Completely Use Linux to Work

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Working entirely with GNU/Linux

Understand GNU/Linux

Precious: https://www.cnblogs.com/skyseraph/archive/2010/10/30/1865280.html (In Chinese, maybe you need to use the Google Translate)

Note: This article is the "famous work" of Tsinghua "Cowboy" Wang Yin (王垠), which caused a lot of controversy on the Internet when it was released in 2003. There are of great many people who admire him, and some who sneer at him. In short, it is a very interesting phenomenon in the circle of Linux enthusiasts more than a year ago. After that, he made a lot of changes to this article, and there is no such thing as the original spirit.

Although his original point of view is extreme, I still appreciate his original style.

"UNIX is simple, you don't need to be a genius to understand this simplicity."

Since the term GNU/Linux is too long, "Linux" means "GNU/Linux" unless otherwise specified.

In this era, I am afraid no one needs me to introduce Linux. What is it? If you think that "Linux is just something like DOS", then you probably haven't seen the sky in the cave for a long time? May I ask the Linux user next to you, what is the status of Linux?

Then why do I have to write an article like this? Because, I found that there are still many people who don't understand Linux and UNIX. Although they are also using it, they sometimes ask: "Why can't Linux be like Windows...?", "How Redhat Linux can't mount NTFS partitions!" "What is the hard disk used under Linux?", "When is OpenOffice fully compatible with Word files?", "What else can Windows do now? Can't Linux do?"

They have a 40GB hard drive, but only allocate 2GB space for Linux, and sometimes complain about "how does this thing account for so many hard drives!" It seems that Windows should take up most of the hard drive. They put important data in the Windows partition and seem to believe that Linux. They are always looking for novel, good-looking GUI programs, and they don't care about the command line. They are very interested in Drag&Drop, menu configuration, and automatic upgrades. If they find a Linux program that is very similar to a Windows program, they will be happy to say, "Haha! Linux can also..." If Linux outperforms Windows in some kind of test, they will be happy to jump. They have no way to solve problems with Linux, and even use Wine to run Windows programs. Sometimes there is no way, I have to re-play Windows, or simply save trouble, install a VMWare virtual Linux on Windows.

You support Linux, you like Linux, you can feel happy from it, this is very good. All you need to understand now is that Linux is never a toy, it is a descendant of genius UNIX. UNIX is the greatest invention since the invention of the transistor, and it has been better than the Windows design since its birth. Linux doesn't need to catch up with Windows. It doesn't need to fight Microsoft. Its ultimate goal is to change the entire computer world, and people are free to give people fun and

convenience. Many other UNIX systems have been defeated at the foot of Linux, not to mention Windows!

If you have the above situation, your thoughts are affected and misled by some kind of subtle influence of Windows. You have not been able to understand UNIX thinking that exists on Linux. UNIX designer Dennis Ritchie said: "Unix is simple. It just takes a genius to understand its simplicity." But I don't think so, because I am not a genius, but I bravely deleted Windows completely, after half a year I I realized the ideas and benefits of UNIX. Because I believe in this belief: "What Linux can do is Linux, and it can do better."

The beginning of this section should be changed to: "Unix is simple, but in this world of Windows misconceptions, you need faith and courage to understand its simplicity!" I will tell you something I understand.

Microsoft's status

Microsoft's reputation is in the universities of Europe and the United States, especially in the computer department, and everyone may have heard about it. The MIT, Stanford professor, Bell Labs expert, and even a high school computer teacher in a small European country are not mentioning Microsoft's name. In their eyes, Microsoft is just a small company with no real technology, relying on commercial propaganda and monopoly in backward countries. This "small" is not to say that it has fewer people and less money, but that it has less advanced technology.

I last worked with Wang Yi to write an algorithm demonstration program. The algorithm was a very talented invention by Steven Fortune, a scientist at Bell Labs. In order to be used by most people around us, we chose VC + MFC as the platform. I also got the encouragement from Fortune when I analyzed the algorithm, sent me a copy of the information, and repeatedly wrote back to me patiently to explain a lot of details. But after the program was finished, I sent the sample to Fortune. He replied: "I'm sorry. I don't have MFC on my machine." It was very polite, but I already felt his disdain for Windows. Then I compiled the MFC statically into the program and sent it to him. He didn't reply. He obviously does not look down on me, but it does have difficulties.

Can you feel the attitude of this scientist to Microsoft and Windows? Not aversion, but there is no such thing as Windows in his heart! Microsoft has not developed in the high-tech field, so how does it survive? To develop in developing countries, their people still don't know anything about computers. I might even even enter the university's computer department. I sent them the software, I donated money to build the building, I paid for the Turing Award winners to give a speech, let them think we are all scientists!

Well, now the universities in the country include Tsinghua. Almost everyone must install pirated Win2000, Office XP, the school's elective system is not IE can not browse correctly, the paper is edited with Word, the demonstration is done with ppt, and the notification attachment of email is doc file. You can't open Word without Word, and even the 863 project uses VC to write programs. I saw a newspaper a long time ago and said, "Why doesn't Microsoft crack down on piracy?" The article said that Microsoft not only does not attack China's piracy, but also has a tendency to let it go. Put a long line of big fish, "I want you to double me back later!" Indeed, its purpose is almost realized.

