



# Magic vs Science

Telerik Next's {N} Workshop

Sebastian Witalec

# More Science Than Magic



# JavaScript Virtual Machine



Google V8 JavaScript Engine



Webkit JavaScript Core

NATIVE

# Native APIs



accesses native objects

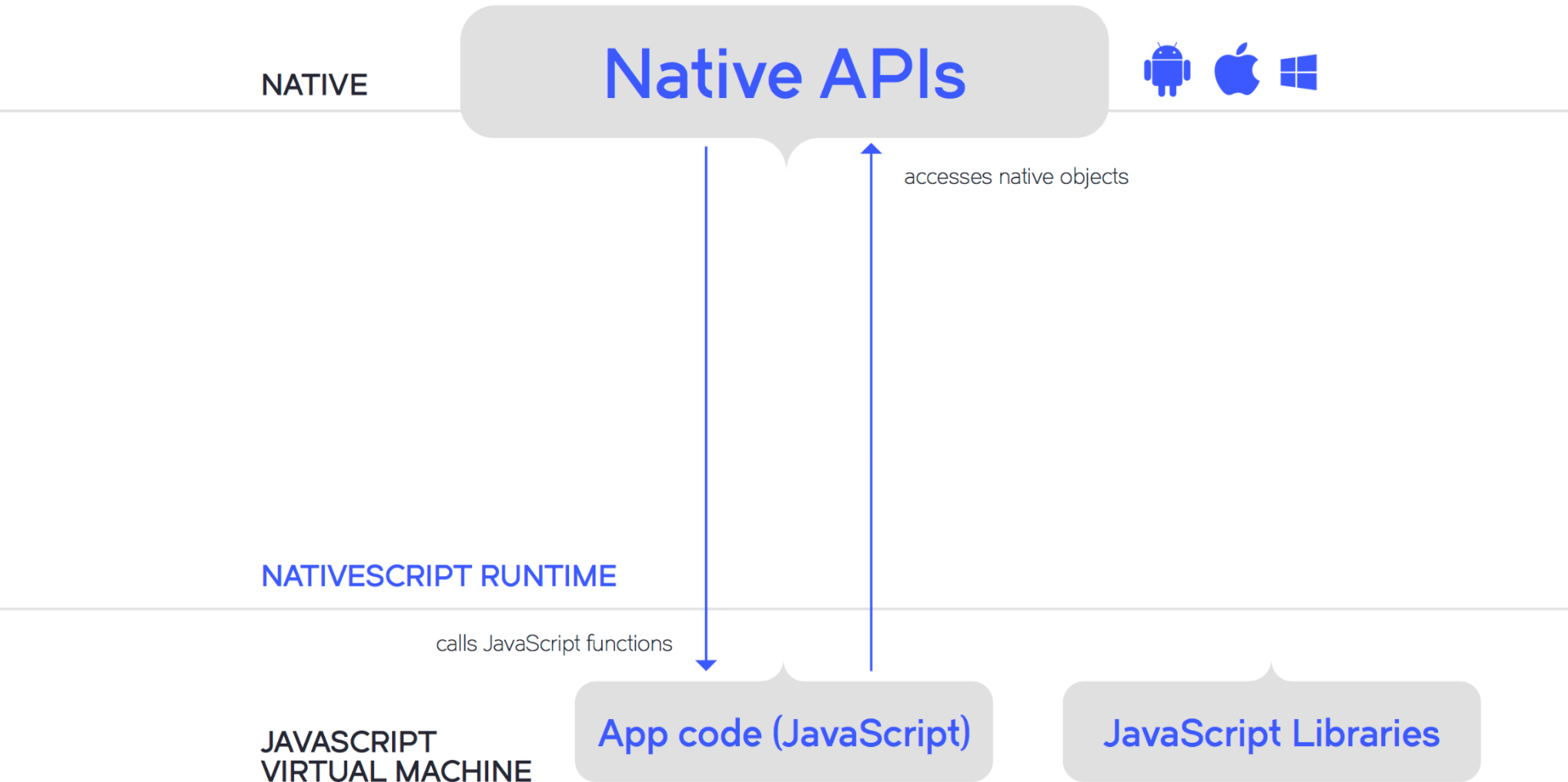
NATIVESCRIPT RUNTIME

calls JavaScript functions

JAVASCRIPT  
VIRTUAL MACHINE

App code (JavaScript)

