Union: The Future of Styling in KDE?!

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Akademy 2024

Next up...

1 Some Pictures

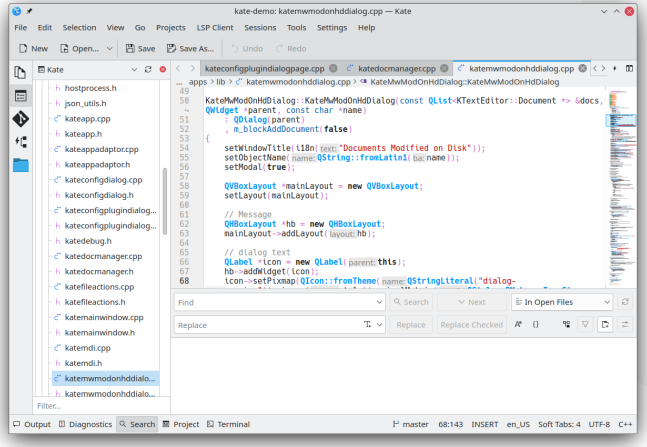
2 The Problem

3 How to Move Forward?

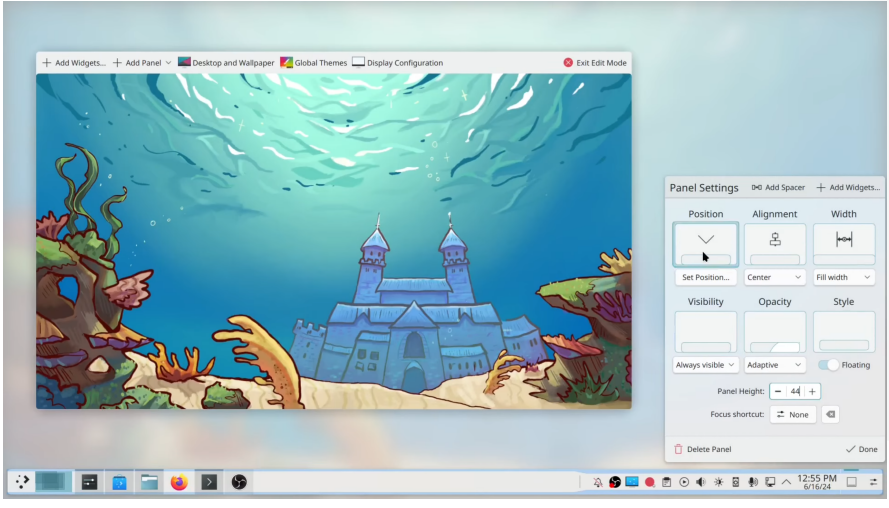
4 Something New

5 What's Next

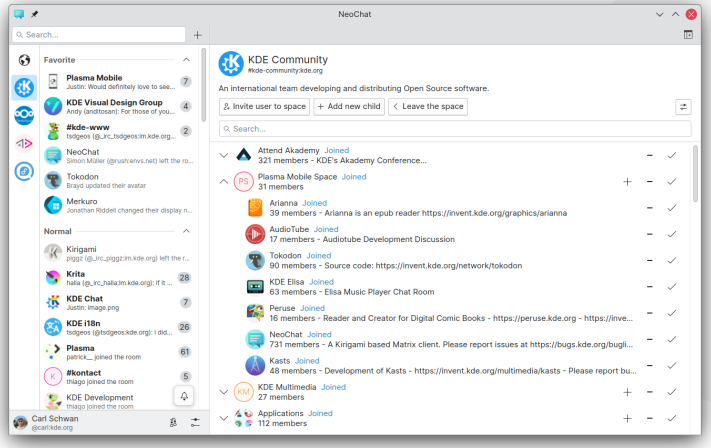
Kate


kate-demo: katemwmodonhddialog.cpp — Kate
File Edit Selection View Go Projects LSP Client Sessions Tools Settings Help
New Open... Save Save As... Undo Redo
Kate
hostprocess.h
json_utils.h
kateapp.cpp
kateapp.h
kateappadaptor.cpp
kateappadaptor.h
kateconfigdialog.cpp
kateconfigdialog.h
kateconfigplugindialog...
kateconfigplugindialog...
katedebug.h
katedocmanager.cpp
katedocmanager.h
katefileactions.cpp
katefileactions.h
katemainwindow.cpp
katemainwindow.h
katemdi.cpp
katemdi.h
katemwmodonhddialo...
katemwmodonhddialo...
Filter...
kateconfigplugindialogpage.cpp
katedocmanager.cpp
katemwmodonhddialog.cpp
apps > lib > katemwmodonhddialog.cpp > KateMwModOnHdDialog::KateMwModOnHdDialog
KateMwModOnHdDialog::KateMwModOnHdDialog(const QList<KTextEditor::Document *> &docs,
QWidget *parent, const char *name)
: QDialog(parent)
, m_blockAddDocument(false)
{
setWindowTitle(i18n(text:"Documents Modified on Disk"));
setObjectName(name:QString::fromLatin1(qs:name));
setModal(true);
QVBoxLayout *mainLayout = new QVBoxLayout;
setLayout(mainLayout);
// Message
QHBoxLayout *hb = new QHBoxLayout;
mainLayout->addLayout(layout:hb);
// dialog text
QLabel *icon = new QLabel(parent:this);
hb->addWidget(icon);
icon->setPixmap(QIcon::fromTheme(name:QStringLiteral("dialog-
Find
Search
Next
In Open Files
Replace
Replace
Replace Checked
Output Diagnostics Search Project Terminal
master 68:143 INSERT en_US Soft Tabs: 4 UTF-8 C++

Plasma


Add Widgets...
Add Panel
Desktop and Wallpaper
Global Themes
Display Configuration
Exit Edit Mode
Panel Settings
Add Spacer
Add Widgets...
Position
Alignment
Width
Set Position...
Center
Fill width
