



## Send ready-to-work PCs to end users faster with Dell provisioning services for VMware Workspace ONE

The service made ordering and provisioning new laptops easier for our IT administrator and reduced delivery time compared to a more traditional approach

For organizations facing an increase in remote workdays (up to 30 to 40 percent by one estimation)<sup>1</sup>, replacing traditional IT operations could free up valuable IT time while boosting end-user productivity by eliminating interruptions. This includes getting ready-to-work laptops in remote workers' hands sooner and managing them in the cloud before and after ordering. If you're using VMware Workspace ONE®, Dell provisioning services can remove the on-site admin time and complexity of traditional methods of provisioning, even when deploying thousands of devices.

At Principled Technologies, we compared a traditional in-house process of provisioning new Dell laptops to two versions of Dell provisioning services for Workspace ONE. We estimate that both drop ship provisioning services (Connected and Factory Provisioning) can save hands-on IT admin time due to Dell provisioning the devices at the factory before shipment. In addition, we found that Connected Provisioning saved more time for IT admins during device procurement compared to Factory Provisioning.

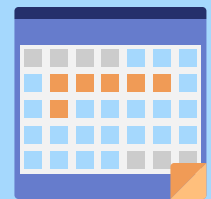
Based on our testing, both Dell provisioning services can significantly reduce hands-on IT onboarding for new systems—saving 48 hours of hands-on time for 1,000 devices. This can give IT admins more time to focus on more strategic IT priorities. It also means your end users can receive their laptops weeks sooner, provisioned to your organization's specifications for day-one productivity.

Finally, Connected Provisioning improves upon the flexible application and end-user profile management that Factory Provisioning provides, giving IT admins more opportunities to ensure devices can be fully compliant and secure on day one.

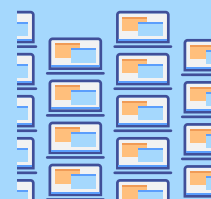
Faster time to value



**Zero IT touch onboarding**  
Save up to 48 hours for IT staff\*



**Minimize employee wait time**  
Deliver fully configured systems up to six business days sooner\*



**Ensure compatibility with ease**  
Connected Provisioning lets you configure apps at the factory any time until deployment

\*Connected Provisioning vs. a traditional, 1,000-system deployment process

## What is drop ship provisioning?

According to VMware, drop ship provisioning allows Microsoft Windows device OEMs and Workspace ONE administrators “to provide a virtually zero IT touch onboarding experience with virtually zero user downtime.”<sup>2</sup> OEMs load Workspace ONE configurations, settings, and applications onto Windows 10 and 11 devices at the factory before shipping them to users, which means users could start working as soon as they receive their devices. Connected Provisioning is an online version of drop ship provisioning while Factory Provisioning is an offline version.

Connected Provisioning allows administrators to connect their Workspace ONE accounts directly to the Dell factory. That means administrators can manage their in-factory deployments the same way they manage their live systems. Organizations choose which applications and settings to deploy in Workspace ONE and manage configuration profiles in TechDirect.

Factory Provisioning relies on a fixed provisioning package file (PPKG) that IT staff must create, test, and upload to Dell. Then Dell engineering validates the package and deploys it to each device in an order.

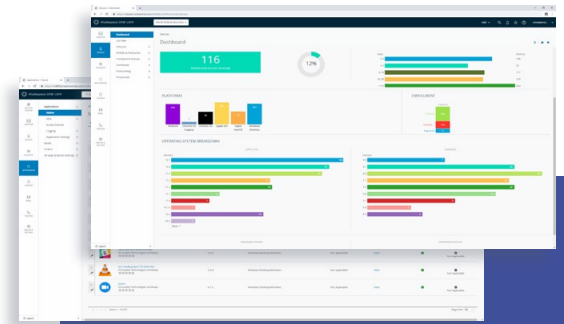
Both Connected and Factory Provisioning can save time compared to traditional provisioning and require IT staff to work directly with Dell Engineering to create a configuration. In both processes, IT sets up applications and settings just once using the Workspace ONE console and Dell manages the operating system and drivers. Using either process, the organization can deploy the configuration across all systems in an order and use it in future orders.

## How traditional provisioning processes can drain IT time and prolong device delivery to end users

Traditional methods for provisioning and deploying end-user devices can create real timing and logistical headaches for IT staff and, in turn, prolong getting laptops to end users. Current remote work conditions could exacerbate those headaches. Deploying a single system may not be complex or time consuming, but limited on-site staff and hardware resources can make larger deployments challenging to accomplish quickly, potentially extending the devices' time to value. For large deployments, some remote users may have to wait weeks after initial procurement before they can start using their devices.

In addition, a traditional provisioning and deployment process could create the following complications, some of which also can directly impact end users:

- Admins need to update drivers for each laptop model deployed within their organization.
- Organizations may have to choose whether to dedicate staff to the deployment initiative or split their time between deployment and technical support duties.
- Upgrading from older devices means administrators must spend time and effort on-site at a data center to maintain deployment server hardware and software.
- Manual provisioning requires a lot of physical workspace, making large-scale deployments difficult.



