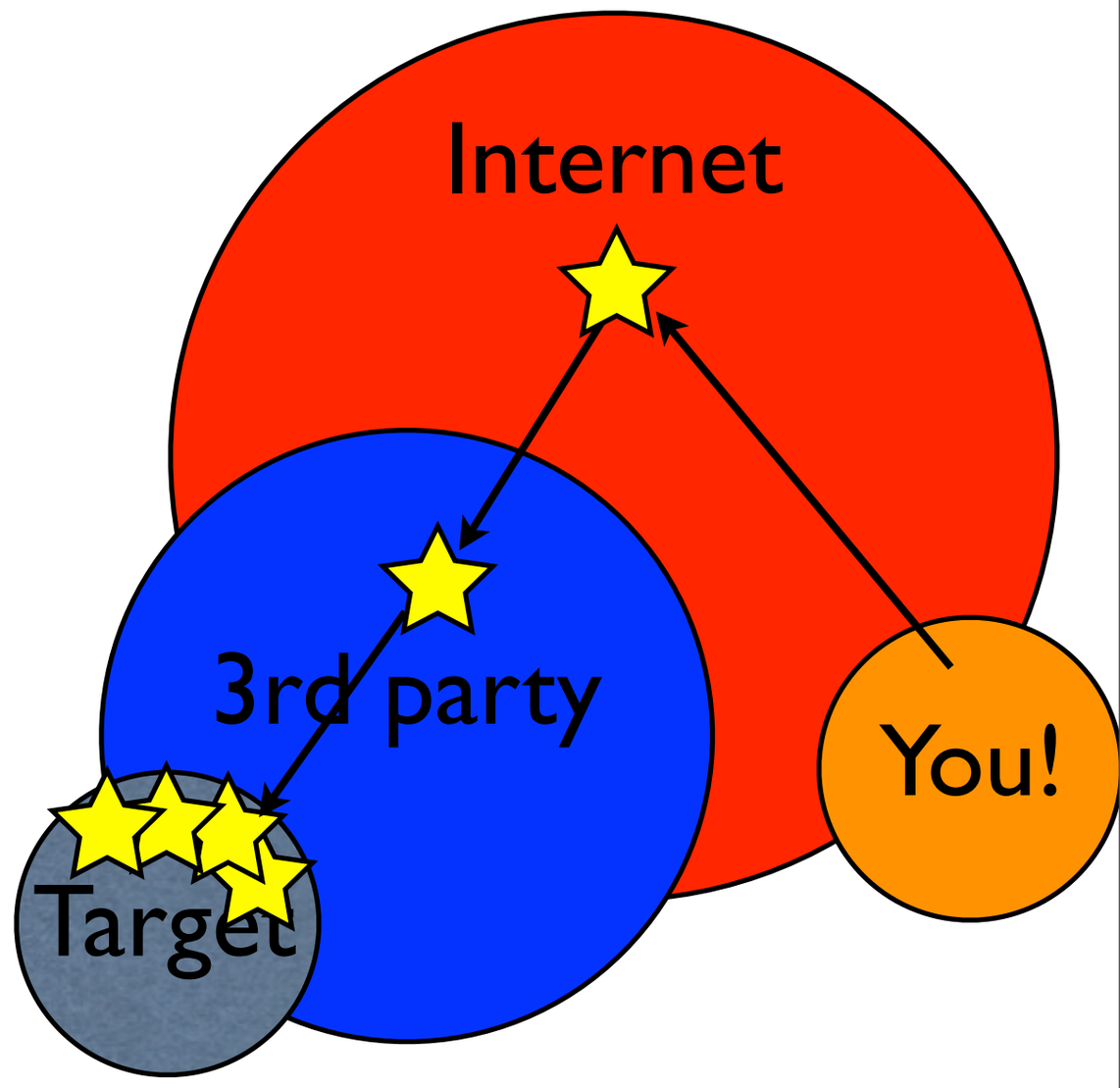
