**Lecture 6: Malicious Software I**

*Summary*

In this lecture, we introduce malicious software categorized by propagation method. Later we will discuss malicious software payloads and look at viruses and worms in more detail.

*Classification of Malicious Software - Propagation*

**References**

P&P, Sections 3.3 and 3.4

Sality Virus, <http://en.wikipedia.org/wiki/Sality>

Trojan.Stabuniq, <http://arstechnica.com/security/2012/12/symantec-finds-a-new-trojan-that-steals-data-from-us-banks-customers/>

Conficker, <http://www.symantec.com/content/en/us/enterprise/media/security_response/whitepapers/the_downadup_codex_ed1.pdf>

Tim Lloyd, Omega Engineering, <http://www.nytimes.com/1998/02/18/nyregion/man-charged-with-sabotage-of-computers.html>

**Viruses**

Replicate by modifying other files or programs.

Require *user assistance* to replicate.

**Trojan Horse**

Masquerades as useful or desirable software, enticing users to install

Includes malicious functionality

**Worms**

Spread *without* injecting code into other applications

Typically spread *without user assistance*

**Trapdoors (or Backdoors)**

Method to obtain access that bypasses usual authentication measures

A type of *Insider Attack*; may be malicious or benign

**Logic Bombs**

Code created to take destructive action given a specific *trigger*

Another form of *Insider Attack*

**Examples**

* + *Sality Virus, 2003 - Present*. Infects Windows executables (.scr and .exe); may infect files that are then transferred on removable media. Can carry many different malicious payloads: botnets, rootkits, password cracking, etc.
	+ *Trojan.Stabuniq, discovered December 2012*. Targeted US financial institutions; spread through spam emails; found on workstations, mail servers, firewalls, proxy servers, and gateways. Steals system information and forward to remote servers. Possibly a proof-of-concept.
	+ *Conficker Worm, discovered November 2008*. Massive infection — estimated 9 to 15 million infections in January 2009; infected UK MoD, German Bundeswehr, French Navy, and others. Spread using multiple vulnerabilities: Microsoft SMB vulnerability, attack on ADMIN$ shares, infection of USB memory sticks. Capable of downloading and running various payloads.
	+ *Omega Engineering Logic Bomb, 1996*. Tim Lloyd, network admin for 11 years; disgruntled due to declining status in company; fired. Logic bomb planted with trigger date of 31 July 1996; deleted all files on engineering LAN. Forensics analysis revealed portions of malicious script; erased backup tapes found at Lloyd’s house.

*Exercises*

 P&P, Chapter 3, Exercise 2, 3, and 4.