

Qt - A Framework for the Multi-Screen World

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Who am I?

- Nils Christian Roscher-Nielsen
 - 7 years with Qt
 - (Trolltech)
 - Nokia
 - Digia
 - **The Qt Company**
 - Support Engineer
 - Sales Engineer
 - Product Manager
- Norwegian University of Science and Technology
 - M.Sc. Engineering Cybernetics
- I enjoy skiing
kite boarding,
Photography,
Qt application development
and much more ...

Content of this presentation

- **Industry challenges**
 - Where are we, and where are we going
 - Automotive, Automation, Mobile
- **Technology Challenges**
 - What makes Qt a good idea?
 - Why will it be so, also in the future?
- **Future opportunities**

Four Concepts for the Multiscreen World

- **Power of C++**
 - Implement anything. Now.
- **QML**
 - Native performance. Custom Look and Feel.
- **Hybrid Application development**
 - Deliver the same content, everywhere.
- **Interconnectivity**
 - Beauty in the Front. Logic in the Back. Data in the Cloud.



Application Development
- desktop and mobile



Device Creation
- HMI's and applications

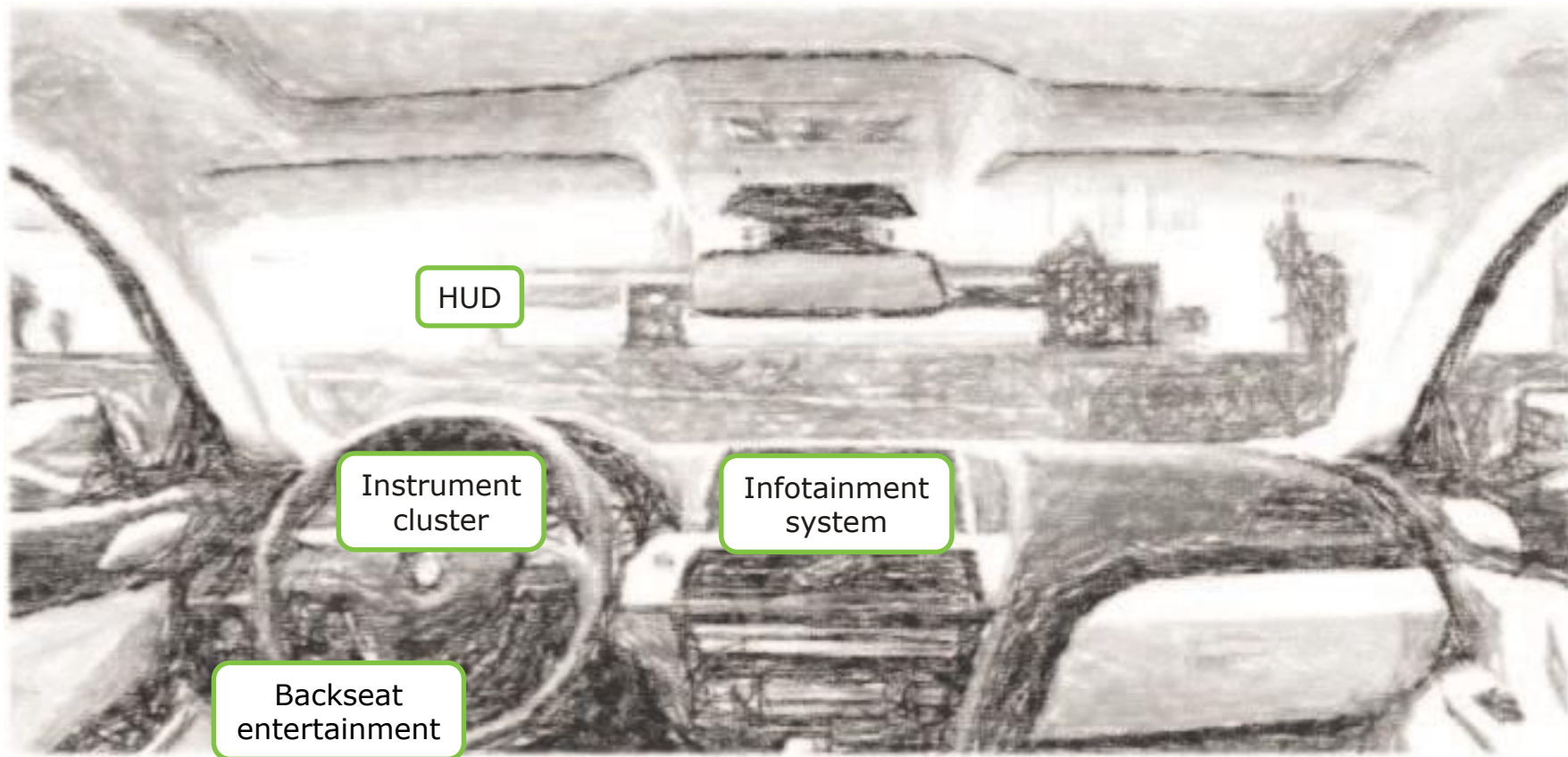


Software Development Kits (SDK)



