Interface Builder 实践与开源

孙源 sunnyxx
@我就叫Sunny怎么了

NIB stands for ?

NIB

---- stands for ----

Nextstep Interface Builder

"Life's short, use Interface Builder."

不选择使用 Interface Builder 是因为…

⚠️ 多人协作与冲突

- 多少人算多人?
- 按功能拆分 Storyboard
  即使一个 Storyboard 中只有一个 Scene
- 组内约定
  不乱碰别人负责的 Scene
  改动前言语一声
- 冲突可手解

```
<<<<<<<HEAD
                    <button opaque="NO" contentMode="scaleToFill" fixedFrame="YES" contentHorizontalAlignment="center"
                    contentVerticalAlignment="center" buttonType="roundedRect" lineBreakMode="middleTruncation"
                    translatesAutoresizingMaskIntoConstraints="NO" id="TWN-bY-Hfl">
                        <rect key="frame" x="279" y="153" width="30" height="30"/>
                        <animations/>
                        <state key="normal" title="ABC"/>
                    </button>
=======
                    <textField opaque="NO" clipsSubviews="YES" contentMode="scaleToFill" fixedFrame="YES"
                    contentHorizontalAlignment="left" contentVerticalAlignment="center" borderStyle="roundedRect" textAlignment="
                    natural" minimumFontSize="17" translatesAutoresizingMaskIntoConstraints="NO" id="ILX-by-HSK">
                        <rect key="frame" x="238" y="198" width="97" height="30"/>
                        <animations/>
                        <fontDescription key="fontDescription" type="system" pointSize="14"/>
                        <textInputTraits key="textInputTraits"/>
                    </textField>
>>>>>>>
                    <segmentedControl opaque="NO" contentMode="scaleToFill" fixedFrame="YES" contentHorizontalAlignment="left"
                    contentVerticalAlignment="top" segmentControlStyle="plain" selectedSegmentIndex="0"
                    translatesAutoresizingMaskIntoConstraints="NO" id="fuv-VE-ZxP">
                        <rect key="frame" x="226" y="246" width="121" height="29"/>
                        <animations/>
<<<<<<<HEAD
                        <segments>
                            <segment title="First"/>
=======
                            <segment title="No.1"/>
>>>>>>>
                            <segment title="Second"/>
                        </segments>
                    </segmentedControl>
```

