

Social Network Phishing

BSidesSATX 21 May 2016

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Who am I?

“Will is an Information Security Analyst at a large financial services institution in San Antonio. He has several years of professional experience in security operations and is currently pursuing a graduate degree in cyber security from UTSA.”

What am I talking about?

- Social Networks/Graphs
- Social Engineering/Phishing
- Browser Exploitation
- Multiple routes to Game Over

Social Networks

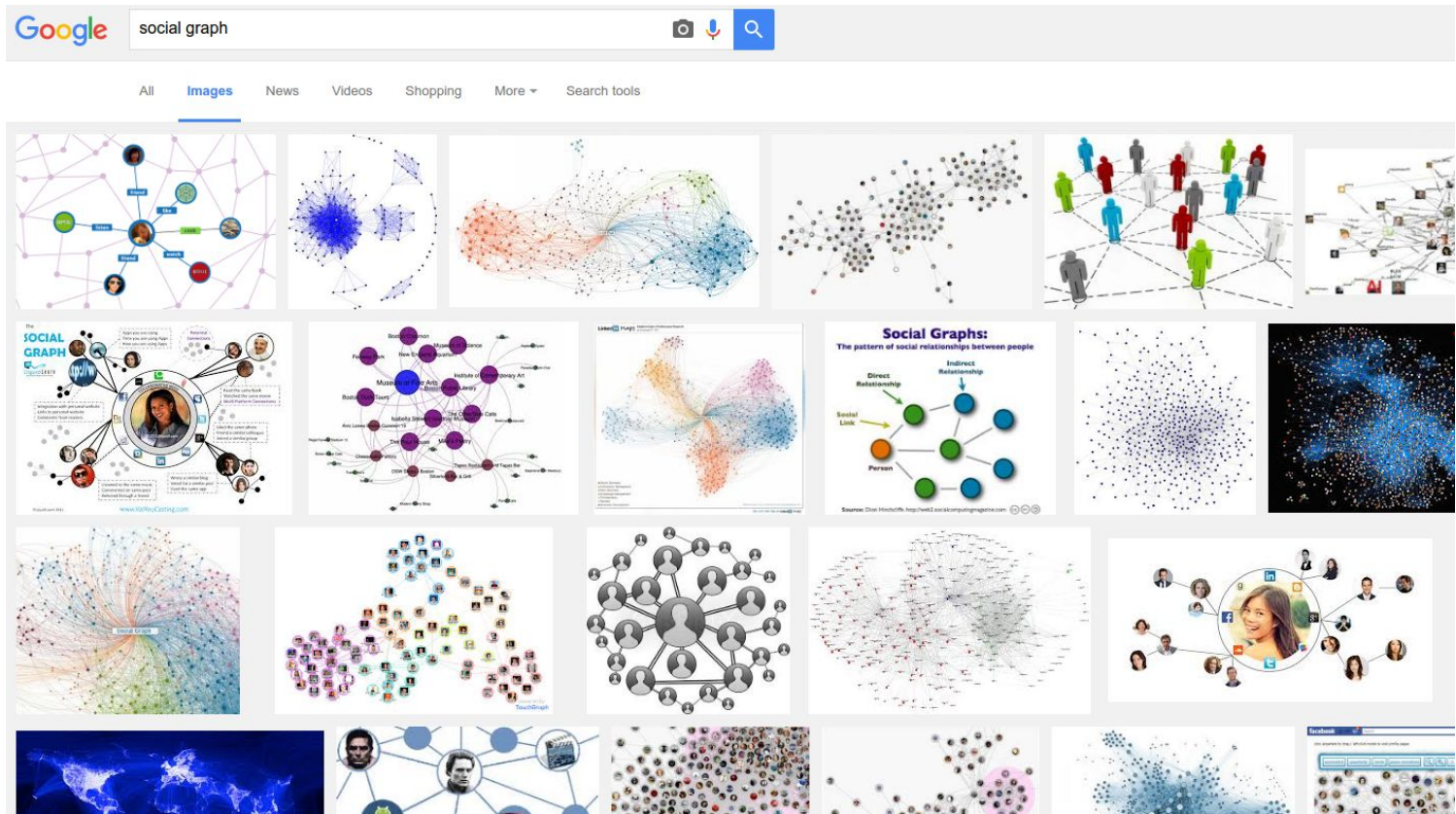
- Social Network

- “a network of social interactions and personal relationships”
- A social structure represented as a graph with Individuals as **nodes**, Relationships as **edges**.
- **Facebook**

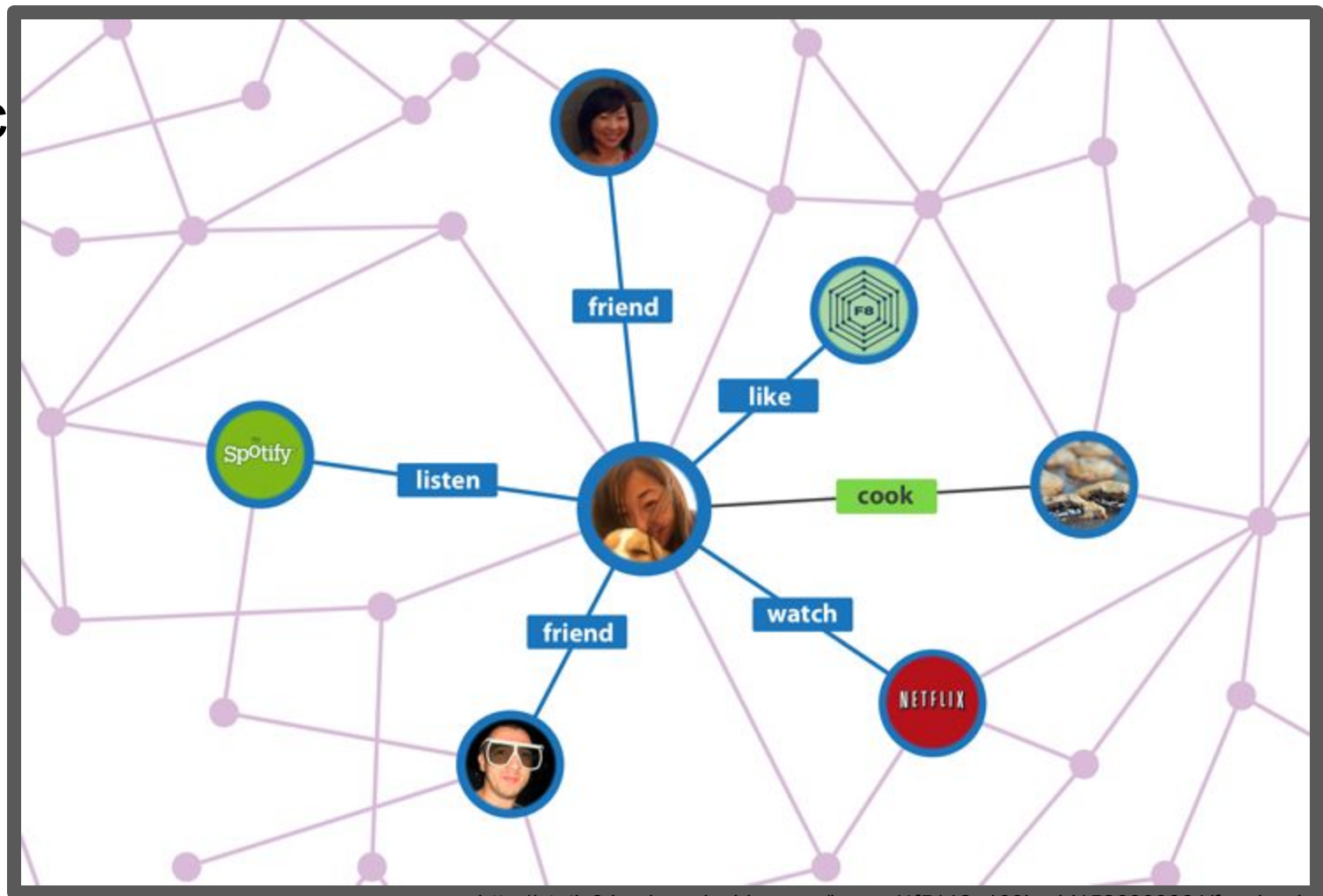
- Social Graphs

- **Nodes** - Individuals, Organizations
 - & places, likes, etc.
- **Edges** - Relationships, Interactions
- ***Fields** - Information about nodes. Names, birthdays, etc.

