Microsoft

FIRST
2015

Building community playbooks for malware eradication

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Security@Microsoft

Trustworthy Computing (TwC)

- Programs supporting security outreach and engagement
- Microsoft Active Protections Program (MAPP), Government Security Program (GSP) (was SCP)

Microsoft Security Response Center (MSRC)

- Vulnerabilities in Microsoft software and services (secure@microsoft.com)

Digital Crimes Unit (DCU)

- Botnet takedowns
- Engage law enforcement

Microsoft Malware Protection Center (MMPC)

- Malicious Software Removal Tool (MSRT – monthly scan & remove)
- RTP - Security Essentials, System Center Endpoint, Windows Defender, Threat Intel

MMPC by the numbers

Research labs in Redmond, Vancouver, Munich, Melbourne
Engineering labs in Redmond and Israel

PROTECTION POINTS

Windows 8+ Defender 110M
System Center EP 11M
Microsoft Security Essentials 109M

Malicious Software Removal Tool 1.2B

Outlook.com
O365

Skype
Azure

DAILY

700K samples
400M telemetry
12 sig releases

12x/yr engine
3x/yr Client updates

RESULTS

6.5% encounters
3% infected
(1 Malware;2 UwS)
100M unique files
80% running AV

What is CME?

A collaboration program sponsored by the Microsoft Malware Protection Center; created in early 2014

Facilitates campaigns targeting specific, *pervasive* malware families

Members of CME use the framework & Microsoft's tools/data/research/capabilities to lead or take part in campaigns against malware families