Chinese computer education under the cover of Windows

In China, Bill Gates is regarded as sacred by many people, "juvenile computer genius", and even some people mentioned his name to make a "holding the fist to the sky" posture. Many people talk about Microsoft's "new technology", "high-tech" is a brow. A variety of "VC programming Bible", "in-depth understanding of Visual C++" and other books, in the first few pages will appear very nauseous words, "In the chaos of the group, an open-minded elf, Windows 1.0, was born... "

Microsoft's software has been stolen by so many people, so how do people use these pirated programs? First look at the computer training class, teaching some DOS commands, typing, Windows basic operations, Word document processing, PowerPoint, advanced classes may have Excel, Access... Participate in various Microsoft certification exams, MCSE, MSDE people are not Absolutely. The exam remedial classes all posted the words "280 yuan, so far". Exam references are more expensive, and some computer bookstores have two bookshelves that are "Microsoft Press." I have a classmate who takes the certification exam, and each exam requires more than 200 yuan. And you can take the test once and you have to pay again. He later talked to me and said, look at me, spent XXXX (a four-digit) Yuan passed the Microsoft certification, got a certificate signed by Bill Gates and an internal version of Windows XP worth 6,000 yuan.

"The computer has to start from the doll," let's see what the dolls are learning. After most parents buy a computer for their children, they will first install a pirated version of Windows, and then buy a pirated game to start playing. If any child would use Delphi to program, that would be a big deal. Newspaper reporters, TV stations rushed to report, saying that a junior high school student in a certain school has already written programs in Delphi when others are still playing the "primary stage" of computer games. The lens also aimed at the Bill Gates avatar in the picture box above his display!

When I first entered the university computer department, I still didn't know what the operating system was, because I used to use the "Chinese learning machine". Everyone who saw the new entrance is talking about "Windows 95", "VC"... I just think that I have fallen behind for decades, and the whole people have not answered with them. Finally, I found a more familiar classmate and asked: "What is the Win95 that you talk about every day?" Answer: "Win95 is an operating system, and it is a class with DOS." "What is Duosi?" "DOS? Don't know what it is? Don't study in the computer major." Of course, the school does not talk about VC programming, but the teacher at Pascal once said: "Hey, our school is really backward. Now everyone else uses C. , C++, even VC, we are still talking about Pascal. I don't know when I can have VC class. You have to use VC when you go out, so you have to learn by yourself." So, some students often hold a heavy class in class. Books like "Windows Programming In One Book" didn't even attend classes. When I was eating, I said to me, "The optimization of the code is endless." "Hungarian nomenclature is really a great invention." This is the case of many university computer departments in China.

Feeling ignorant? This is not accidental, but the foreshadowing that Microsoft has long buried. It wants everyone who is ignorant to regard it as sacred. It wants to support UNIX. Xwindow people say that UNIX is good. When Xwindow is good, they are surrounded by a group of people: "This Windows can do it too," You are biased against Windows, "Microsoft is the mainstream." "Do you dare to look down on win2k?", ".NET is the world trend", "Microsoft is a new technology after all", "There is money to have technology"... even After the comparison of some debates, it still has to be said: "Windows performance is almost the same, but easy to use", "Windows is used by ordinary people, demanding not so high", "Microsoft is so rich, it is not easy to exceed UNIX in the future." ?"······

Computer education in developed countries

I met a Dane when I asked about the Scheme language in USENET some time ago. He solved all my problems and suggested that I read some very esoteric books about procedural language grammar and grammar. He told me that many websites can learn LISP, Scheme, artificial intelligence, and algorithms. He told me to read Jonathan Rees's paper "Syntactic Closures". He also packaged me a MIT "How to Design Programs". He said that he installed Linux on his PC, he edited it with Emacs and ran the Scheme program. His understanding and hobbies about Emacs is really amazing. The graduation project he did when he graduated from college was a Scheme interpreter. This is a breeze for me.

He is so annoying, he answers every question in detail. I sometimes feel too detailed, how can I be so patient? I think he seems to be my high school teacher. What kind of person is he? I was curious to find out about him. It turned out that she is a computer teacher in an ordinary high school in Denmark, and is a female teacher!

She said she taught programming and algorithms in high school, computer language grammar. She said that with Scheme, her students no longer have to worry about problems with the programming language itself, such as memory leaks, but focus on the problem and the algorithm itself. It is conducive to cultivating students' ability to solve problems, especially the ability to solve math problems with computers.

God! Why do so many scientists and geologists in Europe? Look at what others value! If our computer education continues this way, we will only go further and further along the detour!

The wishful thinking of Microsoft and its friends

Let's take a look at how Microsoft's revenue comes from. First of all, the Windows 98 series operating system, one is more than 100 US dollars, each upgrade is almost the same price. Windows NT is also several times more expensive, and there are a limit on the number of users, 5 users, 10 users... In the future, if you want to increase the number of users, you must pay in proportion. This strange phenomenon is compared to the president of General Motors: "The Microsoft car you bought has only one seat at the beginning. You have to pay the car company for each seat. You have to overhaul every 100 miles, every year. I have to change the engine."

Can an operating system that has bought so much money been used? It didn't even provide a compression program! The first thing you usually do after installing Windows is to download a WinZip, just 29 dollars. Windows will be a virus, buy a Norton AntiVirus for 70 dollars. And what about hackers? Buy another Norton Internet Security, for 100 dollars. The disk needs to be sorted out. Buying a Norton System Works is your best solution for $100.