JavaScript Libraries



NATIVE

# Native APIs



accesses native objects

Metadata

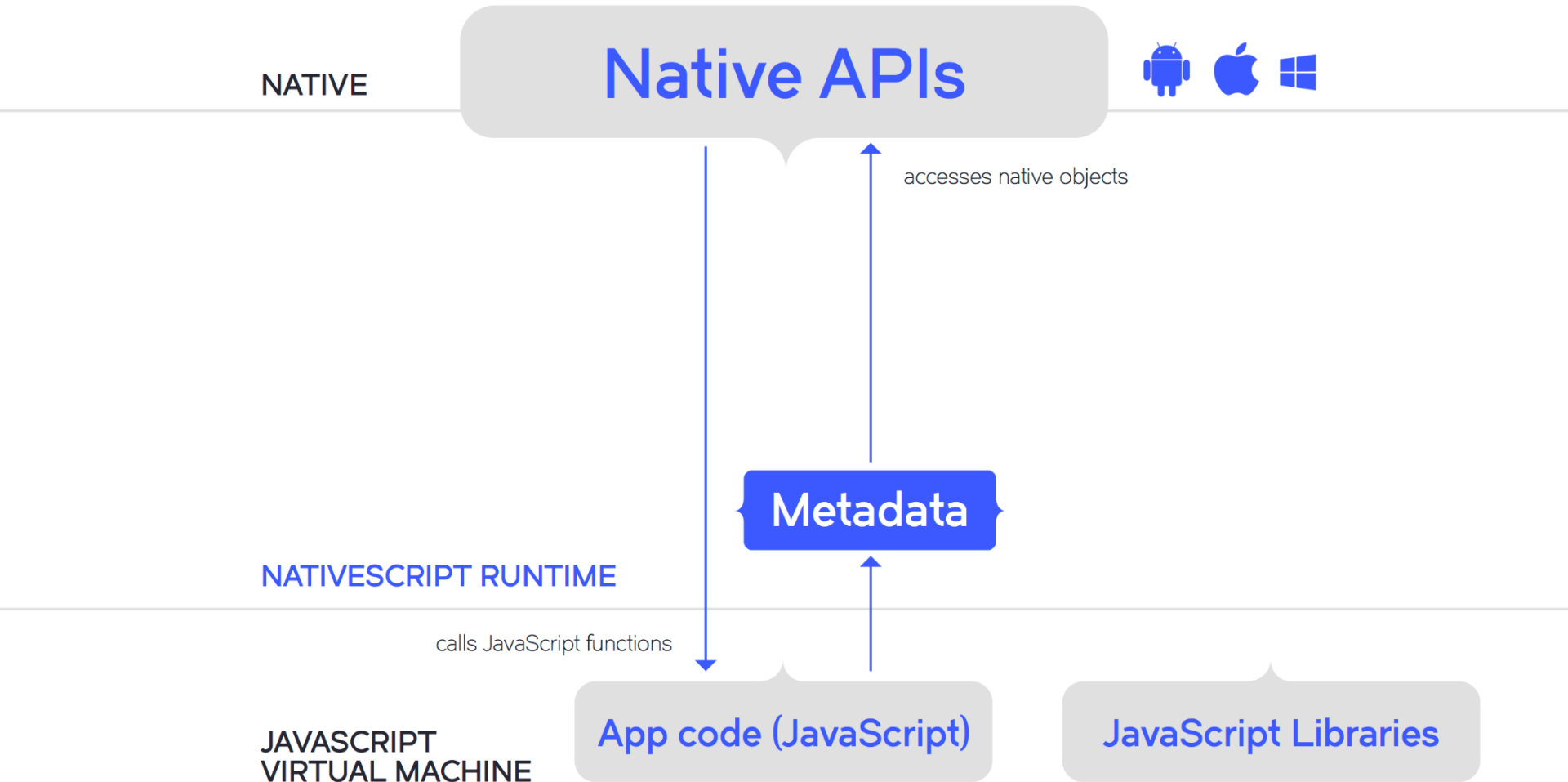
NATIVESCRIPT RUNTIME

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NATIVE

Native APIs



accesses native objects

Type conversion

Metadata

NATIVESCRIPT RUNTIME

calls JavaScript functions

JAVASCRIPT  
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App code (JavaScript)

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NATIVE

# Native APIs



calls JavaScript functions

accesses native objects

Call Dispatcher

Type conversion

Metadata

NATIVESCRIPT RUNTIME

calls Native API using JavaScript

calls JavaScript functions

JAVASCRIPT  
VIRTUAL MACHINE

App code (JavaScript)

