

Mobile development





Plan de la présentation

Introduction

Mobile applications

Qt overview

Focus on QtQuick

Workshop

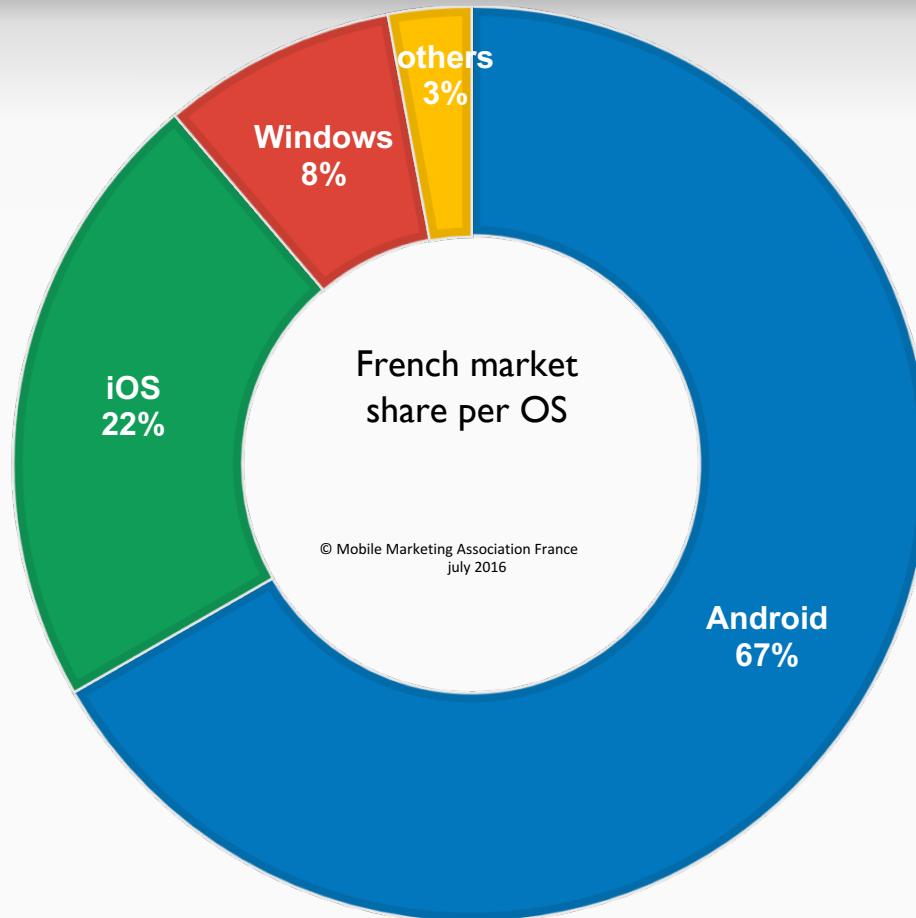
