Mobile App Development

NativeScript e Angular 2+

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Sviluppatore Full-Stack e Mobile

Kaleidoscope

Scenario

Scenario

Nativo

Swift - Objective C
Java - Kotlin

WebView-ed

Ionic Framework
Famous7
Mobile Angular UI
Onsen UI
Kendo UI
Sencha Touch
jQuery Mobile
Intel XDK

Soluzioni cross - from web to native

React Native
NativeScript
Flutter (new!)
Xamarin
AppCelerator
trigger.io


What the fuck is going on?

Come scegliere?


Time


Budget


Skills

Nativo

+

+

Soluzioni WebView-ed / Cross

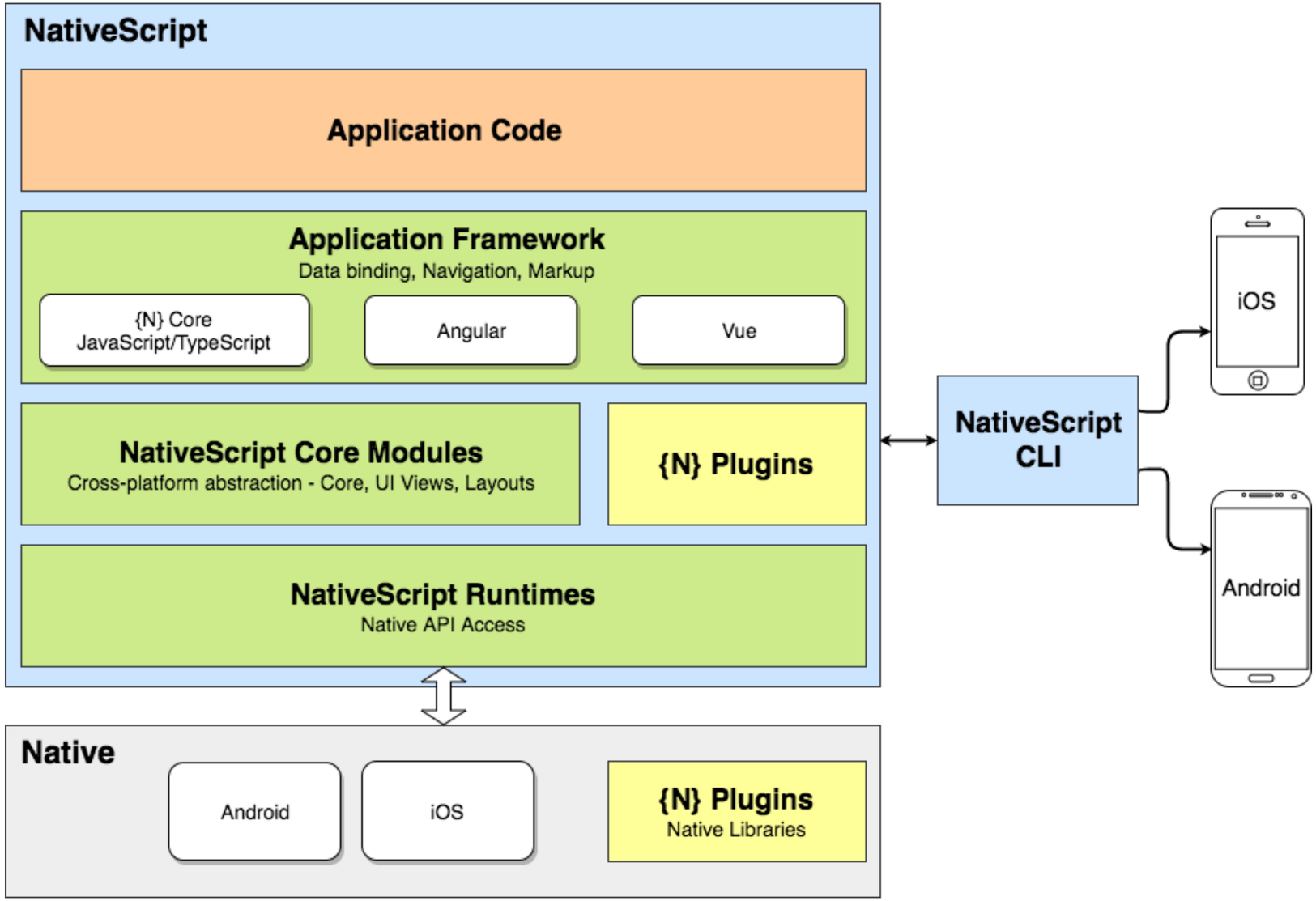
NativeScript

Build amazing iOS and Android apps with technology you already know

Open source framework for building truly native mobile apps with Angular, TypeScript or JavaScript.