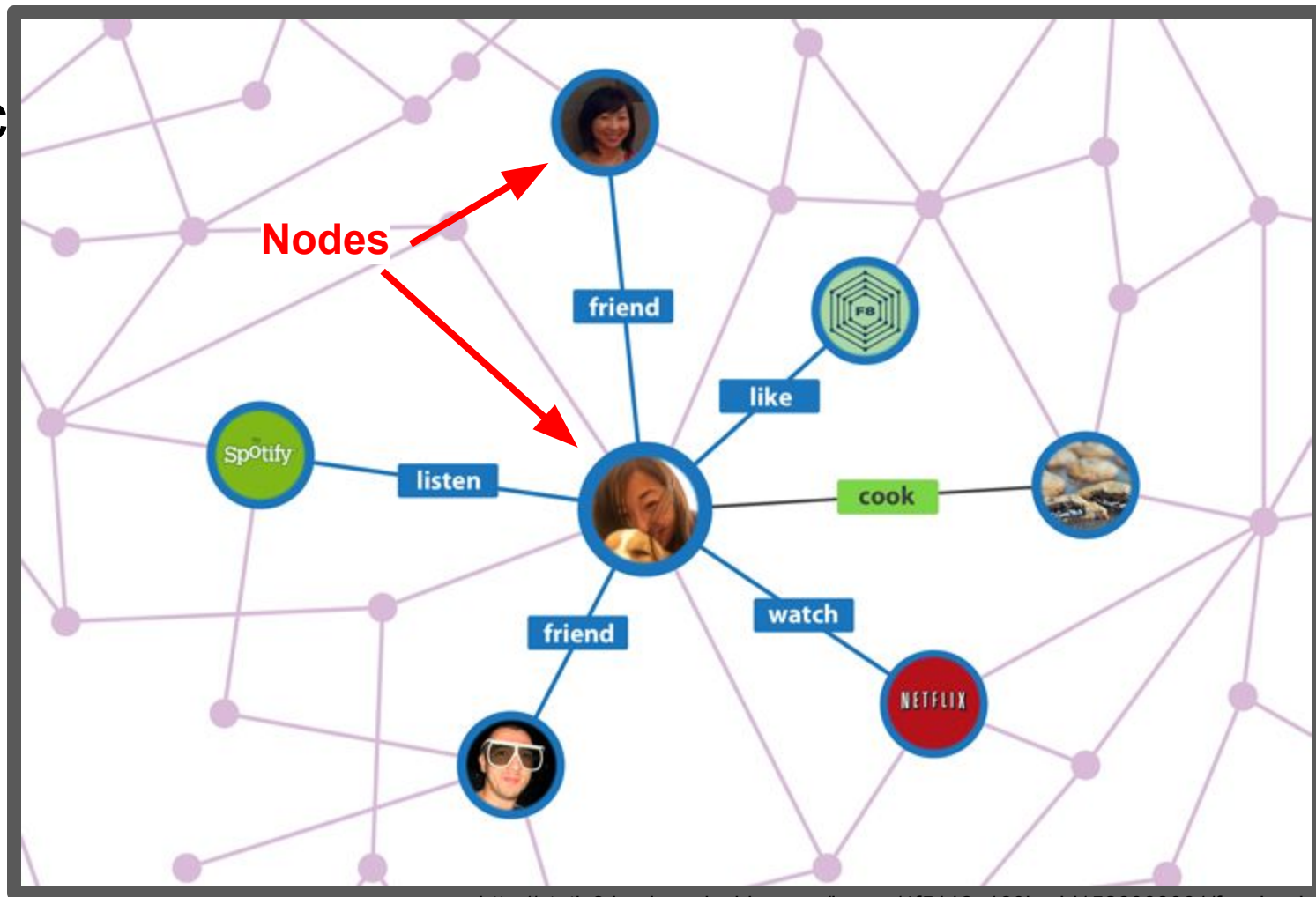
Social Graphs



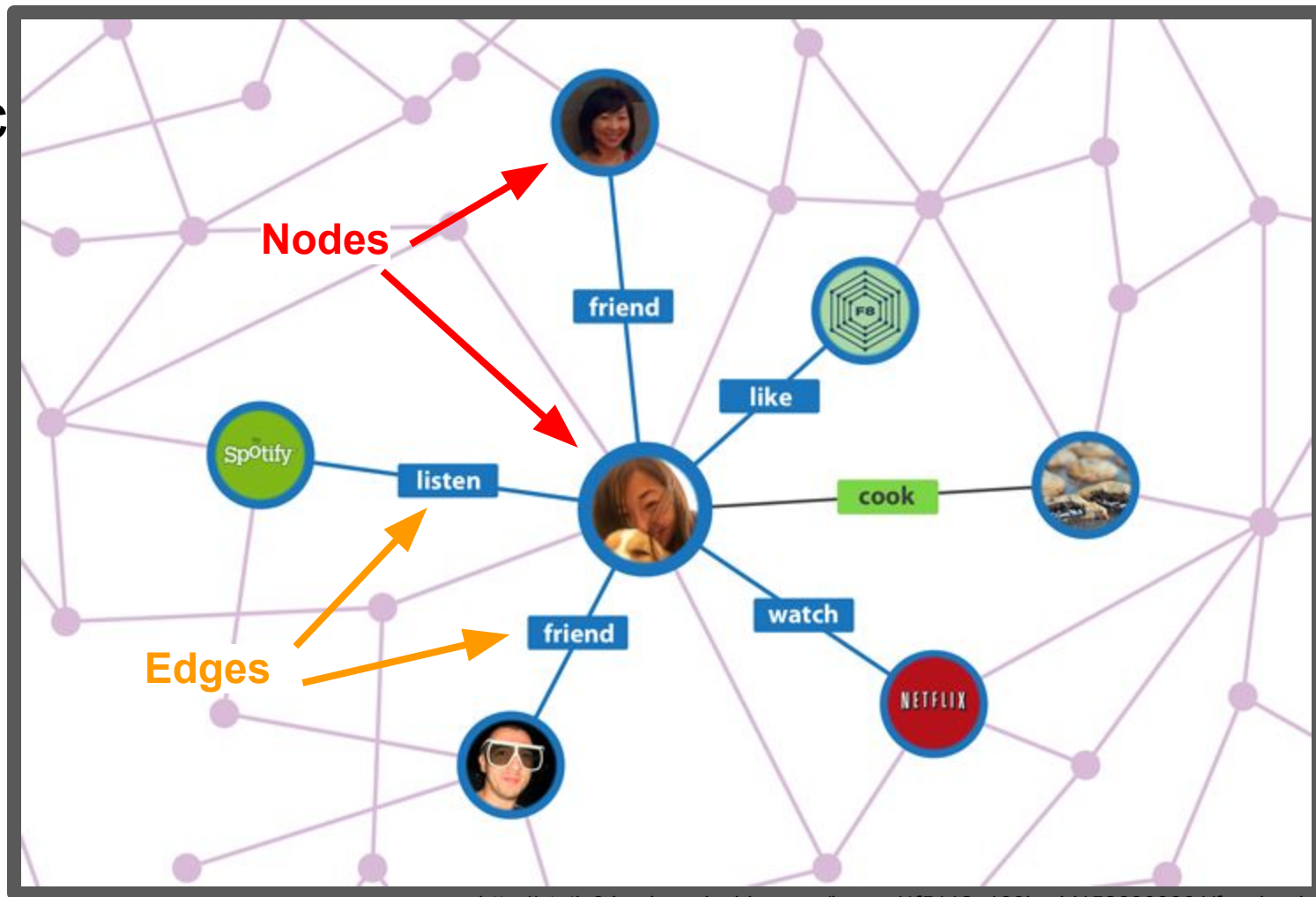
Soc



Soc



Soc



Social Graph Queries

- Who listens to Spotify?
- Who is friends with X?
- What do people who are friends with X listen to?

Very powerful for marketing, useful to us later. But first, bacon.

(Kevin) Bacon Graph



THE ORACLE OF BACON



Welcome
Credits
How it Works
Contact Us
Other stuff »

viggo mortensen has a Bacon number of 2.

[Find a different link](#)


```
graph TD; VM[Viggo Mortensen] -- was in --> A[Appaloosa (2008)]; A -- with --> NS[Neil Summers (I)]; NS -- was in --> MF[Murder in the First (1995)]; MF -- with --> KB[Kevin Bacon];
```

Kevin Bacon to viggo mortensen [Find link](#) [More options >>](#)




 107
 Tweet
 +

(Kevin) Bacon Graph



THE ORACLE OF BACON



Welcome
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Other stuff »


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[Find a different link](#)

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```

[Kevin Bacon](#) to [viggo mortensen](#) [Find link](#) [More options >>](#)

Degrees of Separation (2)



G+ 107
Tweet
f +

Tools: Maltego



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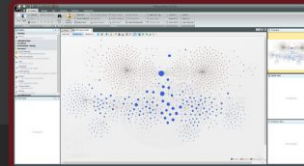


Maltego CE is used by security professionals worldwide
and ships with Linux Kali out-the-box.

What is Maltego?

Maltego is an interactive data mining tool that renders directed graphs for link analysis. The tool is used in online investigations for finding relationships between pieces of information from various sources located on the Internet.

Maltego uses the idea of transforms to automate the



<https://www.paterva.com/web7/buy/maltego-clients/maltego-ce.php>

Tools: Maltego

“The focus of Maltego is analyzing real-world relationships between information that is publically accessible on the Internet. This includes footprinting Internet infrastructure as well as gathering information about the people and organisation who own it.”

Maltego can be used to determine the relationships between the following entities:

- People
- Names
- Email addresses
- Aliases
- Groups of people (social networks)
- Companies
- Organizations....

Maltego Chlorine CE 3.6.0

Investigate Manage View Organize Machines Collaboration

Clipboard Transforms Find Selection Zoom

Clear All Copy Paste Cut Delete Number of Results 12 50 255 10k Select All Invert Selection Select None Select All Similar Siblings Add Path Select Children Select Neighbors Add Parents Select by Type Select Links Reverse Links Zoom to Zoom In Zoom to Fit Zoom Out Zoom 100% Zoom Selection

Home x

Start Page Transform Hub

IMPORTANT NOTICE: We've dropped support for Java 6. Maltego Chlorine runs only on Java 7 or java 8.

MALTEGO CHLORINE COMMUNITY

Maltego Blog
Latest blog posts

Panama Papers in Maltego
By now everyone knows about the Panama Papers and the Offshore Leaks. If you should read about it [here]. We've downloaded the CSV files from...

Maltego 4 - it's finally time...
TL;DR: Maltego 4 is finally ready... click on the picture below to view the release video: Download the software [here]... but if you want to know more.....

Network footprinting with Maltego.
One common task that Maltego is used for is doing infrastructure footprints of an organisation's network. This post will detail a possible methodology...

Abracadabra! It's Sho(dan) time!
Shodan -- used by pentesters, stalkers, researchers and data scientists everywhere to analyze information about computers on the Internet. From web...

Visualization the Bitcoin Blockchain in Maltego
This post will provide a quick overview of our new Maltego transforms for visualizing the Bitcoin blockchain. There are 11 new transforms in the seed ...

Start a Machine

Steps

1. Choose machine
2. Specify target

Run Machine - Choose machine (1 of 2)

Please select the machine to run from the list below:

- ☐ Company Stalker [Domain]
This machine will try to get all email addresses at a domain then s...
- ☐ Find Wikipedia Edits [Domain]
This machine takes a domain and looks for possible Wikipedia edits.
- ☐ Footprint L1 [Domain]
This performs a level 1 (fast, basic) footprint of a domain.
- ☐ Footprint L2 [Domain]
This performs a level 2 (mild) footprint of a domain.
- ☐ Footprint L3 [Domain]

☒ Show on startup
☒ Show on empty graph click

Please select a machine to run.

< Back Next > Finish Cancel Help

From Transform Hub

PATERVA CTAS
Paterva
Standard Paterva CE Transforms
FREE
INSTALLED

CaseFile Entities
Paterva
Additional entities from CaseFile
FREE
NOT INSTALLED

SensePost Toolset
SensePost
A set of various transforms - with regular updates!
FREE
NOT INSTALLED

PassiveTotal
PassiveTotal
Query PassiveTotal source and account data.
FREE
NOT INSTALLED

ThreatCrowd
ThreatCrowd
Query ThreatCrowd for Malware, Passive DNS and historical W...
FREE
NOT INSTALLED

Investigate

Manage

View

Organize

Machines

Collaboration

Clipboard

Copy Paste Cut Delete

Clear All

Number of Results

12 50 250 10k

Transforms

Quick Find

Find

Entity Selection

Select All

Invert Selection

Select None

Add Similar Siblings

Add Path

Select Parents

Select Children

Select Neighbors

Add Parents

Add Children

Add Neighbors

Select Bookmarked

Select by Type

Select Links

Reverse Links

Zoom to

Zoom In

Zoom to Fit

Zoom Out

Zoom 100%

Zoom Selection

Zoom

Palette

Locations

Malware

Penetration Testing

Personal

Alias

Document

Email Address

Image

Person

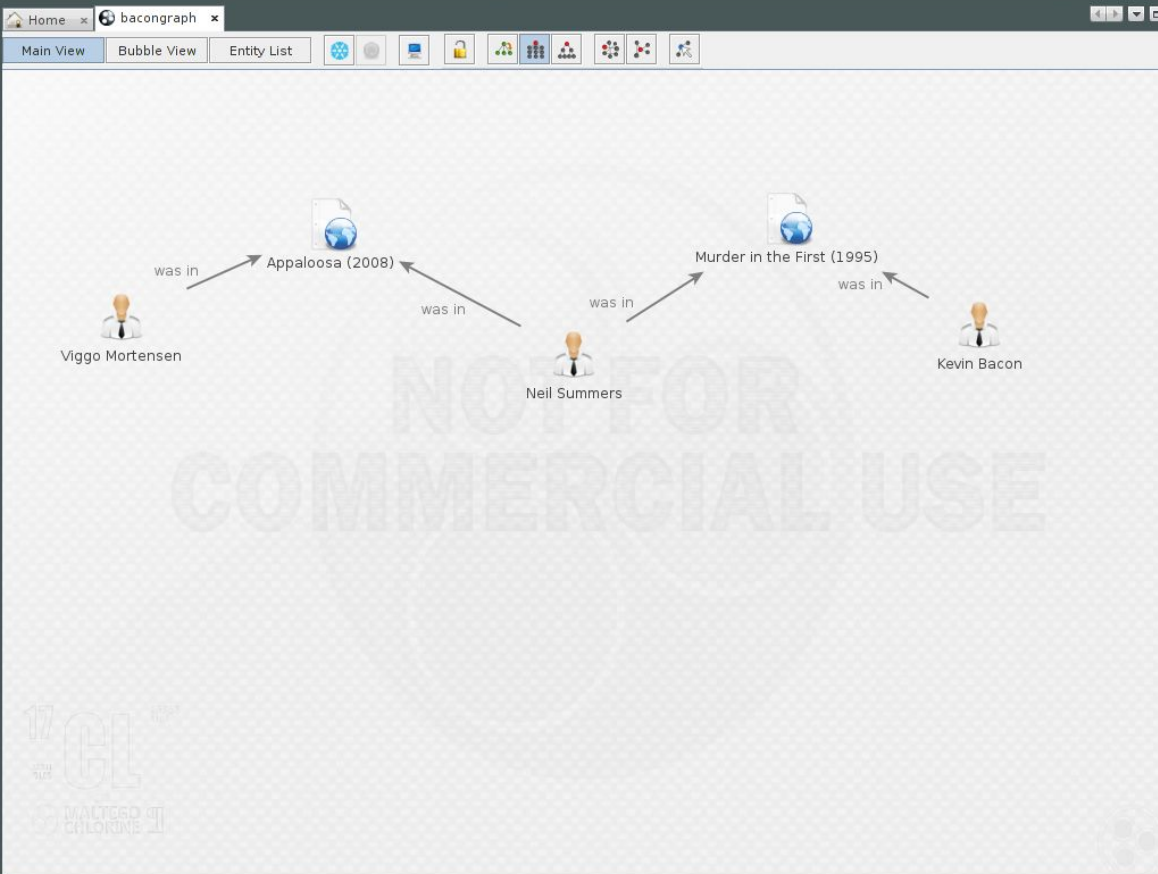
Phone Number

Phrase

Social Network

Facebook Object

Run View



Overview

Detail View

Property View

<No Selection>

<No Properties>

5 entities

Investigate Manage View Organize Machines Collaboration

Clipboard: Copy, Paste, Cut, Delete

Transforms: Number of Results (12, 50, 250, 10k)

Find: Quick Find

Selection: Select All, Invert Selection, Select None, Add Similar Siblings, Add Path, Select Parents, Select Children, Select Neighbors, Add Neighbors, Add Parents, Select by Type, Select Links, Reverse Links, Select Bookmarked

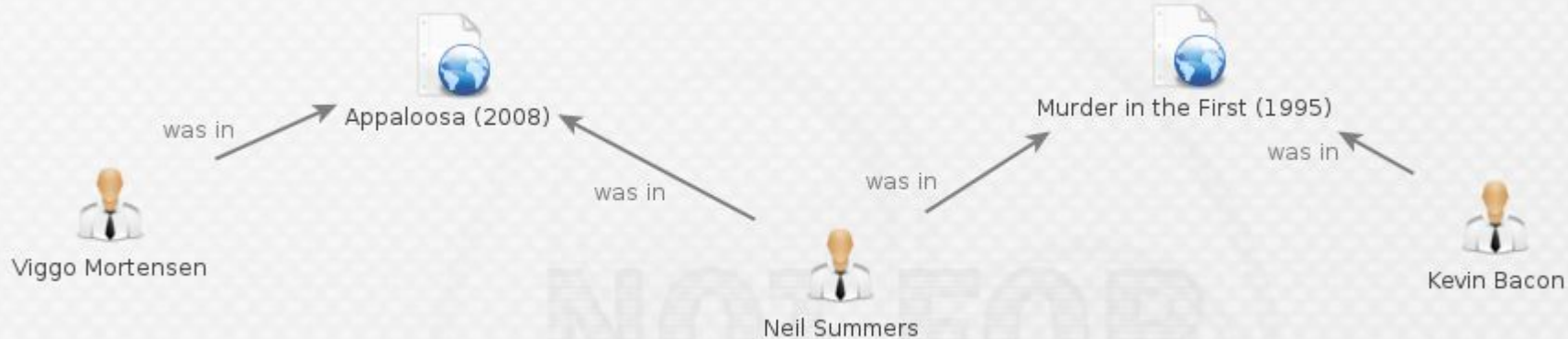
Zoom: Zoom to, Zoom In, Zoom to Fit, Zoom Out, Zoom 100%, Zoom Selection

