Proactive Problem-Solving
with Toshiba System Monitoring

Introduction: The Unexpected Failure

There is often a moment of shock and fear when users discover their computers are "acting up," particularly if they are in the middle of a critical task. If you're in middle of creating a business report or spreadsheet, finishing up an expense report, or inputting data into a company back-office system or application, that slight delay or hiccup can herald failure and data loss.

Often, the user sees only a glitch in the system and may not be able to ascertain immediately whether the problem is minor and transitory (e.g., it gets fixed by the operating system), or something serious and about to cause a dreaded system crash.

Differentiating between minor and major when it comes to computer issues, and discovering what to do to correct the issue, is a major benefit of self-monitoring and early warning systems, which are increasingly becoming the norm in business-class systems. Along with well-engineered and reliably built hardware and robust systems software, adequate monitoring and alerting are key components to keeping business machines up and running and working at maximum efficiency.

Toshiba laptops are designed for superlative reliability and durability, but over the course of time, problems can occur. To help users solve them, Toshiba has created one of the best monitoring and alerting systems available for its business-class machines. Now in its fourth generation, Toshiba's EasyGuard® Technology adds a key component, PC Health Monitor, a proactive application that monitors PC status continuously and alerts users to potential problems or impending failures.

Inside PC Health Monitor

PC Health Monitor provides a number of alerts in a user-friendly, dashboard-style informational console. The feature uses statistical analysis to determine which conditions should trigger the various alerts and messages to the end user. Toshiba devised these methods by analyzing usage trends in different notebook components and establishing baseline norms. PC Health Monitor tracks these components and reacts if it detects a noteworthy deviation.

Toshiba has analyzed vast amounts of data to learn what constitutes a potential failure. Of course, this is an ongoing, evolutionary process, with more and better data generating more and better alerting functions while adding capability to more and more critical system components over time.

In its current iteration, PC Health Monitor tracks a number of important functions that are critical to maintaining the health of any laptop. These include:

- How well the system is being cooled, to prevent premature and/or permanent damage to critical components like the CPU, memory, and other parts of the chipset.

- How well the battery and electrical systems are functioning, both in terms of keeping the battery charged and maintaining its long-term capacity to power the device at peak efficiency.

- How well the hard drive is being protected from bumps and drops that could result in damaged data sectors or even complete failures, and from shocks that could lead to permanent damage to the disk surface and the important data it contains.

Predicting and protecting against such failures is mission-critical. Proactive maintenance and early detection can reduce downtime, reduce failure rates,
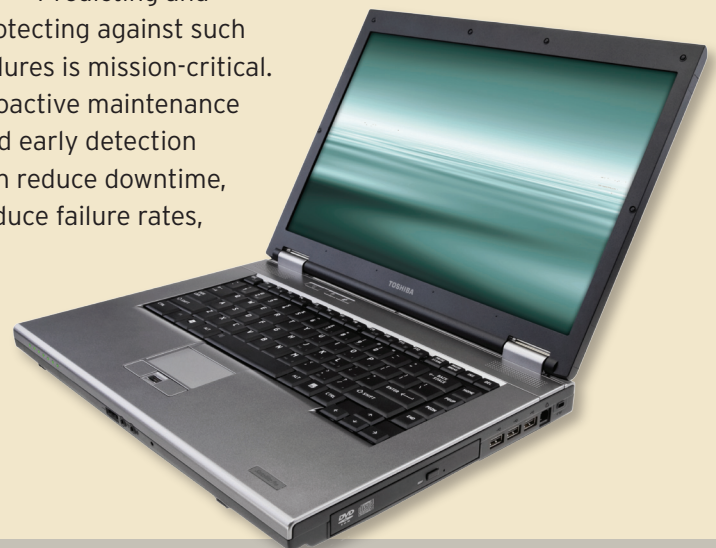
and substantially lower overall cost of ownership. Such capability should be an integral part of any business-class laptop.

PC Health Monitor in Action

PC Health Monitor runs continuously in the background, transparent to the end user. The user does not even need to know the application is running unless there is something wrong with the machine. In essence, PC Health Monitor behaves much like the trouble indicators on the dashboard of a car.

Let's take a look at a potential cooling problem. For whatever reason, the fan may enter a high RPM state for a short period of time—indicating that the chipset is running hotter than usual—and then return to regular cooling speed. This one-time occurrence may have been caused by a blockage in air flow; once it's corrected, the fan goes back to normal speed and the problem is solved. However, if it happens again, the monitoring system will flag the error and will also determine that this error has occurred previously.

The user then sees an alert on the bottom of taskbar, stating, "The cooling function needs to be checked. Please click here to see alert." When the alert box is clicked, PC Health Monitor opens and a dialog box indicates that the fan has been running at a higher-than-expected speed. The dialog also offers to run a quick diagnostic on the fan; the user must accept or cancel.

If feasible, the user will typically plug in the AC adapter and run the diagnostic. The machine will run a self-diagnostic test of high and low fan speeds, checking the speeds and currents. An algorithm then analyzes whether the machine goes above a certain temperature with the fan running at high speed, and if this might be an issue. PC Health Monitor then generates a report.

The report may indicate that the laptop is running within normal parameters, or it may find that there is a problem. In the latter case, PC Health Monitor will recommend actions to the end user, such as cleaning out the exhaust slots or dusting the fan itself. It may also suggest that an external condition is blocking airflow to the machine's internals—for example, if the laptop is situated on a pillow—and thus causing it to run hotter than normal.

Armed with these suggestions, the user can resolve the problem in many cases, or at least rule out basic (and thus inexpensive) fixes before escalating the call to a service center or helpdesk technician. Either way, the company saves valuable time and resources.

Conclusion

Preemptively diagnosing and eliminating problems that may occur in mobile computing scenarios is becoming a key differentiator between run-of-the-mill machines and truly business-oriented, robust, and reliable workhorses. Toshiba believes in making laptops that are easy to use and easy to maintain. With EasyGuard and PC Health Monitor built into their core DNA, Toshiba's well-engineered systems provide superlative functionality and lower cost of ownership for today's businesses.

For more information, visit http://explore.toshiba.com.