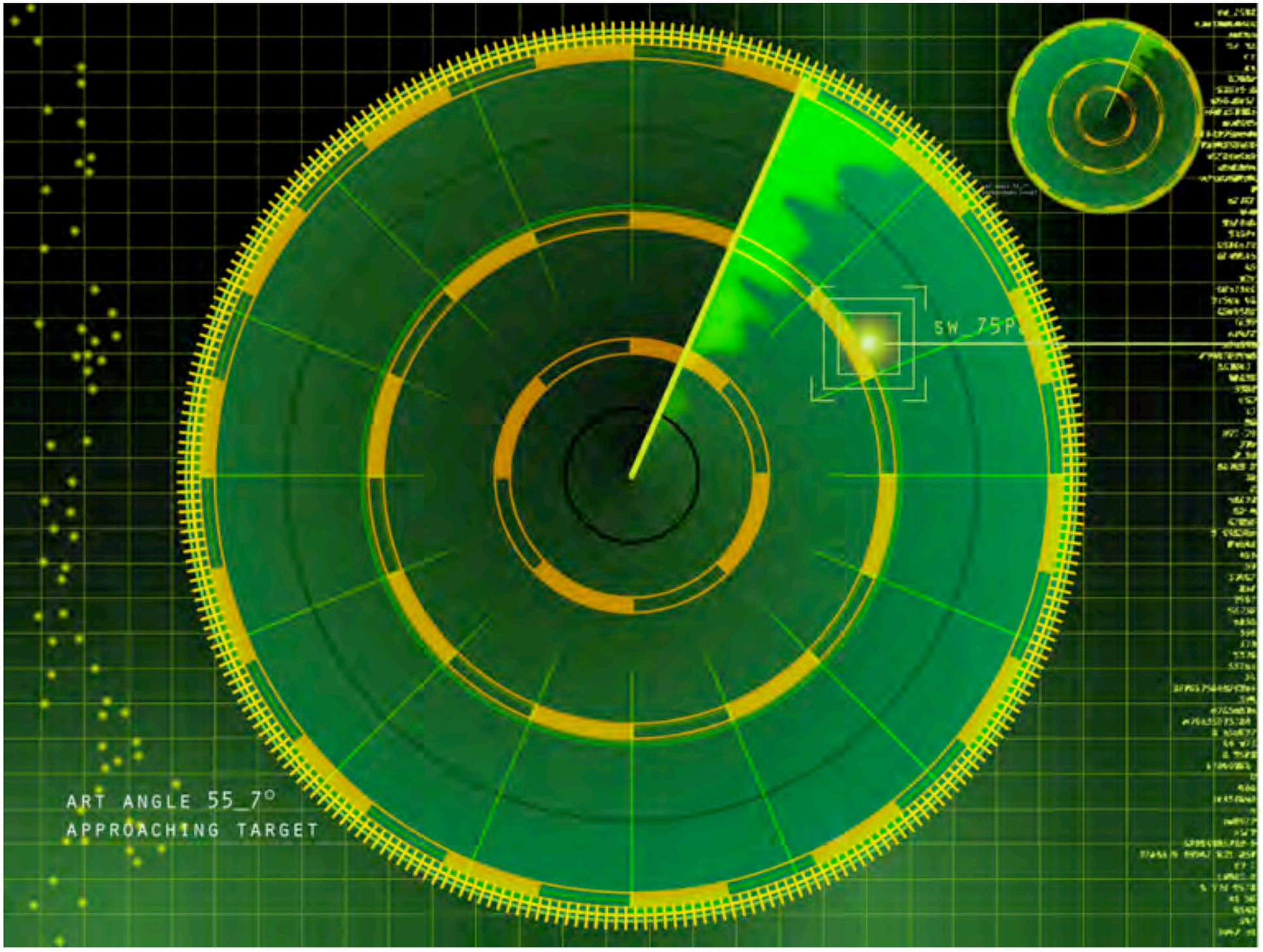