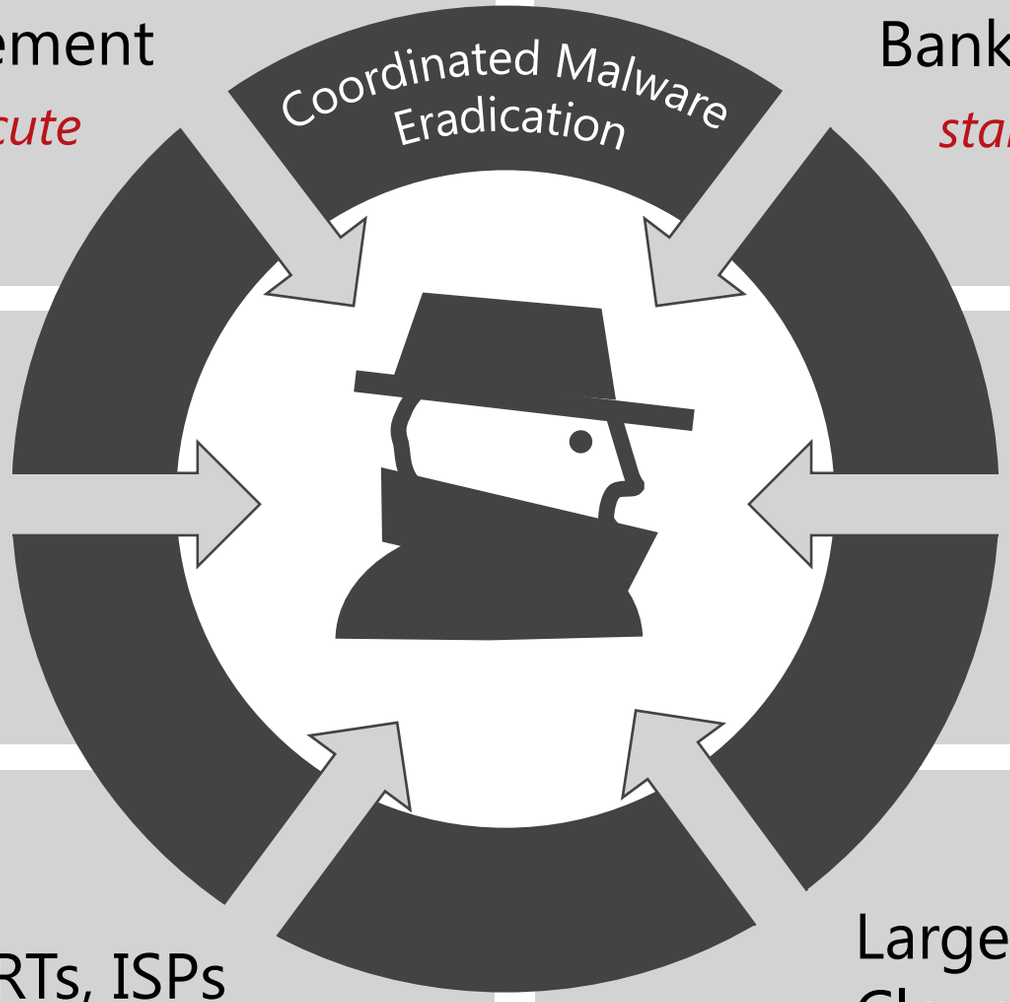
IMAGINE IF WE COORDINATED…

Digital Crimes Unit
Law enforcement

seize, prosecute

Ad networks
Banks, finance, commerce

starve



Antimalware and security ecosystem

identify, block, sinkhole

OEMs
Vendors

shun

CERTs, ISPs

set policies, takedown

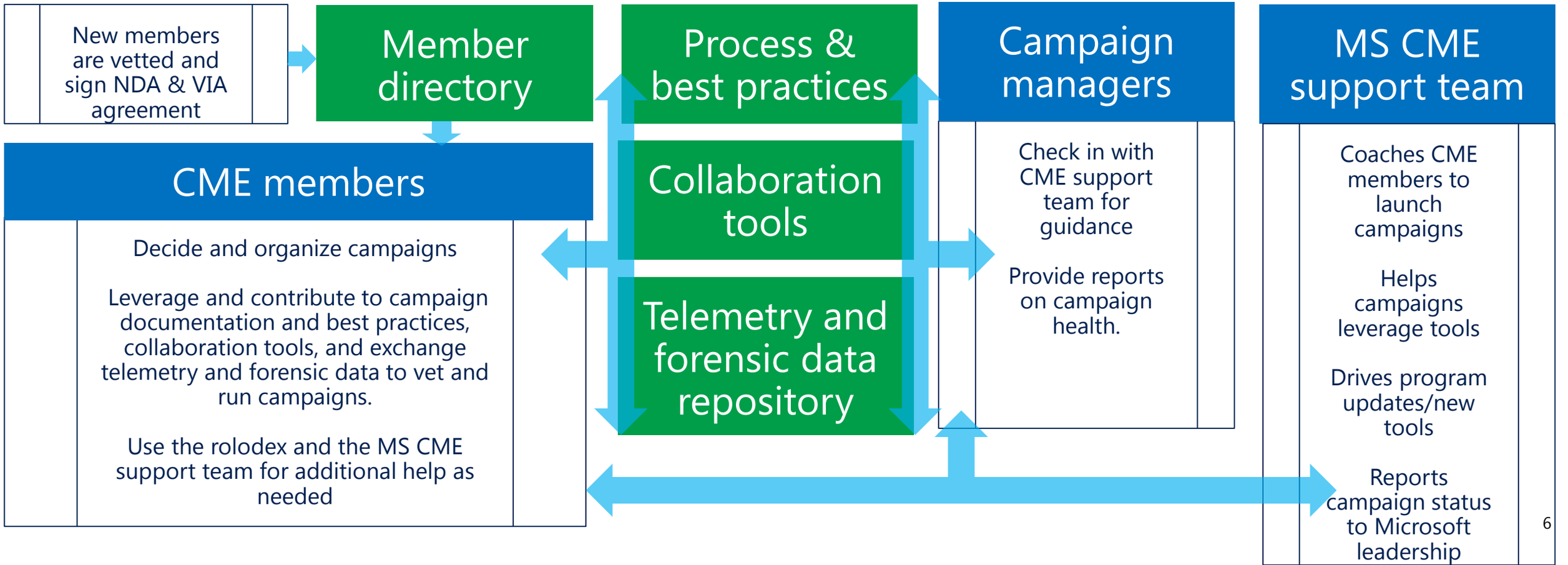
Large-scale public services
Cloud platform providers

identify, block

The CME Framework

Tools | People | Process

Members of CME use the framework to take part in or lead campaigns against malware families



Joining VIA (and CME)

The Virus Information Alliance (VIA) is an antimalware collaboration program for security software providers, security service providers, antimalware testing organizations, and other organizations involved in fighting cybercrime.

Members of the VIA program collaborate by exchanging technical information on malicious software with Microsoft, with the goal of improving protection for Microsoft customers.

http://aka.ms/mmpcpartner

Eligibility requirements posted on website

Membership application form available online at http://aka.ms/viaapply

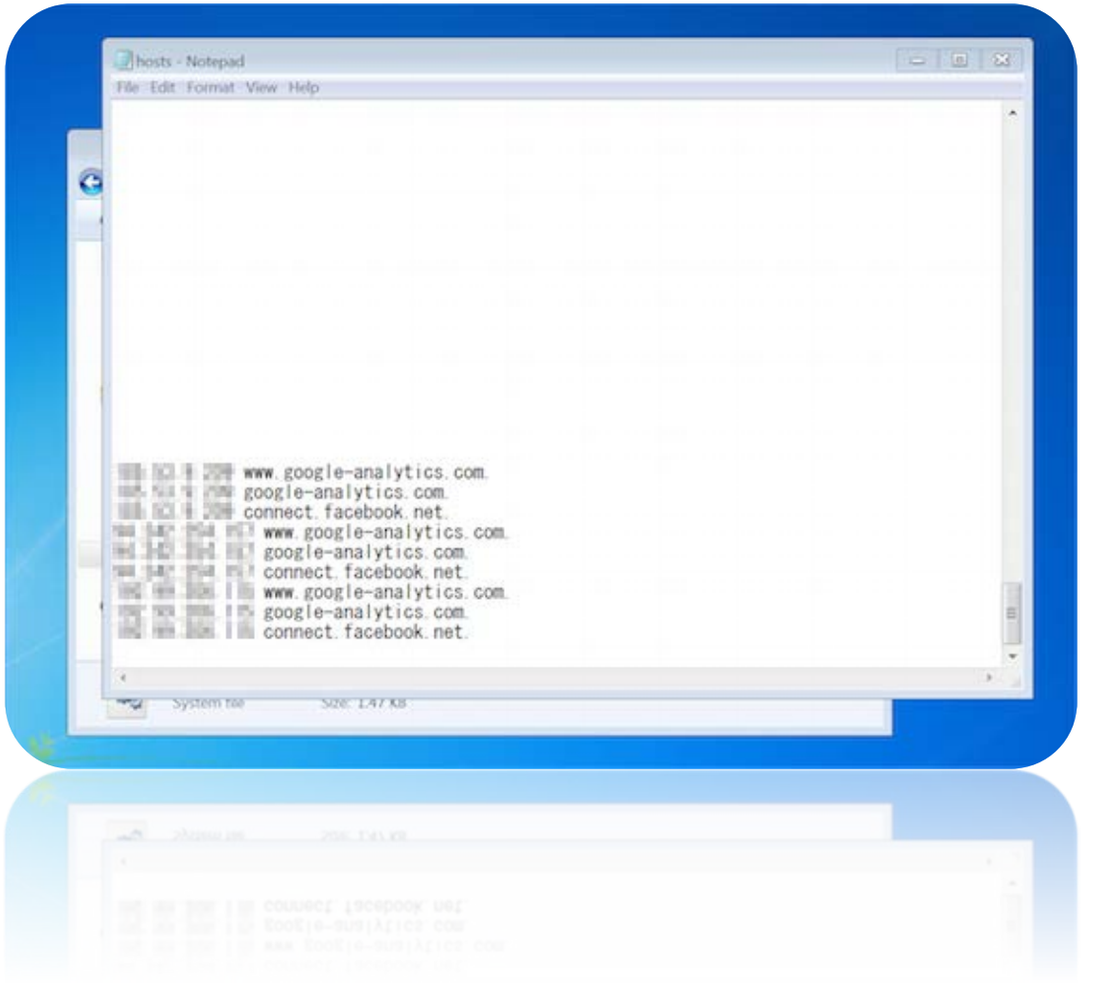
Completed Campaigns

- Ramnit
- SMN
- Hesperbot
- Lecpetex
- Simda

Operation summary – Simda

Simda

- Detected since 2009
- Primarily distributed by exploit kits (Blackhole, Styx, Magnitude, Fiesta)
- Behaviors:
  - Internet traffic manipulation – HOSTS File
  - Distribute Other Malware – Miuref / Claretore / Haglacod
  - Anti-emulation
  - Older behaviors:
    - Password stealer
    - Banking trojan
    - Backdoor
- Estimated Reach: 770K last six months