⚠ 难以复用 View 和继承

- 使用 XIB 做可复用的视图构建
- View 组合 > View 继承
- 逻辑复用 > UI 复用
- **UI is cheap**

  简单视图，最后再考虑复用

  不能因为长的很像就硬扯关系

XXNibBridge

github.com/sunnyxx/XXNibBridge

- 将一个 XIB 桥接到 Storyboard / XIB 中
- 方便 IB View 的组合和复用
- 0 代码接入

Demo

使用 XXNibBridge 桥接 XIB

github.com/sunnyxx/IBWeChat

视觉是人类获取信息最快速的方式

这是一张照片的描述

- 一个染了红色头发的妹子
- 斜上方 45° 清纯可爱风
- 穿着白色半透明上衣，透出里面红色的 bra
- Cup 目测 D+

IB 可视化的优势


```objc
[self setSelectionStyle:UITableViewCellSelectionStyleNone];
self.backgroundColor = [UIColor clearColor];
self.contentView.backgroundColor = [UIColor clearColor];

_cellBoxView = [[UIView alloc] initWithFrame:CGRectMake(10,10,self.contentView.widt
_cellBoxView.autoresizingMask = UIViewAutoresizingFlexibleWidth;
_cellBoxView.backgroundColor = [UIColor whiteColor];
_cellBoxView.layer.borderColor = [UIColor FD_borderGrayColor].CGColor;
_cellBoxView.layer.borderWidth = 0.5;
_cellBoxView.layer.cornerRadius = 2;
[self.contentView addSubview:_cellBoxView];

_labelTitle = [[TTTAttributedLabel alloc] initWithFrame:
                CGRectMake(kFDForumListTableViewTopCellLeftWidth, kFDForumListTableV
_labelTitle.font = [UIFont customFontOfSize:15.0f];
_labelTitle.textColor = [UIColor FD_textColor];
_labelTitle.lineBreakMode = NSLineBreakByTruncatingTail;
_labelTitle.numberOfLines = kFDForumListTableViewTopCellContentNumberOfLines;
_labelTitle.backgroundColor = [UIColor clearColor];
[_cellBoxView addSubview:_labelTitle];

_bottomView = [[UIView alloc] initWithFrame:CGRectMake(kFDForumListTableViewTopCell
_bottomView.backgroundColor = [UIColor clearColor];
[_cellBoxView addSubview:_bottomView];

_nameLabel = [[UILabel alloc] initWithFrame:CGRectZero];
_nameLabel.font = [UIFont customFontOfSize:13];
_nameLabel.textColor = [UIColor FD_colorWithHex:0xff9e9d9d];
_nameLabel.numberOfLines = 0;
_nameLabel.backgroundColor = [UIColor clearColor];
[_bottomView addSubview:_nameLabel];

UIImage *userNameIsAdminImage = [UIImage imageNamed:@"forum_list_admin.png"];
_userNameIsAdminImageView = [[UIImageView alloc] initWithImage:userNameIsAdminImage
_userNameIsAdminImageView.frame = CGRectMake(0, 5, userNameIsAdminImage.size.width,
[_bottomView addSubview:_userNameIsAdminImageView];
_userNameIsAdminImageView.hidden = YES;
_timeLabel = [[UILabel alloc] initWithFrame:CGRectZero];
_timeLabel.font = [UIFont customFontOfSize:13];
_timeLabel.textColor = [UIColor FD_colorWithHex:0xff9e9d9d];
_timeLabel.numberOfLines = 0;
_timeLabel.backgroundColor = [UIColor clearColor];
[_bottomView addSubview:_timeLabel];


_replyLabel = [[UILabel alloc] initWithFrame:CGRectZero];
_replyLabel.font = [UIFont customFontOfSize:13];
_replyLabel.textColor = [UIColor FD_colorWithHex:0xffb1b1b1];
_replyLabel.numberOfLines = 0;
_replyLabel.backgroundColor = [UIColor clearColor];
[_bottomView addSubview:_replyLabel];
```
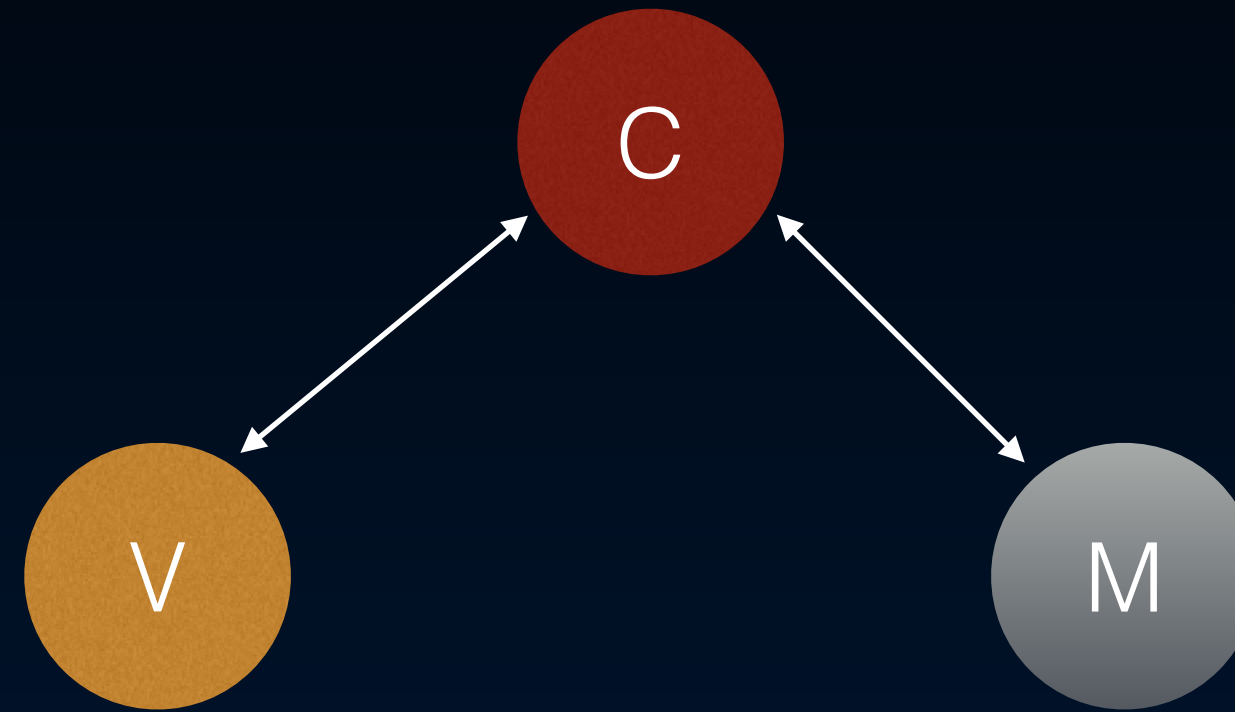
在 MVC 架构上， IB 比代码更有优势