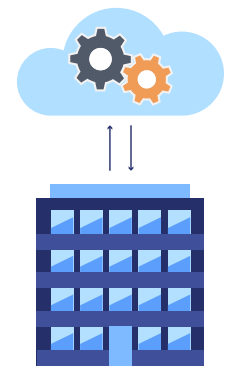
### VMware Workspace ONE

Workspace ONE is a cloud-native workspace platform that allows organizations to deliver and manage applications via device profiles for end user devices. Workspace ONE offers unified endpoint management, Zero Trust security, Windows settings management, single sign-on (SSO), integrations with various services, and more. For additional information, visit [www.vmware.com/products/workspace-one.html](https://www.vmware.com/products/workspace-one.html).

## A faster way to deliver fully provisioned systems

Our testing aimed to measure how Dell provisioning services for Workspace ONE can save IT administrators time and deliver end-user devices faster than the traditional process we tested. For both Connected and Factory Provisioning, we created custom configurations that Dell applied to all the devices we ordered. Dell then shipped those preconfigured devices, including up-to-date applications, directly to our designated location with no additional IT involvement.

Compared to the traditional deployment process we used, Connected and Factory Provisioning could offer the following benefits:



### Save hands-on time for IT admins and reduce IT involvement during device deployment

- Zero IT touch onboarding for small and large deployments – For example, Connected Provisioning could save IT staff 48 hours for 1,000-device orders compared to traditional provisioning while offering the following:
  - Manage apps for both in-factory deployments and live systems with just one tool
  - Update apps up to the minute of deployment and without changing the order configuration
  - Deploy Workspace ONE profiles while new systems are at the factory
- With Connected Provisioning, create the initial system configuration, which can be used for an indefinite number of systems in an order, in just two hours and 28 minutes
  - Reuse an existing order configuration with Connected Provisioning to minimize hands-on IT involvement for subsequent orders
    - ◆ Or after completing your first order configuration with Connected Provisioning, you can save over two hours when creating a new one
  - Connected Provisioning requires less time for an initial order, and potentially for subsequent orders, than Factory Provisioning
- Order different devices running the same software

### Reduce waiting to boost day-one productivity for end users

With either Connected Provisioning or Factory Provisioning, organizations can do the following:

- Deliver fully configured systems up to six business days sooner than our traditional process
- Ship laptops directly from the factory to users
- Get users working right away by minimizing app updates after first boot
- Complete just one configuration process

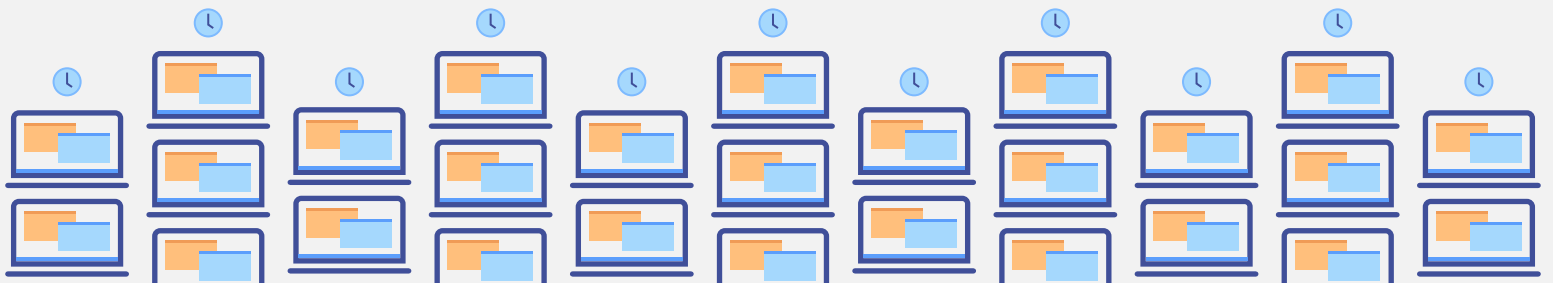
## Simplify ordering, versioning, and security processes for new devices with more flexibility

- Connected Provisioning offers additional flexibility over Factory Provisioning in terms of application and settings management
  - Check app compatibility with ease – Connected Provisioning lets you configure apps at the factory any time until deployment via Workspace ONE and without making changes to the order configuration via TechDirect or Dell Engineering
  - With Connected Provisioning, make multiple and frequent changes to apps in the cloud for in-factory deployments
    - ◆ Allows you to ensure apps are as up to date as possible
  - Include organization-wide Microsoft Windows settings and custom settings with Connected Provisioning
- Fewer hands touching the device could mean a reduced possibility of misconfiguration
- Upload and test internal applications for usability and compatibility before provisioning

## Save money on shipping costs

When you order a system from Dell, the purchase price includes the cost of shipping. But a traditional deployment method requires your staff to ship each system again after provisioning. Standard overnight shipping for a destination 60 miles away (such as Durham, NC to Greensboro, NC) could cost \$58.02 per device—and it could cost \$142.46 per device to ship across the country from Durham to Seattle.<sup>3</sup> In comparison, we paid just \$30 per system for shipping using Connected Provisioning for Workspace ONE. The service enabled us to send each system directly to its destination, which could save time for your salaried staff and avoid additional shipping costs.





