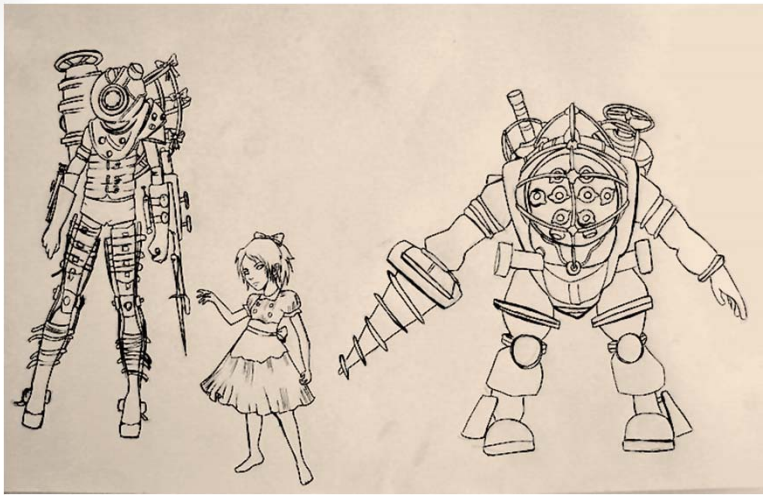
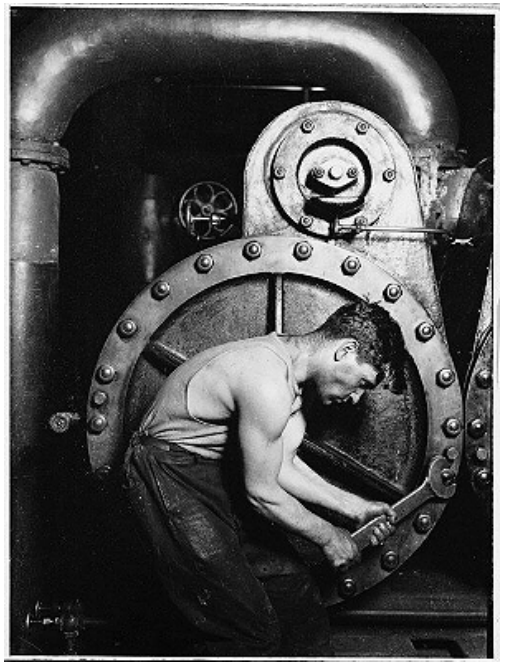


Maltego Tungsten as a collaborative attack platform

BlackHat 2013

About us



Schedule

- Why did we do this?
- Introduction to Maltego Tungsten
- Maltego with Teeth
  - Design principles
  - Infrastructure attacks
  - Attacking people
  - Attacking mobile devices

Why did we do this?

- Maltego Tungsten is our airframe
- The plan is to provide a platform that can
  - Visualize complex information
    - Allows humans to spot patterns
  - Share it
    - Anonymously
    - In real time
  - Run actions on entities
    - Based on value, position in graph
    - Actions could be *anything*
- This is our day job. But we want to show how it can work
  - We built some 'demo' weapons
  - You should really be building it...

Introducing Maltego Tungsten

- Two main features:
  - Collaboration
  - Undo/redo

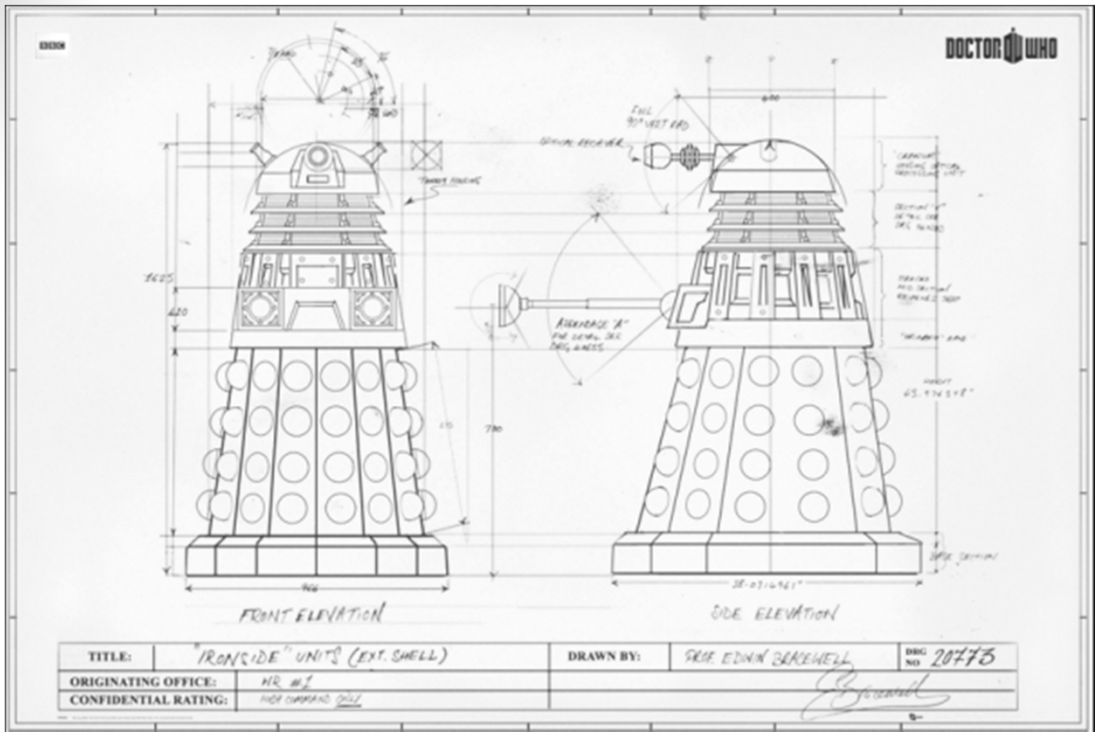
- Collaboration (comms) design principles:
  - Uses XMPP
  - Can use public infrastructure (e.g. not Paterva)
  - Encrypted on message layer with symmetric key
  - Aliases separate to XMPP username – anonymous, lack of attribution.

