

An abstract digital graphic featuring a perspective view of a tunnel. The walls of the tunnel are composed of glowing green and blue binary code (0s and 1s). The floor and ceiling are dark blue with glowing, colorful geometric patterns in shades of yellow, orange, red, and purple. The overall effect is a sense of depth and high-tech connectivity.

Technical Users Rely on Workstations for Mission-Critical Workloads



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Methodology

For this study, IDC conducted two separate surveys on behalf of Intel. The first survey was fielded to 625 IT decision-makers (ITDMs). These ITDMs represented 442 organizations that do not currently have workstations deployed, as well as 183 organizations that have deployed workstations. The second survey went out to 624 power users across multiple industries. This particular study is focused on the results from the 238 respondents who identified as architects, engineers, designers, or IT professionals. Where dollar amounts are listed, we have leveraged publicly available salary information from the U.S. Bureau of Labor Statistics.



Situation Overview

Ever since humans started using computers to aid in design and manufacturing, workstations have been putting in the work. Technical users and organizations that employ workstations understand the value these machines have in their workplaces.

Workstations are built with high-end features and specs, including higher-quality memory, more performant processors, and better displays. They are tuned to power critical software optimally and certified to run them reliably. In short, organizations and users with highly technical or mission-critical workloads depend on workstations to keep business running.

Table 1 (next page) provides a list of ISV certifications for select Intel processors.

TABLE 1
ISV Certifications for Professional Integrated and Discrete Intel Arc Graphics

ISV	Application
Autodesk	• Maya • 3ds Max • Inventor • AutoCAD • Fusion 360 • Revit
Bentley	• MicroStation
Dassault Systèmes	• SOLIDWORKS • CATIA
PTC	• Creo
Siemens	• NX • Solid Edge
Nemetschek	• Vectorworks