## How we tested

First, we configured our environment for each deployment. Then we ordered five laptops for traditional provisioning, five for Connected Provisioning, and five for Factory Provisioning. A single administrator handled the necessary activities to complete each order. After ordering, we provisioned the devices with Google Chrome, Notepad ++, Microsoft Office, Zoom, Slack, VLC Media Player, and many settings.

Here's how provisioning generally happened for the processes we tested:

- For traditional provisioning, we provisioned end-user systems at our data center.
- For Connected Provisioning for Workspace ONE, we configured a deployment profile in Workspace ONE via the dashboard. At the factory, Dell Deployment Services connected the laptops to the internet and downloaded the necessary apps and profiles during provisioning.
- For Factory Provisioning for Workspace ONE, we provided a PPKG that included our apps to Dell Deployment Services as part of the ordering process. They, in conjunction with VMware Workspace ONE, provisioned the laptops at the factory.

Note that we refer to the two different processes in terms of provisioning, but they also include ordering, configuring, and shipping the devices. Provisioning does not include managing applications and settings. In addition, our traditional provisioning process did not include managing Microsoft Endpoint Configuration Manager (formerly System Center Configuration Manager).



## A closer look at the provisioning processes

### Traditional provisioning

In many cases, IT prepares systems using both hands-on and automated tools, such as Endpoint Configuration Manager. If your organization used this method of provisioning, your IT staff would receive a shipment of laptops to unpack, plug in, image, repackage, and ship back out.

Our testing replicated that traditional process:

1. Our procurement team ordered five laptops and had them delivered to our facility.
2. Our inventory team received the laptops and unboxed them.
3. Our inventory team handed off the laptops to one of our IT administrators.
4. Our IT administrator provisioned the devices using Endpoint Configuration Manager. Whenever possible, our administrator moved on to a new system while the previous system finished an installation.
5. Our IT administrator handed back the laptops to the inventory team.
6. Finally, our inventory team prepared each laptop for shipping.

We did not ship them, but in a real-world case, the laptops would take additional time to reach remote users or satellite offices.

### Traditional provisioning method

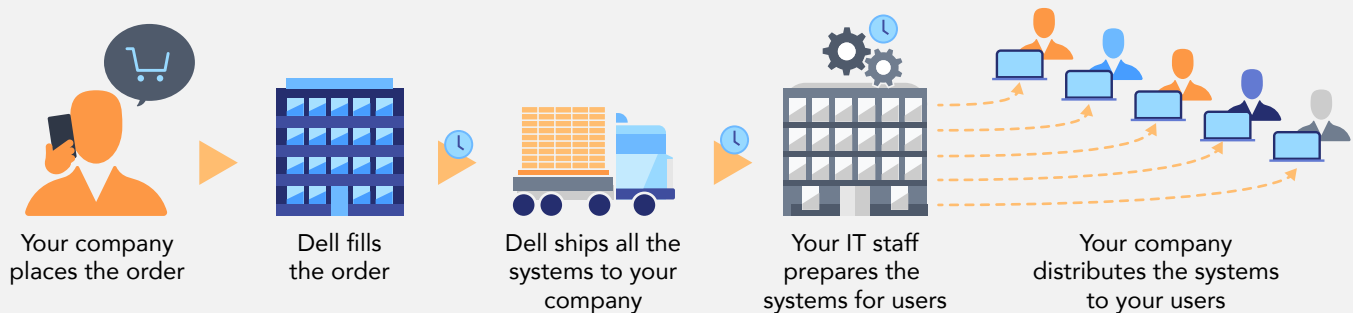


Figure 1: Steps that comprise the traditional deployment process. Source: Principled Technologies.

This process (as illustrated in Figure 1) requires the devices to change hands between multiple teams, and possibly many people, and go through two different shipping cycles—both of which cost your organization while delaying delivery of the laptops to your distributed workforce. There are uncontrollable elements when shipping any device, so adding a second shipping cycle increases the possibility of delays.

## Connected Provisioning for VMware Workspace ONE

As we noted previously, Connected Provisioning helps get new Dell laptops into the hands of users faster and eliminates hands-on IT involvement. In addition, Connected Provisioning can be a long-term deployment solution. The service requires a minimum order of 200 systems per year and a readiness assessment for orders. Once set up, however, Connected Provisioning uses your Workspace ONE environment and requires little ongoing maintenance. As Figure 2 shows, our process looked like this:

1. Our team worked with Dell Engineering to prepare our environment for Connected Provisioning for Workspace ONE, and then our procurement team ordered five laptops from Dell.
2. Our IT team provided information about the deployment to Dell, created a deployment profile in Workspace ONE, and connected that profile to our order in the Dell TechDirect online portal.
3. Dell provisioned and shipped the laptops directly to their end-user destinations. (For our testing purposes, we had them shipped to our main office.)