Maltego Tungsten

- Sync entire graph, notes, bookmarks etc.
  - Does not sync attachments (yet!)
- Syncs layout, not viewport
- Also chat window / status
- Can run transforms / machines

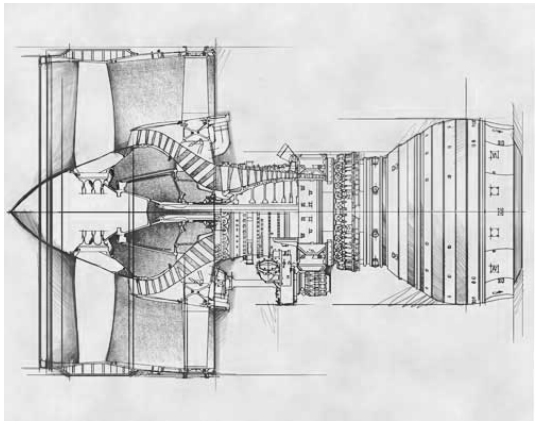
- To join investigation you need to know:
  - The investigation name
  - The key
  - The server (XMPP) used

Tungsten demo



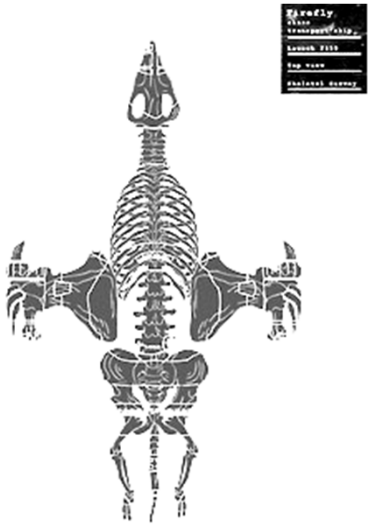
MaltegoTeeth - Intro

- We wanted to build an attack platform with the following in mind
  - Multiple attackers can work together
  - Large network (think nationwide or multi national)
    - Find the vulnerable host, not the vulnerability on a host
  - No 0 day
    - That's cheating!
  - External, over the Internet
  - Black box, zero knowledge



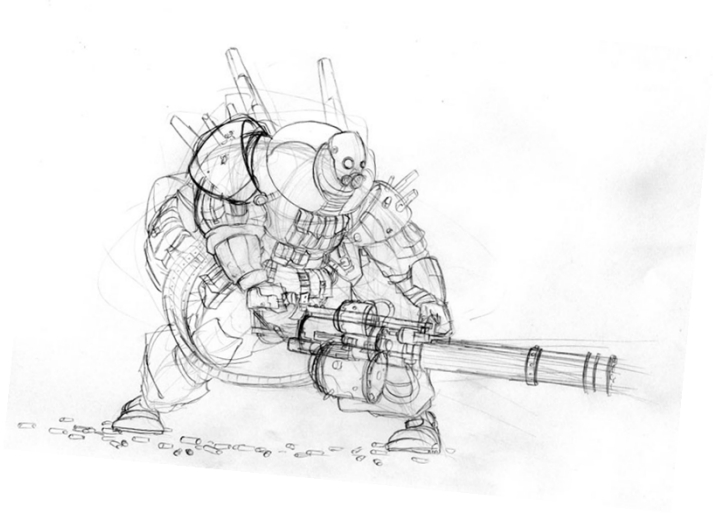
MaltegoTeeth - Intro

- Free!
- Runs on Kali Linux
  - Known platform with goodies pre installed
  - We don't need to re-invent the wheel
- Using local transforms
  - Real time logging, status reports
  - Runs off the local machine, portable.
- Open source easy to read Python code
  - Code is REALLY simple
  - You are welcome to improve, change
  - We're not coders so it's hackish.
    - But we like it like that!