使用代码在 View Controller 中构建 View

```swift
override func viewDidLoad() {
    super.viewDidLoad()

    let label = UILabel()
    label.font = UIFont.systemFontOfSize(13)
    label.numberOfLines = 0
    label.text = "123"
    label.translatesAutoresizingMaskIntoConstraints = false
    self.view.addSubview(label)

    self.view.addConstraint(NSLayoutConstraint(item: label, attribute: .CenterX,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterX, multiplier: 1, constant:
        0))
    self.view.addConstraint(NSLayoutConstraint(item: label, attribute: .CenterY,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterY, multiplier: 1, constant:
        0))

    let button = UIButton(type: .Custom)
    button.setTitle("action", forState: .Normal)
    button.tintColor = UIColor.redColor()
    button.addTarget(self, action: "buttonAction:", forControlEvents: .TouchUpInside)
    button.translatesAutoresizingMaskIntoConstraints = false
    self.view.addSubview(button)

    self.view.addConstraint(NSLayoutConstraint(item: button, attribute: .CenterX,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterX, multiplier: 1, constant:
        0))
    self.view.addConstraint(NSLayoutConstraint(item: button, attribute: .CenterY,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterY, multiplier: 1, constant:
        0))

}
```

- Creation
- Configurations
- View hierarchy
- Layout
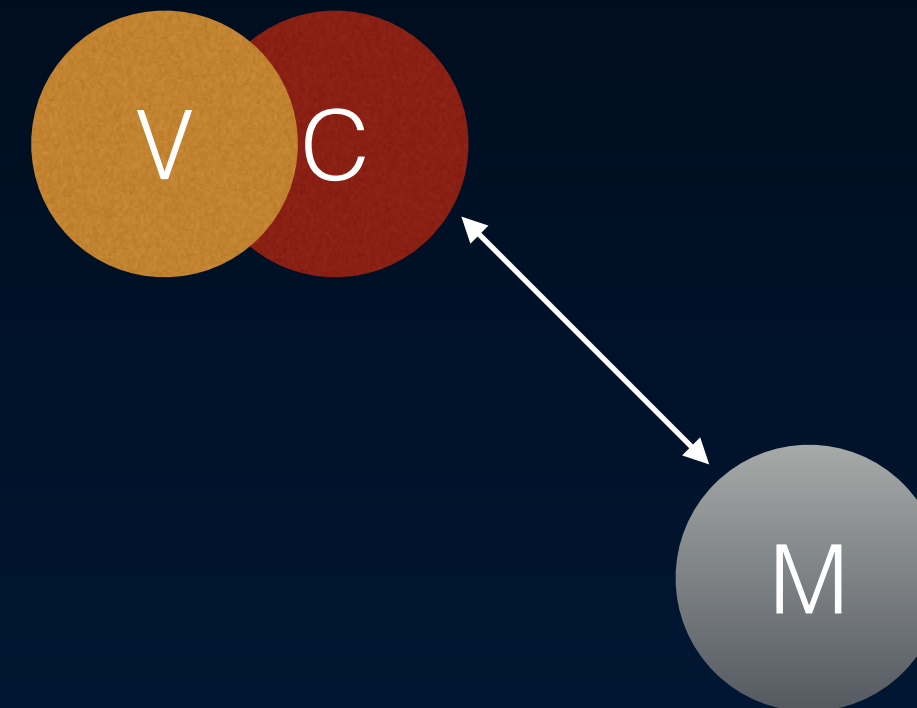- Action bindings