But you still can't do business right now! Do you want a Word, PowerPoint? Then buy a set of Office XP, buy cheaper together, 9.90.

Those programs won't work! How do you set up those menus, what function does it have? You can't learn to see "help." Take a look at the book, I recommend "Special Edition Using Microsoft Office XP", not expensive, .99. Most of the book is screen shots, or it is more cost-effective to buy an old one, .85.

If you are just a secretary, the above is almost okay. But you have a higher pursuit, you want to be a Windows programmer. First buy a Visual Studio.NET, or how to compile the program. 4.95.

In order to keep up with Microsoft trends, the world trend, can not help but register an MSDN, what? This is a bit more expensive, but value for money, 799.

Well, you are now an upper class, a white-collar person. You can now live like this "free" and "safe" like this:

What is Windows capable and Linux can't do?

"What Windows can do and Linux can't do, that's what you don't need to do."

A friend who saw me for six months did not use Windows, and sometimes asked me: "You only use Linux, have you found something that Windows can handle? Linux can't do it?"

I replied: "What Windows can do and Linux can't do, that's what you don't need to do."

What can be done by Windows? Linux can do

Some of the features under Windows are really what we need, so Linux developers and users need this feature, they will implement this feature, and much better than Windows. Since most scientists, engineers use Linux or some kind of commercial UNIX, almost all commercial scientific engineering programs, such as Matlab, Mathematica, AutoCAD, Candence, Synopsys, Avant!... all have UNIX first. Versions (including Linux), then consider porting to Windows, or even not porting to Windows at all, because Windows machines generally don't have enough power to run such programs. You don't think that only Windows has PSpice, UNIX HSpice is much better, and it can run on a mainframe. Of course they are not free, but they are worth the price.

But there are some things under Windows that are not very similar under Linux, or you find a lot of similar ones, but each of them is much worse than the one for Windows, so there are two possibilities:

1. There is a completely similar program, but because it is not beautiful, it is ignored by you.

   While other programs look beautiful, they are written by some beginner programmers. Now due to the birth of Gtk+ and Qt, the development of graphical interface programs under Linux is extremely simple. Many junior high school students and even elementary school students can easily compile some beautiful programs. If you look for such a program all day to pick and choose, you will never find your satisfaction.

   I have made such mistakes, and the excellent FVWM, lftp, Mutt, wget have been ignored by me! When I retrieved them, I was so ashamed that they are now my friends :) With these programs you can change everything. I first saw FVWM think it was just a thick one. Very ugly border stuff. But now, my classmates saw FVWM saying: "Wow! It's beautiful."

2. There is another completely different way to achieve the same purpose, or even better.

   Many people care about Open Office, Star Office, AbiWord, ... How much they hope that one day a Linux program will be fully compatible to open a complex doc document. But you can never have that day. why? Because Microsoft has to occupy the market, it will not let other system programs fully compatible with its document format! It must constantly change the internal structure of the doc document, hide some secrets, and there are always some problems when other companies' programs open doc documents, so you must purchase Microsoft Office and Windows.

   You should think about it, so many high-intelligence university professors, scientists, students, they all use Linux or other types of UNIX, they do not have Word available, how to deal with documents? I haven't had a program like Open Office for so many years. Is there a way to write a document?

   Obviously not the case. Look at the high-level academic journals, papers, web pages of college professors, beautiful PDF slides, what do they do? It turns out that UNIX users have long been very convenient for troff, LaTeX, SGML and other things can handle documents, and they are much more sophisticated than Word. Word is obviously ignored by these big

ones, so that no one has wanted to develop a Word-like program under Linux for a long time, unless some companies want to grab Microsoft's job.

The reason many people keep Windows on the hard disk is nothing more than using Word and PowerPoint. You can check out my TeX page later, and you will know why I can leave Windows completely.

Windows can do useless things Linux can never do well

1. Computer game

   Some people say that Linux can't play all the games available under Windows. Indeed, there are a small number of games under Linux, such as Quake. But it doesn't have Counter Strike, no Star Craft, ...

    It's not that computer games shouldn't be played, but it should stop. A computer is a tool for dealing with affairs, helping you learn and solve problems, not a toy! Indulge in computer games all day, without going out to feel the world outside, you will become more and more cold and more and less human. You are getting farther and farther away from the real world.

    You can kill in CS, you can explore in Tomb Raider, you can even skate in Tony Hawk's Pro Skaters... but It's not real! Although you have a high "anti-terrorism skills", when you encounter a gangster, you are so embarrassed; although you control Laura to reach out, how can you always be broken when you play basketball? Although you can easily make a "360 kickflip to hangten grind to fakie" in THPS, you will not ollie when you step on your skateboard!

    Well, if you play computer games occasionally, you can't. But there are far better ways to play in the world than Windows + PC. Sony's PlayStation2, SEGA's DreamCast, Nintendo's N64, Namco's arcade...Every one is better than Windows games, each with such high 3D performance that Pentium4, Itanium + GForce4 can't compare with them!

