

TED uses Embrace to solve hidden crashes that affect 30% of Android users

Location: New York City, New York and Vancouver, British Columbia

Industry: Education

Platforms: React Native (Android and iOS)

KEY RESULTS

- Resolved hidden crashes with a video player that affected 30% of their Android users. Embrace allows TED to segment their users and pinpoint the cause and impact of crashes.
- Gained greater visibility into React Native and native app layers. Combined with an in-depth look at the user journey, TED mobile engineers can solve problems with greater precision and efficiency.
- Optimized data synchronization. TED uses Embrace to discover the right amount of historical data to store on any given device without compromising cost or user experience.

Customer

TED is on a mission to spread ideas, foster community, and create impact.

Founded in 1984 as a conference that marked the intersection of Technology, Entertainment, and Design, TED is now a non-profit that publishes hundreds of talks, original podcasts, short videos, animated TED-Ed lessons, and TV programs, on a wide range of topics and perspectives.

Today, curious minds can get access to the entirety of TED's library by simply grabbing their nearest tablet or smartphone — with a single mobile app, users can access thousands of fascinating ideas, in a variety of formats.

Challenge

TED is one of the most well-known names in ideas, both in America and across the world.

Serving a global audience is never easy, especially when quality is of top importance. For TED, this presents particular challenges when it comes to serving their media to users who live in regions with low connectivity or areas where older devices are more common.

Delivering a high-quality experience worthy of the TED brand requires high-quality tooling. But before Embrace, TED experienced a number of challenges due to ineffective tooling, including:

Hidden crashes: Previous tools did not capture 100% of session data and therefore did not capture every crash that occurred for TED users. For example, before Embrace, TED was unaware that a large segment of their user base was experiencing crashes related to a video player within the app; or that the crashes were caused by an outdated, no longer supported library.

Lack of visibility between React Native and native app layers: Before Embrace, the TED team struggled to determine whether app issues stemmed from the React Native layer or the native layer of their code. Other tools were disparate, lacked vital data, and didn't help the team pinpoint the root cause of issues.

Data sync issues: TED created their own in-house database solution for their data synchronization process. While the solution helped in terms of meeting company objectives concerning resource optimization, the mobile team found it difficult to determine how much historical data was actually valuable to their end user, and how to balance user needs with cost considerations.

Solution

TED uses Embrace in a variety of ways to build and maintain better mobile experiences for their users.

Embrace helps TED identify and solve hidden crashes that impacted 30% of Android users. Embrace not only captures 100% of session data, it also gives mobile engineers the ability to intelligently filter through and segment that data — a key feature for TED Senior Director of Engineering Andy Merryman.

“Embrace helps us analyze network and general performance conditions segmented over geographic regions,” Andy said. “This is something that’s really important for us to understand to accomplish our mission of serving app users across the globe.”

With this unsampled view of their mobile data, TED was able to quickly identify a segment of users that were experiencing a spike in crashes. While these users were globally dispersed and tended to be on older devices, they also accounted for nearly 30% of their Android user base.

This is a big problem for TED, who has a 2-1 ratio of Android to iOS users.

TED used Embrace to pinpoint the root cause of the crashes: a third-party video player in older models of Android phones. They were also able to quickly identify an outdated, no longer

supported library as the culprit. The result was that users experienced failures any time they tried to play a video in the app.

With Embrace, TED was able to segment users by markets, pinpoint poor network conditions in certain regions, and determine the high-priority nature of this issue in order to redistribute resources for a quicker resolution.

TED gets greater visibility into all layers of their React Native issues with Embrace

For TED, it was often difficult to find the root cause of crashes, device-specific issues, and other errors. In particular, determining whether the problem stemmed from the React Native layer or the interaction between the native and React Native layers was difficult.

When the team used their previous tool, Crashlytics, it left them with more questions than answers and, ultimately, left the team unable to get to the root of the issue.

“Our previous tool didn’t deal with any of the specifics of React Native and lacked the 360° view of our mobile data that we need,” Andy said. “We need one tool to tell us everything we need to know in one place. We get that with Embrace.”

After switching to Embrace, TED engineers could see into the intricate layers of the app and easily understand the interplay with the React Native and JavaScript layers in production for the first time.

With an offline-first approach to mobile, these insights helped TED identify a memory issue impacting their users.

One of the ways they act on this offline-first approach is by letting users automatically download new, premium content to their devices, from a curated list, using what are called “change-sets.”

While this operation is resource-intensive, it aims to give their global users access to a seamless mobile experience.

While well-intended, TED quickly learned that users who didn’t engage with the app for weeks or months at a time were being sent massive change-sets — data packages that were so large they caused the app to become unresponsive and crash in certain circumstances.

Embrace helped TED learn that the React Native code responsible for parsing and inserting datasets into the app’s database was overwhelming certain devices.

“Embrace is an integral starting point for us to begin our search for the problem in our React Native code,” Andy said. “Without Embrace, we would have never been able to see that every instance of this crash coincided with the initiation of a catalog sync.”

TED uses Embrace to optimize their data sync process

TED is a non-profit, so resource and cost constraints are always top of mind.

This is crucial to TED's Director of Frontend Engineering, Than Tibbetts. It means his team needs to be particularly strategic about where they place their time and effort.

"We have a massive audience and we're always focused on spreading ideas globally," Than said. "Embrace helps when we're in the midst of assessing where our priorities need to be. It helps us stay mission-aligned by catching critical errors."

So when TED team members like Than began looking at resource optimization, the backend of the data synchronization process became a key point of focus. The big-box database solutions were expensive, so the TED team created their own in-house solutions.

Their approach centered around a customized API. Although it allowed them to create a synchronization process that aligns seamlessly with their nonprofit's objectives, it created a new challenge — how to strike the right balance between historical data availability and cost-efficient delivery.

"Embrace gives us great tools for seeing how well we serve our audience and whether we need to increase the availability of our historical data or decrease it to match the needs of users," Andy said.

Armed with the insights Embrace provides about app performance and user interactions, TED precisely calculated the ideal timeline for generating change sets, which eliminated uncertainty.

TED continues to create exemplary mobile experiences with Embrace

Ideas spread faster, communities build quicker, and impact is created more quickly with mobile. That is, if you're capable of providing a mobile experience that matches the quality of the stories you share.

For TED, the global leader in ideas, leveraging Embrace to continue to build better mobile experiences was a no brainer.

"We're a small team, and Embrace has been a crucial support in ensuring our app stays on track. It's a comfort to know it's always there watching over our app and making sure nothing critical slips through," Than said. "In a post-COVID world, as we figure out our next steps, Embrace lets us focus on what matters, knowing our app is in safe hands. With Embrace, we not only survive, we're confident that our global vision is reflected in the quality of our app."

With Embrace, TED has a more comprehensive view of their mobile app, can better allocate resources, and can better deliver on their promise of a great mobile experience.

Learn how Embrace can help your team deliver amazing mobile experiences by requesting a demo today.