Visibility
Opacity
Style
Always visible
Adaptive
Floating
Panel Height:
44
Focus shortcut:
None
Delete Panel
Done
12:55 PM
6/16/24

NeoChat


NeoChat
Search...
Favorite
Plasma Mobile
Justin: Would definitely love to see...
KDE Visual Design Group
Andy (anditosan): For those of you...
#kde-www
tsdgeos (@_irc_tsdgeos:im.kde.org...
NeoChat
Simon Müller (@rush:envs.net) left the ro...
Tokodon
Brayd updated their avatar
Merkuro
Jonathan Riddell changed their display n...
Normal
Kirigami
piggz (@_irc_piggz:im.kde.org) left the r...
Krita
halla (@_irc_halla:im.kde.org): If it ...
KDE Chat
Justin: image.png
KDE i18n
tsdgeos (@tsdgeos:kde.org): I did...
Plasma
patrick_ joined the room
#kontact
thiago joined the room
KDE Development
thiago joined the room
Carl Schwan
@carl:kde.org
KDE Community
#kde-community:kde.org
An international team developing and distributing Open Source software.
Invite user to space
Add new child
Leave the space
Search...
Attend Akademy Joined
321 members - KDE's Akademy Conference...
Plasma Mobile Space Joined
31 members
Arianna Joined
39 members - Arianna is an epub reader https://invent.kde.org/graphics/arianna
AudioTube Joined
17 members - Audiotube Development Discussion
Tokodon Joined
90 members - Source code: https://invent.kde.org/network/tokodon
KDE Elisa Joined
63 members - Elisa Music Player Chat Room
Peruse Joined
16 members - Reader and Creator for Digital Comic Books - https://peruse.kde.org - https://inve...
NeoChat Joined
731 members - A Kirigami based Matrix client. Please report issues at https://bugs.kde.org/bugli...
Kasts Joined
48 members - Development of Kasts - https://invent.kde.org/multimedia/kasts - Please report bu...
KDE Multimedia Joined
27 members
Applications Joined
112 members

KClock


10:46 pm
73%
Stopwatch
00:07.58
Reset
Lap
#9 +1.24 7.58
#8 +0.73 6.34
#7 +0.52 5.61
#6 +0.60 5.09
#5 +0.68 4.49
#4 +0.96 3.81
#3 +0.76 2.85
#2 +0.77 2.10
#1 +1.32 1.32
Time
Timers
Stopwatch
Alarms

