

# Tipologie

Ogni app è un mix di tecnologie differenti



## Tipologie

Nativa

Si basa su ambienti di sviluppo e SDK proprietari della piattaforma ed il codice non risulta portabile.

Ibrida

Si basa su ambienti di sviluppo e SDK scelti dallo sviluppatore ed il codice risulta facilmente portabile.

Web (PWA)

Si basa su ambienti di sviluppo e SDK web ed il codice è unico.

# Tipologie

## Nativa

### Pro:

- Performante
- Accesso all'hardware
- GUI specifica
- Presente negli store
- API subito disponibili

### Contro:

- Onerosa (per ogni piattaforma ho un SDK)
- Codice non portabile

## Ibrida

### Pro:

- Sviluppo veloce
- Abbastanza Performante
- GUI specifica in alcuni casi
- Codice quasi portabile
- Presente negli store

### Contro:

- Accesso all'hardware limitato
- API non sempre disponibile

## Web (PWA)

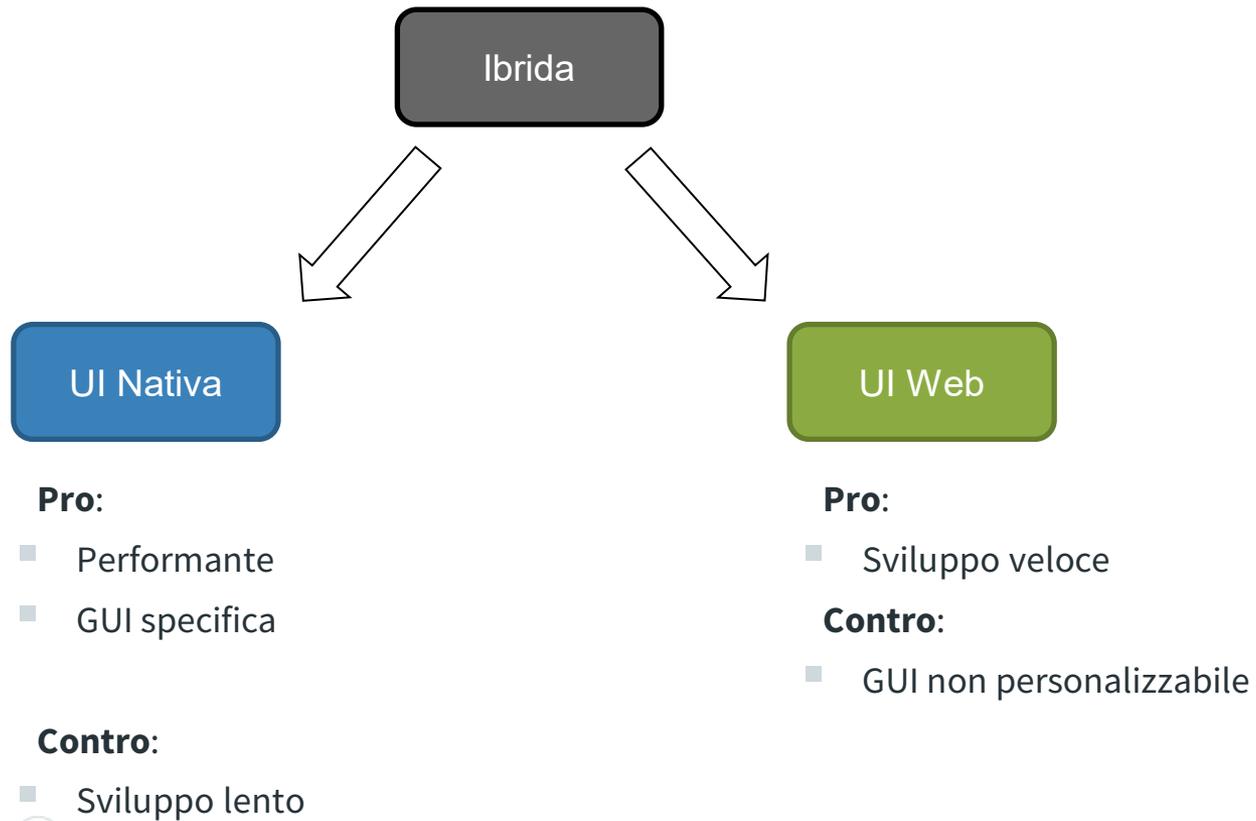
### Pro:

- Sviluppo velocissimo
- Un solo codice

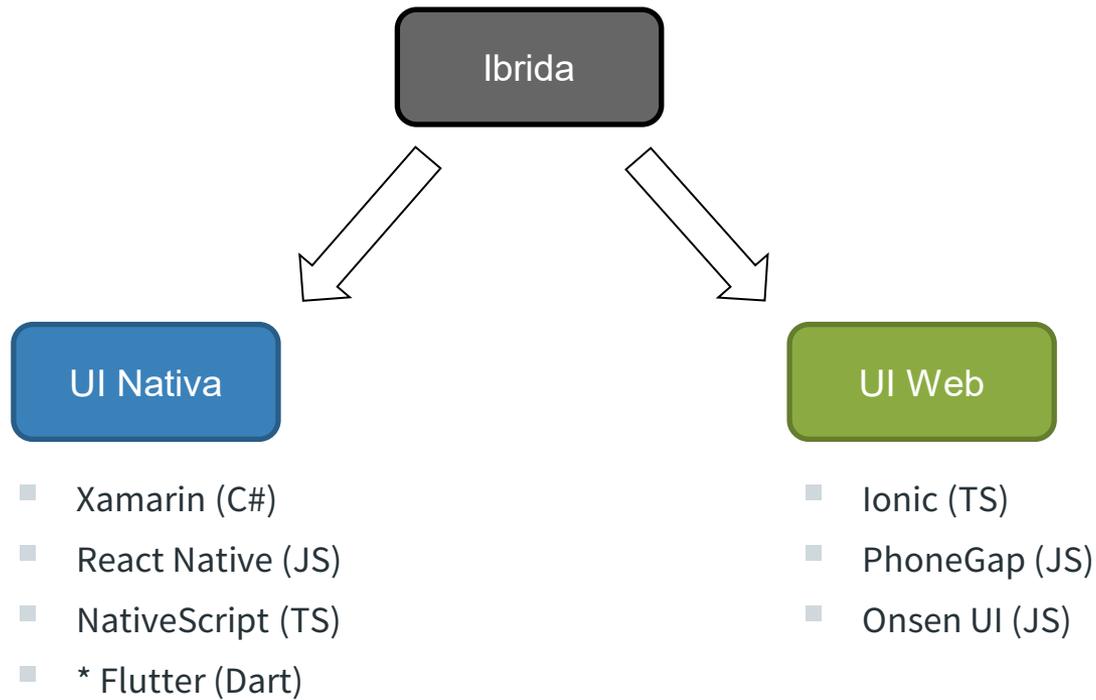
### Contro:

- Poco performante
- GUI generica
- Accesso all'hardware limitato
- Non presente negli store

## Tipologie ibride



## Framework per sviluppo ibrido



# Under the hood

AOT/JIT/Marshaling



# Compilatore

## AOT

ahead-of-time

La compilazione avviene una sola volta



## JIT

just-in-time

La compilazione avviene ad ogni avvio

- Android permette il JIT
- iOS non permette la compilazione JIT al di fuori della WKWebView

Nativa

Ibrida

Web (PWA)

AOT

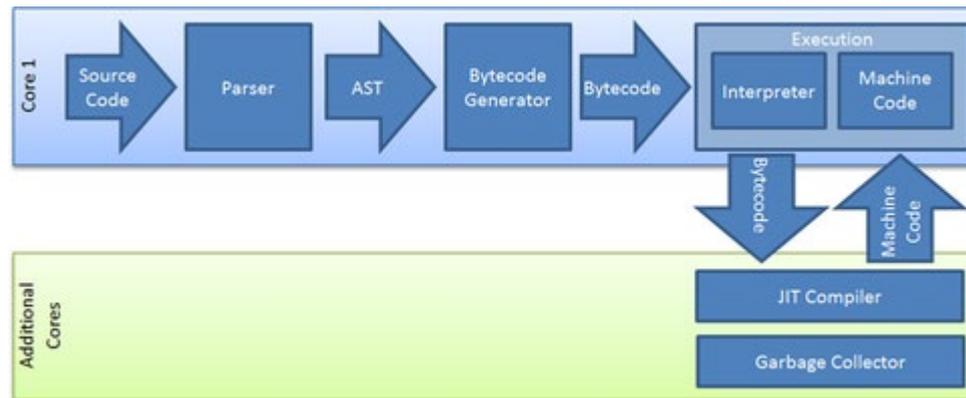
AOT/JIT

JIT

# Compilatore



## V8 Engine – Compilazione JIT di un JS





“

## *Ma come possiamo superare la mancanza di JIT in iOS?*

- ▲ No. JavaScriptCore on iOS 7+ won't be able to JIT compile for you, because iOS disallows mapping writable/executable pages of memory as a hard rule, and that's a requirement for JIT. Only MobileSafari.app, Web.app and a handful of other system apps carry an entitlement that allows them to JIT compile. The new WKWebView in iOS 8 is rendered in a separate process that is allowed to JIT compile, so JavaScript in a WKWebView is faster than a UIWebView or plain JSContext.



