

#WWDC18

# What's New in User Notifications

Session 710

Kritarth Jain, iOS Notifications

Teja Kondapalli, iOS Notifications

Grouped notifications

Notification content extensions

Notification management

Provisional authorization

Critical alerts

# Grouped Notifications

9:41



9:41

Wednesday, June 6



NOTIFICATIONS

now

**Video Post**

You have 6 likes on your post



MESSAGES

now

**Sarah Jones**

Lets grab lunch?



CALENDAR

Tomorrow, 8:00 PM

**WWDC Celebrations**

Invitation From Jane Doe

Tomorrow at 8:00 PM



NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



MESSAGES

now

**Sarah Jones**

Hey



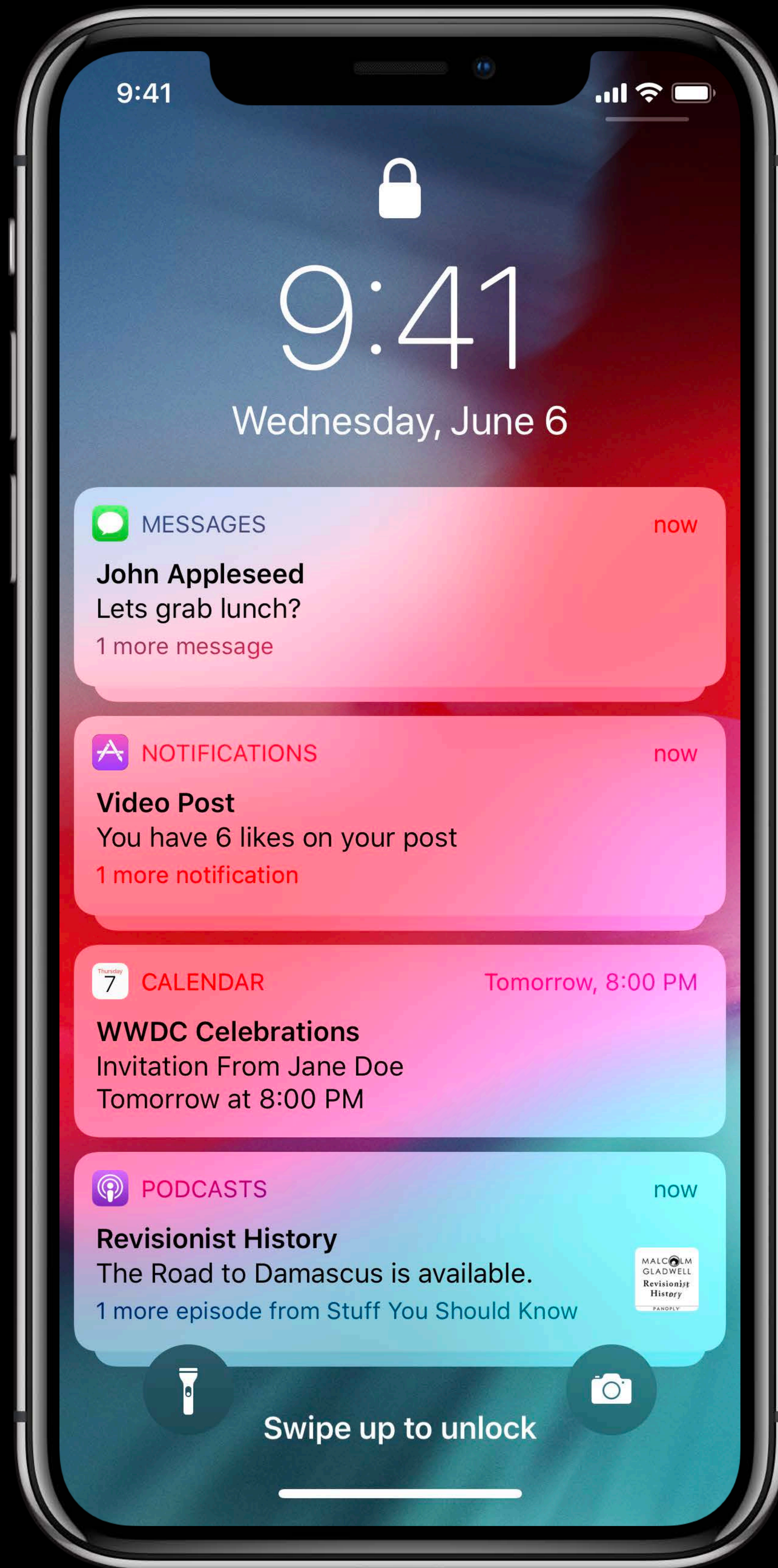
PODCASTS

now

**Revisionist History**

Food Fight is available





NEW

# Grouped Notifications

# Grouped Notifications

Automatic grouping

# Grouped Notifications

Automatic grouping

Thread identifier



```
// Grouped Notifications
// Thread identifier

let content = UNMutableNotificationContent()
content.title = "New Photo"
content.body = "Jane Doe posted a new photo"
content.threadIdentifier = "thread-identifier"
```

```
// Grouped Notifications
// Thread identifier