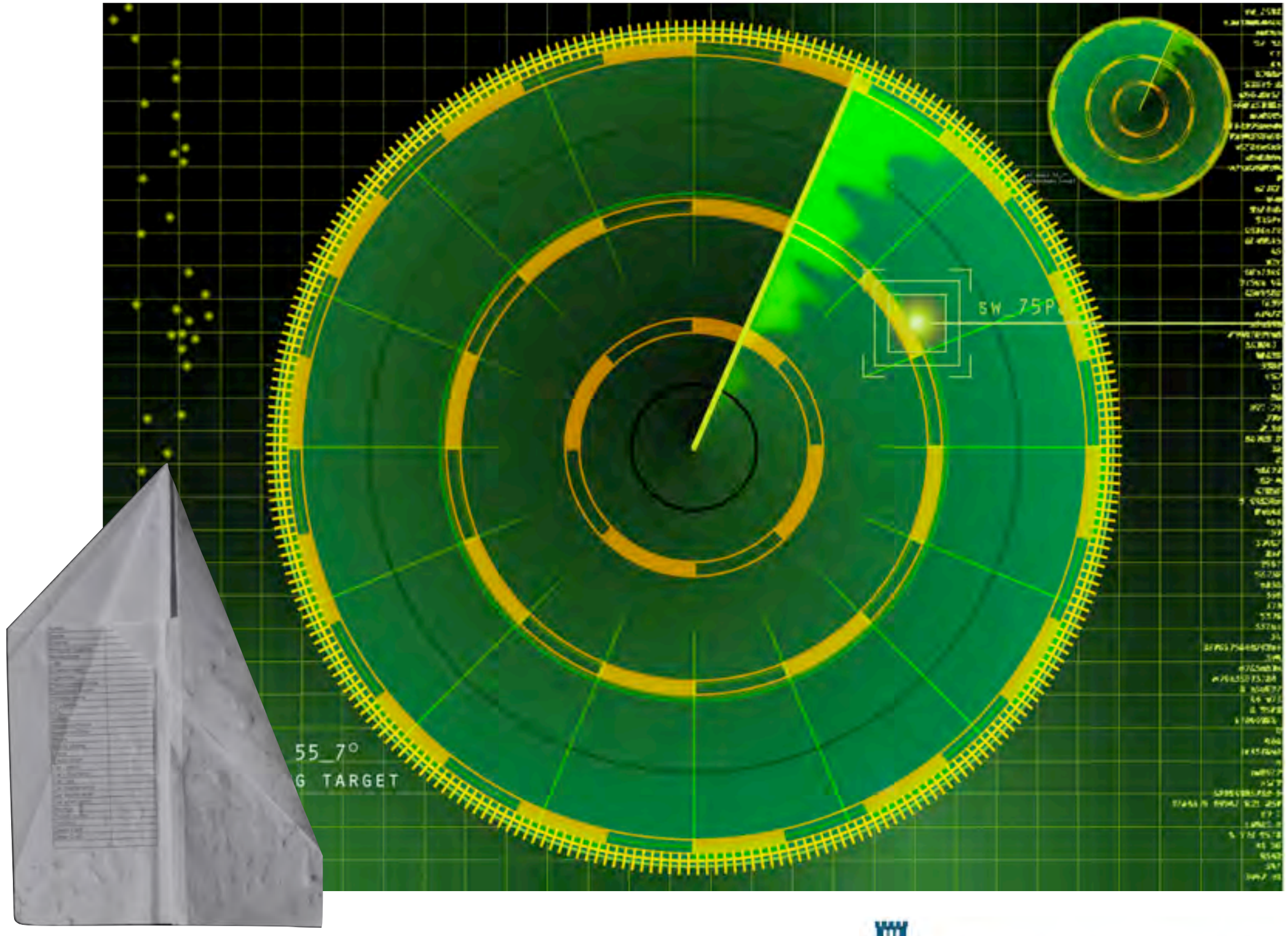


