Grab and Go

Google's self-service Chromebook loaner program

Written by Russ White and Luke Best
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chrome enterprise

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Introduction

Suppose one of your people spills hot coffee all over their laptop. Or leaves it on the bus. Or can't turn the thing on because, out of nowhere, it just died. What happens next? They're either going to spend days on the sidelines waiting for a new device, or end up using valuable internal resources (your IT folks) – sometimes spending hours helping them out of their bind. Either way, it's all wasted time, leading to lost productivity, and a negative impact on the bottom line – especially at scale.

Here at Google, we created a frictionless experience for our employees that lets them pick up a Chromebook and get straight back to work in the time it takes to enter a password. We call it Grab and Go.

This paper explains how we went about creating Grab and Go, how it can quickly restart the suddenly laptop-less user's productivity, and how Chromebooks helped to make it all possible.

The challenge

With increasing importance on portability, convenience, and workplace flexibility, more and more businesses are opting for laptops as the primary device form factor for their employees.

When those laptops remain at home, get left on the other side of the country during a business trip, or take a glass of water to the keyboard, a remedy is needed. The quicker that remedy can be actioned, the less time and money is left on the table, and the quicker the employee can get back to making amazing things happen.

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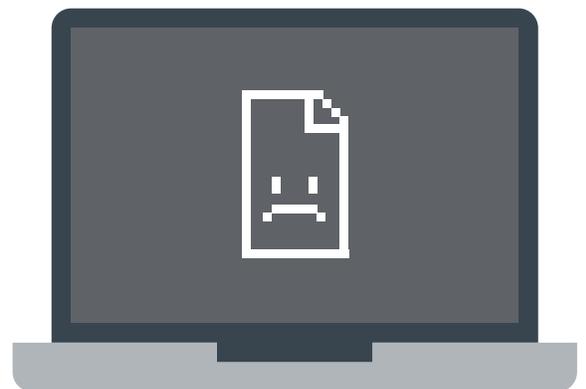
In cases like these, we realized early on that it isn't viable to keep workers out of commission until IT are able to fix the problem or, even worse, until a replacement can be sourced. What if we are out of crucial parts? What if we don't have the user's preferred model? And even then, once a replacement arrives on site, the additional cost piles up, as techs have to spend valuable time re-imaging the machine before it can get into the user's hands.

To help solve this problem, we – like many other enterprises – established a loaner laptop program. In its original form, users made a request for a loaner device in one of two ways – either by placing an order via an internal web portal, or by paying a visit to one of our Techstop IT helpdesks. Once the request was in, a technician was required to set up the device. When the loan came to an end, the employee had to wait for a tech to process the return, and then the tech had to re-image the device for the next user.

At Google we found that, with Macs, each pickup took about 15 minutes, and each return took about 10. At a large organization, this adds up quickly; in fact, 10% of our techs' total time on the job was spent dealing with this process. So, while we were able to get the user back to work within a few hours, it still wasn't quick enough – and our technicians were still spending too much time away from their core job of solving the root causes of technical problems, and developing better technology experiences for Googlers.

As can be the case with 'traditional' loaner programs, it was complex, costly, inflexible, and presented significant barriers to scale. We knew we had to do more to improve the experience, and to meet our goal of keeping Googlers productive.

The original approach got users back to work within a few hours – but it still wasn't quick enough. We had to do more to improve the experience, and to meet our goal of keeping Googlers productive.

A new, self-service solution

Imagine a shelf stacked with laptops right in the middle of your office. Your stressed-out employee, stranded without their device, walks right up, pulls a computer off the shelf, signs in, and is productive again. They're back to work in minutes. When they no longer need their loaner laptop, they simply sign out and put it back on the shelf, where it's ready for the next user. The entire process is self-service.

That's how the new loaner laptop program works at Google. Googlers take and return laptops on their own without waiting in line. There's no check-out or check-in, and a device can go directly from one user to the next – even from one office to another – without IT getting involved. We've installed Grab and Go stations in most of our offices around the world, and the program has seen more than 30,000 unique users rack up over 100,000 loans since the middle of 2017.