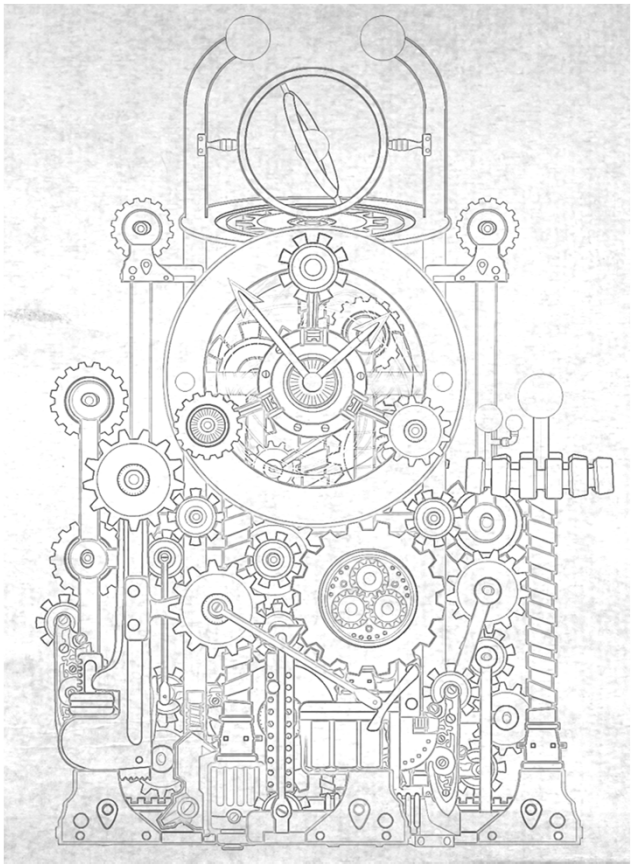
Main areas of interest

- Infrastructure
  - Everyone here knows this space pretty well
  - Mainly web servers, SMTP servers, FTP and the odd open port
- People
  - Semi automatic social engineering with real tangible results.
  - “Spear turret” ?
- Personal computing devices
  - PCs
  - But mostly mobile devices
    - Phones
    - Tablet



Machines

... not people

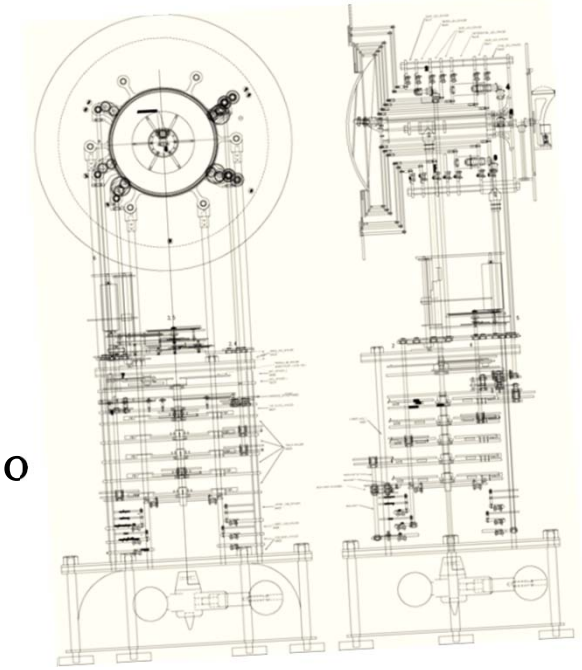


Infrastructure - Foot printing

- Most people think Maltego is great for profiling people.
- Maltego is even better at working with structured data.
- Maltego is very strong in footprinting
  - Radium machines - L3 footprint

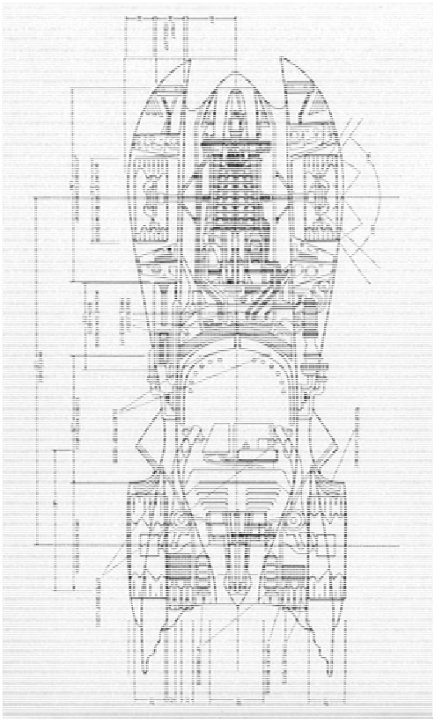
Maltego footprint demo

- Examples of footprints already done:
  - Pentagon
  - AEOI
  - CIA
  - XXX government (partial)
- Let's do it live
  - Pick a target from Fortune 1000



Infrastructure

- What can we get from it?
  - Besides good target selection
- We're probably dealing with
  - Web servers (HTTP/HTTPS)
  - SMTP servers
  - FTP/VPN
  - Odd 3389, 22, 23 (perhaps)



What can we get from web servers?