3. Exfiltration

- Avoiding DLP
- Avoiding IPS/IDS egress filters
- Encryption
- Archiving
- Additional techniques





How about them SSLs?

- Cool.

- Although sometimes may be intercepted
  - Pesky content filters...

So...

-----BEGIN PGP MESSAGE-----
Version: GnuPG/MacGPG2 v2.0.14 (Darwin)

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0X1TVob7xDo/fkRROHv74dIh2Kxa0SH8iGdb4kI=
=jN3t
-----END PGP MESSAGE-----

Still "too detectable"

Still "too detectable"

hQMOA1jQIm6UkL4eEAv/W3r/eYLUmqRNi/Jegt72lK6qdBiBfkg9PZ5YKqI9CUZp
FGnVk029K3gEVcrA4k7w2aOtP7tYKRF8v4yrZQ9GZ7eXzR7+Tbf1g+7dveH6U8Bf
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0X1TVob7xDo/fkRROHv74dIh2Kxa0SH8iGdb4kI=
=jN3t

Much better

- Throws in some additional encodings
- And an XOR for old time's sake

- And we are good to go...
  - 0% detection rate

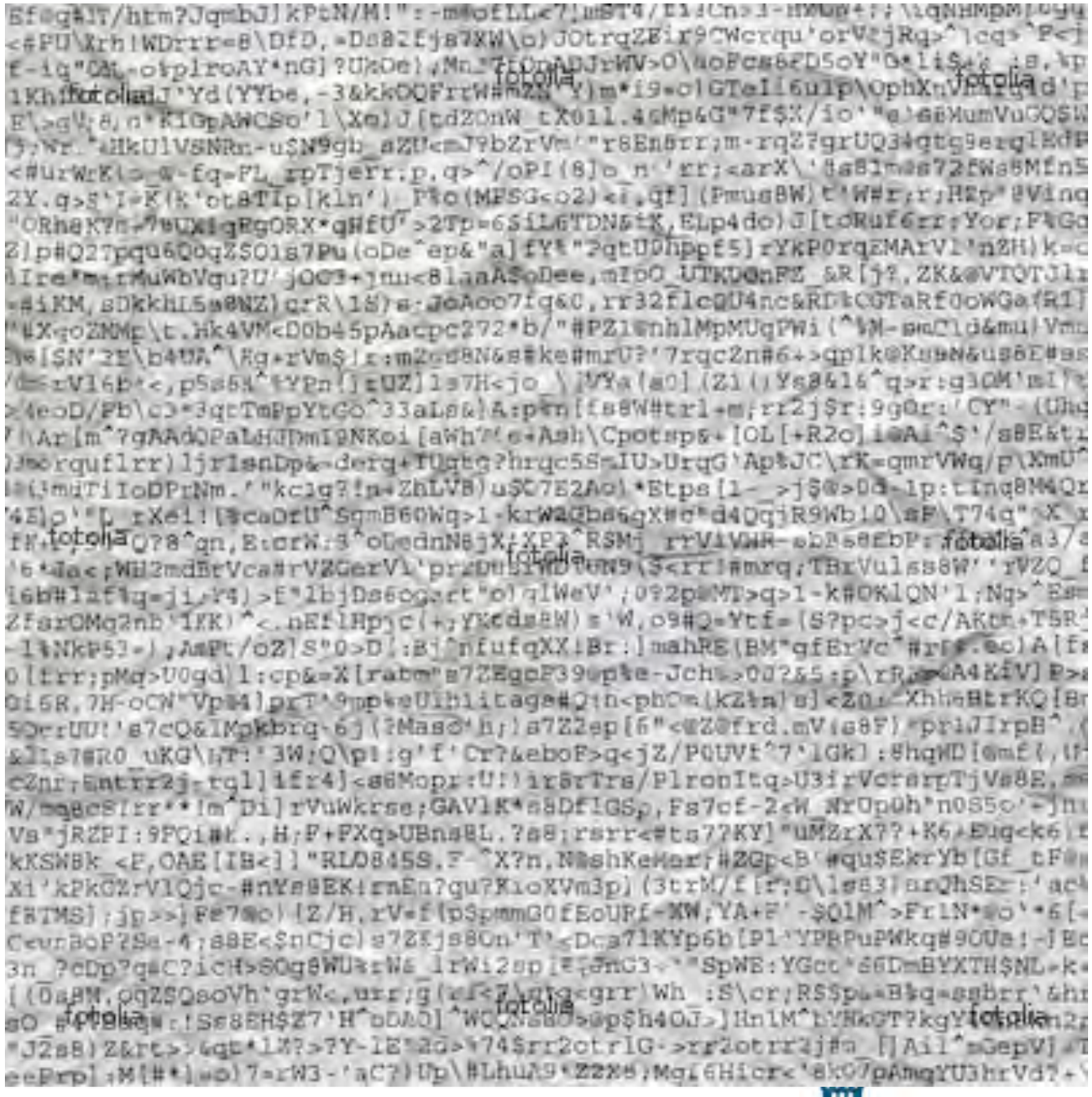
Resistance is futile

But you have no network

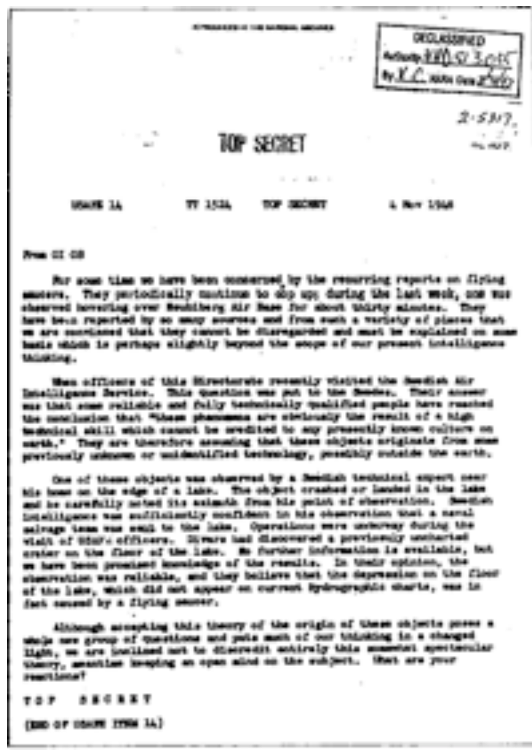
- They killed 80, 443, 53 and cut the cable to the interwebs!

