intel®

IT@INTEL

Easy Self-Setup Accelerates PC Delivery and Reduces Downtime

1,000 to 1,500 users are using the new PC delivery process on a weekly basis, and we estimate that the new process can cut IT PC delivery costs by as much as 30 percent.

Executive Overview

Anyone who has worked in a large company knows what it is like to wait a half-day for a new computer from the IT department while the IT technician reloads all the applications and settings onto that new computer. Intel IT has changed all that. Intel employees can now get a new PC any time of the day or night, and within an hour have a fully configured and personalized PC with all the standard IT-supported apps, as well as their personal data, installed.

Intel IT's new PC delivery process can be used across the spectrum of our PC delivery service requests, such as PC refresh, OS upgrade, hardware upgrade, repair, and new hires. The solution combines several elements to accelerate PC delivery:

- Delivery of PCs using "Grab-and-Go" lockers stocked with the most popular models and platforms, accessible around the clock.
- The use of a simple self-setup process and cloud-based services to create a seamless user workspace that follows a user from one device to another.

Both users and IT staff benefit from the solution:

- Users can choose when to pick up their new PC, when to configure it, and when to turn in their old PC. Plus, they can perform self-setup using either a wired or a wireless network connection.
- IT staff no longer have to spend hours migrating a user's data, applications, and settings to a new PC, which lowers IT expenses.

1,000 to 1,500 users are using the new PC delivery process on a weekly basis, and we estimate that the new process can cut IT PC delivery costs by as much as 30 percent.

Derek Harkin
IT Client Architect, Intel IT

Doron Mintz
Personal Client Platforms
Service Manager, Intel IT

Refael Mizrahi
IT Program Manager, Intel IT

f 🐦 in ✉

"The process is very seamless and comfortable. The automation of installing the OS and other software is very user-friendly. Appreciate the innovation happening in IT."

Background

Historically, PC replacement, repair, and refresh have been challenging for both users and Intel IT.

From the user's perspective, upgrading, repairing, or replacing a PC represented a significant amount of time during which the user's PC was not available. As shown in Figure 1, the traditional method for these scenarios involves the user contacting the Intel IT Help Desk to get a support ticket, followed by a visit to the nearest Intel IT service center, which is open only during normal office hours. Then the user must give up their old PC and wait two to four hours to get the new PC.

From Intel IT's perspective, reinstalling the OS, applications, and user settings on a new or repaired PC involved significant technician time and many manual processes, which together add up to IT expense and prevent IT staff from working on higher-value tasks for the enterprise.

We were sure we could implement a better way to deploy PCs, whether for repair, refresh, OS and hardware upgrades, new hires, or additional scenarios. The key was to remove IT from the critical path to accelerate and streamline PC delivery.

Solution

Intel IT has found that a PC refresh cycle of three to four years can yield optimal PC health and employee productivity. As a result, we refresh thousands of PCs each year. Additionally, there are the inevitable challenges: severe crashes, hardware updates such as upgrading a solid state drive, and issuing PCs to new hires. In total, Intel IT typically receive over 70,000 PC delivery service requests per year. As a result, substantial potential time and cost savings are associated with accelerating PC delivery.