Palette: Locations, Malware, Penetration Testing, Personal, Alias

Home x bacongraph x

Main View | Bubble View | Entity List

Overview



<No Selection>



<No Properties>

Investigate Manage View Organize Machines Collaboration

Clipboard: Clear All, Copy, Paste, Cut, Delete

Transforms: Number of Results: 12 50 250 10k

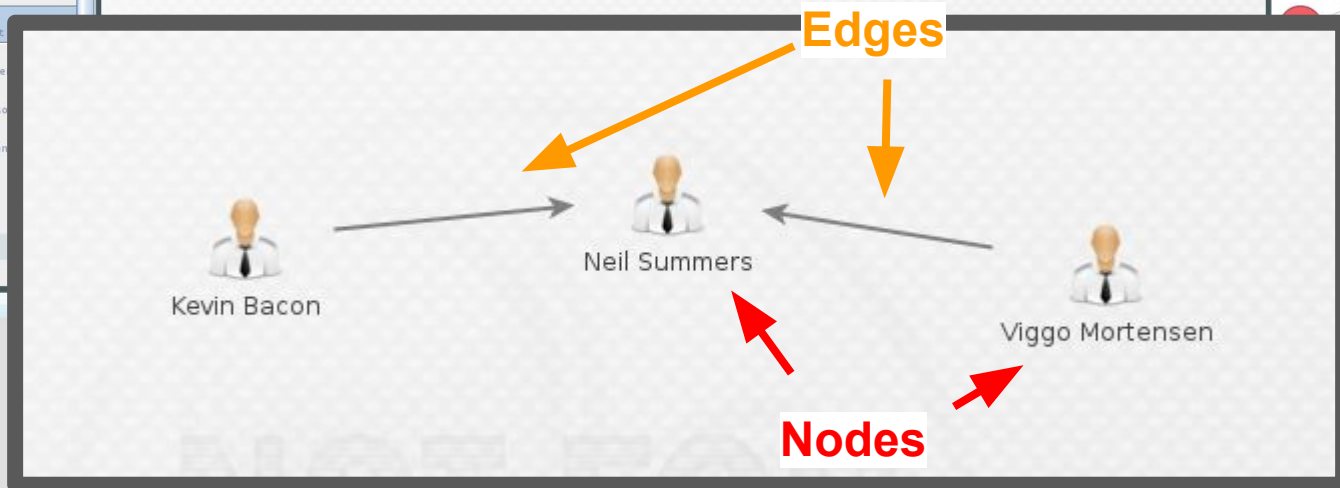
Find: Quick Find

Selection: Select All, Add Similar Siblings, Select Children, Add Children, Select by Type, Zoom to, Zoom In, Zoom to Fit, Zoom Out, Zoom 100%, Zoom Selection, Invert Selection, Add Path, Select Neighbors, Add Neighbors, Select Links, Select None, Select Parents, Add Parents, Select Bookmarked, Reverse Links

Palette

- Locations
- Malware
- Penetration Testing
- Personal
- Alias
 - An alias for a person
- Document
 - A document on the Internet
- Email Address
 - An email mailbox to which e
- Image
 - A visual representation of so
- Person
 - Entity representing a human
- Phone Number
 - A telephone number
- Phrase
 - Any text or part thereof
- Social Network
 - Facebook Object
- Run View

Simplified Graph



Overview

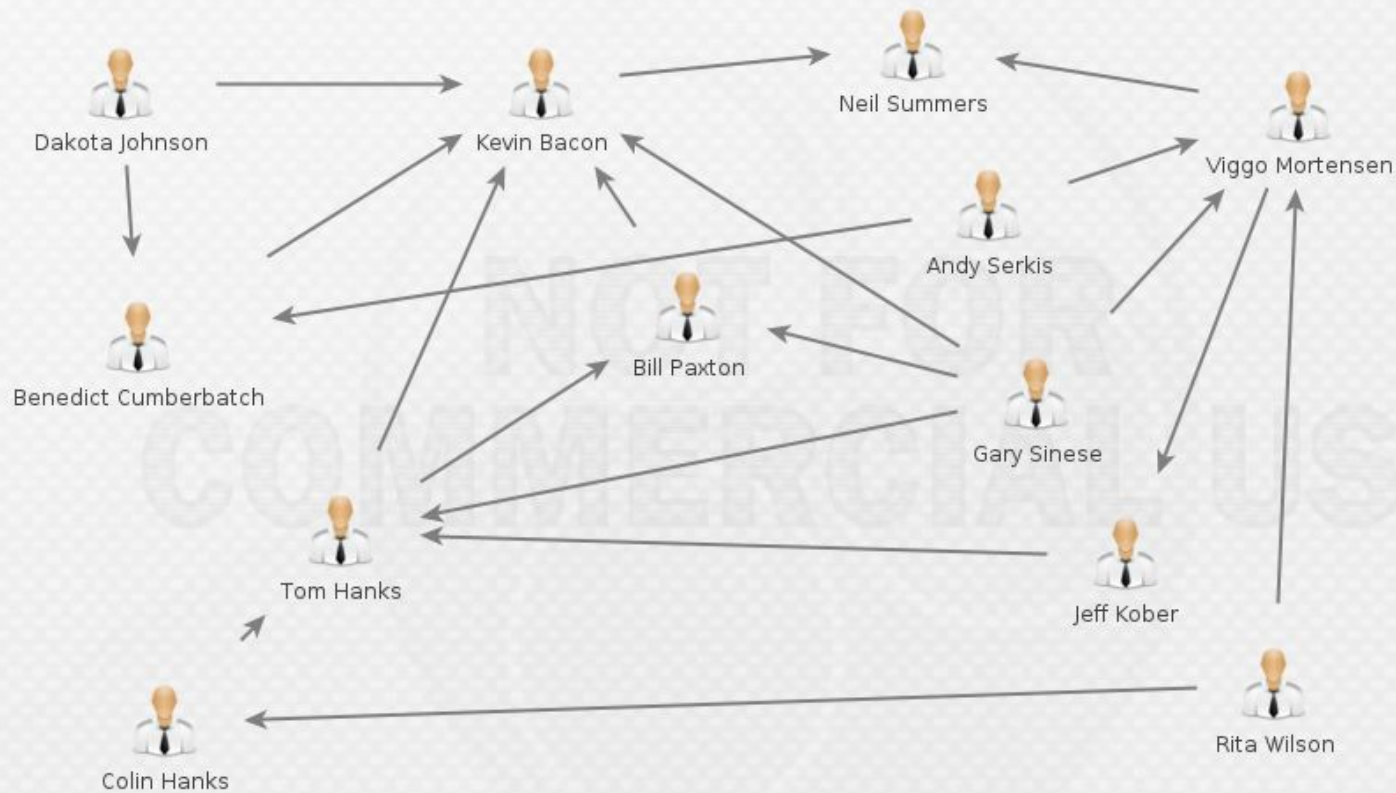
View

<No Selection>

Entity View

<No Properties>

Expanded Graph



(Kevin) Bacon Graph

Degrees of Separation	# of People (IMDB)
0	1
1	2,769
2	305,215
3	1,021,901
4	253,177
5	20,060
6	2,033
7	297
8	25
9	7

(Kevin) Bacon Graph

Degrees of Separation	# of People (IMDB)
0	1
1	2,769
2	305,215
3	1,021,901
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6	2,033
7	297
8	25
9	7

Social Engineering

“Social engineering, in the context of information security, refers to psychological manipulation of people into performing actions or divulging confidential information. A type of confidence trick for the purpose of information gathering, fraud, or system access...”

Social Engineering

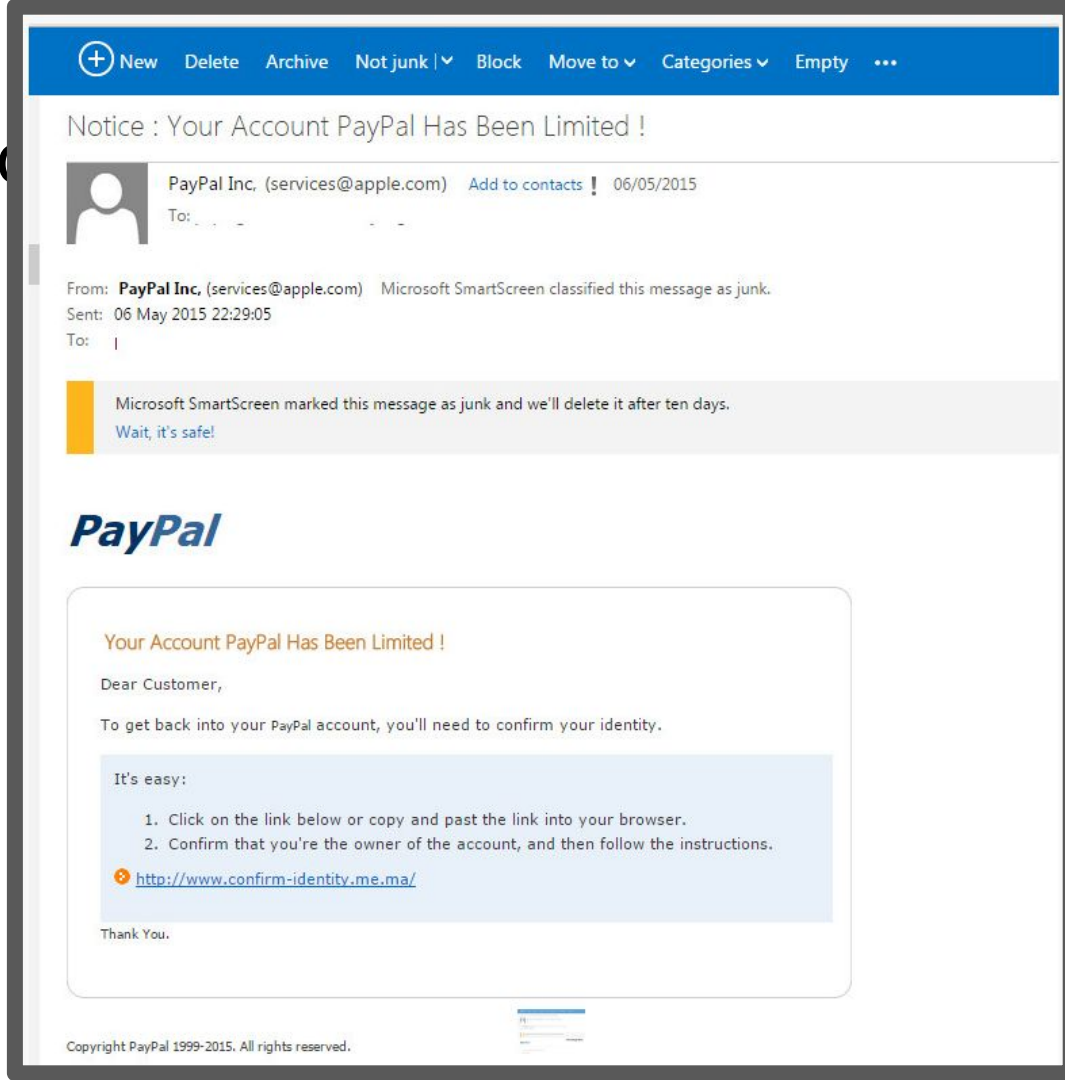
- Pretext - Scenario to engage target in a manner that increases the chance they will divulge information or perform actions that would be unlikely in ordinary circumstances.
- Impersonation
- Bait - enticement, relies on the curiosity or greed of the target.

Phishing

“Phishing is the attempt to acquire sensitive information such as usernames, passwords, and credit card details (and sometimes, indirectly, money), often for malicious reasons, by masquerading as a trustworthy entity in an electronic communication.”

