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Summary of "The Curious Case of the PDF Converter that Likes Mozart: Dissecting and Mitigating the Privacy Risk of Personal Cloud Apps"

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Security of complex Information systems

17. January 2018

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Examination of "over-privileged" third party apps for Google Drive

Suggestion of new permission models

Introduction of an app store

Analysis of the behaviour of app developers

Suggestion of best practices

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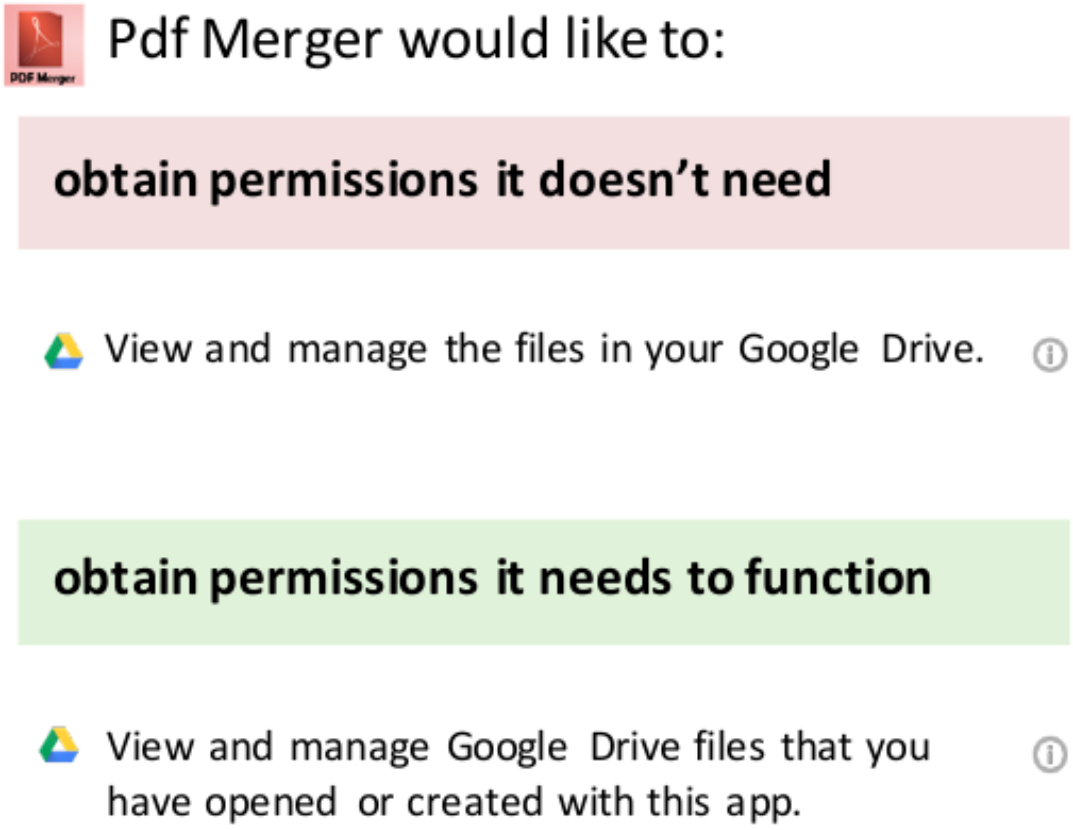
New permission models

Delta Permissions (DP)

Assumption: Users are detained if told which permissions are unnecessary

New permission models: DP



New permission models

Immediate Insights (IM)

Assumption: Users are detained if told which informations can be gained

New permission models: IM

Pdf Merger would like to:

obtain permissions it doesn't need

View and manage the files in your Google Drive.

obtain permissions it needs to function

View and manage Google Drive files that you have opened or created with this app.

Insights Area

What do the unneeded permissions say about you?