Q/A



Mobile applications

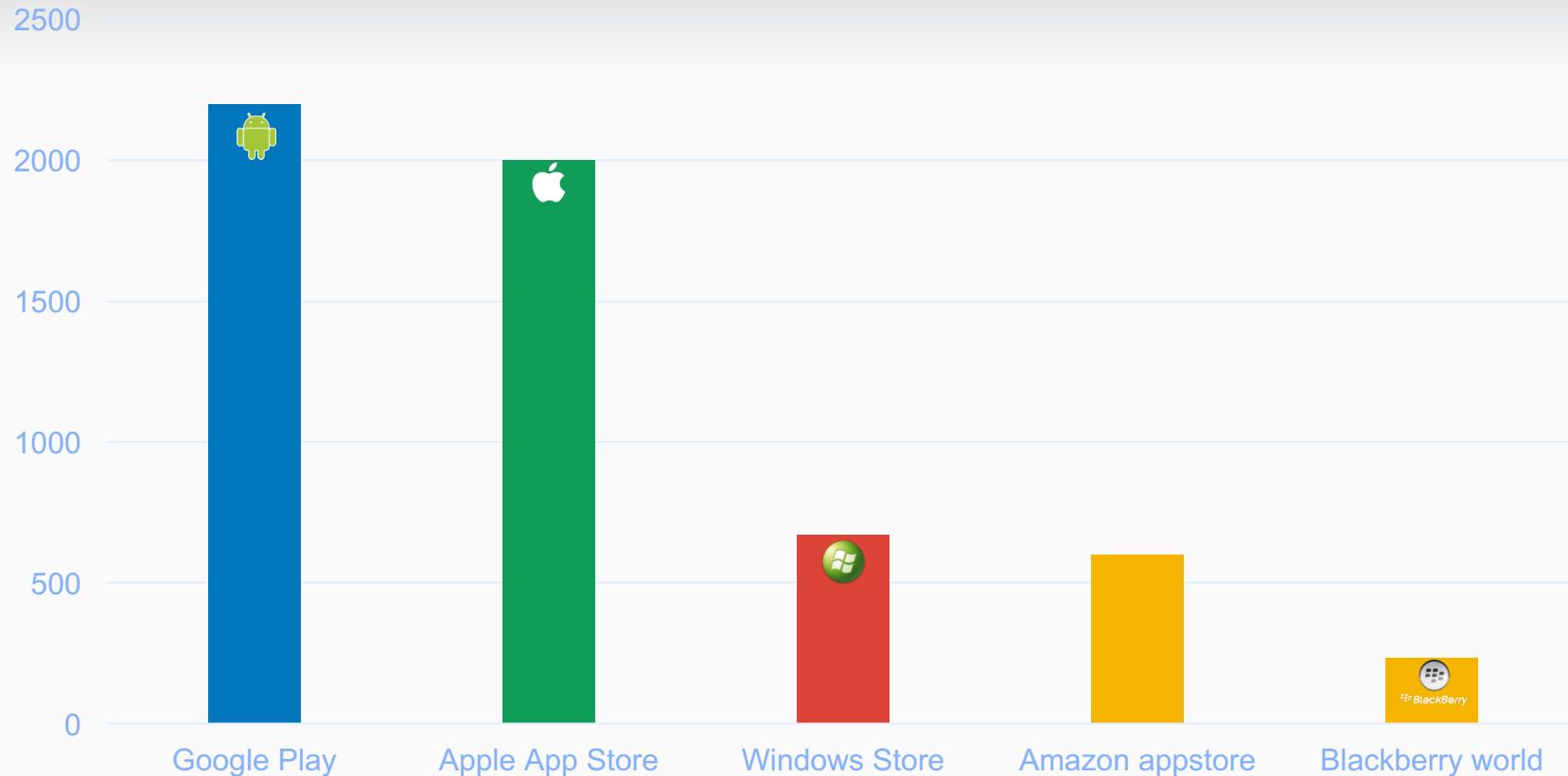


a few numbers



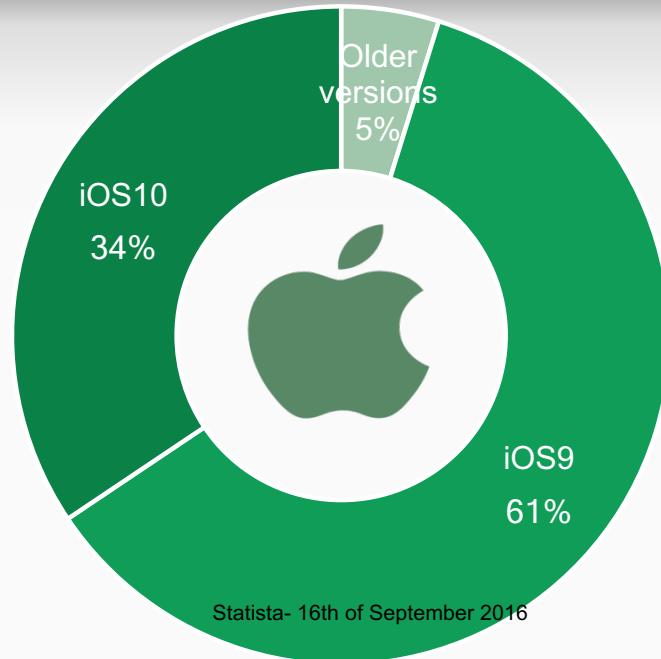
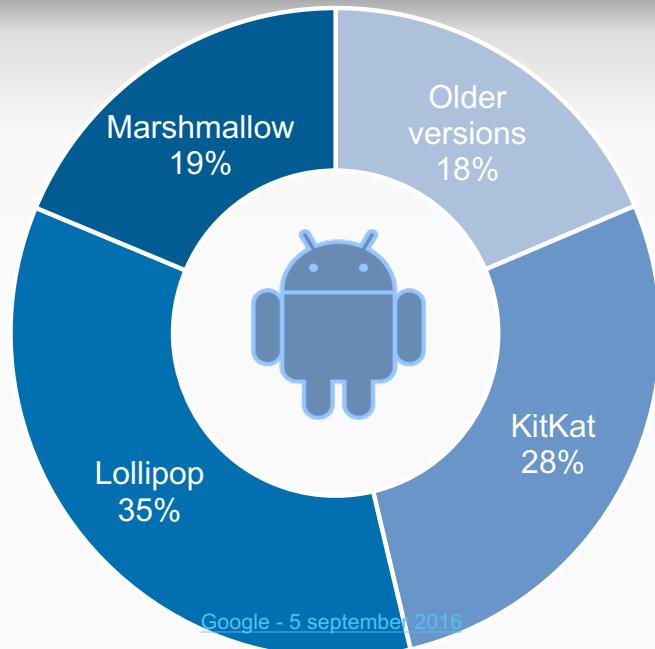