A self-service program that works at scale is only possible with devices that don't need to be reset or configured with each loan – reducing the burden on the IT department.

Chromebooks are the only devices we found that provide this advantage.

Chromebooks are convenient for the user, too. Chromebooks are built for cloud-based workflows, so as soon as the user signs in, they have instant access to the tools and data they need. Even personal settings, such as bookmarks, saved passwords, history, and extensions are the same on any device thanks to Chrome Sync. There's no setup process – just a standard Google Account sign-in. If someone knows how to sign in to Gmail, they know how to sign into a Chromebook.
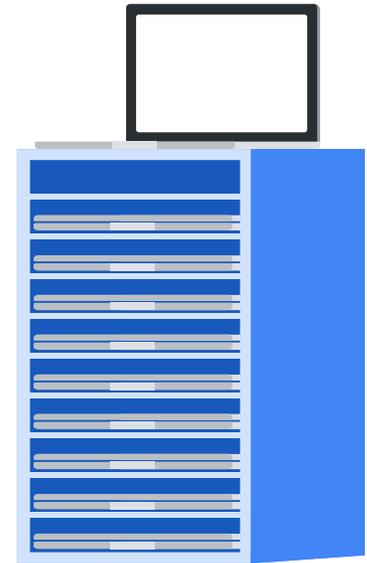
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With fast boot times, reliable cloud storage, seamless integration with G Suite applications, and no configuration, a Chromebook can be grabbed by a user on their way to a meeting and they can instantly be as capable as they would otherwise be with their primary device.

Keeping the fleet secure

Loaners don't just need to be easy to set up. They're passed from one user to the next, and used to access corporate applications, so they need to be secure, too. Fortunately, Chromebooks are designed with security top of mind, and can be configured with unique features to keep them secure – even when shared amongst multiple users.

The core functionality comes from these built-in Chrome OS features and settings, enforced remotely on enrolled Chromebooks via the G Suite Admin Console:

Only users in the specified domain can use the Chromebook

With Sign-in Restriction, and guest mode disabled, only users with a corporate account can sign in and use the Chromebook.*

Policies are enforced, even after a factory reset

Thanks to Forced Re-enrollment, if a user performs a factory reset, they can't sign back in until the device is re-enrolled into the corporate domain by an administrator.

Data isn't left on the Chromebook

User data stored or cached on the Chromebook is encrypted by default, making it very difficult for anyone to access those files. The Chromebook can also be configured to automatically lock when closed or left idle.

* Only applicable to Chrome OS version 28 or later.

Chromebooks are updated automatically

System updates are downloaded and installed in the background. And a setting can be applied so that the Chromebook automatically reboots and applies updates the next time the user signs out.

Chrome OS is protected from tampering or corruption

Verified Boot checks the system for tampering or corruption every time it starts up.

Implementing Grab and Go

Just a few components make a program like this possible inside a G Suite-enabled business: a fleet of Chromebooks managed with Chrome Enterprise, a self-service storage solution (shelves, or lockers), an app to manage the program, and signage and emails for communication.

Organizations may take a different approach depending on their needs, such as more secure physical storage of the devices, alternative Chromebook models, custom settings in the G Suite Admin Console, or different loan policies enforced or monitored by an admin app. The flexibility of these components allows for loaner programs to be implemented in a variety of environments. What follows, though, are some specifics about the solution that we implemented at Google.