Current Support Method for PC Issues

1 User gets support ticket from the Intel IT Help Desk

2 User takes old PC to IT Service Center during office hours only

3 User waits for new PC to be ready
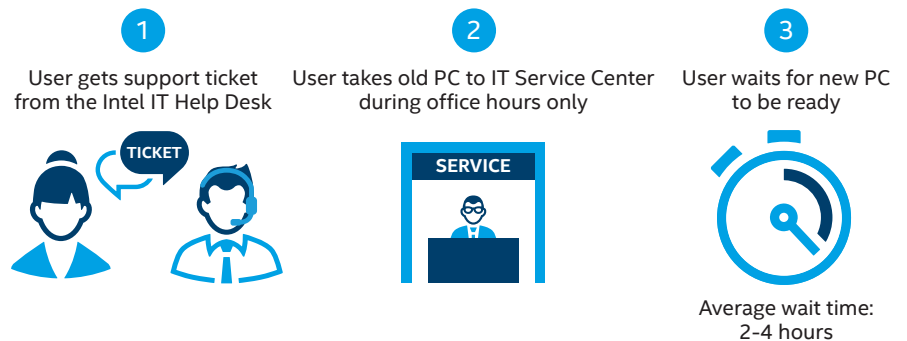
Average wait time: 2-4 hours

Figure 1. Traditional PC delivery, involving high-touch IT processes and significant wait times for users, takes anywhere from two to four hours—a time during which the user may not have access to a PC.

In 2017, we developed a new, more efficient PC delivery process that enables users to obtain a new PC from an on-site locker at their convenience, and to use a simple, self-setup process to transfer their old PC's applications, data, and settings to the new machine. After a one-month pilot in the spring, the process is now in production for all PC delivery service requests (repair, refresh, upgrade, new hire, and others).

Technical Approach

The solution consists of three primary aspects:

- **"Grab-and-Go" PC lockers.** We use an algorithm to make locker-stocking decisions, based on historical PC failure data, which helps predict which PCs will be needed. These lockers provide around-the-clock availability, so that users can get their PC at any time, without having to wait for the Intel IT service center to open and an IT technician to copy data, emails, applications, and settings from one PC to another.

- **Easy self-setup.** The user starts the easy-to-use, security-enabled "three-click" setup process by simply plugging in a USB stick (also provided from the locker) and powering on the device. After a few basic questions for the user, such as selecting their language, the process automatically installs the OS.

- **Cloud services.** The last step is to install the standard IT-supported applications and configuration personalization settings, which can be done with either a wired or wireless connection. We take advantage of our "Workspace Moves with Me" initiative,[1] which uses cloud services to decouple the user's workspace (content, applications, and settings) from the OS and hardware.[2] The result is a seamless user workspace that follows the user from one device to another.

Using the PC lockers and the seamless user workspace solution, users can now obtain a new PC any time of the day or night. And they still have their original PC at hand (except in severe crash situations), so they can continue working on the original PC and choose when to initiate self-setup on the new PC.[3] Once the self-setup starts, the new PC is ready to use in about an hour.

---

[1] For sites without lockers, users may not have around-the-clock availability of the new PC and may receive their new PC using the direct-ship method; typically, these are smaller sites where the probability of needing 24x7 access is low.

[2] For more information, see the IT@lintel white paper, "Enabling a Seamless User Workspace across Devices and Platforms."

[3] Users are asked to turn in their old PC within a week of obtaining the new one. They can return the PC at a Service Center, or using direct-ship.

Share: f t in ✉

As shown in Figure 2, the user contacts the Help Desk, which is open 24 hours a day, to obtain a PIN for a locker bay. To access the locker, the user swipes their ID badge, enters the PIN, and takes the PC and USB stick from the bay. In addition to the multi-authentication enabled through the badge swipe and PIN, the PC itself is programmed so the self-setup process cannot be run by another employee. Any necessary accessories, such as dongles, are provided using an IT vending machine or direct-ship services.

When designing the self-setup process, we took into account that most Intel offices are wireless; in fact, most employees do not have a wired connection option at their desks. This introduced some complexity, as we needed to design and build a security-enabled solution that allowed the user to complete the self-service setup process at their desk over the wireless network. Our wireless solution had to meet stringent security requirements so that it would not put the corporate network at risk. We also had to verify that the process did not negatively impact other network activity, such as conference calls over the wireless network.

