

Bots, Botnets, and Zombies



Enterprise Information Security Office Monthly Security Tips Newsletter

From the Desk of Deborah A. Snyder, Acting Chief Information Security Officer

What are Bots, Botnets, and Zombies?

You have probably heard terms such as “bots,” “zombies,” and “botnets” in recent news stories about data breaches and other cyber security risks. But what exactly are they, how do they work, and what damage can they cause?

A “bot,” short for “robot,” is a type of software application or script that performs tasks on command, allowing an attacker to take complete control remotely of an affected computer. The compromised machine may also be referred to as a “zombie.” A collection of these infected computers is known as a “botnet.”

Hundreds of millions of computers worldwide are infected with bots and under the control of hackers (i.e., part of a botnet). The owners of these computers typically do not experience any signs that the machine is infected and continue to use it, unaware they are being controlled remotely by a cyber criminal. In fact, the infected machine could be sending multiple spam emails to all contacts in the computer, making it appear to the recipient that the email is legitimate and from someone they know.

Another botnet called, Gameover Zeus Botnet, allows cyber criminals to retrieve banking passwords from infected machines, or use the botnet to infect more computers. This botnet was responsible for nearly one million infections worldwide since its first attack in September 2011.ⁱ In June 2014, U.S. and international law enforcement seized control of the botnet, and are working with Internet service providers (ISP) to notify impacted victims.

How and Why Do Cyber Criminals Use Botnets?

- The value of bots and botnets to criminals comes from aggregating massive numbers of computers they can control simultaneously to perform malicious activities.
- Cyber criminals may use the botnets to send spam, phishing emails, or other scams to trick consumers into giving up their financial information.
- Cyber criminals may also collect information from the bot-infected machines and use it to steal identities, incurring loans, and purchase charges under the user’s name.
- Cyber criminals may use botnets to create denial-of-service (DoS) attacks that flood a legitimate service or network with a crushing volume of traffic. The volume may severely slow down, or even shut down, the organization’s business operations. Revenue from DoS attacks come through extortion and leasing botnets. The criminals will rent botnets to groups interested in inflicting damage to another entity. The “renters” will use the botnet for sending spam and phishing emails or attacking legitimate websites and networks. These groups include “hacktivists” — hackers with political agendas—as well as foreign military and intelligence organizations.

¹ USA Today: <http://www.usatoday.com/story/news/nation/2014/06/02/global-cyber-fraud/9863977/>

Don't Let Your Computer Become a Bot

It only takes moments for an unprotected, Internet-connected computer to be infected with malicious software and turned into a bot. Every user should have up-to-date security software on all their devices.

The best protection is to set your anti-virus and anti-spyware programs to automatically update, and to automatically install every patch made available for your operating system and browser.

Do not click on links in unsolicited emails.

Do not click on links from your friends and family if *they* are not using updated security measures. They may unknowingly transmit an infection on their machine to yours.

While there is no single action that will protect you from all of the cyber risks, by implementing these foundational best practices, you can greatly reduce the likelihood that your computer will be caught in the next botnet.

References

Office of Information Technology Services Enterprise Information Security Office

<http://www.its.ny.gov/eiso>

Microsoft: What Is a Botnet

<http://www.microsoft.com/security/resources/botnet-what-is.aspx>

CIS and NCSA: Botnet Fact Sheet

<http://staysafeonline.org/ncsam/resources/botnet-fact-sheet>

Provided By:



The information provided in the Monthly Security Tips Newsletter is intended to increase the security awareness of an organization's end users and to help them behave in a more secure manner within their work environment. While some of the tips may relate to maintaining a home computer, the increased awareness is intended to help improve the organization's overall cyber security posture. This is especially critical if employees access their work network from their home computer. Organizations have permission and are encouraged to brand and redistribute this newsletter in whole for educational, non-commercial purposes.

Disclaimer: These links are provided because they have information that may be useful. The Center for Internet Security (CIS) does not warrant the accuracy of any information contained in the links and neither endorses nor intends to promote the advertising of the resources listed herein. The opinions and statements contained in such resources are those of the author(s) and do not necessarily represent the opinions of CIS.
