

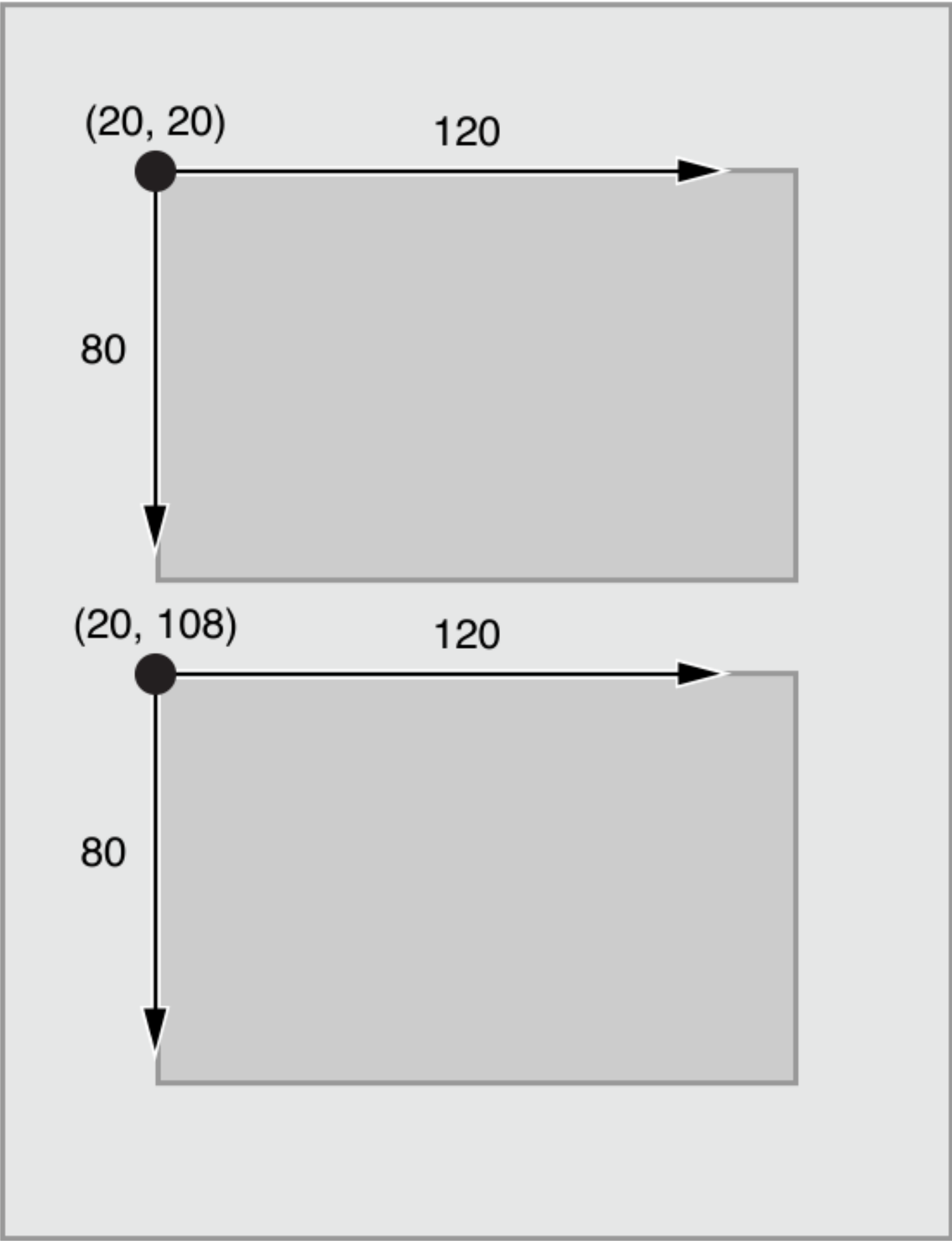
STRV

AUTO LAYOUT

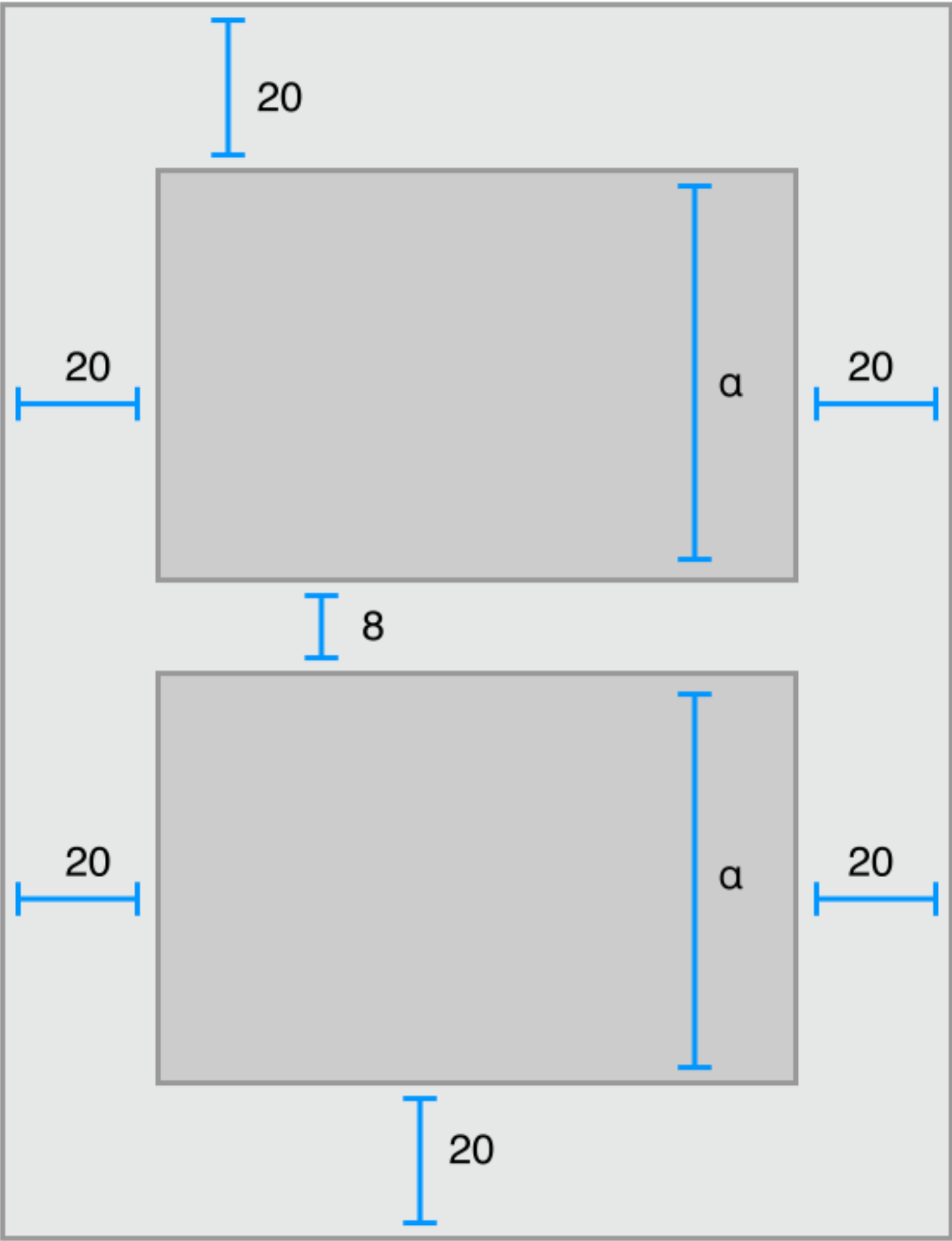
