ULTIMATE GUIDE TO WINDOWS 7 MIGRATIONS

What You Need to Know with a Year Left on the Clock

CONTENTS

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Windows 7 is scheduled for end of life in January, 2020

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01 Automation led digital solutions for 30% faster deployments

02 Real-time User experience as a key evaluating criteria instead of process based KPI's

03 Design Approach ensuring 100% Security & Compliance

04 Service Expertise of managing over 100K desktops

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KEY LOOMING SUPPORT DEADLINES:

- **Jan. 14, 2020**—Windows 7 SP1
- **Jan. 14, 2020**—Windows Server 2008 R2 SP1
- **July 9, 2019**—SQL Server 2008 SP4
- **Oct. 13, 2020**—Office 2010

THE WINDOWS 7 SUPPORT DEADLINE IS COMING!

What you need to know with less than a year to go.

BY KURT MACKIE

We're now less than a year away from one of the most significant deadlines in the history of IT. Jan. 14, 2020, is a huge day in the IT world. That's when Windows 7, which was in many ways Microsoft's most popular OS to date, falls out of support. The migration to Windows 10 is already well underway, but it will accelerate over the coming months as organizations worldwide race to meet this deadline.

Adding to the significance, that Jan. 14 deadline also applies to the end of support for Windows Server 2008 R2 Service Pack 1. In addition, Office 2010 will lose support on Oct. 13, 2020. The end of support for SQL Server 2008 Service Pack 4 is even sooner, coming July 9 of this year.

As Jeff Woolsey, a principal program manager for Windows Server, tweeted from his @WSV_Guy account in early January, "Folks, I hope you had a safe, a peaceful &

"Just counted 7 Servers and 66 PCs that my current clients need to replace or upgrade. Marketing out to prospects too. Got a busy 2019 ahead."

Thomas W. Carroll, a Microsoft partner, tweeted from his @IslandTom12 account responding to a Microsoft list of end of life support dates.

joyful holiday season & you're able to ease into 2019. With folks planning upcoming projects, I thought I'd provide a threadzilla w/key End of Support dates." From there, he listed 29 deadlines coming up.

The tweet helped kick start IT managers and partners to take a careful look at environments they manage. "Just counted 7 Servers and 66 PCs that my current clients need to replace or upgrade. Marketing out to prospects too. Got a busy 2019 ahead," replied Thomas W. Carroll from his @IslandTom12 account.

WINDOWS 7 OPTIONS

When Windows 7 Service Pack 1 falls out of "extended support" on Jan. 14, 2020, Microsoft will no longer issue security updates for the OS. Continuing to run the OS after that date represents a potential risk for organizations and individuals because unpatched flaws could get exploited by attackers. Microsoft stopped Windows 7 sales a few years ago.

Windows 10, Microsoft's "forever OS," will be the next jump for many. Windows 10 has already taken the market lead away from Windows 7 in some Internet-usage tracking.

In September, Microsoft introduced a new Windows 7 "Extended Security Updates" program for Windows 7 holdouts that can't make the immediate shift to Windows 10. The program pushes out support for security updates by three years past the 2020 deadline. Costs for the Windows 7 Extended Security Updates program haven't been publicized by Microsoft, but the cost is said to increase every year for the participants.

Microsoft has a similar Extended Security Updates program established for SQL Server 2008 and Windows Server 2008. This program also lets organizations get Extended Security Updates for three years past the product's end of extended support date. It can be done by moving workloads onto Azure virtual machines at no extra charge or it can be done for on-premises workloads if the servers have Software Assurance coverage for

75 percent of the licensing cost annually. When moving workloads to Azure virtual machines, it's possible to use the Azure Hybrid Benefit program to get a discount based on existing licensing.

It's also possible for large organizations to get "custom support" agreements from Microsoft that extend the period in which Microsoft provides hotfixes for Windows 7 for a year. However, these agreements aren't cheap. Custom support was thought to cost about $200 per device for a minimum of 750 devices per year back when Window XP had fallen out of support. The costs aren't clear because Microsoft doesn't publish its custom support pricing.

WINDOWS 10 AND HARDWARE

The jump to Windows 10 for organizations and individuals likely will require hardware upgrades, too. It's possible to perform an "in-place upgrade" from Windows 7 to Windows 10, in which the underlying OS of a machine gets replaced by Windows 10 bits.

It can be risky to base upgrades from Windows 7 on Microsoft's hardware requirement list. PCs can have hardware that meets Microsoft's upgrade requirements for Windows 10, but also are not compatible somehow. The best course is to check with an original equipment manufacturer (OEM) first to see if it may work before trying that approach.