JavaScript Libraries

**But... But... But**



**How?**



# Calling Android API

V8 JavaScript Engine

```
var file = new java.io.File(path);
```

# Calling Android API

V8 JavaScript Engine

```
var file = new java.io.File(path);
```

Type Conversion Service

Native  
Android

java.lang.String

# Calling Android API

V8 JavaScript Engine

```
var file = new java.io.File(path);
```

Type Conversion Service

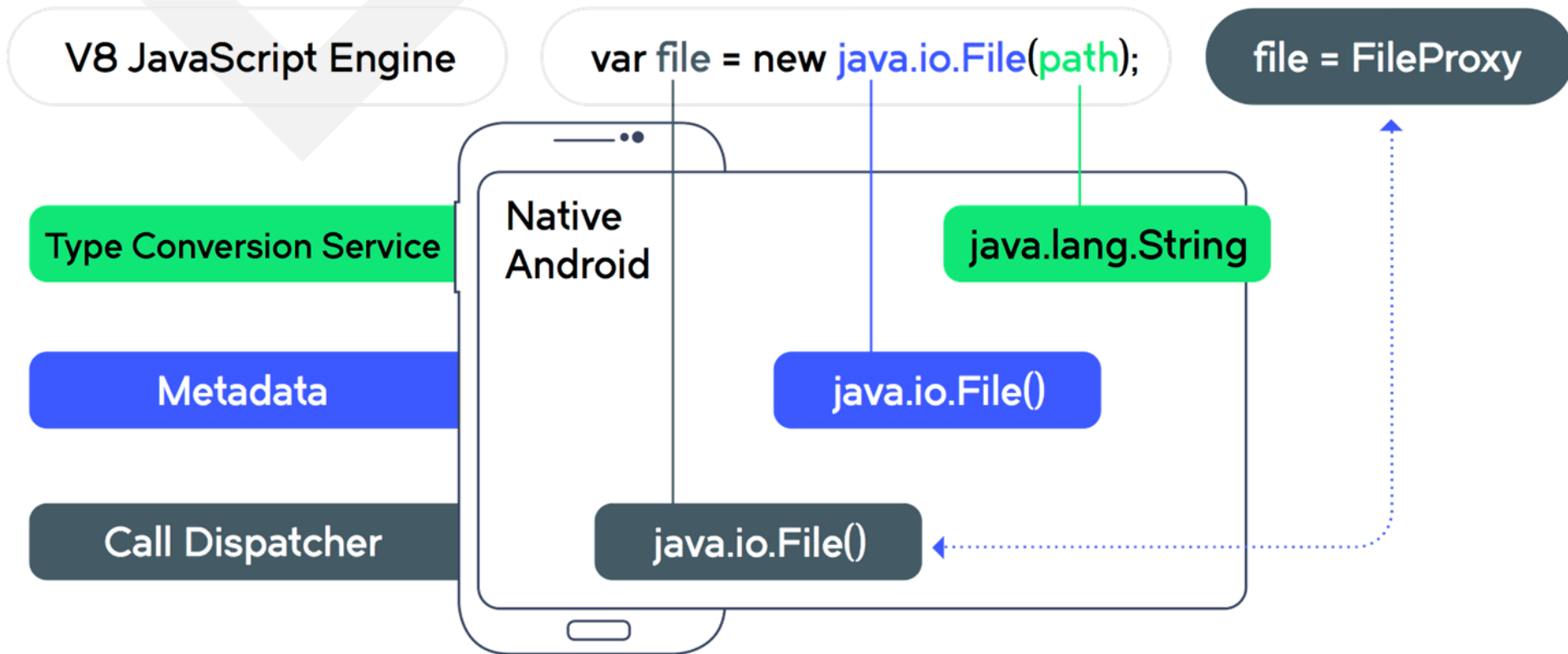
Native  
Android

java.lang.String

Metadata

java.io.File()

# Calling Android API



**Searching for an example**

**you could touch?**

# image-manipulation module

## **image-manipulation.android.js**

```
var paint = new android.graphics.Paint();  
paint.setTypeface(type);  
paint.setTextSize(fontSize);
```

## **image-manipulation.ios.js**

```
var topRect = CGRectMake(30, 30, image.size.width, image.size.height);  
var topString = NSString.alloc().initWithString(topText);  
topString.drawInRectWithFont(topRect, font);
```