A NEW TRAIN OF THOUGHT
PATERVA

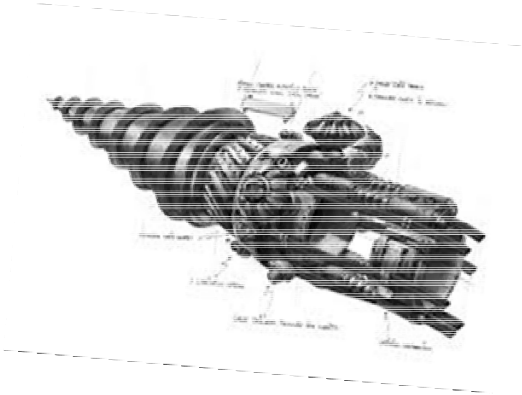
- Remember – no oday!

- File and directory mining
  - Unlinked files / directories / admin backends
- SQL / RFI injection
  - On surface level
- Protected by a single password
  - Content Management System (CMS)
    - Think Wordpress, Joomla, cPanel
  - OWA
  - Web VPN, Citrix, etc.

Directory / File mining

- Not as easy as you'd expect
  - Many scanners do this horribly wrong
  - Need to look at server responses, not HTTP status codes
- Search for
  - Files
    - In known locations / In discovered directories
  - Directories
    - In known locations / In discovered directories
- Get known locations?
  - Crawl / mirror the site
  - Look for sitemap.xml or robots.txt
  - Search engines already crawled it (sometimes)

File / Directory mine demo



- Find directories / files in root
- Find known locations via
  - Sitemap.xml
  - Crawl / mirror
- Find directories / files in known locations

- While you are there
  - Check for indexability of directories

Possible Injection Points (PIPs)

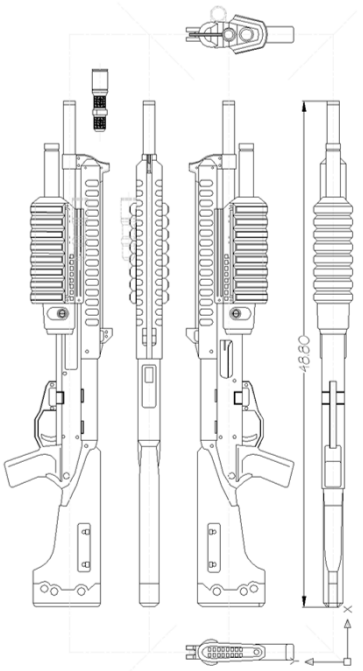
PATERVA

- When we've mirrored/crawled site we also know
  - What web forms are on the site
  - URLs with GET parameters
    - Eg */search.php?terms=*
- We can decide which forms are interesting:
  - Parameter value
    - *Action=print* is likely not interesting
  - Parameter name
    - *__VIEWSTATE* is likely not vulnerable
    - *btnSubmit* is not interesting

PIP demo

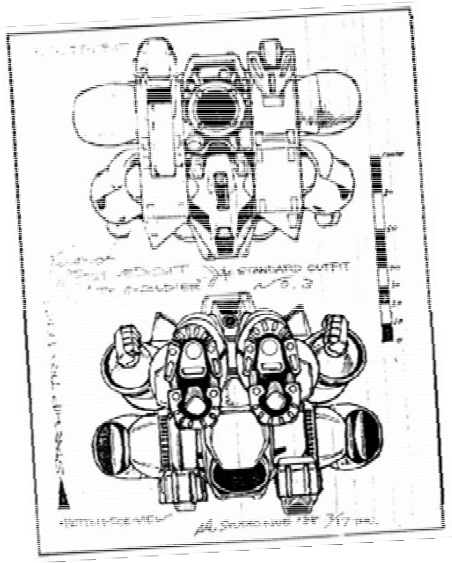
- Crawl a site
- Set up ignore fields and values
- Show PIPs

- Attack PIP
  - Fire SQLMap for every PIP



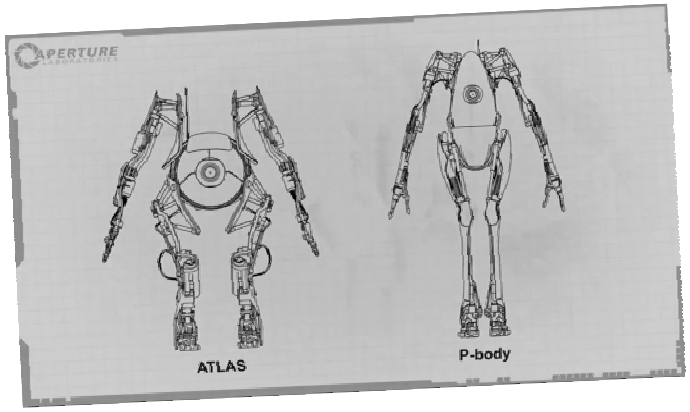
Possible Entry Points (PEPs) - OWA

- We looked at Fortune 1000. About 60% use OWA without additional security.
- Means username / password gives access to
  - Email
  - Address book, calendar
    - Gold mine for social engineering
- MS username vs. email address
- MS domain vs. email address
- Default domains
- Lock out / denial of service