The other problem with upgrading existing hardware running Windows 7 is that Windows 10's lifecycle support is based, in part, on how long the hardware components, such as processors, are supported by OEM vendors like AMD, ARM and Intel. The requirement likely means that if your processor is 5 years old or so, there's no guarantee that Windows 10 will work with it.

So most individuals will face buying new hardware with Windows 10 by the looming Jan. 14, 2020 date. Most organizations, on the other hand, face building images for new machines, unless they've mentally gotten up to speed with Windows Autopilot, Microsoft's relatively new scheme where images and drivers are held in the cloud. Windows Autopilot permits new Windows 10 PCs to be shipped directly to end users, who carry out the provisioning themselves. OEMs that support Microsoft's Windows Autopilot program include Dell, HP, Lenovo, Microsoft (with its Surface PCs) and Toshiba. Acer and Panasonic are expected to participate, as well, according to Microsoft.

'WINDOWS AS A SERVICE'

IT pros also likely will face more work with Windows 10 than with preceding Windows OSes as they'll now be on Microsoft's "Windows as a service" upgrade treadmill. With

Windows as a service, new OS upgrades (known as "channel" releases) arrive more frequently, twice a year in the spring and fall.

IT pros running the Windows 10 Pro edition will have 18 months of support before needing to upgrade the OS, which can be done via an in-place upgrade. Users of the Enterprise or Education editions of Windows 10 have up to 30 months before needing to make the upgrade jump, but they must follow the September-targeted release cycle to get that amount of time, according to a new policy change that Microsoft announced last year.

Organizations are advised by Microsoft to address the more frequent upgrades of Windows 10 by setting up "testing rings" for end users and by participating in the Windows Insider Program to test new OS features beforehand. It's a potentially disruptive and time-consuming change for short-handed IT departments.

As a consequence of Windows-as-a-Service demands, many IT shops may be considering adopting the "long-term servicing channel" of Windows 10. The long-term serving channel is much like the old service-pack model of Windows 7, where an OS release gets supported for up to 10 years. Microsoft, though, doesn't recommend the long-term servicing channel for businesses. It's currently suggested for use with medical devices or devices that can't tolerate frequent updates.

IT pros also face handling larger file sizes with Windows 10 updates, both in terms of the monthly updates (2GB to 3GB) and the semiannual updates (6GB to 11GB) that arrive.

Microsoft has been taking steps to reduce its Windows 10 update sizes. Next year, Microsoft will carve out a Reserved Storage space for new Windows 10 PCs to avoid potential space problems from updates on machines with small hard disks or small solid-state drives. Windows 10 update sizes are getting halved for x64 systems managed by Windows Server Update Services. Microsoft is also working to reduce the size of its monthly "quality" updates.

There's a lot to think about and a lot to do over the next 10 to 11 months for organizations still running Windows 7. ■

Kurt Mackie is senior news producer for Redmondmag.com. Editorial Director Scott Bekker contributed to this report.

STICKING WITH WINDOWS 7

If a Windows 7 migration isn't going to work out by Jan. 14, 2020, there are options for limping along—but they'll cost you.

BY KURT MACKIE

We've all seen it. The forlorn terminal sitting in a dusty small business office, sleepy doctor's office or remote outpost of a declining retail outlet. And the screensaver is showing—Windows XP. Those are just the most visible examples. Windows XP systems are parked in companies and organizations all over the world where they often run old applications that aren't supported on newer OSes.

Windows 7 is about to become that OS. It's about to become that red flag that an organization has some extreme security risks.

The source of those risks is obvious. Once an OS goes out of the extended support phase, Microsoft no longer provides security patches. Every security flaw, with very rare exceptions, discovered after that deadline will not be patched. Additionally, organizations that have any other non-security problems can't look to Microsoft for support help.

Most organizations are on track to get all their Windows 7 systems migrated before the Jan. 14, 2020, deadline or shortly thereafter. For those few systems that can't be migrated, there are options.

EXTENDED SECURITY UPDATES

Microsoft plans to start selling its Windows 7 Extended Security Updates (ESU) plan to organizations on April 1, 2019, according to an announcement in early March.

The plan, when available next month, will let organizations using Windows 7 Service Pack 1 continue to get "Critical" and "Important" security patches for three years past the Windows 7 Jan. 14, 2020, end-of-support date, although no technical support is provided by Microsoft. The announcement possibly is Microsoft's first disclosure of a sales date, although the Windows 7 ESU program was first announced back in September.

