TECHNISCHE UNIVERSITÄT DRESDEN

DRESDEN concept

Application Development for Mobile and Ubiquitous Computing

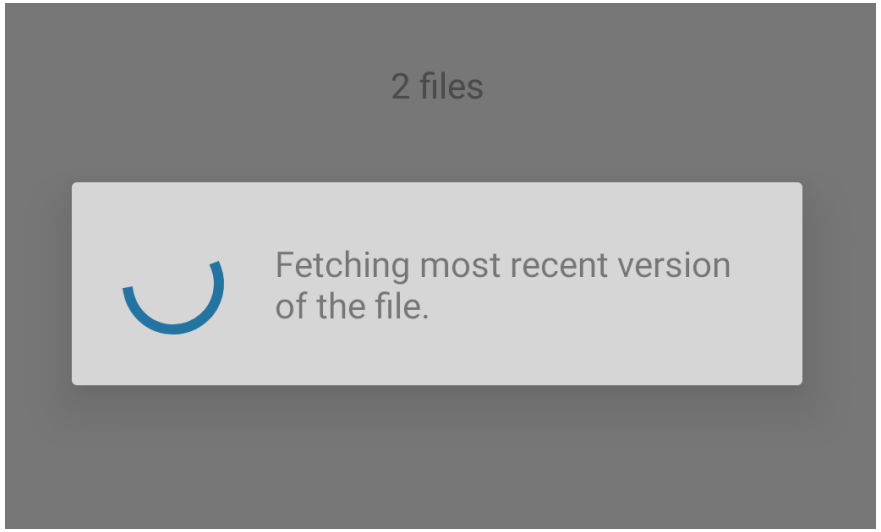
SuperSync
Access your data anywhere

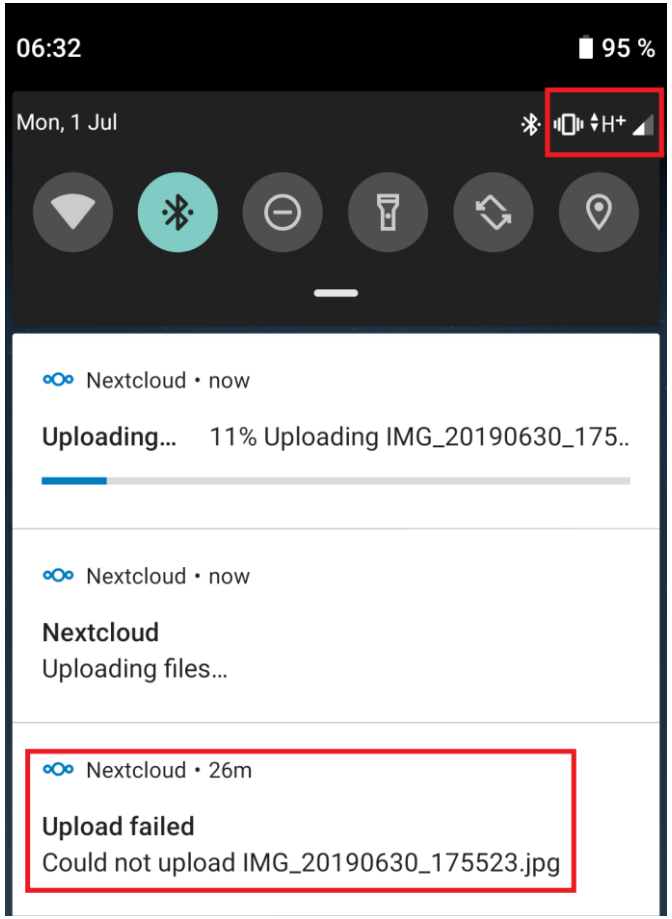
First Presentation
Dresden, November 8th 2019

