



Qt Development Frameworks

Introduction to Qt

EuroPython 2011

by Matti Airas – 2011-06-23



Matti Airas

PySide and Harmattan Python lead at Nokia

- At Nokia MeeGo Computers since 2008
 - Leading PySide and Harmattan Python projects
 - Maintaining internal Harmattan Python
 - Lots of Debian packaging and integration...
- In previous life: a speech scientist
 - Dr. Tech in speech processing



Agenda

- Qt History and future
 - How it was developed
 - Addressable markets
- Python, Qt, and Nokia
 - PyQt, PySide
- Demo: PySide on Nokia N950



Qt: A brief introduction

Qt Software (formerly Trolltech) founded in 1994

- Trolltech acquired by Nokia in 2008
- More than 250 employees in eight locations worldwide
- Trusted by over 5,000 customers worldwide

Qt: a cross-platform application and UI development framework

- For desktop, mobile, and embedded development
- Used by more than 500,000 commercial and open source developers
- Backed by professional services, support and training as well as a active community



Qt is everywhere

From embedded devices to mobile and desktop applications

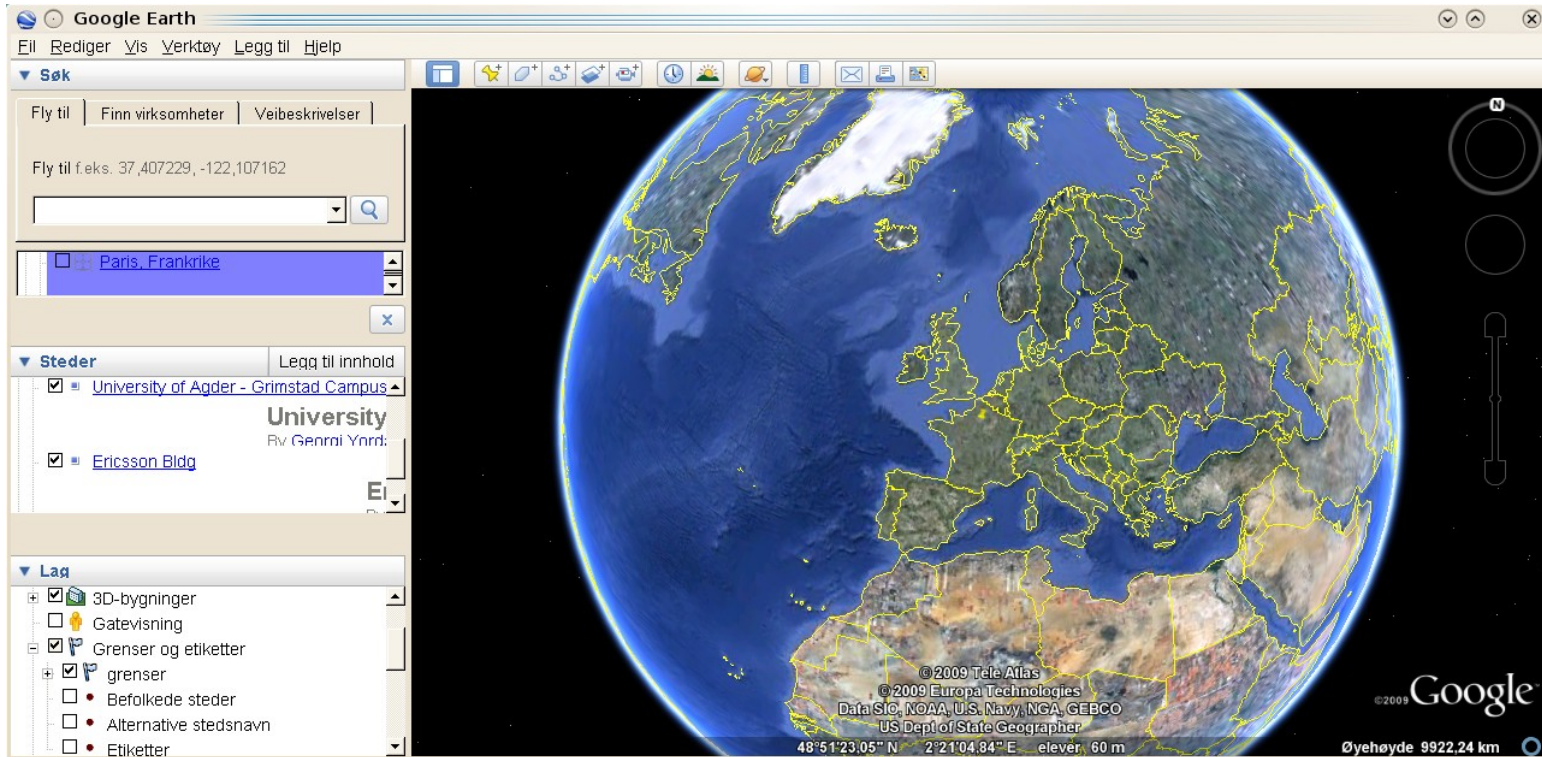


Used by leaders from many industries





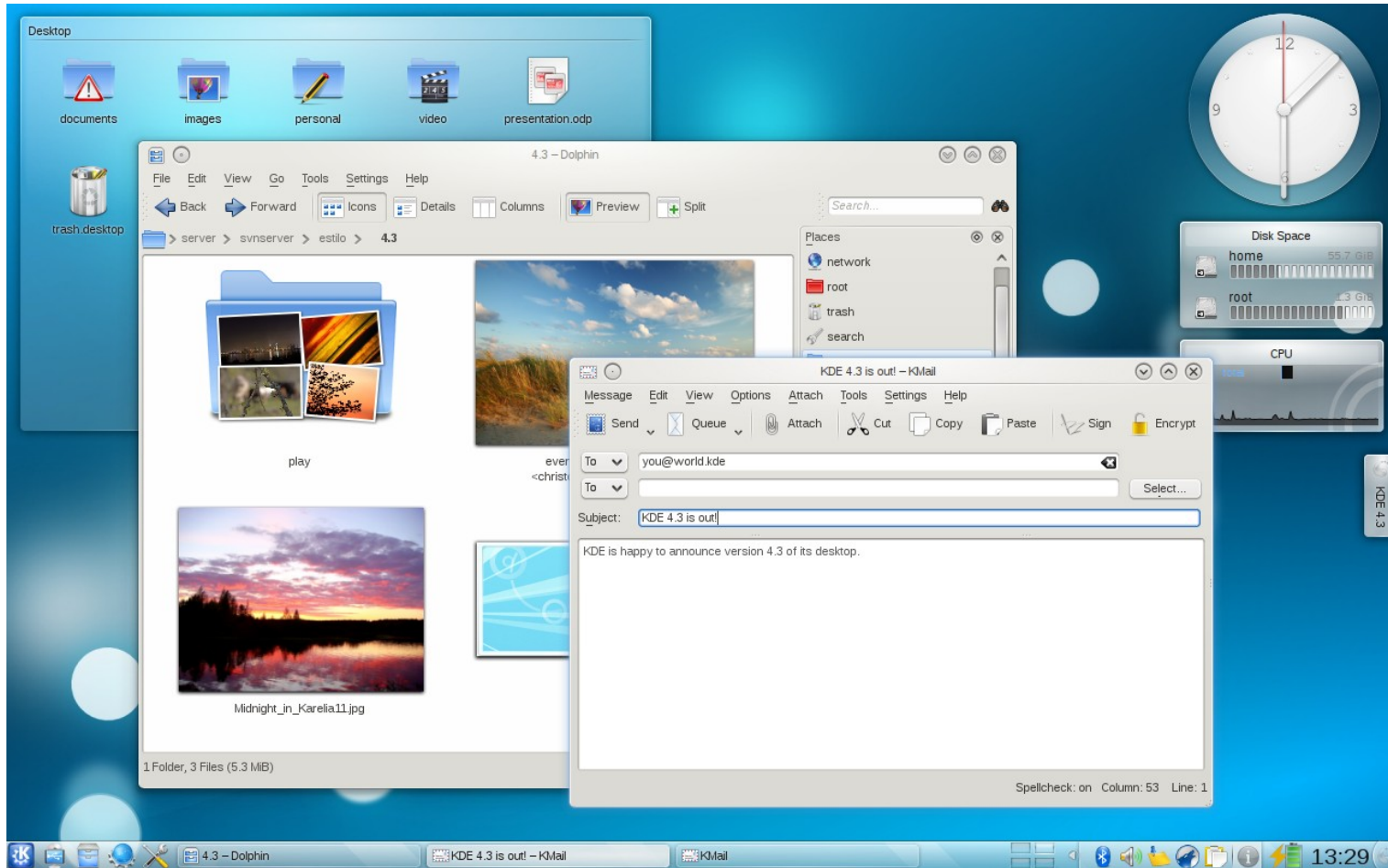
Google Earth





KDE

15 year of building better software with Qt



> **4460 applications**



Motivation for Qt: History 101

Ca. 1990:



= ~200 LOC



How the whole started



A park bench in Trondheim, Norway - 1990

“We need an object-oriented presentation system”

- Haavard Nord and Eirik Chambe Eng



Idea behind Qt

- Framework for Graphical User Interfaces (GUI)
 - Easy to use
 - Works well
- Windows and UNIX



Past Major Releases

0.9 (1995)	2.0 (1999)	3.0 (2001)	4.0 (2005)
FreeQt (Non-FOSS)	QPL	GPLv2 on X11	GPL
sunsite.unc.edu , com.os.linux.announce	Adaptive look & feel	Mac OS X support	QGraphicsView
	Unicode support	Rich Text	Template container classes
	Printing	Table widget	Model/view item view architecture
	Mouse wheel	Accessibility	2D painting framework
	Designer	XML, Database, Network, IO, etc.	New Unicode text renderer
		Linguist	... and much more