How many applications available per store ?





La fragmentation des smartphones



- 30 well known integrators
- more than 25 000 model !
- 300 screen size from 2 to 10"
- from 120 to 640 dpi

- ~30 models (iPhone, Ipod, iPad)
- 4 iPhone screens (3.5, 4, 4.7, 5.5), Retina...
- around 12 CPU : ARM, A4, A5X, A6, A10...
- Memory from 256Mb to 4Gb



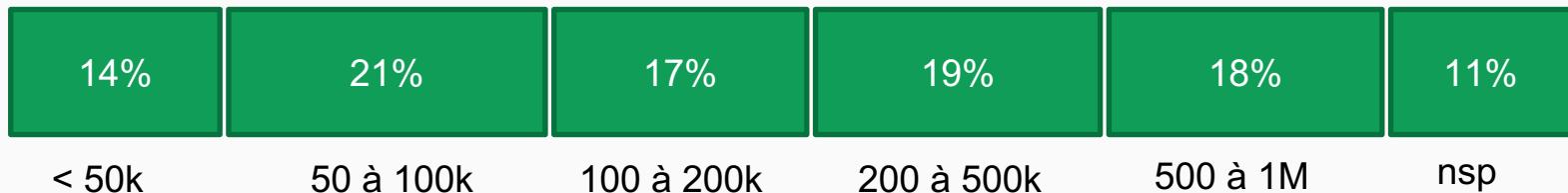
How long / how much to develop an app ?



Month



Source : [kinvey](#) report (2014)



