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The Research on the Mode of Making Use of the Microcomputer Circularly

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Abstract

The eliminated speed of the microcomputer has become aggravated year by year, it brings huge of economic loss and causes very bad result of the environment pollution, much attention have already been paid to this problem internationally. For this, they put forward the mode of making use of the microcomputer circularly, point out that the monopoly of the operating system has a negative influence to the microcomputer, and analyze the real need of the enterprise for the microcomputer hardware. Meanwhile, they give some effective plans to resolve it. They offer the grid technique that will postpone the speed of the microcomputer's elimination with the mode of making use of the microcomputer circularly, the technique of the balance of the network resource and so on.

Keywords: Microcomputer, Eliminate, Make use of the mode circularly, Operate system

1. Introduction

1.1 The International Attention Paid to The Reuse of the Eliminated Computers

Initiated by UNESCO ,a meeting called Cooperating to Improve the Reuse of the Informative Technological Instruments was held in Paris in 2003(Informative enterprisers from all over the world get together in Paris to explore the reuse of the eliminated computers,2003) . The meeting means to have knowledge of the businesses tentative plan for the reuse of the eliminated informative instruments, explores and makes the specific measures to reuse effectively these eliminated instruments all over the world.

At present, with the informative technology being replaced at a greatly accelerated speed, some instruments originally designed and planned to be used for three years are eliminated after being put into use for less than one year even half a year. According to the survey of UNESCO, seven million computers will be eliminated within three years in the world first one hundred power companies and thirty million computers will be eliminated in the world first one thousand power companies, which will cause a great loss for human being.

During the meeting, the attendants' discussion centers on the possibility of reuse of the eliminated informative instruments in the different social, economic and cultural backgrounds. And they also put forward a series of suggestions and measures about the reuse of the eliminated informative instruments.

Thus it can be seen that the reuse of the eliminated computers is a tough problem to be resolved urgently by human being.

1.2 Recycling Economic Mode and Computers' Circularly being Used Mode

The eliminated computers contain several kinds of poisonous substances suck as lead , tin , mercury , chromium , dalvor and plastic, If dealt with improperly or discarded, these substances will pollute soil, water, animals and plants , and eventually do a lot of harm to human's health . So they are a serious threat to humans' lives.

Recently, a new economic concept called Recycling Economy has been put forward internationally(Wang, Chunmei& Cheng , Aijun,2005). It changes the traditional economic mode that is "Resources-Products-Junk" into the new mode that is "Resources-Products-Regenerated Resources". The new economic mode features low consumption, less pollution and high profits, which can gain the greatest environmental benefits at the price of the least resources and environmental pollution.

As far as computer products are concerned, the recycling economic mode means classifying the eliminated computers. These that can be reused will be continuously put into use after being transformed and reassembled. Those that are actually eliminated will be reclaimed to extract mineral resources.mode of making use of the microcomputer circulary at presented in Figure 1.

1.3 The Present Condition of Our Country's Dealing with the Eliminated Computers

China is still at the elementary phase in preventing and controlling pollution caused by computer junks(http://www.people.com.cn/electric/990910/x1050.htm). The collective managerial system for electron junks hasn't been set up. Only few computers have been reclaimed by firms and large numbers of computer junks are either buried as common rubbish or reclaimed for dissembling in less qualified workshops, which causes severe potential pollution for the environment.

Another, the research on computers being reused has been seldom reported. Thus, it can be concluded that enough emphasis hasn't been put on the reuse of the eliminated computers in our society.

2. Are the Eliminated Computers Really Put Out of Use?

2.1 The Role of Operating System

What causes the computers to be eliminated at such a high speed? Is it because of the lack of computer hardware resources? What role does the operating system play in computers being eliminated so quickly?

This problem can be analyzed from the development history of microcomputers and operating system(http://www.cxsyzx.com/readnews.asp?newsID=172,2004; http://yjs.bit.edu.cn/blog/user1/83/archives/2005/672.html, 2005).

The development of microcomputers goes through four stages: From 1971 to 1973 the computers were at 4 bits or 8 bits computer times; From 1974 to 1978,there appeared 8 bits computers; From 1978 to 1981,there existed 16 bits computers; hereafter in 1985, the computers began to go into 32 bits times. From the development of microcomputers, we can see that the developing speed is very high and the working speed and the volumes of the computers are on increase continuously.