They tell the app that you have an image, named 'dinner.jpg', which was captured at this location:

New permission models

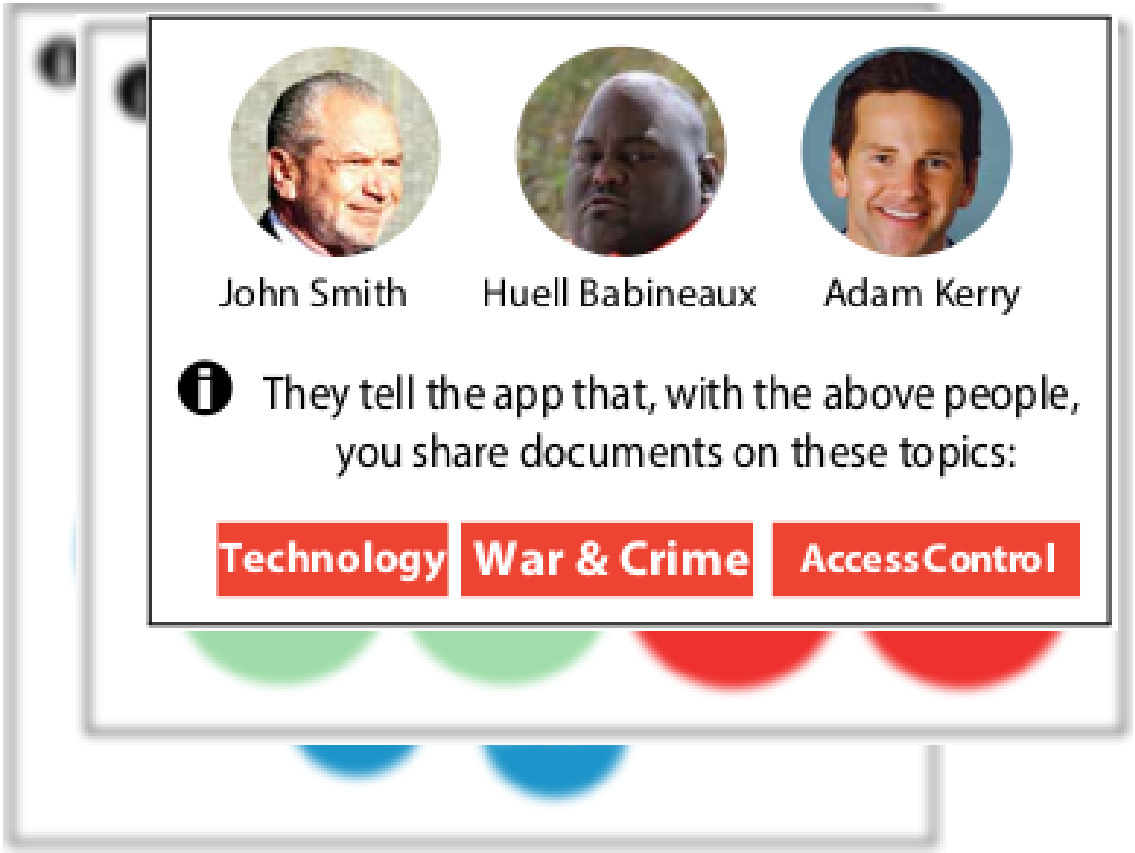
Far-reaching Insights (FR)