    Linux users are all concerned about solving the world's key problems. Where do they have time to play games on their own machines? They use Linux to do their work efficiently every day and enjoy nature in the sun. To play the game is also to play some intelligence games like a sokoban, snakes and the like. So, you know why Linux has almost no games, right? :)

2. "Finishing the hard drive and optimizing the system"

   This is a very interesting topic, second only to the topic of "virus." I believe many Windows users have the experience of defragmenting hard drives. In the eyes of many Windows users, "the hard disk has been used for a long time, there will be fragmentation, the speed will be slowed down, a program is needed to organize, and when the hard disk is finished, do not do other work." This seems to be a matter of course.

   I also looked at Norton Defrag with great interest. I sorted, adjusted, and displayed my hard drive little by little, and then reported: "100% is not fragmented. Your hard drive is now at its best." It's only now how naive I was at the time.

   Linux and UNIX users seem to have never said "hard disk"? Do you feel very strange? If you feel weird, it means that your thoughts are somehow blocked by Microsoft's junk program. You need to understand that many UNIX mainframes must be running 24 hours a day, 365 days and 1/4 days a year. If you have to organize your hard disk every week, you can hardly do anything when you organize it. That is Absolutely not working!

Linux machines don't have to clean up the hard drive at all, which is why you haven't seen Linux users defragmenting hard drives. Linux's file system is a much more sophisticated file system than Windows' FAT, FAT32, and NTFS. They can not only set permissions on files, but also provide complete protection, and can be "more and more neat", "the more fragments you use"! You should put most of the files in the Linux partition instead of the Windows partition because it is much more reliable than the Windows partition.

The more ridiculous thing is that there are a lot of programs like "Norton System Doctor", "Windows Optimizer", "Super Rabbit Registry Magic" and they are expensive. It seems that an operating system should have many problems. It requires other vendors to do the program to "optimize" it, and in order to be optimized, you need to pay! These problems are not at all in Linux, so no optimization is needed. The Linux kernel itself is highly optimized.

3. IDE

Some people are complaining about why Linux does not have a good IDE development environment. Linux now has some IDEs, but there are always a lot of problems. Are you looking for, are you expecting Linux to have a development environment like VC one day? Have you found out that you are entering the strange circle that Microsoft has set for you? Why do you have to use the IDE? You said: "IDE development is fast, easy to debug, suitable for large programs..." That means Microsoft's programs are already deep-rooted in your mind, you need to be awake, let me tell you.

The clever UNIX programmers don't need an IDE, and the IDE is always used by junior Windows programmers.

Look at the large UNIX programs, including the Linux kernel, various network service programs, Xwindow programs, which one is the IDE? None of our lab's EDA programs are IDE-enabled. I also know that Candence, Synopsys, and Mentor's high-performance graphical interface EDA programs are not written by the IDE. Believe it or not, Microsoft people don't need an IDE at all when writing Windows itself!

Once a magazine interviewed some famous Linux kernel programmers, including Linus, no one used IDE, some used VIM, some used Emacs, only Linus said "GNU Emacs is evil", but in fact he used It is a MicroEmacs that has the same key binding capabilities as Emacs. Everyone edited the program file with an editor, and then used the automatic tool like make to call the gcc compiler to complete the compilation.

I have also written Windows programs before: applications, drivers. But I don't have a VC IDE. Linux educated me, I will call CL on the command line, I know that CL is the VC compiler. I can use CL in cygwin's Makefile. I also know what the parameters of CL are. But these are not a quick understanding of the IDE from the beginning.

I believe: IDE is evil. I have friends who write programs using the Windows IDE, and they are already very good at that set of things. But I was surprised to find that they even confused the concept of compiler and assembler, and even some people even confused the "editor" and "compiler"! They only know that they have entered the code in a window and can compile the program with the click of a button, but how does it work in the end, they don't know! They are blocked by the window that covers them, and even think that the button is the compiler!

They are familiar with the hotkeys of the IDE, but I see them in a function that turns someone else's ANSI-style code into a VC style. Think about how simple this is in VIM and you can do it in a flash.

Why are UNIX programmers not using IDE? With this in mind, you can appreciate the design of UNIX. First of all, an IDE integrates editor, compiler, assembler, debugger, tracker... this editor function is definitely not comparable.VIM or Emacs, the compiler can't match GCC, the assembler can't match as, the debugger can't compare with gdb, ddd, tracker can't match strace, ltrace, truss. What you get is an integrated low-energy program. If you are not satisfied with the debugger's functionality, you have to switch to another IDE, but the IDE's hotkeys, menus, editor functions, buttons... are very different from the original one. You have to spend a lot of time getting familiar with the new environment and not keeping something original.

 And it is different under UNIX. You can use your favorite VIM editor, you can call GNU make in VIM, make can call gcc, ld, ... actually make can help you a lot. The error message for make can be captured by VIM, and VIM can help you locate it in the source program. If you like icc, you can make make use icc instead of gcc. If you think gdb is cumbersome to track variables, you can use ddd to show the relationship between various data structures. You can also call gdb in Emacs so that you can display the source code synchronously. And VIM and Emacs can also edit a lot of other things, such as letters, LaTeX documents, HTML, configuration files... you don't have to find another editor to do the chores. Many programs like Mutt, tin can use VIM internally, which is more convenient.

4. Free memory

One of the stupid things I have done under Windows is to "free up memory." One day I saw a Windows program saying: "This program can help you free up a lot of memory for a large program." I tried it and released my 64M memory to 48M! I am very happy. Now think about it, how silly it is, how much memory is left for! Why don't we use it! An operating system, actually need someone else to write a program to release memory, what kind of operating system?