Pricing for the Windows 7 ESU plan wasn't described in the announcement, although Microsoft had previously indicated it would be sold on a "per-device basis and the price will increase each year."

A "Microsoft End of Support FAQ" document for Windows 7 and Office 2010 stated that "organizations with Windows Enterprise Software Assurance or a Windows Enterprise E3 subscription license will receive advantageous pricing" on the Windows 7 ESU plan, although details weren't provided. Software Assurance annuity coverage isn't required to use the Windows 7 ESU plan.

"General availability" (GA) of the Windows 7 ESU plan "will be announced in March" according to the FAQ document, although GA apparently wasn't immediately declared. The GA date, meaning the date when a product is deemed "production-environment ready" by Microsoft, can be different from the sales date (typically by one month).

The Windows 7 ESU plan has aspects that are similar to an insurance plan in terms of buying into it and the costs. For instance, organizations buying into the plan at later stages won't be paying less. Here's how the FAQ expressed it:

"While end of support for Windows 7 is Jan. 14, 2020, organizations can purchase the ESU for the three years they are available. If an organization waits and purchases ESU for the first time, they will have to pay for preceding years as well since all security updates are cumulative starting January 2020."

Organizations using the Windows 7 ESU plan will get a special multiple activation key (MAK) after they buy into the plan, according to the FAQ document:

"Upon purchasing Windows 7 ESU, the organization will be provided with a multiple activation key (MAK), which can be used to deploy to the covered devices. This MAK key is independent of the Windows 7 activation and can work in parallel with a Key Management Service (KMS) activation deployment. Additional technical details will be provided in a TechNet article published at a later date."

The FAQ described buying into the Windows 7 ESU plan as a "last resort" for organizations. Instead, Microsoft recommends that organizations perform a direct upgrade "to the latest feature update of Windows 10."

WINDOWS 10 APP COMPATIBILITY

Organizations experiencing application compatibility issues after an upgrade to Windows 10 can try to get help from the Desktop App Assure FastTrack program. However, organizations will need to have purchased "at least 150 licenses from the listed eligible [Microsoft 365] plans" to get such help, according to a Microsoft document.

Microsoft keeps a list of known compatible applications with Windows 10 at its "Ready for a Modern Desktop" page.

WINDOWS VIRTUAL DESKTOP ON AZURE

Alternatively, as a "fallback," organizations can use the Windows Virtual Desktop on Azure service for Windows 7, which includes the three years of ESU support (until January 2023) at no additional cost.

Microsoft had described its Windows Virtual Desktop (WVD) program back in September as a virtual desktop infrastructure solution using the Enterprise or Education editions of Windows 7 or Windows 10. WVD, which runs the client OSes on Microsoft Azure datacenter infrastructure, supports remote access by end users to Office 365 ProPlus applications, Microsoft Store apps and "existing Windows line-of-business apps."

The WVD service will be "coming soon," according to Microsoft's March announcement. No dates were suggested. Liquidware Labs Inc., which has been partnering with Microsoft to integrate WVD with Liquidware's FlexApp Layering, ProfileUnity User Environment Management and Stratusphere UX monitoring and diagnostics software, is telling its customers the WVD service should be generally available this summer.

Liquidware sees WVD as both a Windows 7 stopgap, but also as a key new option for Windows 10 migrations, among other use cases.

"Whether it is the ease of virtual desktop assessments, seamless user migrations to Windows 10 and Microsoft WVD, application layering, enterprise-grade profile management, process optimization or quicker overall logons—when WVD is coupled with Liquidware solutions we empower customers to extract the full value of modern desktop technologies and transform their Windows workspaces to meet the needs of the cloud era," Jason E. Smith, vice president of product marketing at Liquidware, said in a statement.

THE OFFICE CONUNDRUM

When it comes to Windows 7 migrations, and obstacles to them, Office is often a factor. Microsoft's omnibus March announcement also included a description on how the Windows 7 ESU plan will affect Office 365 ProPlus support. Office 365 ProPlus is the suite of Office applications that are typically sold as part of Office 365 subscription plans.

Essentially, the Windows 7 ESU plan extends Office 365 ProPlus support, as well. Here's how the announcement described it:

"Office 365 ProPlus will be supported on devices with active Windows 7 Extended Security Updates through January 2023. This means that customers who purchase the Windows 7 Extended Security Updates will be able to continue to run Office 365 ProPlus."

In September, Microsoft extended some of its Office support deadlines in a complex communication. Organizations using the perpetual-license Office 2016 product had initially faced getting cut off from connections to Office 365 services on October 2020, but Microsoft later extended that support by three years to October 2023.

