June 2017

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Threats Report

McAfee Labs

Malware evasion techniques and trends

Malware evasion techniques are widely available and are becoming more powerful.

The History of Evasion Techniques

1980
Cascade Virus
First virus using encryption to scramble its content.

1990
Chameleon Family Virus
First polymorphic viruses.

1998
Metamorphism Malware
Regswap uses metamorphism via different registers for the same functions.

1990s
Packers
Packers that encrypt or compress become popular due to the smaller size of RAM and disks.

1999–2003
Rootkits
In 1999, the first Windows rootkit—NTRootkit—appears, followed by HackerDefender in 2003.

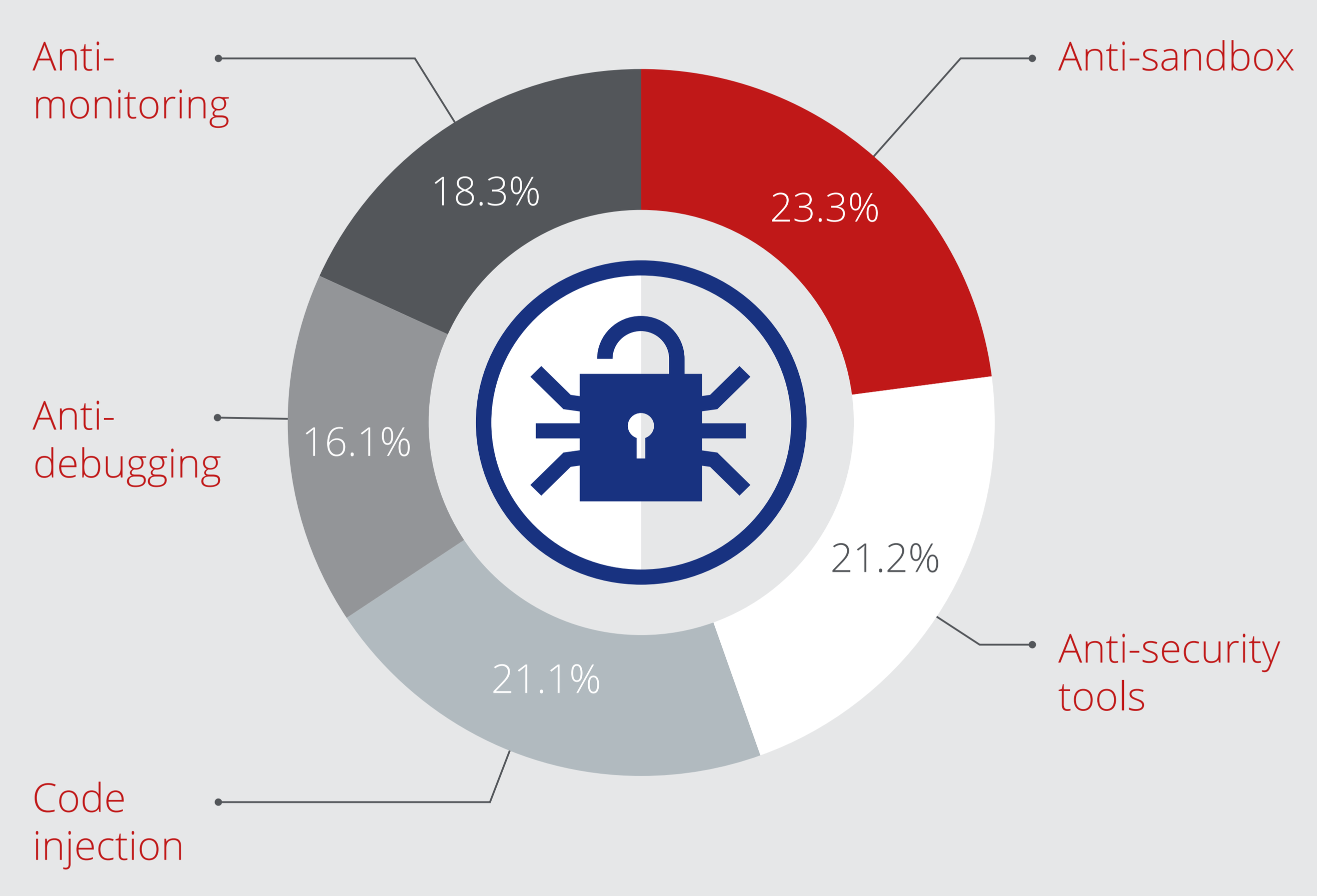
2008
Domain Generation Algorithms
The Conficker worm uses a DGA to evade network detection.

2011
Off-the-Shelf Marketplace
Silkroad is first dark net market selling products and services for malware evasion.

2015–2017
Dridex, Locky
First large-scale obfuscation, use of PowerShell, and sandbox evasion.

