SafeCase™ with Anti-Surveillance: A primer

What is the SafeCase?

The Privoro SafeCase™ is a first-of-its-kind electronic wraparound companion for smartphones that provides a high-security platform on which features and services can be built.

What is the Anti-Surveillance feature?

SafeCase has built-in anti-surveillance features which provide physical protections to prevent audio and visual data in the vicinity of the phone from being swept up by third parties who have hijacked the mobile device's cameras and microphones.

How does the Anti-Surveillance feature work?

The SafeCase uses a patented audio masking technique that masks each of the smartphone's microphones with randomized noise specific to that microphone. This technique ensures that a captured conversation's content (the words spoken) and the context (accents, tones, number of participants, etc.) are unidentifiable with even the most sensitive audio forensic equipment. In addition, a physical barrier prevents image capture by blocking each of the smartphone's cameras.

Why external hardware?

Unfortunately, even the most advanced mobile security solutions on the market, whether integrated into the operating system or available as third-party apps, can't overcome the limitations of the smartphone's consumer-centric architecture. Motivated attackers can too easily take total control of a smartphone and then siphon data, including the audio and visual data in the vicinity of the device. Given the security risks of relying on any part of an untrusted, commercial smartphone – even the most locked-down hardware within it – as the basis for protections, the SafeCase has been designed to be functionally independent of the user's smartphone.

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What makes the SafeCase more secure than a commercial smartphone?

Commercial smartphones run millions of different third-party apps, and these apps run on the same application processor or system on a chip (SoC) where the device's security-critical elements (such as initialization code and cryptographic keys) are stored. As a result, chip-based vulnerabilities like the infamous Spectre and Meltdown can be exploited. But the high-security architecture of the SafeCase, which is bolstered by a hardware root of trust, limits interaction to only approved, vetted and signed software, meaning that current and future chip-based vulnerabilities cannot be exploited by malicious third-party code.

Is the SafeCase compatible with every smartphone model?

The SafeCase is currently only compatible with the iPhone 7/8. Future editions of the SafeCase will be compatible with additional models. The core electronics and firmware of the SafeCase have been designed to be directly transferrable to future editions, with changes required only to the plastics to accommodate the smartphone's shape and camera/microphone locations.

Does the user maintain full use of their smartphone?

With audio and video protections engaged, the user maintains full use of the majority of their phone's features and apps. The user will have to disengage protections (by simply raising the adjustable hood) for phone calls, audio/image capture and usage of the phone's virtual assistant.

How does the user know that protections are working?

The easiest way for the user to verify that both audio and video protections are working is to record a short video while the hood is both raised and lowered. When the recording is played back, the portion captured when the hood was lowered should include a black image output and a scrambled audio output.

How does the SafeCase integrate into an organization's infrastructure?

The SafeCase includes its own secure, cloud-based management infrastructure. From the Privoro Portal, an administrator can push out firmware updates to the SafeCase and perform other management tasks. Soon, the SafeCase will integrate with the major mobile device management (MDM) platforms, giving administrators the ability to ensure that users' cameras and microphones are not exposed in specified situations.

What does the SafeCase not do?

As a first-of-its-kind product, it's natural for people to have misconceptions about what the SafeCase does. The SafeCase does not currently do any of the following:

- Stop the smartphone from being hacked;

- Protect against attacks via RF signals;

- Make encrypted phone calls;

- Protect the smartphone from drops and falls; or

- Charge the smartphone.

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