- Go old-school!

Kill some trees

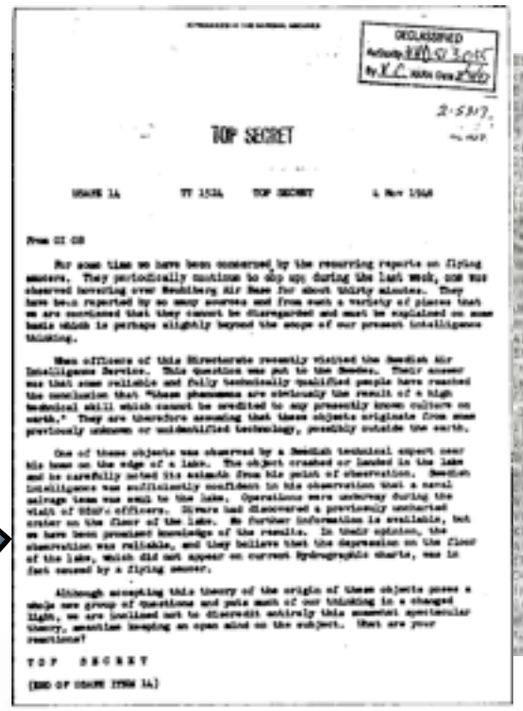


To shred or not to shred?



Going above and beyond traditional security

To shred or not to shred?


TOP SECRET

USAFE 14 TT 1534 TOP SECRET 4 Nov 1968

From CC CB

For some time we have been concerned by the recurring reports on flying saucers. They periodically continue to pop up; during the last week, one was observed hovering over Sondrberg Air Base for about thirty minutes. They have been reported by so many sources and from such a variety of places that we are convinced that they cannot be disregarded and must be explained on some basis which is perhaps slightly beyond the scope of our present intelligence thinking.

When officers of this Directorate recently visited the Swedish Air Intelligence Service, this question was put to the Swedes. Their answer was that some reliable and fully technically qualified people have reached the conclusion that "these phenomena are obviously the result of a high technical skill which cannot be credited to any presently known culture on earth." They are therefore assuming that these objects originate from some previously unknown or unidentified technology, possibly outside the earth.

One of these objects was observed by a Swedish technical expert near his home on the edge of a lake. The object crashed or landed in the lake and he carefully noted its azimuth from his point of observation. Swedish intelligence was sufficiently confident in his observation that a naval salvage team was sent to the lake. Operations were underway during the visit of USAF officers. Divers had discovered a previously uncharted crater on the floor of the lake. No further information is available, but we have been promised knowledge of the results. In their opinion, the observation was reliable, and they believe that the depression on the floor of the lake, which did not appear on current hydrographic charts, was in fact caused by a flying saucer.

Although accepting this theory of the origin of these objects poses a whole new group of questions and puts much of our thinking in a changed light, we are inclined not to discredit entirely this somewhat spectacular theory, meantime keeping an open mind on the subject. What are your reactions?

TOP SECRET

(END OF USAFE 17986 14)

Yeah, good ol'e DD...

Back to hi-tech (?)

ET Phone Home

Back to hi-tech (?)

ET Phone Home

Got VOIP?

Back to hi-tech (?)

ET Phone Home

Got VOIP? Excellent!

Back to hi-tech (?)
ET Phone Home

Got VOIP? Excellent!