⚠ View controller 抢占了 View 的职责

M - VC

```swift
override func viewDidLoad() {
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    self.view.addConstraint(NSLayoutConstraint(item: label, attribute: .CenterX,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterX, multiplier: 1, constant:
        0))
    self.view.addConstraint(NSLayoutConstraint(item: label, attribute: .CenterY,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterY, multiplier: 1, constant:
        0))

    let button = UIButton(type: .Custom)
    button.setTitle("action", forState: .Normal)
    button.tintColor = UIColor.redColor()
    button.addTarget(self, action: "buttonAction:", forControlEvents: .TouchUpInside)
    button.translatesAutoresizingMaskIntoConstraints = false
    self.view.addSubview(button)

    self.view.addConstraint(NSLayoutConstraint(item: button, attribute: .CenterX,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterX, multiplier: 1, constant:
        0))
    self.view.addConstraint(NSLayoutConstraint(item: button, attribute: .CenterY,
        relatedBy: .Equal, toItem: self.view, attribute: .CenterY, multiplier: 1, constant:
        0))

}
```
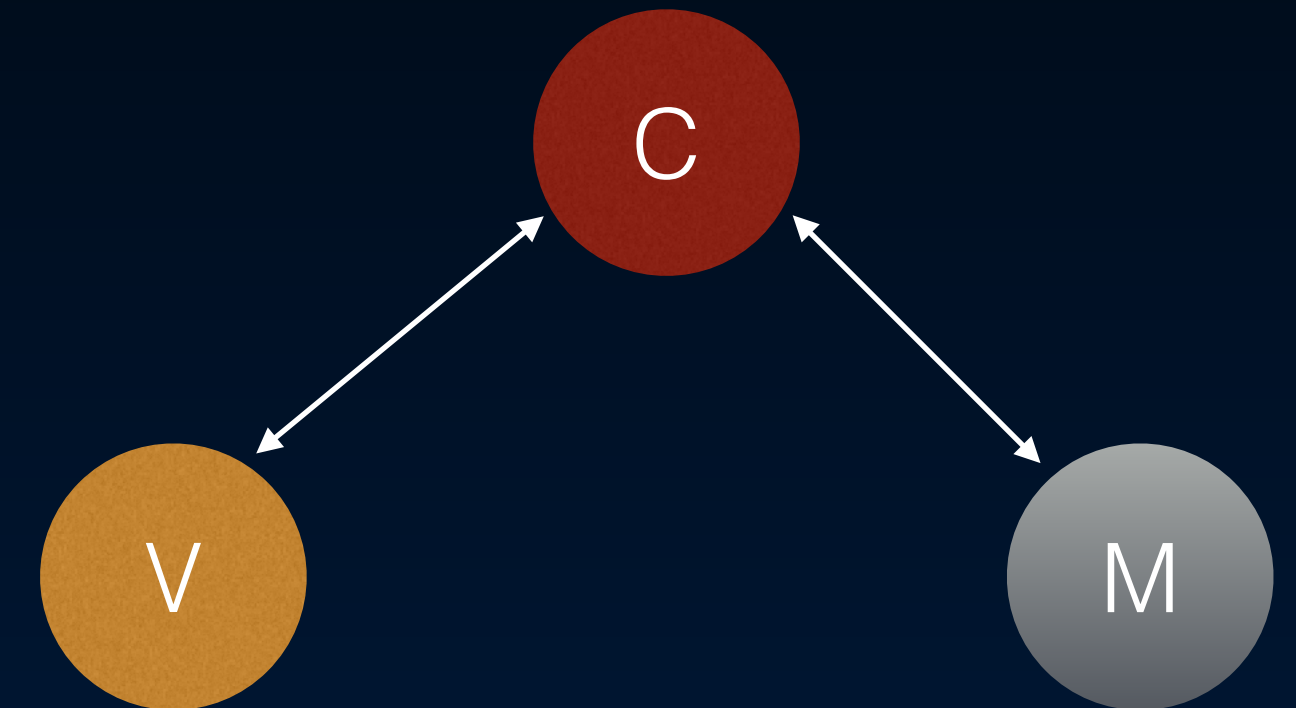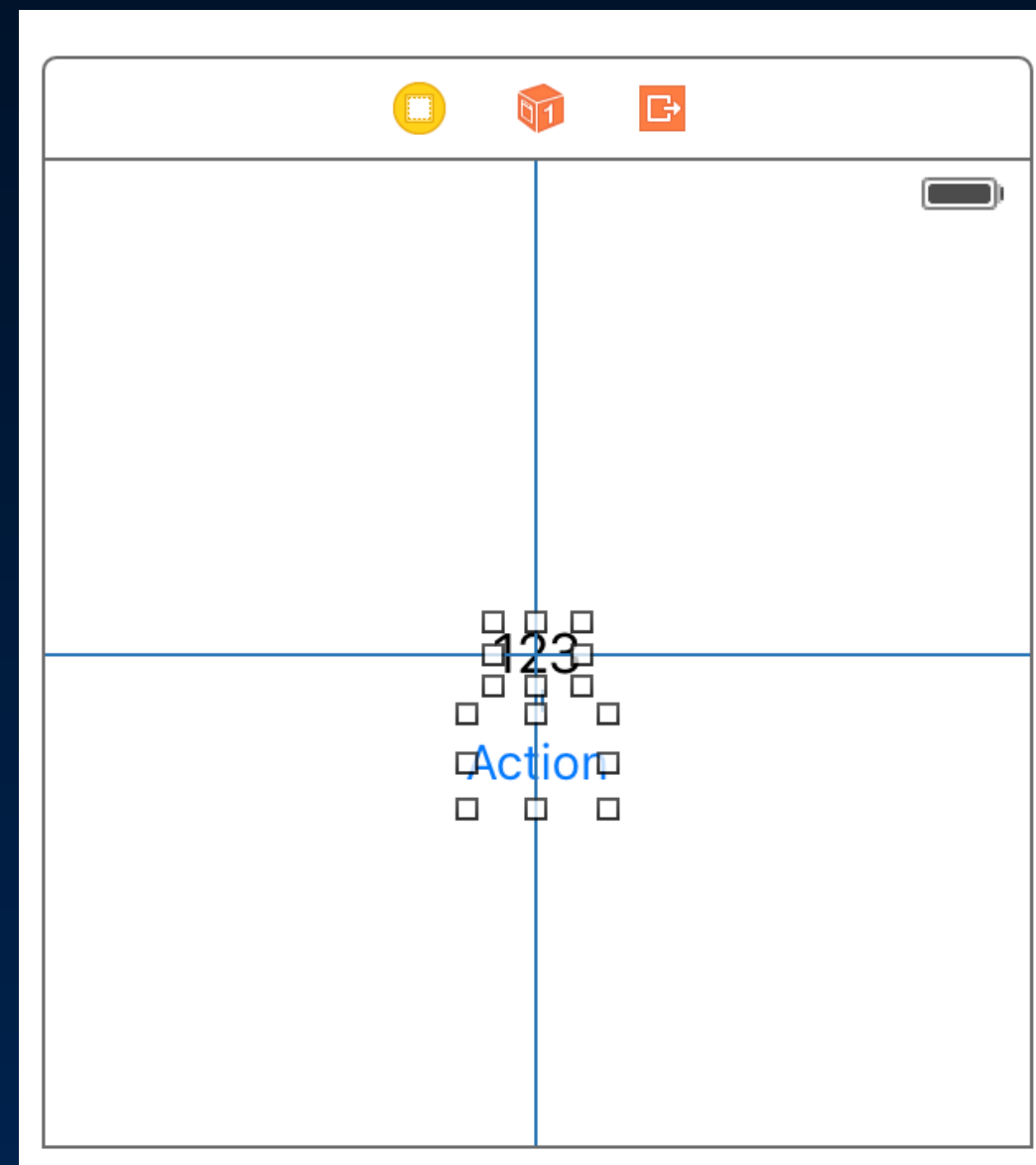
IB 让 MVC 划分更加明确