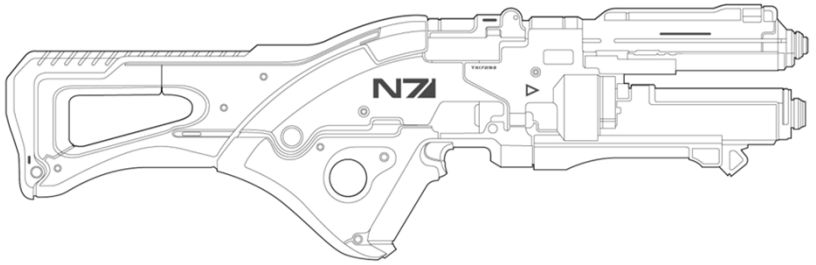
Possible Entry Points (PEPs)

- OWA is protected by
  - Form based login
    - Mechanize
  - NTLM
    - Hydra
- OWA versions:
  - 2003, 2007, 2010, Office
- We're lazy. Built fingerprint matching thingy. Side effect:
  - Also identifies
    - Citrix, Cisco Web VPN, SecureID, RSA and **19 others**



PEP (OWA) demo

- Identify OWA interface
  - Look for common names
  - Check open 443
  - 401? NTLM
  - Match fingerprint to list of prints
- Select email addresses
- Run brute force



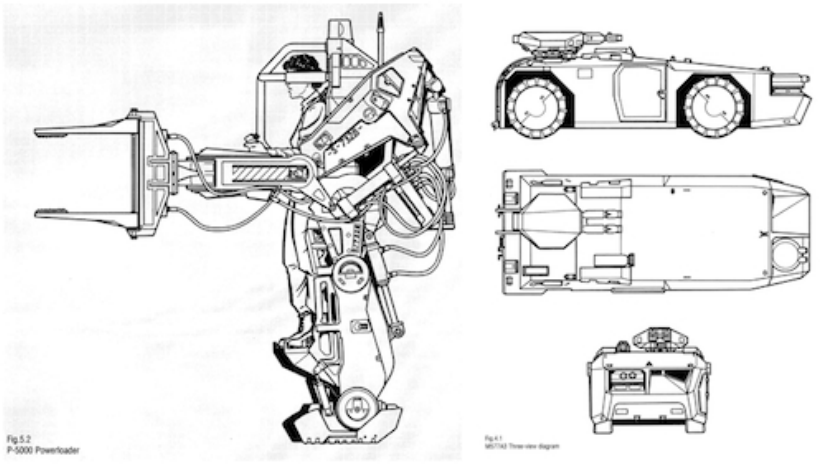
Possible Entry Points (CMS)

A NEW TRAIN OF THOUGHT
PATERVA

- Joomla / Wordpress / cPanel are mostly on the same spot.
  - Word press – use Metasploit plugin
    - Nice template to work with Metasploit
  - Joomla – used Mechanize and rolled our own
  - cPanel …

CMS Brute demo

- Find
- Attack…



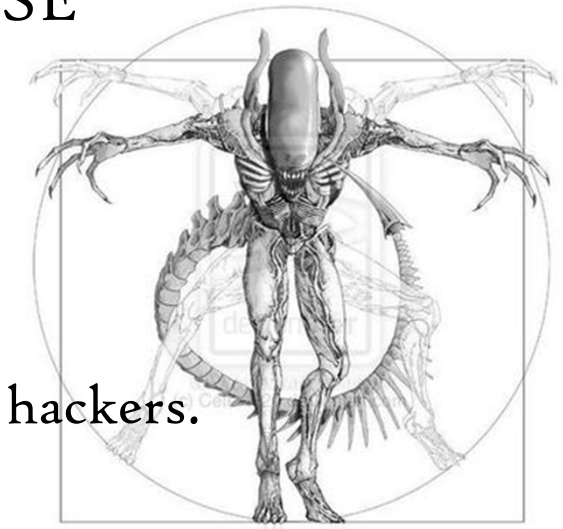
- That's really all there is to it.
  - Click, click bang

Vulnerability scanners

- We looked at scanners.
- It felt like this:

Vulnerability scanners

- We settled on Nmap with NSE
  - Free
  - Fast
  - Light
  - Reliable
    - ... kind of
  - Scripts seems to be written by hackers.
    - We like that.
  - Easy to integrate
  - Easily extendable
  - More than 400 scripts with Kali



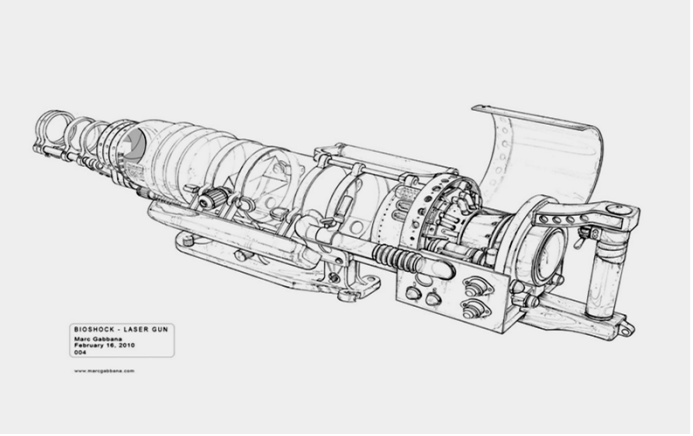
Vuln scanner

A NEW TRAIN OF THOUGHT
PATERVA

- Depends on the family you using
- Finds all the usual suspects
  - Weak SSH / MySQL / MSSQL / VNC passwords
  - Anonymous FTP
  - PUT HTTP method
  - FrontPage (90s called!)
  - SMTP relay open
  - etc