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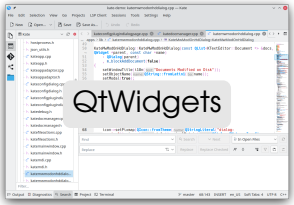
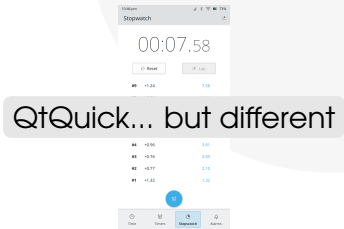
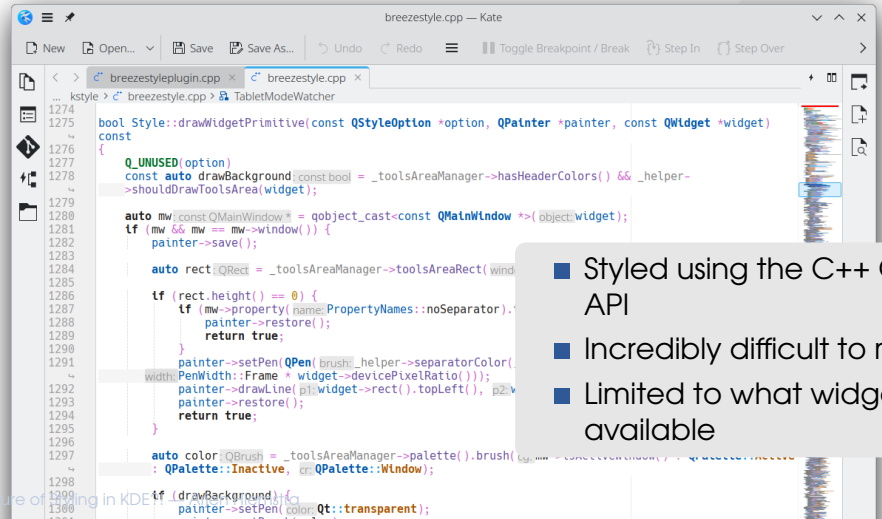
4 Applications, 4 Ways to Style



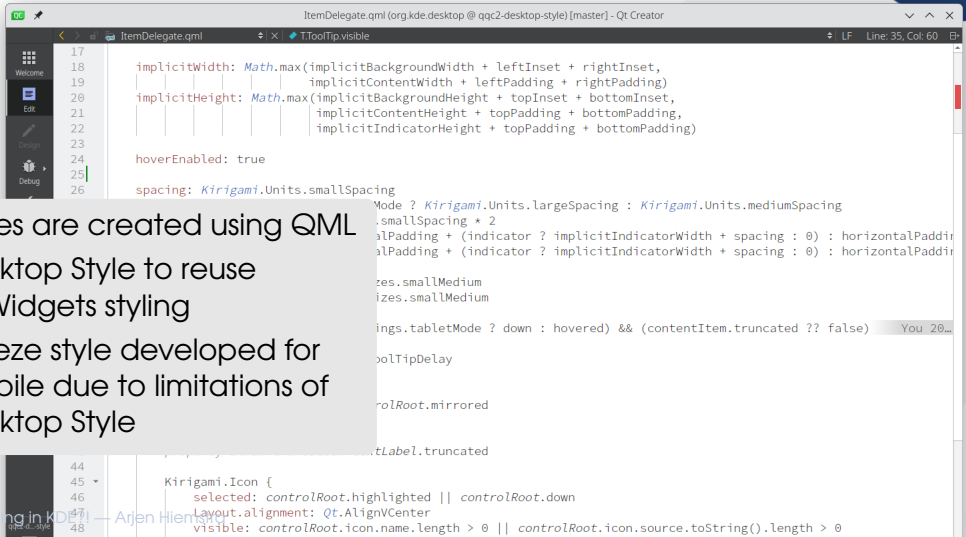


QtWidgets



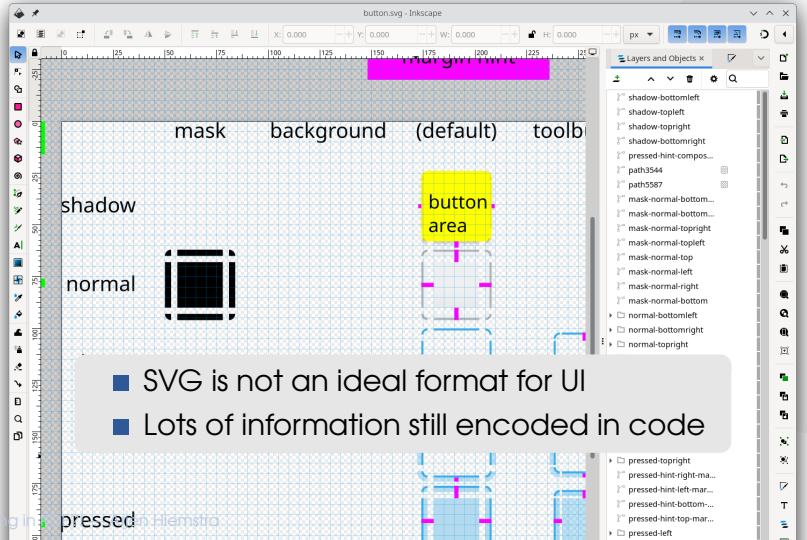
- Styled using the C++ QStyle API
- Incredibly difficult to modify
- Limited to what widgets are available