IB 作为 MVC 的 View

- 负责 UI 控件的创建、属性配置
- 负责 Auto Layout
- 使得 Controller 只保留业务逻辑性代码

```
@IBOutlet var label: UILabel!
@IBOutlet var button: UIButton!
@IBAction func buttonAction(sender: AnyObject!) {

}
```
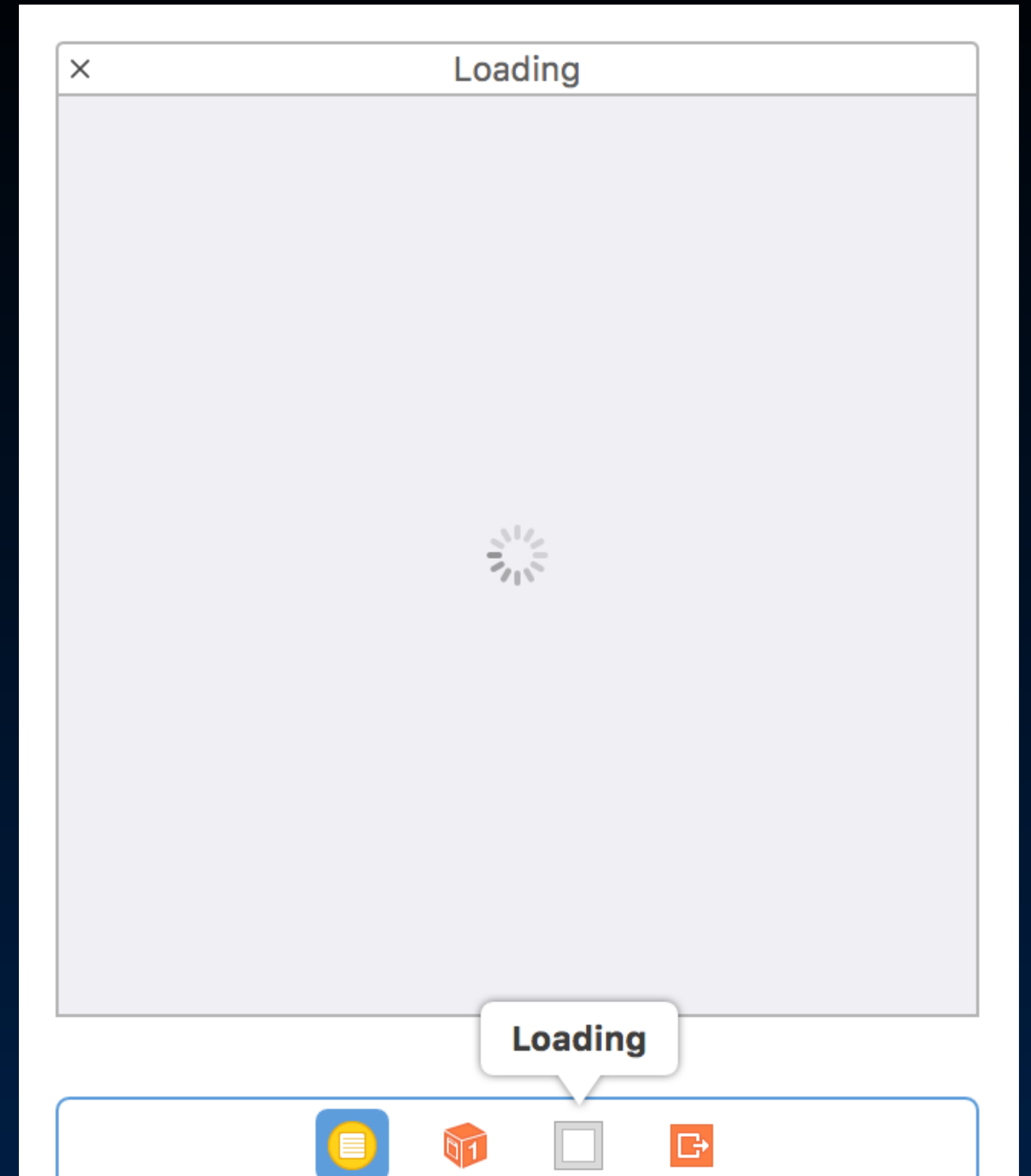
Less Code, Less Bug