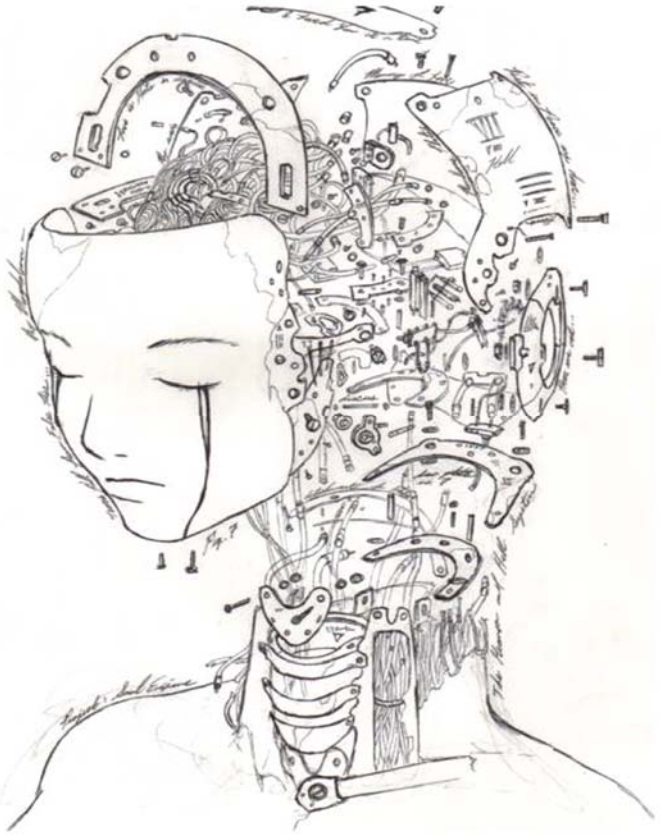
Demo – Nmap with NSE

- Configure family
  - *auth, default, discovery, external, intrusive, malware, safe and vuln, none, all*
- Where needed
  - Configure extra parameters
  - Configure ports
- Point
- Click
- Bang



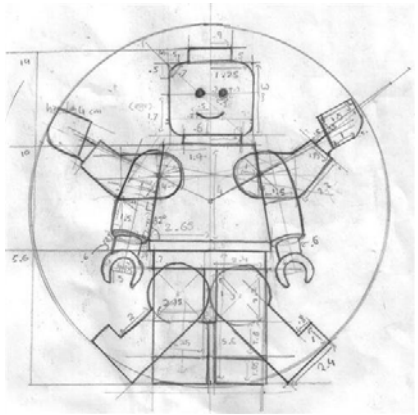
People

...not machines



People - Maltego side

- The plan
  - Mine email address from target domain
  - Mine email address from address book
  - Get more info from Maltego
    - Social network membership
      - Facebook, LinkedIn, Twitter, Flickr
    - Get more info
      - Manually?
  - Automagically do phishing attack
    - web application (KingPhisher)