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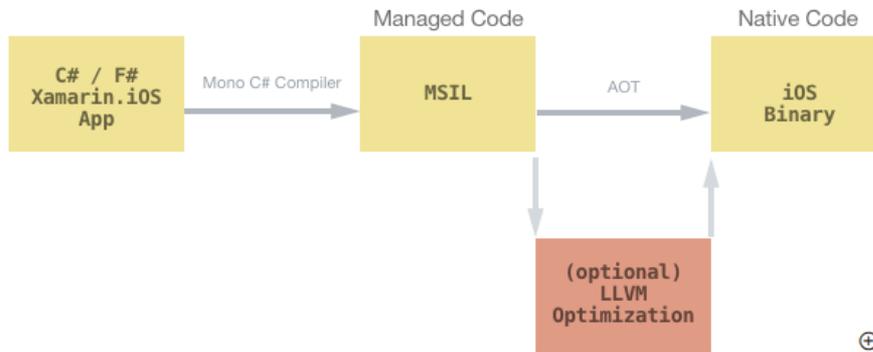
answered Jan 4 '15 at 20:52

# Xamarin approach (C#)

## AOT

When you compile any Xamarin platform application, the Mono C# (or F#) compiler will run and will compile your C# and F# code into Microsoft Intermediate Language (MSIL). If you are running a Xamarin.Android, a Xamarin.Mac application, or even a Xamarin.iOS application on the simulator, the [.NET Common Language Runtime \(CLR\)](#) compiles the MSIL using a Just in Time (JIT) compiler. At runtime this is compiled into a native code, which can run on the correct architecture for your application.

However, there is a security restriction on iOS, set by Apple, which disallows the execution of dynamically generated code on a device. To ensure that we adhere to these safety protocols, [Xamarin.iOS instead uses an Ahead of Time \(AOT\) compiler](#) to compile the managed code. This produces a native iOS binary, optionally optimized with LLVM for devices, that can be deployed on Apple's ARM-based processor. A rough diagram of how this fits together is illustrated below:



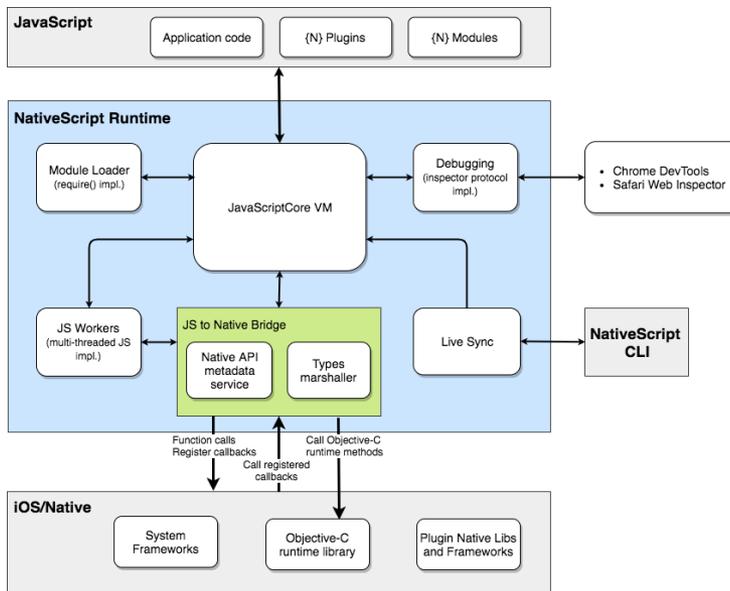
<https://docs.microsoft.com/en-us/xamarin/ios/internals/architecture>