let content = UNMutableNotificationContent()
content.title = "New Photo"
content.body = "Jane Doe posted a new photo"
content.threadIdentifier = "thread-identifier"
```

```
// Grouped Notifications
// Thread identifier

{
  "aps" : {
    "alert" : {
      "title" : "New Photo",
      "body" : "Jane Doe posted a new photo",
      "thread-id" : "thread-identifier",
    },
  },
}
```

```
// Grouped Notifications
// Thread identifier

{
  "aps" : {
    "alert" : {
      "title" : "New Photo",
      "body" : "Jane Doe posted a new photo",
      "thread-id" : "thread-identifier",
    },
  },
}
```

# Grouped Notifications

Thread identifier

# Grouped Notifications

Thread identifier

Content extension forwarding

# Grouped Notifications

Thread identifier

Content extension forwarding

Hidden preview grouping

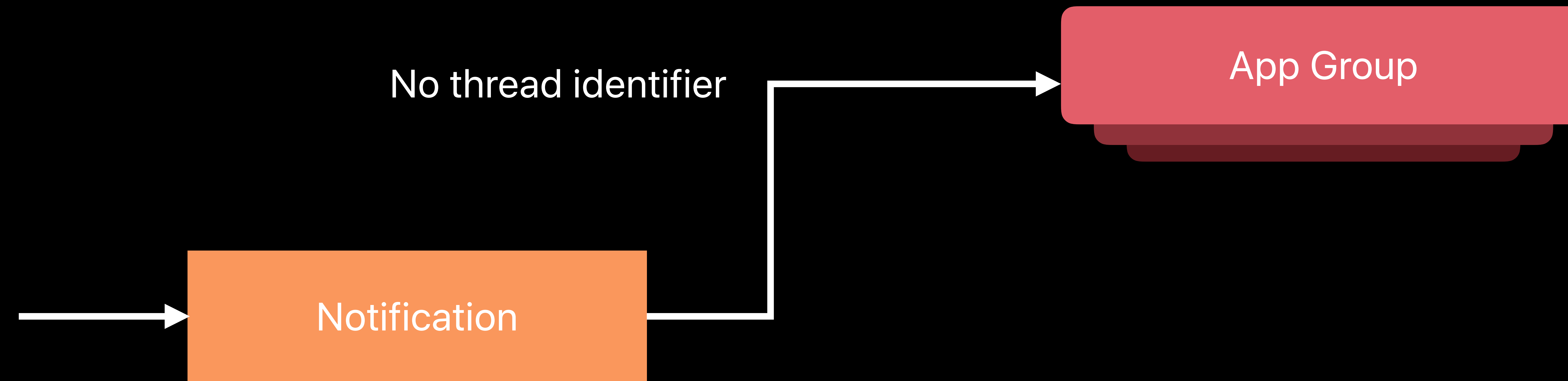
# Grouped Notifications



# Grouped Notifications



# Grouped Notifications



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Kevin Dolan just posted a new photo



[1 more notification](#)



Swipe up to unlock



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Kevin Dolan just posted a new photo