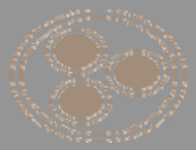


People - KingPhisher side

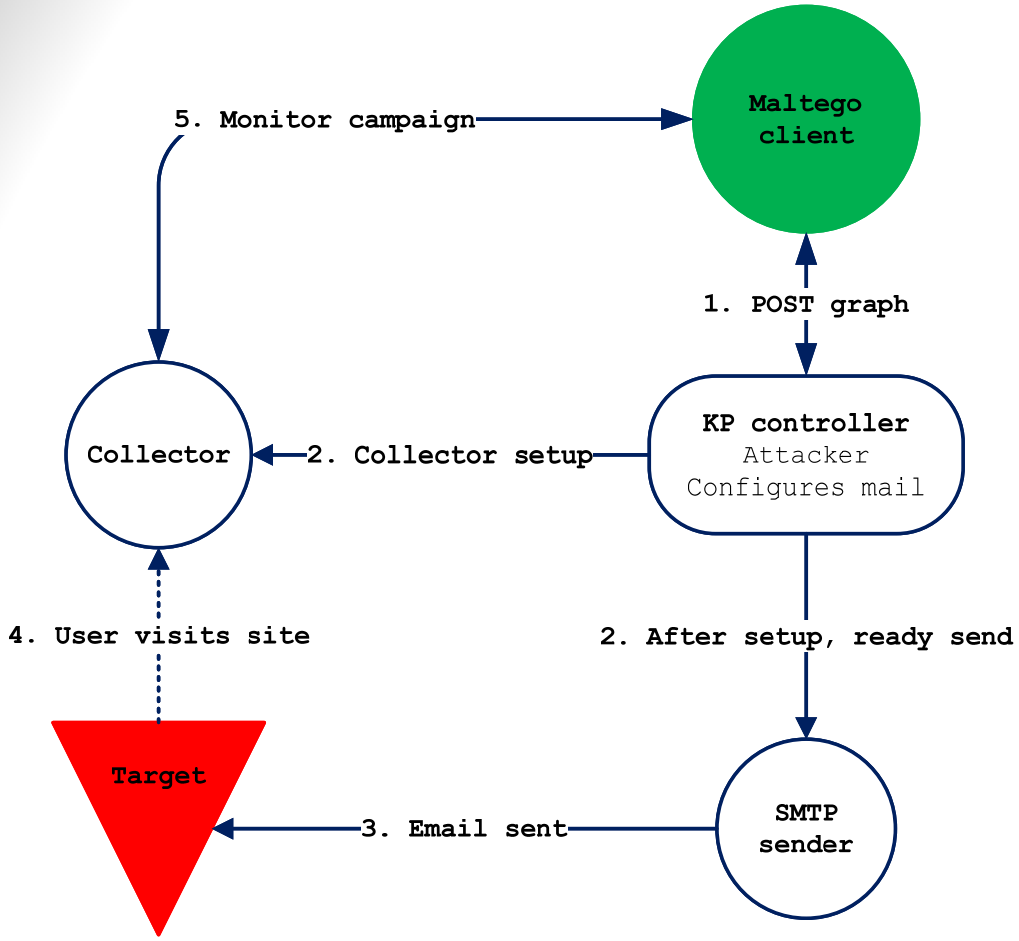
- Parse info from the graph
- Select email templates based on info in the graph
- Based on the info collected and template used
  - Find more info:
    - Facebook / Flickr friends / Twitter profile pic
    - Pretty pictures
    - Interests etc.

Populate template with info from Maltego graph

- Send email...
- Set up collectors



KingPhisher Components

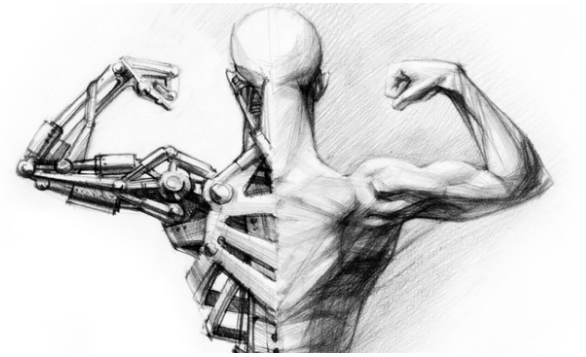


Challenges

- Getting marked as spam /phishing
  - Their HTML email template
    - Redo the HTML completely from scratch
  - DKIM / SPF
    - Use a different email address, but close enough
  - Certain phrases
    - “Facebook”, Facebook’s physical address
    - Outlook and links with IP addresses
  - Real Time Blacklist (RBLs)
    - Split the email composing and sending components
      - PHP hosting site + SMTP
      - Makes it easier to move the endpoint around

Then...when the user clicks on it

- Serve browser oday
  - Wait.. that's cheating! You said no oday! OK..
- Collect IP address, user agent
- Redirect user to fake
  - Social network site
  - Corporate webmail / VPN site
- Hope to collect credentials
- Credential re-use:
  - Use on company infrastructure
    - VPN / Webmail
  - Other social networks
  - Profit!



Useful templates

- Facebook (picture tag)
- Twitter (new follower)
- OWA with web forms
- OWA NTLM / Generic BA
  - Serves Basic Auth prompt
  - Collect creds
  - Rinse repeat (we want to collect everything)
  - Forward to real site

How do you manage the campaign?

Maltego!