QtQuick



- Styles are created using QML
- Desktop Style to reuse QtWidgets styling
- Breeze style developed for mobile due to limitations of Desktop Style

Plasma



- SVG is not an ideal format for UI
- Lots of information still encoded in code

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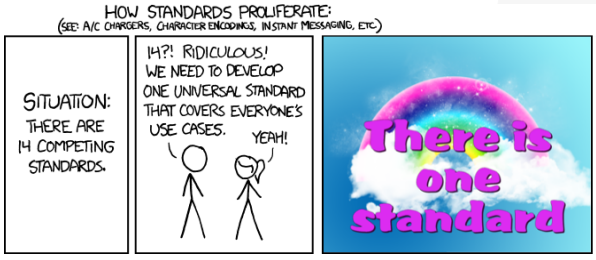
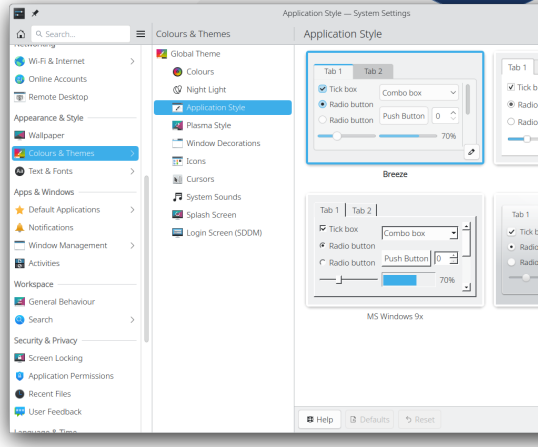
We need something new...



Some Requirements

- Single source of truth
- Easy to change
- Does not need extensive developer knowledge



Technical Requirements

- Optimise for the target
- No logic in the input
- Flexible enough to define custom types

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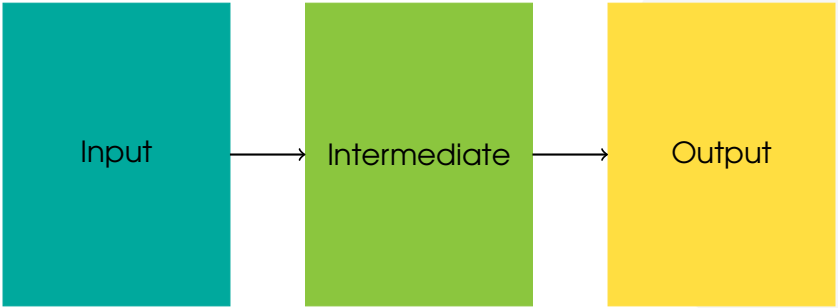
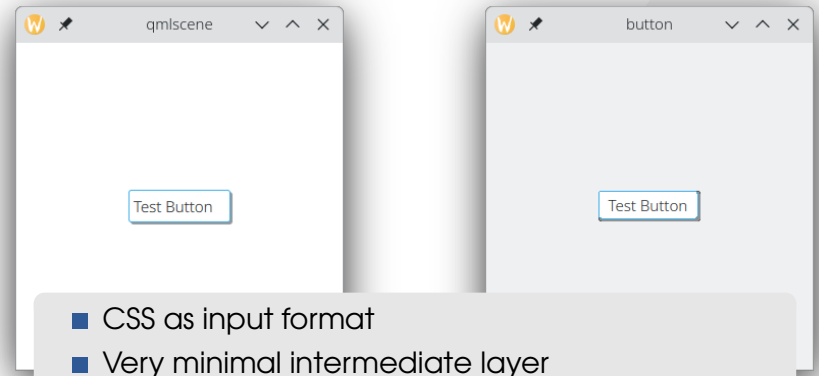
The Core Idea



Proof of Concept



- CSS as input format
- Very minimal intermediate layer
- Implements Buttons in QtQuick and QtWidgets

