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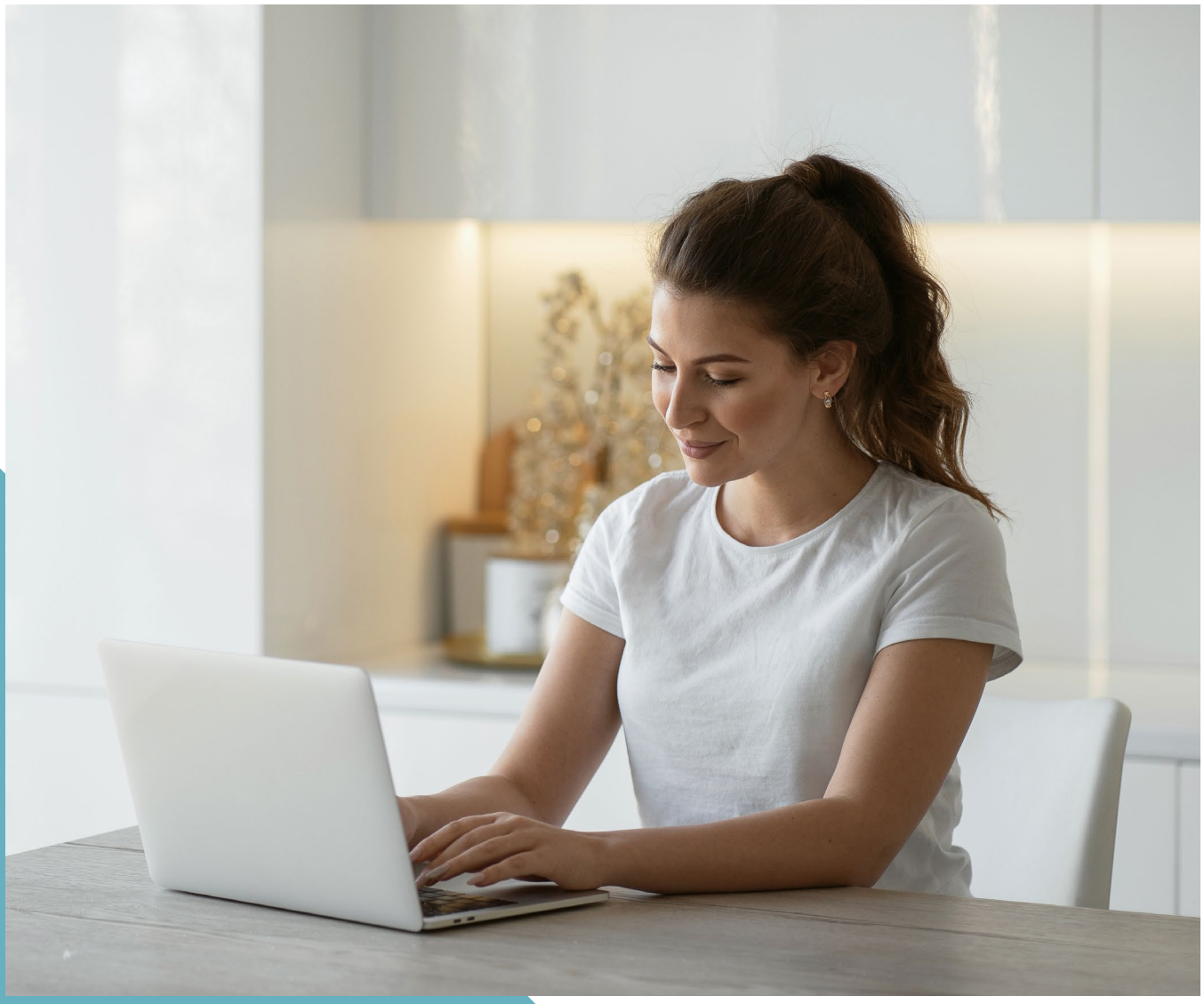
Next-Gen AMD Ryzen™ PRO Processors: Enabling Performance, Portability, and Security Features for Hybrid Work



WITH RESEARCH AND ANALYSIS BY IDC

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Client Devices are the New Corporate Campus

The future of hybrid work is now.