*Now also **Vue.js** is supported!*

NativeScript structure



NativeScript è davvero native!

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```
var time = new android.text.format.Time(); // Oggetto Time in Java
time.set( 1, 0, 2015 );
console.log( time.format( "%D" ) ); // 01/01/2015

var alert = new UIAlertView(); // Questo è un riferimento alla class Obj-C UIAlertView
alert.message = "Hello world!";
alert.addButtonWithTitle( "OK" );
alert.show()
```


Gotta catch em all!

Installazione

```
npm install -g nativescript
```

```
tns --version
```

Creare un nuovo progetto

```
tns create pokeproject --ng --appid it.kaleidoscope.pokeproject

tns platform add ios
tns platform add android
```

Data, data, data!

```
/**  ---- app.module.ts  ---- **/

// Import the library
import { NativeScriptHttpModule } from "nativescript-angular/http";

// Inject the module
@NgModule({
    [...]
    imports: [NativeScriptModule, NativeScriptHttpModule]
})
```

App logic

```
/**  ---- app.component.ts  ---- **/

// Imports
import { Component, OnInit } from "@angular/core";

@Component({
    selector: "my-app",
    templateUrl: "app.component.html"
})

export class AppComponent implements OnInit {
    public constructor() { ... }
    public ngOnInit() { ... }
    public showInformation(index: number) { ... }
    public showDialog(data: Array<string>) { ... }
}
```

Gotta catch em all!

```
/**  ---- app.component.ts  ---- **/

// Imports
import { Http } from "@angular/http";
import "rxjs/Rx";

export class AppComponent implements OnInit {
    public pokemon: Array<any>;
    public constructor(private http: Http) { ... }
    public ngOnInit() {
        this.http.get("https://pokeapi.co/api/v2/pokemon?limit=151")
            .map(result => result.json())
            .flatMap(result => result.results)
            .subscribe(result => {
                this.database.getDatabase().createDocument(result);
                this.pokemon.push(result);
            }, error => {
                console.error(error);
            });
    }
}
```

User interface

```
/**  ---- app.component.html  ---- **/

<ActionBar title="PokeProject"></ActionBar>

<StackLayout>
</StackLayout>
```

Docs: https://docs.nativescript.org/ui/basics

User interface - grid layout

```
/**  ---- app.component.html  ---- **/

<GridLayout rows="auto" columns="auto, *, auto">

</GridLayout>
```

Docs: https://docs.nativescript.org/cookbook/ui/layouts/grid-layout

User interface - list view

```
/**  ---- app.component.html  ---- **/
<ListView [items]="pokemon">
    <ng-template let-monster="item" let-index="index">
        <GridLayout/>
    </ng-template>
</ListView>

[...]

<GridLayout rows="auto" columns="auto, *, auto" margin="15">
    <Label row="0" col="0" class="pokemon-number" text="{{ index + 1 }}.” marginRight="10"></Label>
    <Label row="0" col="1" class="pokemon-name" [text]="monster.name"></Label>
    <Image row="0" col="2" class="pokemon-image" src="~/images/{{index + 1}}.png"></Image>
</GridLayout>
```

A bit of style!