Simda campaign overview

Microsoft

- Targeting info
- PR Communications
- Run Sinkhole

INTERPOL

INTERPOL (FBI, NCA, Dutch High Tech Crimes Unit)

- Attribution
- Coordinate C&C IP addresses, physical server seizures
- Law Enforcement communications and logistics

TREND MICRO

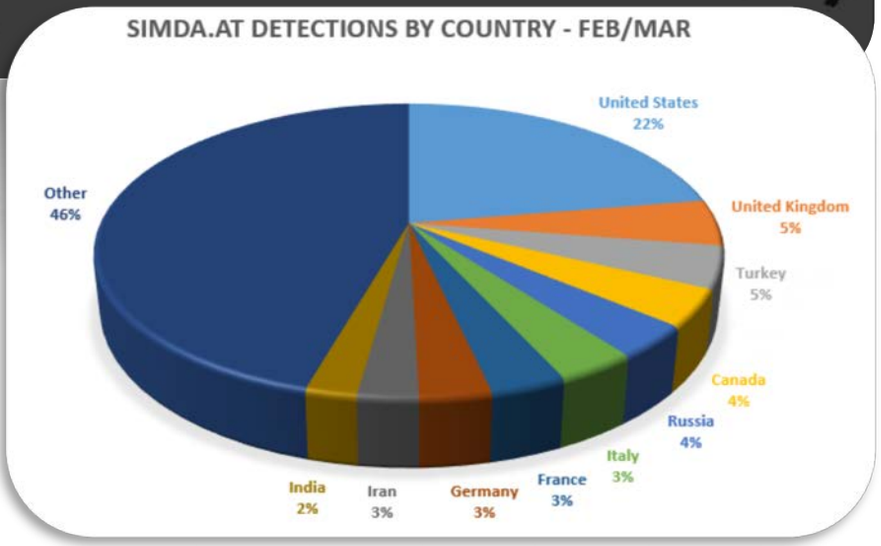
- Execute and Analyze Simda Samples
- Long Term Analysis
- AV Cleaning Solution

KASPERSKY lab

- Execute and Analyze Simda Samples
- Long Term Analysis
- AV Cleaning Solution

CDI

- Execute and Analyze Simda Samples
- Long Term Analysis



Simda.AT Takedown: IP's Status

	Netherlands	Check In C2's: 8 Module C2's: 3
	Luxembourg	Check In C2's: 1
	Russia	Check In C2's: 1
	Poland	Module C2's: 1
	United States	Check In C2's: 1 Module C2's: 1

Total IP's Taken Down: 16

[MMPC Blog]

Total ISP's: 9

Total Countries: 5

New Samples: 1 – Truncated Copy of an Old Sample

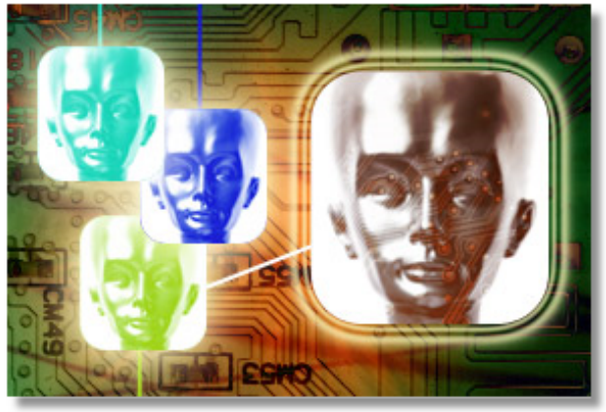
Simda.AT post-takedown

eWEEK

Microsoft, Kaspersky Take Down Fast-Spreading Simda Botnet

By Robert Lemos | Posted 2015-04-13 Print

Twitter 56 LinkedIn 28 Like 10 Share 0 Share 94 Email



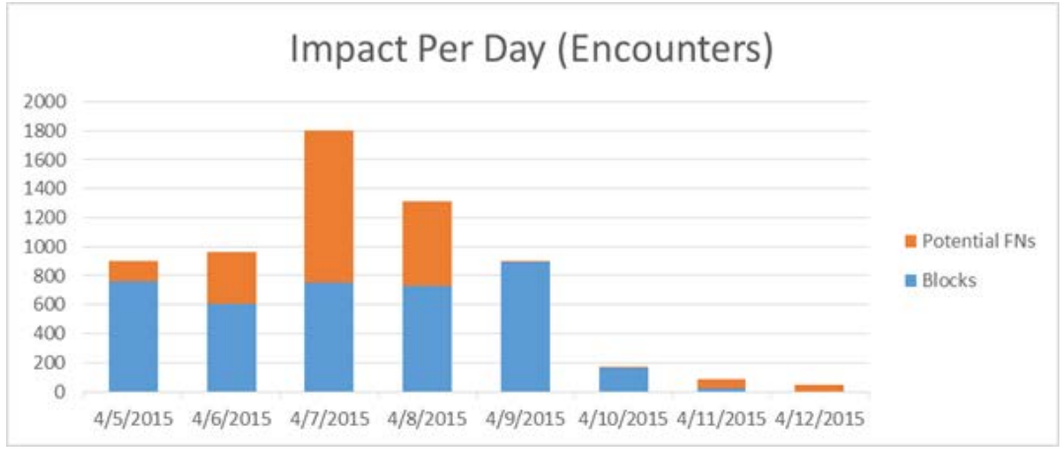
Interpol and European authorities take down a second botnet, cooperating this time with Microsoft, Kaspersky Lab and Trend Micro.