Industry Challenges

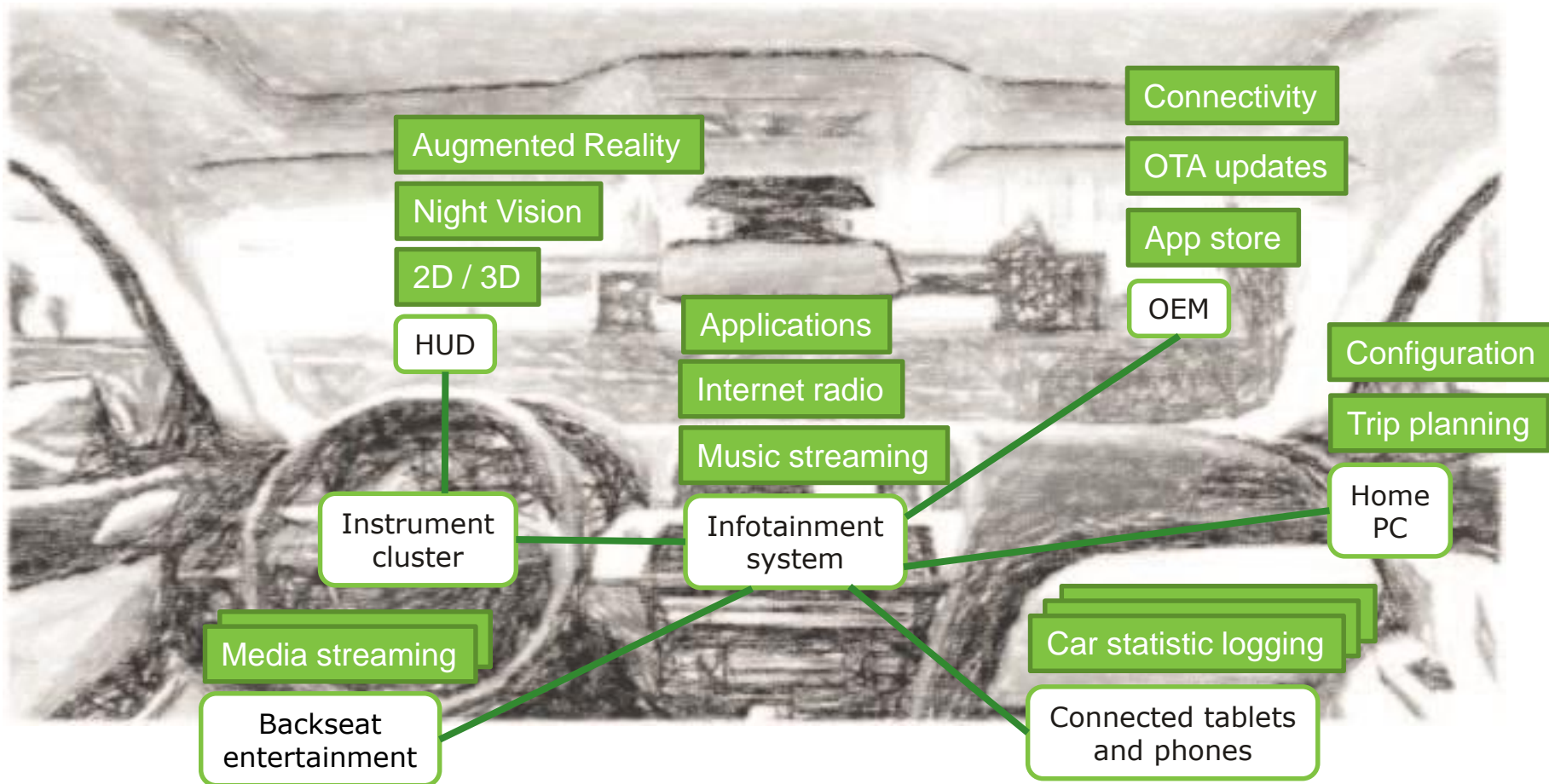
Automotive Today



A view on the Industry History

- Siloed development efforts
 - Multiple teams working on different parts
- Long development cycles
 - 3-5 years from need is identified to the product is released.
- Highly optimized for niche markets
 - Various segments, HW differentiation
- Big changes ahead

Whole New Experience





Technical Enablers

Power of Qt/C++

- High level cross platform APIs
- Interface with other libraries
- Write and interface with device drivers, communication busses, etc.

- Modern
 - C++11, C++14, VS2014. clang, etc.