代码减少
40%

UI 构建时间减少
50%

标准化 UI 创建
√

Apple 会逐渐强化 IB

- Size Classes
- @IBDesignable, @IBInspectable
- Storyboard Reference
- Storyboard View Object Preview
- Stack View
- …

Demo

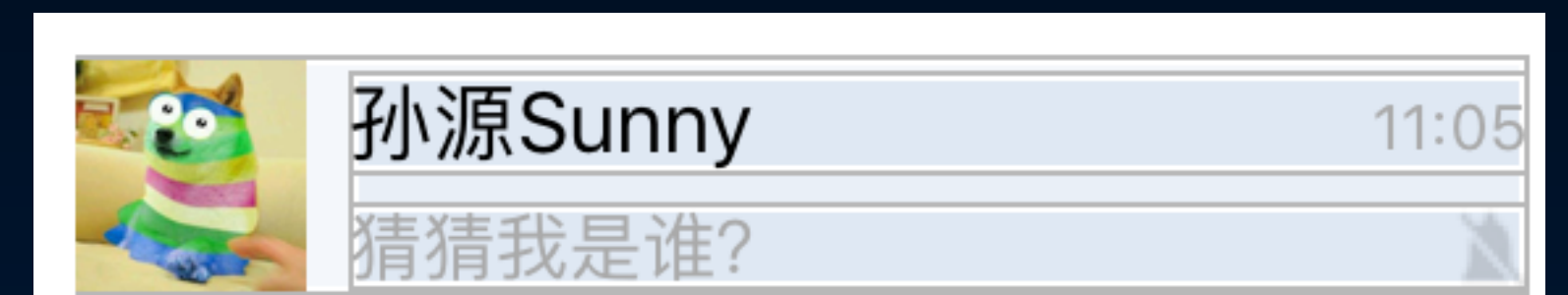使用 Storyboard 搭建微信 UI 框架

github.com/sunnyxx/IBWeChat

Open source

- XXNibBridge

- FDFullscreenPopGesture

- UITableView+FDTemplateLayoutCell

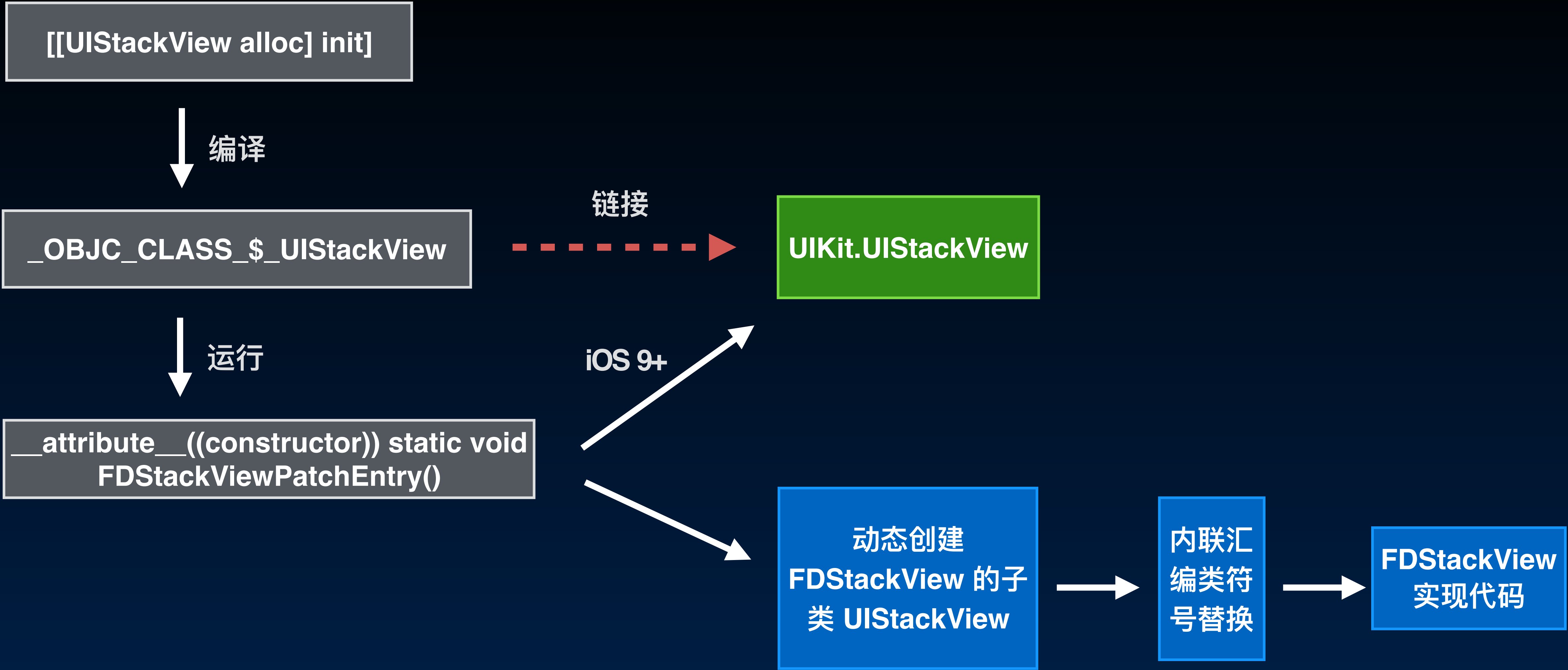- UIView+FDCollapsibleConstraints

- **FDStackView**

github.com/forkingdog

FDStackView

- 让 iOS 9 的 UIStackView 最低支持 iOS 6

- 直接使用 UIStackView，不用 import 任何 header

- 支持 Storyboard 预览

- 贴近系统 StackView 的实现

- Now in alpha

```objc
// Constructors are called after all classes have been loaded.
__attribute__((constructor)) static void FDStackViewPatchEntry(void) {
    static dispatch_once_t onceToken;
    dispatch_once(&onceToken, ^{
        @autoreleasepool {

            // >= iOS9.
            if (objc_getClass("UIStackView")) {
                return;
            }

            Class *stackViewClassLocation = NULL;

#if TARGET_CPU_ARM
            __asm("movw %0, :lower16:(_OBJC_CLASS_UIStackView-(LPC0+4))\n"