### Connected Provisioning for Workspace ONE

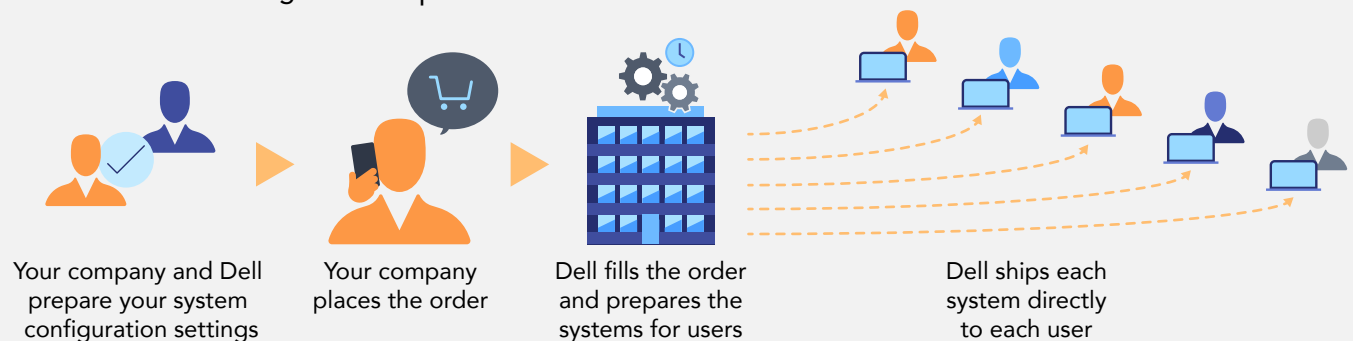


Figure 2: Steps that comprise Connected Provisioning for Dell provisioning services for VMware Workspace ONE.  
Source: Principled Technologies.

IT staff work directly with Dell Engineering to create a configuration for all the systems in an order. Using the Workspace ONE console, IT sets up applications and settings just once, and Dell manages the operating system and drivers. Once the configuration exists, organizations can deploy it across all systems in an order and use it in future orders.

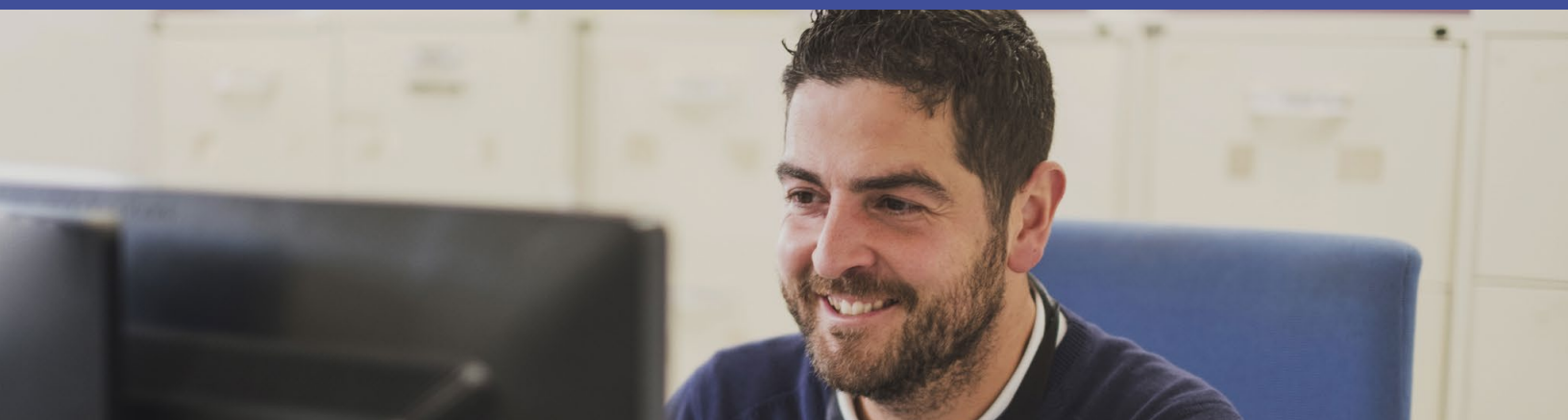
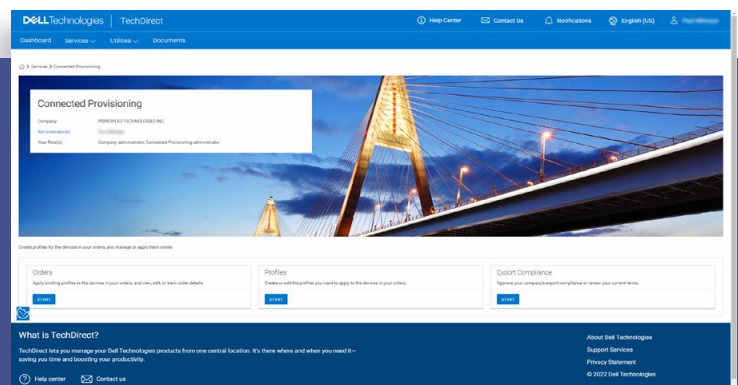
With Connected Provisioning, IT administrators can deploy profiles via the Workspace ONE console while new systems are at the factory. Profiles can include Workspace ONE-supported Windows settings and custom settings. Our profile contained settings to manage Wi-Fi passwords, Windows Update settings, firewall settings, anti-virus software settings, and simple BitLocker encryption. IT administrators do not need to use Microsoft Endpoint Configuration Manager (formerly System Center Configuration Manager) to configure drivers, OS images, and other settings, as they did in our traditional process.

