Cebit 2015: Find out what your apps are really doing
10 March 2015

Computer scientists from Saarbrücken have now developed a software system that allows users to detect malicious apps at an early stage. This is achieved by scanning the program code, with an emphasis on those parts where the respective app is accessing or transmitting personal information. The monitoring software will detect whether a data request is related to the subsequent transmission of data, and will flag the code sequence in question as suspicious accordingly. "Imagine your address book is read out, and hundreds of lines of code later, without you noticing, your phone will send your contacts to an unknown website," Erik Derr says. Derr is a PhD student at the Graduate School for Computer Science at Saarland University, and a researcher at the Saarbrücken Research Center for IT Security, CISPA. An important feature of the software he developed is its ability to monitor precisely which websites an app is accessing, or which phone number a text message was sent to.

To conclusively detect these functional relationships between the data source and the recipient, the researchers use contemporary methods of information flow analysis. They set their program up in advance with a list of suspicious code combinations that access programming interfaces, so that it would learn to differentiate between "good" and "evil" apps, and additionally fed it with details of currently known attacks. "So it can be helpful, for instance, to know the telephone numbers of these expensive premium services. Say one of these numbers is dialed without the consent of the user, then the fraud is obvious," Derr explains. Since his method is computationally demanding and also requires a lot of memory space, the software is run on a dedicated server.

"It takes our software an average of 25 minutes per app," Derr says. So far, his research team has tested around 23,000 apps in this manner. And of course, consumers will benefit most from this approach. "The app could be analyzed on our server, and the results would be displayed on your..."
smartphone. Or ideally, the evaluation process could be integrated directly into the app store websites," explains Derr. This is one of the reasons the Saarbrücken researchers are already discussing the issue with US online retail company Amazon. "But Google would certainly be an option as well," says Derr.

Provided by Saarland University