

Guide to Efficient PC Performance Testing for Enterprise IT

How benchmarking saves
time and money



Solutions

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Introduction

Testing PC performance can be complex and time-consuming. As an IT professional, you face unique challenges each day. You likely need to know how to:

- Standardize PC purchasing decisions based on performance.
- Validate new hardware and Windows configurations to determine system stability.
- Quantify the performance impact of OS image changes and application updates.
- Identify poorly performing systems.
- Test and measure the real-world performance of PCs against baselines.

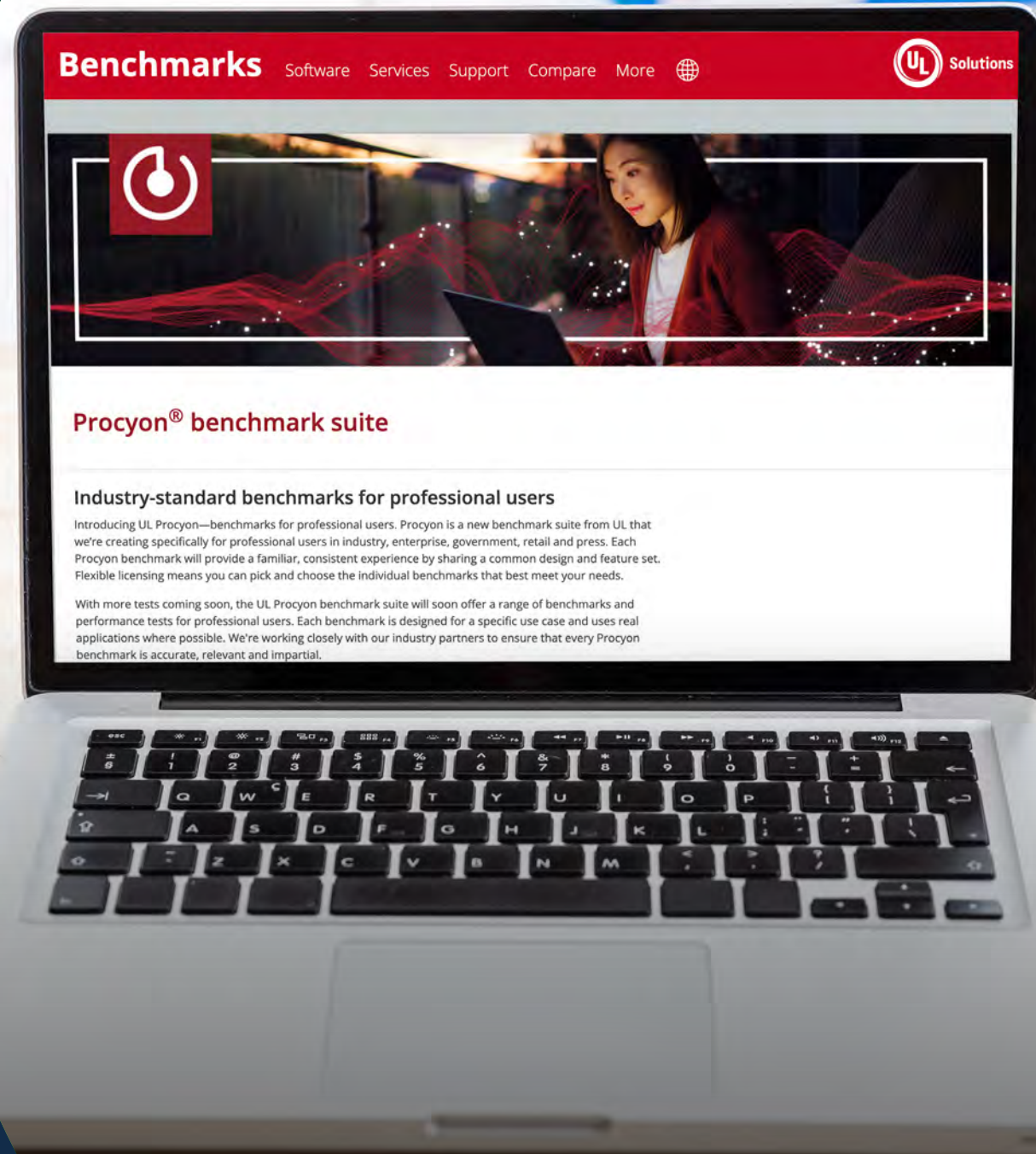
Standardizing your performance testing and reporting can help simplify these tasks and processes. That's where benchmarks come in.