GRAB N GO
LOANERS
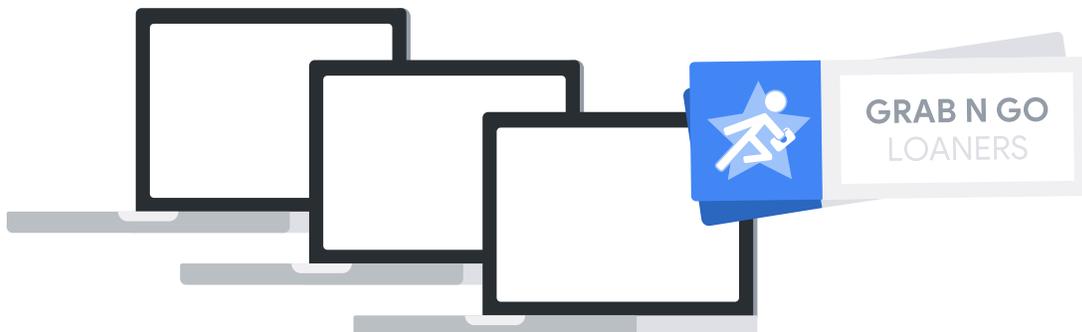
Shelves

Our Chromebooks are stored on open metal shelves manufactured by PowerGistics. At a glance, a Googler can recognize what the shelf is for and see if a Chromebook is available. Without doors or complicated locking mechanisms, there's less chance of confusion about how to take or return a Chromebook. We extend this simplicity and open design to the placement of chargers, too. A charging cable is left dangling in front of each shelf, rather than hidden away. This invites the user to plug the Chromebook back in upon return, and sets the expectation that a Chromebook will already be charged when it's taken from the shelf.

Chromebooks

We evaluated multiple Chromebook models for our program, and selected an enterprise grade model that differentiated itself with its physical durability. Durability is important since each Chromebook has many users and is frequently tossed onto, and retrieved from, metal shelves that could scratch some finishes. They also need to withstand the effects of regular cleaning and sanitization.

Emails

After a user signs in for the first time, we email them with a reminder of the return date, instructions on how to extend the loan, and how to return the Chromebook.

Admin app

The fleet is managed using an app hosted on Google App Engine. This app allows the IT team to look up individual Chromebooks – or users – and see a dashboard of inventory. It also integrates seamlessly with data analysis tools like Google BigQuery, so generating reports and gaining deeper insights into usage is a breeze.

The app knows that a user has started a loan as soon as they sign in, and it knows the loan has ended when a different user signs into the same Chromebook, or when a tech scans the laptop's asset tag during a scheduled audit. It is also used to enroll devices in and out of the fleet, change the loan duration, enable or disable guest mode, and turn reminder emails on or off.
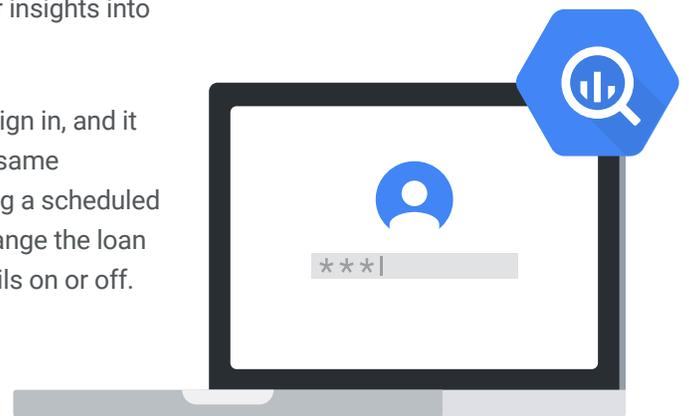
The impact

Grab and Go is a popular service with Googlers, and its usage is three times larger than that of the previous iteration of our loaner program. Our fleet runs at more than 90% utilization; Chromebooks don't sit on the shelves for long.

Grab and Go eliminated the need for loaner-related trips to our IT help desks, which previously made up around 10% of in-person visits. This gives our technicians more time for other tasks, and it allows us to offer loaners 24/7. Googlers are already used to having around-the-clock support for most issues online and by phone, and now, even if their laptop's hard drive fails on the weekend before a business trip, they can grab a Chromebook when they get to where they're going – without having to worry if a local tech will be available.