With the free command under Linux, you will find that your memory is almost exhausted almost every moment. That's because Linux uses most of the memory as a disk buffer. Linux has advanced disk buffering technology than Windows. Have you found out that when you write data to the hard disk, it will be completed soon? That's because Linux has a lot of disk buffers in memory. The data you write to the hard disk is written to the memory first, then Linux tells you that "copy is complete", when you want to delete the one you just wrote. For some data, Linux simply removes the data from memory and reports "delete complete." After a certain interval, Linux writes the data back to the hard disk, which is not only efficient, it avoids multiple hard disk operations, and reduces the discontinuity of the file, which reduces the "fragmentation". Windows certainly has disk buffering, but because of its inefficient memory management, it doesn't dare to use a lot of memory as a disk buffer because it doesn't have the ability to reclaim memory at any time.

Linux can do advanced things, Windows can't do it.

Of course, there are many things that are patented on Linux/UNIX. Because Windows can only be installed on a PC, it seems that Alpha can use Windows NT before, but it is not seen. The power of the PC is very low. Like the people who program the NP-Hard problem, the Windows machine is obviously not fast enough, and sometimes a problem counts for days or even weeks. The Windows machine is known as "dead". How can we be assured?

So almost all scientific computing programs, EDA programs, and high-performance image processing programs are not Windows. They sometimes port some to Windows, but often reduce the power of those programs. Have you compared the difference between the Windows version of Mathematica and Linux?

The largest parallel computer made by IBM has more than 8,000 processors. Windows cannot have the ability to manage so many processors. What operating system does it use? The answer is Linux.

The 3D animation in the movie "Titanic" is so delicate and realistic, can Windows machines make it? No. That's what Linux machines do.

The virtual reality training equipment used by the Civil Aviation Administration of China to train local people, Windows certainly can't do anything about it. That's all commercial IRIX machines.

UNIX was the first system to support the TCP/IP network protocol. It has a lot of network service programs that can work together. After years of use and revision, they have reached a relatively complete level. In 1997, Microsoft's Bill Gates was still threatening: "The Internet has no future." Microsoft's "vision and vision" should have been seen by everyone, and it later added the network service program IIS vulnerability, let The Ministry of Public Security has issued frequent warnings and everyone has seen it.

In fact, you know, Windows is not as useful as UNIX.

Windows can't do useful things, Windows can't do it.

Of course, Linux is not a panacea. It also has things that can't be done, and computers can't do anything. But Linux can't do anything, Windows can't do it. These things are things we need to explore and need to work hard. In the process of your exploration, Linux must be your good partner.

Windows poisoning

Don't think about the problem with Windows

what? Have you known that Windows is junk? Oh! Why don't you say it early! It hurts me so much. Hey.

"Okay. You know that Windows is junk, what do you use now?"

"Linux + Xwindow"

"Then I ask you, what is Xwindow like?"

"Isn't it just like Windows? Just the 'Start' button is compared, and it's not a Windows logo, it's a foot scorpion. There is a beautiful Chinese menu click. I like it!"

"Do you know what the 'root window' is?"

"I don't know. Never heard of it?"

"The root window is the largest window that covers the entire screen."

"Where is there any window! I didn't see it?"

Did you find the problem? These Linux users say they are using Linux and Xwindow, but they are almost completely ignorant of Linux and Xwindow. Many people have used it for a long time. Xwindow doesn't know what the root window is. I don't know if the button is a window. I don't know what the window manager is related to Gnome and KDE. Everyone thinks that the button on the window is the program itself. I don't know what the "class name" of the window is, and what "resource name" is. They are confused by layers of packaging that are hidden on Linux!

When I told a friend who could use both Windows and Linux Qt to program Xwindow's "Mid-Button", he was shocked and said, "How is Xwindow so backward! Actually, when requesting the clipboard, Contact the owner of the scrapbooking content to convert the format yourself! Look at the clipboard of Windows..." After a friendly discussion of a meal, he had to admit that this Xwindow used decades of methods to cut and paste than Windows. The board should be much more reasonable.

Later, I told him that each Xwindow button is a window. He said: "No, it will be very low. You look at the Windows button..." After another meal, he said, "Oh. I have to admit that Xwindow's approach is good design."

Many people now have the ability to use someone else's library to write a good-looking program as a symbol of their own programming level. In this "graphical", "visualization" era, if you are still using troff, LaTeX to write documents, you are still using VIM to edit the HTML yourself, using Mutt to process the mail, you are still using the text mode gdb debugger, you Still using Xlib to write programs, you are still using USENET on tin, you are still writing Makefile yourself, writing machine code, you are still playing a character mode adventure game like Clossal Cave, then you are old, out of date, perverted.

In fact, this kind of thinking is wrong. Although you are a determined Linux supporter, your mind is the idea of Windows. You think that the graphical interface, menus, and buttons can solve all the problems, and you can be efficient and convenient. You have to be a determined GUI pie instead of a CLI pie... You still haven't gotten rid of the imperceptible things that Microsoft has given you. You can't live without the environment like Windows. You are afraid of symbols. You will delete your Linux sooner or later.