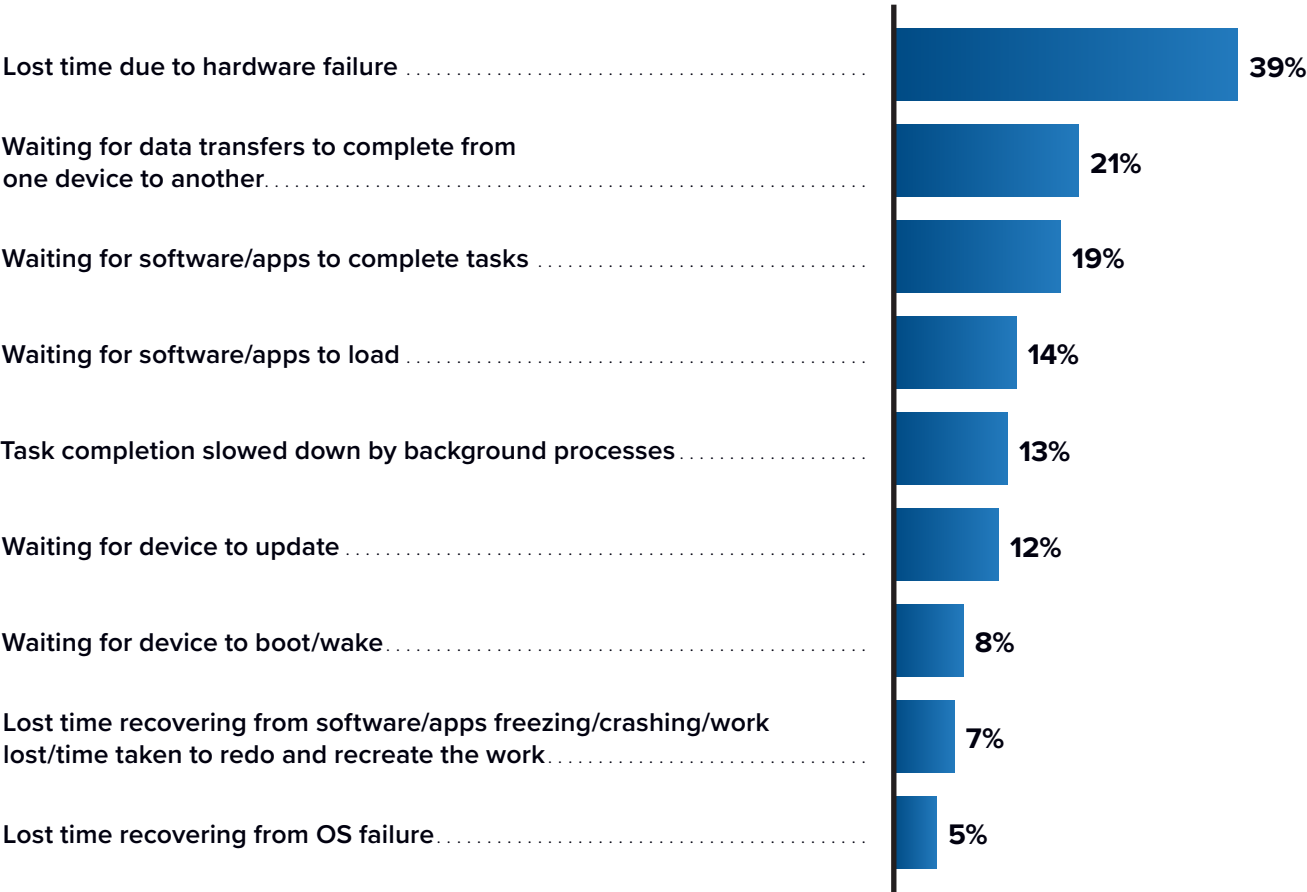
Source: Intel, July 2024

Technical computing issues, such as data loss due to crashes or excessive waiting on applications and processes, can be a common occurrence. However, when they happen to highly technical users, the consequences can be dire. In our power user survey, we asked the cohort of architects, engineers, designers, and IT pros how various technical issues impact them. In aggregate, lost time due to hardware failure was rated the most problematic. **Figure 1** (next page) shows how many respondents found each technical issue either a “major annoyance” or a “catastrophic problem.”

FIGURE 1

Impact of Technical Issues on Power Users

Overall, how problematic are each of these technical computing issues as they occur?
(Percentage of respondents)



Note: Data depicts the combined response rate of "major annoyance" and "catastrophic problem."
n = 238 (architects/creators/engineers); Source: IDC's Power User Survey, 2024

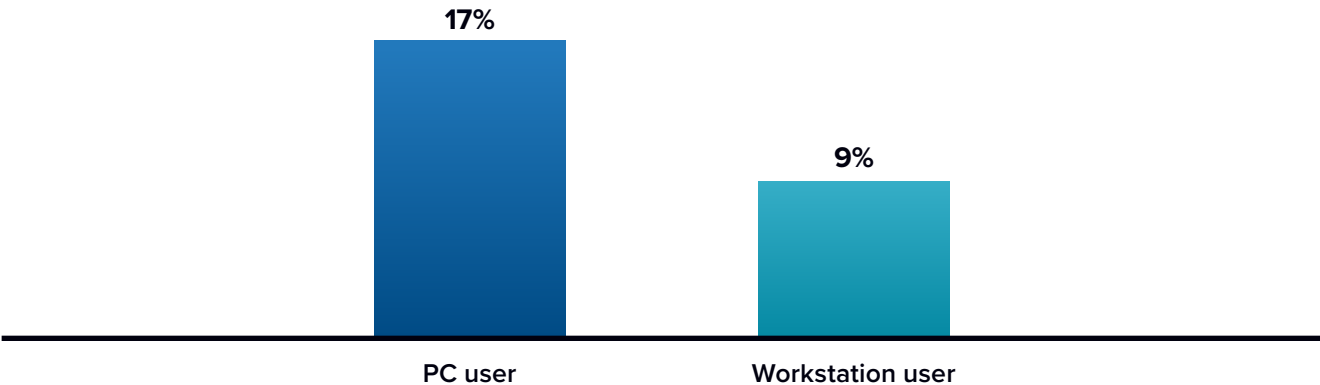
Hardware failures not only disrupt the workflow but create additional time needed to recover lost work and data, adding undue stress to the user. Workstations, which are certified to run reliably, can help cut down on instances of hardware failure. Amongst the technical user cohort, those who used workstations reported being nearly half as likely to have experienced hardware failure in the past year.