Let's deal with the development of the operating system. The operating system called MS-DOS1.0 was designed for IBM by Microsoft in 1979 which established Microsoft as the monopolizer of the microcomputer operating system. Later in 1978 and 1995 DOS1.1-7.0 were developed successively. In 1995 the operating system Windows95 was developed by Microsoft and then Windows97, Windows me, Windows 2000, Windows XP and Windows 2003 became popularized one after another. All of these operating systems were produced with the renovation and upgrading of CPU. This operating system has the characteristics of graphics Interface, convenient operation and multitasks, which make it very popular among the consumers. So this operating system almost monopolizes the whole market of microcomputer operating system.

Among the too many characteristics of Windows operating system, the graphics interface makes it look very pleasing to the eye and makes it easily operated. But it is exactly because of this advantage that makes the Windows operating

system itself larger and larger, which makes the most parts of computer resources occupied by this beautiful picture and this in fact is a kind of waste.

Also, multitasks, another important characteristic of Windows enables us to do several tasks and this brings a lot of convenience for the consumers. However, multitasks haven't been used completely in the average businesses and it is also unnecessary for the average businesses to use them completely. Single task is enough for the average businesses. So multitasks can be regarded as another kind of waste as far as the average businesses are concerned.

Therefore, the operating system in fact adds fuel to the flame in eliminating computers.

2.2 The Businesses' Real Need for Microcomputer Hardware Resources.

On one hand, microcomputers are being eliminated at a very high speed; On the other hand , with the time passing and the development of the businesses, is it necessary for the firms to have a higher and higher demand for the hardware?

Take a supermarket as an example, with the time passing, the nature of its business hasn't been changed fundermentally. The increase of its business quantity and statistics hasn't made it necessary for the supermarket to demand for the hardware. And this can be solved by adding the configuration of the server. Meanwhile, it isn't necessary for the operating system to have complicated graphics interface and multitasks system. So high level microcomputers and too many kinds of operating system haven't brought big profits to the supermarket. In fact hardware configuration for payee are inferior to the configuration for currently popular computers. The monitor for the payee is usually black and white.

3. The Solution to the Reuse of the Microcomputers

3.1 Take Operating System Itself as the Point of Departure

3.1.1 Use the Earlier Operating System

In views of different businesses' demands, earlier operating system can be suitable for the applying system with small business quantity and fixed business mode. With the help of corresponding programming appliances, the software for this type of computers can be developed to decrease the demands for the hardware.

For example, by applying VFP3.0 in Windows 3.1 I develop a paying system for a restaurant. This paying system has also a graphics interface and can be operated effectively in microcomputer 386. In the same way, another system is developed by applying VFP6.0 in Windows 98. However, this system can be operated beyond computer 586.

Although these two systems occupy different spaces of memory, they are the same in functions and are both convenient to be operated by the users.

3.1.2 Perfect an Operating System or Transform an Operating System

Computers used in the businesses rely mainly on database. And according to this, the operating system with simple interface, occupying little memory and single task can be developed by perfecting or transforming the existing computers . However, this operating system must be strengthened in the management of database and supportive of the work of applying programme in database and network environment.

Windows 3.X is a multitasking windows operating environment with graphics interface which is developed by Mircosoft based on DOS. The driver supporting C/S system, for example ODBC, can be developed based on Windows 3.X. , which makes it possible to operate C/S programme under Windows 3.X. in computer 386 and computer 486 . Meanwhile, an operating system, such as Linux system, can be transformed to enable it to have high ability to manage database and lower the demands for hardware. This transformed operating system can be used in low level computers to support C/S system.

3.1.3 Take Full Use of Grid Technology

Grid is a recently developed computing technology. Following a group of open standards and agreements, the organizations can visit statistics and store medium and computing resources from other organizations by internet and inner nets. Eventually all the resources including network, data, computing resources and etc, scattered in different environments can be integrated into a perfect computing environment

Internationally, opening the source code and cooperating openly are main ways employed in the research on grid, which provides us with a means . If we transform the source code of the grid technology, apply grid technology to low level computers, to use the low level computer resources in a distributive and balanced way and integrate the resources to make the computing ability and hardware resources increase unlimitedly in theory, the microcomputers will not be eliminated unless the hardwares are damaged naturally .