Assumption: Users are detained if told which far reaching insights can be gained

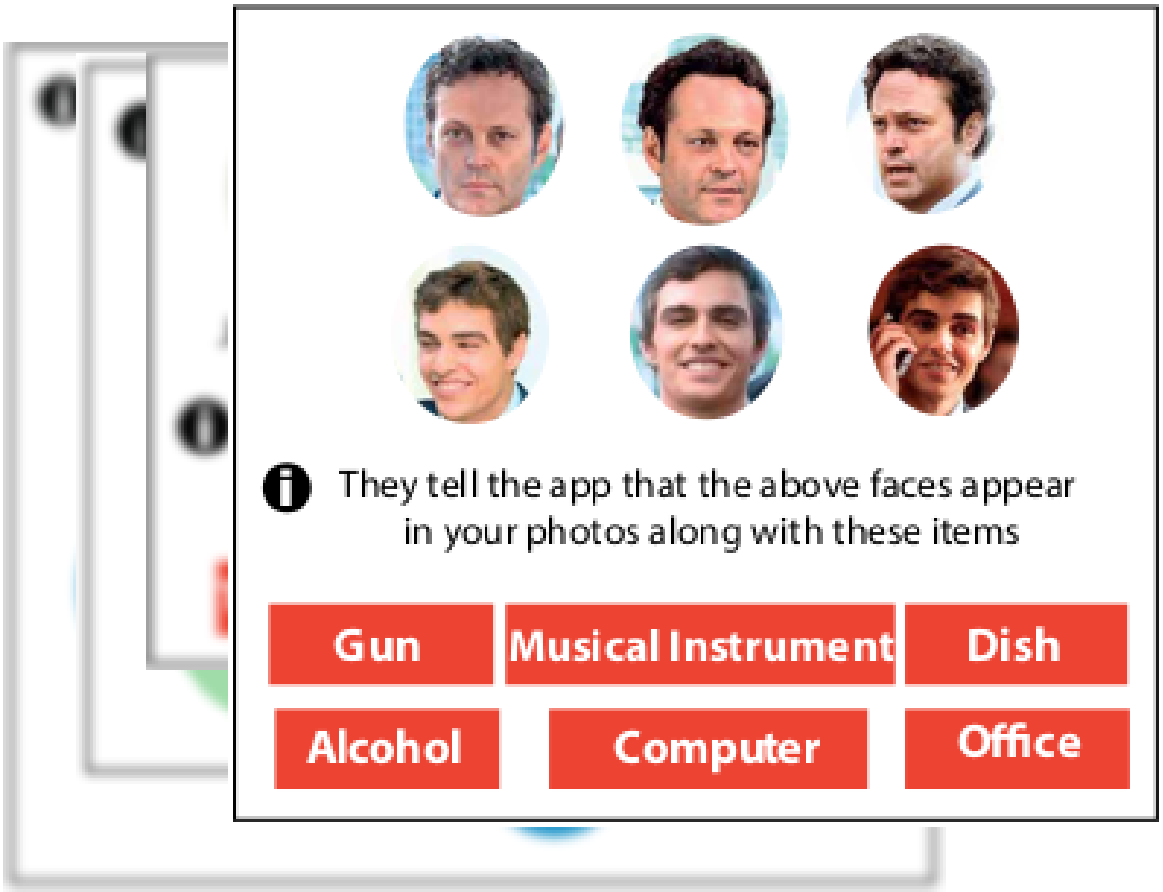
New permission models: FR

New permission models: FR

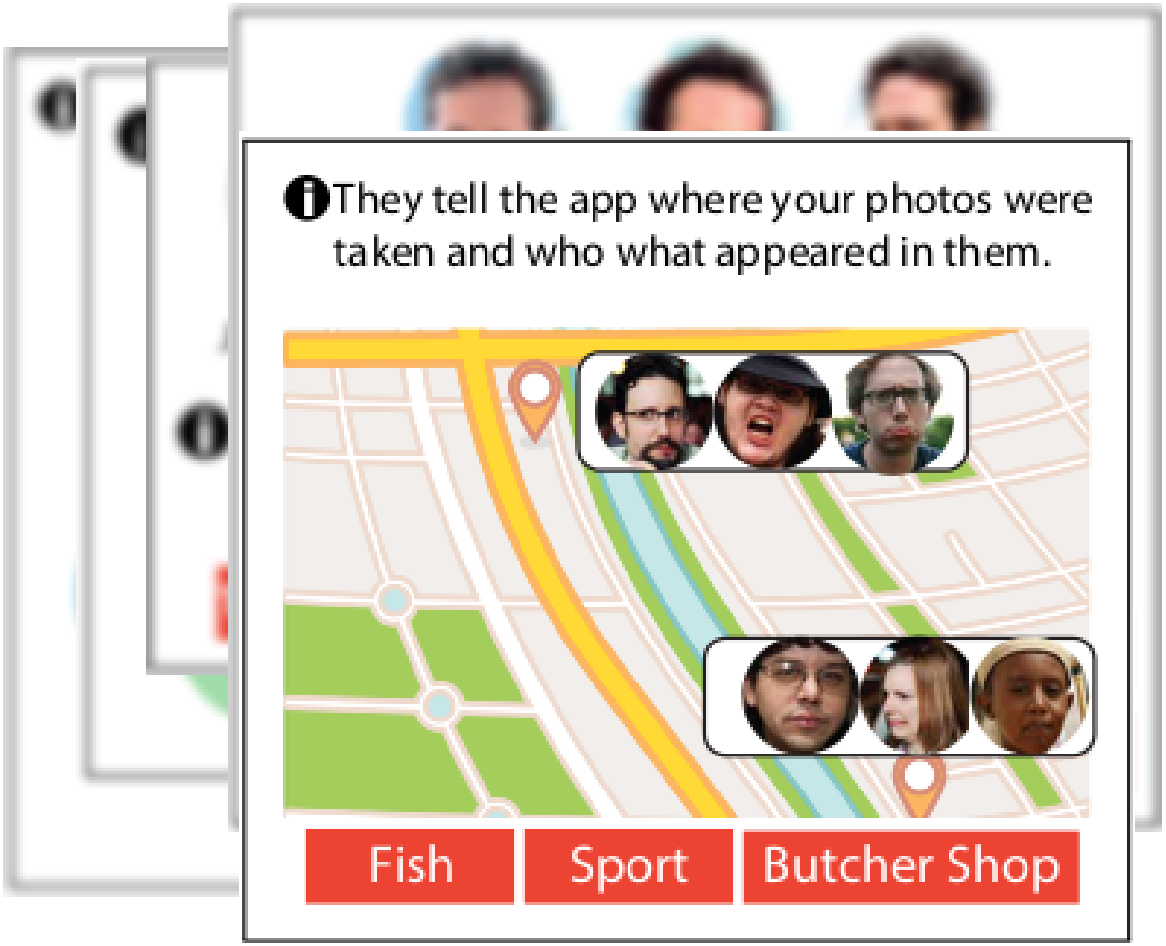
New permission models: FR



New permission models: FR



New permission models: FR



