Abstract – **Linux vs. Windows on the Desktop**

Aram J. Agajanian (agajania@cs.newpaltz.edu), SUNY New Paltz

We have been using computers on desktops since the early 1970s. Through this time period, we have seen some enduring operating systems developed such as MVS, Unix, DOS, MacOS, and Windows. (We have also seen some OSes that have not endured, such as VMS, CP/M, AmigaOS, and OS/2.)

What are the reasons for the success of a desktop operating system? First, it has to be available. There should be a significant portion of computer users who have the means to use it. Second, it has to be functional. There should be useful applications that run on the OS. The degree to which a desktop OS meets these two criteria relative to its competition determines its success.

Today, Microsoft Windows has a dominant share of the desktop operating system market. It has attained this position for the following reasons. First, Microsoft has successfully negotiated agreements with computer manufacturers to pre-load Windows on new computers. Second, De-facto standards set by Microsoft have made it easier for hardware and software vendors to support Windows, ensuring a large selection of applications. Finally, Microsoft has produced a product of sufficient quality to keep potential competitors (i.e. MacOS and OS/2) at bay.

The Linux kernel, along with a large collection of other open source software, has emerged as a possible competitor to Windows in the Desktop Operating System market. The open source licensing of this software encourages wide availability. Furthermore, the open source development paradigm has shown that it can produce quality application software, such as Firefox and OpenOffice.

There are aspects of the open source licensing of Linux-based operating systems that have detrimental effects to its success as a Desktop OS. There are several major Linux distributors, each of which has its own distinguishing features. Standards, such as the Linux Standard Base, must be set by an external organization. Also, software developers have concerns about how commercial applications will compete on an open source OS platform.

If we analyze software components within Linux and Windows, we can compare the current state of each. This can give an indication of the ability of the operating system to work well today and adapt to future requirements. Specifically, video, security, and management interfaces are important features for desktop operating systems.

An important additional aspect of the availability of Linux-based Desktop OSes is marketing. Awareness about Desktop Linux must be raised among potential customers who might benefit from it. A major marketing initiative of Desktop Linux has not yet occurred. Some OS vendors have started to pre-load Linux on new computers, but it is still a small share compared to Windows.

For Linux-based OSes to make gains in the desktop operating system market, customers will have to recognize substantial gains in efficiency due to superior software. This will be aided by the flexibility of open source licensing, with the exceptions noted above.