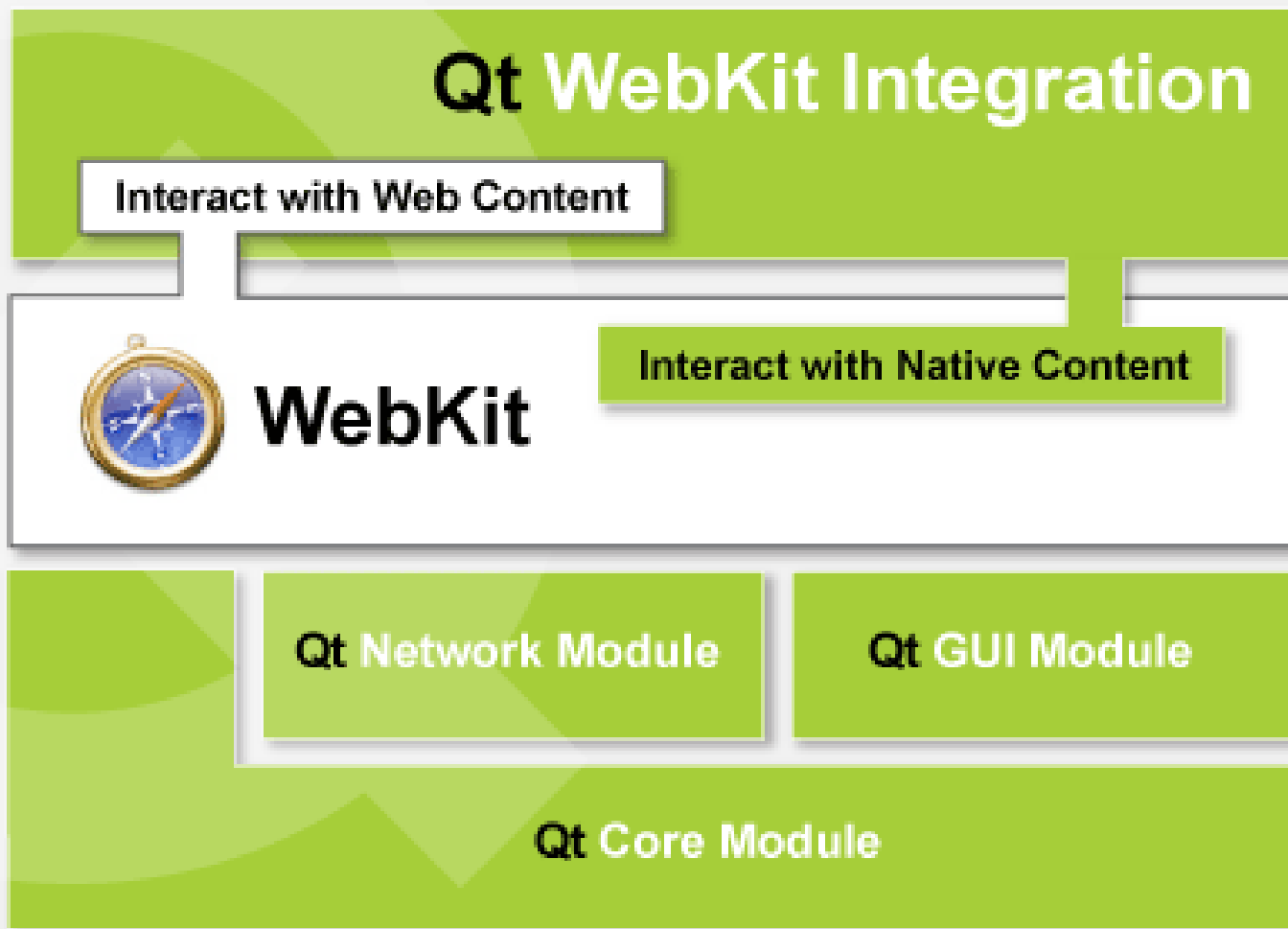


Qt Now



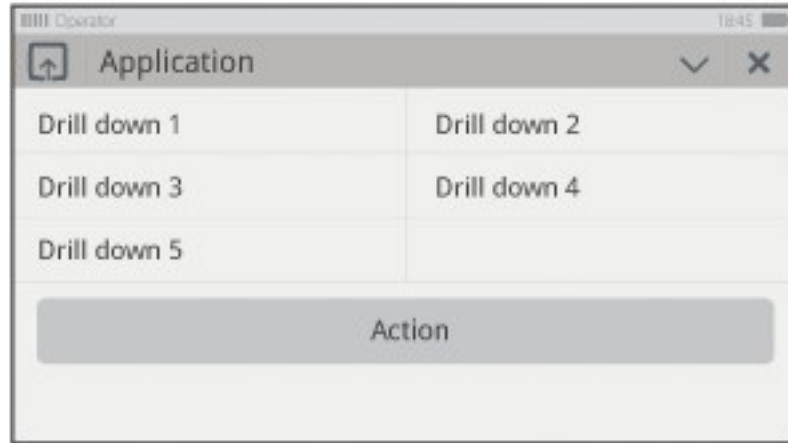
Qt Webkit Integration

Application





Touch and rotate

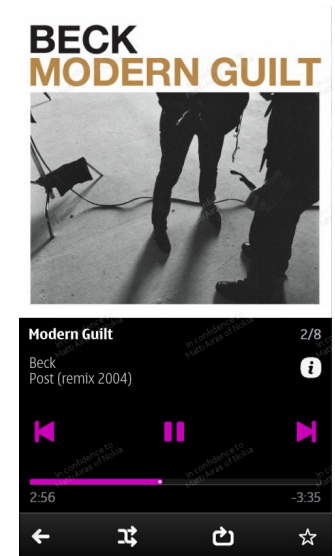
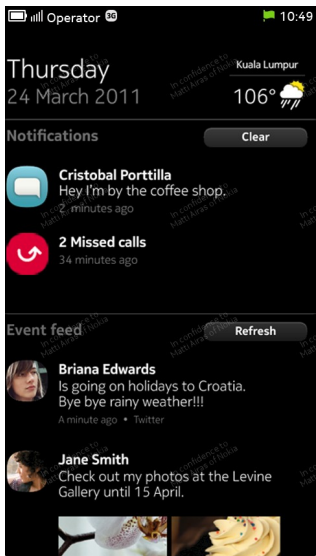
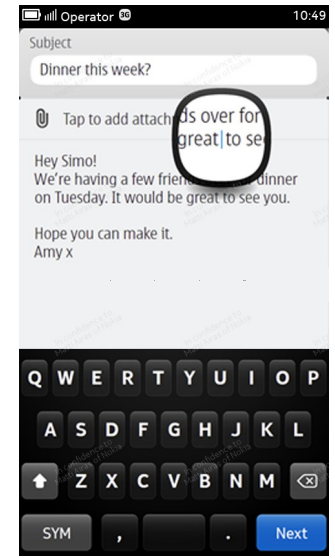
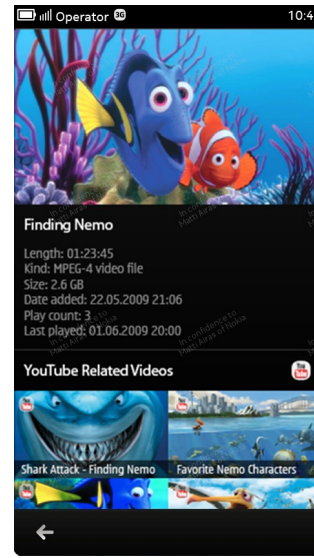
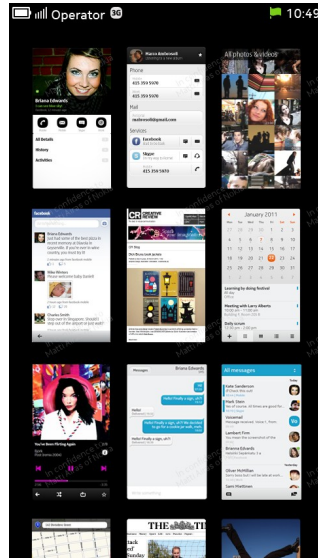
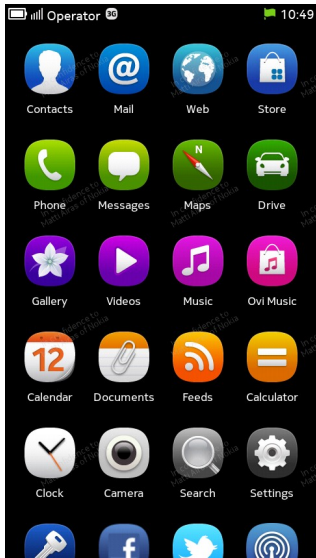


Applications have to be usable even when rotating the screen



Fluid User Interfaces with Qt Quick

**(Live demo: QML
Photoviewer)**





Open Governance

To empower developers using Qt, moving towards a system of Open Governance

Open Governance = Nokia **Qt developers** and **external contributors being equal**

Fair: Treat everyone contributing to Qt - the Qt dev team and external contributors - under the same rules

