KDE's Journey to Qt6 and beyond

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About KDE

About KDE — Kate

KDE - Be Free!

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KDE is a world-wide community of software engineers, artists, writers, translators and creators who are committed to Free Software development. KDE produces the Plasma desktop environment, hundreds of applications, and the many software libraries that support them.

KDE is a cooperative enterprise: no single entity controls its direction or products. Instead, we work together to achieve the common goal of building the world's finest Free Software. Everyone is welcome to join and contribute to KDE, including you.

Visit https://www.kde.org/ for more information about the KDE community and the software we produce.

Close

KDE and Qt

- All KDE things are based on Qt5

- Some date back to 1996 and Qt1

- Regular contributors to Qt

- KDE Free Qt Foundation safeguards
  Open Source Qt

WHO AM I?

- KDE and Qt developer since 2017

- Working on Plasma and various apps

- Working on porting KDE to Qt6

- Software Engineer at KDAB

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KDE Goals

KDE For All

Improve accessibility across our products

Sustainable Software

Reduce energy consumption and hardware waste

Automation

Automate And Systematize Internal Processes

Previous Goals: All about the Apps, Wayland, Consistency, Onboarding, Usability and Productivity, Privacy

KDE's Codebase

- KDE has a lot of code: ~15 Million LOC

- Virtually all C++, Qt5, QML

- Many independent subprojects

- Multi-generational

- Both QtWidgets and QML

- Graphics-intensive applications

- CMake buildsystem

KDE Frameworks

- 80+ modular libraries based on Qt

- Common functionality not found in Qt

- Available to external users

- Stable API/ABI

- Qt6 means new major version for KDE Frameworks

Kickoff

- First planning session at Akademy 2019

- KDE Frameworks 6 sprint in 2019 (with virtual David Faure)

Frameworks 6 Design Goals

- Easy porting

- Delay branching as much as possible

- Improve APIs

- Drop unused stuff

- Separate Core/Widgets/QML

- Improve cross-platform support

- Separate interface and implementation

Initial porting experiments

- 2019-2020: Preparation work

- First porting experiments in late 2020

- "Probieren geht über studieren"

- Typical issues:

    - Missing Qt modules

    - Missing includes

    - Qt6 is stricter in some cases

    - Changed signatures

Build System

- Late 2021 we tackled the build system

- s/5/6/ works well for plain porting

- Version-less targets/functions are helpful

- But not suitable for libraries

- Worst case: Qt${QT_MAJOR_VERSION}::Core

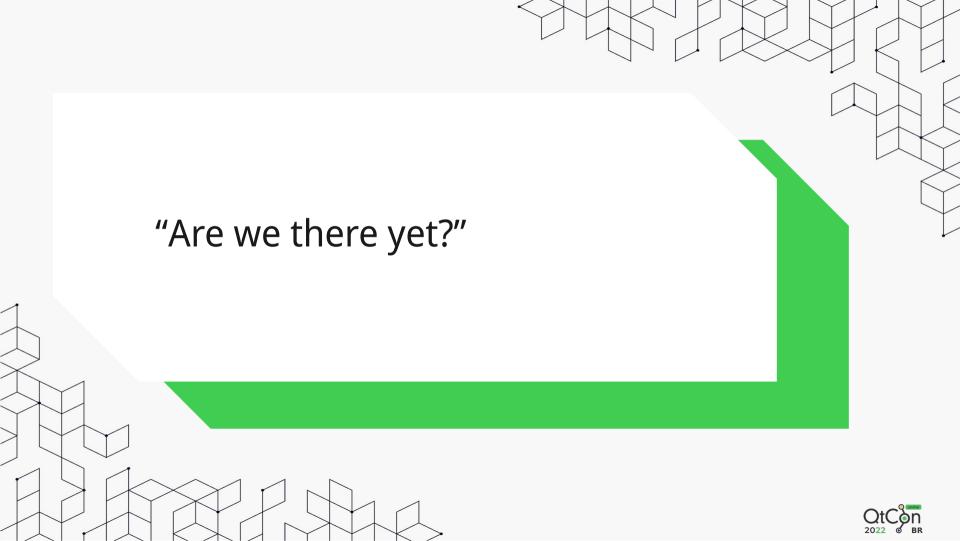- Some things need further adaption (e.g. Qt5Compat, QtX11Extras)

Problems

- QTextCodec

- QStringRef, QRegExp

- Platform Extras Modules

- Shaders

- QML

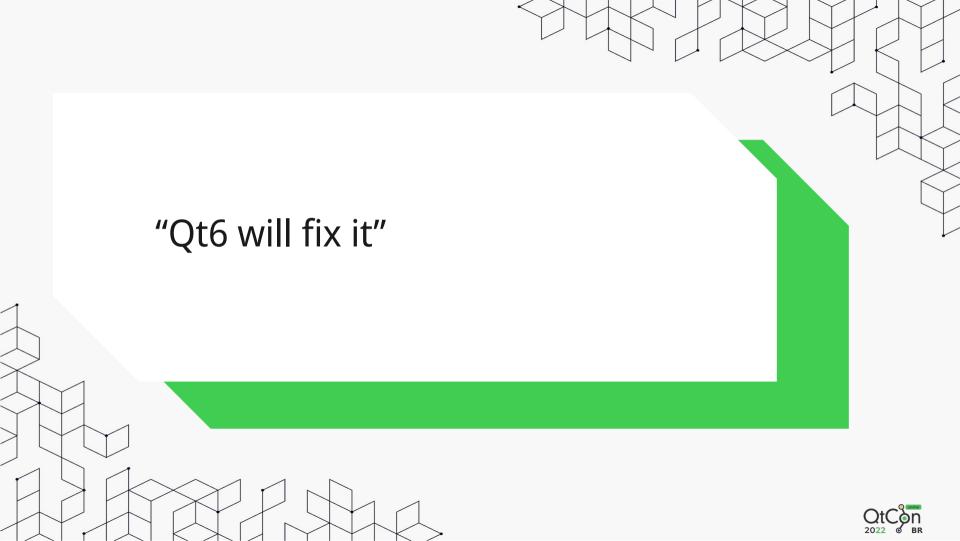- QtGraphicalEffects

"Are we there yet?"

Status

- No Qt6-based releases

- https://iskdeusingqt6.org tracks progress

- QML porting still to be done

- KDE Frameworks 6 will be branched in December

- Plasma 6 development starts in January

Qt6 Goodies

- An openly maintained Qt

- All the small things

- Wayland improvements

- QAction in QtGui

- New QtMultimedia

- Improved QML/QtQuick

"Qt6 will fix it"

THANKS!

Do you have any questions?
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We are hiring

KDE is hiring a Software Engineer to work on its foundation libraries:

- KDE Frameworks

- Qt

- Relevant third-party libraries

This is enabled by your donations!