- Spear phishing

Phish - hood



<https://blog.malwarebytes.org/cybercrime/2015/05/your-account-paypal-has-been-limited-phishing-scam/>

Phish

confirmation-identity.ab.ma

nom de domaine gratuit proposé par Tw

PayPal My money Transactions Clients Ressources More

2 **Log**

Tools

- Billing
- Request for payment
- Sending money
- Configuration of my activity
- Presentation
- Resolution Center

Enabled By

- Verisign Identity Protection
- 100% Secure
- Symantec Validation & ID Protection

Update Your Credit/Debit Card

Please enter your credit/debit card informations correctly

Card Holder *

Card Number *

CVC * [what is this?](#)

Expiration Date * Month Year

3D Secure / VBV Password *

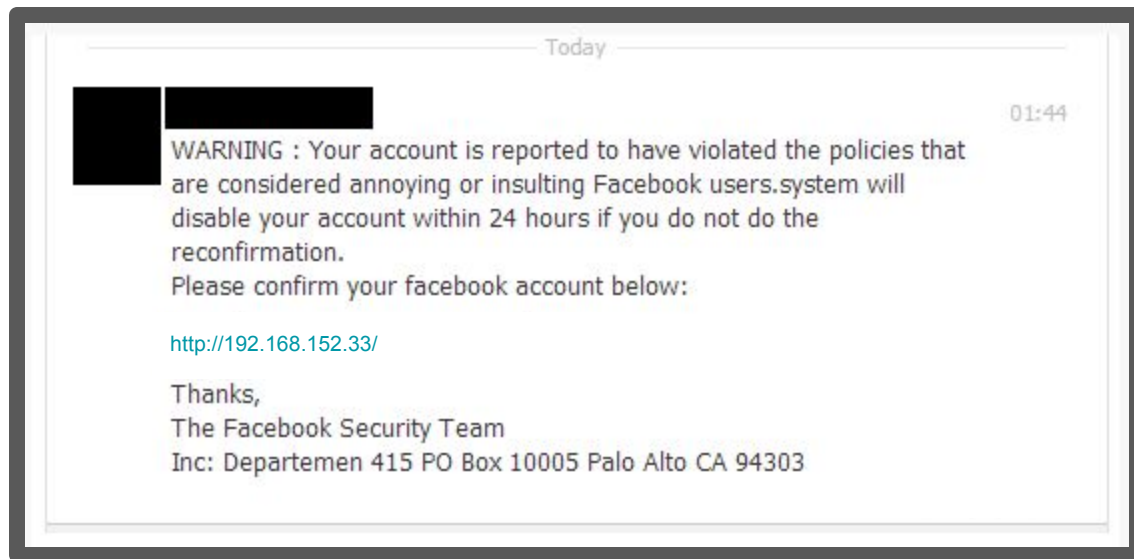
Sort Code

Social Security Number

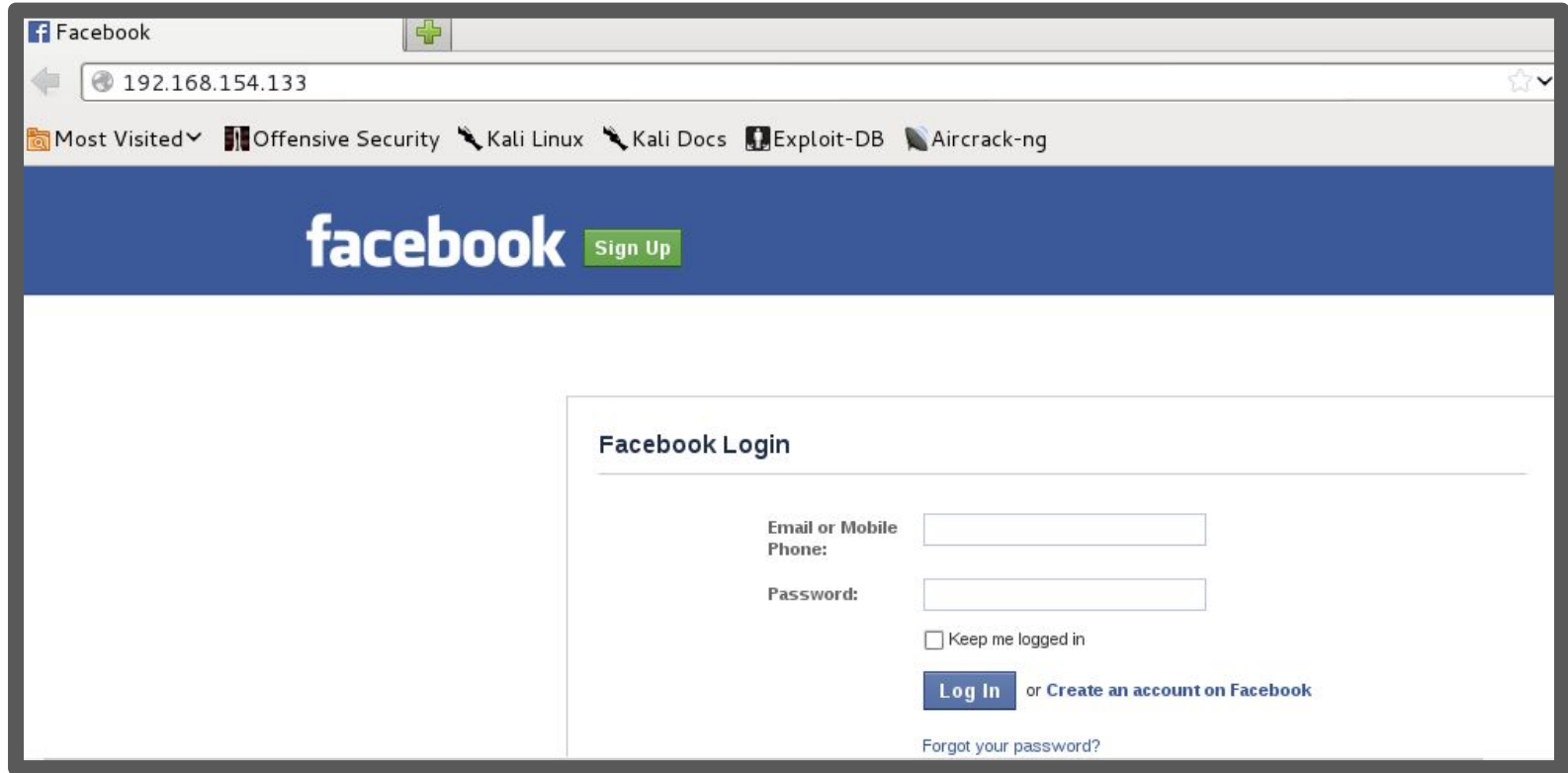
Next

[Update Billing Address](#) • [Update Credit/Debit Card](#) • [Update Bank Account](#) • [Update Done](#)

Phish - hook



Phish - landing



The image shows a web browser window with a phishing page designed to look like the Facebook login page. The browser's address bar shows the IP address 192.168.154.133. The page features a blue header with the Facebook logo and a green 'Sign Up' button. Below the header, there is a 'Facebook Login' section with input fields for 'Email or Mobile Phone:' and 'Password:'. A checkbox for 'Keep me logged in' is present, along with a blue 'Log In' button and a link to 'Create an account on Facebook'. A link for 'Forgot your password?' is located at the bottom of the login section.

Facebook

192.168.154.133

Most Visited Offensive Security Kali Linux Kali Docs Exploit-DB Aircrack-ng

facebook Sign Up

Facebook Login

Email or Mobile Phone:

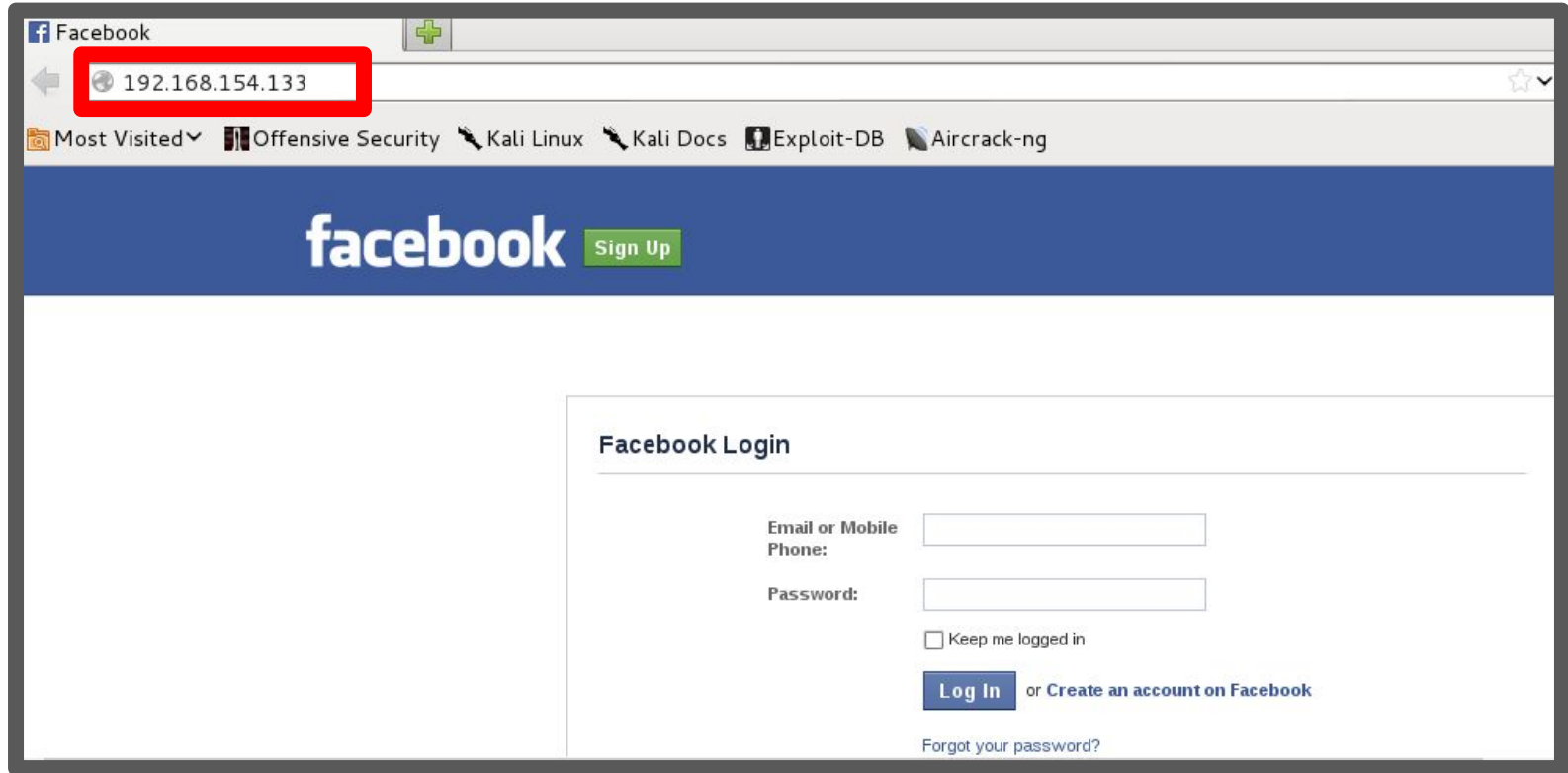
Password:

☐ Keep me logged in

Log In or Create an account on Facebook

[Forgot your password?](#)

Phish - landing



Tools: payloads

Why limit ourselves to gathering credentials?

- Metasploit BrowserAutoPwn
 - Use one of many common exploits to compromise browser/plugins
 - browser hijack
 - RAT install
- BeEF
 - credential phish
 - browser hijack
 - & much more

Tools: pa

```
msf auxiliary(browser_autopwn2) >
[*] Starting exploit modules...
[*] Starting listeners...
[*] Time spent: 6.341781
[*] Using URL: http://0.0.0.0:8080/LgpZJMaa
[*] Local IP: http://192.168.1.64:8080/LgpZJMaa
[*] Server started.
[*] Using URL: http://0.0.0.0:8080/rfDzNT
[*] Using URL: http://0.0.0.0:8080/NhsA0fjg9CbM10
[*] Local IP: http://192.168.1.64:8080/rfDzNT
[*] Server started.
[*] Local IP: http://192.168.1.64:8080/NhsA0fjg9CbM10

[*] The following is a list of exploits that BrowserAutoPwn will consider using.
[*] Exploits with the highest ranking and newest will be tried first.
```