The program has the added benefit of introducing some of our users to Chrome OS. We want to increase adoption of secure, easy to manage Chromebooks at Google, but we don't mandate it. We trust Googlers to choose the platforms that make them the most productive – as a diverse fleet allows us to build better products for everyone.

> Grab and Go eliminated the need for loaner-related trips to our IT help desks, which previously accounted for 10% of visits. Employees can now grab a Chromebook anywhere they go – without having to worry if a local tech will be available.

What we learned

Simpler is better. You don't need the latest, fastest, most expensive Chromebooks for a successful program, as long as you're able to keep your workers productive. The devices in our initial pilot were previously used Chromebooks. Since they weren't going to be reissued to any other users, they were effectively free, and the pilot was a success.

Understanding how employees are using the program is key. We came across several cases in which employees, such as bike commuters tired of heavy backpacks, intentionally left their laptops at home every day. They knew they could grab a loaner at the office whenever they needed one for a meeting, and be just as productive as they'd be with their everyday devices. We estimate that around 50% of loans have been for convenience. These users clearly have a need for Chrome OS, and we're starting to reach out to see if we can find better solutions for them while maintaining availability for intended use cases.

About half of Grab and Go usage is directly tied to our original use case of getting an employee with a productivity-blocking issue (such as a lost, forgotten, or broken laptop) back to work. But we also see loaners for folks who only occasionally need a computer at work, such as security officers. Usage is popular in job interviews too – a candidate can do a live code-writing exercise on a Chromebook instead of on a whiteboard.

Overdue devices are a challenge. With a default loan duration of five days, 25% of our loans were returned late and, in 10% of loans, users asked for an extension on the loan period. As a result, we tested several loan duration variants and recently changed our loan policies. We found that setting default loan duration to two days – and allowing users to extend their loan duration as needed – resulted in higher user satisfaction, fewer overdue loans, and significantly increased device availability.

So, what's next for Grab and Go?

We recently developed an improved version of Grab and Go, and will soon launch it to all Googlers. The latest iteration comes with a Chrome app that's installed on all loaner Chromebooks. The app adds clarity and simplicity to the sign-in and return processes, and sets expectations around how long a loan should last. We believe this will improve behavior and reduce abuse more effectively than nagging via email.
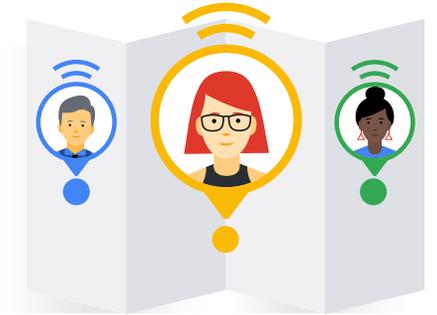
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First sign in

When a user first opens the Chromebook, the app guides them through the sign-in process, and asks the user to select an anticipated return date.

During the loan

At any point during the loan period, the user can open the app to see the due date for the return. If they want to extend the loan, they can do so from within the app.

Return

When the user is ready to return the loaner, they can mark the device for return within the app. The user is shown where they can return the device up until they sign out for the final time. Marking a device as returned isn't technically necessary for the management of the program, as a shelf audit or another user's sign-in are good indications that the device was truly returned. However, providing the user with an explicit return action helps them understand that they've done everything they need to do.

Status tracking

The on-device Chrome app sends a heartbeat to the remote admin app to help track usage. If a device hasn't been returned, and isn't sending a heartbeat, that can indicate that the device is no longer in use – even though it hasn't been returned yet. These signals provide valuable data that can be used to improve capacity planning, or to proactively ask users to return unused devices.