Figure 2 (next page) shows the incidence rate of hardware failure amongst technical users based on whether they were primarily using a PC or a workstation.

FIGURE 2
Frequency of Lost Time Due to Hardware Failure

In the past year, which of these technical computing issues have you experienced while working on your primary device?

(Percentage of respondents)



n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024

Workstations are designed for reliability and high performance, significantly reducing instances of hardware failure and minimizing downtime. According to our survey respondents, workstation users experienced 97% less downtime due to hardware failures compared to PC users in the past year.

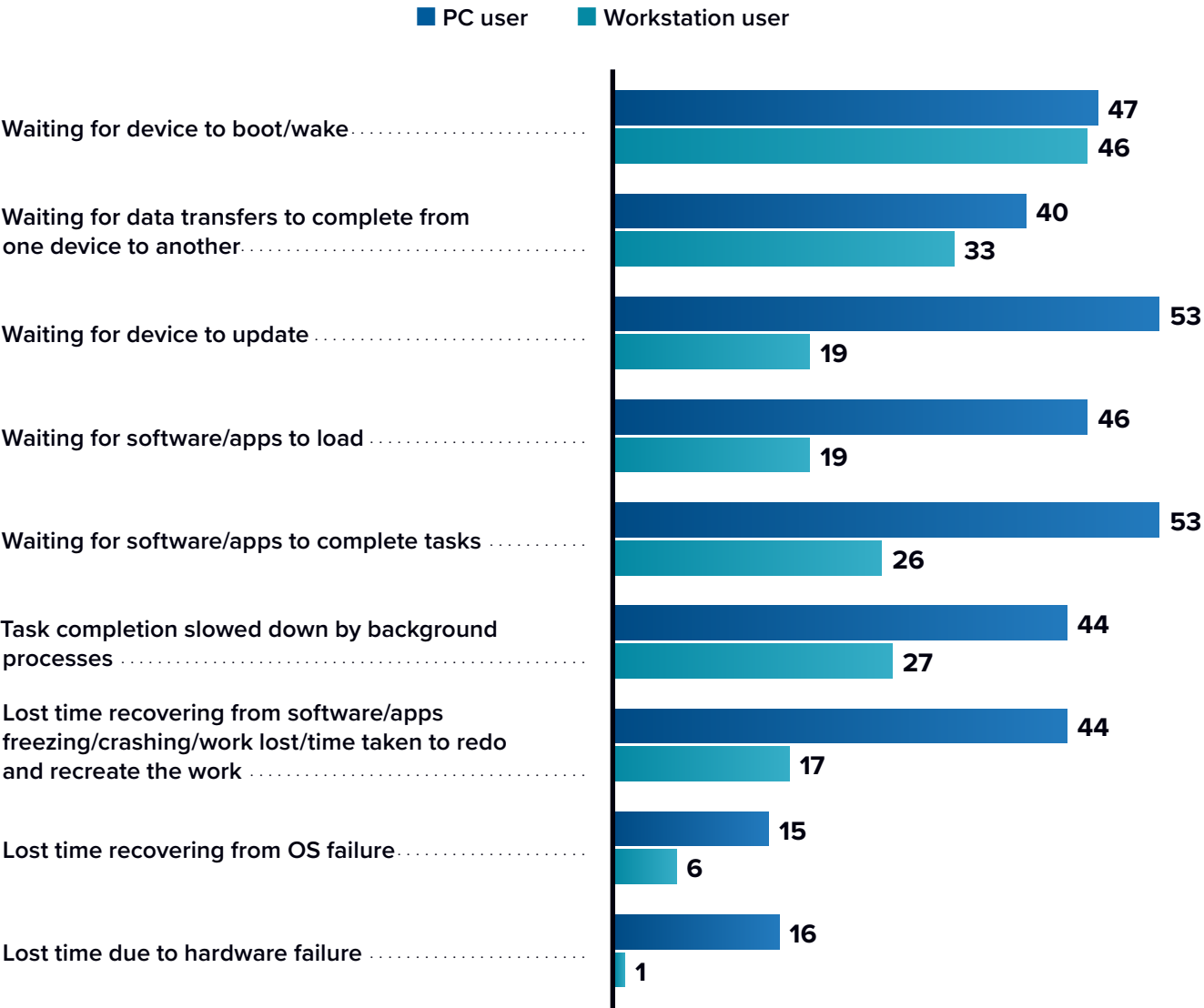
In addition to reliability, workstations also offer superior performance, leading to:

- 65% less waiting time for updates
- 59% less waiting time for applications to load
- 51% less waiting time for tasks to complete

These performance improvements translate to substantial productivity gains for technical users. **Figure 3** (next page) illustrates the downtime associated with each issue as reported by our technical user cohort.

FIGURE 3
Significant Reduction in Downtime with Workstations

In an average year, how much time has each of these issues cost you in terms of productivity?
(Hours)



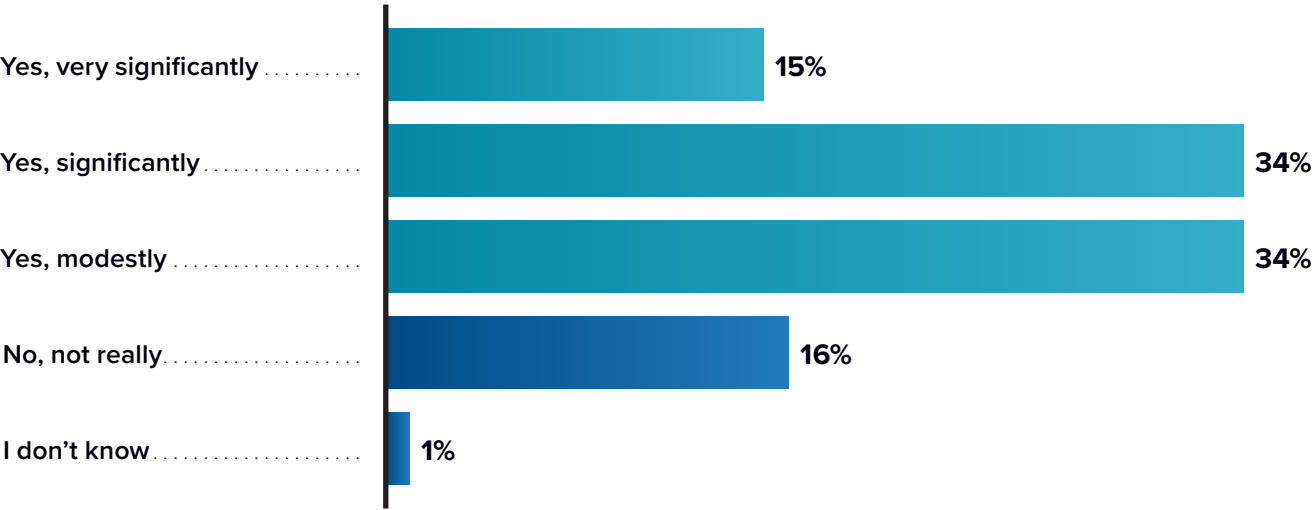
n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024
For an accessible version of the data in this figure, see [Figure 3 Supplemental Data](#) in the Appendix.

Workstations are essential for technical users who need to minimize downtime and maximize productivity. By significantly reducing lost time due to hardware failures and excessive waiting, workstations have become indispensable for professionals in technical computing fields. According to our survey, workstation

users experience significantly lower downtime (74% less) compared to users using a non-workstation PC. This makes workstations a critical investment for architects, creators, and engineers who rely on mission-critical workloads. And those who don't currently have workstations, overwhelmingly believe workstations would help them. **Figure 4** asks PC users in this cohort how much moving to a workstation would help.