Target a handset/switch

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ET Phone Home

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Target a handset/switch

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Target a handset/switch

↓

Set up a public PBX
OR a conference call
OR a voicemail box

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Collect your data

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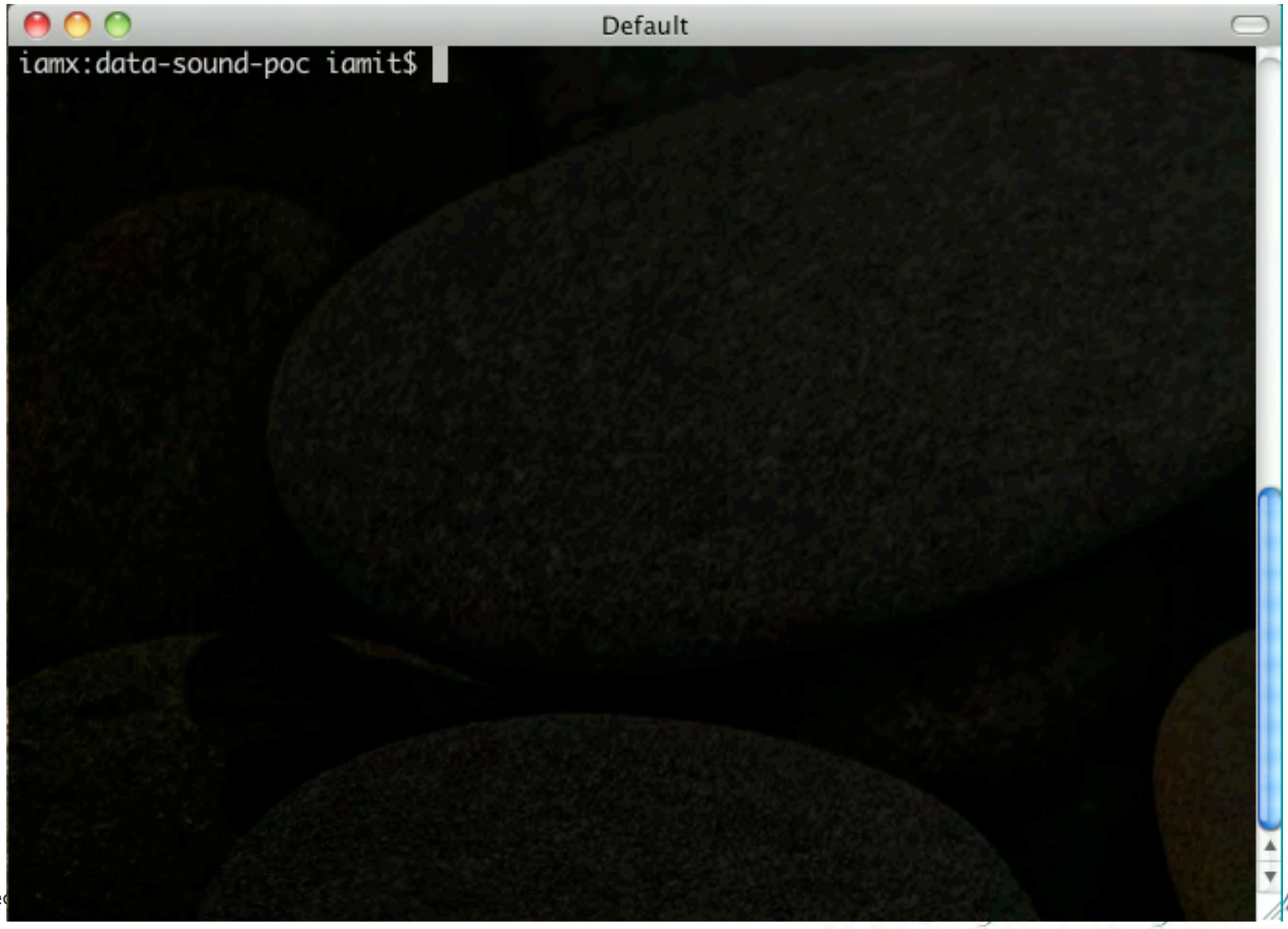
Call, leave a message, don't expect to be called back...