3.2 Take the Balance of Network Resources as the Point of Departure

At present, the database system exists basically with the form of C/S. C/S system can be divided into double layers structure including the consumer layer and server layer and multilayers structure with business regularity layer as the third one. Because these layers are logic and not physical, they don't rely on the physical structure. Therefore, we can

design reasonably the hardware resources and locations occupied by these layers to take use of low level microcomputers from the point of the network resources balance.

3.2.1 The Theory for Intelligent Client

With the theory for intelligent client , your applying programme can use the hardware in a more effective and better way by using the local resources as much as possible and assembling the local resources with your own intelligent client applying programme. Most of the programme logics are located in the server, including the third layer and beyond the third layer. The server can adopt stored procedure, trigger,regularity and etc to reduce the stream of the network to keep the client programme logic at the lowest level. By combining with the lower level operating system, such as operating system Windows 95,most of work can be taken by the server and in this way low level microcomputers can be used in client .

3.2.2 Use the Terminal Technology of Windows

Having realized the microcomputers are being eliminated at a very high speed, Microsoft finishes the terminal server technology in Windows 2000 , and perfects it in Windows 2003(http://www.chinapohelp.com/aubt.htm). And this itself is the regression to master computer applying mode. Client is only responsible for the input and output of the data and it doesn't do any computation. All the programmes are to be operated in server. By using the balance theory of the network resources, this exactly means the Windows software supported by this technology can be applied at a higher speed to the such low level computers as model 386, model 486 and model 586. In this way ,the speed at which computers are eliminated can be postponed.

3.3 Start with the System Structure

From the point of the system structure, the speed of working out a problem can be quickened by improving the ratio of the hardware functions and the stored quantity needed can also be decreased .However, the cost of the hardware will be improved. The ratio of utilization of the hardware and flexibility and suitability of the computer system will also be decreased(Li, Xuegan&Su, Dongzhuang,1998).This theory presupposes the constant demands of the computer system. If this theory is applied to low level computers, the latent power can be tapped.

For the specific cases, some fixed functions such as multimedia, network and business regularity can be carried out by the hardware. Strictly speaking, the hardware here can be called firmware that is a card. At present, the cost of computer firmware is so low that it can be use for transforming the low level computers to decrease the stored quantity of the computer and improve the speed of computer work. And this is a feasible way for transforming a low level computer.

4. Conclusion

In accordance with the huge economic loss and the threat to the environment caused by the quickly eliminated computers, this article analyzes the reasons why the computers are being eliminated at such a high speed, points out the negative effect of the operating system, analyzes the real needs of the enterprises for the computer hardwares, puts forward the mode of making use of the computers circularly and meanwhile provides the specific solution plans for the problem. Of course, the reuse of the eliminated computers is a knotty problem faced with human being, and it is being paid much attention internationally. However, this problem will exist for a long period of time . All human beings, even several generations need to make constant efforts to work out it .

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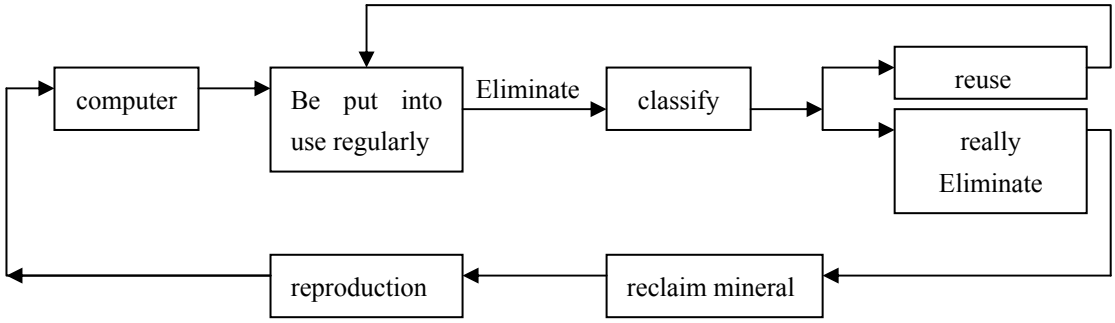

Figure 1. the Mode of Making Use of the Microcomputer Circularly