Office 2019 perpetual-license users, though, are still getting an "extended support" phase that'll be truncated by three years, ending on Oct. 14, 2025. Office 2019 is only supported on Windows 10, Windows 10 Enterprise edition Long-Term Servicing Channel (LTSC) and Windows Server 2019. It's only installable via the click-to-run process (no MSI file is provided).

MODERN DESKTOP DEPLOYMENT CENTER

For those who look at their Windows 7 holdout options and don't like what they see, Microsoft is also providing ways to go "all in" with the latest kit.

IT pros with time on their hands can check out Microsoft's "**Modern Desktop Deployment Center**" page.

It's a series of Microsoft videos aiming to accompany the Modern Desktop Deployment and Management Lab Kit, which is a 150GB downloadable kit that includes a trial version of Microsoft 365 Enterprise E5 software.

"Modern Desktop" is a Microsoft marketing term signifying the Windows 10 and Office 365 combination and was a major focus of the September Microsoft Ignite conference. Also mentioned at that time was a future Microsoft Managed Desktop service offering, where Microsoft takes over the app deployment, update management and support aspects of running Windows 10 and Office 365 ProPlus for organizations. Microsoft hasn't said much about the Microsoft Managed Desktop since Ignite, and it's not clear when it might be available.

LIMPING ALONG

There's one other option, which is to leave those Windows 7 systems running, and hope for the best. That's the option that seems least expensive at first blush, but that's only because all the costs are hidden. They don't factor in the declining performance and, more important, the inevitable security breaches, with all of their potentially catastrophic costs. ■

Kurt Mackie is senior news producer for Redmondmag.com. Editorial Director Scott Bekker contributed to this report.

HALF OF WINDOWS 10 MIGRATIONS ARE FINISHED

A Redmond Intelligence survey shows that organizations have a lot of work to do in the year ahead until the end-of-support deadline for Windows 7. BY SCOTT BEKKER

Only about half of all companies have completed their migration to Windows 10 with less than a year left until support ends for Windows 7. That's according to a new survey of more than 500 organizations by Redmond Intelligence, the technology and market research unit affiliated with Redmondmag.com that provides industry research, best practice reports and custom reports for IT managers, developers and channel partners.

Support for Windows 7, which has been one of Microsoft's most popular client OSes, officially ends on Jan. 14, 2020. Organizations have some options for extending that support with custom agreements or by moving their desktops to a soon-to-be-released Windows Virtual Desktop on Azure service. Otherwise, security updates and other support will be shut off for the aging OS.

For the most part, moving from Windows 7 involves shifting to Windows 10. There was little evidence in the Redmond Intelligence survey and in the market more broadly that the end of Windows 7 support is prompting a notable industry shift to non-Windows platforms. One wrinkle is that there are some organizations running Windows 8/8.1. Microsoft's touch-and-tablet-inspired OS brought tiles and a Start screen to the platform with version 8, then toned down the changes in version 8.1. That combination of Windows 8/8.1 didn't gain much traction in the enterprise, at least by the standard of other Windows releases.

The organizations in the survey have extremely heterogeneous desktop environments. Even among organizations that haven't migrated, nearly all have some Windows 10 running somewhere. Windows 10 was in use at 95 percent of organizations. Windows 7 was the second-most-common OS at 62 percent. Linux and Apple macOS both outpaced Windows 8/8.1. Linux was at 43 percent, macOS at 33 percent and Windows 8/8.1 at 27 percent.

Highlighting the challenge ahead for organizations looking to retire all of their Windows 7 implementations before the support deadline, two long-unsupported versions of Windows remain well-represented. Nearly 14 percent of organizations admitted having some Windows XP running and 3 percent still had some Windows Vista in place. Windows XP went out of support on April 8, 2014. Extended support for the much-less popular Windows Vista ended three years later on April 11, 2017.

THE WINDOWS 10 MIGRATION PLAN

The core of the Redmond Intelligence survey was the question, "What are your plans for migrating to Windows 10?"

The biggest single group of respondents is done with the Windows 7 drama. Those who answered that they've finished their move to Windows 10 was nearly half—48 percent. That's an unsurprising number for an OS that's been popular, stable and available since July 2015.

A slightly smaller group is well on the way toward their Windows 10 migration. About 34 percent of respondents had their migrations in process. The bigger part of that group is in progress but less than halfway through the migration. That group amounts to 20 percent of all respondents. The other 14 percent of the in-progress group is less than halfway through the migration.