International law-enforcement authorities at Interpol teamed up with Microsoft, the Cyber Defense Institute in Japan, and security firms Kaspersky Lab and Trend Micro to take down a second major botnet last week, in a coordinated effort to disrupt the criminal operation, the Interpol Global Complex for Innovation (IGCI) said in a statement on April 13.

The botnet, known as Simda.AT, has infected more than 770,000 systems in the past six months, attempting to redirect Internet traffic and download additional malware to compromised computers. Microsoft's Digital Crime Unit (DCU) alerted law enforcement to the botnet following a dramatic increase in activity, IGCI stated. The groups detected approximately 90,000 newly infected systems in the United States in the first two months of this year, according the IGCI.

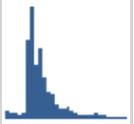
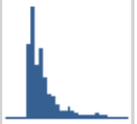
The botnet's operators would steal information from compromised systems, re-route network traffic, and use their access to install other malware and software, Jon Clay, senior manager for global threat communications for Trend Micro, told *eWEEK*.

"With this botnet, their intention was to infect as many people as possible," he said. "And once they infected them, they could do pretty much anything they wanted to with these victims, whether it was steal financial information, use their systems to launch denial-of-service attacks or spam, or sell (access to) their computers off to other criminals."



We believe the bot is dismantled…

No new Simda.AT files have been observed. Infected computers still need cleaning for the host file.

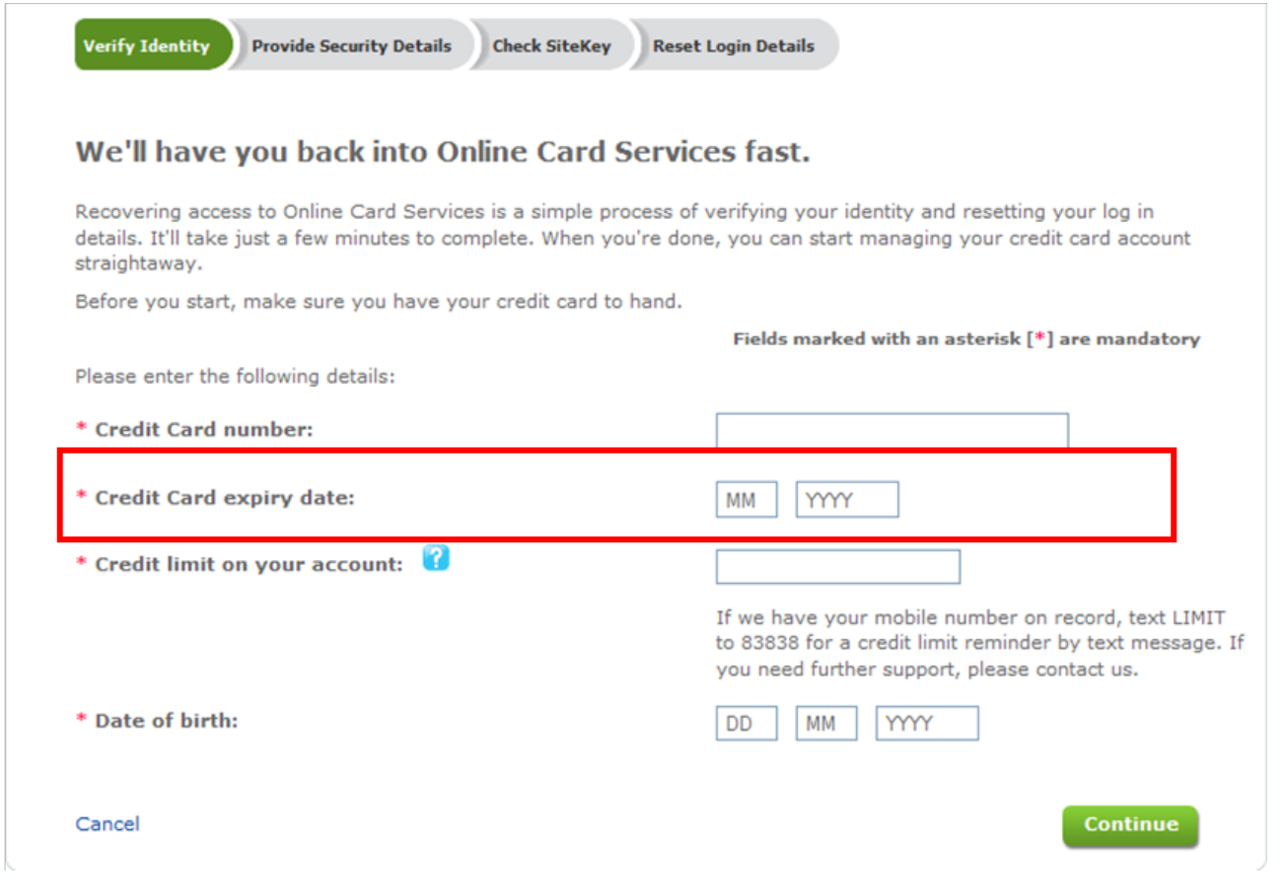
Families	Encounters		Actives		Errors	
simda	78,359		57.0%		47.1%	

Operation summary - Ramnit

Ramnit

- Detected since 2011
- Distribution Methods:
  - Viral spread in HTML and PE
  - Infected USB
  - Email attachments / SPAM / URL
  - Social networks
  - Exploits
- Modules / behaviors:
  - Banking credential stealer
  - FTP application credential stealer
  - Hook and spy / web inject
  - Cookie stealer
  - Anti-AV / tampering
  - VNC backdoor
  - Drive Scan
- Estimated reach: 3.2 million

Infected system



Ramnit campaign overview

Microsoft

- Seize 7, register 289 domains
- Coordinate existing sinkholes
- Operate DNS, sinkhole traffic, reporting