2015–2017
Firmware Malware
Equation Group and Hacking Team leaks reveal the use of firmware malware to remain undetected.

Evasion Techniques Used by Malware



Evasion
Evasion technique code can be purchased off the shelf, sometimes for free.

Firmware
Firmware infection is a growing method to evade detection.

Machine learning
Attackers are developing techniques to evade machine learning security.

Hiding in plain sight: The concealed threat of steganography

Steganography—the art and science of secret hiding.

The Digital Steganography Process

1. Cover file/hidden message
2. Embedding algorithm
3. Steganographic file
4. Communication medium
5. Steganographic file
6. Extracting algorithm
7. Hidden message

Digital Steganography in Malware

2010	2012	2014	2016

- Duqu, Shady RAT, Alureon rootkit
- Zbot, Lurk, ZeusVM, MiniDuke, CosmicDuke
- Vawtrak, Stegoloader, Sundown, AdGholas, Magento CC, DNSChanger

Secret message
Steganography hides a secret message within a seemingly legitimate message.

440 BCE
Steganography has been used in various forms since at least 440 BCE.

2011
Digital steganography was first used by Duqu in 2011.

Network
Network steganography is the latest type of digital steganography used by malware.

The growing danger of Fareit, the password stealer

Password stealers are used in the early stages of nearly all major advanced persistent threats. Fareit was likely used in the 2016 breach of the Democratic National Committee.

Evolution of Fareit

2011
- First Fareit variant with credential-stealing and DDoS capability

2012
- BHEK spreads Fareit with Zeus, FakeAV

2013
- Fareit downloads Medfos, Nymaim, spreads through spam campaign
- Fareit starts Bitcoin mining

2014
- Pony Loader 1.9 source code leak
- Pony Loader 2.0 capable of stealing Bitcoin wallets
- Lock screen ransomware uses Fareit for credential theft

2015
- Pony Loader 2.0 source code leak
- Fareit spreads through DNS poisoning
- DNC attack with Onion Duke
- Fareit credential-stealing module spotted with Stegoloader

2016
- Fareit spreads using W97, PowerShell, JavaScript, MHT
- Fareit involvement in Grizzly Steppe Operation

2017
- Many customised Pony Loader variants available, up to Pony Loader 2.2

5,599
Fareit was first discovered in 2011. There have been 5,599 Fareit customer incidents in the past year.

Fareit has several capabilities:
- Steal passwords
- Download and execute arbitrary malware
- Perform DDoS attacks
- Steal cryptocurrency wallets
- Steal FTP credentials

Threat Statistics

In Q1, there were 244 new threats every minute, or more than 4 every second.

Incidents
We counted 301 publicly disclosed security incidents in Q1, an increase of 53% over Q4. The health, public, and education sectors comprised more than 50% of the total. 78% of all publicly disclosed security incidents in Q1 took place in the Americas.

53%

Malware (22%)
New malware samples rebounded in Q1 to 32 million. **The total number of malware samples increased 22% in the past four quarters to 670 million samples.**

Mac OS malware (53%)
During the past three quarters, Mac OS malware has been boosted by a glut of adware. Although still small compared with Windows threats, **the total number of Mac OS malware samples grew 53% in Q1.**

Mobile malware (79%)
Mobile malware reports from Asia doubled in Q1, contributing to a 57% increase in global infection rates. **Total mobile malware grew 79% in the past four quarters to 16.7 million samples.**

Macro malware (66,000)
New macro malware subsided to its 3-year average. **66,000 new macro malware samples were seen in Q1.**

Ransomware (59%)
New ransomware samples rebounded in Q1 primarily due to Congur ransomware attacks on Android OS devices. **The number of total ransomware samples grew 59% in the past four quarters to 9.6 million samples.**

McAfee Global Threat Intelligence

McAfee GTI received on average 55 billion queries per day in Q1.

McAfee GTI

95 million
McAfee GTI protections against medium-risk URLs measured a **decrease to 95 million per day in Q1 from 107 million per day in Q4** due to improved accuracy.

56 million
McAfee GTI protections against potentially unwanted programs showed an **increase to 56 million per day in Q1 from 37 million per day in Q4.**

34 million
McAfee GTI protections against malicious files **decreased to 34 million in Q1 from 71 million per day in Q4** due to earlier malware detection and better local intelligence.

59 million
McAfee GTI protections against risky IP addresses saw a **decrease to 59 million per day in Q1 from 88 million per day in Q4** due to earlier detection.

McAfee Labs Threats Report: June 2017

Visit www.mcafee.com/June2017ThreatsReport for the full report.

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