New Support Method for PC Issues

1 User gets a locker PIN code from Intel IT Help Desk

2 User visits smart locker and retrieves PC

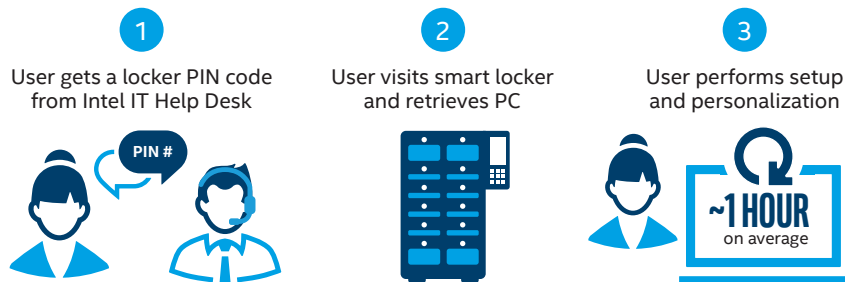**3** User performs setup and personalization

~1 HOUR on average

Figure 2. The new PC delivery process—which uses "Grab-and-Go" PC lockers and a self-service, cloud-based solution to seamlessly transfer the user's workspace from one device to another—has accelerated PC delivery to under an hour in many cases.

OEM Imaging and Direct Delivery Doesn't Meet Intel IT's Needs

Purchasing PCs that already have an OS image installed by the OEM and having the PC shipped directly to the user can provide cost and labor efficiencies. However, while this model (sometimes called PC-as-a-service) may work well in certain circumstances for many companies, we found from multiple perspectives that it did not meet all of our needs, including:

- **Agility.** Our enterprise compute environment is complex, with thousands of applications and drivers. To maintain an agile, DevOps capability that can quickly create a new image of a platform when necessary, it is inefficient for us to communicate daily with OEMs and wait for them to update an image and start shipping—sometimes we need a new release every two to three weeks. In addition, some users' PCs would already be en route from the OEM and would not be updated with the new image.

- **Security.** Intel's data and intellectual property are very valuable to the company, and protecting those assets is a high priority for Intel IT. We have stringent processes for validating the OS security; an OEM's processes may not meet our security requirements. Also, the shipping process is inherently unsecured, as many hands touch the package during its journey from the OEM to its destination.

- **Flexibility.** We often customize an OS build specifically for Intel's compute environment. Therefore, having a preinstalled OS image could not accommodate the versatility and adaptability we require.

- **Cost efficiency.** OEM imaging would require a support team for each OEM with which we interact. This would quickly drive up IT costs by doubling or even tripling our engineering teams.

We chose to develop our PC delivery process, which uses an on-site locker that is available around the clock to distribute new PCs, combined with a seamless user workspace transfer process that is self-serve.

Process Management

Intel IT supports about 40 different platforms (different combinations of OS, PC model, driver configurations, and so on). We developed a locker management application to help manage the new PC delivery process. We can use the application to allocate a device to a user, keep track of the contents of each locker, and manage inventory. For example, as shown in Figure 3, the application indicates which user is assigned to which bay, how many bays are being used for refresh PCs or for repair PCs, and which bays contain which platforms. The application tracks when a PC gets picked up from a locker bay and automatically adjusts the inventory data.