Jiri Ostatnicky, iOS Developer at STRV

STRV

FRAME-BASED LAYOUT VS. AUTO LAYOUT



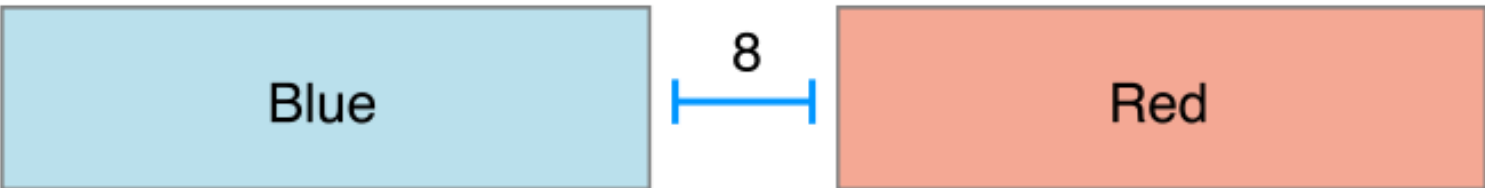
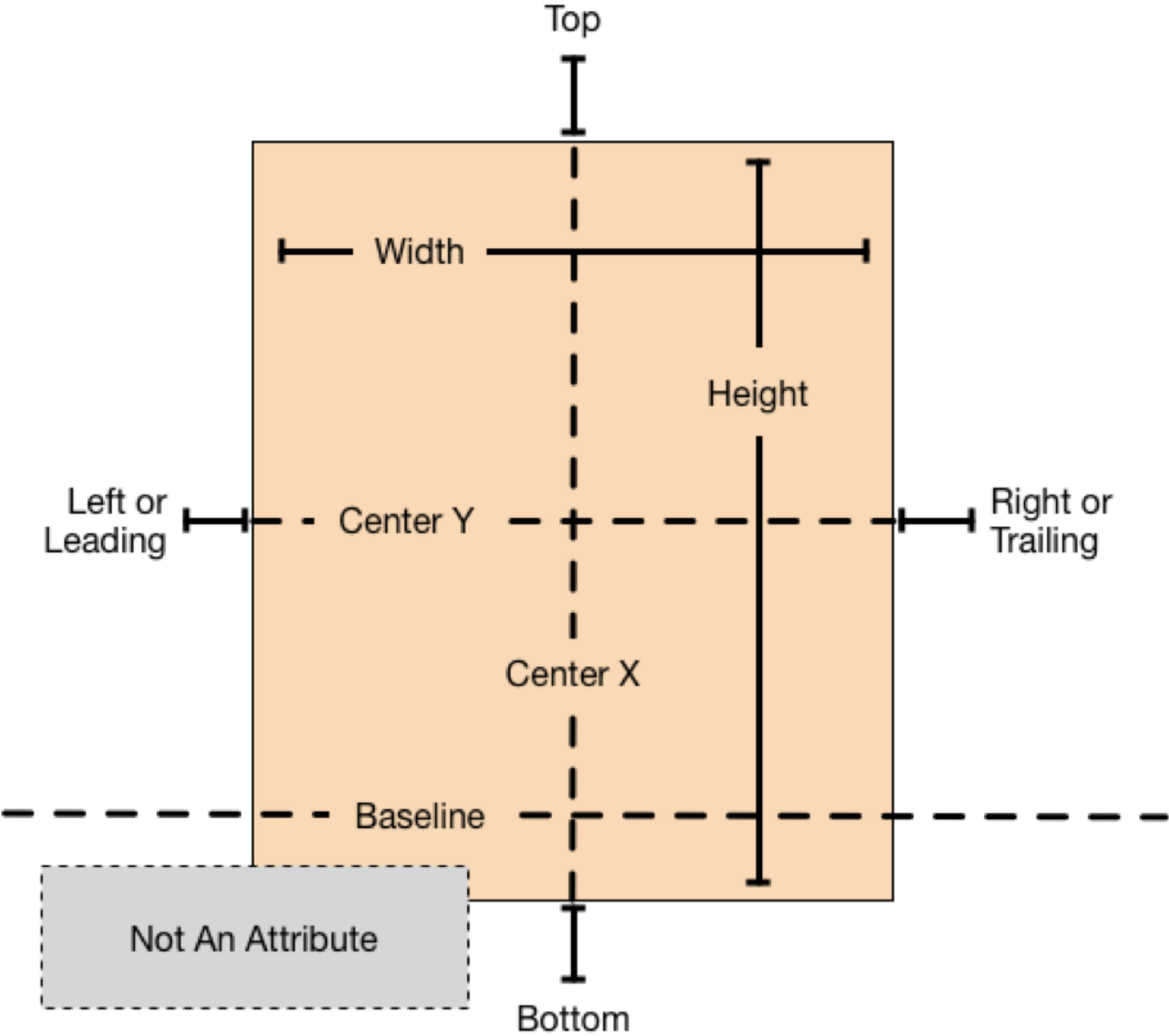
Frame-Based Layout