What is a benchmark?

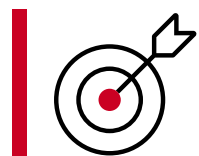
A benchmark tests how well a product performs a specific function and how that performance compares across similar products.

Benchmarks provide a quantitative differentiator for PC performance testing. A computer benchmarking program runs a series of well-defined tests to measure PC performance. A benchmarking program scores a PC system's performance of common tasks: the higher the score, the better the performance. Comparing benchmark scores is easier than comparing complex technical specifications, allowing for informed, rapid decisions to deliver PC performance, cut hardware costs and save testing time.





A good benchmark has three important qualities:



Accuracy

Consistently produces true and precise results.



Relevance

Measures the most important performance elements.



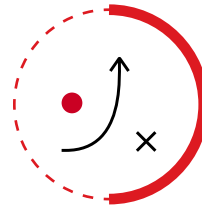
Neutrality

Is free of any product or vendor bias.



Benchmarks at the enterprise IT level

Benchmarks support every stage in the life cycle of your PC assets, easing PC lifecycle management for IT teams.



Planning and procurement

Simplify PC performance comparison and cost justification.



Validation and standardization

Test and compare the performance of new PCs against user-defined baselines.



Operations and management

Efficiently automate remote performance testing to provide reliable insights and reporting.



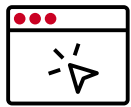
Optimization or replacement

Make informed PC life-cycle decisions based on benchmark results stored in your central database.

Which benchmark should I use?

Benchmark tests are typically designed for a specific setting (home or office) and a certain class of device (desktop PC, laptop, tablet or smartphone). Choose a benchmark that best matches the needs of your end users. For PCs for general office use, choose a benchmark that measures PC performance with a comprehensive set of tests that covers the wide variety of tasks performed in the modern workplace. You can evaluate the overall performance with the benchmark score, while sub-scores focus on performance for specific activities.

Common tests measure performance and battery life for everyday office productivity tasks and such digital content activities as:



**Web
browsing**



**Video
conferencing**



**Time to
start apps**



**Working with
documents and
spreadsheets**



**Photo and
video editing**



Choosing a reference benchmark score for RFPs

Setting a minimum benchmark score in a request for proposal (RFP) helps you judge the relative performance and value of different systems—and compare competing offers from your suppliers. Specifying performance with a benchmark score rather than a reference system gives your suppliers more freedom to configure cost-effective alternatives that you might not have otherwise considered. But what factors decide an appropriate minimum score?

Start by testing your existing systems.

[The Procyon user guide](#) will help you produce accurate results. Benchmark old PCs that are ready to be replaced along with the new systems replacing them. The score comparisons provide good baselines. If you're still shopping, ask a supplier to benchmark their systems to see if they meet your performance needs and expectations.





Vendor-neutral benchmarks

Fair and open competition is the best way to save on procurement costs. But many IT teams and organizations find it hard to describe PC performance in a practical, accessible and vendor-neutral way.

Specifying PC performance with an impartial benchmark score is a simple way to ensure your RFP is vendor neutral. And before the purchase, you'll find comparing performance with benchmark scores is far easier than comparing component specifications.

Impartial benchmarks should be developed by technical experts in collaboration with leading technology companies using an open and transparent process that guarantees fair and neutral criteria. Look for benchmarks that are universally trusted, respected and used by both the press and the industry.