EC3-European Computer Crime Center

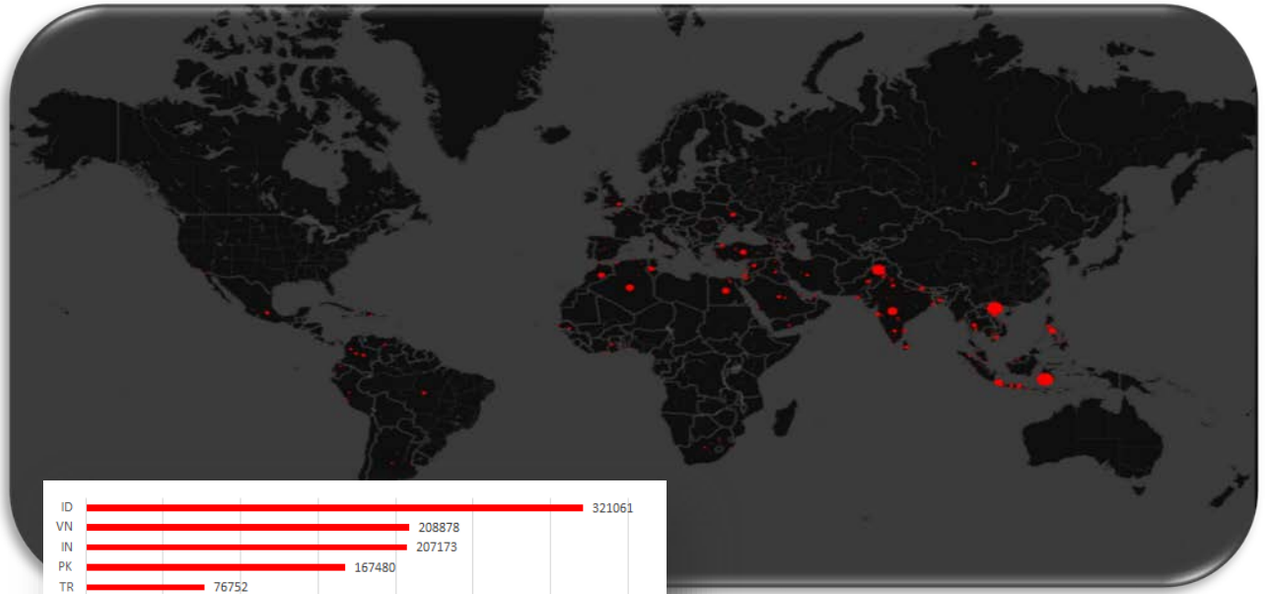
- Physical server criminal seizure
- Lead attribution work, assist Europol on forensic analysis
- Coordinate PR communications

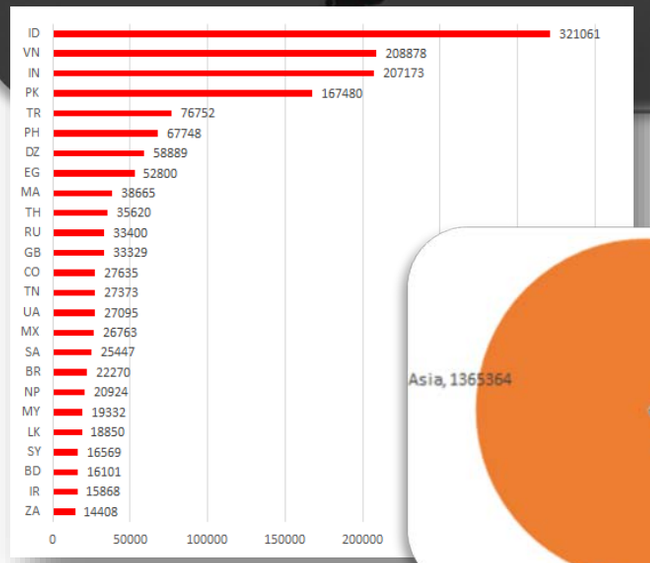
Symantec

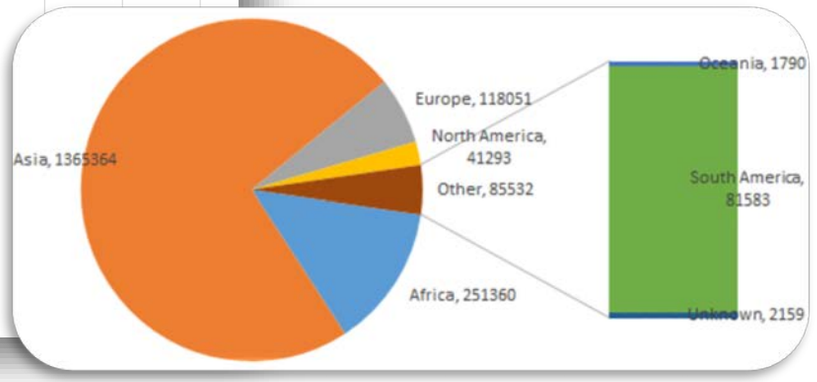
- Technical review, telemetry.
- Industry outreach
- Technical legal declaration.
- Coordinate PR communications

