# Computer Virus, Survey study

**Hassan Wahshat, Yasir Khalil & Takialdin Al Smadi**

Computer Science Department, Jerash Private University, Jordan

**Summary**

The history of computer viruses has begun recently, but it has already become legendary. Almost everyone knows a few awesome fables about these creatures, but hardy anyone understands what computer virus is. Computer virus is an executable code able to reproduce itself. Viruses are an area of pure programming, and, unlike other computer programs, carry intellectual functions on protection from being found and destroyed. They have to fight for survival in complex conditions of conflicting computer systems. Viruses seem to be the only alive organisms in the computer environment, and yet another main goal is survival. That is why they may have complex crypting/decrypting engines, which is indeed a sort of a standard for computer viruses nowadays, in order to carry out processes of duplicating, adaptation and disguise

*Key words:*
*Input here the part of 4-5 keywords.*

## 1. What is a computer virus?

It is an executable code able to reproduce itself. Viruses are an area of pure programming, and, unlike other computer programs, carry intellectual functions on protection from being found and destroyed. They have to fight for survival in complex conditions of conflicting computer systems. That is why they evolve as if they were alive.

Yes, viruses seem to be the only alive organisms in the computer environment, and yet another their main goal is survival. That is why they may have complex crypting/decrypting engines, which is indeed a sort of a standard for computer viruses nowadays, in order to carry out processes of duplicating, adaptation and disguise (1).

It is necessary to differentiate between reproducing programs and Trojan horses. Reproducing programs will not necessarily harm your system because they are aimed at producing as many copies or somewhat-copies) of their own as possible by means of so-called agent programs or without their help. In the later case, they are referred to as "worms". Meanwhile Trojan horses are programs aimed at causing harm or damage to PC's. Certainly it's a usual practice, when they are part of "tech-organism", but they have completely different functions.

That is an important point. Destructive actions are not an integral part of the virus by default. However virus-writers allow presence of destructive mechanisms as an active protection from finding and destroying their creatures, as well as a response to the attitude of society to viruses and their authors.

As you see, there are different types of viruses, and they have already been separated into classes and categories. For instance: dangerous, harmless, and very dangerous. No destruction means a harmless one, tricks with system halts means a dangerous one, and finally with a devastating destruction means a very dangerous virus.

But viruses are famous not only for their destructive actions, but also for their special effects, which are almost impossible to classify. Some virus-writers suggest the following: funny, very funny and sad or melancholy (keeps silence and infects). However, one should remember that special effects must occur only after a certain number of contaminations. Users should also be given a chance to restrict execution of destructive actions, such as deleting files, formatting hard disks. Thereby virus can be considered a useful program, keeping a check on system changes and preventing any surprises such as of deletion of files or wiping out hard disks.

It sounds quite heretical to say such words about viruses, which are usually considered to be a disaster (2). The less person understands in programming and virology, the greater influence will have on him possibility of being infected with a virus. Thus, let us consider creators of viruses as the best source.

## 2. Who writes computer viruses?

They are lone wolves or programmers groups. In spite of the fact that many people think, that to write a computer virus is a hardship, it is no exactly so. Using special programs called "Virus creators" even beginners in computer world can build their own viruses, which will be a strain of a certain major virus. This is precisely the case with notorious virus "Anna Curnikova", which is actually a worm. The aim of creation of viruses in such way is obvious: the author wants to become well known all over the world and to show his powers. Somehow, the results of the attempt can be very sad (see a bit of history), only real professionals can go famous and stay uncaught. A good example is Dark Avenger. Yes, and it is yet another custom of participants of "the scene" – to take terrifying monikers (nicknames).

To write something really new and remarkable programmer should have some extra knowledge and skills, for example:

1) good strategic thinking and intuition – releasing a virus and its descendants live their own independent life in nearly unpredictable conditions. Therefore, the author must anticipate a lot of things;

2) Splendid knowledge of language of the Assembler[1] and the operating system he writes for – the more there are mistakes in the virus the quicker its will be caught;

3) attention to details and a skill to solve the most varied tactical questions – one won't write a compact, satisfactory working program without this abilities;

4) A high professional discipline in order to join preceding points together.

A computer virus group is an informal non-profit organisation, uniting programmers–authors of viruses regardless of their qualifications. Everyone can become a member of the club, if he creates viruses, studies them for the reason of creation and spreading.
The aims they pursue together may differ from that of a single virus writer, although they usually also try to become as famous as possible. However, in the same time, they may render help to beginning programmers in the field of viruses and spread commented sources of viruses and virus algorithm descriptions (3).
One cannot say that all of the group members write viruses in assembler.
Actually, you don't have to know any computer language or write any program code to become a member or a friend of the group. But programming in Assembler is preferred, Pascal, C++ and other high level languages are considered to be humiliating. It does make sense since programs compiled in Assembler are much smaller (0.5-5 kb) and therefore more robust. On the other hand, Assembler is quite difficult to understand especially for beginners. One should think in the way computer does: all commands are send directly to the central processing unit of PC.
There are computer virus groups all over the world, few being more successful than others. It may be hard to get in contact with them since they are quite typical representatives of computer underground world as well as (free) wares groups. Sometimes, however, creating viruses can become a respectable occupation, bringing constant income. After all, no one but the author of the virus can bring valuable information on the way it should be treated and cured.