**This my dear is**

**What modules are made of**







# Model





# View



# ViewModel





Model



= DATA



View



UI



# Connects



**Application Logic**



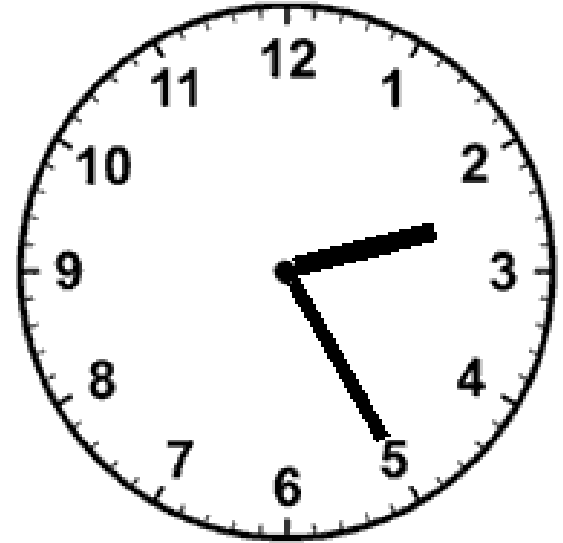
# Bindings

# Demo

# Time



~~N~~ +



# Understanding users

**Magic**



**OR**

**Science**



# How much would you give?

God

Shave the Queen

God

Shave the Queen

Text Size

Black Text OFF

Save

Share

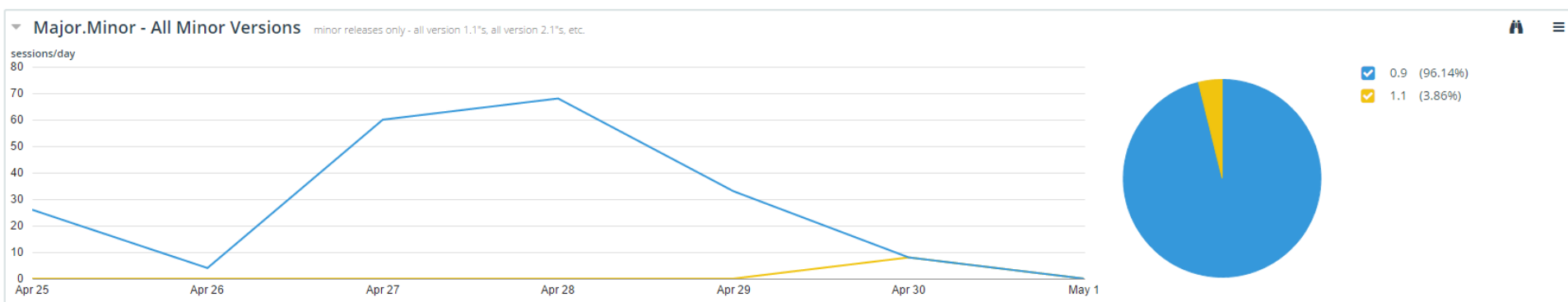
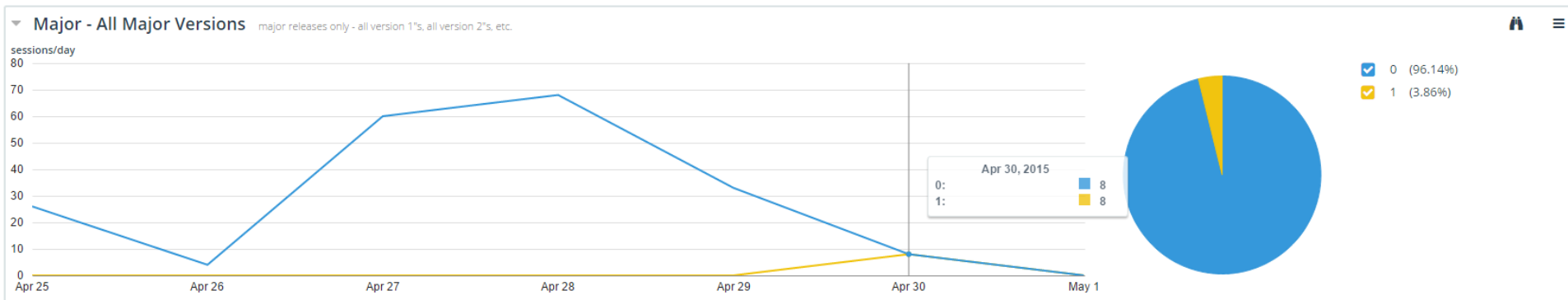
?

# Setup

```
var NativeScriptMonitor =  
require('./NativeScriptMonitor').Monitor;
```

```
var monitor = new NativeScriptMonitor({  
  productId: 'e4680536-g543-8gjd-bs98-0dj4dj-2hd467',  
  version: '1.2.3'  
});
```

