

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

Jens Becker, Katharina Mulack, Simon Weidmann

Security of complex Information systems

17. January 2018

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

- 1 Preface
- 2 Introduction
- 3 New permission models
- 4 Permission model study
- 5 PrivySeal
- 6 Current misbehaviour of developers
- 7 Best practices
- 8 Influence

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Preface

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Introduction

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

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

New permission models

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission models

Permission model study

PrivySeal

Current misbehaviour of developers

Best practices

Influence

Delta Permissions (DP)

Assumption: Users are deterred if told which permissions are unnecessary



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. ⓘ

[1]

Immediate Insights (IM)

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



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:



[1]

Far-reaching Insights (FR)

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







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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

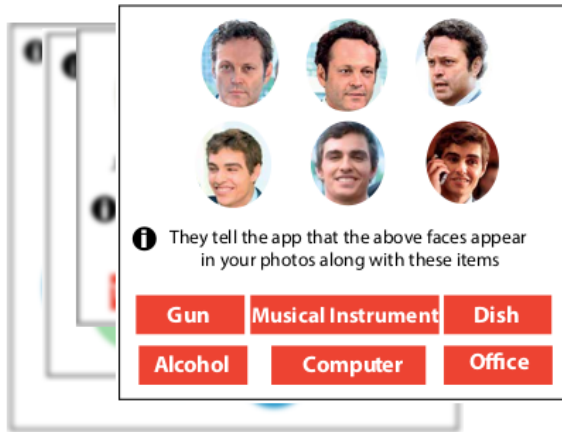
Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence



[1]

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission models

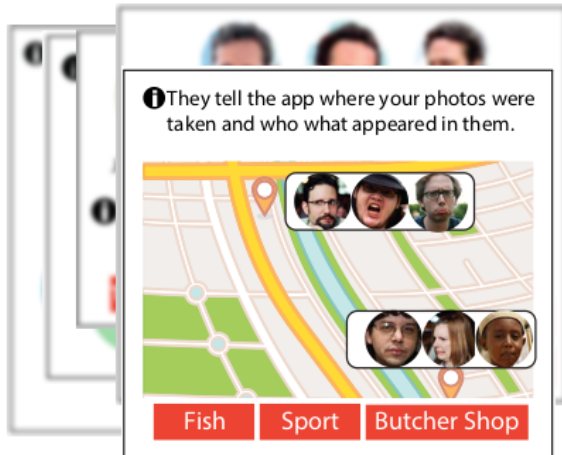
Permission model study

PrivySeal

Current misbehaviour of developers

Best practices

Influence



[1]

Permission model study

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

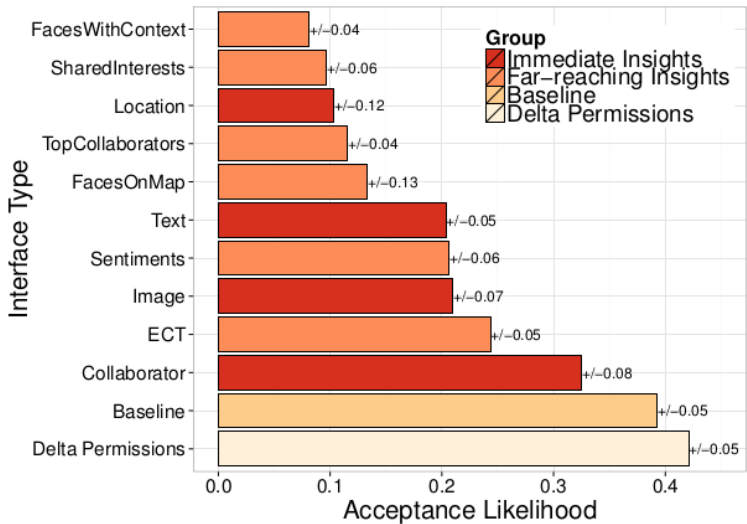
Best practices

Influence

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?



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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

PrivySeal

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

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)

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Current misbehaviour of developers

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Current misbehaviour of developers: How have the permissions changed?

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission models

Permission model study

PrivySeal

Current misbehaviour of developers

Best practices

Influence

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?

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

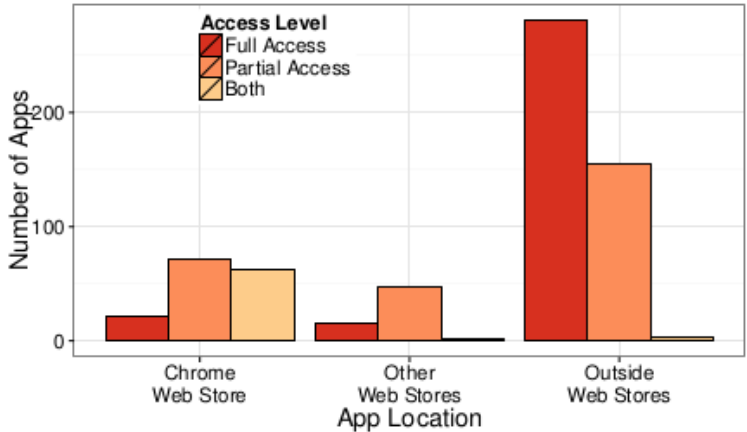
Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence



[1]

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

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Best practices

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Use more granulated permissions

Add an overview to cloud platforms

Inform users about insights that could be gained

Add an additional API

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Influence

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

Thank you for your attention!

Preface

Introduction

New permission
models

Permission model
study

PrivySeal

Current
misbehaviour of
developers

Best practices

Influence

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

Jens Becker,
Katharina Mulack,
Simon Weidmann

References

References

- [1] Hamza Harkous and Rameez Rahman and Bojan Karlas and Karl Aberer, *The Curious Case of the PDF Converter that Likes Mozart: Dissecting and Mitigating the Privacy Risk of Personal Cloud Apps*,
https://petsymposium.org/2016/files/papers/The_Curious_Case_of_the_PDF_Converter_that_Likes_Mozart__Dissecting_and_Mitigating_the_Privacy_Risk_of_Personal_Cloud_Apps.pdf