In an IDC December 2021 study, only 2% of companies worldwide indicated they would not have a hybrid workforce in the coming years. Due to global energy, financial, and supply chain issues, that number is not expected to increase. The flexibility to work in new ways, with geographic and temporal boundaries being sources of innovation rather than constraints, is growing in popularity.

This begs the questions — what is a hybrid workforce and what is needed to support it? How does business need to change, from the devices we use to access the enterprise to our methods of distributing work, creating teams, and collaborating with one another? More importantly, how is hybrid work any different than the work we do today, with many information workers still spending most of their time in the office while many of those in the finance, information, and technology industries are leaving for jobs which let them work remotely full-time?

The first, and easiest, answer is that hybrid work is "hybrid" in terms of where individuals and teams are physically located. Whether working from home, a rented office, coffee shop, library, or corporate campus, location seems to be less important than access — to data, to applications, to team members, and to the history of interactions once chronicled on whiteboards and piles of paper.

Hybrid work is also "hybrid" in relation to time. Many jobs, still tied to physical processes or a need to visit customer locations, require people to work at specific times to coordinate their activities. Others are more flexible, with people working when and as they need to. Still others adapted further, taking advantage of the geographic flexibility inherent in hybrid work to create off-set processes and access new talent pools.

Hybrid work is, finally, "hybrid" in terms of how we communicate with one another. Voice and video, chat and email, process, and procedure, have interwoven in new and sometimes startling ways. Humans and artificial intelligence (AI) systems

collaborate on the creation of music in multiple industries. AI analyzes active construction site videos, creates the site's digital twin, and then enables the foremen and architects to collaboratively problem-solve across the globe. The way we work has fundamentally changed.

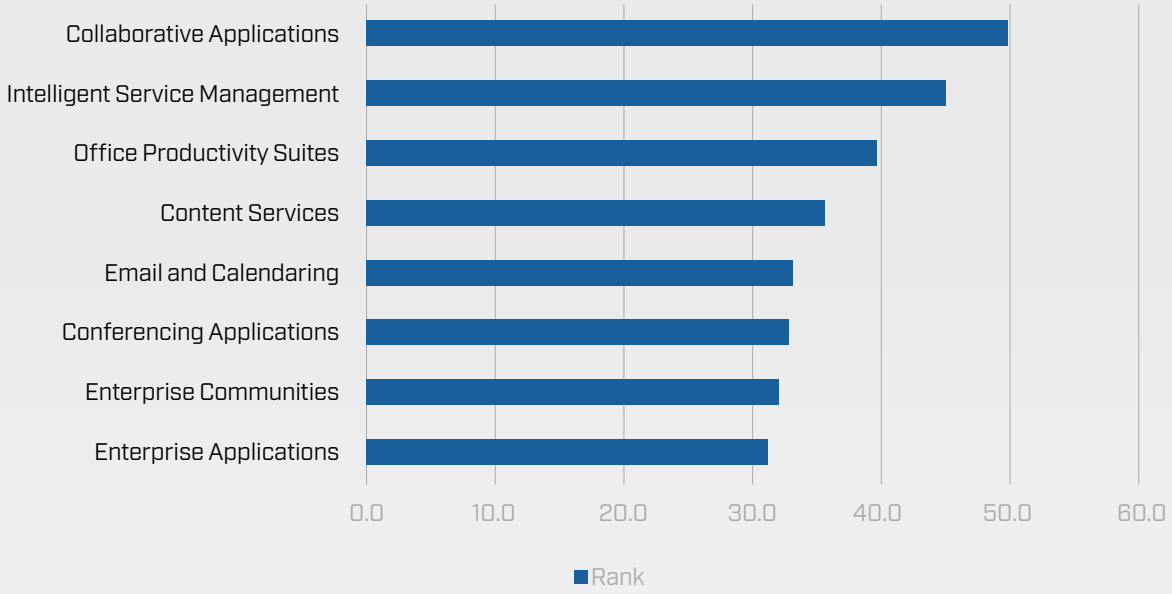
Hybrid Work and Technology Change

This has led to changes in what we expect from the devices we work from. They have become our passage into the enterprise, with the digital experience being the biggest visible difference between one job done from home and another. In many ways, the device, and the experience it provides, is the new office campus — sometimes literally, in the face of emerging metaverse applications.