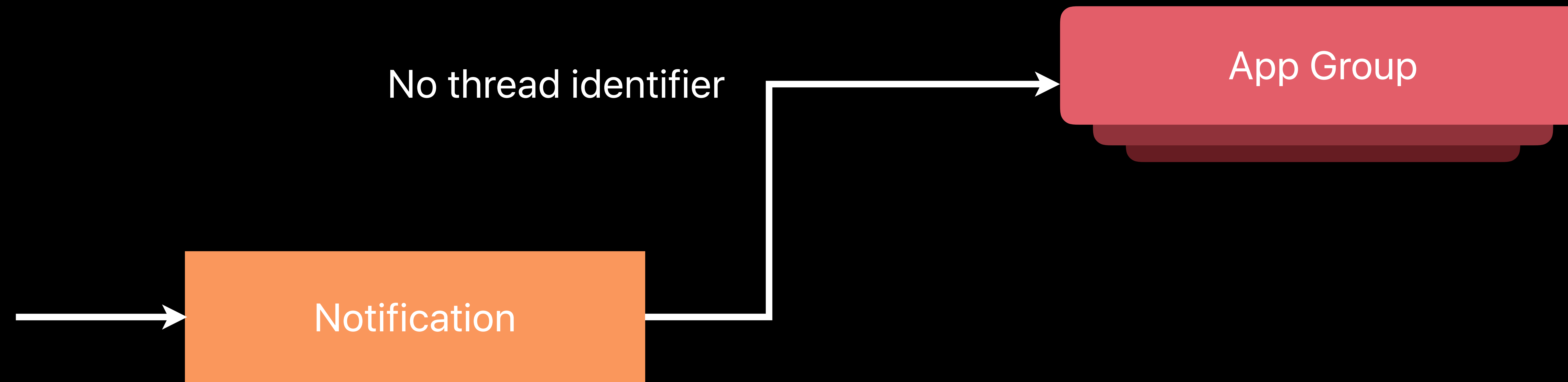
[1 more notification](#)