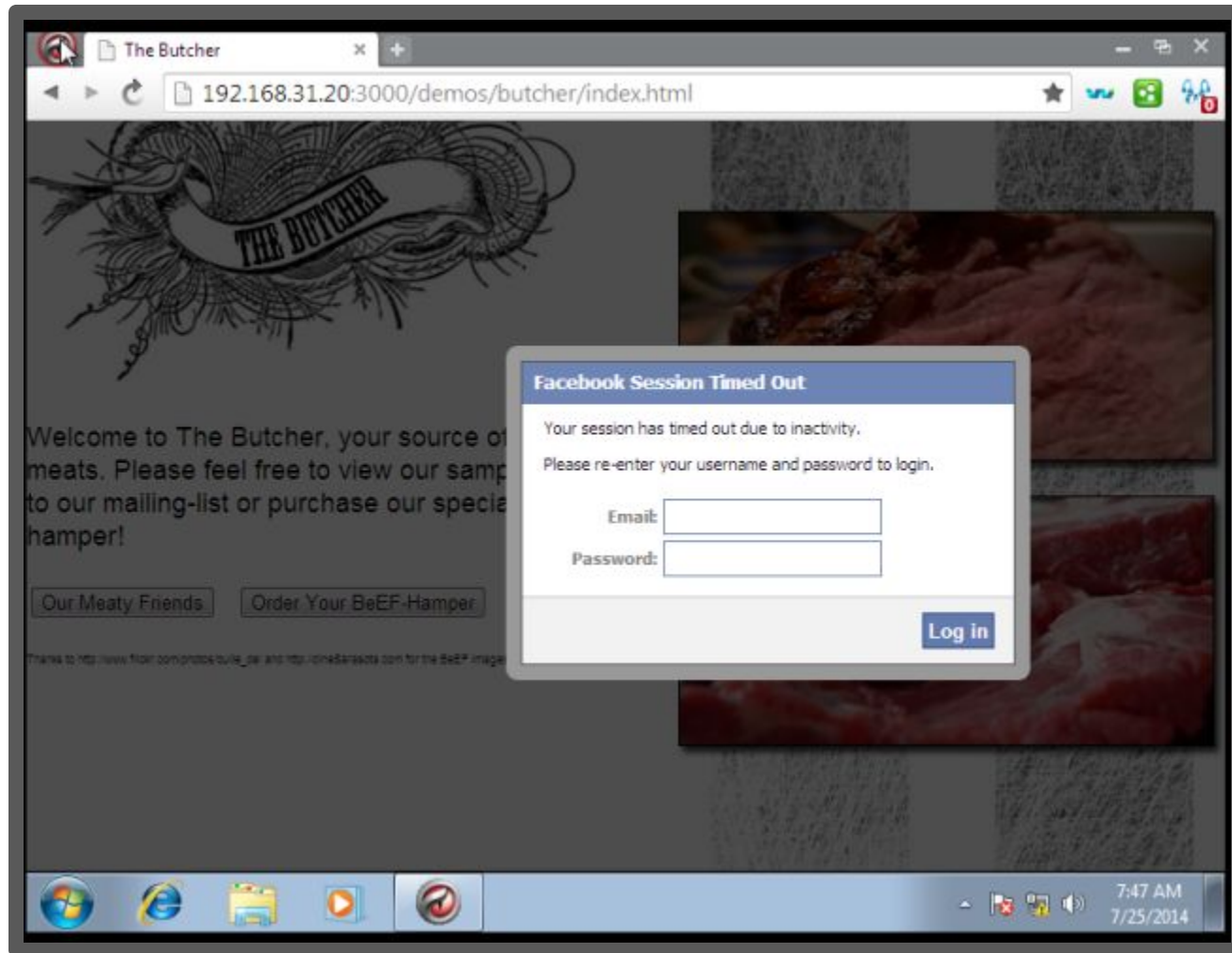
Exploits
=====

Order	Rank	Name	Payload
----	----	----	-----
1	Excellent	firefox_svg_plugin	firefox/shell_reverse_tcp on 4442
2	Excellent	samsung_knox_smdm_url	android/meterpreter/reverse_tcp on 4443
3	Excellent	firefox_webidl_injection	firefox/shell_reverse_tcp on 4442
4	Excellent	webview_addjavascriptinterface	android/meterpreter/reverse_tcp on 4443
5	Excellent	firefox_tostring_console_injection	firefox/shell_reverse_tcp on 4442
6	Excellent	firefox_proto_crmfrequest	firefox/shell_reverse_tcp on 4442
7	Great	adobe_flash_hacking_team_uaf	windows/meterpreter/reverse_tcp on 4444
8	Great	adobe_flash_shader_job_overflow	windows/meterpreter/reverse_tcp on 4444
9	Great	adobe_flash_shader_drawing_fill	windows/meterpreter/reverse_tcp on 4444
10	Great	adobe_flash_nellymoser_bof	windows/meterpreter/reverse_tcp on 4444
11	Great	adobe_flash_net_connection_confusion	windows/meterpreter/reverse_tcp on 4444
12	Great	adobe_flash_worker_byte_array_uaf	windows/meterpreter/reverse_tcp on 4444
13	Great	adobe_flash_domain_memory_uaf	windows/meterpreter/reverse_tcp on 4444
14	Great	adobe_flash_copy_pixels_to_byte_array	windows/meterpreter/reverse_tcp on 4444
15	Great	adobe_flash_cas132_int_overflow	windows/meterpreter/reverse_tcp on 4444
16	Great	adobe_flash_uncompress_zlib_uaf	windows/meterpreter/reverse_tcp on 4444
17	Great	adobe_flash_pixel_bender_bof	windows/meterpreter/reverse_tcp on 4444
18	Good	ms14_064_ole_code_execution	windows/meterpreter/reverse_tcp on 4444
19	Good	adobe_flash_uncompress_zlib_uninitialized	windows/meterpreter/reverse_tcp on 4444
20	Good	wellintech_kingscada_kxclientdownload	windows/meterpreter/reverse_tcp on 4444
21	Normal	adobe_flash_opaque_background_uaf	windows/meterpreter/reverse_tcp on 4444

```
[*] Please use the following URL for the browser attack:
[*] BrowserAutoPwn URL: http://192.168.1.64:8080/NhsA0fjg9CbM10
```

<https://community.rapid7.com/community/metasploit/blog/2015/07/16/the-new-metasploit-browser-autopwn-faster-and-smarter-part-2>

Tools:



Browser Exploits

- Some commonly used browser/plugin exploits (2010-2015)

CVE	Name	Software	Version
CVE-2010-0188	PDF Libtiff / Lib	Adobe PDF	PDF < 9.3.1
CVE-2011-3402	TrueType Font - Duqu	Windows	WIN XP-2008 via IE
CVE-2012-1889	XML	Windows	WIN XP-7, Srv2003-2008
CVE-2013-0025	SLayoutRun Use After Free Vulnerability	IE	IE 8
CVE-2013-0074 CVE-2013-3896	Silverlight Double Dereference	Silverlight	Silverlight < 5.1.20913.0
CVE-2012-3993	Firefox COW XrayWrapper pollution	Firefox	FF<17, ESR 10.x before 10.0.8
CVE-2013-0422	JMB/MBEAN and Reflection API	Java	< Java 7u11
CVE-2013-0634	Buffer overflow via crafted SWF	Flash	SWF<10.3.183.51 (win)
CVE-2013-1347	IE UAF	IE	IE 8

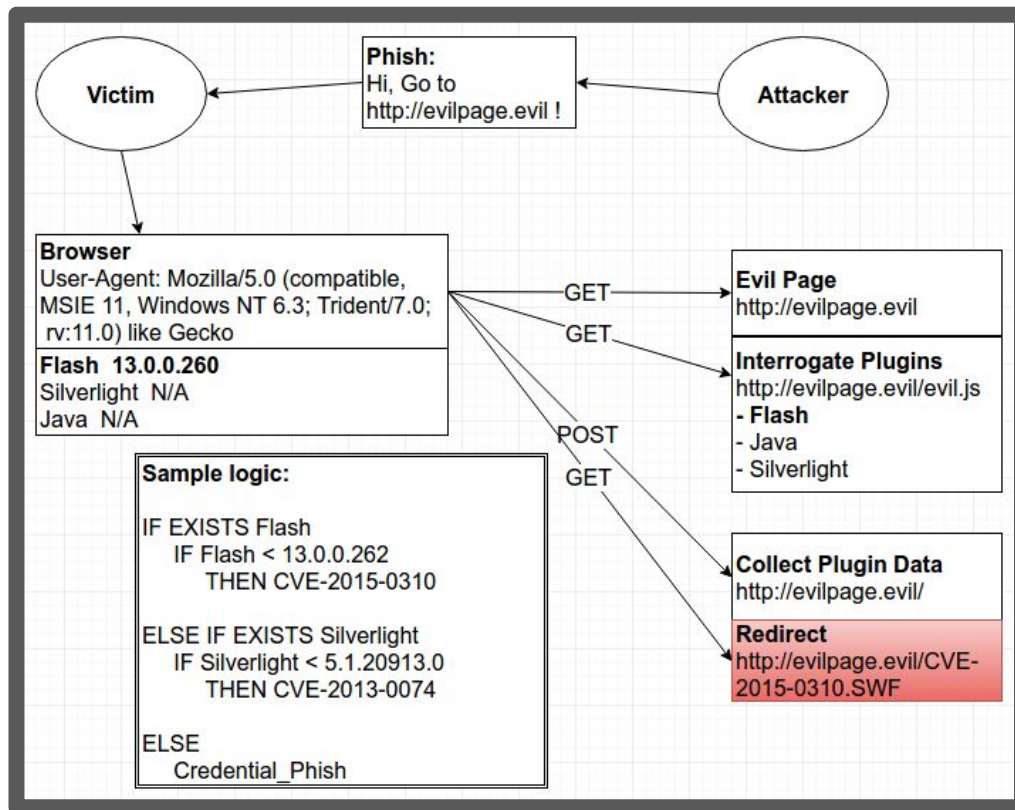
CVE	Name	Software	Version
CVE-2013-2463	w click2play bypass. Java Raster	Java	Java < 7u21 - 6u45
CVE-2013-2465	Memory Corruption	Java	Java < 7u21 - 6u45
CVE-2013-2471	Java Raster	Java	Java < 7u21 - 6u45
CVE-2013-2551	IE VML Use-after-free vulnerability	IE	
CVE-2013-2883	Use after free, MutationObserver	Chrome	< 28.0.1500.95
CVE-2013-3897	memory corruption via crafted JavaScript code		IE < 11
CVE-2013-3918	IE InformationCardSignInHelper	IE	IE < 10
CVE-2013-5329	on Flash 11.9.900.117 Memory Corruption	Flash	<11.7.700.252,<11.9.900.152
CVE-2013-7331	IE XMLDOM ActiveX information disclosure	Windows	< 8.1
CVE-2014-0322	Use-after-free via JavaScript code, CMarkup, and the onpropertychange attribute	IE	IE 9. 10
CVE-2013-1493	Java CMM	Java	Java < 7u15 - 6u41
CVE-2013-1710	Firefox CRMF	Firefox	FF < 23, ESR 17.x before 17.0.8
CVE-2013-2423	Java Type	Java	Java < Java7u17
CVE-2013-2424	JMX ,"insufficient class access checks"	Java	Java < 7u17 - 6u43, 5u41

CVE	Name	Software	Version
CVE-2014-0569	Flash casi32	Flash	< 13.0.0.250, <15.0.0.189 (Win, OSX); <11.2.202.411 (Lin)
CVE-2014-1776	Use-after-free, CMarkup::IsConnectedToPrimaryMarkup function	IE	< IE 11
CVE-2014-6332	IE "Unicorn", OleAut32 SafeArrayRedim	Windows	IE 3-11
CVE-2014-8439	invalid pointer dereference	Flash	<13.0.0.258, <15.0.0.239 (Win, OSX) ;<11.2.202.424 (Lin)
CVE-2014-8440	memory corruption	Flash	<13.0.0.252, 14.x ,15.0.0.223 (Win,OSX); < 11.2.202.418 (Lin); + A.Air
CVE-2015-0310	memory randomization circumventon	Flash	< 16.0.0.287, all < 14-15x, < 13.0.0.262 (winOS) , 11.2.202.438 (Lin)
CVE-2015-0311		Flash	< 16.0.0.287, all < 14-15x, < 13.0.0.262 (winOS)
CVE-2015-0313		Flash	<13.0.0.269, 14.x, 15.x, <16.0.0.305; Linux <11.2.202.442
CVE-2015-0336		Flash	<13.0.0.277, 14.x, 15.x, <17.0.0.134; Linux <11.2.202.451
CVE-2015-0359		Flash	<13.0.0.281, 14.x- 17.x before 17.0.0.169
CVE-2014-0497	Integer underflow	Flash	< 11.7.700.261, 11.8.x-12.0.0.44 (Win, OSX); < 11.2.202.336 (Lin)
CVE-2014-0502	Flash SharedObject double-free	Flash	<11.7.700.269, 11.8.x- 12.0.0.70(Win, OSX), < 11.2.202.341 (Lin) +
CVE-2014-0515	Flash Pixel Bender	Flash	< 11.7.700.279, < 11.8.x, <13.0.0.206 (Win, OSX); < 11.2.202.356 (Lin)

Exploit Rule Flow

Exploit Kits, BeEF Autorun Rules Engine, MSF Browser AutoPwn.

- Change behavior based on browser characteristics
 - Flash exploit against Flash
 - IE exploit against IE
 - Windows auth popup on Windows
 - Facebook popup if referred by Facebook



Multiple routes to Game Over

Social network targeted phishing and exploitation campaign.

Putting it all together:

1. OSINT - Open Source Intelligence Gathering
2. Establish Friend-of-Friend relationship (2nd degree)
3. Compromise Friend (1st degree)
4. Compromise Primary Target

Multiple routes to Game Over

Primary Target: Aragorn II, the son of Arathorn II and Gilraen. King Elessar Telcontar (TA 2931 - FO 120), 26th King of Arnor, 35th King of Gondor, High King of Gondor and Arnor Reunited, The Dúnadan, etc.