Auto Layout

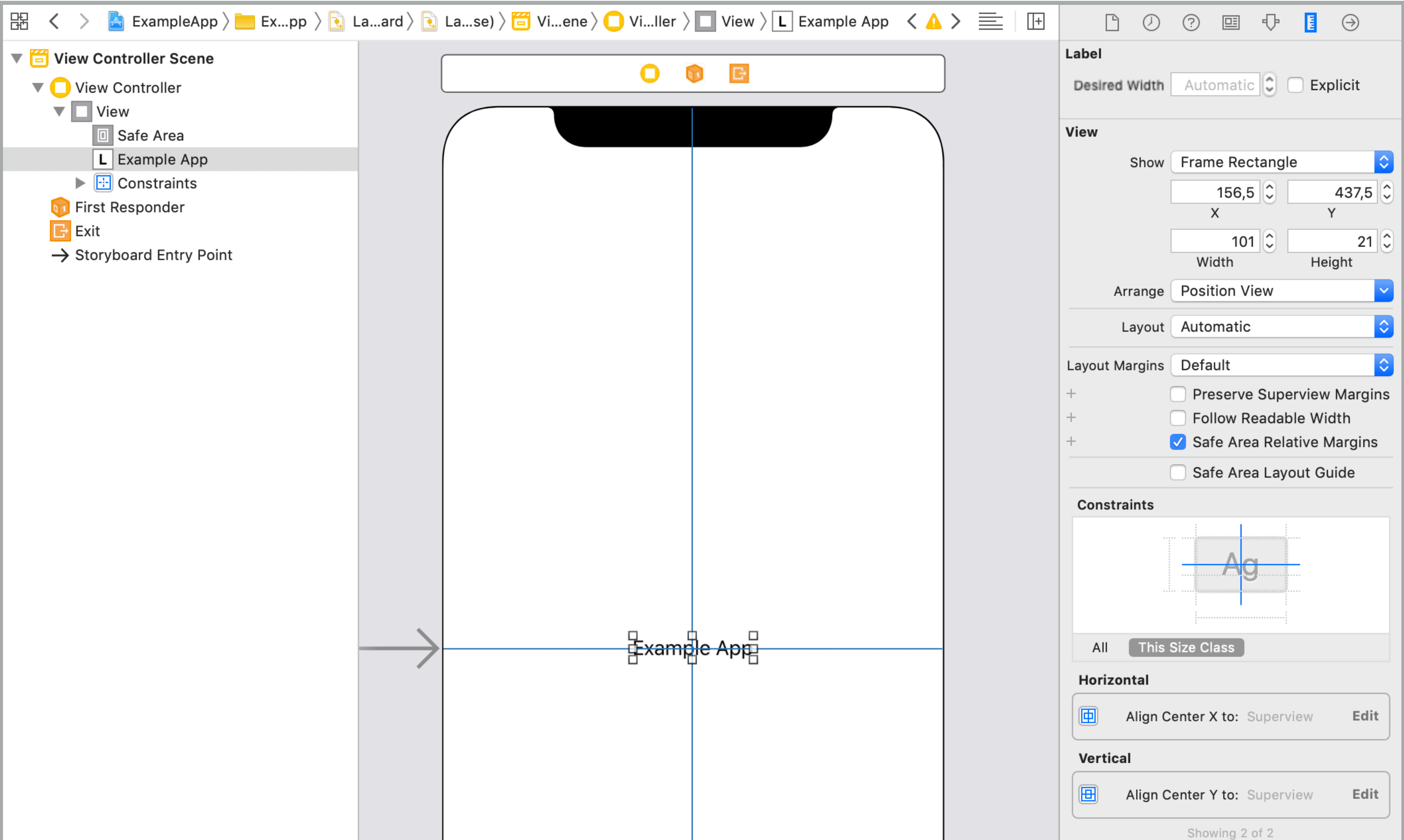
CONSTRAINTS

https://developer.apple.com/library/archive/documentation/UserExperience/Conceptual/AutolayoutPG/AnatomyofaConstraint.html#//apple_ref/doc/uid/TP40010853-CH9-SW1



$$\underbrace{\text{RedView}}_{\text{Item 1}}.\underbrace{\text{Leading}}_{\text{Attribute 1}} = \underbrace{1.0}_{\text{Multiplier}} \times \underbrace{\text{BlueView}}_{\text{Item 2}}.\underbrace{\text{trailing}}_{\text{Attribute 2}} + \underbrace{8.0}_{\text{Constant}}$$

EXAMPLE: TEXT IN LAUNCH SCREEN



AUTO LAYOUT

Auto Layout dynamically calculates the size and position of all the views in your view hierarchy, based on constraints placed on those views.

