Why Can't Linux Catch On?

I RECENTLY INSTALLED A SOLID-STATE DRIVE (SSD) IN AN AGING NOTEBOOK COMPUTER AND, AFTER MIGRATING WINDOWS 8 FROM THE EXISTING HARD DRIVE TO THE SSD, I INSTALLED THE LATEST VERSION OF LINUX. FOR THE PAST SEVERAL YEARS, I HAVEN'T HAD A COMPUTER THAT RUNS LINUX AND I WONDERED WHAT HAD CHANGED. EVERYTHING, AS IT TURNS OUT. AND NOTHING.

	WINDOWS					APPLE		LINUX		OTHER		Windows Tot	Apple Total	Linux Total
	Win 8	Win 7	Vista	XP	Other	OS X	IOS	Desktop	Android	OTHER		Windows Tot	Apple Total	Linux Total
Net Market Share	2.71%	38.27%	4.27%	33.14%	0.46%	5.94%	8.87%	1.00%	3.59%	1.76%		78.85%	14.81%	4.59%
StatCounter Global Stats	3.90%	52.61%	6.13%	23.38%	0.25%	7.29%	4.03%	1.00%	1.12%	0.34%		86.27%	11.32%	2.12%
W3Counter	3.41%	43.09%	5.01%	21.67%	0.00%	8.25%	10.54%	2.05%	4.32%	1.66%		73.18%	18.79%	6.37%
Wikimedia	2.60%	34.12%	4.06%	14.31%	0.56%	6.71%	25.19%	1.46%	6.19%	0.60%		55.65%	31.90%	7.65%
									Data from March 2013 (Wikipedia)					
Min	2.60%	34.12%	4.06%	14.31%	0.00%	5.94%	4.03%	1.00%	1.12%	0.34%		55.65%	11.32%	2.12%
Max	3.90%	52.61%	6.13%	33.14%	0.56%	8.25%	25.19%	2.05%	6.19%	1.76%		86.27%	31.90%	7.65%

Market share hasn't changed much, or maybe it has; it depends on what kinds of devices you include in determining market share. Limit the systems you're comparing to just desktop computers and the clear winner will be Microsoft, with Apple's OS X a distant second and Linux picking up 1% to 2% of the market share. Add mobile devices, though, and Linux-based devices suddenly have nearly 8% of the market, with 11% to 30% for Apple and 55% to 86% for Windows.

It's clear from the widespread panic that ensued when Microsoft introduced Windows 8 that many computer users don't want anything to change. So although a Linux-based computer can easily run applications that will perform most of the tasks that most people need, it's unlikely that Linux will emerge from the basement anytime soon.

Although corporations might like to save money by installing a free operating system and using a free office suite, they're unlikely to do so because it's hard to find Linux administrators. It's easy to find people who are certified Windows professionals, though.

The Advantages

LINUX DOES OFFER CERTAIN ADVANTAGES BEYOND COST. RELIABILITY, SECURITY, AND PERFORMANCE ARE THREE OF THESE.

Unlike Windows, Linux doesn't store all of the important information about the computer in a large repository; instead, it uses individual configuration files. More files means that there are more chances for something to go wrong, but when something goes wrong with a Linux machine, usually just a single component is affected.

Security is generally better, too, because Linux is based on Unix and, therefore, assumes multiple users and strictly enforced permissions. And because Linux can usually out-perform a Windows system on equivalent hardware, users may not need to spend as much on hardware.

Until recently, Linux could start and shut down much faster than Windows. With the advent of Windows 8, this advantage is less pronounced and, on a computer with a solid-state boot drive, the difference is negligible.

Although Microsoft improved the update process with Windows 7 and improved it again with Windows 8, Linux still has the advantage. Linux can track updates to applications as well as updates to the operating system. You'll be notified when there are updates and obtaining them consists of a single click that instructs the updater to start. When a new version of the operating system is available, it will be offered, too. The download is automatic. The update is automatic. And you can continue working on the machine during most of the process.

