

Making Sure Our Own Robots Are What They Say They Are



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– Ben Levy, VP R&D

Personal robots have always had the potential to provide physical and social support to those who need it most. However, it’s only in the last few years that the technical implementations have become sufficiently practical and cost effective.

The Client

Robotemi is a company which develops and sells Temi - an open platform robot which can be utilized in many business areas. The company’s current focus sectors are senior care, hospitals, real estate and retail stores. The Temi platform provides many core capabilities for developers right out of the box, such as autonomous navigation, voice-robot customized interaction, face recognition, telepresence, to name just a few.

Robotemi arrived on the scene in late 2015 and the Temi platform was launched 2 years later. It has attracted a lot of attention in leading publications such as Forbes and Reuters because of its potential to make a significant and positive impact on people’s lives. More recently, as the robot proved itself to be effective in real situations, it has won many industry awards including the Best in Show at CES 2019 from Tom’s guide and Time’s best invention of 2019.

The Challenge

The development team knew of course that the deployed robots would be communicating with the company’s exposed API endpoints and that sensitive data would be accessible there if not properly protected. In this case, properly protected means that only genuine Robotemi client instances can talk to the cloud-based servers. It was vital that no modified clients and no scripts which generated synthetic API traffic could gain access to the servers.

Ben Levy, VP R&D, provides some context:

“We experienced an attack against one of our API endpoints which caused one of our key features to go Out of Service. As a result we spent many man-days putting in place some in-house security but we knew this was only a band-aid and we would quickly need to find something better.”

Considering the anticipated rapid speed of deployment of the Robotemi platform and also that mainland China was one of the main growth market opportunities dictated that the high grade security was not negotiable.

How Approov Mobile Security Helped

The company consulted one of their other solution providers and explained the challenge they were facing. The provider suggested that Approov might be just what Robotemi was looking for.

The team wanted to protect their public API endpoints from being accessed by unauthorized parties. Effectively they wanted to guarantee the integrity of the remote client software before enabling communication with their servers. The real threat was that attackers would use modified apps or scripts which generate correctly formed API requests, and it would be very difficult to detect and block them.

Robotemi set about creating and applying a homegrown anti-tamper solution, but there were a couple of issues with this. Firstly, it quickly became clear that this was a significant undertaking; creating and maintaining it against a rapidly evolving Android/iOS backdrop as well as monitoring and reacting to the ever-shifting threat landscape. Secondly, and possibly even more significantly, was the recognition that protecting the app from being tampered was only part of the required solution; scripts which impersonate app traffic on the API would bypass any in-app protection.

Ben tells us more:

“We tried to secure our API endpoints with in-house protections, so we know how difficult it is. As soon as we started using Approov we realized that it is in fact the industrial version of what we needed to ensure that only our client software could use our APIs. What’s more, the Approov team constantly keeps the security current so we can focus on making our robots awesome.”

The Results

Following the integration and test of Approov in the Robotemi app, there was one remaining issue to deal with. The company has been very successful in selling robots all over the planet, and especially in China. This can be problematic for cloud SaaS providers because of the difficulties in reaching public cloud services hosted in other countries from inside China.

It took just a few interactions between the Robotemi and Approov server teams to architect a solution where traffic is proxied through existing Robotemi infrastructure to the Approov cloud service. It was tested at scale and found to be fit for purpose. It was time to deploy.

Summary

Ben summarized Robotemi’s experience like this:

“We’ve had an amazing journey with Approov. Our need for a solution in mainland China kicked it off and yielded a quick and efficient collaboration between our teams. Later the Approov team alerted us when they noticed a bunch of bad requests to our account. The bottom line is that we have noticed a reduction in the attacks against our service and we feel this solution just works and puts us in a more secure state.”



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