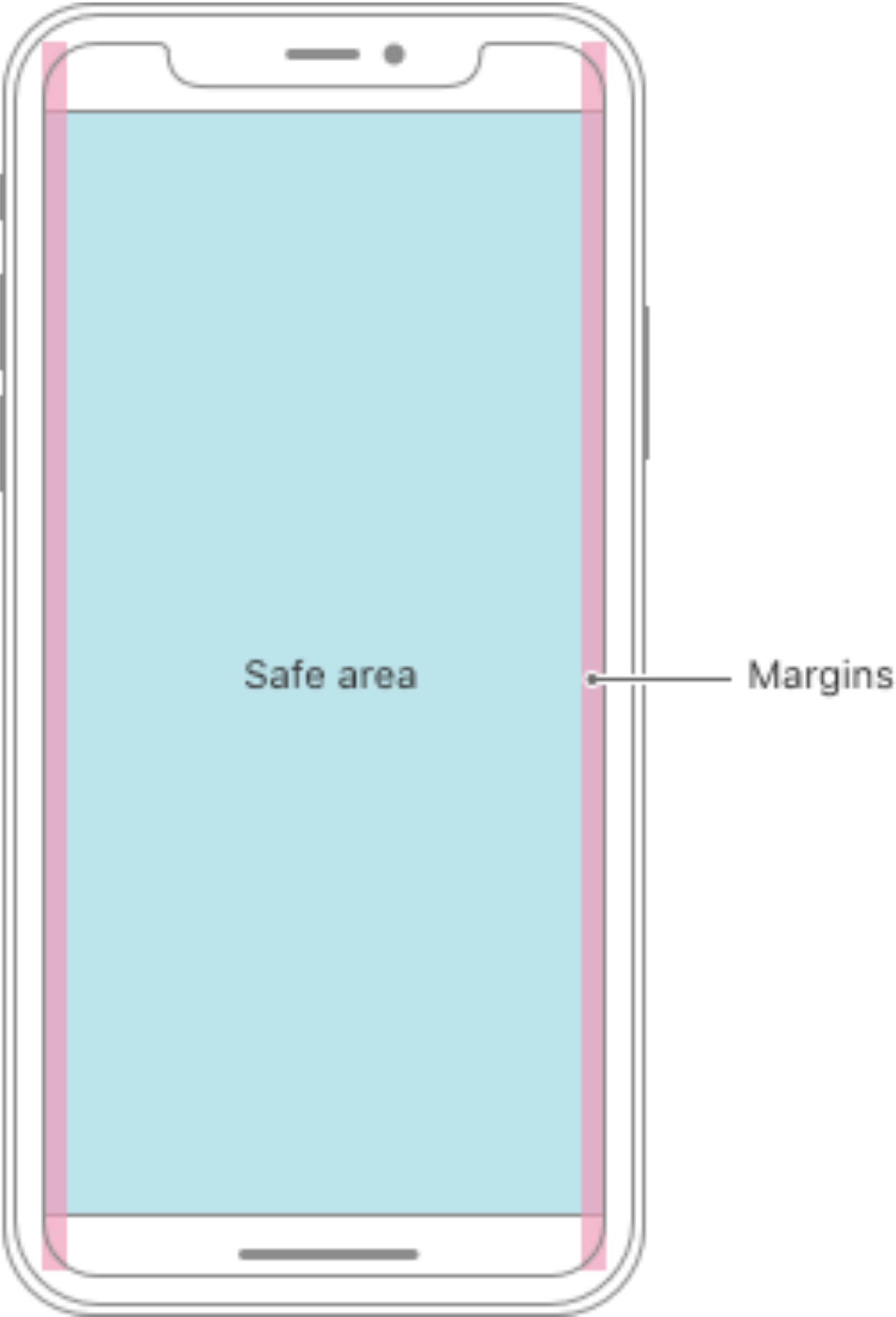
External changes

- When the size or shape of your superview changes
- *The device rotates, support different screen sizes*