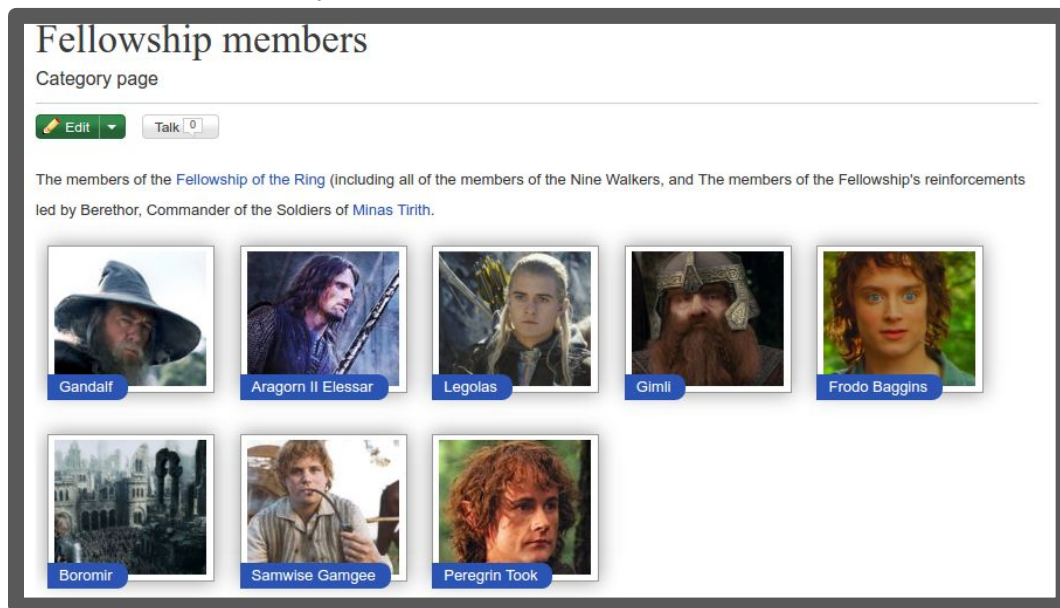
- Highly Secured Palantir Tower of Ecthelion Network. Has **Facebook**.
- Tower Guard.
- FO ~50
- “No New Friends”



Multiple routes to Game Over

OSINT - Open Source Intelligence Gathering

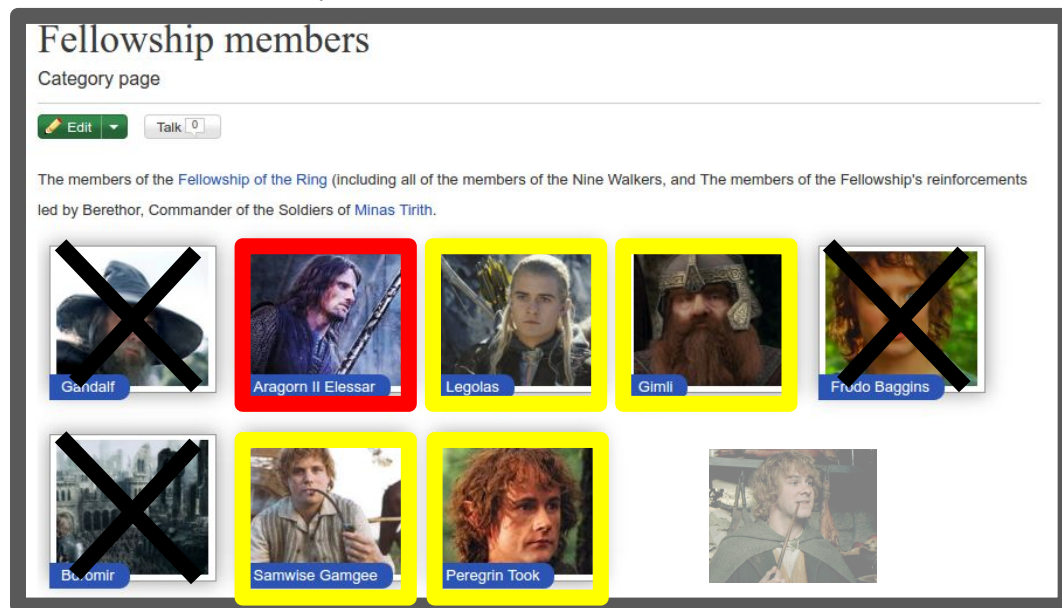
1. Google search results, public records, public pages
2. “Public” pages (behind login page/ open of Social Network)



Multiple routes to Game Over

OSINT - Open Source Intelligence Gathering

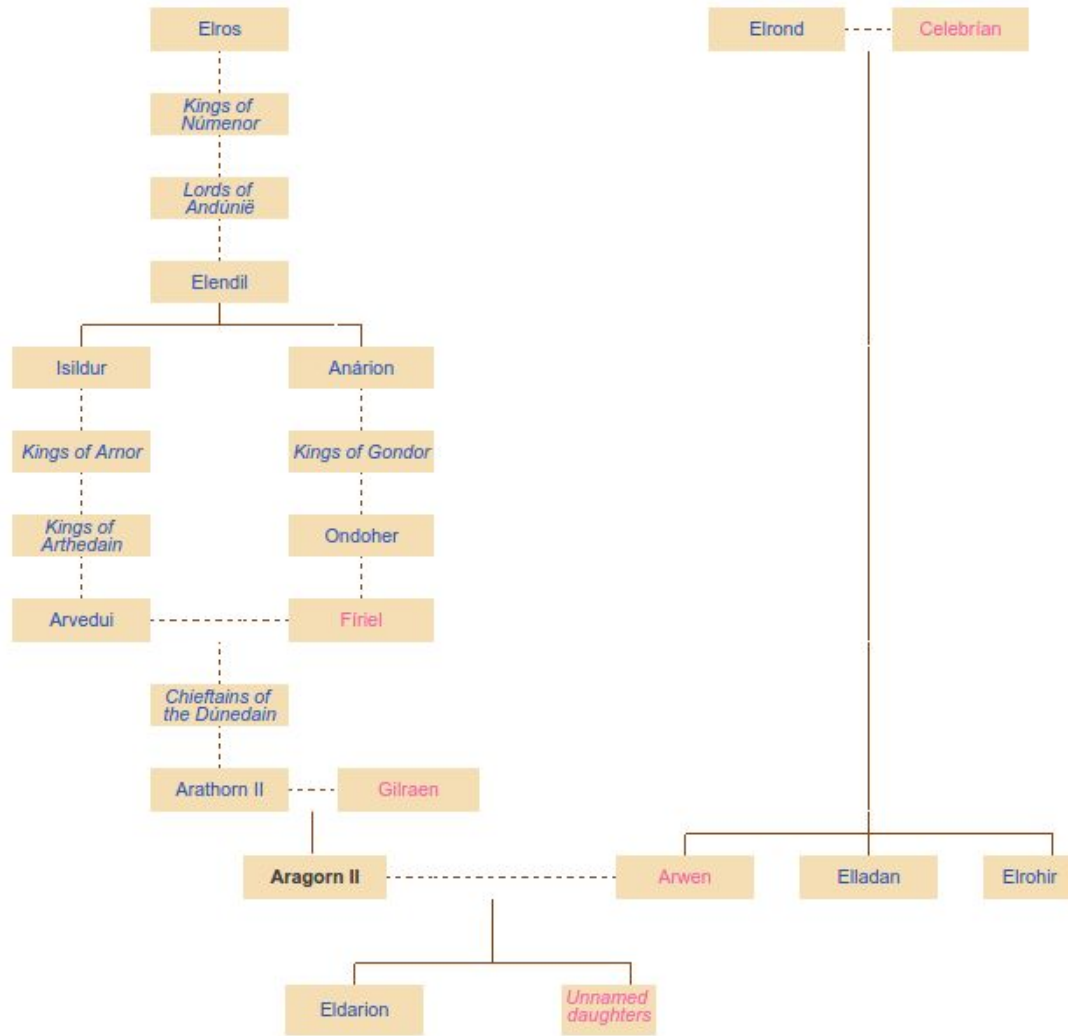
1. Google search results, public records, public pages
2. “Public” pages (behind login page/ open of Social Network)