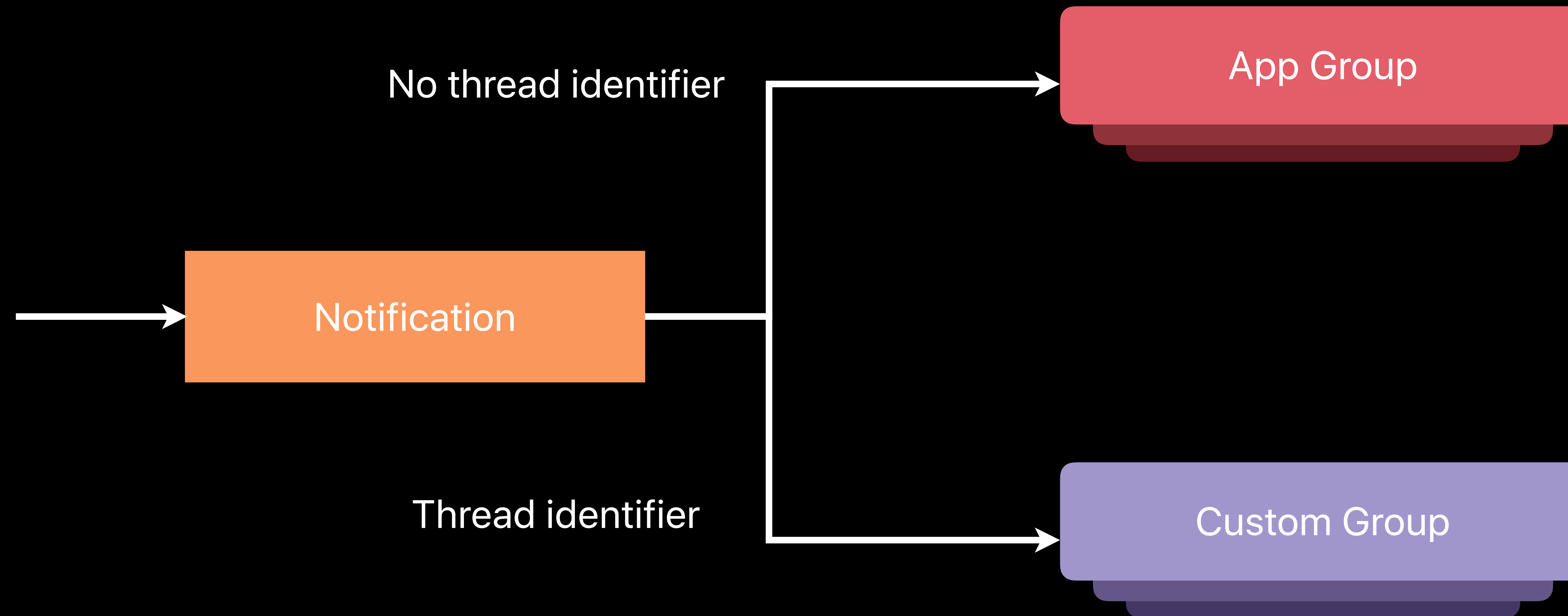
Swipe up to unlock



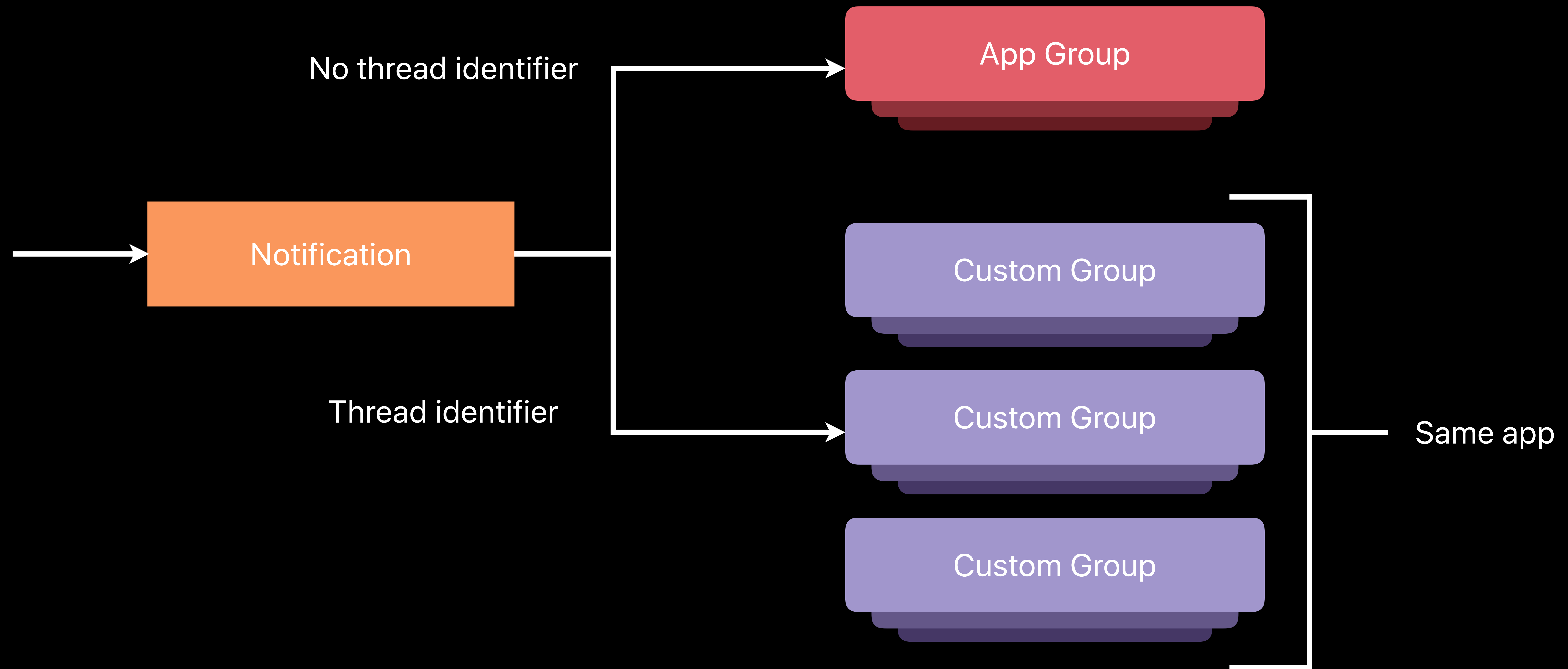
# Grouped Notifications



# Grouped Notifications



# Grouped Notifications



9:41



9:41

Wednesday, June 6



MESSAGES

now

**Sarah Jones**

How's the presentation coming along?

1 more message

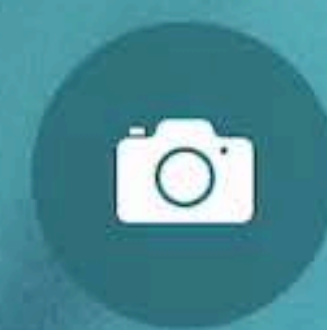


MESSAGES

now

**John Appleseed**

Hey



Swipe up to open



9:41



9:41

Wednesday, June 6



MESSAGES

now

**Sarah Jones**

How's the presentation coming along?