This makes the deployment of tools that organize this new workspace a top priority. And in fact, in the April 2022 Future of Work Survey, 87% of companies reported that they had already delivered automation tools to employees, 49% deployed process automation tools, 46% deployed more task-focused automation tools, and 41% rolled out tools to help predict the next best action.

Other IDC research supports this theme. The May 2022 survey on the Intelligent Digital Workspace, indicated that corporations identified collaboration applications, intelligent service management (process automation, primarily), and office and productivity applications as their most important integrations (see Figure 1).

Figure 1 | **The Most Important Digital Workspace Integrations**



Source: Intelligent Digital Workspace (IDW) Market Survey, IDC, May, 2022, N=609

Conferencing applications were, oddly, less important, but that is partially because of how robust those applications already are. Teams and Slack have enough conferencing and calling capabilities to meet the needs of small groups, while applications like Zoom and Webex are used for larger meetings with multiple and out-of-enterprise employees.

What this Means for Devices

This intense focus on digital capabilities, from automation to collaboration to work, makes it even more crucial that the devices used to access the estate are secure, manageable, and able to perform flawlessly under a wide range of conditions. These elements become particularly important as everything from climate change to geopolitical conflicts introduce uncertainty into things as fundamental as energy access and as seemingly peripheral as patch maintenance.

Recent IDC studies have shown that the top two technical concerns for hybrid work are securing devices (and data) as well as providing support to employees. The reason why is obvious on its face — the enterprise needs to secure its data and people need to be able to get back to work when something goes wrong.

However, the way in which security and support are delivered has had to change. The days of locking devices down — putting barrier after barrier in the way of getting work done in the name of security — are gone. If people can only access the enterprise through their devices, and if the device is the new office, then the device must be as easy to access as the office itself. It's similar with support — addressing problems after they occur, or in a way that disrupts the flow of work, is not sufficient. Security and support need to be proactive, transparent, and easily orchestrated — for the end users and for the IT departments tasked with supporting them.

Performance is, unfortunately, easy to state and hard to explain. It is intuitively obvious that if the endpoint is to be the new office, it needs to be responsive. What exactly that means is hard to describe. Does opening a document faster equal better performance? What about running the automations people build? Or compensating for low bandwidth by loading parts of software-as-a-service applications locally?

Just as with support and security, how we think about delivering performance needs to change. Getting things done as quickly as possible — such as with sprints — is a common measure of success. Yet, in a world of increasing energy uncertainty, emerging constraints on cloud performance, and constant security-related outages, perhaps a better way to think of performance is in terms of endurance — how consistently can we deliver the enterprise to the user in varying and uncertain conditions?

Speed is still essential, but performance should become a combination of energy efficiency, appropriate distribution of resources from device to edge to cloud, and the ability to deliver both over an extended period in a secure and supportable way.

Learn more at https://www.amd.com/en/products/ryzen-pro-processors-laptop. ■

Solving the Challenges of Hybrid Work with Next-Generation Features and Capabilities

In today's world, work no longer stops when professionals go home. That's why enterprises and their employees need hardware and software designed for hybrid office and remote workplaces to stay competitive and be productive.

"Employees are going from home to office frequently," says Mike Jasinski, product marketing manager at AMD. "Those workers on the move need good, high-speed connectivity. They need high-performance processing. They need portability to take them throughout the day. And they need secure computing experiences that don't threaten the integrity of data at their company."

In a nutshell, today's professionals need portable work machines that go the distance – whether plugged in or not. Those machines need to simultaneously handle video conferencing and productivity tools without a hitch. And they must keep data secure in the face of a deluge of new threats, away from the protection of corporate networks.

Hardware and software vendors have responded by designing devices packed with new and more advanced capabilities.

AMD Ryzen™ PRO 6000 Series processors with AMD PRO technologies provide the performance, portability, and security that today's workers need. The CPUs also address the needs of IT administrators tasked with deploying and maintaining hundreds or even thousands of laptops remotely.

For employees and their managers, it's all about reducing downtime while enabling productivity. Equally important, new devices must ensure maximum return on IT investments while securing data and company reputations.

Hybrid workplace challenges

Businesses and their employees have long prized processor performance to work efficiently and take advantage of advances in software. And performance has only grown in importance in the context of hybrid work. "Because of the migration to

hybrid work, we're talking about a lot of use cases that involve video collaboration," says Jasinski. That's on top of the computer resources professionals need for business analytics, the latest productivity suites, and other CPU-intensive applications.