Additionally, we used custom settings to deploy an additional user to each laptop. According to Dell, these settings also support joining a local domain via factory VPN, though we did not test this option.

Connected Provisioning might require more IT involvement up front in the ordering process, but the payoff is the added flexibility for managing applications and settings. After we placed our order with Connected Provisioning, we could easily manage applications in the cloud via the Workspace ONE unified endpoint management console, and we made frequent changes. Ensuring laptops have the latest versions of applications can help protect systems and users in your organization. In addition, users with up-to-date devices can be ready to work from initial boot rather than sitting idly while downloading and installing updates.

## About TechDirect

TechDirect is Dell's portal for supporting enterprise system deployment. Companies can manage their Connected Provisioning orders via the Connected Provisioning tab in TechDirect. This allows companies to set up multiple profiles and to deploy different apps and settings via separate orders. TechDirect is not available to organizations choosing Factory Provisioning.





## Factory Provisioning for VMware Workspace ONE

To deploy with Factory Provisioning from Dell provisioning services for Workspace ONE, we used the following process (illustrated in Figure 3):

1. Our IT team provided Dell with information about the deployment, then uploaded the PPKG file required to configure the end-user devices.
2. Our procurement team ordered five laptops from Dell.
3. Dell provisioned and shipped the laptops directly to their end-user destinations. (For our testing purposes, we had them shipped to our main office.)

### Factory Provisioning for Workspace ONE

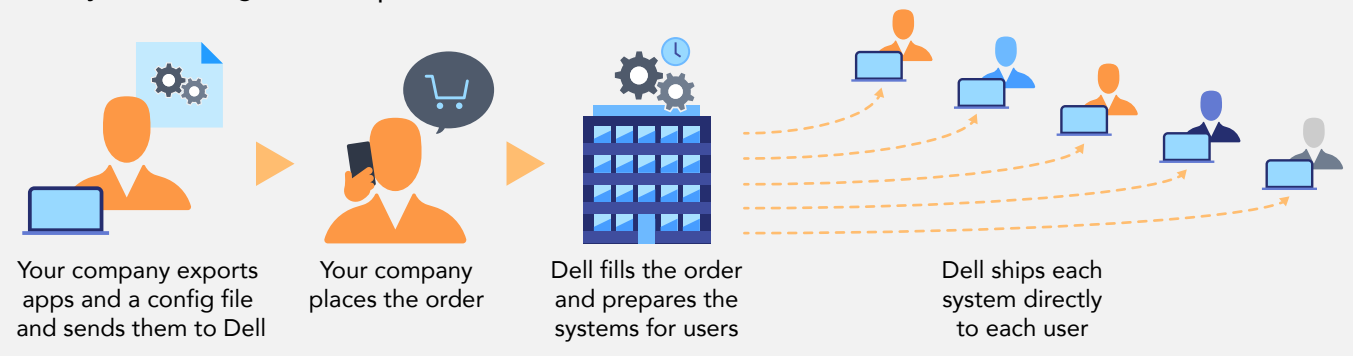
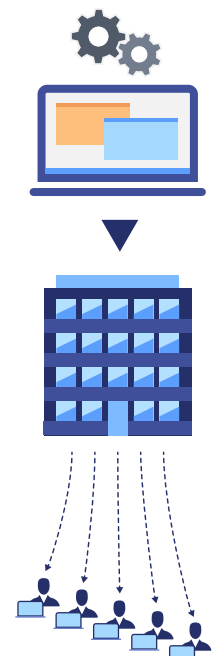


Figure 3: Steps that comprise Factory Provisioning from Dell provisioning services for VMware Workspace ONE. Source: Principled Technologies.

Like Connected Provisioning, Factory Provisioning for Workspace ONE helps Dell and VMware customers reduce IT touch for new devices and minimize user downtime. IT admins create provisioning packages and use them to configure those new devices. In 2019, we conducted a study like this one that proved the speed and ease of Factory Provisioning over traditional provisioning. Since then, the way many people work has changed drastically, and more people now work remotely or from multiple locations.

Both Dell provisioning services for Workspace ONE automate nearly all their provisioning and deployment actions, which is much different than the traditional process. With Factory Provisioning, your organization orders its desired devices and completes a single configuration process. Compared to the traditional method we used for testing, Factory Provisioning for Workspace ONE could get systems to remote users days (if not weeks) earlier.



## Ordering devices with Workspace ONE

Our admin needed 2 hours and 28 minutes to complete an order using Connected Provisioning. The initial setup included completing forms, working directly with Dell engineers, configuring deployment settings in our Workspace ONE environment, and managing the order via TechDirect. Once the admin completed that process, they did not have to do anything else for the deployment, and as we discuss below, the time to place subsequent orders of the same configuration would be dramatically reduced.