Many organizations are getting ready to start a sprint before the January 2020 Windows 7 support deadline. Starting migrations in the next six months are 3 percent of organizations. Those planning to start in the final months before the deadline are an additional 4 percent.

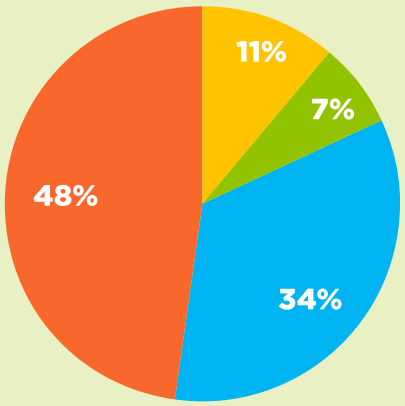
A tiny group is planning to start their Windows 10 migration after the Windows 7 deadline, with 1 percent planning to start migrating within the next 18 months and 1 percent planning to start in the next 24 months or later.

Of the remaining 9 percent, 6 percent haven't decided on a Windows 10 migration plan and 3 percent don't plan to move to the OS.

Some of those last few categories—post-Windows 7 support deadline starters, undecideds and non-movers—include organizations that moved to Windows 8/8.1. Any organization that went through with that migration can postpone a Windows 10 migration until Jan. 10, 2023.

In all, the survey found that 89 percent of organizations will have at least started their Windows 10 migration prior to the deadline for Windows 7 support next January.

WINDOWS 10 MIGRATION PROGRESS



- Done - **48%**
- In Progress - **34%**
- Starting Before Windows 7 Deadline - **7%**
- Other - **11%**

Source: Redmond Intelligence survey

WHY THEY'RE MOVING TO WINDOWS 10

Organizations have a lot of reasons for migrating to Windows 10. When asked in the Redmond Intelligence survey, the largest group said they'd upgraded to have

the most modern OS. That group included a sizable portion of organizations that had already completed their migration.

A close second was "end of product support for Windows 7," a key motivator for the migration activity occurring now and over the next 12 months. Rounding out the top three reasons was security feature improvements in Windows 10.

Other top reasons for migrating to Windows 10 included getting access to the fast update cadence of Windows 10 and getting support for the latest hardware features.

HOW THE MIGRATION IS BEING DONE

The Windows 10 migration is happening during an era when bring-your-own-device (BYOD) attitudes are prevalent among users. The survey found that traditional methods of managing migrations still prevail.

The most popular method for conducting client OS migrations was centrally managed, in-place migrations using systems management/migration software at 27 percent. Next up was another old-school method—coordinated hardware migration, with the OS getting upgraded as new desktops are deployed. That method was in use at 24 percent of the organizations surveyed. Also popular was reimaging PCs, the method of choice for 18 percent of respondents.

Relatively few organizations picked an entirely BYOD approach, with only 5 percent reporting that users bring their own devices so the organization doesn't conduct desktop migrations. Piecemeal hardware migrations, where the OS gets upgraded as new desktops are deployed, however, was a common method at 18 percent.

Finally, some organizations are turning to desktop virtualization as their migration approach. That's still a relatively niche method at 6 percent.

The survey of Redmondmag.com readers was conducted between November 2018 and February 2019 and spanned organization sizes. Very large enterprises of 10,000 or more employees accounted for 22 percent of respondents, 20 percent came from organizations with 1,000-9,999 employees and 11 percent worked at organizations with 500-999 employees. On the other end of the scale, 17 percent of respondents were from organizations with 100-499 employees and 30 percent were at organizations with fewer than 100 employees. ■

Scott Bekker is editorial director of Converge360, which includes Redmondmag.com and Redmond Intelligence.

ACER SWIFT 7
Weight: 1.96 pounds
Thickness: 9.95 mm
Display: 14 inches with ultra-thin bezels, and 92 percent screen-to-body ratio
Battery life: Up to 10 hours
Processor: 8th Gen Intel Core i7
Price: Starts at $1,699
Availability: May in the U.S.

WINDOWS 10 HARDWARE FOR WINDOWS 7 STRAGGLERS

PCs have gone through several generations of enhancements since Windows 7 shipped. For organizations making the move from Windows 7 to Windows 10, here's what to look for. **BY GLADYS RAMA**

Microsoft released Windows 7 a decade ago, practically an epoch in technological terms. PCs have advanced by leaps and bounds since then; they're sleeker but more powerful, with connectivity capabilities for traditional office-bound workers and mobile warriors alike, and enough processing power to accommodate a wider array of workloads than ever. The 2019 Consumer Electronics Show (CES) this past January, with its catwalk of AI-infused Windows 10 devices, provided a capsule view of how just how far PCs have come. For comparison, the big PC-related highlight of the 2010 CES, which took place a few months after the official launch of Windows 7, was touchscreen monitors.