At the same time, the rise of cloud computing places new demands on work laptops as users launch and keep open browser tabs for everything from project planning applications to video streaming. All those open applications slow down processors.

Professionals need processor performance that can keep up with the many demands of remote work. That means power not just for running software but also for fast data transfer via the latest standards including USB4, Wi-Fi® 6E and Bluetooth 5.2.

Desktop machines that draw all the power they need from wall outlets handle demanding workloads with aplomb – as they did when users mostly stayed at their desks all day. But times have changed. In addition to performance, portability has become a top priority as workers leave the office to work at home or other locations.

They need lighter, slimmer laptops with longer battery life. "In this hybrid workplace," Jasinski says, "you need to make sure you can be on a Microsoft Teams call for long meetings without having to plug in."

All the while, robust security must remain front and center as a core function that doesn't interfere with productivity. That's because risk from cyberattacks is at an all-time high, as cybercriminals take advantage of remote workers with increasing – and increasingly sophisticated – attacks.

AMD and Microsoft meet these challenges with new technologies designed to aid performance and portability while providing robust, layered security features to help protect data even in cases where attackers gain physical access to devices.

Enhanced performance

On the performance front, AMD has long focused on boosting speed with each new generation of processors. In this era of hybrid work, performance also means energy efficiency that lets users go the distance unplugged.

To that end (and since many business applications such as collaboration tools rely on video), improved graphics compression codecs from AMD provide higher-quality encoding and decoding for the best possible streaming performance with minimal impact on battery life.[1]

The result: users can run productivity software and video conference without a significant battery life penalty or CPU slowdown.

Performance also means giving users and IT departments confidence that their devices will continue to deliver over the long term. AMD PRO business ready gives IT decision-makers peace of mind with:

- 18 months of planned software stability for hassle-free Microsoft Windows updates
- 24 months of planned hardware availability through channel partners, helping organizations maintain consistency across fleet deployments
- Continuous platform validation to ensure the uptime business users require to get work done and connect with colleagues anytime, anywhere

AMD PRO business ready creates a consistent user experience across multiple generations of Windows, firmware, BIOS, and device driver updates.

AMD delivers performance improvements that provide more power for business users and more support for IT departments.

[1] Video codec acceleration (including at least the HEVC (H.265), H.264, VP9, and AV1 codecs) is subject to and not operable without inclusion/installation of compatible media players. GD-176

Improved portability

Processor performance and power efficiency go together in Microsoft Windows laptops with AMD Ryzen™ PRO 6000 Series processors. "The smaller you can get, the more power efficiency you can extract," Jasinski explains. "We've gone from 14 nanometer- to six nanometer-scale on these chips, and every nanometer down, we increase power efficiency."

Power efficiency increases with smaller-scale chip architectures because such chips decrease the distance between transistors. And less distance between transistors means less energy wasted in transit – energy that can go to powering laptops and the processors inside them that much longer.

It's a win-win. Smaller-scale chips pack a bigger processor punch while using less energy, letting users work longer as well as harder. AMD advanced power management features further help extend battery life, and thus the range of where and how professionals can do their work.

Energy-efficient processors also represent a win for enterprises trying to lower their carbon footprint. While each individual laptop may not appear to make much of a difference, with large fleets of devices, even small gains add up to big savings. "Hypothetically, if you've got a fleet of 50,000 laptops, and they're using three watts less each per hour of Teams meetings, that's 30 kilowatt hours saved, or the equivalent of 118 pounds of coal, per hour, just by using the right processor in your laptops," Jasinski points out.

Strong security features

Of course, none of these gains matter if – because of increased portability and the corresponding greater exposure to risk – company data is exposed, and employee identities are compromised. Robust security features from AMD and Microsoft can help prevent this.

In 2021, the FBI received 847,376 cybersecurity complaints –a record number and an increase of 7% from the previous year. Those complaints represented potential financial losses of more than $6.9 billion. Businesses also stand to lose employee productivity and suffer reputational harm.

Hybrid work environments add to the risk by exposing laptops to more opportunities for physical attacks. As workers migrate from offices to workspaces such as cafes, libraries, and homes, their devices become inviting targets to cybercriminals who don't have to deal with security guards and corporate firewalls. It only takes a minute for a bad actor to plug a malware-loaded USB drive into a work laptop to steal company data – if the computer is not hardened against such an attack.