IT staff have the flexibility to change Connected Provisioning orders up to the moment of placing the order. This gives your organization more time to ensure that orders reflect your needs. In addition, placing and managing an order via Workspace ONE means you could potentially also make changes even while the order is in shipment (though we did not test this capability).

Figure 4 shows how long our admin needed to complete the first order with Connected and Factory Provisioning. Compared to Factory Provisioning, placing our initial order with Connected Provisioning required 22 less minutes. We did not include the time to complete our traditional process order in either Figure 4 or 5 because the only required steps were generating and executing a quote, which we also had to do for Connected and Factory Provisioning. Additionally, the time it takes to complete those two steps can vary.

### Time to complete one-time configuration for the first order with Dell provisioning services

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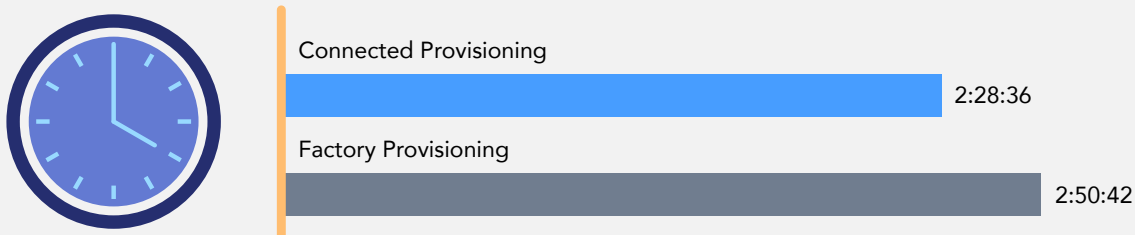


Figure 4: The total time, in hours, minutes, and seconds, that we estimate an IT administrator would need to complete an additional order using a new configuration for both Connected and Factory Provisioning for Workspace ONE. Lower is better. Source: Principled Technologies.

By using TechDirect profiles and corresponding tags with Connected Provisioning, your IT staff can reuse an order configuration or create a new one. Reusing an existing configuration means minimal IT involvement and no additional work. And if you wanted to change the configuration you used for your order, you would not have to repeat any of the setup steps. We estimate that additional orders with a new configuration would take 13 and a half minutes using Connected Provisioning. That's potentially 90 percent less hands-on IT time (or more than two hours less) compared to placing an initial order.

We placed only one order for both Connected and Factory Provisioning, but based on our testing, we estimated the time that an administrator would need to place an additional order using a new configuration for both provisioning services (see Figure 5). If your organization used Connected Provisioning to place subsequent orders with a new order configuration later, we estimate that IT staff would need nearly two hours less per order compared to Factory Provisioning.

### Estimated time to complete a subsequent order for a new configuration with Dell provisioning tools

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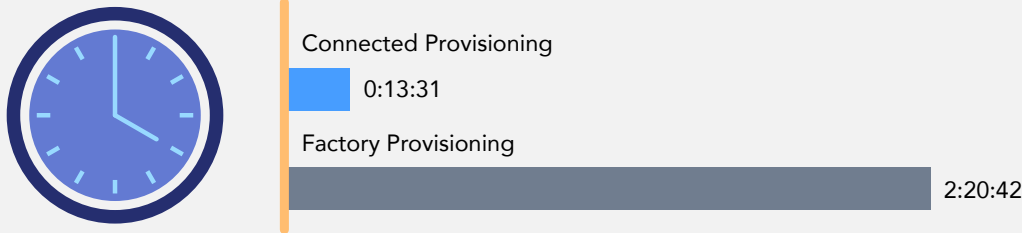


Figure 5: The total time, in hours, minutes, and seconds, that our IT administrator needed to complete our first order using Connected Provisioning for Workspace ONE and Factory Provisioning for Workspace ONE. Lower is better. Source: Principled Technologies.

The process to update app versions and drivers is model-agnostic. We initially ordered one laptop model but later changed it, and we did not need to change our configuration. This helps save time for IT and ensure that various systems used throughout your organization comply with necessary policies. In addition, Connected Provisioning offers more flexibility to make application and setting changes than Factory Provisioning offers. Each time an IT administrator using Factory Provisioning would need to make one of those changes, they would have to repeat the order configuration process.