If you need a computer, but you don't require any Windows-specific or Mac-specific applications, maybe it would be worth your time to consider Linux. Ω

SSD Spells Speed, Even for Older Computers

Many large corporations expense computers over 3 years but smaller companies often want to keep older gear working for 4 or 5 years, or more. The trouble with older computers is that, when compared to new gear, they seem so slow. A solid-state drive (SSD) can give an older computer several years of extra life by making it faster.

Computational tasks won't be any faster, but boot time, shutdown time, and application start time will all improve. So will the time required to load documents. For $200–$400, you can replace an older hard drive with an SSD and, yes, this is something you can do yourself.

Instead of a spinning platter, an SSD consists of a lot of memory. It's more expensive than a standard drive and it's also more rugged. Nothing moves and this has 2 advantages: The first is speed because there's no need to position read-write heads over the proper sector of a spinning disc. The second is ruggedness and for the same reason.

The process of speeding an older computer is easy. I did this recently with an aging Toshiba M645. It's a Satellite model—a good middle-of-the-road device. They're not the fastest computers that Toshiba makes. Nor are they the smallest and lightest. They're small enough to carry, large enough to have a good keyboard, powerful enough to run power-hungry applications such as Photoshop (in a pinch), and good for presentations.

When the drive I ordered from Crucial arrived, it was in a padded bag instead of a padded box inside a larger box with a lot of packing material. These drives are rugged.

You can order a transfer kit with the drive. This consists of a SATA-to-USB cable and software that can be used to clone the disk. I needed a bit of help from Crucial to get the process started, but after that it was essentially automatic.

The cloning application was careful to ensure that I had properly identified the source drive (a Hitachi drive inside the computer) and the destination drive (the Crucial SSD). It asked for confirmation a total of 3 times. Having been on the wrong end of a disk format at least once, I appreciated the extra care that the developers took to make sure that *a very bad thing* would not happen to the disk drive in the computer.

The cloning process ran for a bit more than 2 hours and then it was time to swap in the new drive and swap out the old drive.

Crucial's documentation is clear about the next step: Turn the computer off and do not reboot it with both the old and new drives attached. Doing so could cause some serious problems, so prior to restarting the computer, it's important to remove the old hard drive and install the SSD in its place.

Most computer manufacturers make this easy and Toshiba is no exception. I removed 1 screw, opened the cover, pushed the old drive to the right to disconnect it, lifted it out, dropped the new drive in, pushed it to the left to connect it, put the cover back on, and booted the system.

That's it. The new drive booted and all of the applications that needed to be activated (Windows, the Office suite, Adobe applications, and such) were still activated.

Pricing SSDs

Solid-state drives are still pricey. You'll pay 80 cents to a dollar per gigabyte, compared to about 5 cents per gigabyte for standard drives.

So a 120GB SSD sells for about $100 and, if you can find a standard drive that small, you shouldn't pay more than about $30 for it. SSDs are commonly available in 256GB and 512GB sizes at $200 and $400, respectively. Comparable standard drives would sell for $60 to $100.

If you're thinking about an SSD for a desktop system, consider using a smaller SSD for the operating system and all applications, but store data on standard drives. This provides the fast-boot advantage and allows programs to start quickly but retains the lower price for storing data.

To Defrag or not to Defrag?

If you install a solid-state drive, you'll want to check the operating system's disk defragmentation settings.

Any version of Windows before 7 will try to defragment the SSD and that's not a good thing. Instead of helping make the drive faster, defragmentation can cause problems so Windows 7 turns it off by default. In Windows 8, defrag is turned on again and you want to leave it on.

That's because Windows 8 will recognize the solid state drive and won't run the kind of defrag process that would be run on a standard drive. For SSDs, the Windows defragmenter sends what are called "trim hints" for the entire volume. SSDs can be written at the byte level, but they need to erased at a block level.

In plain English, that means that SSDs need to read hints from the file system so that they can reclaim partial blocks that are marked as occupied. When the Storage Optimizer detects an SSD, it sends trim hints for the entire volume when the drive is idle. So, for the most part, the operating system will get the settings right, but it's still a good idea to check it out. Ω