FIGURE 4
Impact of Workstations on PC Users

Do you think your work productivity would benefit from the use of a workstation?
(Percentage of respondents)

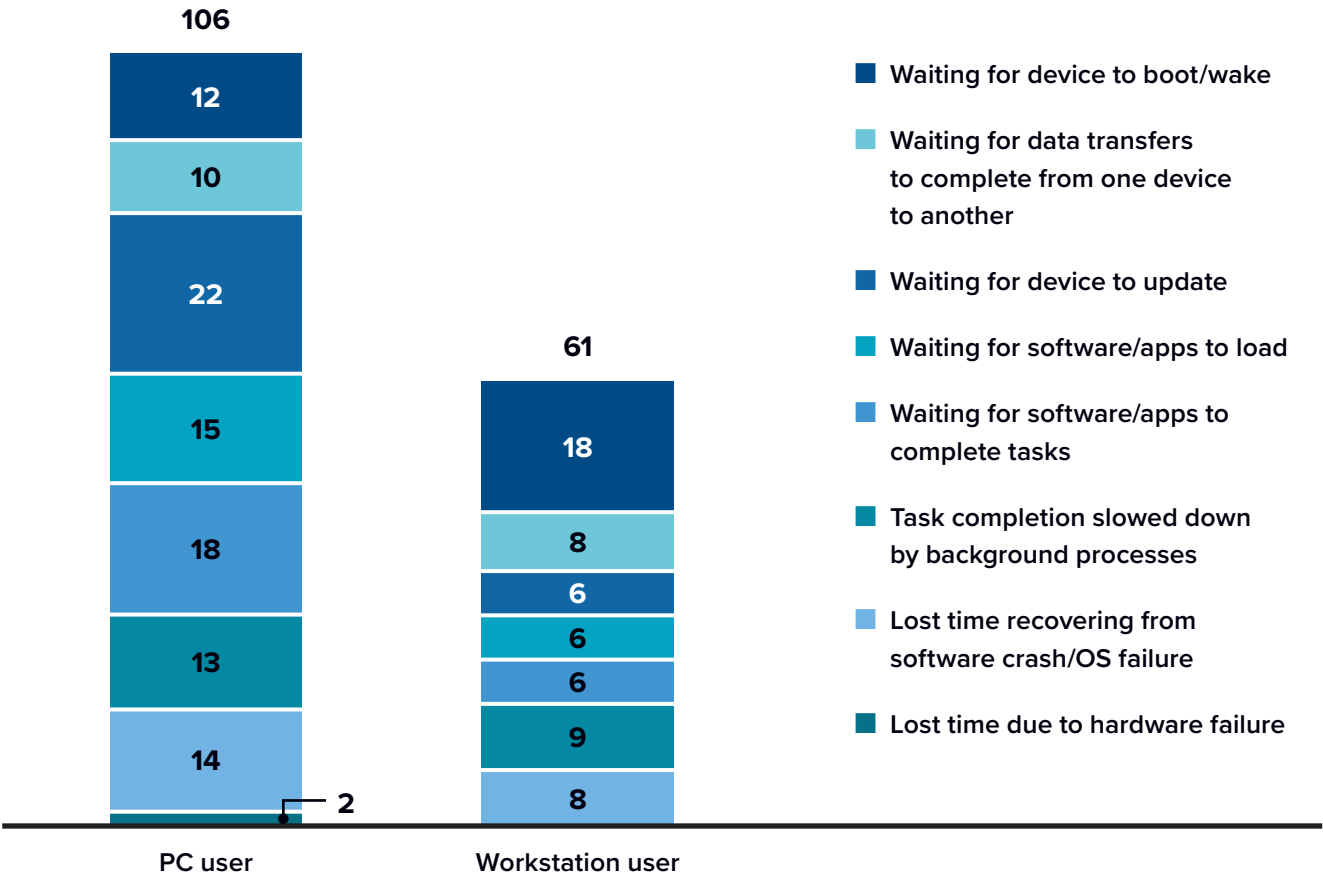


n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024

In total, 83% of PC users here felt they would be more productive on a workstation, with nearly half claiming the increase would be significant. When accounting for both incidence rate and time loss, data splits from our survey show how workstations can make a huge impact on technical users. **Figure 5** (next page) shows average time lost in a year for a typical user on either a PC or a workstation.