Voice exfiltration demo

Voice exfiltration demo



Voice exfiltration demo

Iftach Ian Amit | September 2011

Voice exfiltration demo

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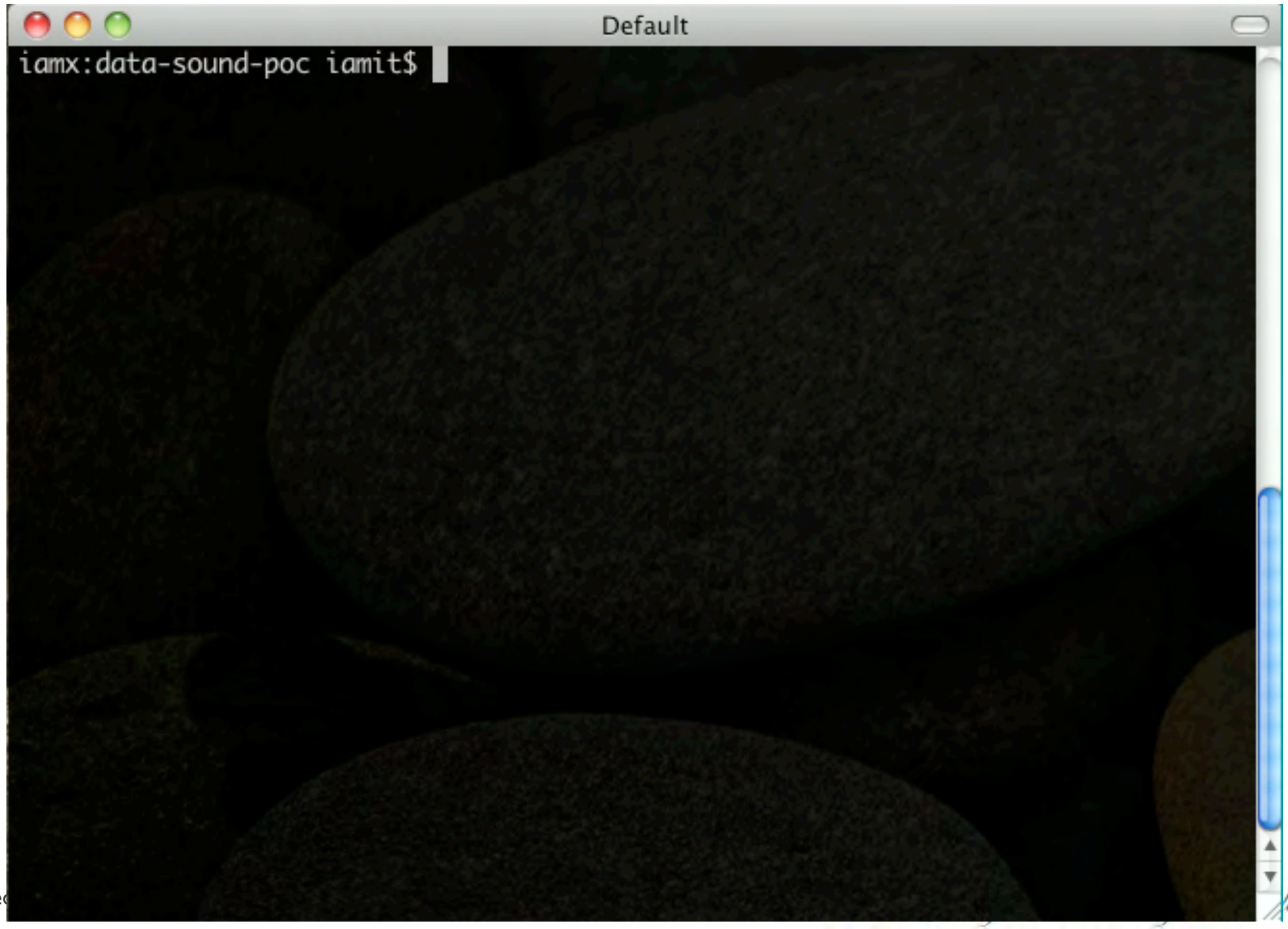
Voice exfiltration demo



Killing paper isn't nice

- Fax it!
- Most corporations have email-to-fax services
  - heard of the address 555-7963@fax.corp.com ?
- Just send any document (text, doc, pdf) to it and off you go with the data...

Conclusions

- Available controls
- Information flow path mapping
- Asset mapping and monitoring