GUI vs. CLI

UNIX and Xwindow are a family

Do you see this title is boiling? Both pie prawns can besiege me:

The GUI sends the user: "Wow! I saw you this kid is the CLI. Otherwise, what do you write your own Makefile? What Mutt?"

CLI sends users: "Cut ~ you still use X! Master does not use X. You are on the GUI side."

Poor me: "555~~ you don't want me~~ GUI and CLI are so incomprehensible?"

There are still many sects in the computer world. The features are the CLI and the GUI. The fan of the CLI (Command LIne) claims to never use X. I last saw a classmate in the lab logging in to the Sun machine with a SecureCRT, and then using a vanilla vi editor, I suggested that he launch a GVIM to show that there is syntax highlighting on Exceed. But he resolutely opposed it and said: "Masters don't need X. Think about it, if I use X on a very slow network connection? And many servers don't have X programs installed."

But our labs are fast enough, Windows machines are Exceed, and Sun machines have a full suite of X clients including GVIM. He said that he is a strong advocate of the CLI, but he is using Windows, he later opened several SecureCRT, each time enter the address, username and password from the text box, select "SSH2" from the drop-down menu, and then click "Connnect" . He also constantly praised SecureCRT as "the most popular login method selected by network administrators." God, SecureCRT itself is a GUI, he is actually a GUI.

You said that I am a GUI? I rarely work under the console. But I am familiar with bash, VIM, I can make bash work according to my key binding. I can use Mutt to send and receive emails in rxvt. I often have a dozen different sizes of rxvt on each of my desktops. I edited LaTeX with VIM. I write the Makefile myself to maintain the LaTeX documentation. I sometimes use mpg321 to put mp3. I used the expect script written by my own BBS to define a lot of hotkeys. I can change my signature file and description file randomly by Ctrl-H. My expect script has advanced auto-reply function, and even can be faked, so that you can't see that I am not there. You may have a 10 minute chat with my robot to find out that it is not me: p Ok, CLI friends Can accept me as an ally :)

You said that I am an antique of the CLI? My FVWM is configured by me to be "handwritten". I can start rxvt by drawing a "r". I can start GVIM by drawing a "U", ... I use GVIM syntax to highlight the mode editing program, I Browse the web with Mozilla,... The GUI pie now seems to recognize me as a friend :)

All right. Friends of the CLI, although I like the command line very much, I sometimes do it by drawing on the screen:

```
Module FvwmConsole -terminal rxvt -geometry 45x5-0+0 \

-bg gold -fg midnightblue \

-fn "-adobe-courier-medium-r-*-*-14-*-*-*-*-*-*-*"
```

Are you trying to drive me out of the division now?

GUI party friends, although I like windows very much. But I can type in FvwmConsole:

```
All (rxvt) MoveToDesk
```

Move all my rxvts to the desktop I am working on now. "This guy, how can I betrayed so quickly!"

In fact, why both GUI and CLI, UNIX and Xwindow are industry standards, they have a very flexible usage from the day of design, and each program, whether it is GUI or command line, can work together. UNIX and X are ones, why bother to be so extreme, either or both? Can you see the fuzzy boundaries of GUI and CLI from my behavior above? You said that I am a "flower radish"? The heart is spent. Hengheng :P

What is the true meaning of UNIX?

Let smart people do whatever they want.

One of the characteristics of UNIX is its very high flexibility, XwiNdow also has this flexibility. Where is this flexibility reflected?

UNIX programs generally have a lot of parameters, no matter what you don't need now, there are always people who need certain parameters. Many of their behavior can be changed with configuration files. For example, GNU bash, usually the default command line input method is Emacs mode, but as long as I edit an .inputrc file, I can turn it into vi input mode, and I can also bind the key sequence to some operations. I can use shopt to set many of its features, such as whether to perform wildcard expansion, whether a variable can be used as a directory to cd, whether it can automatically correct some obvious directory name typing errors...

The idea of UNIX programming is to provide users with "mechanisms" without restricting users from making "policies." This is an important respect for the user.

Let's take a look at Xwindow. Xwindow is an excellent design that separates the display server from the client. A display can display both the program on the machine and the X program on other machines, and they all follow the unified command of your window manager, and can easily transfer the clip data, various events between them. ...... For example, sometimes on my XFree86 there will be XTerm on four different machines, GVIM on two different machines, ... they are uniformly directed by the FVWM on this machine.

Xwindow programs have many, many command line arguments and resource arguments. You can freely set all the colors, fonts, sizes... on the command line or the .Xdefaults file... and if you import .Xdefaults to the root window with xrdb, then the same program is not configured on other machines and is displayed to you. The same appearance rules are also observed on the machine.

Xwindow's windows have Property, which is some shared data (atoms) that you can define yourself. It is because of the existence of these properties that Xwindow has tremendous vitality. There is no uniform protocol between X's window manager and other client programs, but ICCCM (Inter-Client Communication Specification) has emerged, which is defined by property. Now someone has defined a set of "EWM Hints" that allows Xwindow to have certain Windows features, such as a toolbar program that tells the window manager: "This screen is occupied by me 24 pixels below. Space, don't cross this line when you maximize the program."

A powerful window management program such as FVWM, when it receives such a prompt, can agree to this requirement of the toolbar program, or it can not. Who is the power of all choices? Of course it is the user! Everything is obedient, FVWM gives the user the greatest respect.