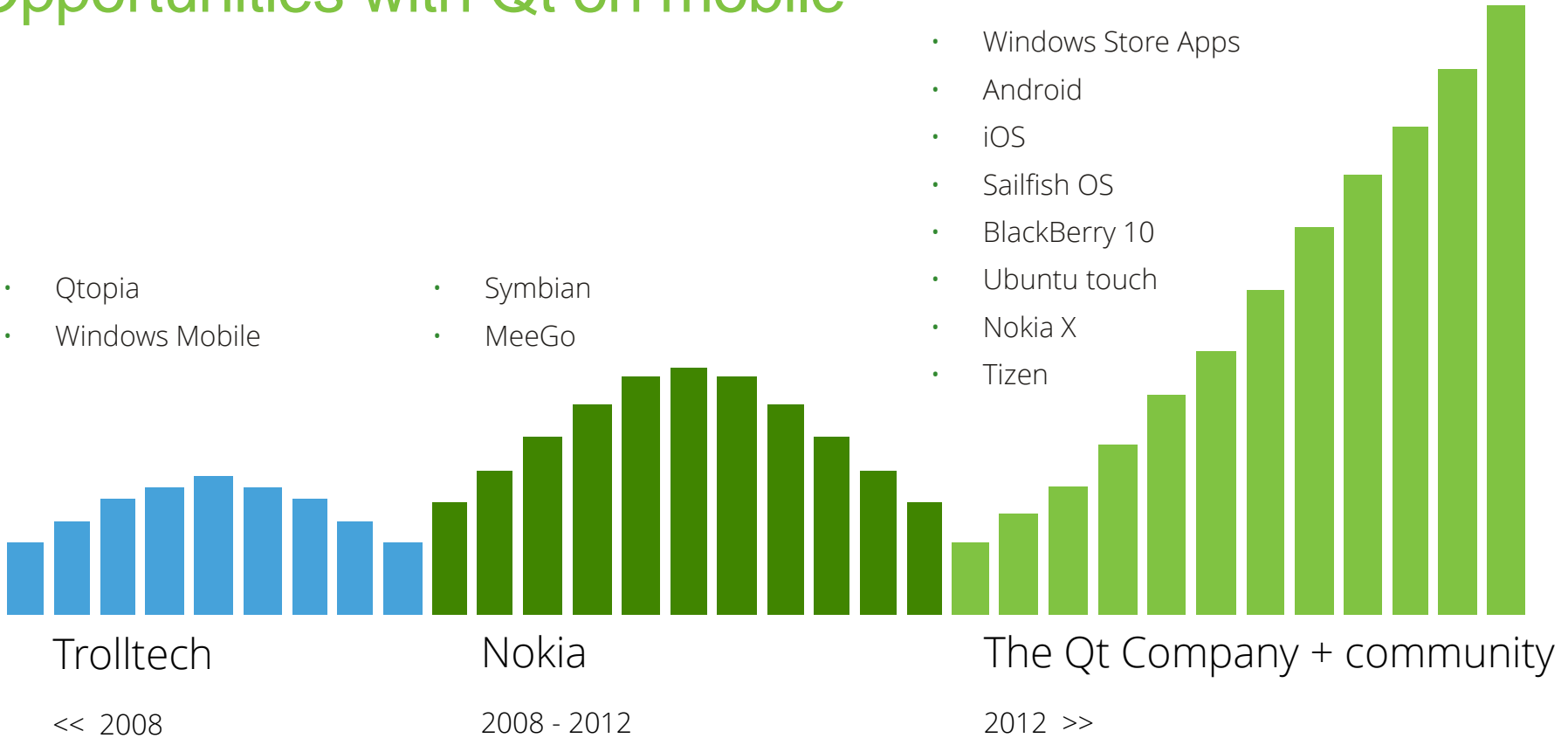
- Best in class C++ API's
- Signals and Slots
- Full Introspection

Opportunities with Qt on mobile

- Qtopia
- Windows Mobile

- Symbian
- MeeGo

- Windows Store Apps
- Android
- iOS
- Sailfish OS
- BlackBerry 10
- Ubuntu touch
- Nokia X
- Tizen



Target All Your End Users - with one Technology

Embedded:

Embedded Linux, Embedded Android,
Windows Embedded, QNX,
VxWorks, INTEGRITY

Desktop:

Windows, Linux, Mac,
Solaris, Enterprise UNIX

Mobile:

Android, iOS, Windows Phone,
WindowsRT, BlackBerry 10, Sailfish



Stable application platform

- Medical
- Automotive
- In-flight systems

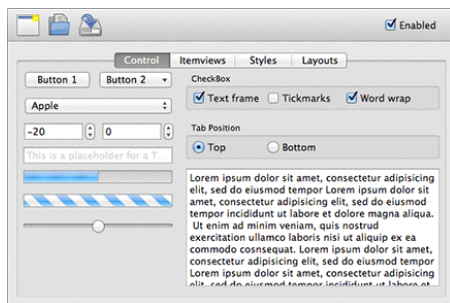


Qt Quick / QML

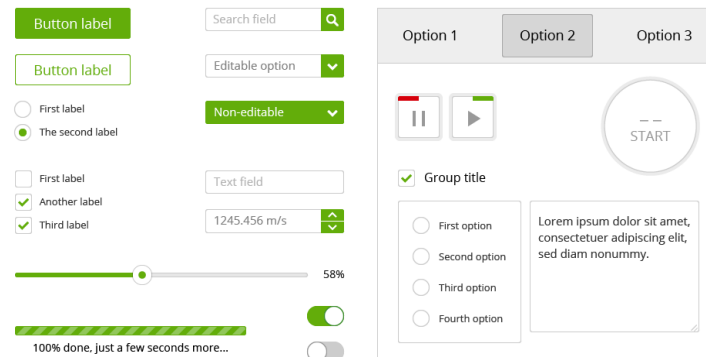
- New HW possibilities require new tools
- Declarative UI creation
- Rapid prototyping and device creation
- Collaborative Designer-Developer workflow
- Unlock unparalleled graphics performance

Qt Quick / QML

- Native Look and Feel



- Custom UI design



Native & Web Hybrid Development

- Qt WebEngine to the rescue!
- Fully integrated graphics stack
- Tap into the best of native performance, and the broad set of HTML5 ecosystem and apps available

Practical Example on multiple platforms

Qt graphics underneath the web page

Actual web contents with Web Engine

OpenGL shaders applied to web contents (colorize + 3D page curl)

Qt graphics overlaying web content

Native Qt UI elements to interact with web content



Interconnectivity

Beauty in the Front. Logic in the back. Data in the Cloud!

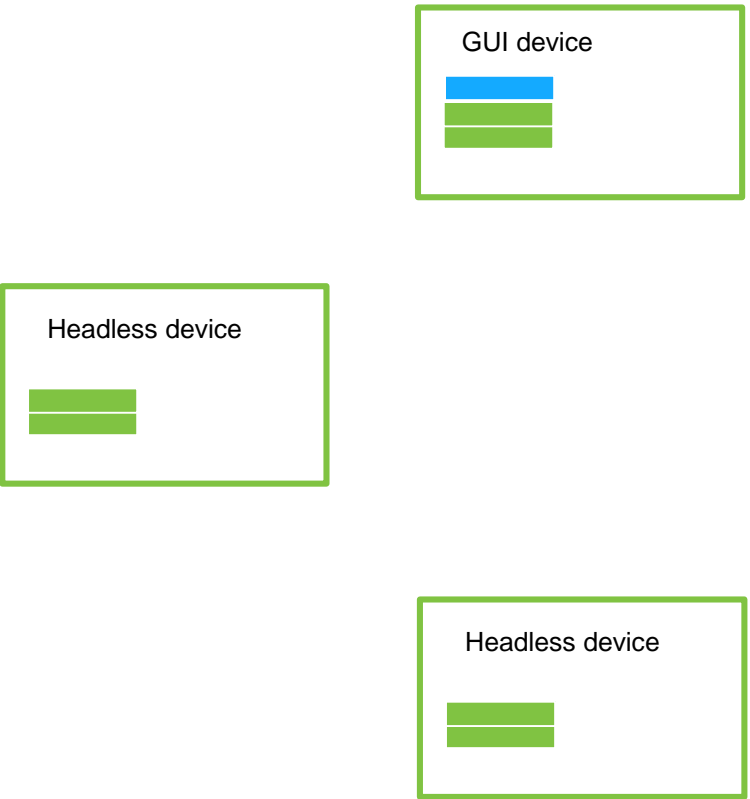
- Enginio Data Storage
- Qt Managed WebSocket (MWS)
- Qt Managed Application Runtime (MAR)
- Qt WebChannel