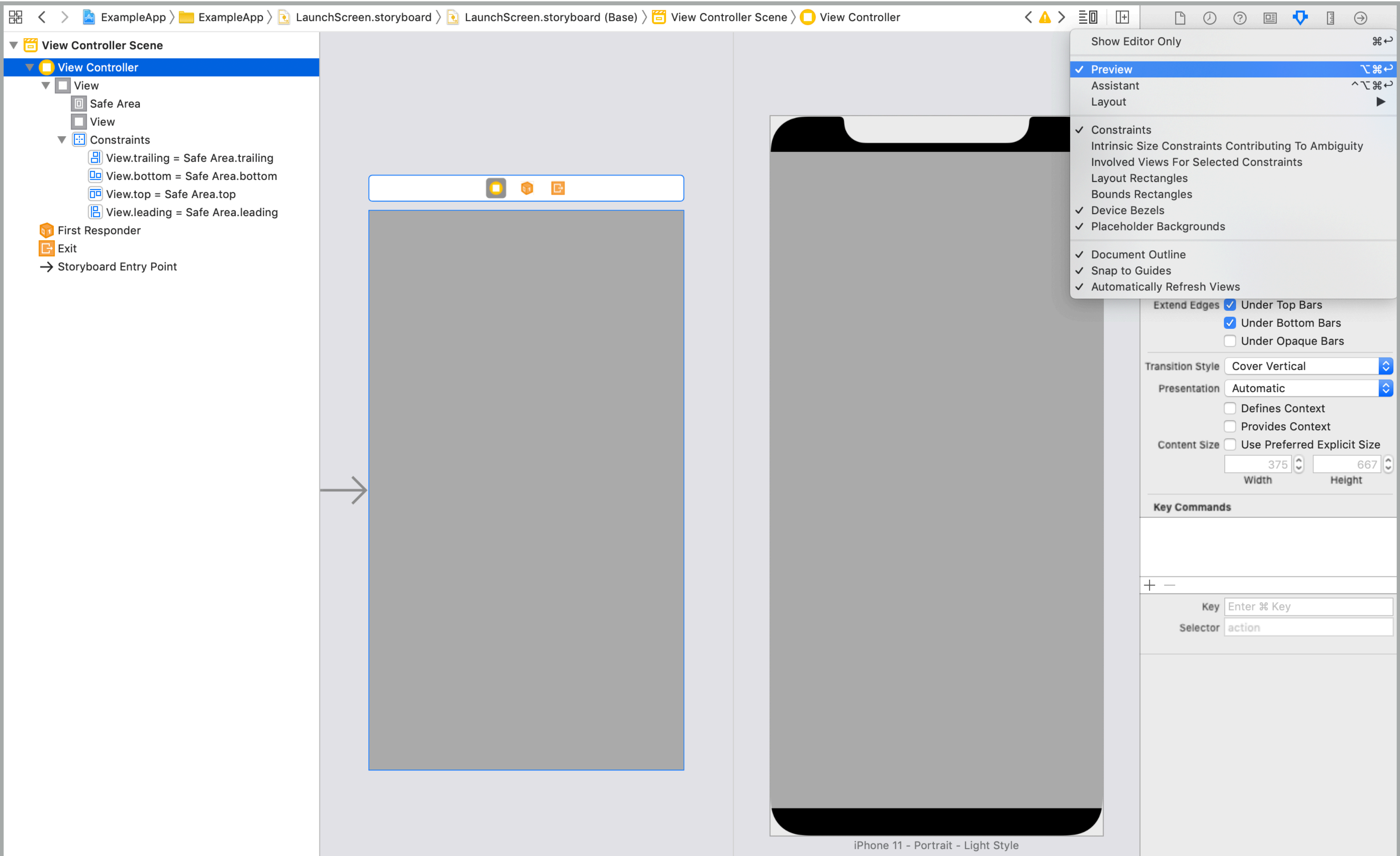
Internal changes

- When the size of the views or controls in your user interface change
- *The content displayed by the app changes, Dynamic Fonts*