Think about it, is it true that some Windows programs often pop up a window asking you to choose "Yes or No"? You won't go without clicking on it. Do you feel that your program is invading your dignity? You are a person, a wise creature, how can you be treated like this?

There are also many Windows programs that treat people as fools, and it is a "smart program." For example, if you have a program that likes to capitalize the first letter of every sentence, I don't know who it is, you will know when you encounter it. If the obvious question of "starting with a letter at the beginning of a sentence" requires the program to

help you correct it, what is the human brain doing? Moreover, if you deliberately want to not write, then it is even more troublesome, I did not find out how to close this stupid option from its large menu.

Only symbols can fully manipulate the computer.

Let's talk about a lot of users who are new to Linux. Although they are using Linux, they feel that Windows works in a good way. They hope that Linux will one day be like Windows. You said, "I clicked on the mouse, I pulled the menu, I can finish my operation." But I want to tell you: "Linux has never imitated Windows, and will not. In the future, Linux will be from its birth. The way of working is more advanced than Windows. Linux is a person who can bravely face symbols. Only symbols can completely manipulate the computer."

Look at the excellent UNIX programs, XFree86, FVWM, VIM, Emacs, proftpd, Mutt, wget, tin, ... No one does not use configuration files to set options. Why are there no convenient menus for these programs to configure? Isn't their designer so low-powered, can't even write a graphical configuration interface?

of course not. Because the ability to configure graphical interfaces is extremely limited, the ability to express configuration files and programming languages is limitless. If you want to use the graphical interface to configure these programs, if you want to achieve the effect of the configuration file, you need hundreds of menus, checkbox, radio button, ... When you can't find the place you need to modify! The syntax of the configuration files of each program has many similarities, generally some commands, set some variables, parameters, ... once used, one will be easy to understand. If you are used to awk, sed, Perl, you will think that is the real automation.

Although the mouse is a good tool, its ability to express is limited. You can't let the computer fully understand what you mean with a mouse. It only has 3 buttons. Take a look at my MetaPost page and you will be able to appreciate the weakness of the mouse. So although we like the mouse very much, we can't rely on it completely.

Perfect fit for each small program

This is the most important feature of UNIX, it is the idea of UNIX design. Let each program have only one specific capability and then let them work together. Xwindow also inherits this good tradition.

This is probably the place where Windows and other operating systems look at the dust. The unification of UNIX programming, perfection, makes me unbelievable! Shell, grep, find, awk, sed, make, Perl, Emacs, vi, tin, Mutt, ... they are so consistent! Once you have learned the regular expression of sed, other programs can basically be used. Once you learn vi and VIM, you will find that its operation is so regular. It seems that the designer of vi has designed VIM's perfect and unified operation method today. And the operation of vi is also reflected in many programs such as Mutt, tin. You can even type bash as the input method for vi to enter the command line, which is what I did. A program can call another program to get the data.

You can return the data to it and return it. You can "embed" another program in your own window.

This collaboration is very difficult in Windows and other non-UNIX operating systems. I used Perl for some automated work under Windows. However, the file operation of Windows, the pipeline is so unstable, and the programs basically cannot cooperate. You don't want to embed the UltraEdit editor in the Visual Studio window. You don't want to use an expect script to control telnet to Shuimu Tsinghua BBS, which is why helloooo was born on Linux instead of Windows. I tried to log in to the Sun machine from Windows + Exceed + SecureCRT ssh and then passed the X program to Exceed via the ssh tunnel (X11 tunnel), but it didn't work for two days! Under Linux, this thing is not configured at all. OpenSSH and XFree86 are the perfect combination. Just open ssh's "forward X11" option and you're done.

Windows programs are large and large, large and complex. All email programs need to provide their own editors, send and receive emails themselves, and display attachments for emails themselves. Each BBS program provides its own Virtual Terminal, its own communication code. Each IDE provides its own editor, compiler, assembler, and debugger. In order to use a new program, people need to adapt to all of the interfaces it provides, and can't use the key bindings of their favorite editors, menu organization... can't DIY!

You have to know that the most advanced computer is customized. What CPU, motherboard, memory, hard disk, keyboard, mouse, and monitor are all you choose. The most advanced skateboard, what brand of plate do you want, what brand of sand, what bridge, what wheel, what bearing, are also their own choice. The most advanced table tennis bat, wood, rubber, sponge, glue can be chosen by yourself... And with the Windows program, you get a hodgepodge, just like you buy a "brand machine", only a few configurations, and a lot of You don't need software and services; just like you buy an assembled skateboard, you want bigger wheels and a narrower board, but you don't have this choice! The Windows program is equivalent to the cheapest, most time skateboard. But it will cost you more money, because once a part is broken, or you don't like it, you can't find another one to replace it, you have to buy a full set of accessories!

And UNIX and Xwindow are high-end "assembly goods." For example, when I use Mutt, I can use VIM or pico to edit emails. I can use ImageMagick or xv to display the attached images. I can use lynx to convert HTML attachments into text embedded windows. You can pass the HTML attachment to the Mozilla graphic display. I can let GnuPG help me digitally sign and encrypt my mail, and I can use other PGP programs. I want Postfix instead of sendmail to send me an email. I want fetchmail to send me the mail, forward it to postfix, and then I will handle it by my own Perl filter... I can do it all! I can choose my favorite special program to do the special work, then combine them, I can also get their benefits separately.

in conclusion

What is the purpose of writing so much? I hope that friends who like Linux completely eliminate the paradox that Microsoft and Windows instill in your mind, don't trust what they call "new technology", don't catch up with Windows, because chasing Windows = backwards. Marx has a very important idea. "New things don't necessarily appear recently." UNIX, Xwindow, and TeX all appear before Windows, but they are the representatives of

advanced productivity. We need to clearly understand what is truly modern and what is truly automation.