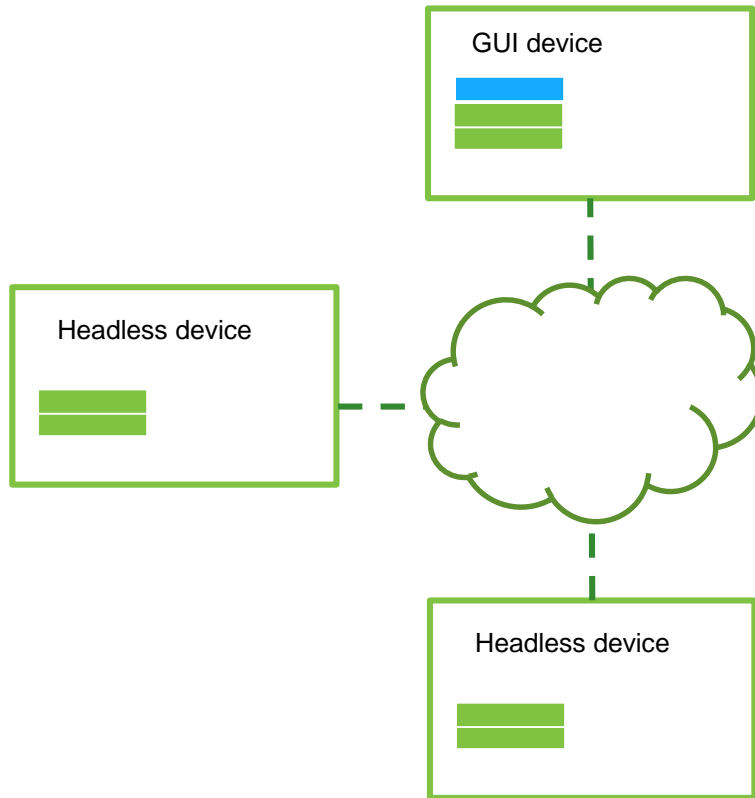


Going Multi-Screen with your Device

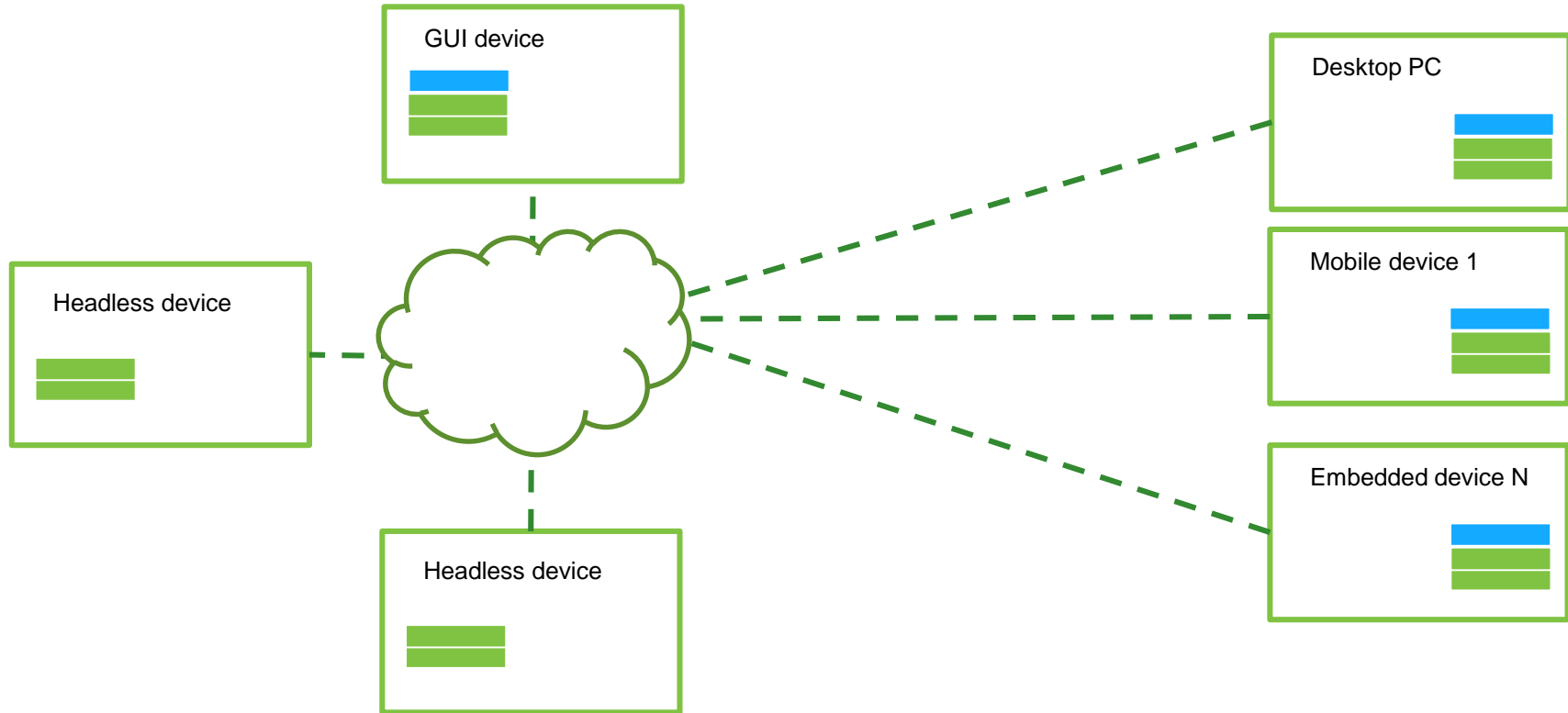
Going Multi Screen with your Device



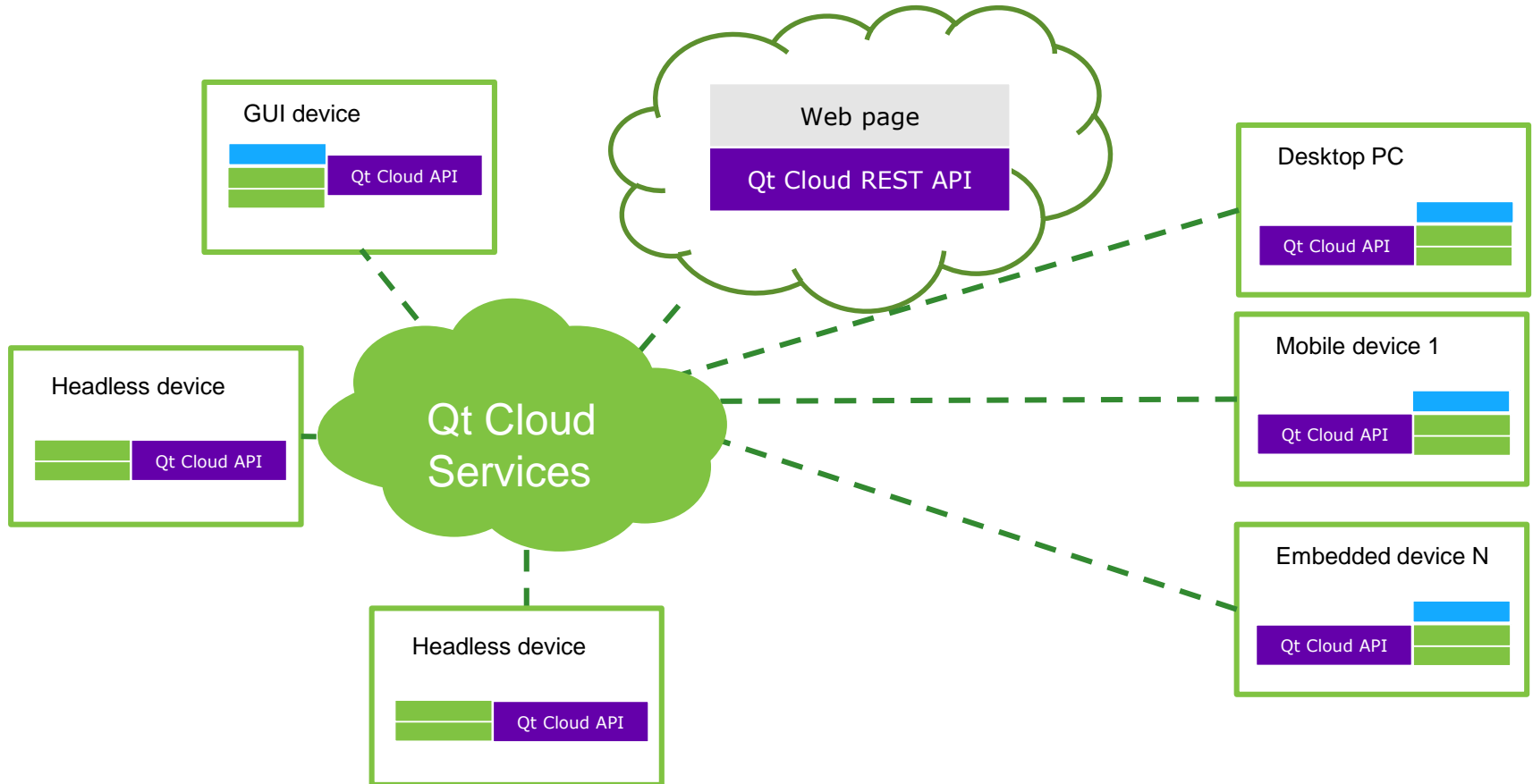
Going Multi Screen with your Device



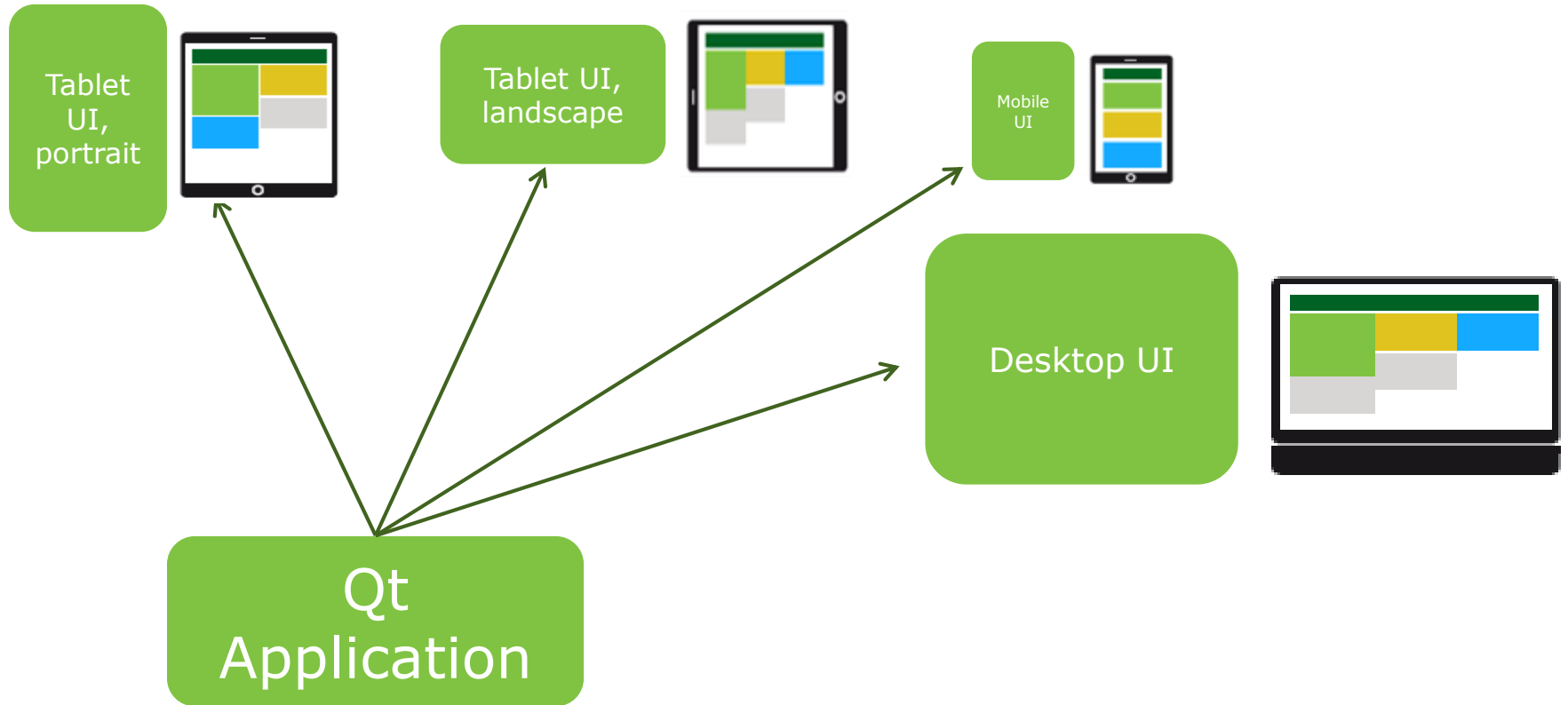
Going Multi-Screen with Your Device



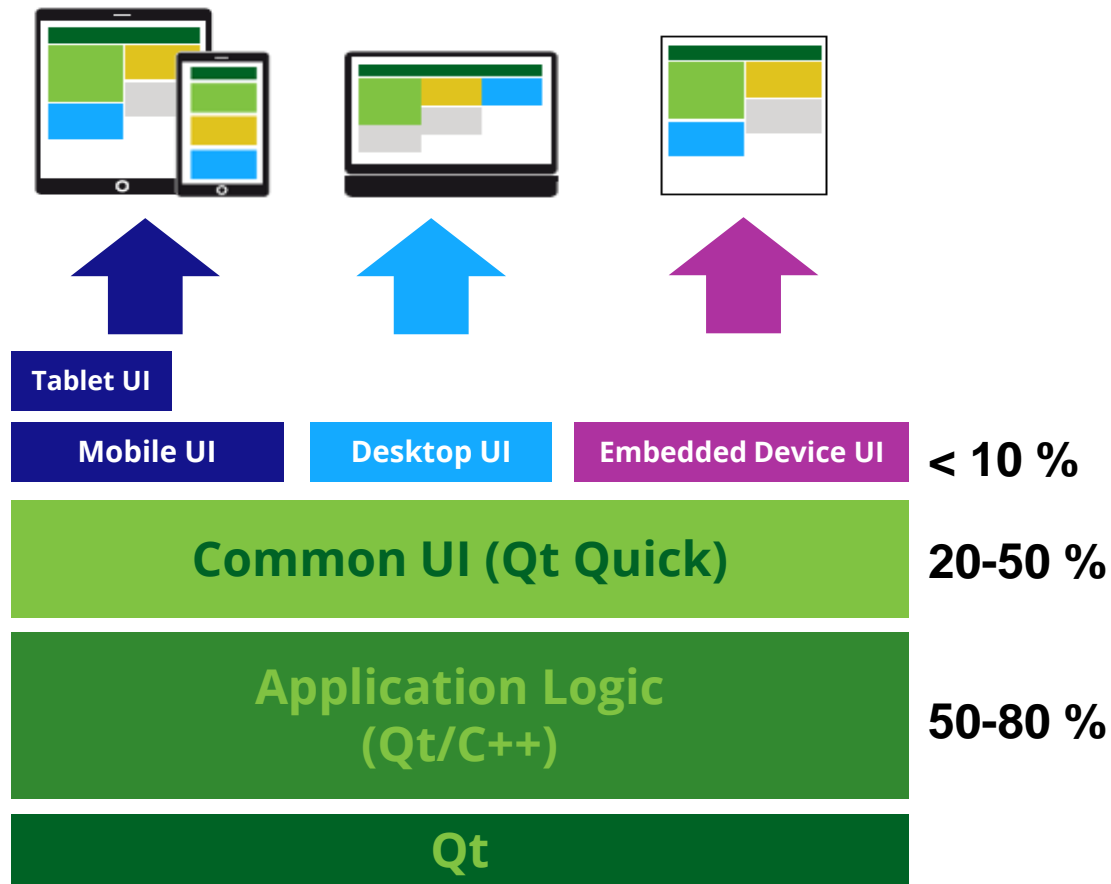
Going Multi Screen with your Device



Re-Using Code with Responsive User Interface