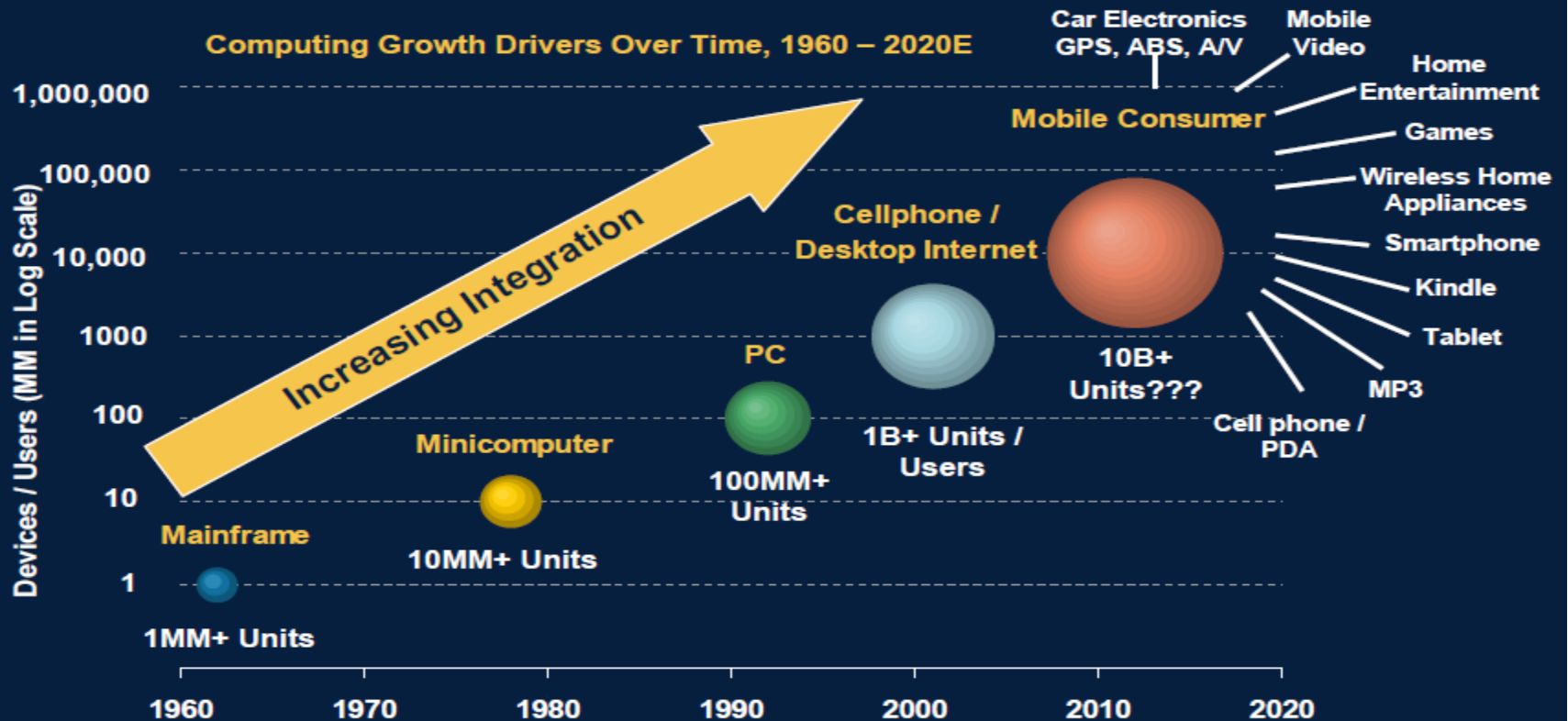
Transparent: Decisions about Qt made in the open

Meritocratic: Rights and duties assigned according to merit



Open Source Convergence – A game changer

New Computing Cycles Supported by 10x More Devices
Opportunities for Semiconductor / Hardware / Software / Services