                  "movt %0, :upper16:(_OBJC_CLASS_UIStackView-(LPC0+4))\n"
                  "LPC0: add %0, pc" : "=r"(stackViewClassLocation));
#elif TARGET_CPU_ARM64
            __asm("adrp %0, L_OBJC_CLASS_UIStackView@PAGE\n"
                  "add  %0, %0, L_OBJC_CLASS_UIStackView@PAGEOFF" : "=r"(stackViewClassLocation));
#elif TARGET_CPU_X86_64
            __asm("leaq L_OBJC_CLASS_UIStackView(%%rip), %0" : "=r"(stackViewClassLocation));
#elif TARGET_CPU_X86
            void *pc = NULL;
            __asm("calll L0\n"
                  "L0: popl %0\n"
                  "leal _OBJC_CLASS_UIStackView-L0(%0), %1" : "=r"(pc), "=r"(stackViewClassLocation));
#else
#error Unsupported CPU
#endif

            if (stackViewClassLocation && !*stackViewClassLocation) {
                Class class = objc_allocateClassPair(FDStackView.class, "UIStackView", 0);
                if (class) {
                    objc_registerClassPair(class);
                    *stackViewClassLocation = class;
                }
            }
        }
    });
}
```
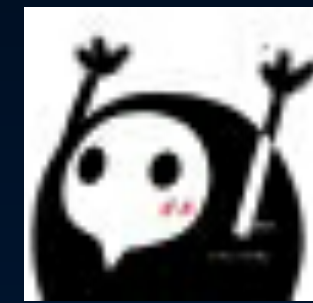
关于开源，我想说...

Thanks