Confessions

of a cross-platform engineer

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sh4na (not a typo)

shana

Currently at GitHub
Formerly at Novell, Xamarin, Unity...

What is a cross-platform engineer?

PS3
PSVITA
iOS
Wii U

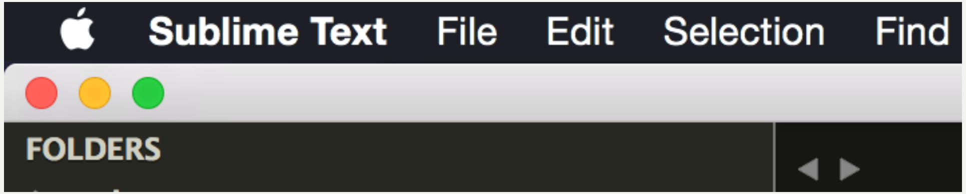
Code tailored to the platform

Platform:

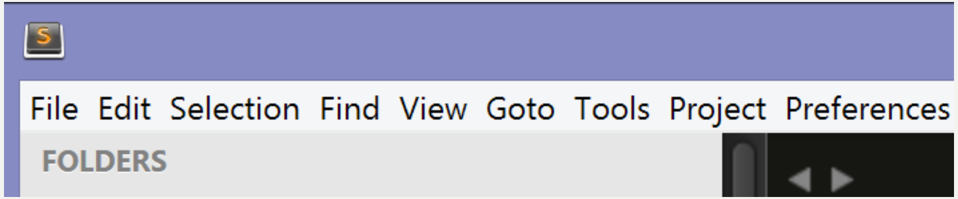
OS + Environment

the problem of Native xplat apps

Native UI apps
hit every problem
and then some



Sublime Text
File
Edit
Selection
Find
FOLDERS



File
Edit
Selection
Find
View
Goto
Tools
Project
Preferences
FOLDERS

Shortcuts

Notifications

Design

Platform styles

App switching

Widgets

Menus

Editors

Where are my options?

Living the xplat life

Shortcuts

Shells

Installers

Launchers

Services

Platform Integration

Filesystem quirks

Installation paths

Split codebase

Native UI toolkits?

One codebase
Xplat UI toolkits?

One codebase

Roll your own UI?

Mobile

One codebase to bind them all?

(hint: perhaps not)

Desktop

Xamarin.Forms

Kyvi

Decisions, decisions

Electron

wxWidgets

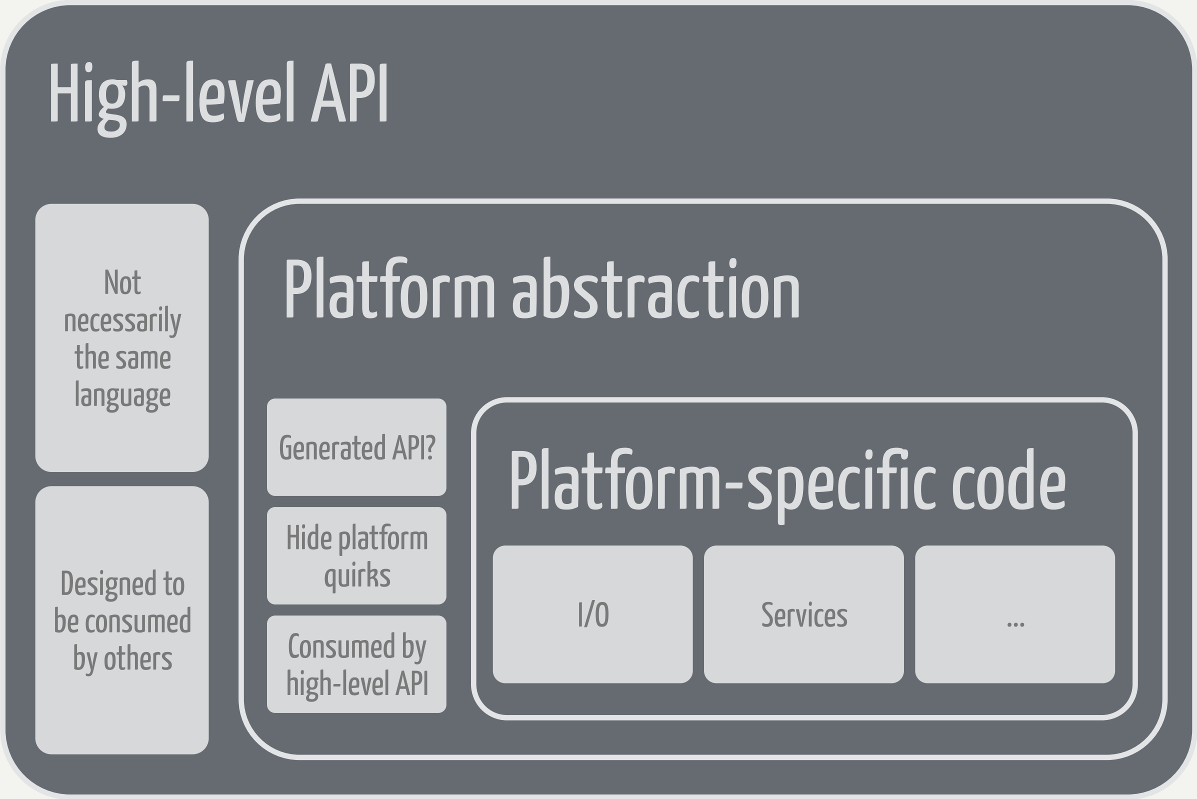
The layered approach

UI Layer: Non-native (WebKit, OpenGL...)

Logic layer: xplat language

Unity, Electron, Kyvi...

Structure of a framework



High-level API

Not necessarily the same language

Designed to be consumed by others

Platform abstraction

Generated API?

Hide platform quirks

Consumed by high-level API

Platform-specific code

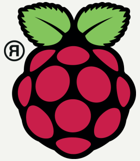
I/O

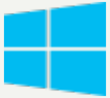
Services

...

iOS

Suppose you want to target...





EXCUSE ME
Do you have a moment to talk about C# and C++?

C++11 with GCC and Clang

http://goo.gl/WB4I3f

C# and Mono

Runs on

~~10 20 30 platforms~~ everywhere

(Why not both?)

Layers!

Multiple libraries

UI on top

Building things

Constraints on your primary platform:

Target platforms

Languages & frameworks

Story time

Visual Studio

XCode

Generate project files

Insert popular target platform IDE here

Build system?

Cross-platform

Multiple targets, decent granularity

Customizable and extendable

Parallelizable

Maintained and documented

Examples

cmake

autotools

msbuild/xbuild

gradle

jam

ninja

perl

python

Scripting the tools

native shell scripts

Tests

CI

There's more!

do I have time?

Dependencies

Packaging

Be

adaptable

It's going to be

uncomfortable

deal with it

Questions anyone?

THANK YOU!

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