Qt 5: Road to the Future

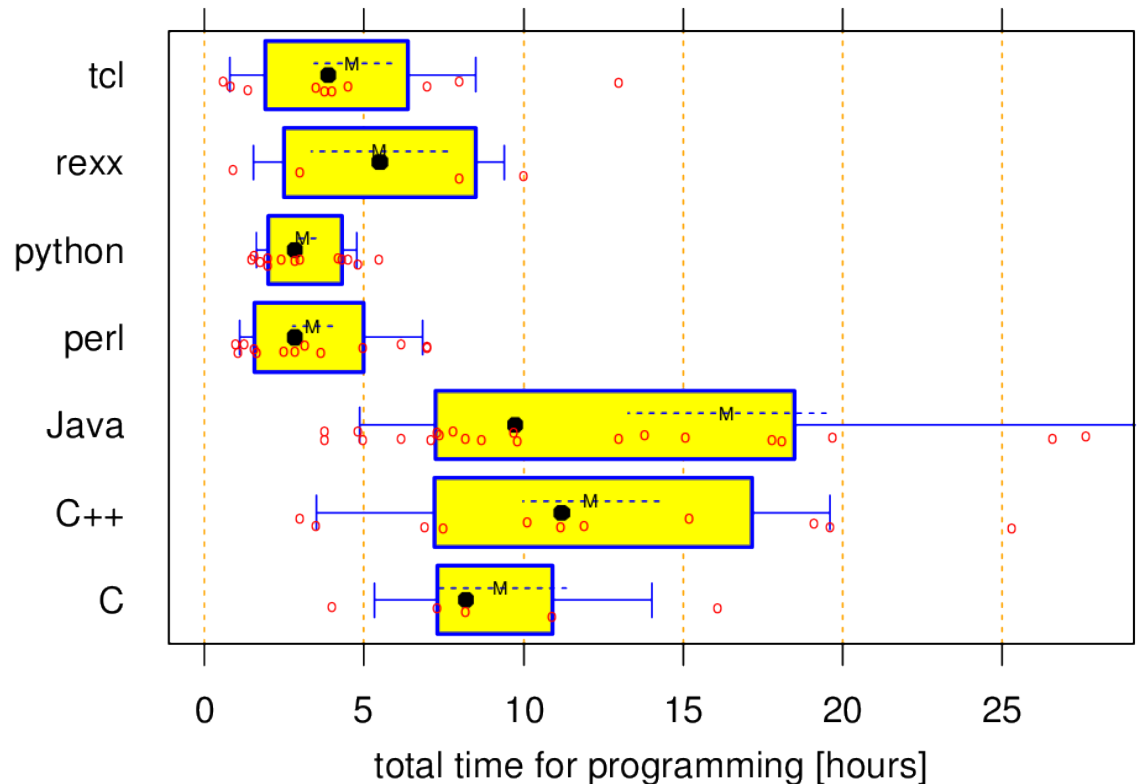
- Graphics architecture redesigned
 - Even better GPU support
- Qt Quick in the spotlight
 - C++ used to provide business logic for QML frontends
- Source code modularized
- Good API backwards compatibility