```
/**  ---- app.css ---- **/
.pokemon-number {
    font-weight: bold;
}
.pokemon-name {
    text-transform: capitalize;
}
.pokemon-image {
    animation-name: pokemon-image;
    animation-duration: 1s;
    animation-delay: 1s;
    opacity: 0;
}
@keyframes pokemon-image {
    from { opacity: 0; transform: rotate(0deg); }
    to { opacity: 1; transform: rotate(360deg); }
}
```

Aggiungere un event listener

```
/**  ---- app.component.html ---- **/
<GridLayout [...] (tap)="showInformation(index+1)">
[...]
</GridLayout>

/**  ---- app.component.ts ---- **/
public showInformation(index: number) {
    this.http.get("https://pokeapi.co/api/v2/pokemon/" + index)
        .map(result => result.json())
        .flatMap(result => result.types)
        .map(result => (<any> result).type.name)
        .toArray()
        .subscribe(result => {
            this.showDialog(result);
        }, error => {
            console.error(error);
        });
}
```

Native Dialogs

```
/**  ---- app.component.ts ---- **/

// Import the library
// https://docs.nativescript.org/cookbook/ui/dialogs
import dialogs = require("ui/dialogs");
public showDialog(data: Array<string>) {
    dialogs.alert({
        title: "Information",
        message: "Questo pokemon è del tipo " + data.join(", "),
        okButtonText: "OK"
    });
}
```

Native Plugins

```
tns plugin add nativescript-couchbase
```

```
/// <reference path="./node_modules/nativescript-couchbase/couchbase.d.ts" />
```

Camera quick example

```
import * as camera from "nativescript-camera";
import { Image } from "ui/image";

var options = { width: 300, height: 300, keepAspectRatio: false, saveToGallery: true };
camera.takePicture(options)
    .then((imageAsset) => {
       let image = new Image();
       image.src = imageAsset;
           console.log("Size: " + imageAsset.options.width + "x" + imageAsset.options.height);
           console.log("keepAspectRatio: " + imageAsset.options.keepAspectRatio);
           console.log("Photo saved in Photos/Gallery for Android or in Camera Roll for iOS");
    }).catch((err) => {
        console.log("Error -> " + err.message);
    });
```

Couchbase DB provider

```
/**  ---- database.ts ---- **/
import { Couchbase } from 'nativescript-couchbase';

export class Database {
    private db: any;
    public constructor() {
        this.db = new Couchbase("db");
    }
    public getDatabase() {
        return this.db;
    }
}
/**  ---- app.component.ts ---- **/
@Component({
    selector: "my-app",
    templateUrl: "app.component.html",
    providers: [Database]
})
export class AppComponent implements OnInit {
    public constructor(private http: Http, private database: Database) { [...] }
}
```

NoSQL MapReduce View

```
/**  ---- database.ts ---- **/

[...]
    public constructor() {
        this.db = new Couchbase("db");
        this.db.createView("pokemon", "1", (document, emitter) => {
            emitter.emit(document._id, document);
        });
    }
[...]
```

Caching dei dati

```
/**  ---- app.component.ts ---- **/

public ngOnInit() {
    let rows = this.database.getDatabase().executeQuery("pokemon");
    if (rows.length == 0) {
        this.http.get("https://pokeapi.co/api/v2/pokemon?limit=151")
            .map(result => result.json())
            .flatMap(result => result.results)
            .subscribe(result => {
                this.database.getDatabase().createDocument(result);
                this.pokemon.push(result);
            }, error => {
                console.error(error);
            });
    } else {
        for (let i = 0; i < rows.length; i++) {
            this.pokemon.push(rows[i]);
        }
    }
}
```

Accesso alle Api Native della UI

```
// NativeScript XML tag
<ActionBar title="Sign up"></ActionBar>

// Controller Obj-c (mappato in node_modules/tns-core-modules/ui/frame/frame.ios.js)
UINavigationController

// Componente UI Obj-c
// (mappato in node_modules/tns-core-modules/ui/action-bar/action-bar.ios.js)
UINavigationBar

// Modificare lo stile della ActionBar per iOS
if (page.ios) {
    var navigationBar = frameModule.topmost().ios.controller.navigationBar;
    navigationBar.barStyle = UIBarStyle.UIBarStyleBlack;
}
```

Comandi utili

```
tns prepare [ios|android]

tns build [ios|android]

tns deploy [ios|android]

tns emulator [ios|android]

tns run [ios|android]
```

References

- Documentazione di NativeScript

http://docs.nativescript.org

- Lista dei plugins (certificati da Telerik)

http://plugins.nativescript.org

- How NativeScript Works

  http://developer.telerik.com/featured/nativescript-works/

- Performances (web-view)

https://github.com/mlynch/pgday-eu-2017-perf/blob/master/web-perf-2017.pdf

Questions

Thank you

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