CS 455 – Computer Security Fundamentals

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- Why we get lots of scam calls, robo-calls or spam SMS?
- There is still something we can do. Isn't it?
- In the following lecture…

Why we get lots of scam calls, robo-calls or spam SMS?

- Everything starts with your phone # or email address leakage!
- Someone likes to get your data
  - And sell to robo-caller?
- Someone wants to know if this phone number is used by a person
- Someone likes to take the the advantage of your private data
- Someone like to conduct social engineering
- …
- Their approaches are different but the purpose are the same, for $$, mostly.

Why we get lots of scam calls, robo-calls or spam SMS?

- Even worse, for some of the commercial websites, they need the user to register their accounts by using their real phone numbers.
- It is necessary to have a user's phone number for accounts verification.
  - Send the temporary pass code to you
- How do you know those websites are safe?
- They are not forever-safe. This is the ugly truth.
  - i.e. Do not save your credit card info. for the next time of the payment
- Similarly, for spam / scam text messages, even if we just close our eyes and delete that, it still cost our text in the phone plan
  - Sure, unlimited text and talk is good ☺

# Why we get lots of scam calls, robo-calls or spam SMS?

- For Robo-callers, it is a part of the reason is that, it is apart of the eco-system ← ugly truth
- Carriers, for example, A* and V*, they have no reason to stop them because the Robo-callers might still contribute a considerable amount of $
  - Robo-callers are mostly for commercial purpose. It is very hard to classify them as malicious callers
- But, there is still something we can do. Isn't it?
  - Yes. But the approaches could be little bit different
  - We need to handle something based on different use cases

There is still something we can do. Isn't it?

- Google Android provided an approach to block the phone numbers
  - https://source.android.com/docs/core/connect/block-numbers?hl=en
  - The implementation is early (in Android v7.0, around the year of 2018) but is less effective in the earlier time
  - For example, if an end user changes his / her phone, the blocked phone # list is gone!
  - Not until recently, Google improve their service to have the Carriers, user's phone applications (i.e. SMS app, Phone dialing app, Contacts App) and OEM manufacturers to maintain the blocked phone # list.
  - The blocked phone # list is synced in the Google cloud

There is still something we can do. Isn't it?

- Data Flow for blocked phone #
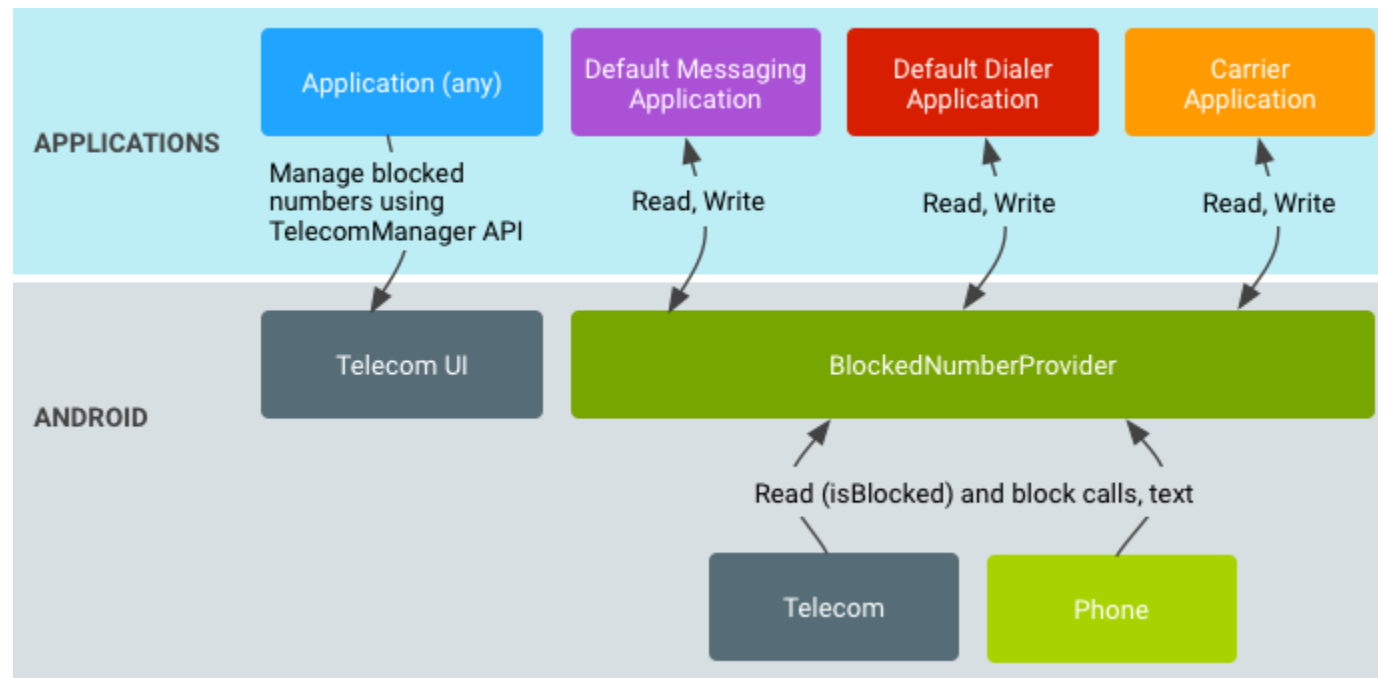
There is still something we can do. Isn't it?

- Hey, but this is still less effective!
- Robo-callers / Scammers / Spammers can still keep changing their phone numbers and the approach provided above are still…
- Signature based!
- How many blocked phone numbers you want to maintain in the list?

In the following lecture…

- We will stay on the phone related security for 2+ weeks
- Some of the high level algorithm will be provided to figure out this issue
- Some sample code will be shared
- Sure, you will have Android programming 101
  - I will replay this class one more time.
  - Because not all of you are from my previous database class
    - We talked about Android programming ← → SQLite Database, MySQL (in Fall 2022)