How about Python?

- Performance not an issue
- Time-to-market benefits huge
- Python well suited for the 10B segment

Prechelt, L: An empirical comparison of C, C++, Java, Perl, Python, Rexx, and Tcl. IEEE Computer, 2000.



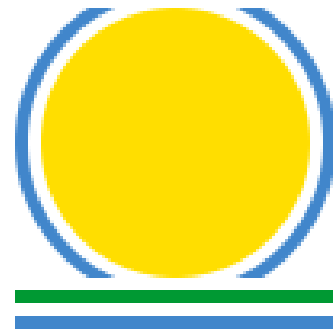


Python and Qt

- PyQt
 - Developed by Riverbank Computing, Ltd.
 - GPLv2, GPLv3, Commercial
- PySide: Python for Qt
 - Developed by OpenBossa at Instituto Nokia de Tecnologia (INdT)
 - Sponsored by Nokia
 - LGPL



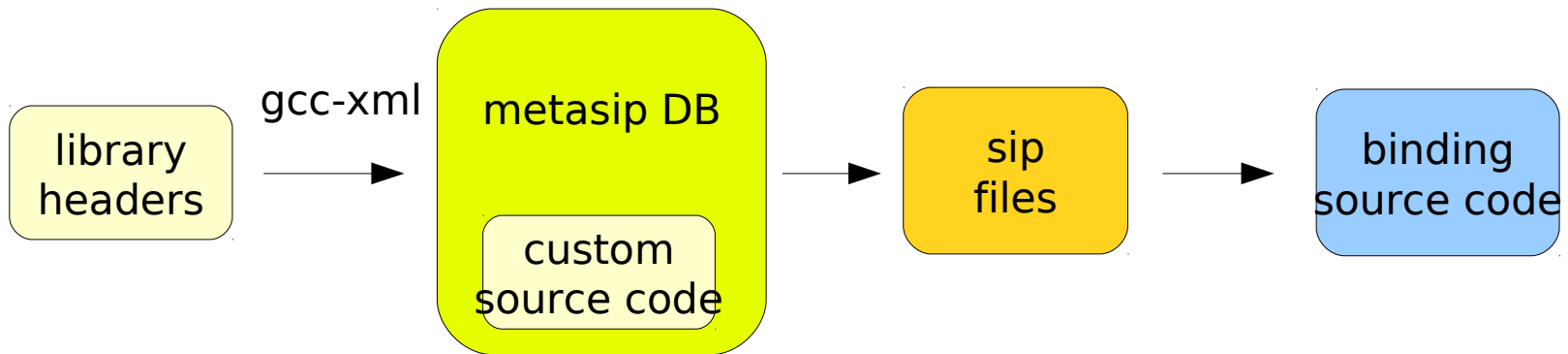
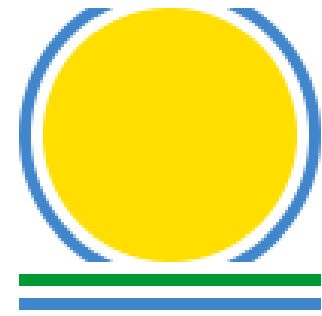
PyQt