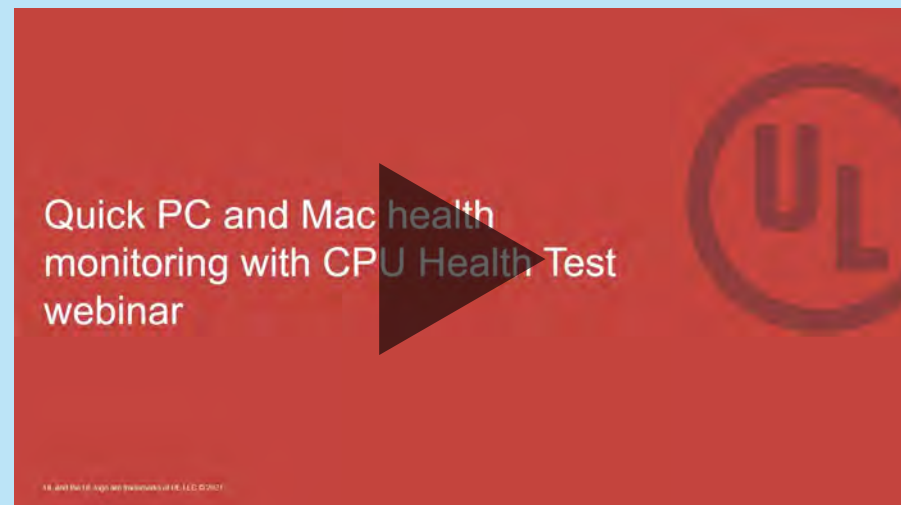
How to specify PC performance with benchmarks

One of the challenges facing IT managers and procurement specialists is how to specify PC performance in a practical and accessible way that generates competitive offers from suppliers.

PC tenders often use reference systems to specify the minimum required performance. But even experts may find it hard to compare the performance of different PC systems from specifications alone. A better way to specify and compare the performance of computer systems is to use benchmarks.

How to benchmark performance

You should test all devices under similar conditions to produce reliable benchmark scores. For example, you should test every system in the same location, at room temperature and away from direct sunlight or other heat sources. The precision of scores from a reliable benchmark is usually better than 3%. This means that running a benchmark repeatedly on a consistently performing system in a well-controlled environment will produce scores that fall within a 3% range. Individual scores may occasionally fall beyond the margin of error because the factors that influence the scores cannot be completely controlled in a modern, multitasking operating system. Some devices simply do not offer consistent performance because of their design. For such devices, run the benchmark multiple times and then use the average result.



On-demand webinar: Learn about benchmark automation

Testdriver® Cloud Edition simplifies endpoint performance benchmarking. With cloud-based benchmark-automation software, you can remotely test and monitor systems in multiple locations. Watch our on-demand webinar to learn more about performance testing.

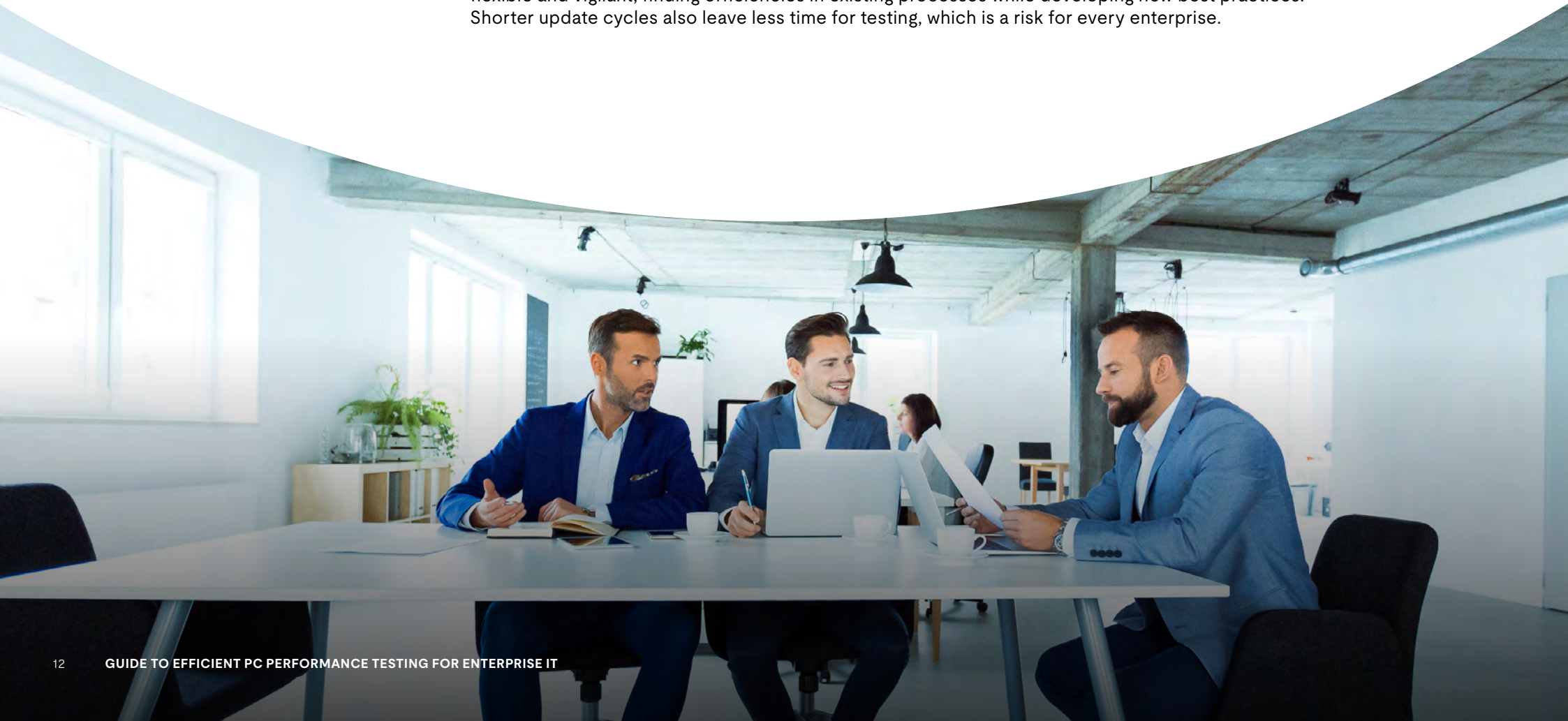
[Watch our CPU Health Test webinar now.](#)