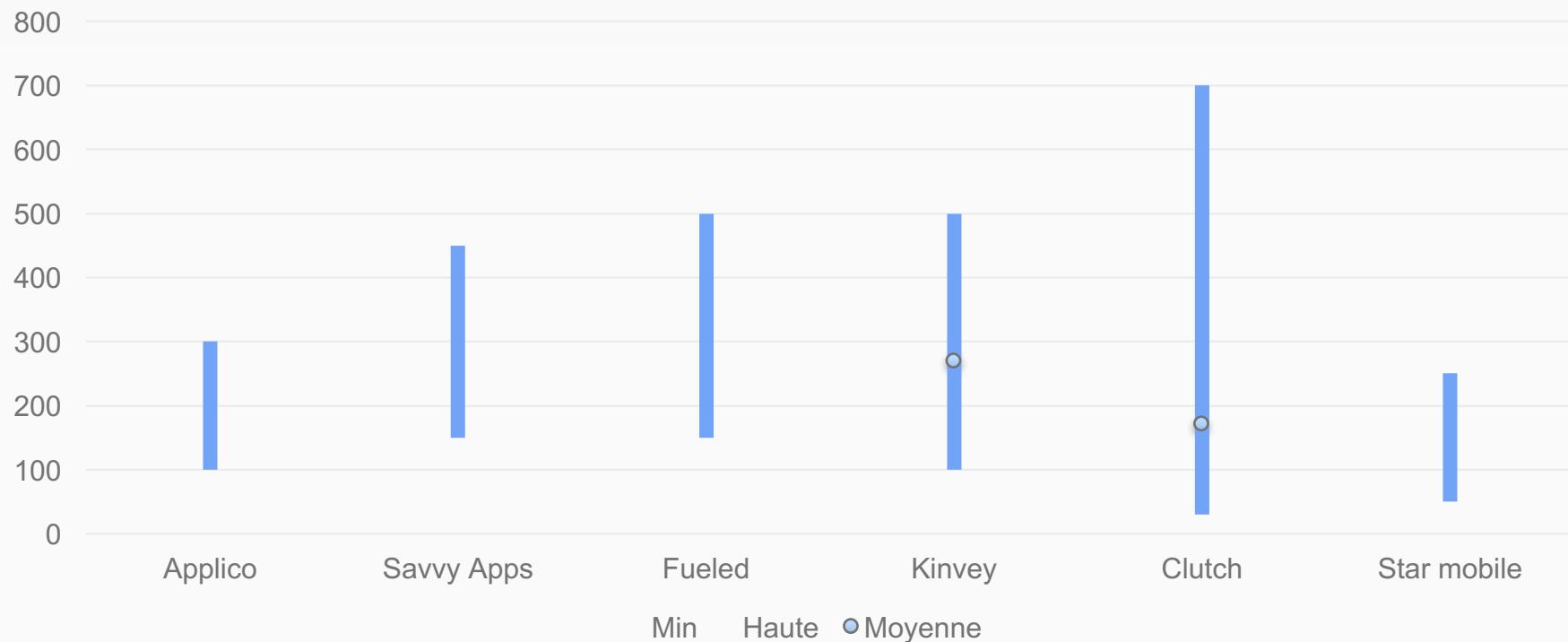
average cost of 270 k\$

Development cost is often underestimated with a 3 factor ([Forrester](#))



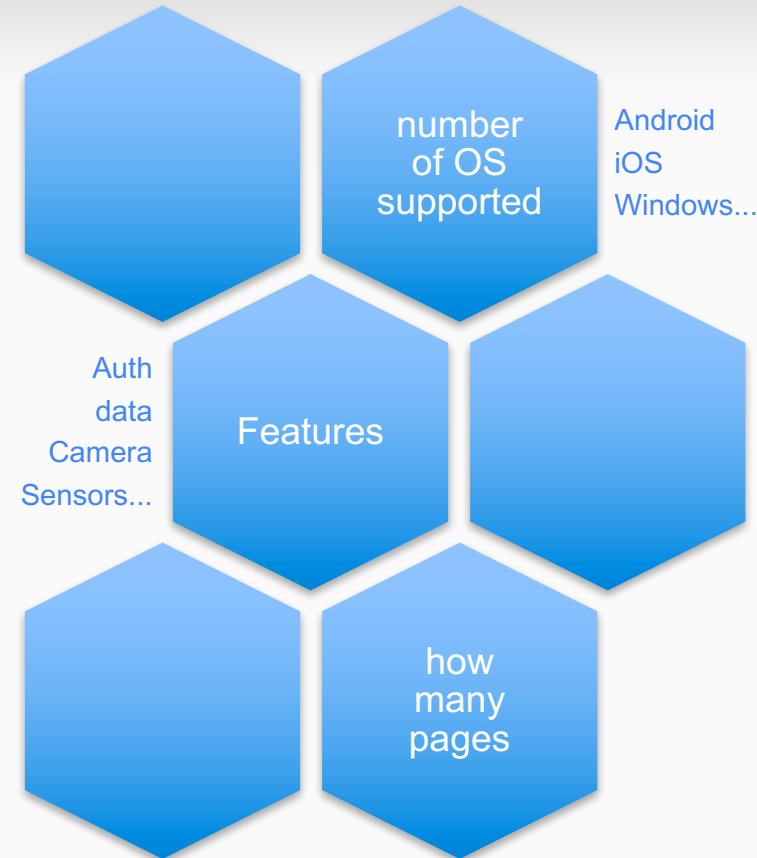
How much does it cost ?