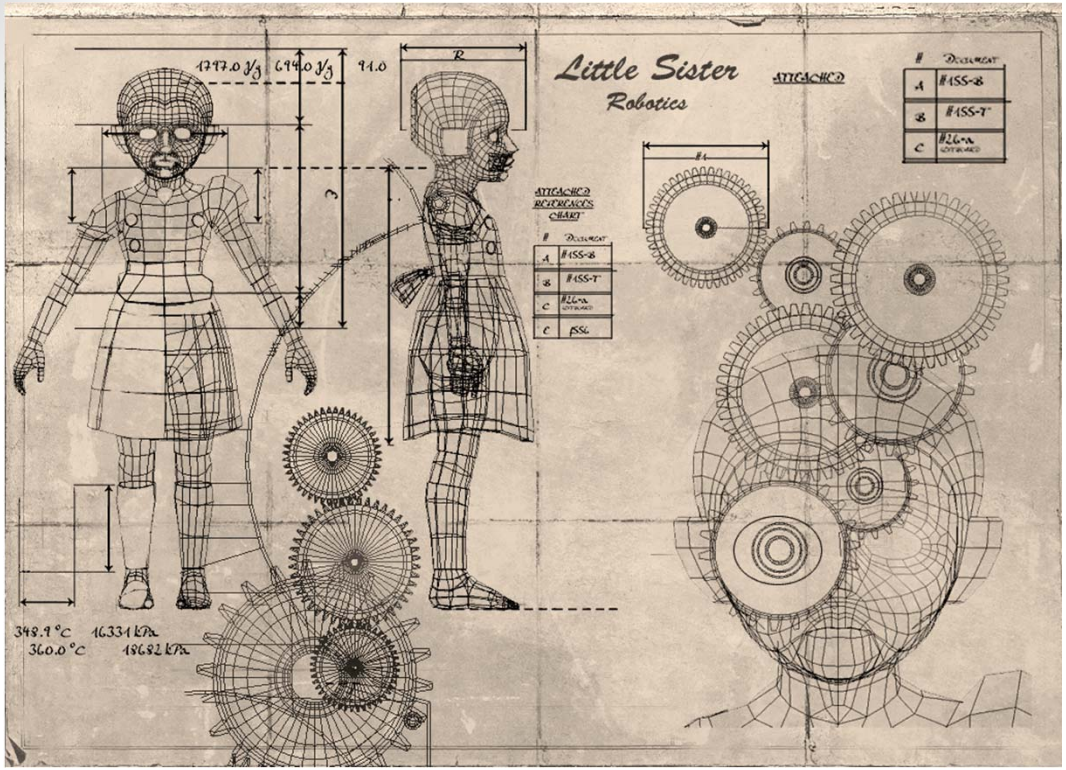
- Run 3 transforms perpetually in a machine
  - Controller -> Campaign/Email addresses
    - Emails sent to
  - Email address -> UserAgent and IP
    - That clicked
  - Email address -> Creds collected
    - That supplied credentials

Cool other ideas...

... that we did not implement (or perhaps we did?)

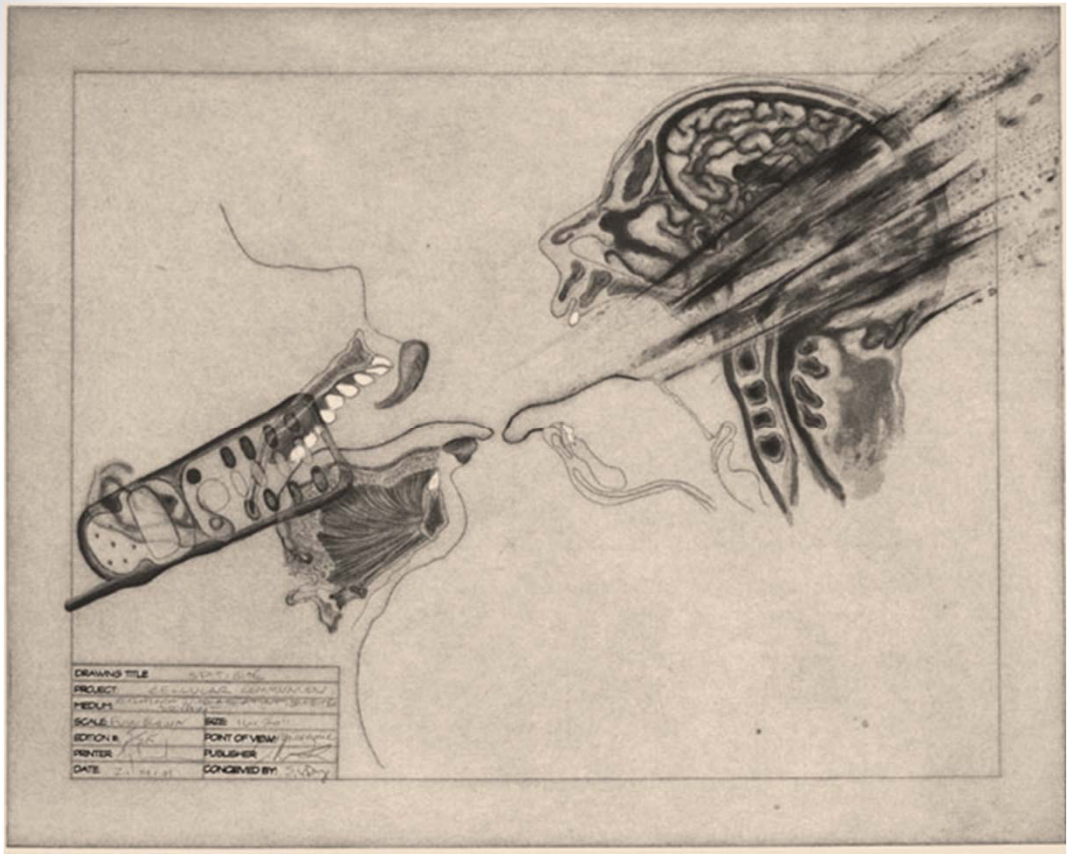
- Add to graph sent to KP / AmIThePresident.com:
  - IP ranges
  - Country
  - Time of day
  - User agent
- Use this to filter
  - When your target matches filter
    - Serve oday / phish
  - When Google/MS/Facebook comes visiting
    - serve 'Hello World'

King Phisher demo



Mobile devices demo

(if there's time left!)



RELEASE

Maltego Tungsten / Teeth / KingPhisher

- Released today!
- Check website / Twitter for details
  - www.paterva.com
  - @paterva

Questions?