Save time with automated benchmarking

According to Robert Half Technology, employees lose an average of two weeks of productive time each year dealing with computer glitches, wait times or performance issues.

Manually testing new computer systems and corporate OS images is time-consuming and susceptible to error. And since the move to an OS-as-a-service model, enterprise IT teams have been under increased pressure to efficiently manage the image creation and deployment process. IT managers often deal with major feature updates every six months — with a steady stream of security patches and quality updates in between. Every update can disrupt employee productivity.

Managing OS deployment requires significant time and effort. What was once an occasional one-off project is now a continuous cycle of creating, testing and deploying. Running Windows 10 or 11 in an enterprise environment means adopting new processes to accommodate continuous delivery. IT teams must be flexible and vigilant, finding efficiencies in existing processes while developing new best practices. Shorter update cycles also leave less time for testing, which is a risk for every enterprise.





Approaches to Windows image testing

IT teams take different approaches to image testing. Some use a centralized approach, testing a representative sample of PC configurations in a dedicated testing environment. Others delegate application testing to business groups and application owners to report back on compatibility and user experience. Both approaches involve time-consuming manual work. Manually evaluating PC performance and collecting, analyzing and comparing different forms of performance data can be slow, meticulous and difficult. A manual approach can also make it difficult to ensure consistent and reliably repeatable testing.

The demand is there for computer hardware and corporate OS images that perform well. IT professionals need to easily automate and measure PC performance testing and result management. For image testing with the data obtained from automated benchmarking, you can tailor the appropriate corporate OS image and select the right PC models for your organization.

UL Solutions benchmarks are compatible with Windows 11. Benchmarking your PC before and after upgrading to Windows 11 is a great way to check for performance changes. A significant difference in scores may indicate problems with the update, with system configuration or with device drivers. If the scores are similar, it means your PC is performing as expected.