# Versions



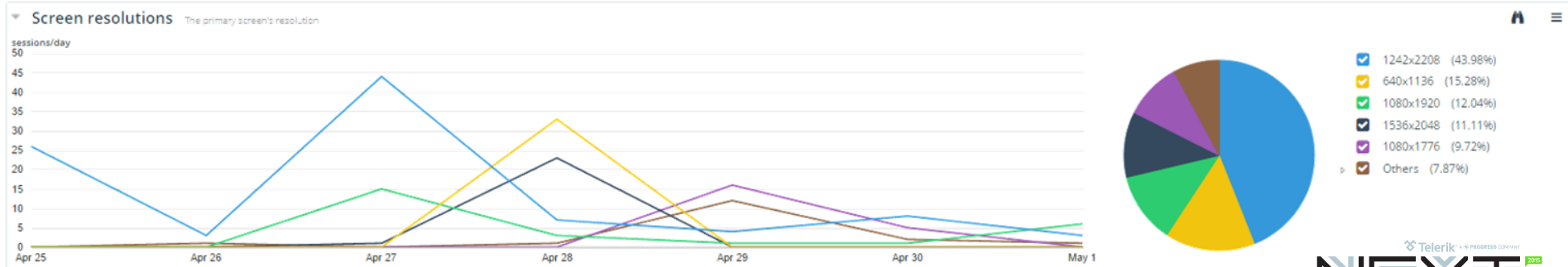
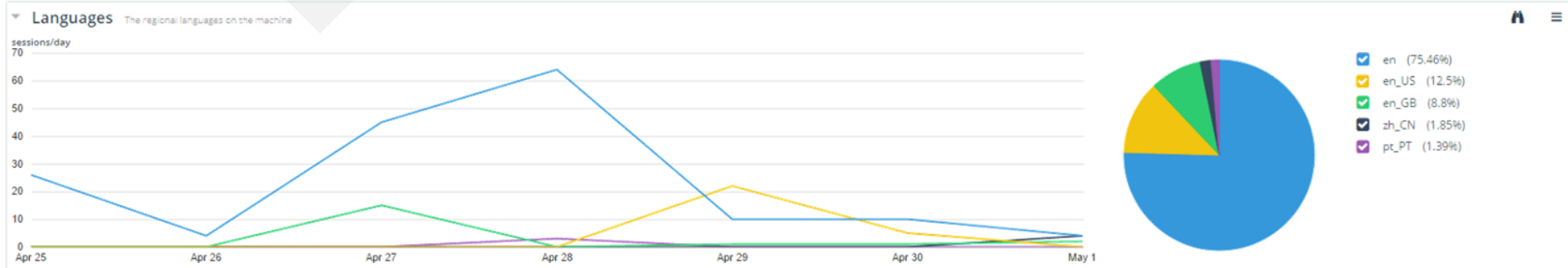
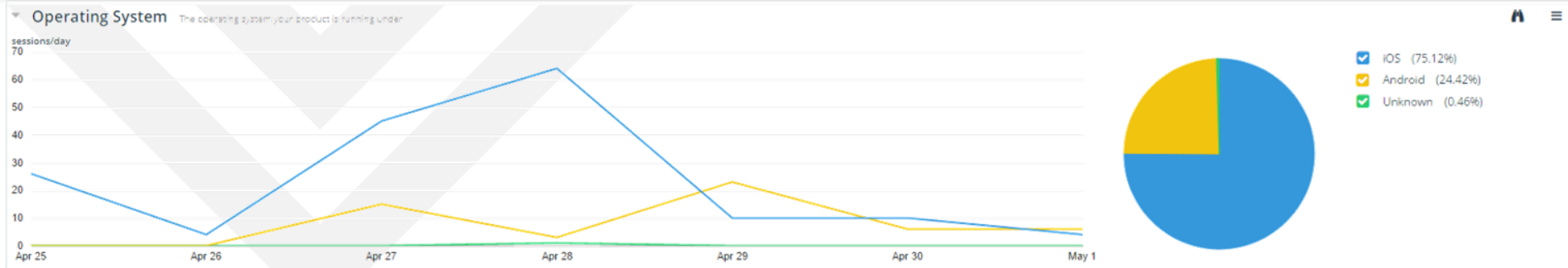
# Manage Session

## **When Application starts**

```
monitor.start();
```

## **Before App Closes**

```
monitor.stop();
```



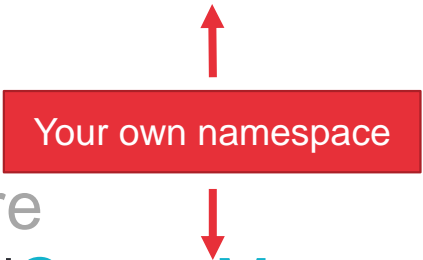


# Track Feature Usage: Magic

```
function saveLocally() {  
    //saveLocally code here  
    monitor.trackFeature('CreateMeme.SaveLocally');  
}  
function share() {  
    //saveLocally code here  
    monitor.trackFeature('CreateMeme.Share');  
}
```