1 more message

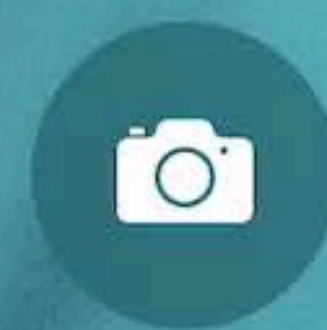


MESSAGES

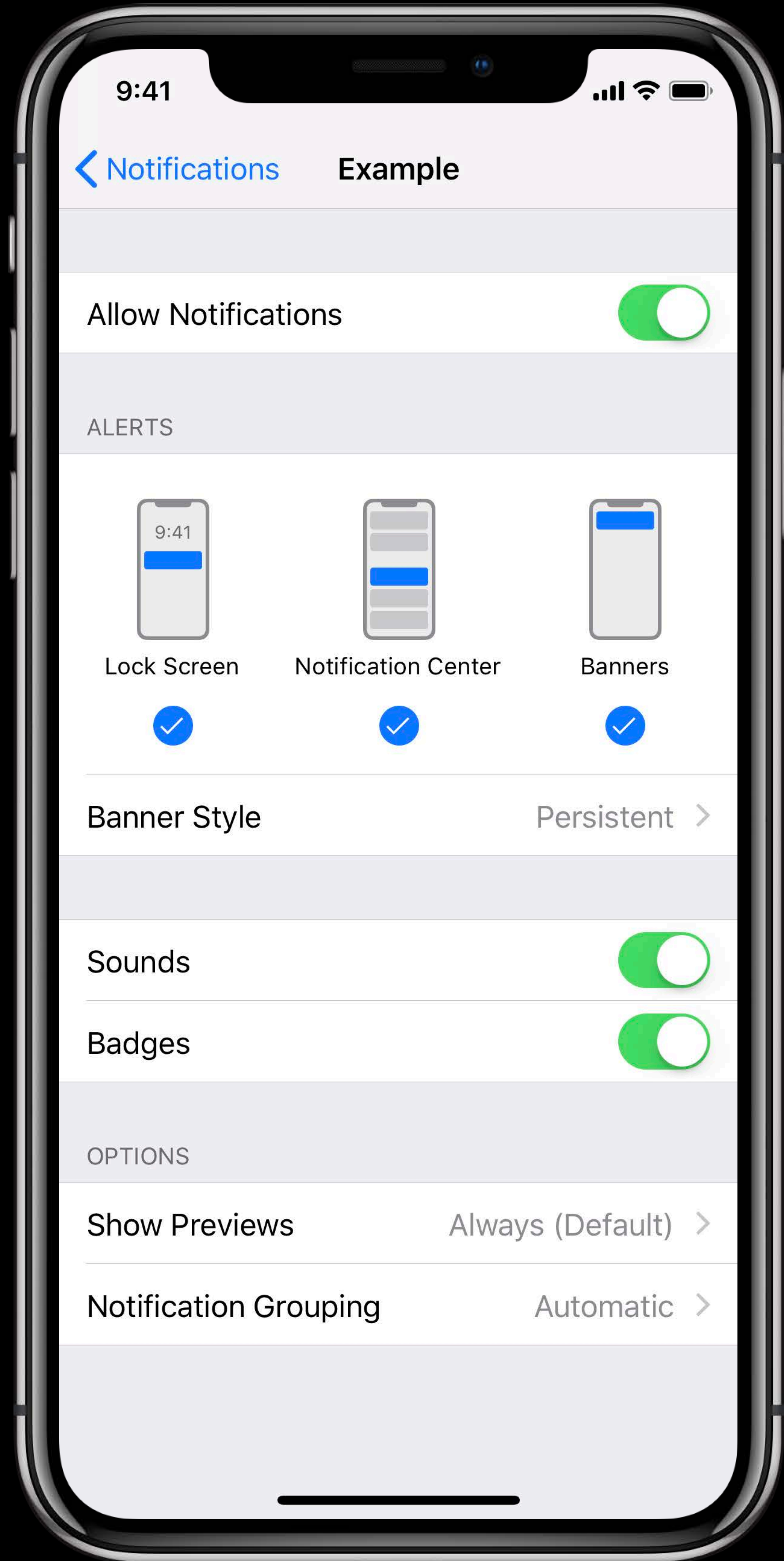
now

**John Appleseed**

Hey



Swipe up to open

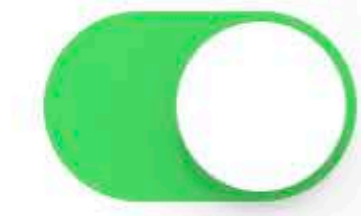


9:41



< Notifications Example