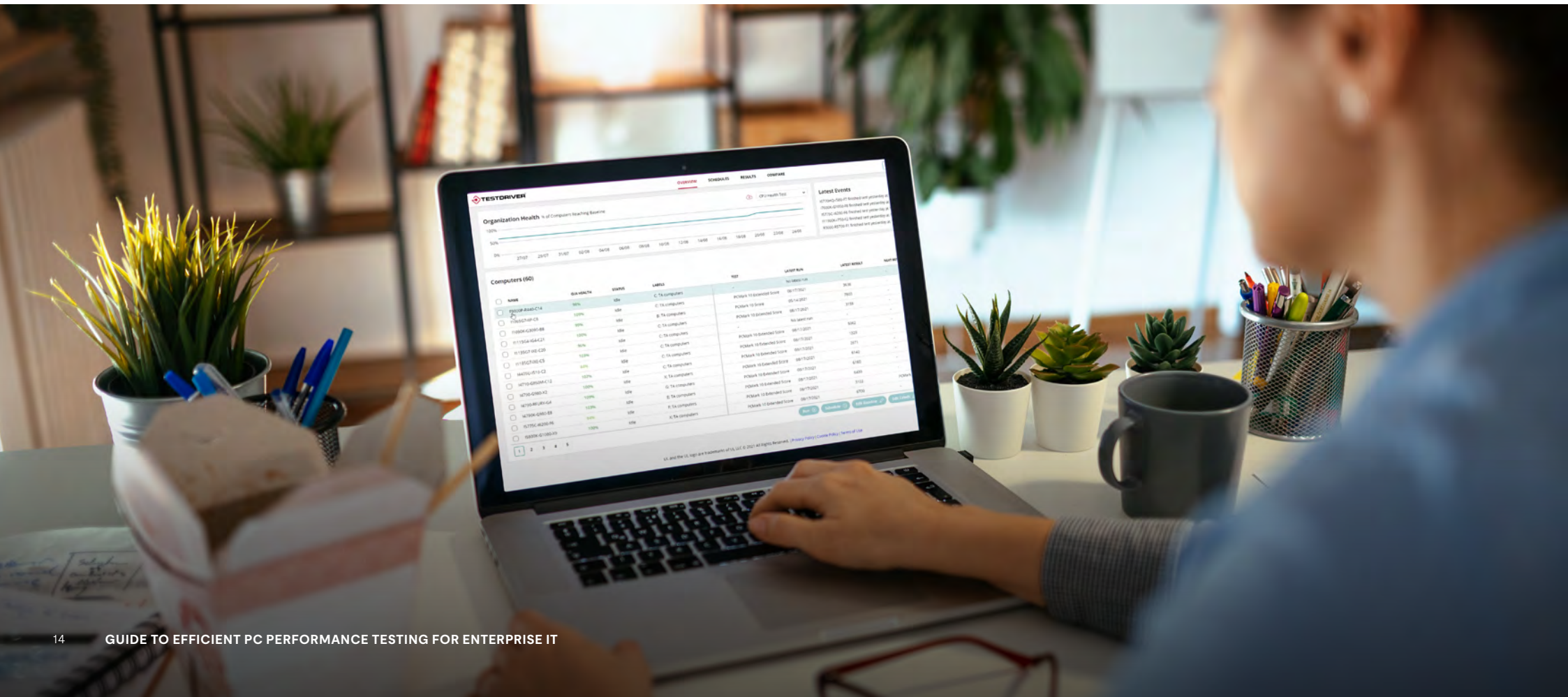
Switching from manual to automated benchmark testing can reduce mundane and repetitive tasks while improving test coverage and accuracy—and saving time and money.

How automation can help

Automated benchmark testing can save hours of repetitive manual work. For large PC environments, an automation solution supports testing hundreds of PCs over your network or from the cloud. While the tests are running, you can focus on other tasks to make the best use of your time.

“We create custom OS images for over 120 PC configurations. There is very little time to do any kind of performance testing.”

– IT Manager at a large international company



Consistent and repeatable testing

One of the biggest challenges of manually testing PC performance is ensuring that the test is repeatable. Fortunately, benchmarks are designed for consistency. Using a well-designed benchmark is the best way to guarantee that you are testing the same thing the same way every time. This consistency is essential when comparing the performance of a new OS image against your baseline. Benchmarks take the guesswork out of performance testing. Trusted benchmarks are developed in partnership with leading technology companies to help ensure that the tests are accurate, relevant and impartial.

Analysis and reporting

Benchmarks commonly measure performance with an overall score. Beneath that, a range of sub-scores defines specific system capabilities. Comparing the performance of two OS images is as easy as comparing the scores. Exporting your benchmark results as PDF files or XML can help simplify record keeping and further analysis. Storing your test results in one central database also offers easy access and tracking.

