KISS On My List: Improving Platform Security and User Privacy by Simplifying the Android Permissions Model

Nicole Borrelli

ABSTRACT

Android leads the smartphone OS market due to its availability on a large variety of devices, its customizability, and the wealth of apps available from the Play Store. Despite the sensitive nature of what we store on our mobile devices, most apps come from untrusted sources. For this reason, Android includes a rich permissions system to protect users' privacy. Unfortunately the permissions system is difficult for both users and developers to understand. This misunderstanding leads developers to request more permissions than necessary [1], and users to install applications without fully understanding the privileges being granted [3].

There has been a wealth of research performed with the goal of improving this security model, including AppFence [2]. These projects often focus on providing a way for end-users to hide private data from, or selectively revoke the permissions of, an app.

While these solutions address the issue of Android's all-or-nothing approach to security, they do not tackle the difficulties users face in understanding the privileges that these permissions grant. Indeed, these frameworks often increase the complexity for end-users as they must not only understand what each permission allows, but also the consequences of denying it. We propose to group protected APIs by context rather than scope. For example, items from `ACCESS_NETWORK_STATE` and `ACCESS_WIFI_STATE` could be grouped within the `INTERNET` permission. This would lead to a reduced number of permissions, and would allow the access granted by each to be more narrowly focused.

BODY

Could simplifying Android's permission model improve platform security and privacy by easing development and promoting user understanding?

REFERENCES

[1] A. P. Felt, E. Chin, S. Hanna, D. Song, and D. Wagner. Android Permissions Demystified. In *Proc. ACM Conference on Computer and Communications Security*, CCS, 2011.

[2] P. Hornyack, S. Han, J. Jung, S. Schechter, and D. Wetherall. "These Aren't the Droids You're Looking for": Retrofitting Android to Protect Data from Imperious Applications. In *Proc. ACM Conference on Computer and Communications Security*, CCS, 2011.

[3] P. G. Kelley, S. Consolvo, L. F. Cranor, J. Jung, N. Sadeh, and D. Wetherall. A Conundrum of Permissions: Installing Applications on an Android Smartphone. In *Proc. International Conference on Financial Cryptography and Data Security*, FC, 2012.

Volume 3 of Tiny Transactions on Computer Science