Multiple r

OSINT - Open

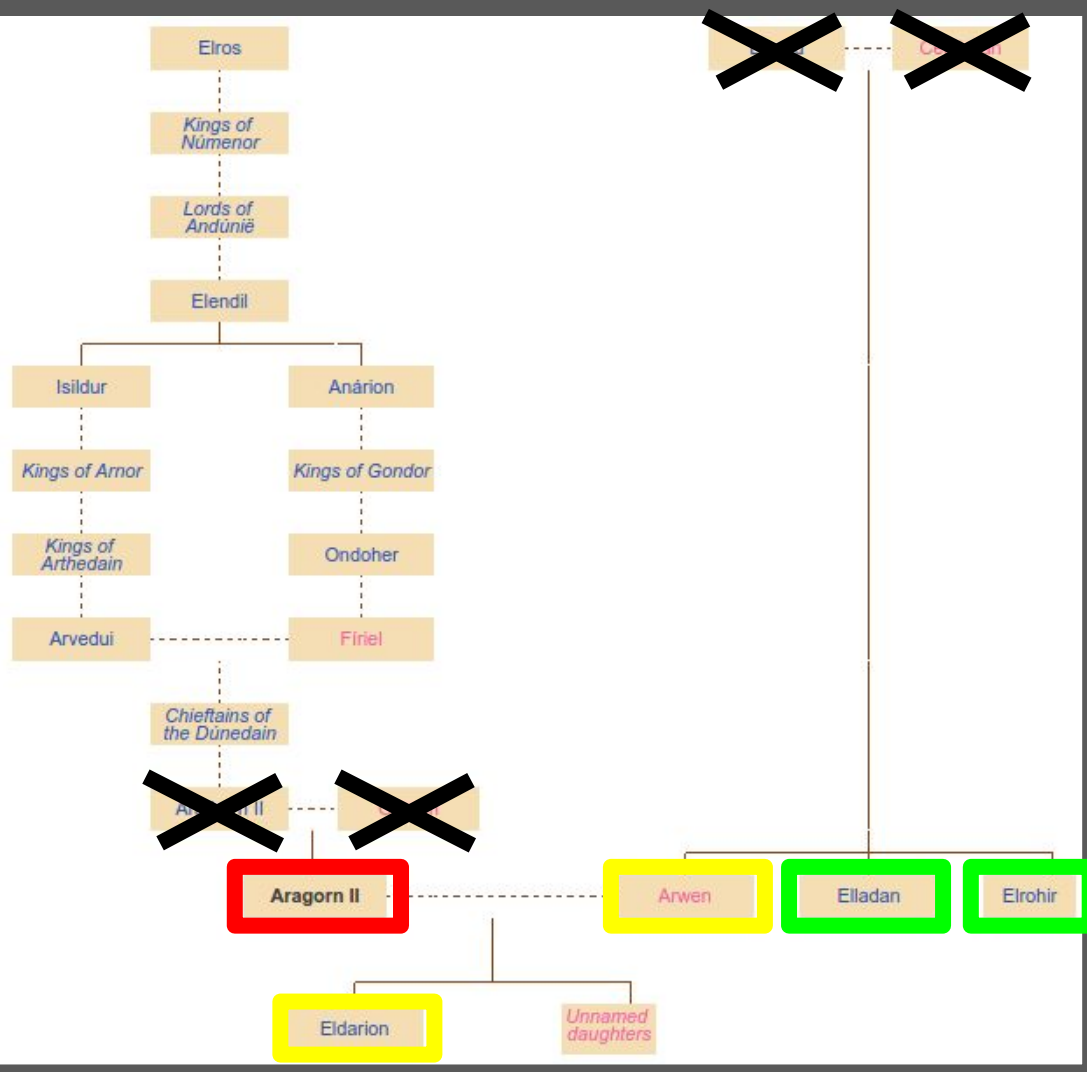
1. Google search
2. "Public" page



Multiple r

OSINT - Open

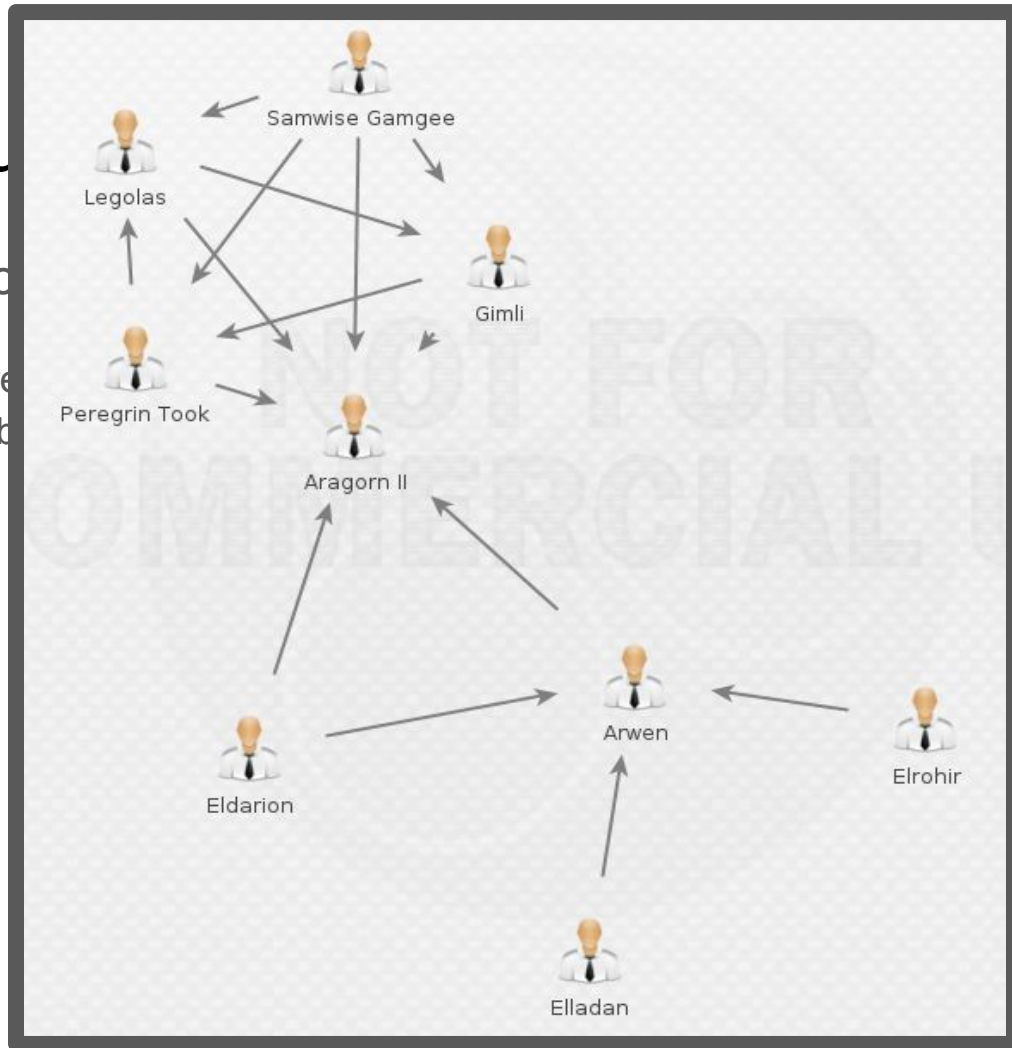
1. Google search
2. "Public" page



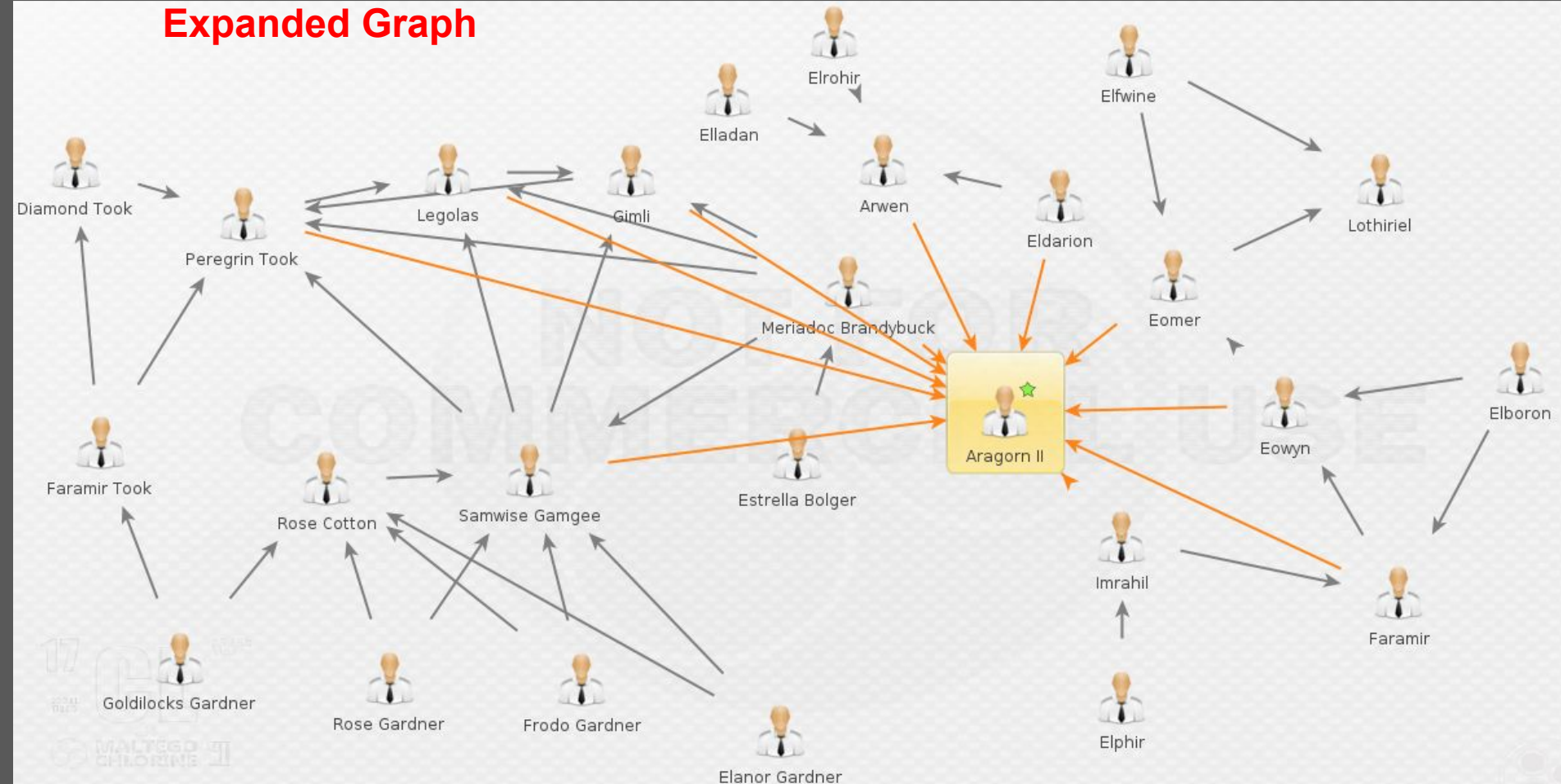
Multiple routes

OSINT - Open Source Intelligence

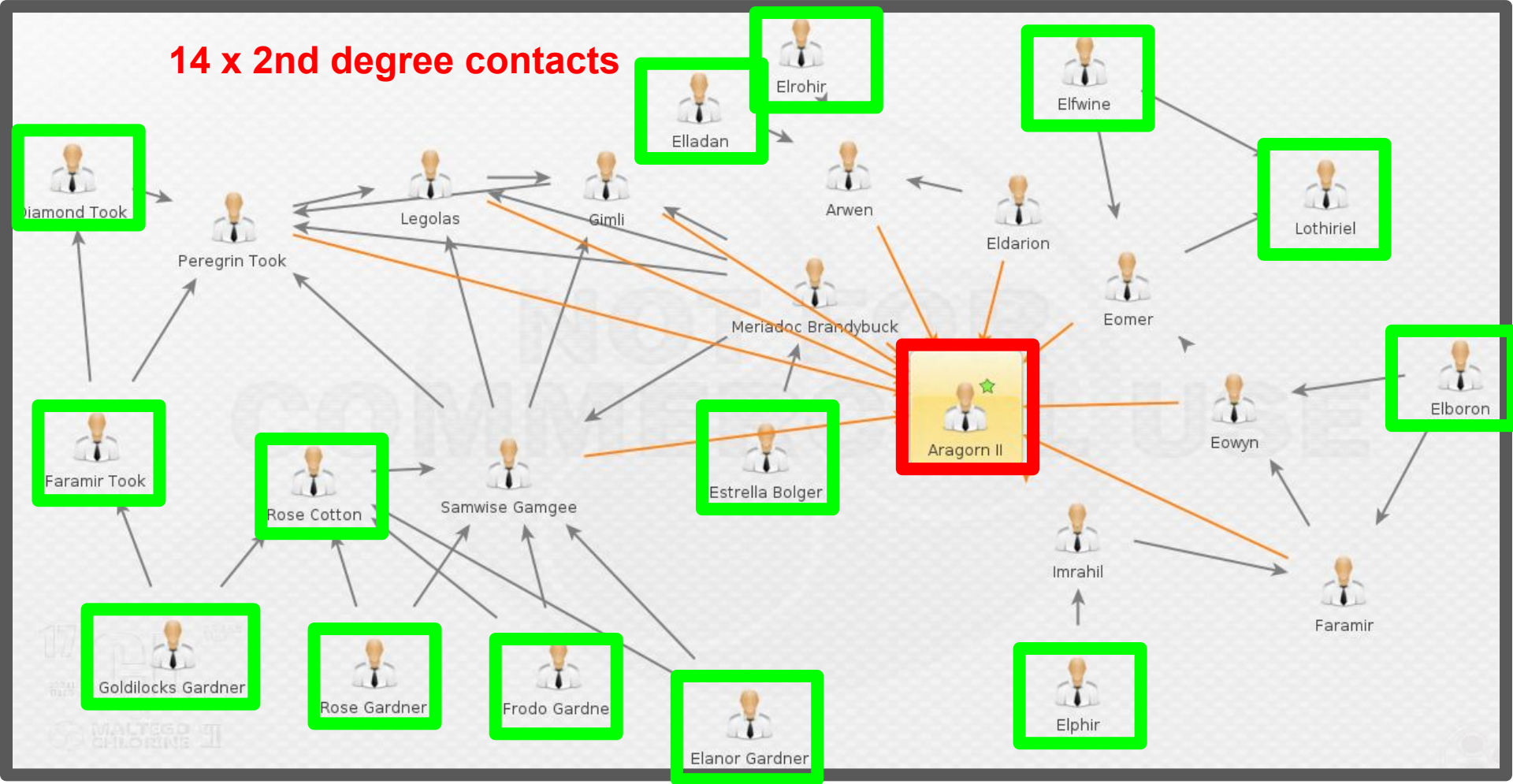
1. Google search results
2. "Public" pages (blogs, social media, etc.)



Expanded Graph



14 x 2nd degree contacts



Multiple routes to Game Over

Establish Friend-of-Friend relationship (2nd degree)

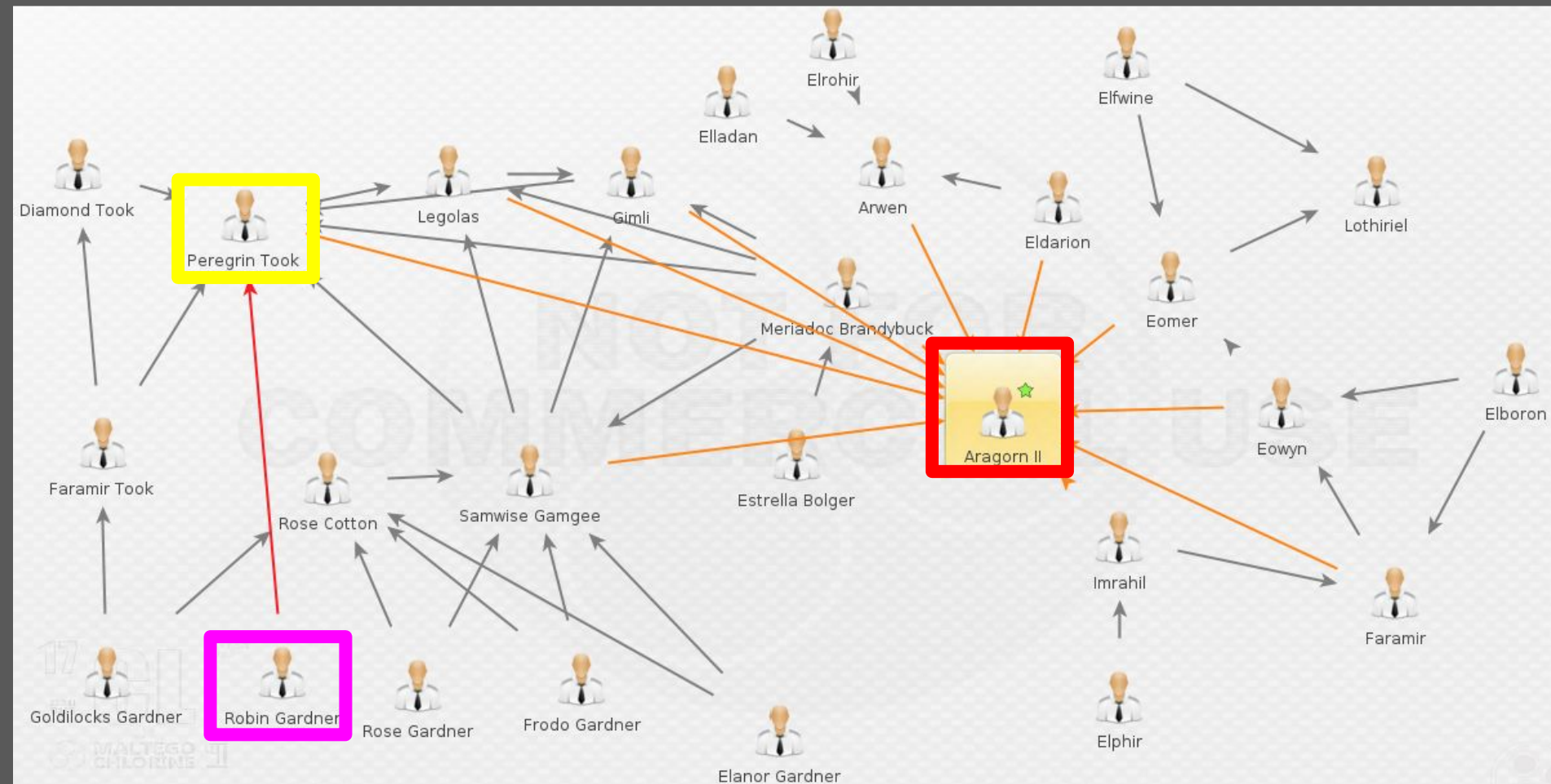
1. Create fake Facebook profile for a likely 3rd or 4th degree contact