## Getting systems ready to ship: Small-scale deployments

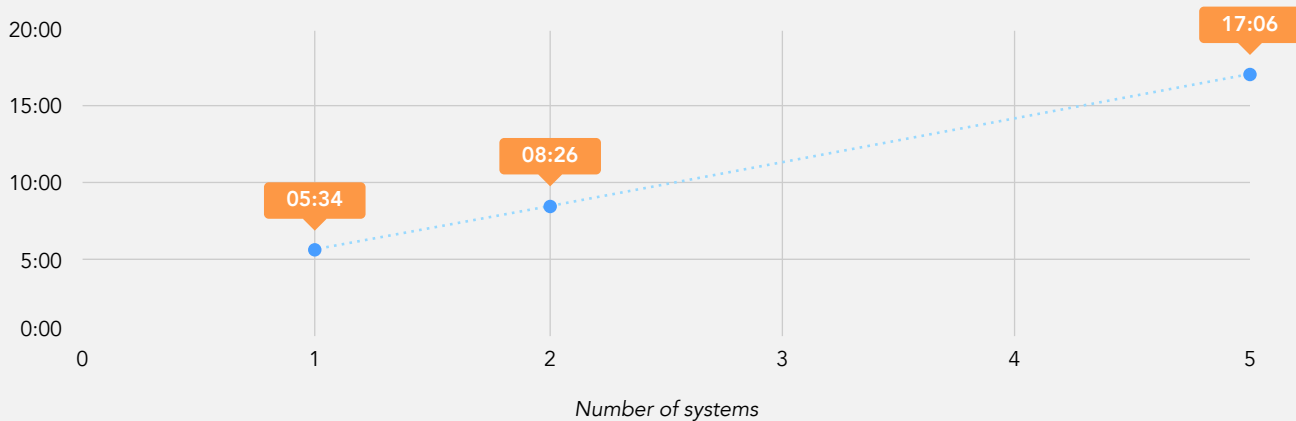


Figure 6 compares the hands-on admin time to provision one, two, and five systems, and then prepare them for shipment using the traditional provisioning process. With Connected Provisioning, Dell completes those actions at the factory before shipping them to users, so there's no on-site involvement from IT staff. For more details on our hands-on testing methods, see the [science behind the report](#).

We consider hands-on time to be when an administrator actively works on a device. Note that the time also includes unboxing and cabling the laptops, provisioning tasks, and preparing the laptops for shipment.

### Hands-on IT admin time after initial configuration using a traditional deployment process

Lower is better | mm:ss



**Zero minutes using drop ship provisioning for any number of devices**

Figure 6: The hands-on IT time, in minutes and seconds, to prepare the ordered devices for shipping using traditional provisioning. Source: Principled Technologies.

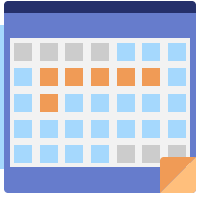
As Figure 6 shows, when using traditional deployments, each additional laptop adds IT admin time to the process while Dell provisioning services require no hands-on time to provision the new devices.

Also, our analysis does not include the time an administrator spends managing updates for Windows or drivers because they are highly variable. Using the traditional process, your IT team could spend hours each week on updates, depending on the number of different laptop models and how often they require updates.

The time savings and reduced IT involvement is clear for smaller orders through Dell provisioning services, but what happens when the order scales to accommodate a larger workforce?



## Crunching the numbers: Large-scale deployments



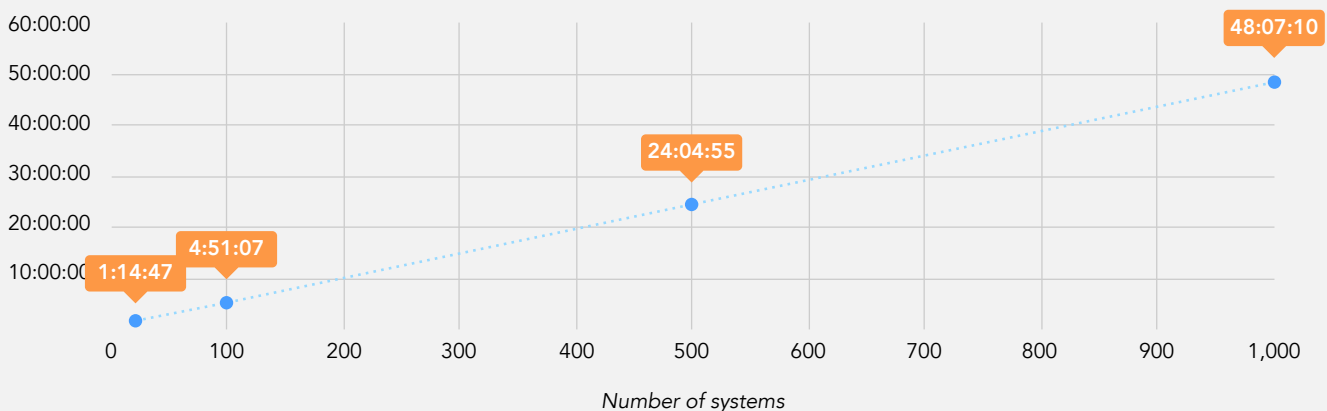
A company that needs to deliver hundreds of devices in waves can rely on Dell provisioning services for Workspace ONE to automate the process as they do for smaller orders. After placing an order of any size through Connected Provisioning, your IT administrator won't need to complete additional on-site work.

Based on our testing, we estimate the traditional process would require nearly five hours of on-site admin time to deploy a hundred devices (see Figure 7). It would take more than 48 hours for an IT administrator to manually deploy a thousand devices—that's six full eight-hour workdays without stoppage and doesn't account for the time your staff would spend preparing the devices for shipping.

With the traditional method for a large-scale deployment, a ready-to-go device may not ship to its end user for over a week.

### Extrapolated on-site IT admin time to prepare large orders for shipment using a traditional deployment process

Lower is better | hh:mm:ss



**Zero minutes using drop ship provisioning for any number of devices**

Figure 7: The extrapolated hands-on on-site IT admin time, in hours, minutes, and seconds, to prepare larger orders for shipment. Source: Principled Technologies.