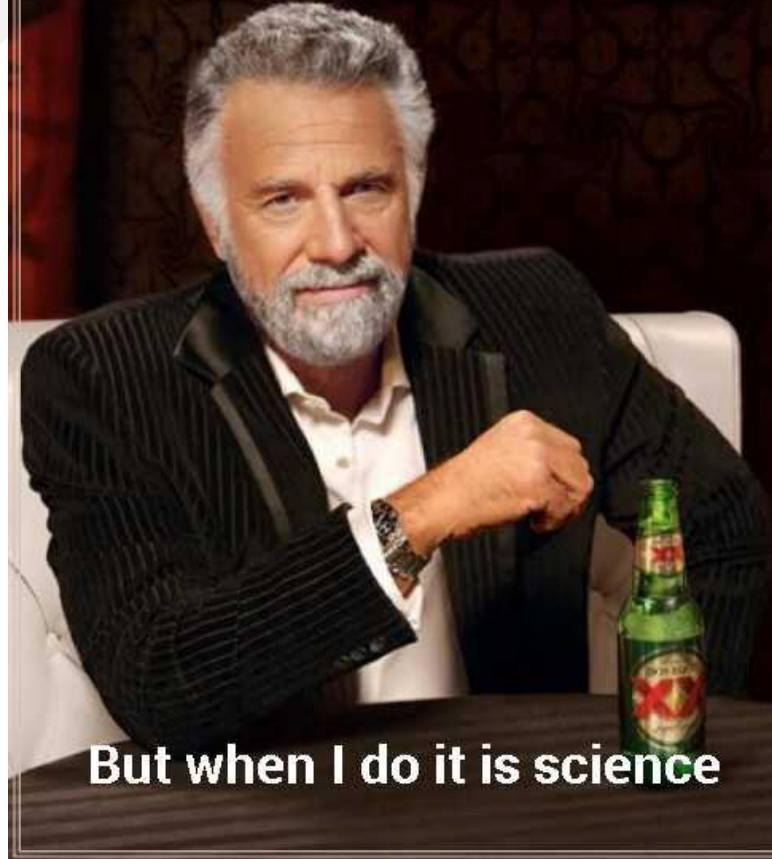
# Track Feature Usage: Magic

```
function saveLocally() {  
    //saveLocally code here  
    monitor.trackFeature('CreateMeme.SaveLocally');  
}  
function share() {  
    //saveLocally code here  
    monitor.trackFeature('CreateMeme.Share');  
}
```



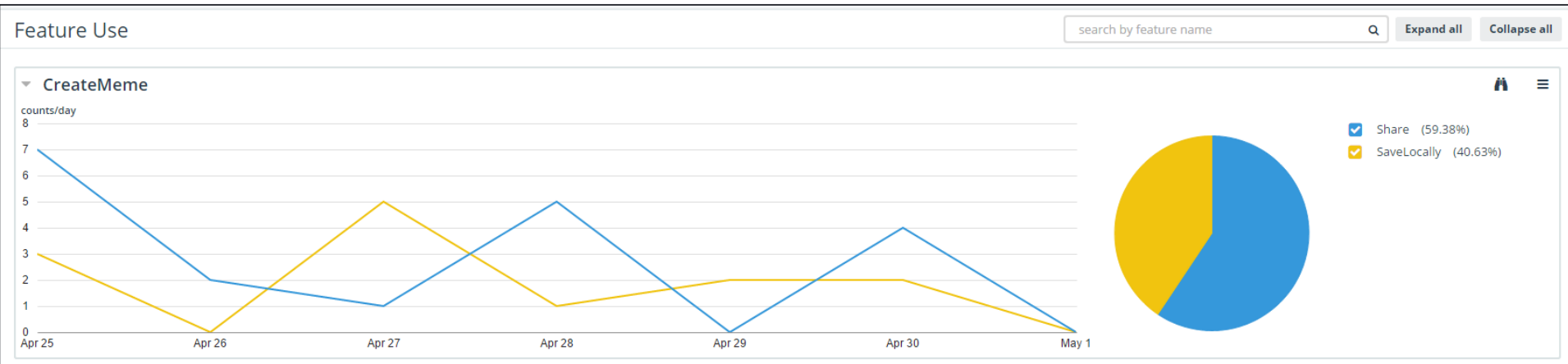
A red rectangular box labeled "Your own namespace" is positioned between the two function calls. A red arrow points upwards from the box to the "CreateMeme" part of the first function call, and another red arrow points downwards from the box to the "CreateMeme" part of the second function call.

