

CASE STUDY

How Embrace helped Medtronic's Digital Surgery business cut their startup failures from 15% to 7%

“Embrace has fundamentally changed how we are able to identify the cause of issues, their impact, and how to solve them.”

Tim Chilvers, Head of Mobile, Digital Surgery



CUSTOMER

Medtronic is a global provider of healthcare technology solutions. One of its subsidiaries, Digital Surgery, produces Touch Surgery™, a mobile app that provides surgical training simulations for physicians and medical students.



CHALLENGE

The Touch Surgery™ mobile team lacked visibility into the impact and root cause of poor user experiences, such as failing startups on iOS. Their previous tooling, Firebase, could not provide enough context to efficiently remediate issues.



RESULTS

With Embrace's network monitoring and session replay, the Touch Surgery™ mobile team can understand the network conditions and user journeys that lead to negative experiences. They can deliver better user experiences by instantly identifying, prioritizing, and solving issues with complete user session data.



Touch Surgery™

INDUSTRY
Healthcare
technology

LOCATION
Dublin, Ireland

PLATFORMS
Android and iOS

EMBRACE FEATURES
Session Replay
Network Monitoring

Discovering the Startup Problem

The Touch Surgery™ iOS team received feedback from users about incredibly slow startup times, with one user being forced to wait upwards of 30 minutes before they could actually use the app. At the time, the mobile team used Firebase as their mobile monitoring solution, but it did not provide enough context about individual user experiences to identify the root cause.

“Clearly something has gone very wrong here. But how can we surface what’s going on? We did some manual investigation at this point, but we were getting absolutely nowhere.”

Tim Chilvers, Head of Mobile, Digital Surgery

After trying in vain to manually reproduce the issue, the mobile team could only resort to instructing users to update the app to the latest version. At this moment, the mobile team decided to search for a solution that could provide better visibility to identify, prioritize, and solve the startup issue.

Uncovering the Root Cause with Embrace

Embrace provides high-fidelity user experience data for 100% of user sessions. That means, when a user complains, the mobile team can look up the individual session, review all the technical and behavioral data, and immediately reproduce the issue on-demand.

One such feature is in-depth startup time performance tracking. Mobile teams can measure the timing and outcome of every network call as well as its impact on performance (e.g. freezes, crashes) and user actions (e.g. abandoning versus tolerating slow startups).

“Accessing individual user journeys and the user sessions is so far beyond what I’m used to getting. Embrace allows us to understand why things are going wrong, not just that things have gone wrong. The difference is crucial for actually solving issues.”

Tim Chilvers, Head of Mobile, Digital Surgery

With Embrace, the mobile team discovered several key findings:

- Affected users frequently had poor network connectivity. People used the mobile app in hospitals with poor WiFi and concrete walls. In addition, the mobile app was popular in sub-Saharan Africa, where overall network connectivity was often limited and unreliable.
- The mobile app had blocking, network-heavy processes that could be removed from startup and done in the background to alleviate network congestion and reduce startup time.

During startup, the Touch Surgery™ app was doing two key actions:

Checking the app configuration: The app would do basic configuration checks, such as identifying the corresponding A/B test for the user and checking to see if the user was on an outdated version that needed to be updated.

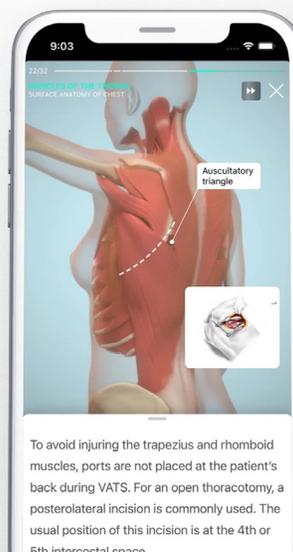
Checking for simulation updates: The app would iterate through all the surgical simulations stored on the device, check if they needed updates, and then download those updates. Each surgical simulation was composed of many heavy images and video clips, which could weigh in at up to 300MB.