Allow Notifications



ALERTS



Lock Screen



Notification Center



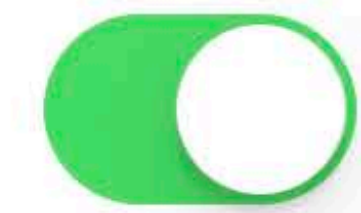
Banners



Banner Style

Persistent >

Sounds



Badges



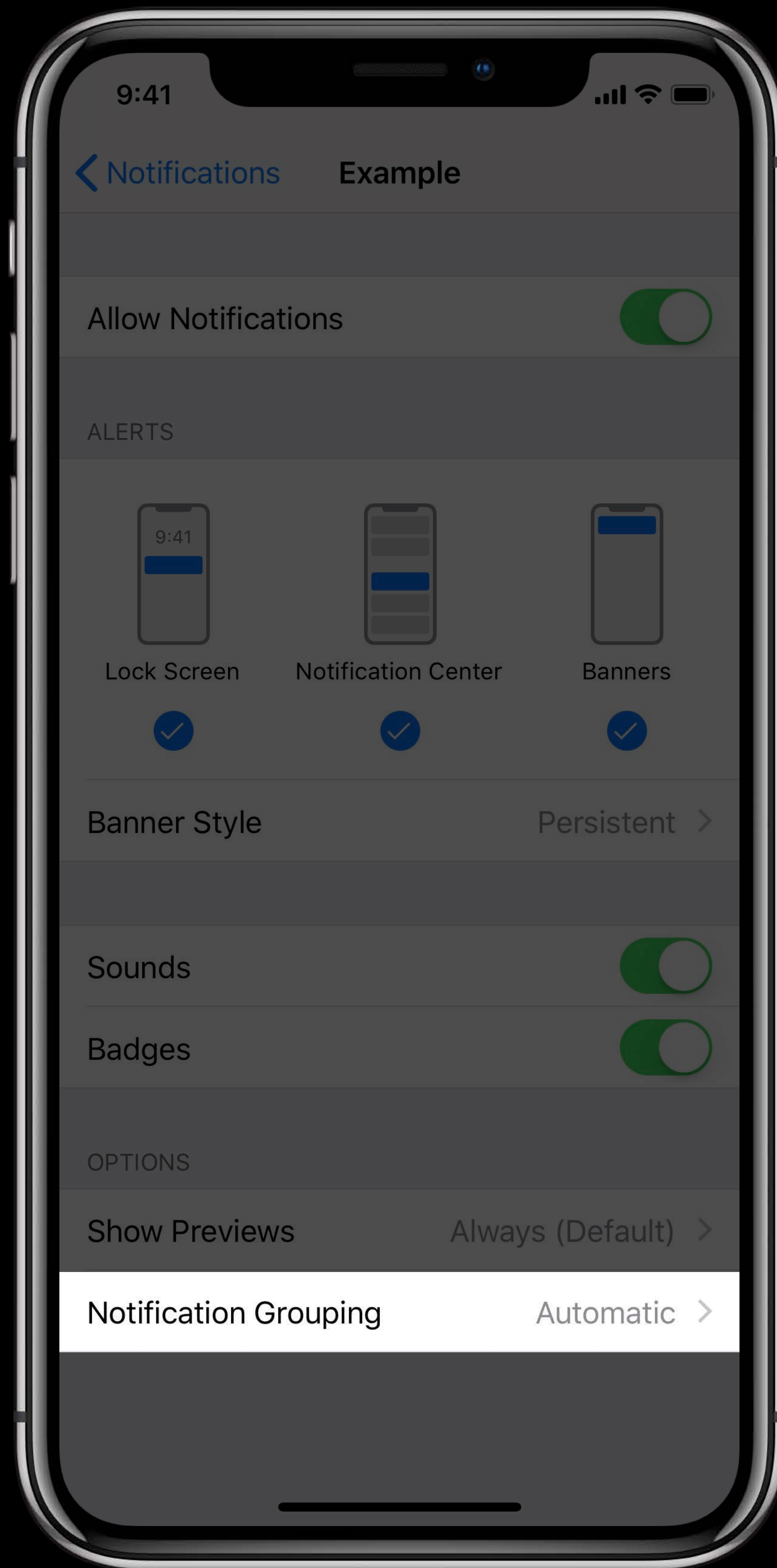
OPTIONS

Show Previews

Always (Default) >