Without Automated Testing

System Setup					Install benchmarks				Execute				Collect results				Format			
System 1	S				I				E				R				F			
System 2		S				I				E				R				F		
System 3			S				I				E				R				F	
System 4				S				I				E				R				F
										Unmanned time										

With Automated Testing

System 1	S				I	E	R	F	I	E	R	F	I	E	R	F	I	E	R	F
System 2		S			I	E	R	F	I	E	R	F	I	E	R	F	I	E	R	F
System 3			S		I	E	R	F	I	E	R	F	I	E	R	F	I	E	R	F
System 4				S	I	E	R	F	I	E	R	F	I	E	R	F	I	E	R	F
Unmanned time — Creates additional time for emails, meetings, calls, lunch, sleep, etc.																				



How benchmarking can cut costs in your IT procurement budget

The COVID-19 pandemic led to a revision of global IT spending, with the PC/tablet segment alone expected to grow 17% (Statista, 2022). This is likely because of the increase in hybrid working patterns and the related increase in the use of digital tools and applications.

In 2022, Microsoft Teams was listed as the most popular meeting provider within the video conferencing market, with 145 million daily active users globally (Statista, 2022). Benchmarking for Microsoft 365 and Adobe applications can help IT procurement teams optimize and maintain their fleet of organizational devices.

When a company buys PCs in large volumes, the savings can be significant. You may be able to get more value from your IT budget by increasing competition for your PC tenders.





Open competition

Consolidating spending with key suppliers brings benefits, but it can also increase costs. Opening your RFP to more suppliers increases the probability of competitive offers. With more offers, you may also be able to negotiate complementary added-value services.

Avoid restrictive language

You can increase competition for your tenders by avoiding language that expresses a brand preference or restricts suppliers to a particular solution. A vendor-neutral RFP gives suppliers the flexibility to find the most cost-effective way to meet their requirements.

Stretch your IT budget

For the best results for your PC tenders, combine open competition with vendor-neutral language and specify the minimum required PC performance with a reference benchmark score. This combination allows your suppliers to suggest innovative solutions that you may not have otherwise considered.

Specify minimum performance

An industry standard benchmarking program can help tenders define minimum PC performance. Setting a minimum benchmark score in your RFP ensures that you won't be distracted by the false economy of a cheaper but underperforming PC specification. To better compare competing offers, ask your suppliers to provide benchmark scores in their proposals. Seeing PC performance expressed as a comparable benchmark score for cost justification will reduce the chances of overspending for over-specified systems.

UL Solutions professional benchmarking services

Procyon®

Procyon is a suite of benchmark tests designed for professional users in enterprise, industry, government and press roles. Procyon benchmarks are based on relevant use cases and use real applications whenever possible.

Procyon benchmarks provide independent performance-proof points and useful cross-platform comparisons for Windows and Mac. We work closely with industry partners to ensure that every Procyon benchmark is accurate, relevant and impartial.

Running CPU and storage health tests daily, can quickly detect possible problems without affecting end-user device performance.

The Procyon suite includes an office productivity benchmark, AI inference benchmarks for Android and Windows, battery life Benchmark, and photo and video editing benchmarks. We launched our first multi platform benchmarks this year to be compatible on Windows PCs and Apple Mac computers.



Testdriver® Cloud Edition was the result of customer requests to remotely test, monitor and report on system performance across multiple locations in a fast, easy and consistent way. Testdriver works with Procyon benchmarks to streamline and automate benchmarking at scale. The tool is ideal for IT teams that support a wide range of PC configurations.

With Testdriver Cloud Edition benchmark automation, you can schedule recurring benchmark runs on any PC from the cloud — you don't have to be physically present at the PCs you are testing. You can easily compare results against user-defined baselines and monitor PC performance on individual and organizational levels. Everything is controlled from Testdriver's convenient cloud-based user interface with no database or server setup required.

Our Testdriver automation collects and stores all benchmark results in your own private database. You can explore the database with Testdriver's powerful built-in reporting, trendline charts and results management, or export the data for further analysis in your own business intelligence software and tools.



Start testing PC performance today

IT professionals around the world choose UL Solutions benchmarks to measure, understand and manage computer hardware performance. Our trusted and widely used performance tests help IT professionals make more informed decisions. Contact us to learn more about automating performance testing: Save time and money with UL Solutions benchmarking services.

Contact us or visit [UL.com/procyon](https://www.ul.com/procyon) to learn more.



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