FIGURE 5
Average Time Lost to Technical Issues

In an average year, how much time has each of these issues cost you in terms of productivity?
(Hours)



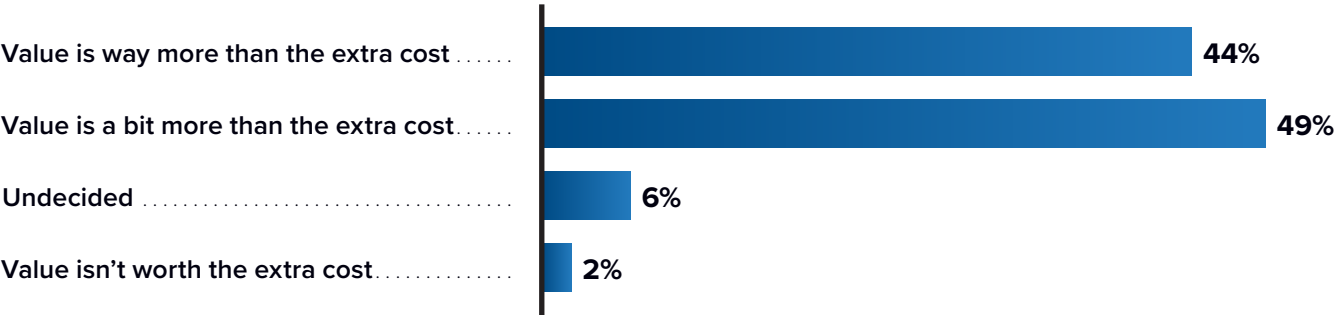
n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024
For an accessible version of the data in this figure, see [Figure 5 Supplemental Data](#) in the Appendix.

In the past year, the typical workstation user in the technical user cohort averaged 43% less downtime due to excessive waiting or failures than their average PC-using counterpart. Applying publicly available salary data as well as assuming a four-year life span for a typical workstation, this decrease in downtime by itself translates to an increase in productivity worth \$15,739 for architects and engineers, \$11,503 for designers, and \$16,509 for IT professionals across the life of the device. The reduction in downtime alone is worth far more than the additional up-front cost of upgrading from a traditional PC to a workstation. In 2023, a value-tier desktop workstation averaged \$1,793, while a value-tier mobile workstation averaged \$1,603.

Given how much workstations can benefit power users, it's also no wonder why organizations that do deploy them tend to be very happy with them. **Figure 6** shows whether or not these organizations believe workstations are worth the additional cost. **Figure 7** shows workstation satisfaction levels from organizations that feature them. Both figures are highly favorable for workstations.

FIGURE 6
Workstation Value

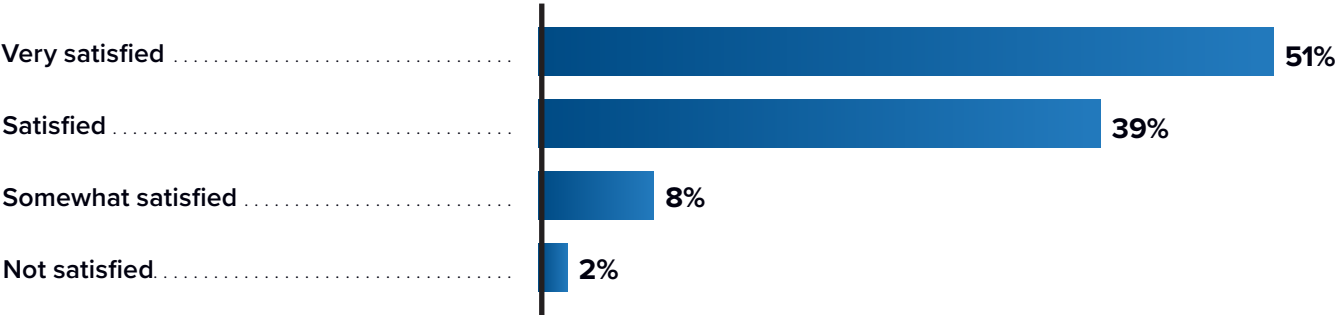
Do you believe the value employees receive from using workstations justifies their extra cost over other computing devices that may be used?
(Percentage of respondents)



n = 183 (organizations that deployed workstations); Source: IDC's *ITDM Survey*, 2024

FIGURE 7
Workstation Satisfaction Rate

How satisfied are you that the workstations are meeting the computational needs of the employees using them?
(Percentage of respondents)



n = 183 (organizations that deployed workstations); Source: IDC's *ITDM Survey*, 2024

With such high utility from deploying workstations, it's no wonder that **nearly 60% of these organizations expect to increase their workstation counts** in the near future.

