Bob Young

CounterPoint

Why Linux Is Important to You

When *IEEE Software* asked me to contribute to a debate between advocates of Linux and NT, my reaction was one of genuine surprise. If IEEE thinks there is a debatable issue between open standards as illustrated by the Linux OS and the proprietary standards as implemented in NT, then, as the saying goes, Houston, we have a problem.

Open Standards

IEEE is a standards body. In effect, a standards organization is an attempt by users to gain at least some small amount of control over the suppliers of the technology they are using. Standards bodies do immensely valuable work enabling technologies built and promoted by intense competitors to work together once the customer takes them home and tries to use them. This is the whole idea behind open systems: Giving the user control.

Quite simply, Linux takes the concept of open systems to its logical extreme. Whereas traditional industry standards bodies like the IEEE publish standards that commercial vendors refer to when building their "open" systems, the Linux development community builds real-world reference implementations that can be used as is.

Open systems, and the open standards that that concept is based on, constitute the most effective tool ever invented for the rapid evolution of technology, and the open-source model that the Linux OS represents is simply the most effective implementation of open systems yet devised. But I'm getting ahead of myself…

When we get into debates about which OS is more reliable, more secure, and a better value (lower cost of ownership), I could explain how and why Red Hat Linux wins handily in each of these categories. But those arguments are as irrelevant as the one about whether the MacOS is easier to use than Windows (it is). The better technology seldom wins in the marketplace unless it represents greater benefits to the user than the alternatives.

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Control and Connectivity

So what are the important benefits Linux users gain, that they cannot have when using proprietary, binary-only OSs? The answer, again, is control.

Linux is used in millions of applications to solve problems that proprietary binary-only OSs cannot. One of the most important of these is connectivity. As AT&T found way back in the early 1970s, getting proprietary, binary-only OSs to talk to each other is not easy.

AT&T had at that time been trying to get minicomputers from a dozen vendors to work together. The company reasoned that if it could develop a single OS that could run on all the various machines they owned, connecting these would be a lot easier than trying to persuade a dozen different computer vendors to work with their competitors' protocols.

This AT&T OS project was called Unix. It is not coincidental that Linux has adopted all the Unix standards as its design blueprint.

The same problems that faced AT&T in 1970 still exist, and in the same way that Unix helped AT&T solve their connectivity problems then, Linux is solving millions of similar connectivity problems today. For example, if you want to build a print server that would allow all your workstations to print on any printer on your network, you'll need an OS that can talk to Windows 3.1 machines, NT machines, MacOS machines, Sun Solaris machines, Java-based machines, IBM AIX machines, and so on.

As anyone who has had to manage a heterogeneous network knows, proprietary OSs have a bad habit (learned in kindergarten, no doubt) of not behaving well with others. The reasons for this vary; perhaps the most common is simply that vendors do not have much incentive to work on technology that aids their competitors.

Using tools such as Samba, Apache, NFS, FTP, LinuxConf, and dozens of others, a Linux-based machine can connect to almost every kind of computer system and network in use today. There are so many tools available that Linux is often called the platypus of operating systems.

You Win

In previous competitive battles in the marketplace, broken standards and technology decisions made by marketing executives meant consumers were often the losers. In the competition between Linux and NT, the consumer wins, because Linux works openly and effectively with any known protocol and standard, or it can be made to do so by its users. Consumers can use both Linux *and* NT with full confidence that their applications will always continue to communicate because, on the Linux side, they can modify the technology as required.

As long as binary-only, proprietary operating systems dominate the market, consumers will never realize the benefits that our rapidly growing user community has come to expect from Red Hat Linux—namely, that they control the operating system layer of the systems for which they are responsible. ❖

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Roger Responds

Bob has confused three unrelated topics: open standards, open systems, and open-source code. I have no argument with the first two of these. Open standards, where they promote interoperability, are great. Open systems, where they promote multiple vendor plug-ins, are wonderful. Open-source code is, for most customers, a disaster waiting to happen.

Bob says Linux gives programmers "complete control" by letting them modify the underlying operating system. Any company that allows this had better figure out not only how its programmers will modify its systems, but also how it will debug its modified systems, coordinate its system modifications, maintain its modified systems, and port its modifications to future versions of Linux.

These are difficult problems to solve. Companies that choose this questionable path had better hope their programmers never leave, because those programmers will be the only people in the world who will understand how the company's mission-critical operating systems work. If those OSs go down, their business goes down. And stays down.

Bob says that Linux systems have a lower total cost of ownership than NT because the OS is free. This is a naive view of total cost of ownership. I have already discussed this and will only add here that any "cost savings" due to the free OS will be spent a thousand times over in increased system maintenance costs.

If I am a bank, I want to build banking systems. Not operating systems. Building banking systems is plenty difficult enough.