<https://docs.microsoft.com/it-it/xamarin/ios/internals/limitations>

# Come superare il limite di iOS ed usare JS?

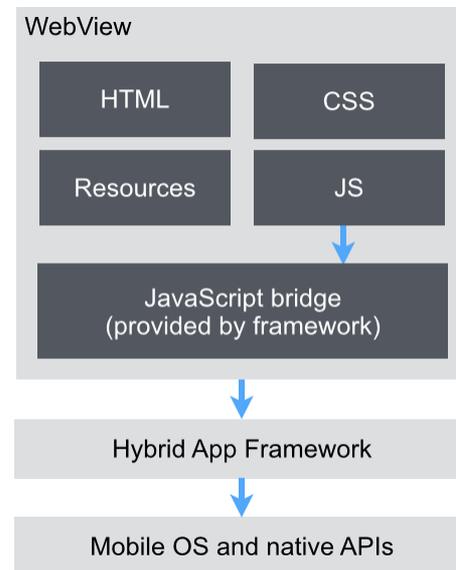
## Interprete

L'applicazione viene interpretata a runtime o pre compilata



## WebView

L'applicazione vive in un browser contenuto nell'app



- <https://docs.nativescript.org/core-concepts/android-runtime/overview>
- <https://docs.nativescript.org/core-concepts/ios-runtime/Overview>
- <https://www.nativescript.org/blog/the-new-ios-runtime-powered-by-v8>
- <https://v8.dev/blog/jitless>

## Come superare il limite di iOS ed usare JS?

### Interprete

L'applicazione viene interpretata o pre compilata

- Approccio complesso
- Performante
- UI Nativa
- Limiti nella compilazione
- Accesso hardware diretto
- Marshalling

### WebView

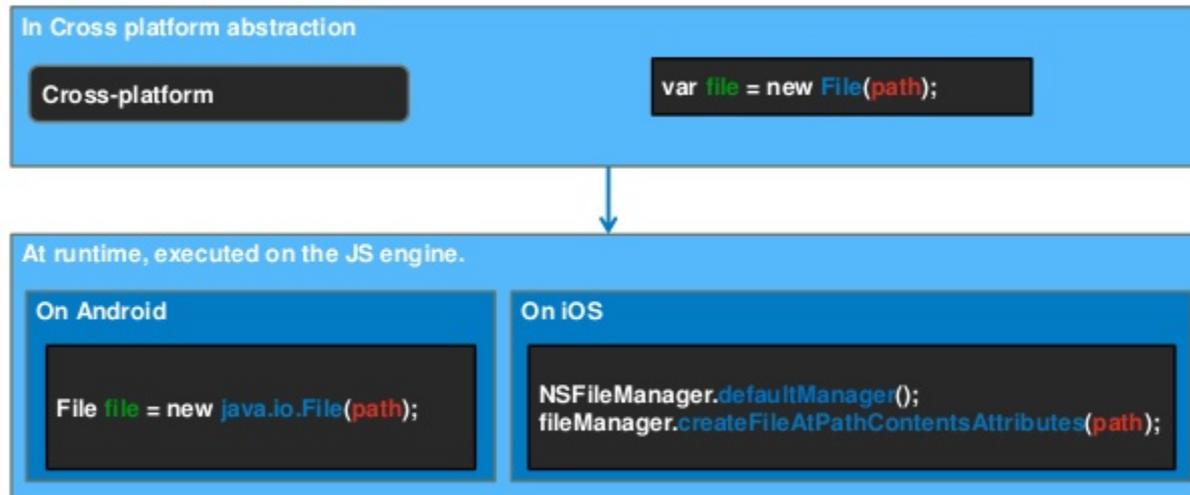
L'applicazione vive in un browser embedded

- Approccio semplice
- Lenta
- UI Web
- Nessun limite (JIT presente)
- Limiti nell'accesso hardware

# Marshalling

<https://docs.nativescript.org/runtimes/android/marshalling/overview>  
<https://docs.nativescript.org/runtimes/ios/marshalling/Marshalling-Overview>

