


# Computer Viruses and Worms





# Definition of Virus

- A virus is a small piece of software that piggybacks on real programs in order to get executed
  - Once it's running, it spreads by inserting copies of itself into other executable code or documents
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# Worms

- **Worm** - is a self-replicating program, similar to a computer virus. A virus attaches itself to, and becomes part of, another executable program; however, a worm is self-contained and does not need to be part of another program to propagate itself.




# Worms...

- **Worms** – is a small piece of software that uses computer networks and security holes to replicate itself. A copy of the worm scans the network for another machine that has a specific security hole. It copies itself to the new machine using the security hole, and then starts replicating from there, as well.
- They are often designed to exploit the file transmission capabilities found on many computers.



# Zombies

- Infected computers — mostly Windows machines — are now the major delivery method of spam.
- Zombies have been used extensively to send e-mail spam; between 50% to 80% of all spam worldwide is now sent by zombie computers



# Typical things that some current Personal Computer (PC) viruses do

- Display a message
- Erase files
- Scramble data on a hard disk
- Cause erratic screen behavior
- Halt the PC
- Many viruses do nothing obvious at all except spread!



# How it works?

- The flood of incoming messages to the target system essentially forces it to shut down, thereby denying service to the system to legitimate users.
- Victim's IP address.
- Victim's port number.
- Attacking packet size.
- Attacking interpacket delay.
- Duration of attack.



# Melissa virus

- March 1999
- the Melissa virus was the fastest-spreading virus ever seen
- Someone created the virus as a Word document uploaded to an Internet newsgroup
- People who downloaded the document and opened it would trigger the virus
- The virus would then send the document in an e-mail message to the first 50 people in the person's address book





# Melissa virus

- Took advantage of the programming language built into Microsoft Word called VBA (Visual Basic for Applications)



# Prevention

- Updates
- Anti-Viruses
- More secure operating systems  
e.g. UNIX