A Chromebook based loaner program can be a huge boost to productivity, and is a quintessential example of using technology as an enabler in Cloud-based enterprises.
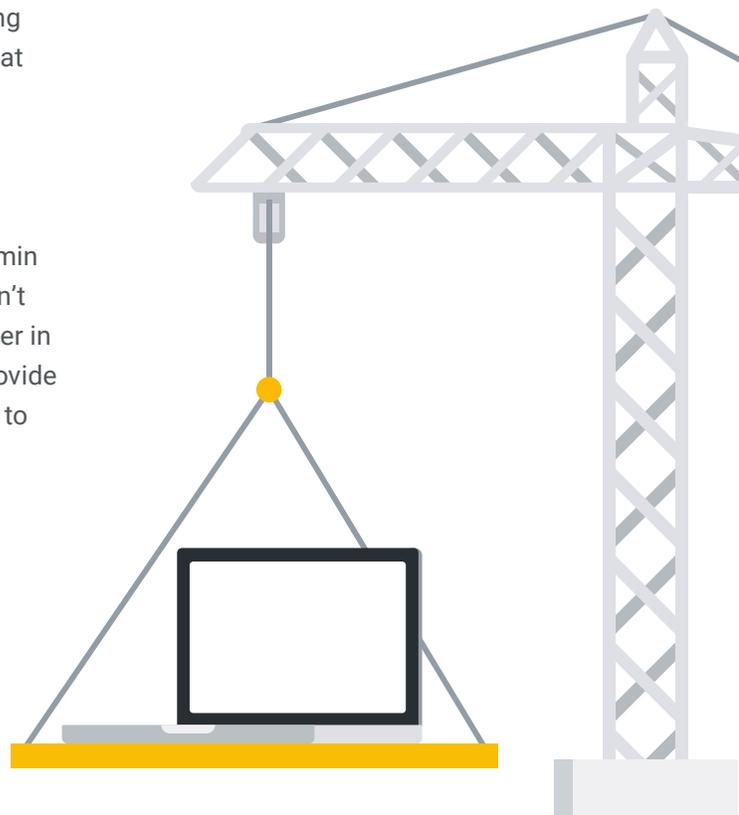
DIY: deploy it yourself

We believe that a Chromebook-based loaner program can be a huge boost to productivity, and is a quintessential example of using technology as an enabler in cloud-based enterprises. That's why we are making our solution available as open source to anyone who is looking to manage their own loaner program. This includes the latest improvements outlined above, so you too can get your people back to work in no time at all.

Take a look; the code and deployment instructions are available here.

Our first priority with Grab and Go was to give Googlers some time back by offering a frictionless way to get their work day back on track. A happy benefit was that this better service also reduced the workload on our techs.

Whatever form your loaner program may take, we encourage you to consider easy-to-use and easy-to-manage Chromebooks as a low cost way to keep your workforce productive.
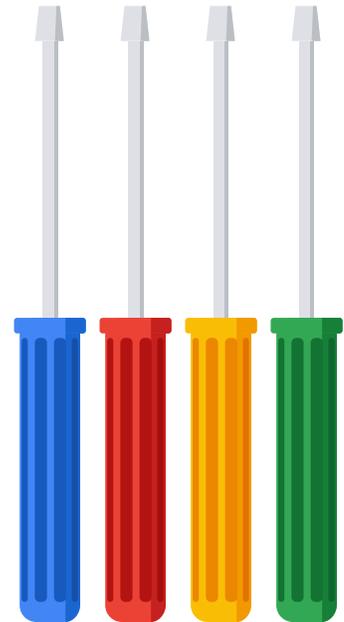
Authors

Russ White

Russ is an IT Operations Manager for Google's Corporate Engineering team in NYC. Since joining Google in 2010, he has held positions in Google's IT support organization as a support technician, team manager, and now Product Manager for the Grab and Go Chromebook Loaner Program.

Luke Best

Luke is a Program Manager and writer on Google's internal IT content strategy team. He originally joined Google in 2015 as an operational strategist for Google Express. Prior to this, he held roles in operations management, journalism, and public relations.

Contributors

Mark Farrell, Victoria Hurd, Joe Parente, Suzanne Timmons, Michael Wyszomierski