## Cross-platform API

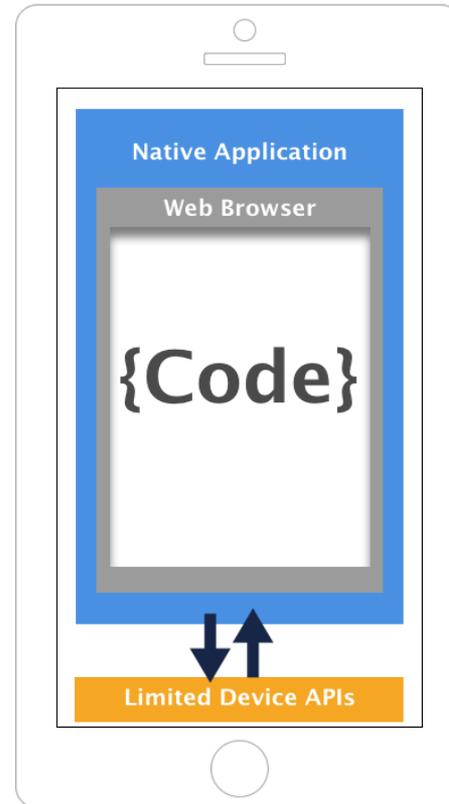
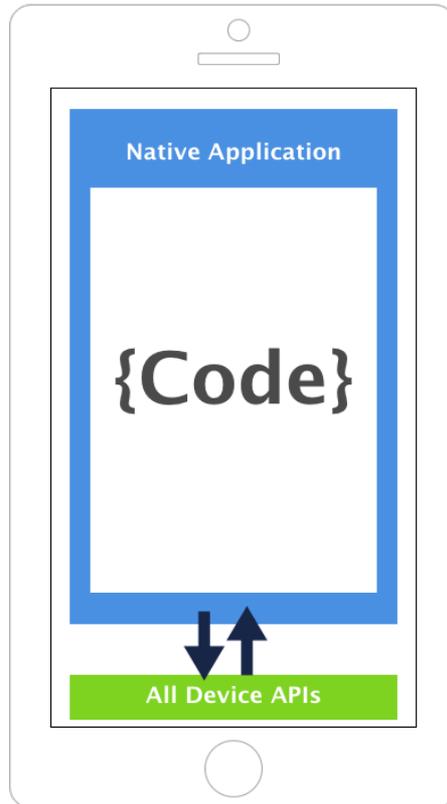
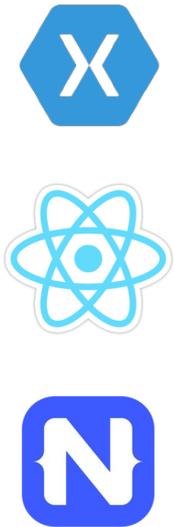


# Differenze sostanziali

<https://www.nativescript.org/blog/nativescript-and-xamarin>

Truly Native (Xamarin, NativeScript)

Hybrid Apps (Cordova, PhoneGap)



# Security

XSS



Cos'è:

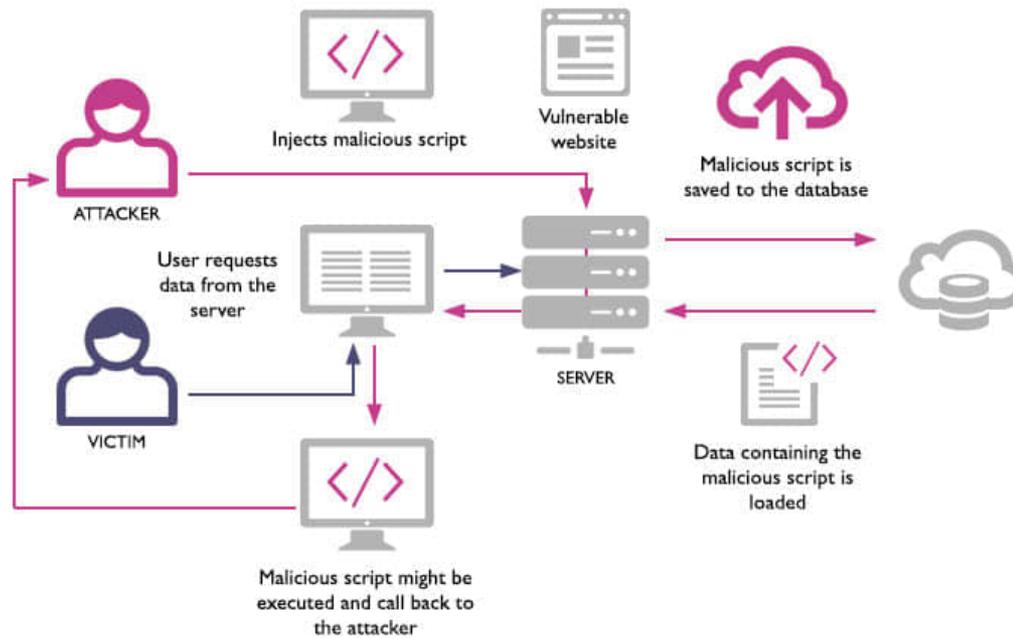
**XSS:** Cross-site scripting

Il **cross-site scripting (XSS)** è una [vulnerabilità](#) che affligge [siti web dinamici](#) che impiegano un insufficiente controllo dell'input nei [form](#).

[https://it.wikipedia.org/wiki/Cross-site\\_scripting](https://it.wikipedia.org/wiki/Cross-site_scripting)

## Demo:

XSS storicizzato su DB



## Demo:

### XSS solo su client (phishing)