For power users who stored many simulations for offline access, these updates could be several gigabytes of data.

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“Embrace showed us that we were doing too much work during startup. With good network connection and only a few simulations to update, the mobile app started up quickly. But for users with poor internet connections and lots of downloaded simulations, it became an issue.”

Tim Chilvers, Head of Mobile, Digital Surgery

Embrace revealed a few compounding factors that were contributing to the issue:

- The simulation update check was firing before the app configuration check. That meant users would endure long asset download times before being prompted to wait even longer while being forced to update to a new app version.
- The app only allowed four simultaneous network requests to fire at a given time. For users with dozens of simulations, this bottleneck led to even longer startup times.

Prioritizing the Issue

Because Embrace collects 100% of the data from 100% of sessions, mobile teams can immediately understand the full impact of issues on the users and business. For example, the Touch Surgery™ mobile team knew that some people were experiencing issues with startup due to the messages that trickled in. However, they had no idea that a whopping 15% of startups were failing.

Thanks to detailed data provided by Embrace, the Touch Surgery™ mobile team could now see the full impact of this issue on the business, realizing that it was much more widespread than they originally thought.

In addition, because Embrace can track individual user journeys, the mobile team could see which users were most impacted. As it turns out, the most engaged users that downloaded and viewed many surgical simulations were most impacted by this issue.

As you work towards improving your own mobile experiences, are you tracking the number of users impacted by issues or just guessing by the number of complaints that trickle in? Even if you are tracking the number of users impacted by an issue, do you understand the value of the impacted users to your business?

“Our most engaged users download up to 50 simulations to study, and they were having the worst experience. So beyond discovering the cause of a problem, Embrace helps us understand which ones to prioritize because we know which of our users are most affected.”

Tim Chilvers, Head of Mobile, Digital Surgery

For example, if you have an issue that is only impacting 10% of free users, it might not be as critical as a similar issue impacting 5% of paying customers.

Fixing the Issue

Access to complete visibility into the technical and behavioral aspects of individual user experiences can be game-changing. Previously, reproducing the issue was extremely difficult for Tim and the mobile team because they were testing in a completely different environment than their users.

For example, many of their users work in hospitals with a lot of concrete and poor connectivity, whereas the mobile team often works in locations with great connectivity.

In fact, some of their users are based in developing countries and other geographies with unstable internet connections. Embrace helped bring these issues to light.

“The testing environments aren’t always realistic to what is going on in the real world. So Embrace tracking and surfacing the level of connectivity properties of the user has been quite helpful. In addition, Embrace highlights slow API requests caused by client-side or server-side issues.”

Tim Chilvers, Head of Mobile, Digital Surgery

The Touch Surgery™ mobile team was able to implement a fix relatively easily with the data provided by Embrace. They removed the simulation update check from the startup procedure. Now, at startup, the mobile app simply calls the configuration service before the app can become interactive. The simulation update check now occurs in the background, which greatly limits the performance impact to the user.

“Making these changes reduced our startup failure rate from 15% to 7%.”

Tim Chilvers, Head of Mobile, Digital Surgery

Now, Touch Surgery™ users can access surgical simulations faster and spend more time learning and less time waiting.

Improve Your Startup Performance with Embrace

Before Embrace, the Tough Surgery™ mobile team addressed issues with manual processes that involved time and guesswork. This resulted in visibility gaps that prevented the mobile team from effectively uncovering the root cause of issues as well as their actual impact on the business.

With Embrace, the mobile team could go from a negative review to immediately looking up the individual user journey to see the network conditions and technical details of the session. This allowed them to optimize

their startup procedure and simulation update process to have a minimal impact on the overall user experience.

If you're struggling to solve issues due to a lack of data and visibility, request a demo to see how Embrace can provide actionable data and insights to drive optimal business decisions.

About Embrace

[Embrace](#) is the only observability and data platform built exclusively for mobile. Identify, prioritize, and solve issues faster with full access to 100% of the data from 100% of sessions. The world's best mobile-first companies use Embrace to ship better apps.

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