Problem

Accessing and synchronizing your data on the go can be a pain

Existing solutions are not seemless

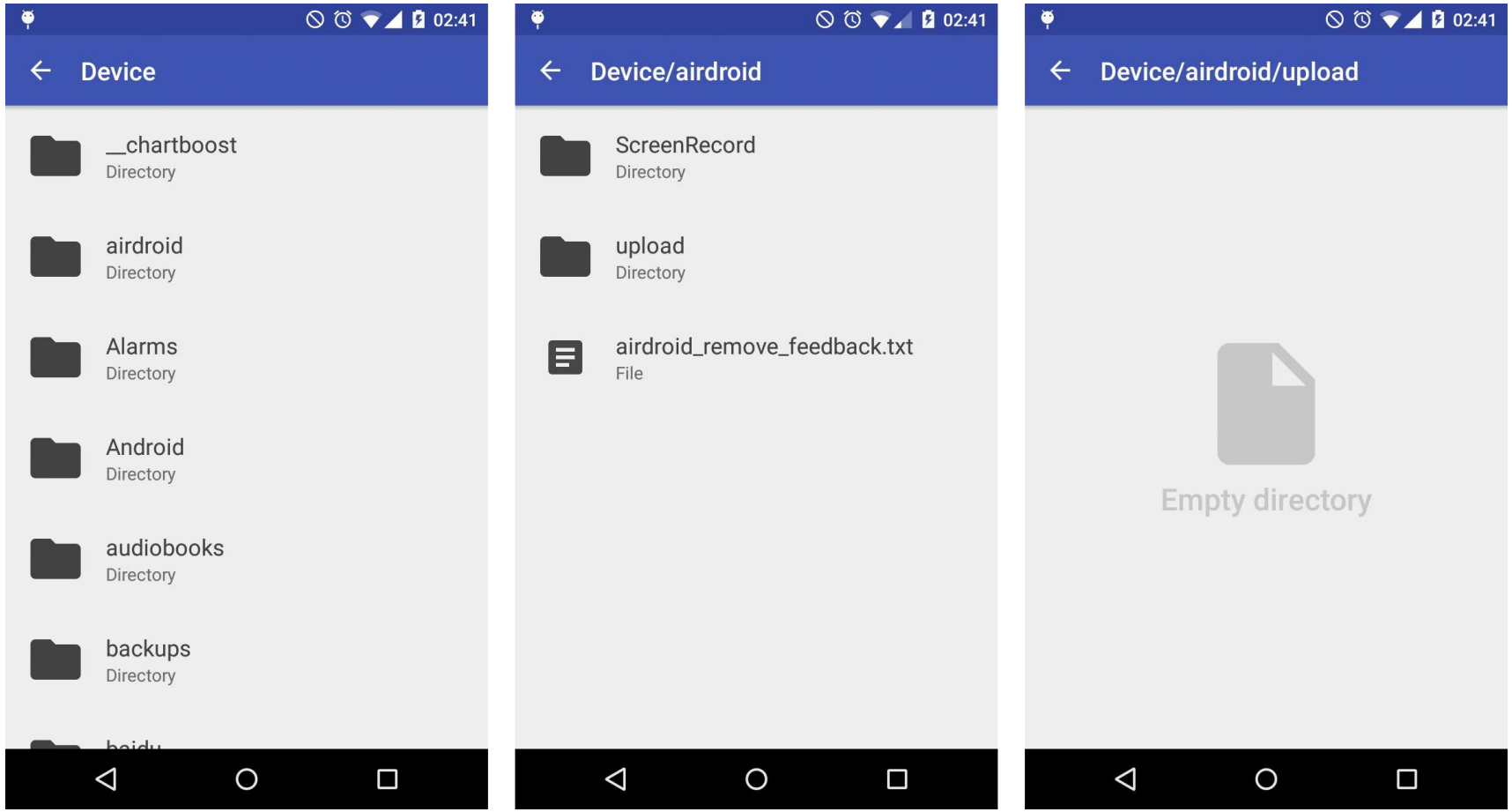




Solution

- reliable background synchronization
  - fully customizable preferences
    - connection type (2G, 3G, 4G, WiFi)
    - power limit
    - data cap
  - download/upload queue synchronizes
    - if context allows it
    - user temporarily overwrites boundaries
- seemless access to cached files
  - give user in-app option to
    - access cached file
    - download updated file now
    - allow access to cached file until download is complete (needed if connection drops)

Mockup



Material File Picker by nsbp-team
https://github.com/nbsp-team/MaterialFilePicker#material-file-picker-

Challenges

Connectivity Challenge

- toggle synchronization based on connectivity
- prompt user to use cached file when possible if they try to access a large file over a slow connection

Offline Challenge

- keep cached files available
- queue up- and downloads

Energy Challenge

- stop background synch if battery is below a threshold
- don‘t poll too often
- don‘t update if connection is too slow

Technologies

OS: Android API level 26

Language: Java

IDE: Android Studio

Storage:

- Android SharedPreferences
- Android External Storage
- SQLite using Room

Version Control: Git

Protocol: FTP

Schedule

- 2019 November
  - Concluding app concept decisions
  - basic implementation of Context Layer
- 2019/11/08
  - First Seminar presentation
- 2019 December
  - First running prototype that
    - is context aware
    - can download via FTP
    - manages a download queue
- 2019/12/13
  - Presentation of Adaption Concepts
- 2020 January
  - Implement Conclusions from peer review
  - Squash bugs
- 2020/01/31 Final presentation

Questions and Feedback are welcome