## 3. To whose advantage computer viruses are written:

Copyleft is distribution of programs without registering the software, i.e. using a cracked copy. This software is stolen, which involves criminal responsibility. One of the general valuables of our culture is a generosity, and you can't do anything about it. At least freeware lovers should know that proceeding with the practice could be risky. That is the first use of computer viruses – as a sort of compensation to software developers.

In the very same way writing viruses usually does not bring profits to the author. At least when the authors of a virus and a cure to it are different persons. The situation is quite different when they are not, especially if the person manages to hide the fact of the double-dealing. That is the second advantage of computer viruses. Yes, developers of antiviral software gain money from selling their remedy to a new widely hyped by the mass media virus. Agitation can grow so strong that all and everyone dash to buy an antiviral protection against even a most harmless virus. The ordinal behavior of share indexes in stock exchanges while a computer virus epidemic is to fall. Somehow, the shares of such companies as Symantec (which is famous for its Norton Antivirus) will soar up to the sky.

The tendency is especially significant in the world of emerging new Economy. This fancy word means an economy, based on computer services as the engine of the development. The system takes place in the United States. That is why we hardly ever hear the names of Dow Jones and Standard & Poor's in the mass media nowadays. Their place is occupied by NASDAQ Composite index, based on the National Association of Securities Dealers Automated Quotations system. The index is responsible for the performance of high-tech companies, the base of the New Economy.

We cannot say for sure, but maybe in the nearest future the index will be influenced more by computers themselves, than brokers and dealers in the world stock exchanges. IBM Corporation has recently presented its new invention – an automated broker, which is indeed a mainframe (a very big computer) with specialized software. It is a descendant of mainframe Deep Blue, well known for its skills in chess field. Unfortunately, it seems that bad times have come for the whole economy of the USA, which also means problems for NASDAQ (4).

Nevertheless, the initiative of IBM should certainly be greeted. Automated brokers seem to understand the volatility of indexes in a much quicker and rational way than human beings. There is an only drawback to

eliminate the problem of artificial intellect. Machine cannot think as a human.

Maybe computer viruses could be of any use here too. After all, the flights to the Moon become a simple effect of inventing the new ways of civil population extermination during the Second World War (ballistic rockets). A wish to kill people did a fantastic daydream become reality within fifty years. The first computing machine was actively used while the first atomic bomb development. So sometimes even very bad, much more dangerous than viruses (name at least one person being victim of a cruel computer virus), can highly assist to the progress and bring a greater profit.

## 4. Conclusion

Viruses seem to be the only alive organisms in the computer environment, and yet another main goal is survival. That is why they may have complex crypting/decrypting engines, which is indeed a sort of a standard for computer viruses nowadays, in order to carry out processes of duplicating, adaptation and disguise Viruses are written by lone wolves or programmers groups.

Using special programs called "Virus creators" even beginners in computer world can build their own viruses. The aim of creation of viruses in such way is obvious: the author wants to become well known all over the world and to show his powers.

The results of the attempt can be very sad, only real professionals can go famous and stay uncaught. To write something really new and remarkable programmer should have some extra knowledge and skills.

A computer virus group is an informal non-profit organisation, uniting programmers–authors of viruses regardless of their qualifications. Everyone can become a member of the club, if he creates viruses, studies them for the reason of creation and spreading. You do not have to know any computer language or write any program code to become a member or a friend of the group. Programming in Assembler is preferred, Pascal, C++ and other high level languages are considered to be humiliating There are computer virus groups all over the world, few being more successful than others. It may be hard to get in contact with them since they are quite typical representatives of computer underground world as well as (free) wares groups. Sometimes, however, creating viruses can become a respectable occupation, bringing constant income. After all, no one but the author of the virus can bring valuable information on the way it should be treated and cured.

Developers of antiviral software gain money from selling their remedy to a new widely hyped by the mass media virus. Agitation can grow so strong that all and everyone dash to buy an antiviral protection against even a most harmless virus. The ordinal behaviour of share indexes in stock exchanges while a computer virus epidemic is to fall. Somehow, the shares of high-tech companies producing antiviral software will soar up to the sky.

## References

[1]  Virus Bulletin 2010: A retrospective www.research.ibm.com/antivirus/SciPapers/Retrospective.htm

[2]  RFID Viruses and Worms, Melanie R. Rieback, Patrick N. D. Simpson, Bruno Crispo, Andrew S. Tanenbaum, Department of Computer Science, Vrije Universiteit Amsterdam

[3]  Computer viruses: description, prevention, and recovery, www.support.microsoft.com/kb/129972

[4]  Computer Viruses, http://www.newscientisttech.com/channel/tech/electronic-threats

**Hassan Wahshat**: In 1995, he obtained his Ph.D. Technique/Information Science, Computing facilities and Automation. Academy of Sciences of Uzbekistan. In 1991, he obtained M.Sc. "Automatic electrical communication", Odessa Electro technical Institute of communications, Faculty of Computer Engineering and telecommunications, Ukraine. He is currently a lecturer at Jerash Private University, Jordan.



**Yasir Khalil Ibrahim**: In 1982, he obtained his Msc from UMIST, Uk. In 1993, he obtained his PHD from UPV, Spain. He is currently a lecturer at Jerash Private University Jordan.



**Takialdin Al Smadi**: In 2005, he obtained his PHD from Kazan State university, "System Analysis". He is currently a lecturer at Jerash Private University Jordan..