Results from the Proof of Concept

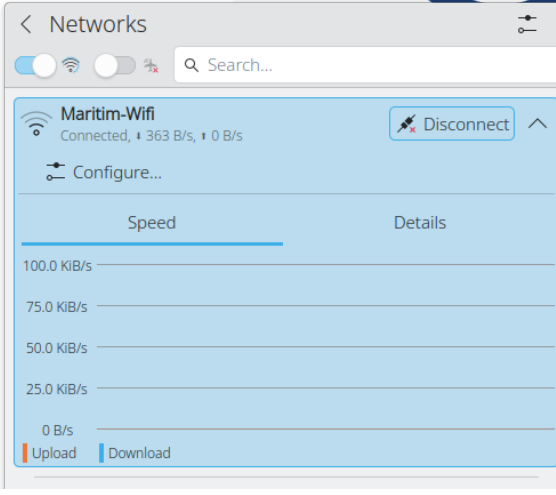
- It's possible!
- ...but it's going to be a lot of work
- Finding the right input format is an open question
- We need some way to split this up

Union

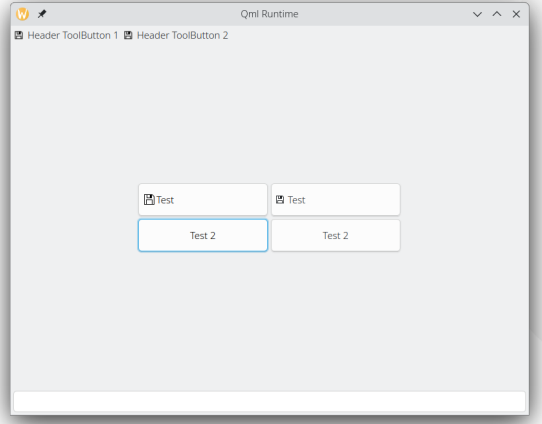
A Style Engine to Rule Them All

Reimplementing Plasma Styling

- Plasma SVG styling has a known output result
- It has an input format that is not code
- This allows us to focus on the intermediate layer



What Does it Look Like?



Implementation Details

- Core library built around a collection of *Style Rules* and *Selectors*
- Input plugins read input format and create Style Rules from that
- Output plugins provide hierarchy of elements and query which Style Rules match

Style Rules and Selectors

- Style Rules determine what properties to apply to an element
- Consist of a set of properties and a selector
- Style rules form a "stack" where properties are read top to bottom

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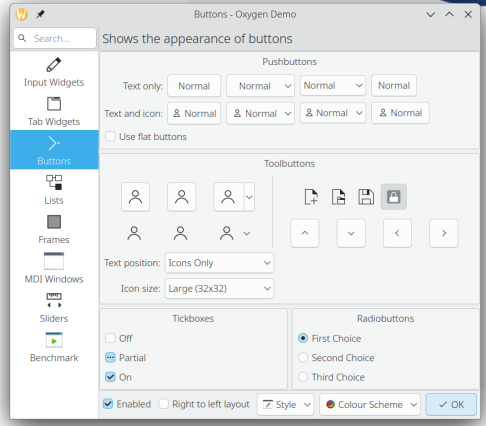
Finishing Up Plasma Styling

- Lots of backend stuff done
- Implement the rest of QtQuick Controls
- Release as part of an upcoming Plasma release

QtWidgets

- QtQuick Style currently the focus
- QStyle implementation needs to be done
- May depend on the new input format



A New Input Format

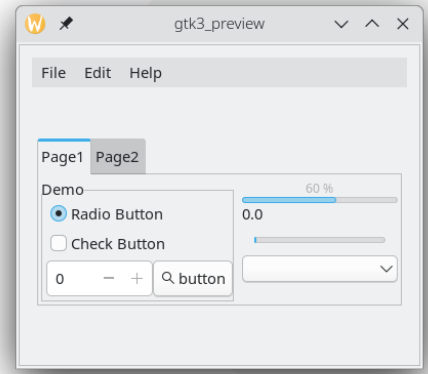
- SVG not intended as long-term input format
- Exact new input format still undecided
- Personal preference still with CSS but library situation is tricky

Application Integration

- We currently rely a lot on “magic” for applicatino integration
- Core library and bits used by styles should be usable by applications
- Applications provide information for style to use

Others

- Window Decorations are a good candidate
- Maybe we can come up with a tool to output a GTK stylesheet?
- Probably other places where we can use it



Closing

Questions?

Find the code at:
https://invent.kde.org/ahiemstra/union