Our analysis of the traditional method assumes all the laptops are the same model and that nothing goes wrong in any of the deployments. Your IT admins would still have to repeat this process for each order—if you scaled the 1,000-device deployment to 4,000 and shipped them each quarter, Dell provisioning services could save a month (in workdays) of administrative time per year compared to a traditional deployment.

Deploying any number of devices requires the same amount of time from your IT administrator using Dell provisioning services for Workspace ONE. This could allow IT staff to tackle more challenging, mission-critical tasks for your business.



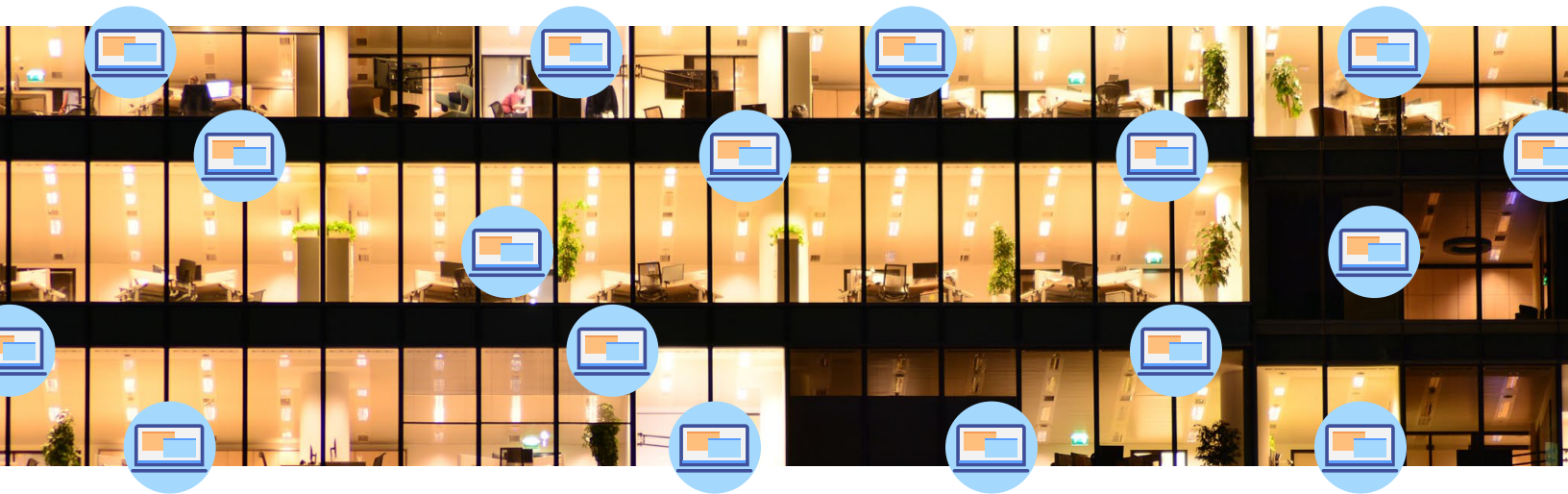
## Conclusion

Organizations are facing many new challenges due to an increase in remote and hybrid work. Deploying new laptops to your remote workforce is just one of them. Traditional IT operations may be able to handle those challenges, but newer operations, such as those using automation, can reduce IT involvement, help employees get up and running faster (day one productivity), and eliminate hassles that stem from traditional processes.

We compared the time it took to order and provision Dell laptops using Connected and Factory Provisioning for Workspace ONE to the time it took to complete a traditional provisioning process. Dell provisioning services rely on Dell to provision laptops and ship them directly to the user. In addition, Connected Provisioning allowed us to make changes to applications and settings up to the minute of deployment and simplified ordering.

Using the times we saw in our testing, deploying 1,000 laptops with Dell provisioning services could save 48 hours of IT admin time and put laptops in the hands of your employees up to six business days sooner (barring external delays that may slow the shipping process). That time savings could scale for larger deployments.

Connected and Factory Provisioning for Workspace ONE required less IT involvement, and thus less time and effort, than the traditional method. Compared to Factory Provisioning, Connected Provisioning also provides additional flexibility for IT admins to update and change applications and settings as well as a faster ordering process.



1. Fox, Justin, "Work From Home Is Becoming a Permanent Part of How Jobs Are Done," accessed January 18, 2022, <https://www.bloomberg.com/news/articles/2022-01-18/work-from-home-is-becoming-a-permanent-part-of-how-jobs-are-done>.
2. VMware, "Drop Ship Provisioning: Workspace ONE Operational Tutorial," accessed March 1, 2022, <https://techzone.vmware.com/drop-ship-provisioning-workspace-one-operational-tutorial#overview>.
3. On January 24, 2022, we used the shipping rates calculator on [www.fedex.com](http://www.fedex.com) to determine the cost of sending 5.0 lb. packages from the Principled Technologies office in Durham, North Carolina. We selected the FedEx Standard Overnight service.

Read the science behind this report at <https://facts.pt/8Qrj9KZ> ▶



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This project was commissioned by Dell and VMware.