New security features from AMD and Microsoft work together to secure devices at every level, even from physical attack. AMD Ryzen™ PRO 6000 Series processors integrate the Microsoft Pluton™ [2] security processor. The benefit: robust protection for PCs running Windows 11 that continue to deliver high-performance computing for advanced applications.

Microsoft Pluton™ security processors work behind the scenes, seamlessly helping protect users against identity theft, secure data against attacks, and keep applications off-limits to unauthorized users. It acts as a hardware root of trust for the Windows operating system.

This hardware-centric approach to security protects laptops from chip to cloud, locking down data at the silicon, firmware, and operating system level to ensure that even if an attacker gets possession of a device, they cannot extract data from it.

Other advanced security features of AMD Ryzen™ PRO processors with AMD PRO security include:

- AMD Secure Processor, a security coprocessor on AMD Ryzen™ PRO 6000 Series processors, acts as a silicon

[2] Microsoft Pluton is a technology owned by Microsoft and licensed to AMD. Microsoft Pluton is a registered trademark of Microsoft Corporation in the United States and/or other countries. Learn more at https://www.microsoft.com/security/blog/2020/11/17/meet-the-microsoft-pluton-processor-the-security-chip-designed-for-the-future-of-windows-pcs/. AMD has not verified any 3rdparty claims. GD-202

hardware root of trust in conjunction with the Microsoft Pluton™ security processor. It helps ensure system integrity through firmware authentication as a PC boots up.

- AMD Memory Guard[3] provides full system memory encryption, helping boost protection and helping ensure that attackers can't extract passwords and other sensitive data stored in working memory.

- AMD Shadow Stack, a hardware-based security feature, enables control-flow protection, helping stop malware from redirecting the flow of commands executed by legitimate software.

Easier fleet management

While CPU performance, energy efficiency, and advanced security features are vital for hybrid worker productivity, enterprises also need easier ways to keep user devices updated and working efficiently and securely. That's why AMD PRO manageability features streamline device deployment and upkeep.

The AMD Manageability Processor[4] integrated with the CPU enables enhanced wireless flexibility, helping administrators process updates, fix user issues, and perform other critical functions, remotely and safely.

These capabilities are fully compatible with multiple device manufacturers and leading enterprise mobility management systems.

With AMD PRO manageability, administrators work from a single console to manage all the devices in their care – even those powered by Intel processors. It's all to enable today's professionals to do their best work regardless of location and lighten the load on the IT departments supporting them.

Building the future of work

Advances in chip design and collaborations between hardware and software vendors will enable enterprises to build the workplace of the future. Devices that deliver portability, security features, and staying power can help workers create new ways to collaborate while leveraging advanced technologies such as artificial intelligence (AI).

Advancements driving the future of work include:

- Angstrom-scale processors that punch far above their weight while sipping power and enabling professionals to work longer and smarter.

[3] Full system memory encryption with AMD Memory Guard is included in AMD Ryzen PRO, AMD Ryzen Threadripper PRO, and AMD Athlon PRO processors. Requires OEM enablement. Check with the system manufacturer prior to purchase. GD-206.

[4] AMD Manageability Processor requires OEM enablement. Check with the system manufacturer prior to purchase. GD-193

- Automation and no-code development for knowledge workers, including robotic process automation, business analytics applications, and AI-powered assistants.
- Virtual workspaces, including the blended virtual/physical worlds enabled by the emerging metaverse.
- Mobile workstations, bringing high-performance computing formerly reserved for desktop machines to full-featured, thin, and light laptops.
- New technologies powering hybrid work 2.0, where remote and flexible work, secured against sophisticated cyberattacks, is the new normal.

"The art and science of CPU design is about finding the middle ground between enabling thin and light professional laptops with great battery life and processing power for high productivity," Jasinski says. "At AMD, we're continuing the architectural advances that enable clock speed gains without driving up power consumption. In other words, we want to engineer a processor that consumes the least amount of power possible yet delivers the highest performance possible."

Striking that balance while building in security at the silicon level and easing deployment and management chores is the key to empowering the hybrid workforce, now and into the future.

Learn more at https://www.amd.com/en/products/ryzen-pro-processors-laptop.