- Developed by Riverbank Computing, Ltd.
 - Main developer: Phil Thompson
- PyQt 0.1 released in Nov 1998
- Mapping of Qt C++ class hierarchy to Python
- Supports Qt 3 and Qt 4, Python 2 and 3
- GPL or commercial licensing
- Toolchain not open
- Commercial support available
- Widely used



Binding Generation: PyQt





PyQt Showcase: Calibre

(Live demo)



Interlude: Nokia and Python

- PyS60
 - Python for Symbian
 - Avkon UIs
- PyMaemo
 - Nokia Internet Tablets (N770, N800, N810)
 - Nokia N900
 - PyGTK (Hildon), PySide, PyQt
- Harmattan Python
 - Nokia N9
 - PySide





PySide: Python for Qt



- Developed by Instituto Nokia de Tecnologia (INdT)
 - Sponsored by Nokia
 - First release in Aug 2009
- LGPL
- Complete toolchain available
- Open governance
- Highly compatible with PyQt
 - Deliberate API differences

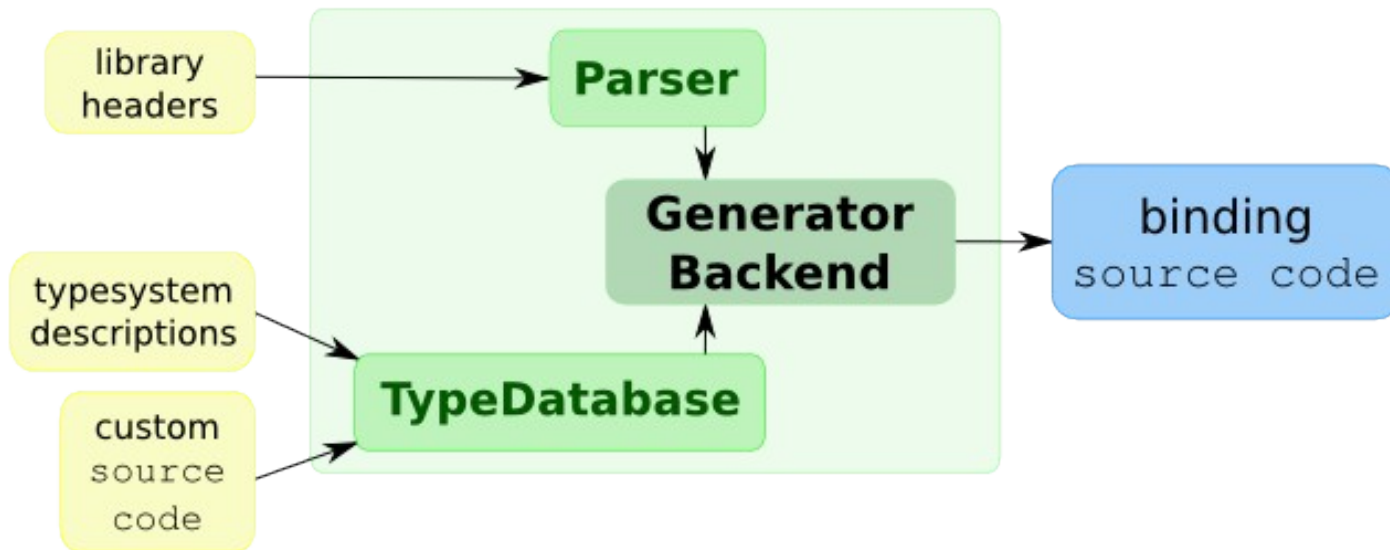


PySide Showcase: gPodder

(Live demo)



Binding Generation: PySide





Demo: From Zero to Application



Summary

- Qt is an ideal solution for fast cross-platform application development
 - Desktop
 - Mobile phones
 - The next 10B devices
- High-quality support for Python
 - Two mature bindings projects to choose from
- Unbeatable time-to-market with Python and Qt Quick



Q&A

qt.nokia.com

www.pyside.org

www.riverbankcomputing.co.uk/software/pyqt

www.developer.nokia.com/Devices/MeeGo

wiki.meego.com/Python/Harmattan

or just use Google!