In addition, the management application uses prediction algorithms that use historical PC failure data to forecast the combination of devices that need to be put in the lockers to meet 95 percent or more of the needs until the next replenishment cycle (see Figure 4). We continually train the algorithms on 13 weeks of historical data and compare it to actual events.
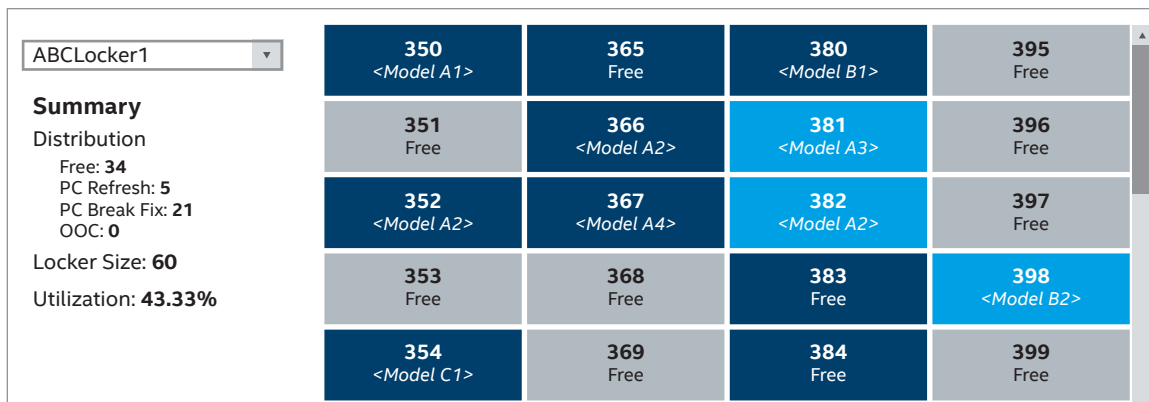
Figure 3. The PC locker management application can quickly display the contents of any locker.
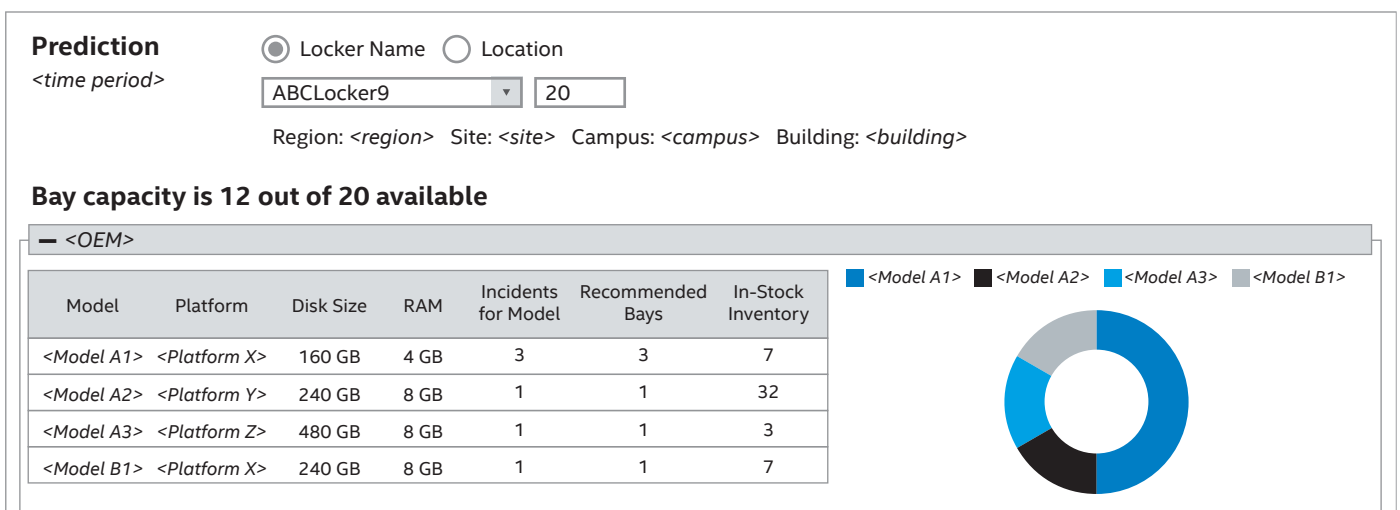

Figure 4. The PC locker management application provides predictive analytics data, which can be used to manage locker inventory.

Results

In the past, Intel IT was the bottleneck in PC delivery, limited by technician time and service center availability. Our new cloud-based solution provides reduced employee downtime, in addition to a substantial increase in the convenience and flexibility in the PC delivery process. Users can have a new PC within an hour, instead of waiting for several hours. Assuming their old PC is still functional, they can retain their old PC for at least a week, enabling them to continue to work until it is convenient to perform the self-setup process. The self-setup process works with both wired and wireless connections.