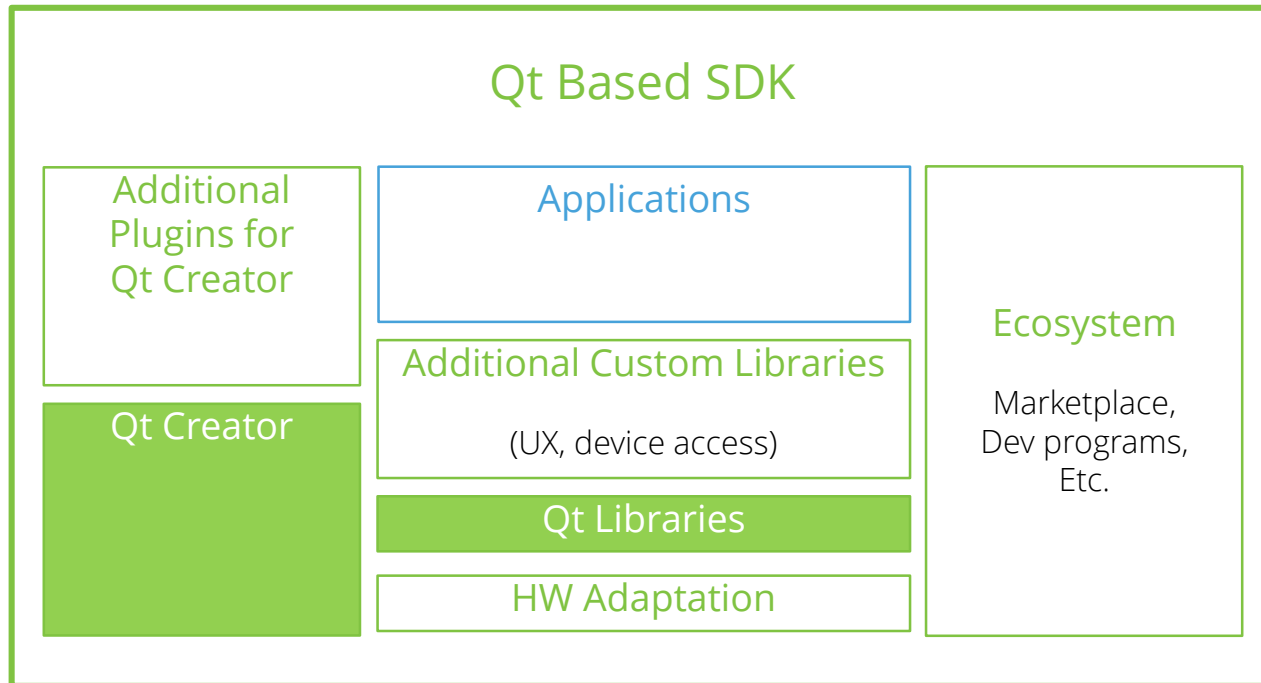
Optimal Re-Use-Structure of a Qt Multi-Screen Application





Extending your Ecosystem

Qt as Complete Technology Platform



Qt Creator



New Licensing Option – LGPL v3

- LGPL v3 added as a licensing option to Qt 5.4
 - Commercial licensing or community edition with GPL 3, LGPL 2.1 or LGPL 3
- LGPL v3 takes a clear stand to follow the spirit of the LGPL
 - Clear legal language
 - No patent retaliation
 - LGPL allows user's to modify the application and underlying libraries and run the modified app
 - For Device Creation, creating completely locked devices is not allowed with LGPL v3
- New add-ons will be brought to Qt under commercial and (only) LGPL v3 licensing options
 - Allows The Qt Company to unify the ecosystem without business compromises
- Qt WebEngine is available only under commercial and LGPL v3 options

Summary

- Comprehensive application framework
- Rich set of application building blocks
- Build advanced user interfaces, faster

- Support multiple platforms – desktop and embedded - from a single source
- Boost productivity through integrated tools
- Rely on professional service and support

- Keep control of your value chain and monetization

Thank you very much for listening

ありがとうございました

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