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Permission model study

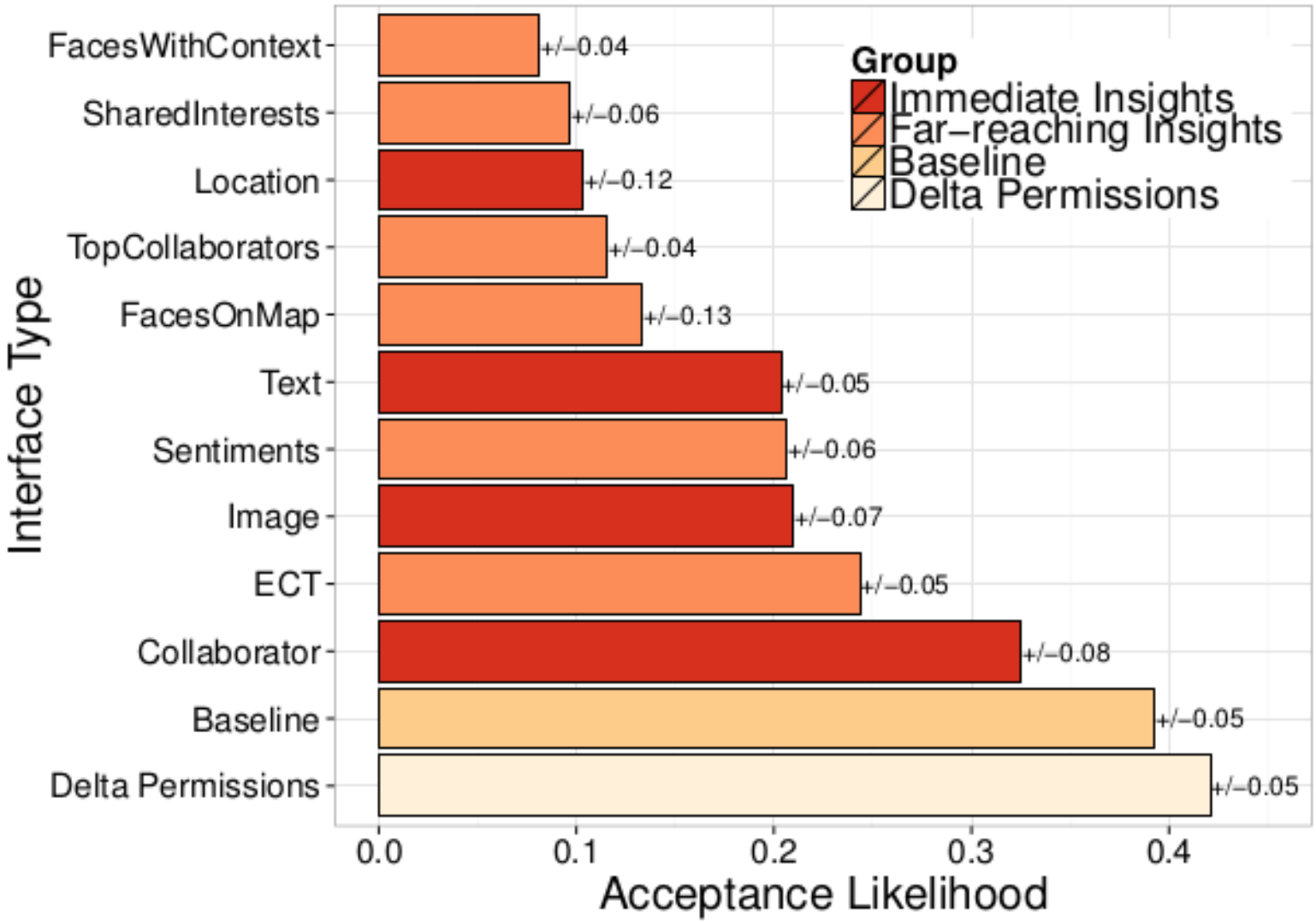
Permission model study

210 participants

Four groups: DP (50), IM (54), FR (51), Control Group (55)

Procedure: Person confronted with an app and the wanted permissions $\Rightarrow$ Would you install?

Permission model study



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PrivySeal

App store developed by the authors

Focus on protection of the user's privacy

Three core feature

1440 registered users (effective 2016)

100 apps (effective 2016)

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Current misbehaviour of developers: How have the permissions changed?