DELL LATITUDE 7400 2-IN-1
Weight: 3 pounds
Thickness: 8.57 mm to 14.89 mm
Display: 14 inches
Processor: 8th Gen Intel Core
Availability: March

After 10 years' worth of advances, organizations will have a lot to navigate when they move their users off of aging Windows 7-era machines and onto Windows 10. A wave of PC hardware refreshes is coming: Windows 7 has only a few months of support left before Microsoft stops issuing updates for the OS completely. While Microsoft does offer "custom support agreements" that would let organizations stay supported on Windows 7 for an additional year, the cost of such an arrangement can be exorbitant—upward of $200 per device, by some accounts. And while it's possible to do in-place upgrades to Windows 10 from Windows 7, the Windows 10 hardware requirements may to be too high a hurdle for many older PCs to clear.

For organizations planning to make the jump from Windows 7 to Windows 10, what business considerations should be top-of-mind? We spoke to executives from some of the biggest PC makers to find out.

SECURITY

"One of the key reasons for moving to Windows 10 is to ensure network security throughout the enterprise," says Corina Chao, business manager of Acer Inc.'s U.S. Mobility unit. "Remaining with Windows 7 could leave companies vulnerable to cyberhacks."

Microsoft has long touted Windows 10 to be the "most secure version of Windows" and PC manufacturers have followed suit, loading their flagship Windows 10 devices with security capabilities that might have been considered bleeding-edge back in the Windows 7 days—password-free sign-ins via Windows Hello, built-in privacy screens, proximity sensors that automatically send a PC into sleep mode when the user steps away, and more. Enterprises upgrading their hardware from Windows 7 to Windows 10 must be aware of what security protections these new PCs are capable of, and how closely those capabilities hew to their specific business needs. This is especially important given the rapidly evolving nature of modern security attacks, which employ everything from social engineering (like phishing and ransomware) to exploiting the PC processor itself (speculative execution side-channel flaws like Spectre and Meltdown).

HP ELITEBOOK X360 830 G5
Weight: 2.97 pounds
Thickness: 16.9 mm
Display: 13.3 inches
Processor: 8th Gen Intel Core i3-i7
Availability: March

"Modern IT management requires a shift in mindset from the old way of keeping devices updated and secure. Rather than building higher walls and deeper moats around the perimeter of the environment, organizations need to assume the environment is always compromised and act accordingly. This 'assume breach' mentality puts security at the forefront of any IT discussion," says Rahul Tikoo, vice president of Commercial Mobility Product Management at Dell Inc. "Staying current on feature and security updates is the first defense to these types of threats."

Beyond just staying on top of software patches, however, Tikoo also recommends that organizations tap into the Windows 10 breadth of security features to keep their environments protected, adjusting their hardware procurement as much as is reasonable to take advantage of these built-in features. "New security features may require new hardware that didn't exist when older models launched," he explains, citing Windows Hello—which requires biometric readers like fingerprint scanners or specialized cameras—as an example. He touts Dell's efforts to fully integrate these security perks in its flagship Windows 10 enterprise PC, the Latitude 7400 2-in-1. Among its features, for instance, the Latitude 7400 2-in-1 power button doubles as a fingerprint reader. It also has built-in proximity-sensing technology that calls up Windows Hello when the user approaches a PC, and prompts the PC to sleep when the user moves away.

HP Inc.'s Alex Thatcher, director of New Products for Commercial PCs, echoes the importance of a security-forward approach for enterprises undertaking a Windows 10 device migration. "The thing that every ITDM [IT decision maker] should know is that security begins in hardware. It's critically important that when IT decision makers choose their device, they think in terms of establishing a hardware root of trust that begins right in the silicon of the device," he says. "Every device decision is a security decision."

HP has also taken pains to build security capabilities into its business-class Windows 10 machines, which include the premium EliteBook 1050 and the more mainstream EliteBook 800 and 700 series. The machine monitors, for instance, come equipped with a technology called Sure View, which Thatcher describes as "an integrated electronic

"Windows 7 is 10 years old, and the way that people work today is very different than the way they worked 10 years ago. It's not just about moving to another OS." **Alex Thatcher, Director of New Products for Commercial PCs, HP Inc.**

privacy filter" that's especially useful in open-office environments or for users on the go. With a few keystrokes, Sure View lets users darken their screens, giving them privacy from potential snoops in their periphery.