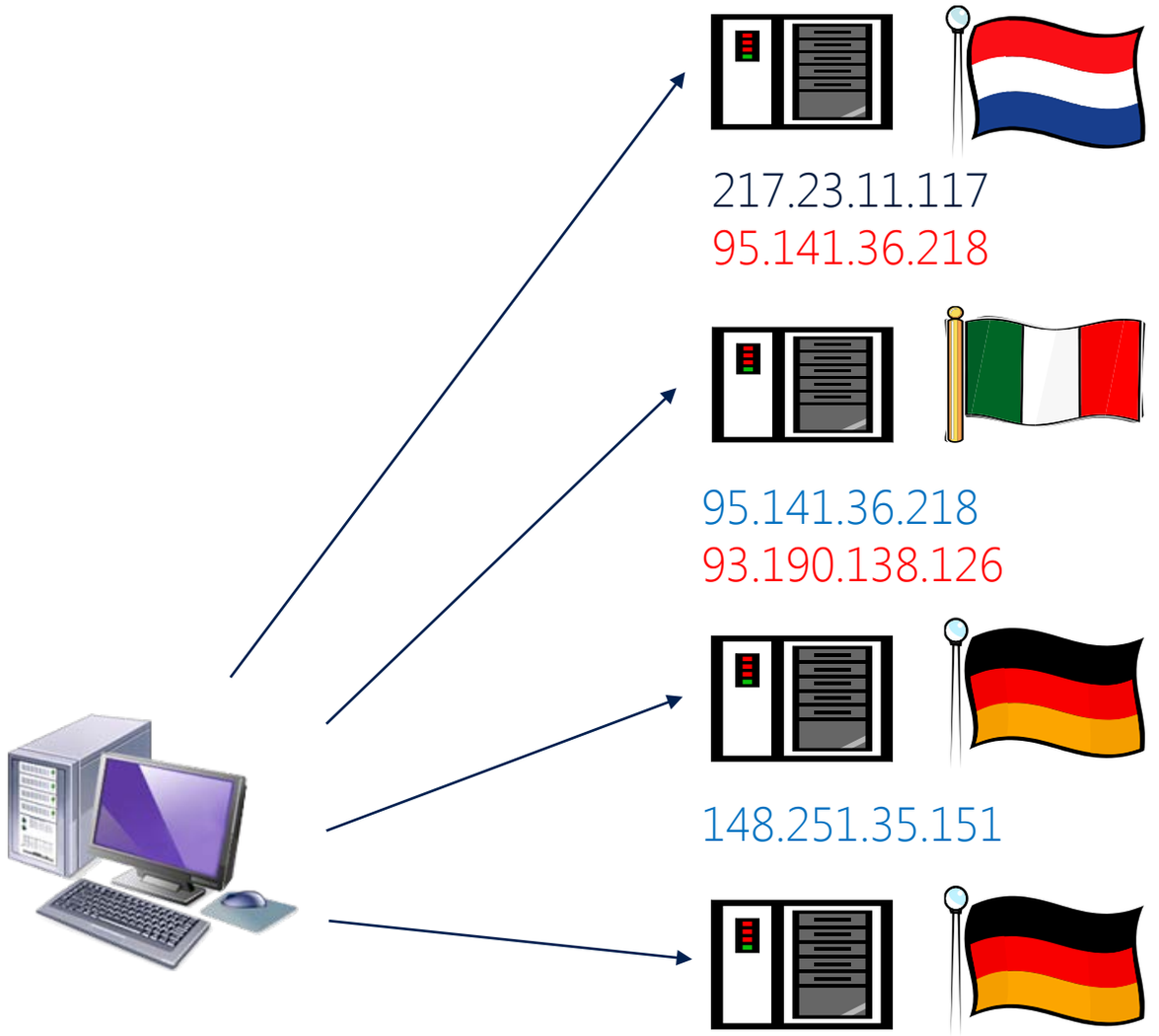
FS-ISAC

- Co-plaintiff
- Coordinate communications with financial sector.
- Coordinate PR communications









217.23.11.117
95.141.36.218

Current C2 Server=bot registration, configuration, and modules.

95.141.36.218
93.190.138.126

Backup C2 server

148.251.35.151

EXPIRED 14 Feb 2015

Web inject server

5.9.224.198

Online 15 Feb 2015

Web inject server

Blue=Current IP
Red=Old IP

Ramnit post-takedown

Europol Takes Down RAMNIT Botnet that Infected 3.2 Million Computers

Wednesday, February 25, 2015 Mohit Kumar

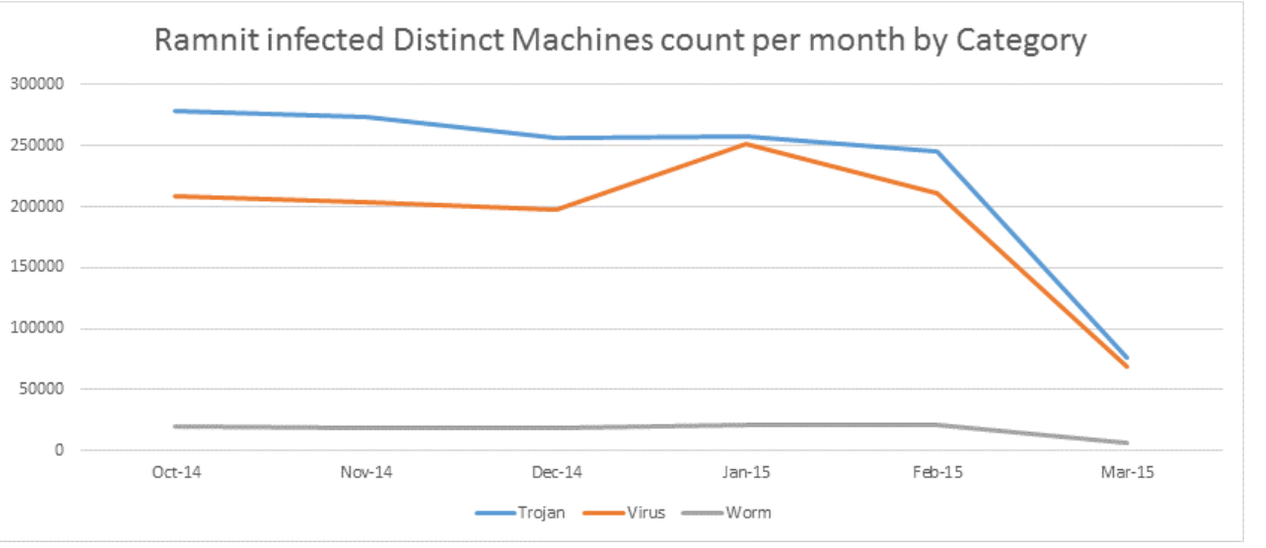
RAMNIT SHUT-DOWN IN AN OPERATION

In a **statement** on Tuesday, Europol revealed that the successful take-down of Ramnit botnet involved the help of Microsoft, Symantec and AnubisNetworks. The groups shut down the botnet's command and control infrastructure and redirected traffic from a total of 300 domain addresses used by Ramnit criminal operators.