Average development cost (k\$)





Cost factors





- Otreva (<http://howmuchtobuildanapp.com/>)
- Tusnua design (<http://apestimator.tusnuadesigns.net/>)
- Imason (<https://www.imason.com/mobile-app-calculator>)
- Kinvey (<http://www.kinvey.com/app-cost-estimator>)
- Propelics (<http://www.propelics.com/enterprise-mobile-app-cost-calculator/>)
- Kony (<https://www.visualize-roi.com/launch/kony/cloud/>)
- Crew (<http://howmuchtomakeanapp.com/>)
- Wasp (<https://waspmobile.com/services/mobile/app-cost-calculator/>)
- Oozou (<https://estimatemyapp.com/>)
- Yeeply (<https://www.combiencoutemonapp.com/>)

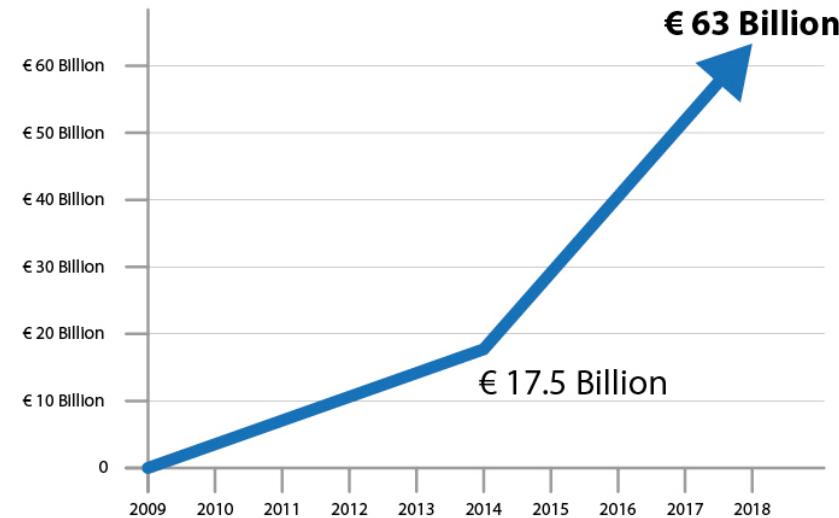


« through 2017, the market demand for mobile app development services will grow at least five times faster than internal IT organization capacity to deliver them. »

Gartner, The Enterprise App Explosion : Scaling One to 100 Mobile Apps, Adrian Leow, 7th may 2015

From Eurapp (2014) between 2013 and 2018 :

- number of devs will grow from 1 to 3 M
- helpdesk staff from 800k to 2.1M





Different ways for building an app

Web

available using a browser

Web mobile

Mobile optimized website
Adaptative design / Responsive design



JQuery, Vaadin, Angular JS, Ember, Backbone.js, React/Flux

Web App

web mobile having an app look & feel

App

downloadable from a store

Hybrid

Contenu dans une application

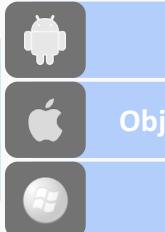


PhoneGap (Apache Cordova), Rho Mobile, Ionic, Sensa Touch, Intel SDK, Onsen UI, JQuery mobile, Mobile Angular UI...

Native CPF

Qt (C+, QML, JS), Xamarin (C#), Appcelerator Titanium (JS), Ruby motion (Ruby), Unity (C#, BOO), Marmalade (*), ...

Native



Java

Objective C / swift

C#



Qt overview

What is Qt ?

Concept

Promise

Language

Library

Tools



A C++ library

Network and communication, Multithreading, Multimedia and sensors, database, 3D (OpenGL), Web, XML, JSON, PDF...

A tool box

QtCreator, QtAssistant, GUI Designer, Build suite (QMake, QBS)