Moreover, Thatcher says, built into the innards of HP's Windows 10 devices is a BIOS "watchdog" called Sure Start. "If that firmware is attacked by malware or is changed, that chip jumps into action and not only detects that, not only warns the user, but it automatically self-heals," Thatcher explains. "It saves the user from that threat that's imminent and it also prevents it so if there's a mass attack, IT isn't running around trying to update each machine. It does it right at the hardware level." And to further help organizations recover from a malware attack, there's a feature called Sure Recover, which enables users to retrieve and install a fresh image of their machine over the network.

"Every enterprise should have a plan for resiliency," Thatcher says. "They should ask the question, 'How long would it take to recover a thousand machines?'"

MODERN USER EXPECTATIONS

Another factor that businesses have to consider is user expectation, which has risen significantly since the era of the staid, gray Windows 7 box. Employees in the Windows 10 era are much more mobile, toting their laptops from airplanes to hotel rooms to cafes to satellite offices to home offices. Meetings are as likely to take place online as they are in physical conference rooms. Productivity features like digital inking and screen sharing are increasingly becoming necessities rather than nice-to-haves.

Because of these changes in workforce habits, businesses must build their PC purchasing plans around helping their employees work wherever they can be productive—not just when they're tied to a desk in an office. That means examining hardware specs beyond the obvious, explains Thomas Butler, executive director of Commercial Portfolio and Product Management at Lenovo. "As more and more employees work remotely, at least some of the time, other considerations need to be taken into account such as battery life and system

THINKPAD X1 CARBON
Weight: 2.4 pounds
Thickness: 14.95 mm
Display: 14 inches
Battery life: Up to 15 hours
Processor: 8th Gen Intel Core
Price: Starts at $1,709
Availability: June

weight, and whether that device has what they need built-in or will they need to carry additional peripherals to be productive," Butler says.

Internet connectivity is also a key decision factor. "As younger generations enter the work-force and greater mobility is desired and expected, the ability to connect whenever and wherever a user is located requires high-performance Wi-Fi or WWAN [wireless wide area network]," Butler says. "Ensuring proper connectivity options are available to the end user will enhance their productivity."

Lenovo's flagship Windows 10 lineup, the ThinkPad X1, addresses the connectivity issue by building LTE-A WWAN technology into each device, in addition to Wi-Fi antennas that are designed to "to maximize signal strength." To ensure that employees are protected while connected to Wi-Fi, Lenovo devices also include technology that monitors wireless connections and alerts users of suspicious activity.

Specialized PC displays designed for working in variable conditions are also available on the market; HP, for instance, makes screens that are "outdoor-viewable" or equipped with glare-reducing technology. There are also collaboration-oriented features that businesses should consider for users who frequently join meetings from their laptops, such as noise-canceling microphones or cameras that can blur out backgrounds.

Where and how its PC users work will also determine the level of processing power that an organization needs in its Windows 10 devices. As Thatcher observes, though Intel and AMD chips are generally at parity when it comes to performance, Intel machines tend to have better battery life while AMD chips tend to deliver better value. "This creates a great option for IT managers," he says. "If they have highly mobile users, they really are always on the go, they can go with the solution that stresses battery life. But if they have users

that are more like the knowledge workers that are going from fixed spot to fixed spot, or they have desktop users, then AMD is a great option."

Dell's Tikoo recommends that organizations tailor their hardware choices according to each employee's role. "An end user who only uses a Web portal and not data-intensive applications will not likely need a full workstation with an Intel Core i7 processor, discrete graphics and 32GB of RAM, but could be just as effective in their role with a Celeron processor, solid-state hard drive and 4GB of RAM."

SUPPORT AND COMPATIBILITY

That said, businesses planning a PC refresh need to take a close look at Microsoft's Windows 10 hardware support policies, which are notoriously hard to pin down. Between Microsoft's twice-annual Windows 10 update releases and the finite capabilities of processors to receive those updates indefinitely, today's IT departments must be mindful of multiple, overlapping and often esoteric support timelines from Microsoft, PC manufacturers and chip makers alike.

"PC devices need to be designed, prepared and supported to qualify for semiannual update releases for Windows 10," Tikoo explains. To ease the way for enterprises looking to replace its aging Windows 7 machines with ones from Dell, he says the manufacturer has put in place "new supportability practices" for its entire Windows 10 lineup. "This includes qualification of the current version of Windows 10 and the prior two versions for customers, to downgrade if needed, on every commercial device. Dell is implementing five years of Windows 10 OS supportability after production finishes on all new commercial platforms beginning January 2019 and for devices with Intel Skylake or later CPU architectures," he says.