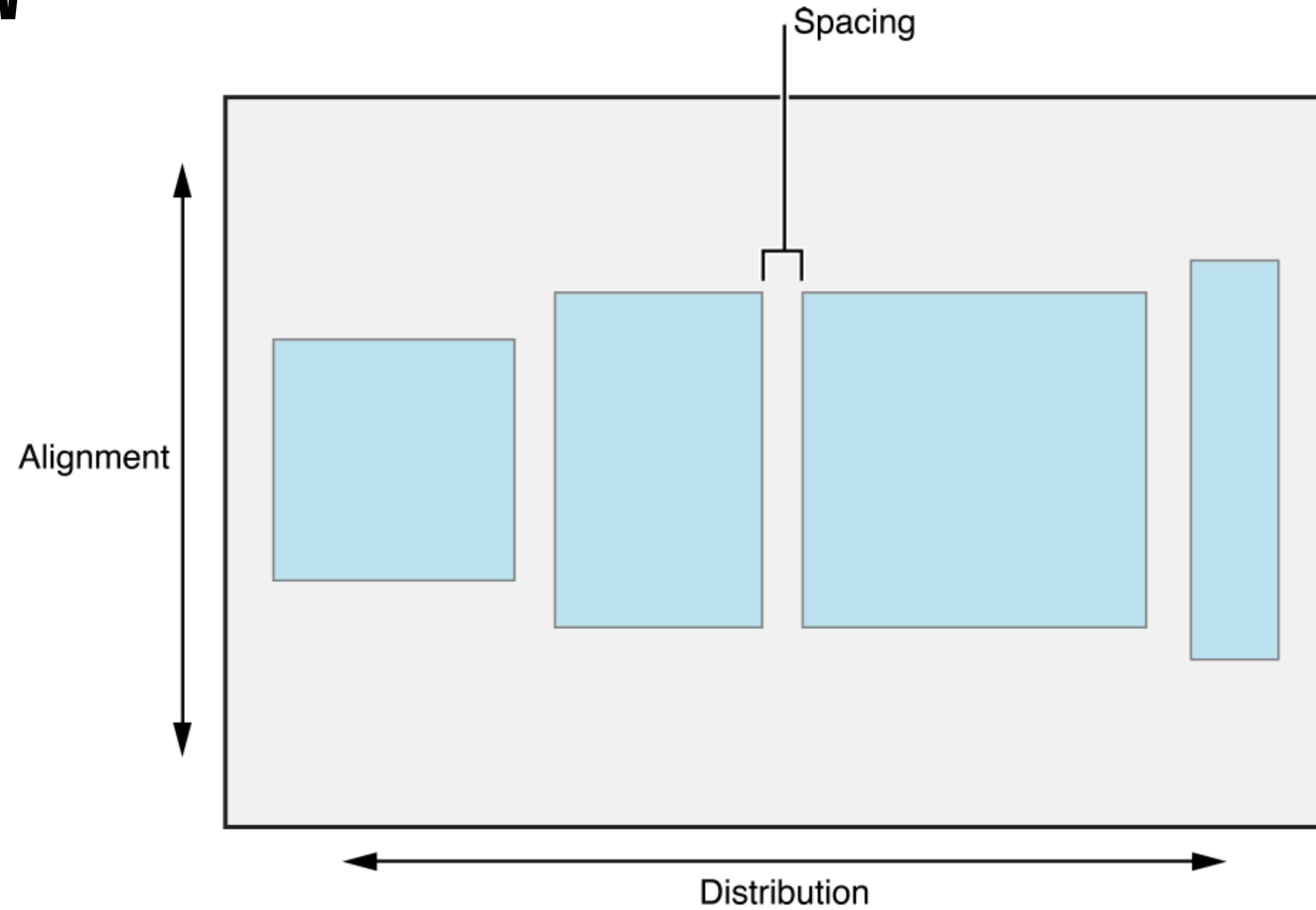
SAFE AREA



SAFE AREA



UISTACKVIEW



INTRINSIC CONTENT SIZE

- All views have an intrinsic content size, which refers to the amount of space the view needs for its content to appear in an ideal state.
- For example, the intrinsic content size of a **UILabel** will be the size of the text it contains using whatever font you have configured it to use.

<https://www.hackingwithswift.com/example-code/uikit/what-is-a-views-intrinsic-content-size>

CONTENT HUGGING & CONTENT COMPRESSION RESISTANCE PRIORITIES

Content hugging priority

- Sets the priority with which a view resists being made larger than its intrinsic size. Setting a larger value to this priority indicates that we don't want the view to grow larger than its content

Content compression resistance priority

- Sets the priority with which a view resists being made smaller than its intrinsic size. Setting a higher value means that we don't want the view to shrink smaller than the intrinsic content size

<https://medium.com/@abhimuralidharan/ios-content-hugging-and-content-compression-resistance-priorities-476fb5828ef>

TRANSLATES AUTORESIZING MASK INTO CONSTRAINTS

- If you want to use Auto Layout to dynamically calculate the size and position of your view, you must set this property to **false**, and then provide a non ambiguous, nonconflicting set of constraints for the view.