Concepts

QtQuick, Signals / Slots, Widget, Model-View-Delegate

licences

Proprietary, GPL, LGPL

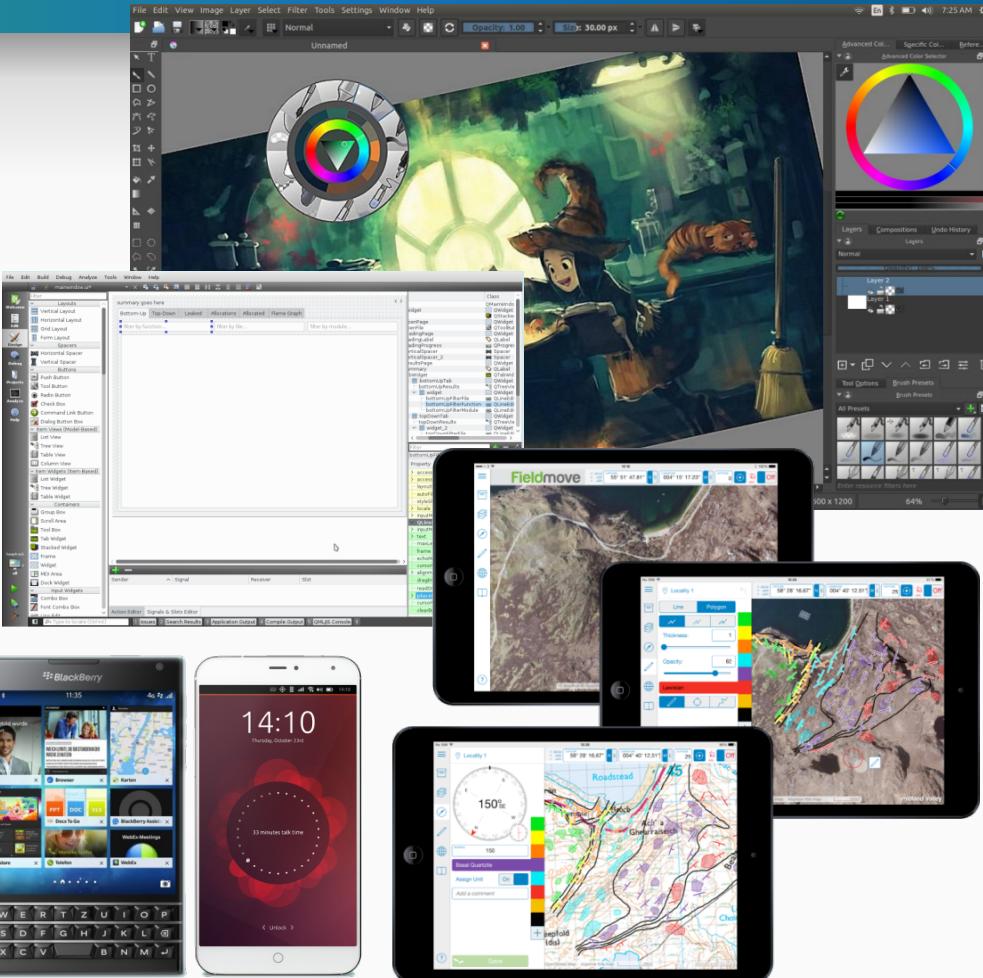
a promise

“Code once, deploy everywhere !”

