Netscape Navigator, the widely-used Web browser, has a product feature that I think should interest the makers of popular operating systems and of other products.

But first, let's look at the reliability of today's most widely-used operating systems.

At a recent conference, I asked a quality assurance expert from Microsoft how often, on average, Windows 9x machines crash per day.

He said he didn't know but would try to find out. Dr Peter Neumann, editor of the RISKS Forum Digest, wrote last year that "...many other folks report that various [W]indows versions typically require a reboot as often as every week or two [See RISKS 20.24]." In contrast, colleagues around the lunch table chimed in with a wide range of estimates from twice a day to once every two days. Everyone laughed when I pointed out that a rollover problem with a counter in the operating system meant that no Windows 9x system could run longer than 49.7 days [see http://catless.ncl.ac.uk/Risks/20.24.html or http://support.microsoft.com/support/kb/articles/q216/6/41.asp ] -- the very idea that a Windows 9x system could possibly run without crashing long before that limit struck everyone as ludicrous.

I suspect that no one knows in any detail just how often and why Windows 9x systems are crashing. Even if Microsoft were to survey users by phone, by e-mail or using a Web form, I think the data would be flawed.

The brutal fact is that Windows crashes so often that an entire generation of computer users think it's normal for an operating system to crash at least a few times a week. Yes, I know that part of the problem is that there is no security kernel, so that all programs run as root and can make changes all over memory, even in other processes' stacks and pointers. In fact, many application programs even have the temerity to replace some of the system files to suit themselves, regardless of possible effects on other programs.

In contrast, when I ran a data center in the 1980s, the HP3000 systems we used as we serviced 1,000 users crashed so rarely -- perhaps once in several weeks or months -- that every event was logged and reported to HP. We took core dumps and we ourselves or HP technicians read them to determine exactly which process had caused the system failure. HP recorded the problems and published a biweekly magazine called the Software Status Bulletin to warn users of known problems and propose patches or workarounds if possible.

This system also allowed HP customers to judge when it was safe to install new revisions of the operating system -- our data center waited until the number of new problem reports per month had dropped to the baseline with which we were comfortable.

Now granted, there are many operating system and application program bugs that are indeed reported in the Microsoft Knowledge Base, and I do congratulate the company on its commitment to customer service. Nonetheless, I guess that a lot of people, like me, simply
reboot our systems with a snarl and don't even bother telling the vendor that there was a problem.

I think it would help everyone if Microsoft could have a wider picture, preferably in real time, of what's making their operating systems crash.

Back to Netscape. The function of interest is called the Netscape Quality Feedback Agent; here's the text it provides to explain the function:

> This is a feature that allows you to send information about a problem you are having back to the Netscape developers that will help them to improve their products. The Agent uses Talkback™ technology from Full Circle Software.

Communicator activates the Agent to gather information that will help solve a problem or improve the product. When the Agent is activated, it collects useful technical data and automatically presents an information window where you can enter your comments. All you have to do is click the Send button, and the Agent sends the information to Netscape over the Internet, using encryption and a secure connection to ensure privacy. Netscape uses the kind of information collected by the Agent to debug, upgrade, and improve their products. You can see everything the Agent sends before it is sent. <

I suggest that operating-system manufacturers -- and perhaps the creators of other kinds of software too -- offer users this option to enable automatic logging and communication of failures to the parent companies.

Many users would be glad to enable such a function as long as the load were not too onerous on the connection (an unlikely problem) and if they were convinced that the company were genuinely protecting their privacy. Such protection could be achieved by using the unique processor ID available in new-generation processors and refraining from linking processor IDs to real-world data.

With a bit of effort, companies would be able to concentrate their efforts on the bugs causing the most frequent system crashes in the real world instead of depending only on the people who bother to send in problem reports.

In an ideal world, such statistics would actually be published openly so that users could monitor the state of new operating system revisions and make informed choices about when to upgrade their systems.

Let's hope someone is listening out there.

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