Technicians spend less time on PC repair, refresh, and delivery. We estimate that our new PC delivery process produces a 30-percent cost reduction for PC delivery, along with a vastly improved user experience—because while the Help Desk is open 24 hours, service centers are not. Imagine that a user has an issue with a PC on Sunday. Equipped with a PC locker PIN from the Help Desk, that user can be working on a new PC within the hour, instead of having to wait until Monday. Shift workers can pick up their new PCs from a locker during their shift instead of having to come back to work to get a PC during normal office hours.

We have deployed the solution across 24 sites. Currently, we have installed 54 lockers with a total of 1,725 bays. We intend to increase the number of lockers over time as necessary. So far, more than 10,000 users have already used the new process, and the number is growing by 1,000 to 1,500 users per week. In surveys, users are very happy with our new PC delivery process (see the sidebar, "Users Express Their Satisfaction").

Users Express Their Satisfaction

The following quotes are from employees who have used our new PC delivery process, which uses an around-the-clock locker to distribute new PCs and cloud-based services to seamlessly transfer the user workspace to the new PC:

- This is a GREAT and PAINLESS process! I appreciate the flexibility of the pick-up, and the instructions provided allowed for a flawless transition to my new system with an easy drop-off of my old system. THANK YOU!

- Great idea... Now we can go to the locker at any time. The self-service installation lets us have our old and new computer at the same time.

- Excellent way to switch to a new PC! Seamless transfer!

- The process is very seamless and comfortable. The automation of installing the OS and other software is very user-friendly. Appreciate the innovation happening in IT.

- This was BY FAR the best IT experience I've had!

In a recent survey about PC refresh, 96 percent of users said they were satisfied with the new PC delivery process.

Conclusion

Intel IT's customers—Intel's employees—are excited about the ability to get a new PC and configure it exactly the same as the old PC within an hour. Compared to the traditional PC delivery process, which was limited to normal office hours and could take two to four hours, the new PC delivery process represents significantly less wait time for users, and also cuts IT PC delivery costs by as much as 30 percent.

Our new process, used for many use cases, including refresh, upgrades, repairs, and new hires, consists of three primary elements:

- "Grab-and-Go" PC lockers stocked with the most popular models and platforms, accessible around the clock by users with an ID badge and a PIN obtained from the Intel IT Help Desk.

30% COST REDUCTION

We estimate that our new PC deployment process produces a 30-percent cost reduction for PC delivery.

- An easy self-setup process that users can run at their convenience to install the OS.
- Cloud services, available even wirelessly, that provide a seamless user workspace that follows a user from one device to another.

Both users and IT staff benefit from the solution:

- Users gain convenience and flexibility because they can choose when to pick up their new PC, when to configure it, and when to turn in their old PC. Plus, they can perform the self-setup process with either a wired or a wireless network connection.
- IT staff no longer have to spend hours migrating a user's data, applications, and settings to a new PC.

1,000 to 1,500 users are using the new PC delivery process every week and are highly enthusiastic about it. As one user put it, "This is a great option for avoiding having to spend a lot of time with the Service Center—very efficient. Thanks!"

Our new, simple, and fast PC delivery process is just one example of how Intel IT's investment in technology is improving user satisfaction as well as productivity—two of our top priorities.

For more information on Intel IT best practices, visit **intel.com/IT**.

IT@Intel

We connect IT professionals with their IT peers inside Intel. Our IT department solves some of today's most demanding and complex technology issues, and we want to share these lessons directly with our fellow IT professionals in an open peer-to-peer forum.

Our goal is simple: improve efficiency throughout the organization and enhance the business value of IT investments.

Follow us and join the conversation:
- Twitter
- #IntelIT
- LinkedIn
- IT Center Community

Visit us today at **intel.com/IT** or contact your local Intel representative if you would like to learn more.

Related Content

If you liked this paper, you may also be interested in these related stories:

- Enabling a Seamless User Workspace across Devices and Platforms
- Advancing the User Experience with Intel® Architecture-Based Laptops and Microsoft Windows* 10
- Refresh Cycle Still Relevant as the IT Landscape Evolves