In addition, an interesting dynamic can be drawn in comparing those that have deployed workstations versus those that have not. The majority of organizations that did not deploy workstations counted hardware being “too slow” as a top 5 computing issue. For organizations that do deploy workstations, the minority answered correspondingly.

In short, workstations help organizations broadly push down “slow hardware” as a material issue impacting business performance.

Challenges/Opportunities

Companies that are seeking their maiden workstation deployment may come across several challenges they should plan for ahead of time. These include:

- ▶ Workstations generally have a higher up-front cost than traditional PCs, typically in lieu of their higher performance and higher-quality build.
- ▶ The number of viable workstation vendors is a much smaller subset of the pool of PC vendors. The major enterprise OEMs all have workstation offerings, so this is only a concern for those companies primarily getting their PCs from vendors other than Lenovo, HP Inc., or Dell.
- ▶ Workstations are configured to be powerhouses. As such, higher-end configurations are often bulkier than their consumer non-gaming or commercial PC counterparts and consume substantially more power.

Yet, for all the concerns, many organizations will find the potential benefits of workstations compelling:

- ▶ Workstations are built to run the most intense software and workloads reliably and optimally.
- ▶ The added performance boost can help cut down on long wait times as well as reduce software crashes for power users.
- ▶ Workstations are typically backed by higher levels of care packages to ensure that their users are kept up and running as much as possible.

Conclusion

Engineers, architects, content creators, and other technical users with heavy computing workloads need the performance and reliability of workstations. If your organization isn't currently deploying workstations to these technical users, ask yourself why.

In our survey, the most common barriers included cost, concerns about supply, and an unclear value proposition. If your organization answered similarly, consider the lessons learned from adopters of workstations.

Organizations that deploy workstations overwhelmingly believe they are worth it. OEMs typically prioritize their workstation supply in moments of industry shortage, given the mission-critical nature of their users. For those who think the value proposition is unclear, power users have spelled it out. Workstations can help reduce downtime due to hardware failures as well as cut down on excessive wait times. Consequently, the majority of responding ITDMs from organizations that don't currently have workstations expect to start deploying them in the next two years.

Appendix: Supplemental Data

This appendix provides an accessible version of the data for the complex figures in this document. Click “Return to original figure” below each table to get back to the original data figure.

FIGURE 3 SUPPLEMENTAL DATA

Mean Downtime Experienced per Incident

In an average year, how much time has each of these issues cost you in terms of productivity?
(Hours)

	PC User	Workstation User
Waiting for device to boot/wake	47	46
Waiting for data transfers to complete from one device to another	40	33
Waiting for device to update	53	19
Waiting for software/apps to load	46	19
Waiting for software/apps to complete tasks	53	26
Task completion slowed down by background processes	44	27
Lost time recovering from software/apps freezing/crashing/work lost/time taken to redo and recreate the work	44	17
Lost time recovering from OS failure	15	6
Lost time due to hardware failure	16	1

n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024

[Return to original figure](#)

Appendix: Supplemental Data (continued)

FIGURE 5 SUPPLEMENTAL DATA

Average Time Lost to Technical Issues

In an average year, how much time has each of these issues cost you in terms of productivity?
(Hours)

	PC User	Workstation User
Waiting for device to boot/wake	12	18
Waiting for data transfers to complete from one device to another	10	8
Waiting for device to update	22	6
Waiting for software/apps to load	15	6
Waiting for software/apps to complete tasks	18	6
Task completion slowed down by background processes	13	9
Lost time recovering from software crash/OS failure	14	8
Lost time due to hardware failure	2	0
Total	106	61

n = 238 (architects/creators/engineers); Source: IDC's *Power User Survey*, 2024

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About the IDC Analyst



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Linn tracks market trends and industry developments that impact the worldwide and U.S. markets for PCs, thin clients, and monitors. He participates in cross-research streams that cover all device categories.

[More about Linn Huang](#)

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