As he elaborates, processor support can be an especially thorny issue. "The key processor consideration is to ensure the CPU will be supported by the OEM, the component manufacturer [Intel or AMD] and by Microsoft for the service life of the device. Device models that are 2 years old, even if newly purchased, may not have a long enough component lifespan to realize full value from the device," Tikoo says. Most newer (in other words, post-Skylake) CPUs will be able to run the latest versions of Windows 10, he notes, but older CPUs will have "reduced supportability." Paying attention to the chip makers' end-of-support dates is critical. ■

Gladys Rama is the senior site producer of Redmondmag.com.

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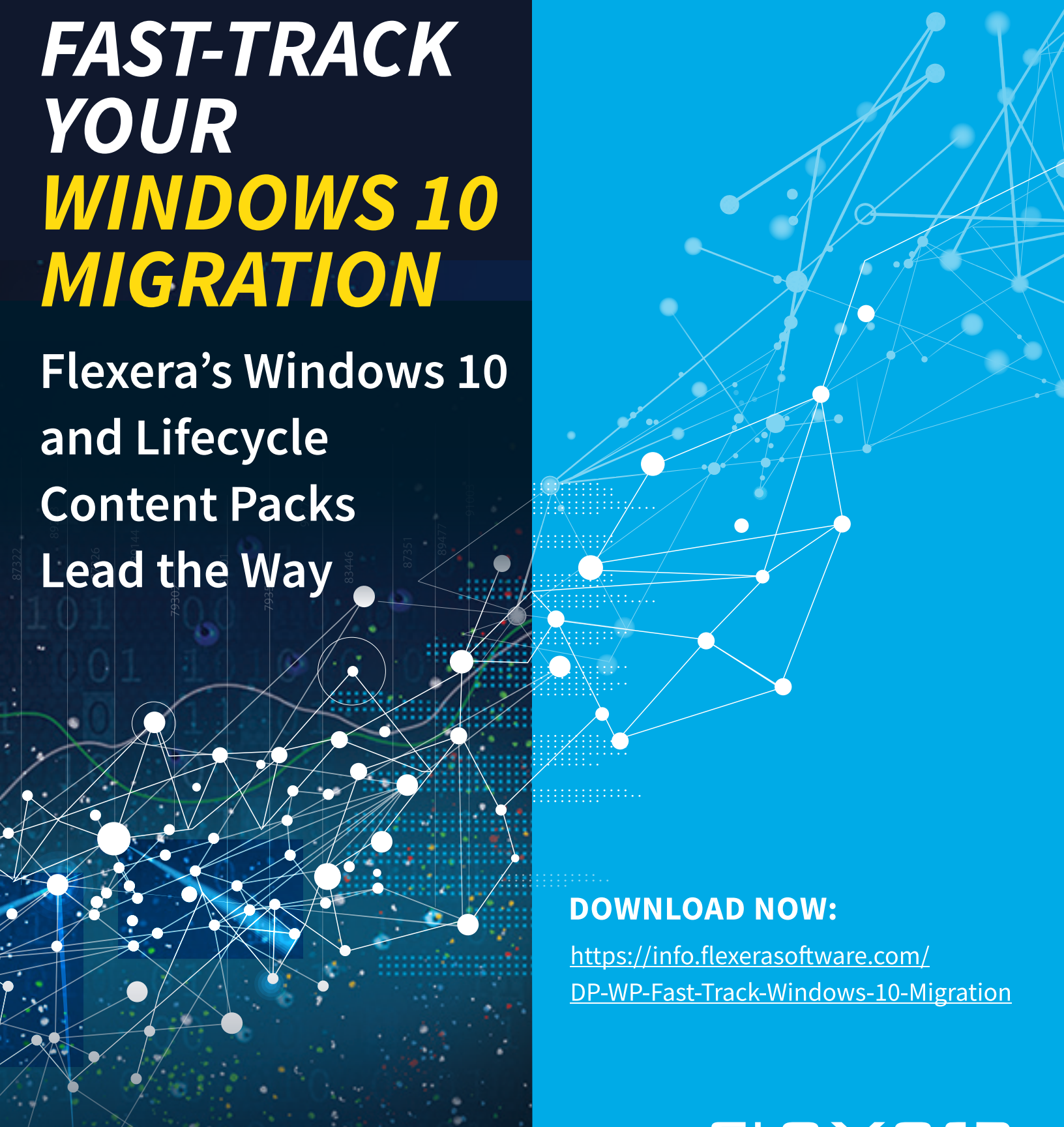

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