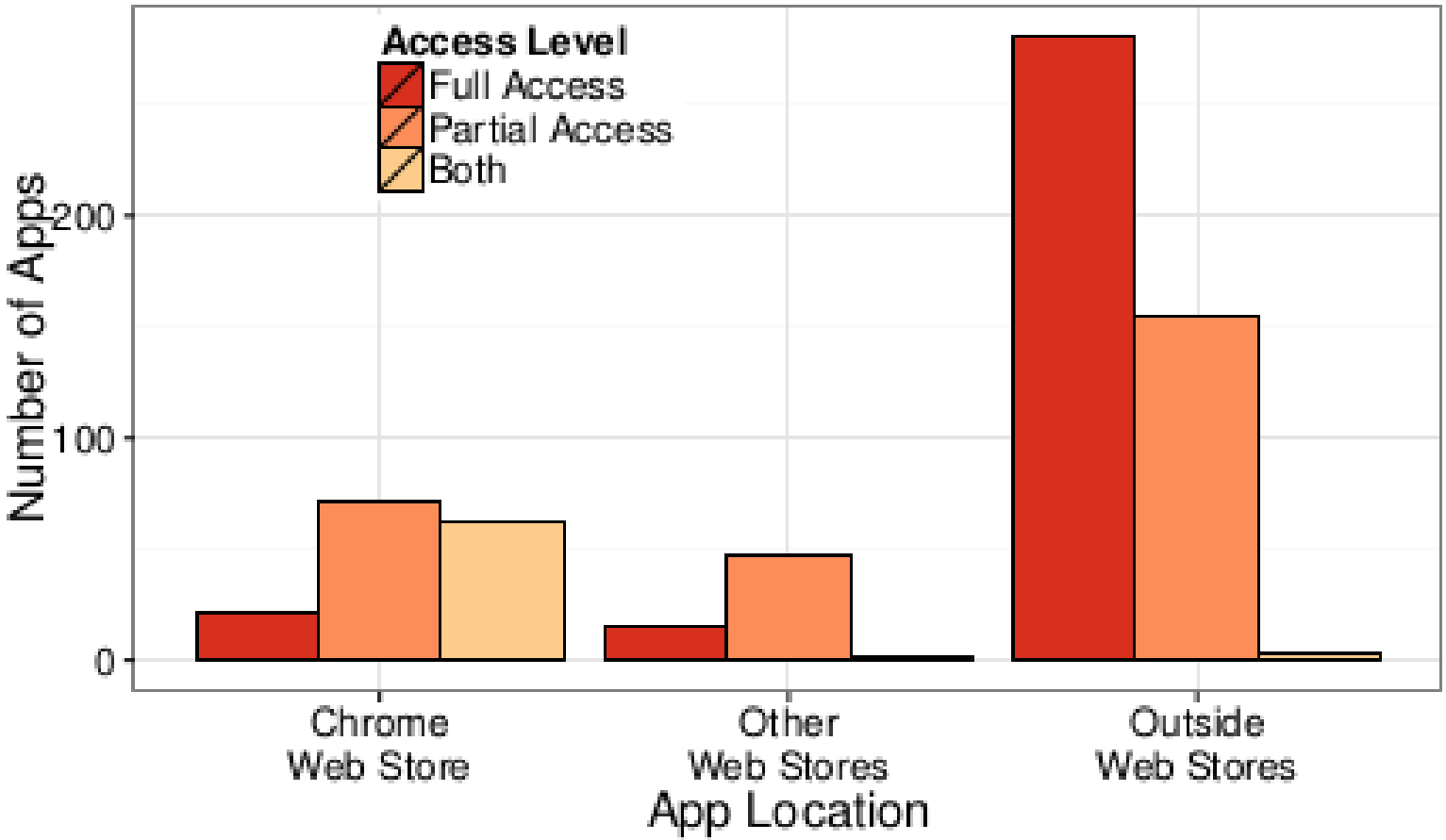
Analysis of previously installed apps from their app store users $\Rightarrow$ 662 apps from three sources

Google Chrome Web Store: 159 apps

Google Web Stores : 66 apps

Outside of Google Web Stores: 437 apps

Current misbehaviour of developers: How have the permissions changed?



Current misbehaviour of developers: The importance of metadata

Analysis of the informations that can be gained by accessing the users metadata

200 registered users with each more than ten text files

"General Topics": 78 percent matches

"Specific Topics": 66 percent matches

"Concepts": 31 percent matches but 69 percent are mostly similar

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Use more granulated permissions

Add an overview to cloud platforms

Inform users about insights that could be gained

Add an additional API

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Thank you for your attention!

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[1] https://www.oculus.com/en-us/