> "*This successful operation shows the importance of international law enforcement working together with private industry in the fight against the global threat of cybercrime*," said Wil van Gemart, Europol's deputy director of operations. "*We will continue our efforts in taking down botnets and disrupting the core infrastructures used by criminals to conduct a variety of cybercrimes.*"

NASTY FEATURES OF RAMNIT BOTNET

Symantec **says** that Ramnit has been around for over four years, first originating as a computer worm. According to the anti-virus firm, Ramnit is a "fully-featured cybercrime tool, featuring six standard



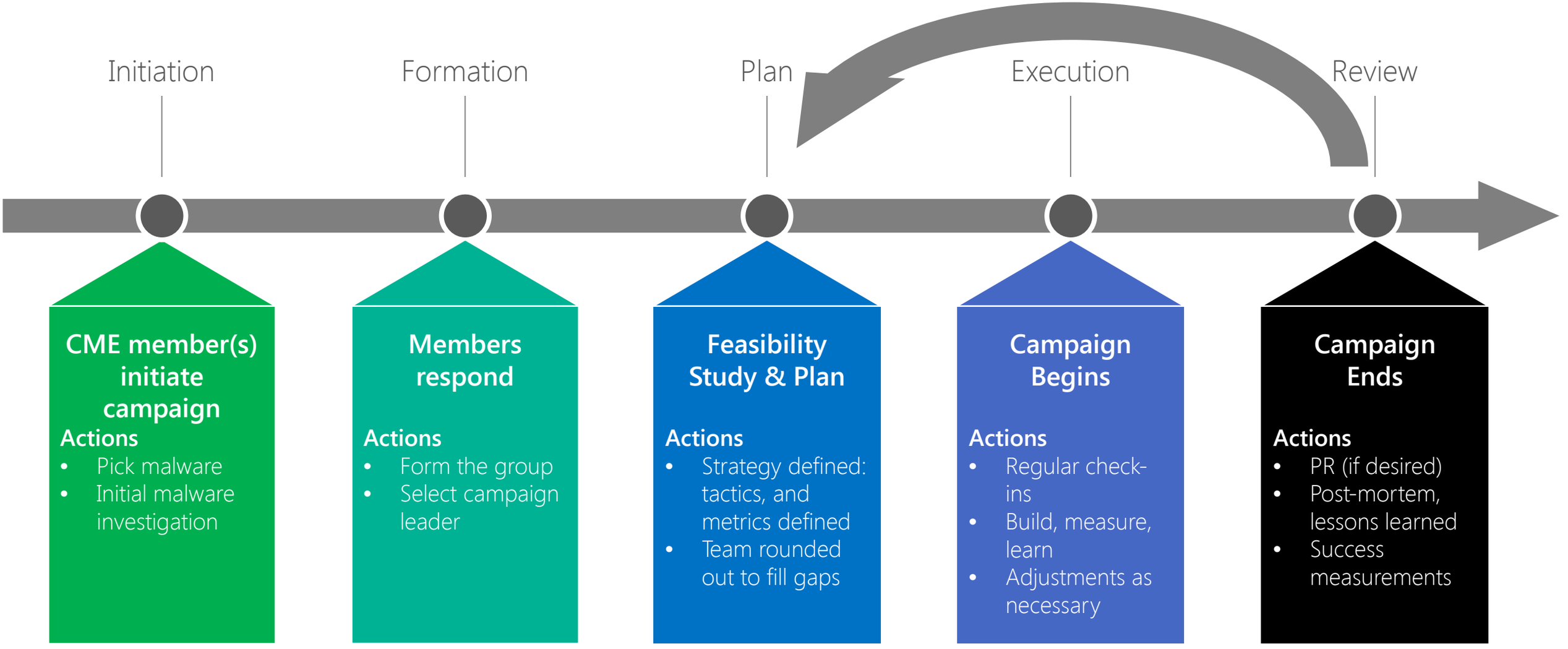
We believe the bot is dismantled…

No new Ramnit flies have been observed.
Infected computers still need cleaning.