Bravely pick up like bash, FVWM, TeX, VIM, Emacs, Mutt, lftp... This powerful program is brave to face symbols. Don't blame "Why can't Linux be like Windows"? Don't waste time trying out programs like this, don't worry about upgrading. What needs to be changed is yourself, not Linux and Xwindow. Linux can be your good friend now. You need to know it, understand it, trust it, and rely on it to work efficiently and save time to deal with things that are more worthwhile in the world.

Appendix: Linux programs I use to handle everyday transactions

OK OK. I know that you find yourself turning to Linux, and you regret why you were in Microsoft. But don't worry. Because these things are just tools, they are used to assist you with your main tasks. You have chosen the wrong tool before, it doesn't matter. You still have your own professional skills, that is the most important. The tools only slowly adapt to the conversion, you can't do it overnight, otherwise you will feel very boring and even give up.

Here are some recommended programs that can handle general things. As for the science and engineering software you need to use in your profession, such as Matlab, Mathematica, Maple, HSpice, Design Compiler, ... and other physical, chemical, biological... there must be Linux and UNIX. version. Of course, many of them are not free. Don't always think that everything should be free. They are the product of many people's hard work, reliable procedures, and they are worth the money.

Below are some of the Linux programs I use. There may be a lot in a list, it is for your convenience, I listed more trustworthy. But in fact, many of the first ones are what I really use. I don't like the trial program.

- Shell: bash. I use bash's vi command line.
- Editor: VIM, Emacs
- Program development: GCC, make, ld, Scheme48, j2sdk, Perl, Python, Tcl/Tk ...
- Papers, slideshow tools: LaTeX, ConTeXt
- Drawing tools: MetaPost. This language is so strong that I only use it. If you are not familiar with it, you can use dia to draw some pictures like flowcharts.
- Image Processing: ImageMagick. Where importThe program can capture images on the screen, convert program can convert image format, display can display images and simple editing (zoom, change quality, format, simple drawing, simple reflection). Usually I need it. If you want a more powerful image tool, you can use Gimp, which is almost the same as Photoshop.
- Automatic management tool: make. I can use make to automatically compile the program, automatically compile the document, automatically update the illustration... fully automatic, and will not repeat the work.
- Encryption program: GnuPG. My PGP key is what it came up with, I used 2048 bit encryption.
- Packing, compression program. Everything is: tar, gzip, bzip2, zip, rar, ...
- Virtual CD-ROM program. Linux does not require a virtual CD-ROM drive, just mount it.
- ftp server: proftpd, vsftpd
- WWW server: apache. (I don't usually open)

- ftp client: lftp
- Automatic download tool: wget
- Virtual terminal: rxvt, xterm, gnome-terminal, mlterm, ...
- X server: XFree86
- Window Manager: FVWM. Compiled to join libstroke.
- Chinese input: XSIM. I have modified it to suit the needs of FVWM. It is also recommended that you also use SCIM.
- Email Processing: Mutt + Postfix + fetchmail
- See PDF, PS, DJVU files: Acrobat Reader, xpdf, GhostScript, gv, djvu toolkit and netscape plugin.
- Look at the CAJ documentation. I never look at documents like CAJ. If I can't find PDF or PS, I can go directly to the library to borrow the best.
- See the webpage: Mozilla, Phoenix, lynx. Mozilla-Xft is much better than IE.
- English-Chinese dictionary: IBM Smart Dictionary, Star Translation.
- Edit webpage: I use VIM to write HTML directly. If you want a graphic way, you can use other things like screem, BlueFish.
- Log in to other UNIX, Linux machines: openSSH, telnet. openSSH can also transfer the X programs of other machines to the display on my machine through the ssh encrypted tunnel.
- On BBS: rxvt (or any kind of terminal) + telnet + chatbot (helloooo robot program)
- QQ, ICQ: I don't have QQ or ICQ. But you can use Gaim, which supports QQ, ICQ and many other instant messaging methods. ICQ users can also use Licq.
- Put video: MPlayer, RealPlayer. MPlayer is great, you can put VCD, DVD, divx, wma, wmv directly... Students who use Windows are envious of me, saying that Windows needs a lot of plugins to put this. Rm is best to use realplayer, it is also free.
- Put music: xmms (mp3, ogg can), mpg321 (put mp3), ogg123 (put ogg).
- Look at the Word document. Please use the Word user to convert the document to PDF or PS and give it to me. If there is no special format in the document, use the text file, or I will not watch :P
- Other programs: There are a lot of things I need to use that you don't have to use. For example, Doctor Scheme, Scheme48, Scsh, ... these programs only have Doctor Scheme with Windows version. There is still a lot of behind-the-scenes work but you generally don't notice: xinetd, telnetd, sshd, crond, atd, lpd, ... they are much better than the counterparts of Windows.