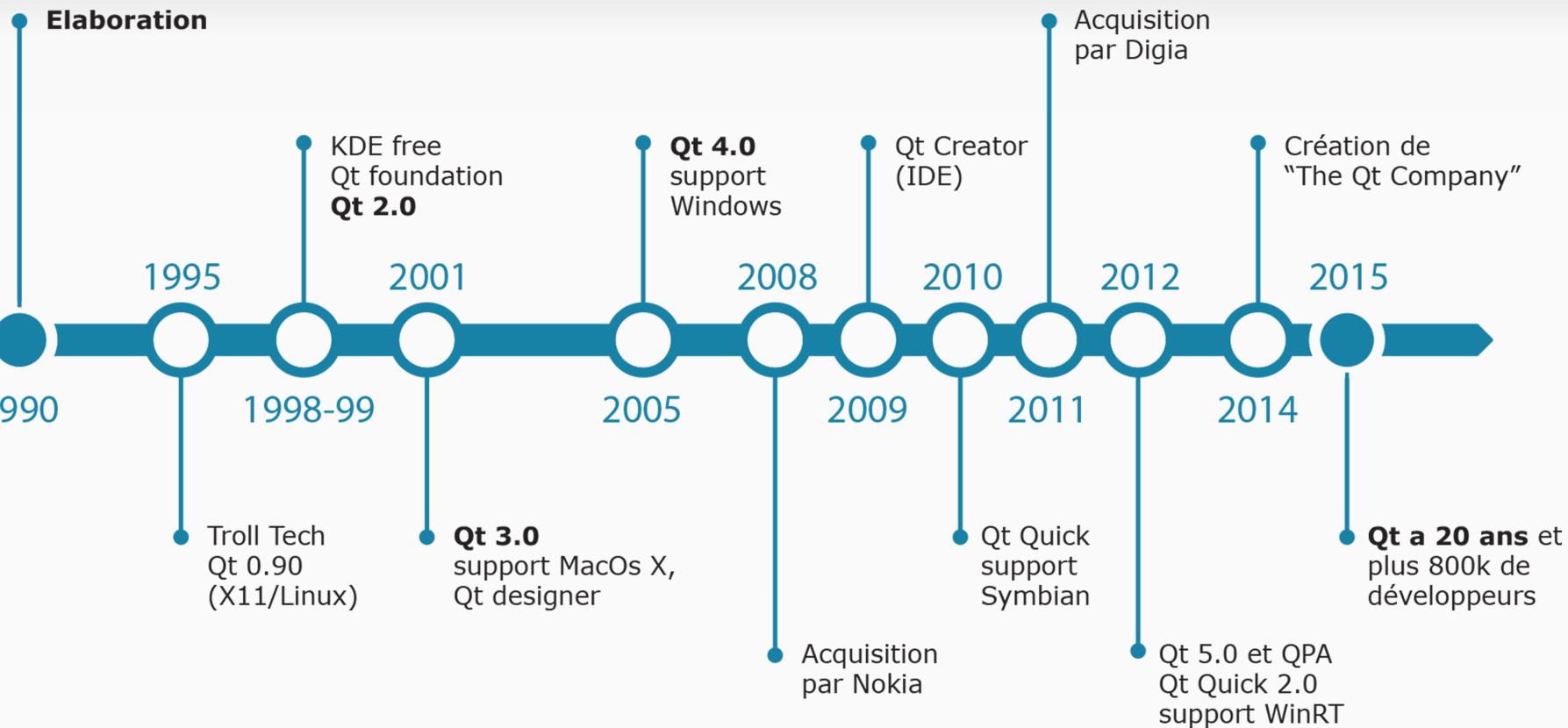


freebox OS

UI : several possible options...



Historical



Historique releases Qt5 avec les améliorations concernant le mobile

5.0

19/12/2012 : QML, QtQuick, Location (géolocalisation)

5.1

03/07/2013 : Quick controls, Sensors (Android, iOS, Blackberry), Qt for Android (Technology preview), Qt for iOS (Technology preview)

5.2

12/12/13 : Positionning, NFC, Bluetooth, Windows Extra, Mac extra, Android extra, Qt for Android, Qt for iOS

5.3

20/05/2014 : iOS (input Method, word completion,...), Positioning (Android,iOS), Bluetooth(Android)

5.4

10/12/2014 : Bluetooth LE (Android only and Technology Preview), Qt for WinRT, limited iOS native style (popup menu, text selection)

5.5

01/07/2015 : Bluetooth LE, Qt3D, Location (Route), Canvas 3D, Webview (iOS)

5.6

16/03/2016 : Qt Speech (tech preview), QtQuick Controls 2.0 (tech preview)

5.7

15/06/2016 : Qt Speech, QtQuick Controls 2.0 avec style iOS, Material, Universal

5.8

23/01/2017 : Qt WebEngine, Network Auth (tech preview)

2 releases per year !



Focus on QtQuick

The QtQuick concept

Back-end



Front-End



QtQuick = C++ + QML

Having the best of 2 worlds : C++ power serving stunning QML base UI !

Développeur

Designer



What is it?

Declarative language

modularity (plugins)

Animation

3D hardware accelerated rendering

DOM model

ECMA compliant engine (javascript)

```
import QtQuick 2.0

Rectangle {
    id: page
    width: 320; height: 480
    color: "lightgray"

    Text {
        id: helloText
        text: "Hello world!"
        y: 2 * 15
        anchors.horizontalCenter: page.horizontalCenter
        font.pointSize: 24; font.bold: true

        MouseArea{
            anchors.fill : parent
            onClicked: { if (true) Console.log(parent.text)
                }
            }
        }
    }
```

QtQML

Binding Component Connections Date Instantiator Locale Number Qt QtObject String Timer

QtQuick

Basic

- Item
- Rectangle
- Image
- Text
- TextEdit
- TextInput

- Row
- Column
- Grid
- Flow

- Flipable
- Flickable

- MouseArea, MouseEvents, WheelEvents
- Shortcut, Key, KeyEvents
- PinchArea, PinchEvents

- Drag, DragEvent, DropArea

- ListView
- GridView
- Repeater

- ListModel

- Loader

- Animations
- States

Windows, Dialogs, Tests, Layouts, XML List models, Local Storage, Controls

Thanks ! Let's start the workshop...





TEAM