OR

2. Invent a new 3rd or 4th degree contact

THEN

3. Send a friend request to the 2nd degree contact and insist legitimacy



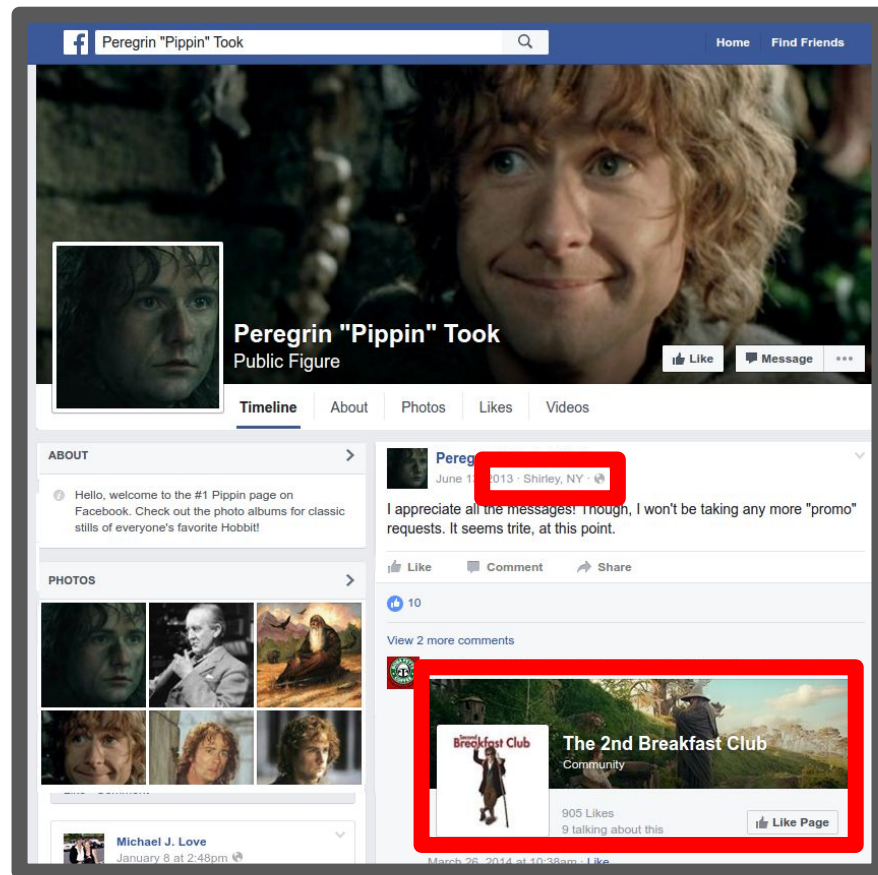
Multiple routes to Game Over

Compromise Friend (1st degree)

1. Explore Interests, Likes, Location

THEN

2. Craft phish to compromise credentials



Multiple routes to Game Over

Compromise Friend (1st degree)

1. Explore Interests, Likes, Location

THEN

2. Craft phish to compromise credentials



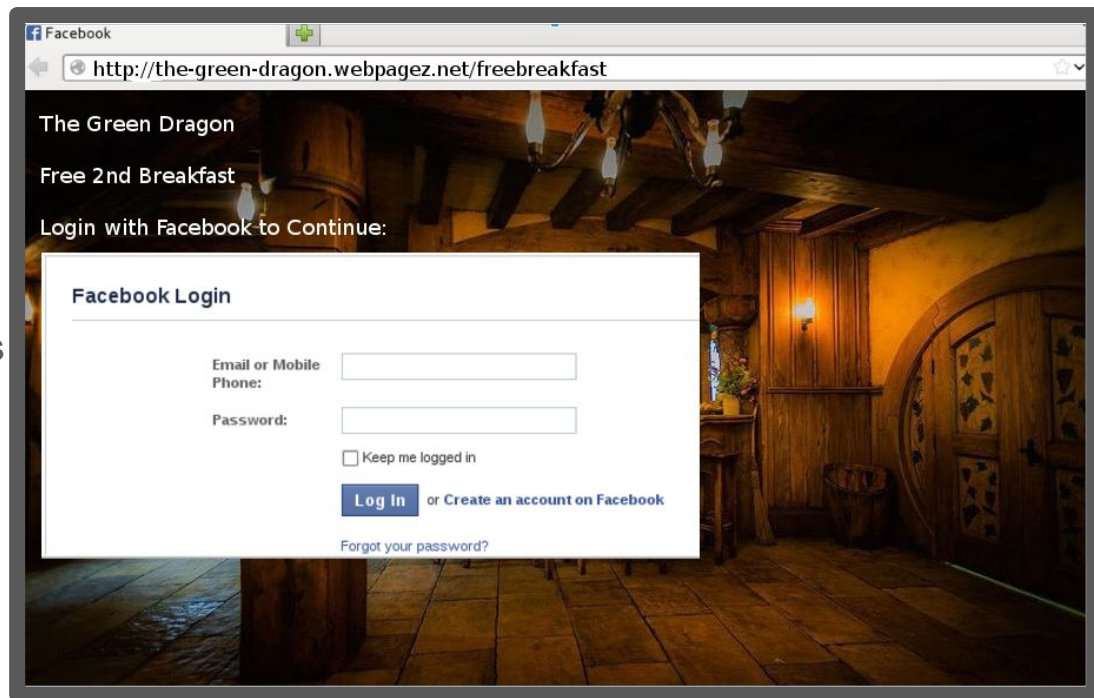
Multiple routes to Game Over

Compromise Friend (1st degree)

1. Explore Interests, Likes, Location

THEN

2. Craft phish to compromise credentials



Multiple routes to Game Over

Compromise Primary Target

1. Review Primary Target information (friendship history)

THEN

2. Review Compromised 1st Degree private information

THEN

3. Craft spear phish to compromise Primary Target



Pippin Took

10:16pm

Hey Aragorn remember that time in the Fellowship? of the Ring?

Yeah. That was pretty neat.

Anyway, here are some pictures from that trip!

<http://pippin-photo-album.webpagez.net/?id=3791111>

Multiple routes to Game Over

Compromise Primary Target

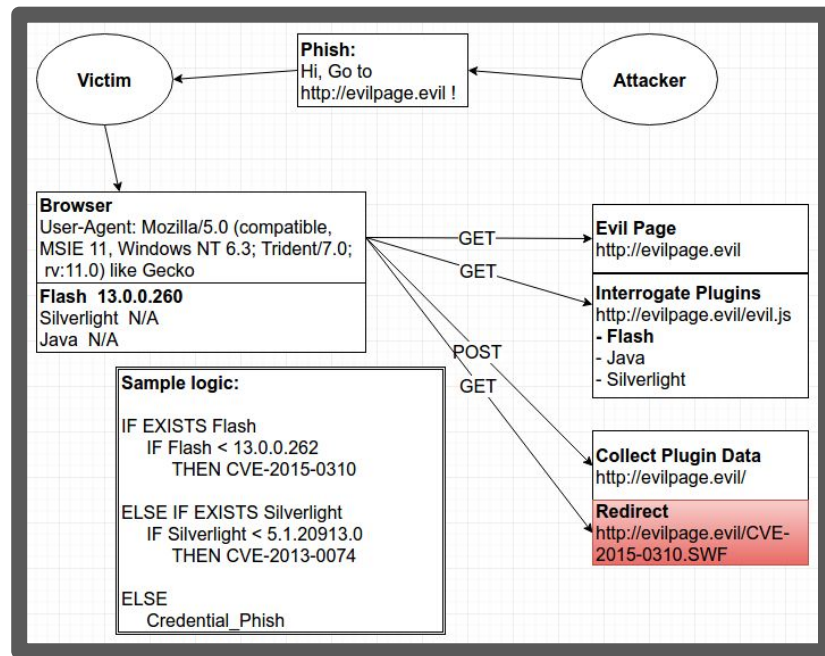
1. Review Primary Target information (friendship history)

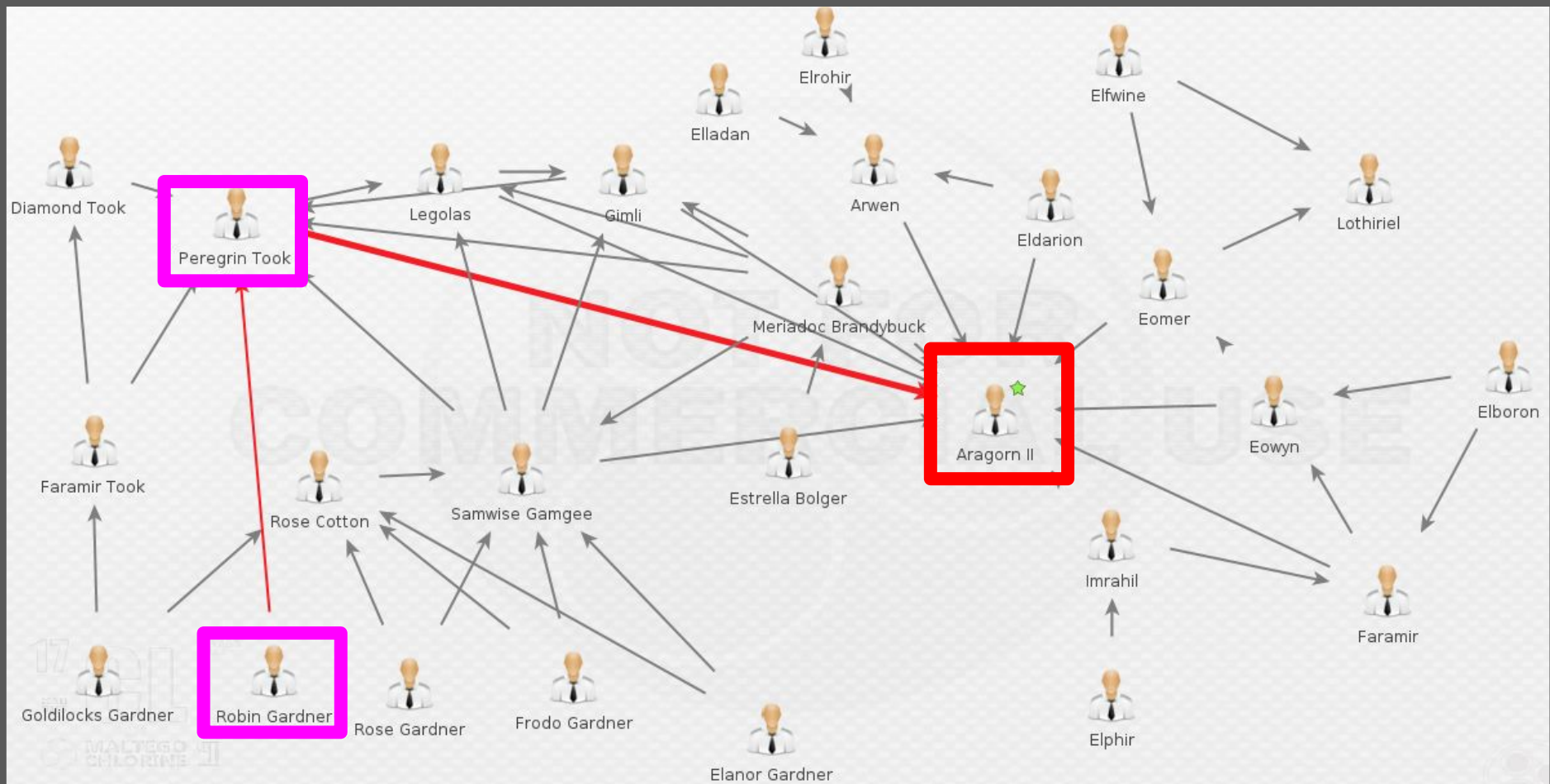
THEN

2. Review Compromised 1st Degree private information

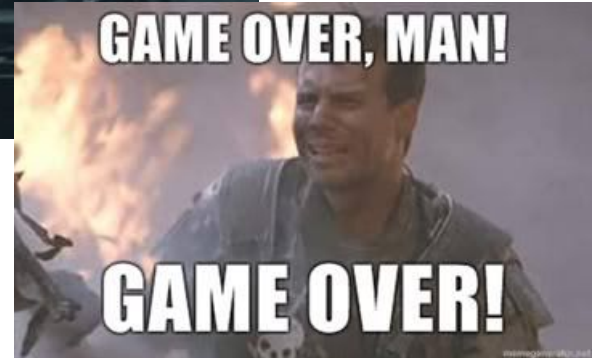
THEN

3. Craft spear phish to compromise Primary Target





Game Over



Questions

Social Network Phishing

BSidesSATX 21 May 2016

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