**I don't normally do magic**



**But when I do it is science**

# Track Feature Usage: Science

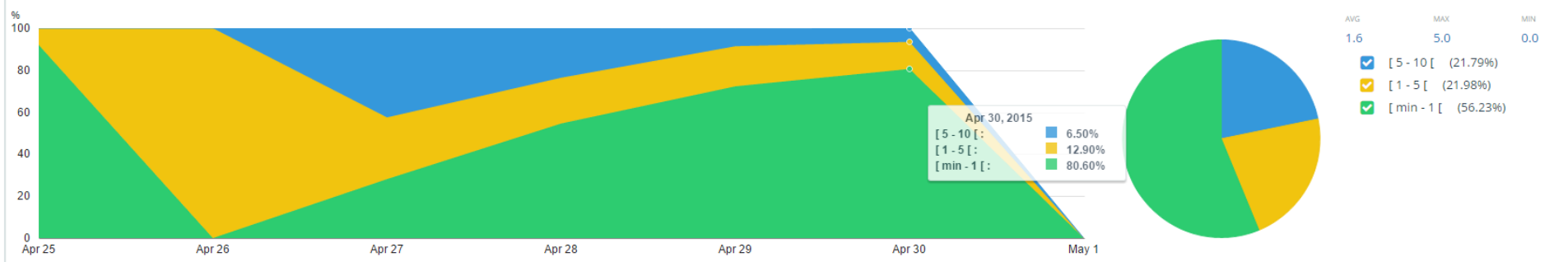


# Track Values: Magic

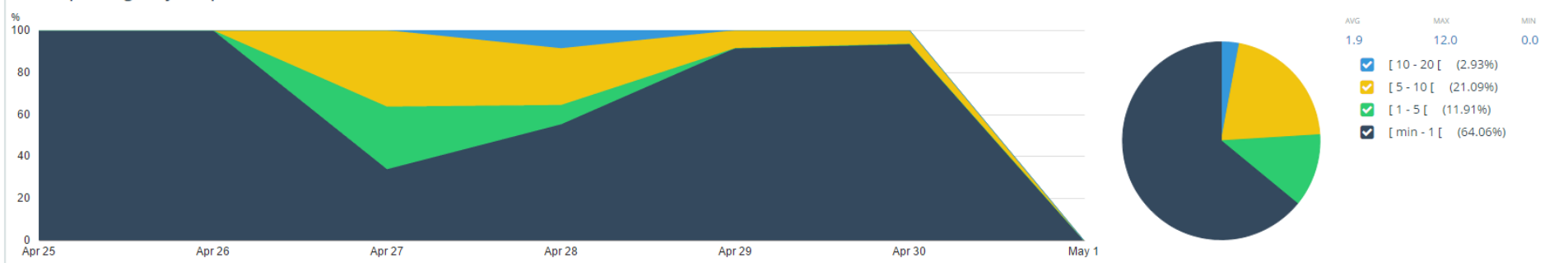
```
function load() {  
  localStorage.getMyMemes()  
  .then(function (entities) {  
    monitor.trackFeatureValue("Templates.getMyMemes", entities.length);  
    //Do the rest here  
  })  
}
```

# Track Values: Science

## Templates.getMyMemes



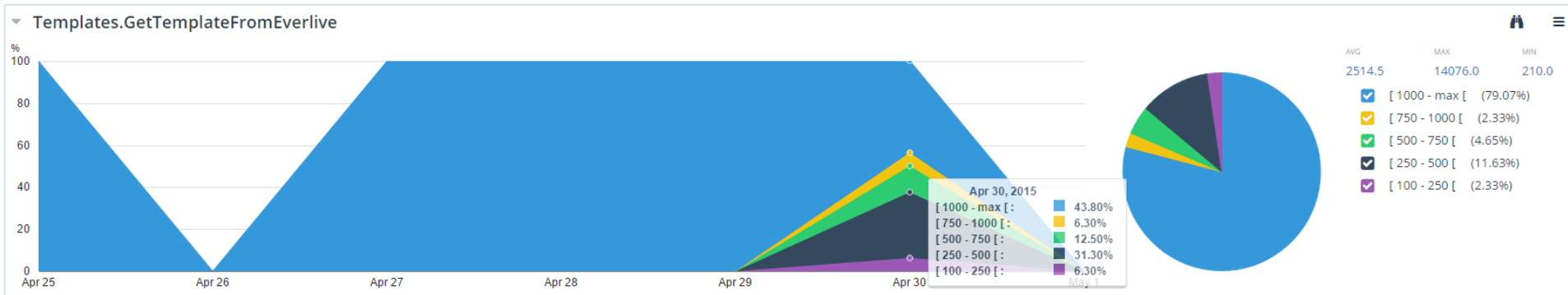
## Templates.getMyTemplates



# Track Performance: Magic

```
function getTemplates() {  
    monitor.trackFeatureStart('Templates.GetFromEverlive');  
  
    loadTemplates()  
    .then( function() {  
        //When Finished  
        monitor.trackFeatureStop('Templates.GetFromEverlive');  
    }  
}
```

# Track Performance : Science





# Track Exceptions: Magic

```
try {  
    doSomething();  
}  
catch(exception) {  
    monitor.trackException(exception, 'error message');  
}
```