Families	Encounters		Actives		Errors	
ramnit	568,280		18.5%		1.5%	

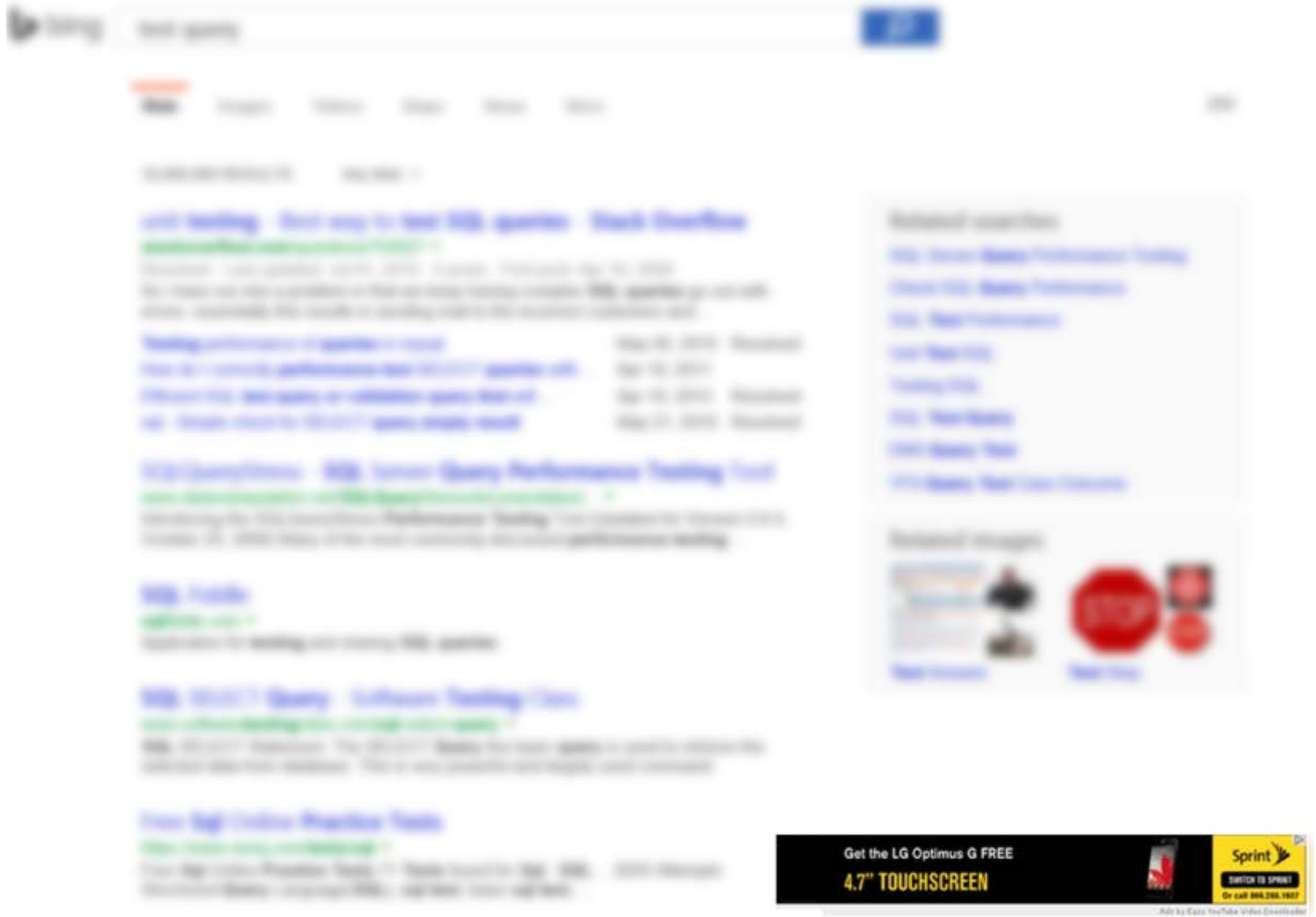
Campaign playbook

Campaign process



Initiation

"Let's eradicate this malware!"



Formation

Call for Participation

- Creates visibility
- Great source of information

Selectively build a group

- Expedites the decision making process
- Add group members as needed

Law enforcement as a partner

Communication

Document sharing

Sample sharing

Conference software

Secure email communication

Building the plan: Identifying malware's attack points

Reconnaissance	Malware development	Distribute and vector	Command and control	Monetization model
What sources does the malware use to reach victims?	Who are the actors? How is malware "tested" and packed?	How do they infect their victims? What else is in the infection chain? How diverse is the infection chain?	Does it remotely control the boxes? Are there C&C servers? P2P?	How does it monetize?

Defining goals

Set an end goal

- Disrupt & remediate
- Put attackers behind bars
- Build intel to stay ahead of the curve

Build a timeline

- Campaigns can go on forever
- May deal with a moving target
- Iterate

Campaign state

Build the plan

Ethical considerations

Stakeholders

How do you do X?

Building the plan:
Develop a joint PR plan

- Does your org want to be publicly tied to this effort/operation? When will this happen?
- Do you plan on pushing out any form of outward communications around this operation?
- Do you have a dedicated person or team to handle PR/Outward coms? Who are they?
- Do you plan on attributing these threats to any organization or part of the world?
- Do you plan on doing any media interviews, or responding to media inquiries about this op?

Abuse notification

Build templates and process around abuse notification

Incorporate explicitly what should/shouldn’t happen

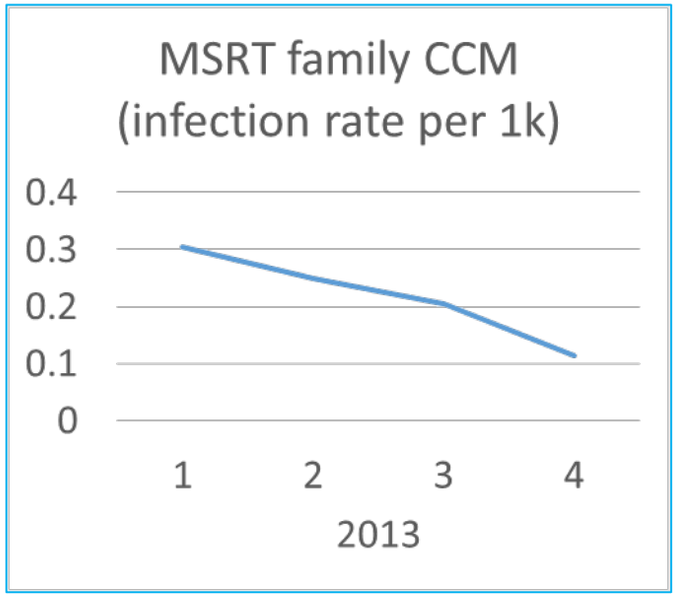
Measure success

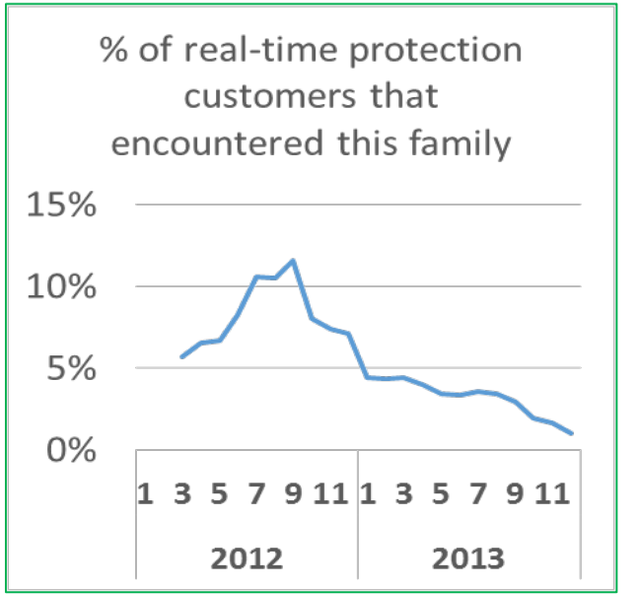
Success

Impact to the family

Impact to the ecosystem

Impact to my ecosystem





Post mortem

Assess each phase

- Planning
- PR
- Etc.

Focus on the good and bad

Involve all campaign members

Communicate learnings to VIA membership