Controls

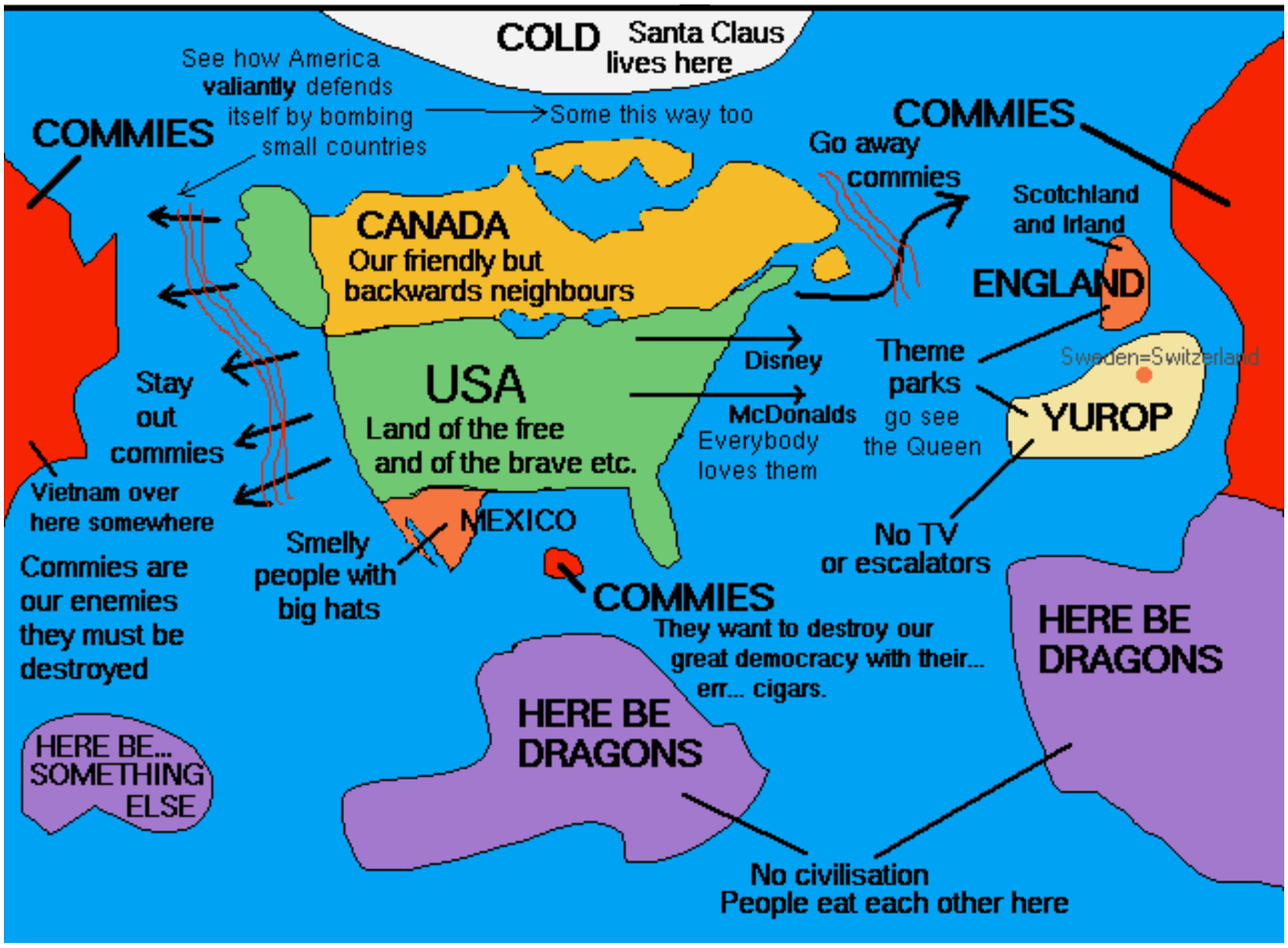
- Start with the human factor
- **Then** add technology

Controls

- Start with the human factor
- **Then** add technology

- Where people leave data
  - **Hint** - spend time with developers.
- "Hack" the **business** process
- Test, test again, and then test. Follow with a surprise test!

Map your assets



"be true to yourself, not to what you believe things should look like"

Old chinese proverb

And monitor them!

They are YOUR assets
after all

No reason to be
shy about it...

And remember to add
honey...

2 tips for monitoring

- Pre-infiltration - social media
  - Check out SocialNet for Maltego from packetninjas.net... :-)

- Post-infoltration - ALL your channels
  - Yes - VoIP is one of them. Record, transcribe, feed to DLP. Simple as that.

Then...

TEST SOME MORE

For hints/guides see: www.pentest-standard.org

Questions?

Thank **you**!

Whitepapers:
www.security-art.com

Data modulation Exfil POC:
http://code.google.com/p/data-sound-poc/

Too shy to ask now?
iamit@security-art.com

Need your daily chatter?
twitter.com/iiamit