**I don't normally make exceptions**



**But when I do they are all tracked**

# Track Exceptions: Science

<input type="checkbox"/>	CASE	STACK TRACE	EXCEPTION TYPE	STATUS	COUNT	FIRST OCCU...	LAST OCCUR...	MESSAGE
<input type="checkbox"/>	<a href="#">4</a>	TypeError: Cannot read property 'setOnTouchListener' of undefi...	TypeError	New	6	Apr 27, 2015	May 02, 2015	Get Templates From Everlive Failed
<input type="checkbox"/>	<a href="#">9</a>	Error: java.lang.OutOfMemoryError: Failed to allocate a 2764812...	Error	Open	1	Apr 29, 2015	Apr 29, 2015	Get Templates From Everlive Failed
<input type="checkbox"/>	<a href="#">8</a>	Error: java.lang.OutOfMemoryError: Failed to allocate a 2764812...	Error	Open	1	Apr 29, 2015	Apr 29, 2015	Get Templates From Everlive Failed
<input type="checkbox"/>	<a href="#">7</a>	TypeError: Cannot read property 'getAbsolutePath' of null	TypeError	Open	2	Apr 29, 2015	Apr 29, 2015	Failed to TakePicture
<input type="checkbox"/>	<a href="#">6</a>	{anonymous}(){#object}	Error	New	3	Apr 27, 2015	Apr 27, 2015	onUncaughtError
<input type="checkbox"/>	<a href="#">5</a>	Error: java.lang.OutOfMemoryError	Error	New	2	Apr 27, 2015	Apr 27, 2015	Get Templates From Everlive Failed

Exception Type: **TypeError** ⓘ

Message: Cannot read property 'setOnTouchListener' of undefined

Stack trace:

```
TypeError: Cannot read property 'setOnTouchListener' of undefined
at GesturesObserver._attach (ui/gestures:120:23)
at Object._onTargetLoaded [as callback] (ui/gestures:33:23)
at Image.Observable.notify (data/observable:89:23)
at Image.Observable._emit (data/observable:108:18)
at Image.View.onLoaded (ui/core/view-common:397:14)
at WrapLayout.View._addViewCore (ui/core/view-common:693:18)
at WrapLayout.View._addViewCore (ui/core/view:79:39)
at WrapLayout.View._addView (ui/core/view-common:682:14)
at WrapLayout.Layout.addChild (ui/layouts/layout:39:14)
at /data/data/org.nativescript.telerikmemegenerator/files/app/.components/home/home:71:13
```

STATUS

Open

AFFECTED VERSIONS

1

LAST OCCURRENCE

May 02, 2015

SIMILAR EXCEPTION TYPE

2

NUMBER OF EXCEPTIONS

9

AFFECTED USERS

5

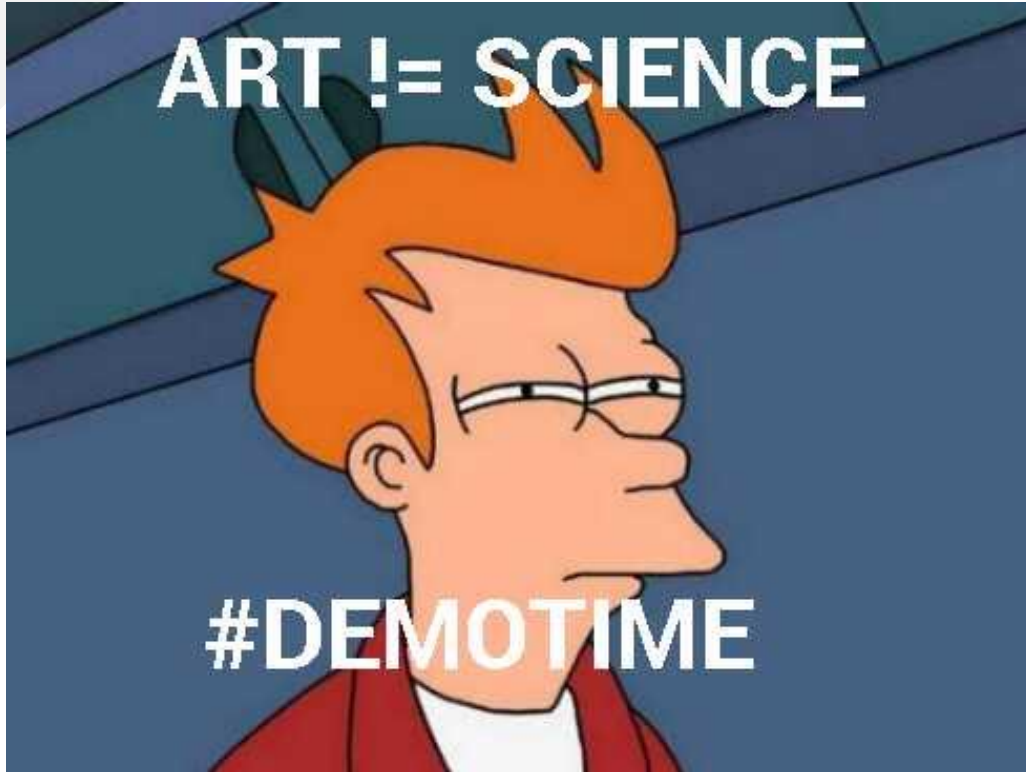
FIRST OCCURRENCE

Apr 27, 2015

FIRST OCCURRENCE TIME

20:43:42

# The Art of Science



# Questions?





Questions?

Thank you!