- If you add views in Interface Builder, the system automatically sets this property to false
- <https://developer.apple.com/documentation/uikit/uiview/1622572-translatesautoresizingmaskintoco>

```
let label = UILabel()  
label.text = "Text"  
label.textColor = .red  
label.numberOfLines = 0  
label.translatesAutoresizingMaskIntoConstraints = false // IMPORTANT!  
view.addSubview(label)
```

ADDITIONAL SAFE AREA INSETS

- Use this property to adjust the safe area insets of this view controller's views by the specified amount.

```
// Custom left and right margin for safe area
additionalSafeAreaInsets = UIEdgeInsets(top: 0, left: 20, bottom: 0,
right: 20)
```

- <https://developer.apple.com/documentation/uikit/uiviewcontroller/2902284-additionalsafeareainsets>
- https://developer.apple.com/documentation/uikit/uiview/positioning_content_relative_to_the_safe_area

THAT'S IT

Jiri Ostatnický

jiri.ostatnický@strv.com

STRV

REFERENCE

- **UIKit** <https://developer.apple.com/documentation/uikit>
- **Auto Layout** https://developer.apple.com/library/archive/documentation/UserExperience/Conceptual/AutolayoutPG/index.html#//apple_ref/doc/uid/TP40010853-CH7-SW1
- **Content Hugging and Content Compression Resistance Priorities** <https://medium.com/@abhimuralidharan/ios-content-hugging-and-content-compression-resistance-priorities-476fb5828ef>

QUESTIONS

STRV

STRV