Notification Grouping

Automatic >



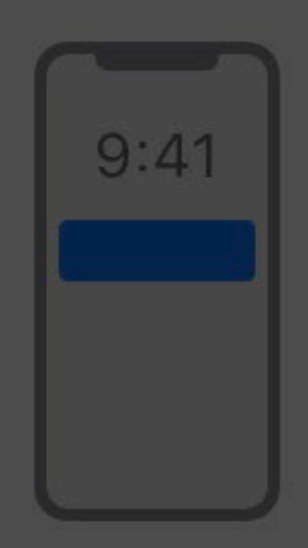
9:41



< Notifications Example

Allow Notifications

ALERTS



Lock Screen



Notification Center



Banners



Banner Style Persistent >

Sounds

Badges

OPTIONS

Show Previews Always (Default) >

Notification Grouping Automatic >

9:41



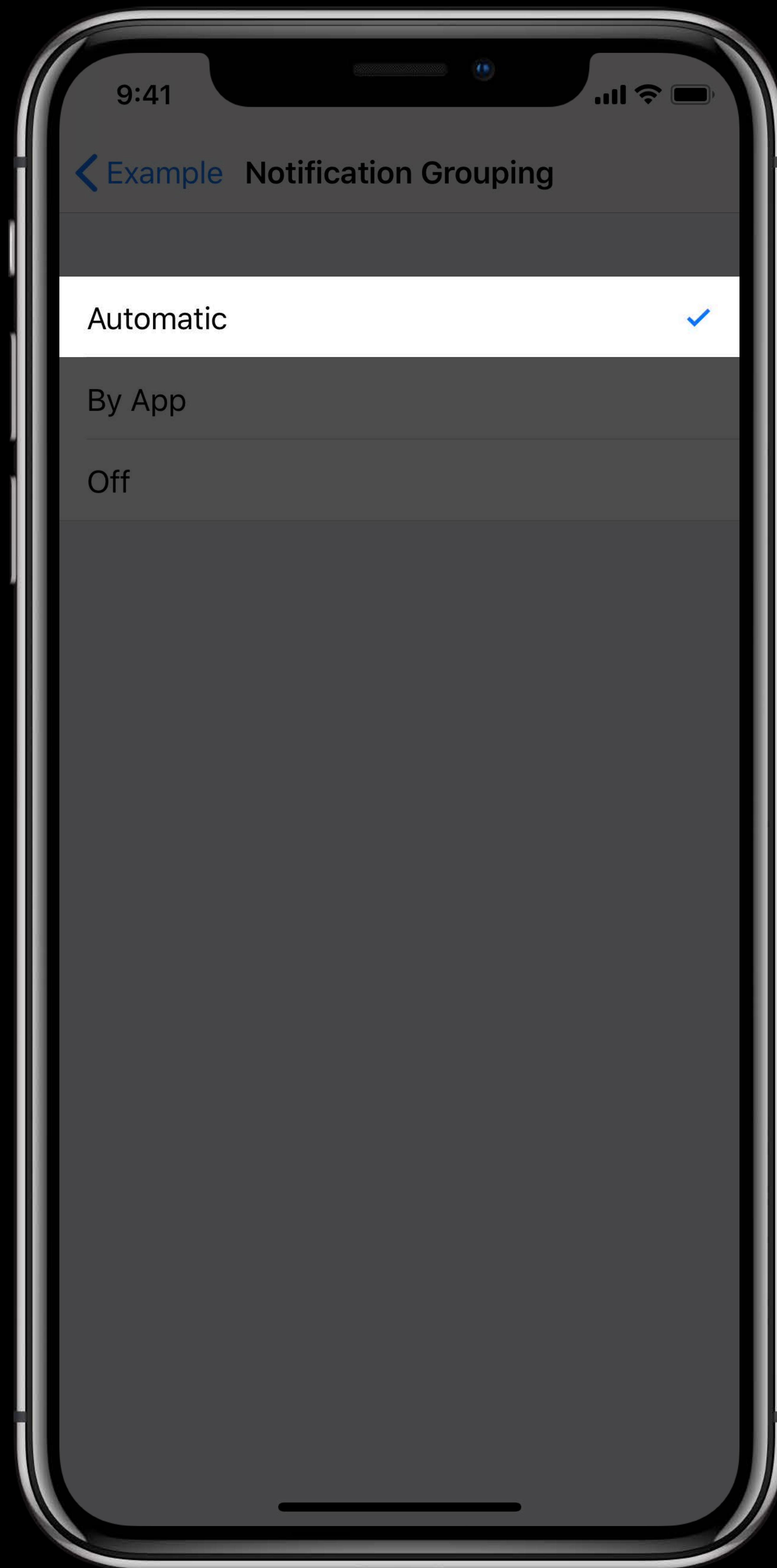
< Example Notification Grouping

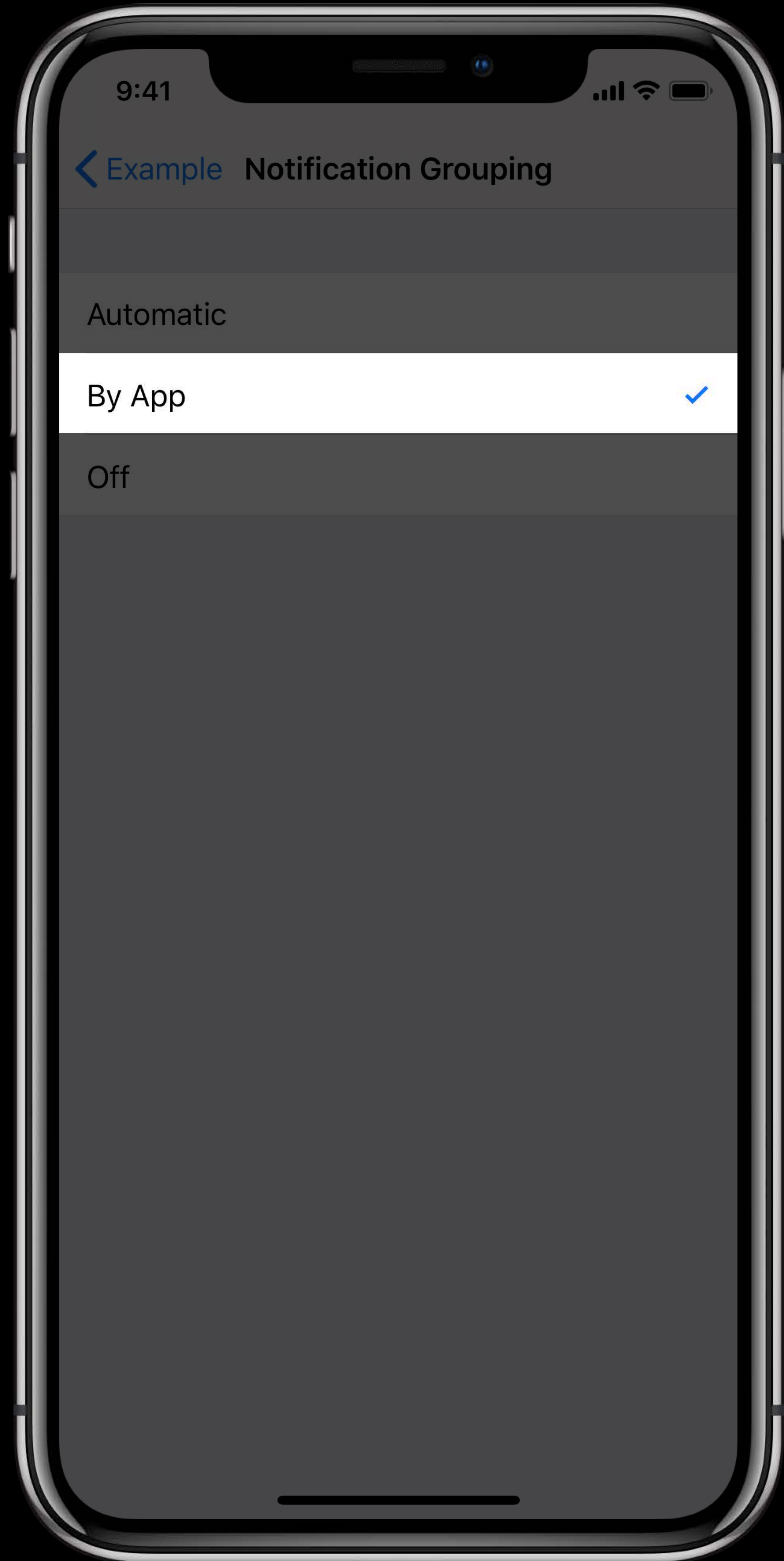
Automatic



By App

Off





9:41



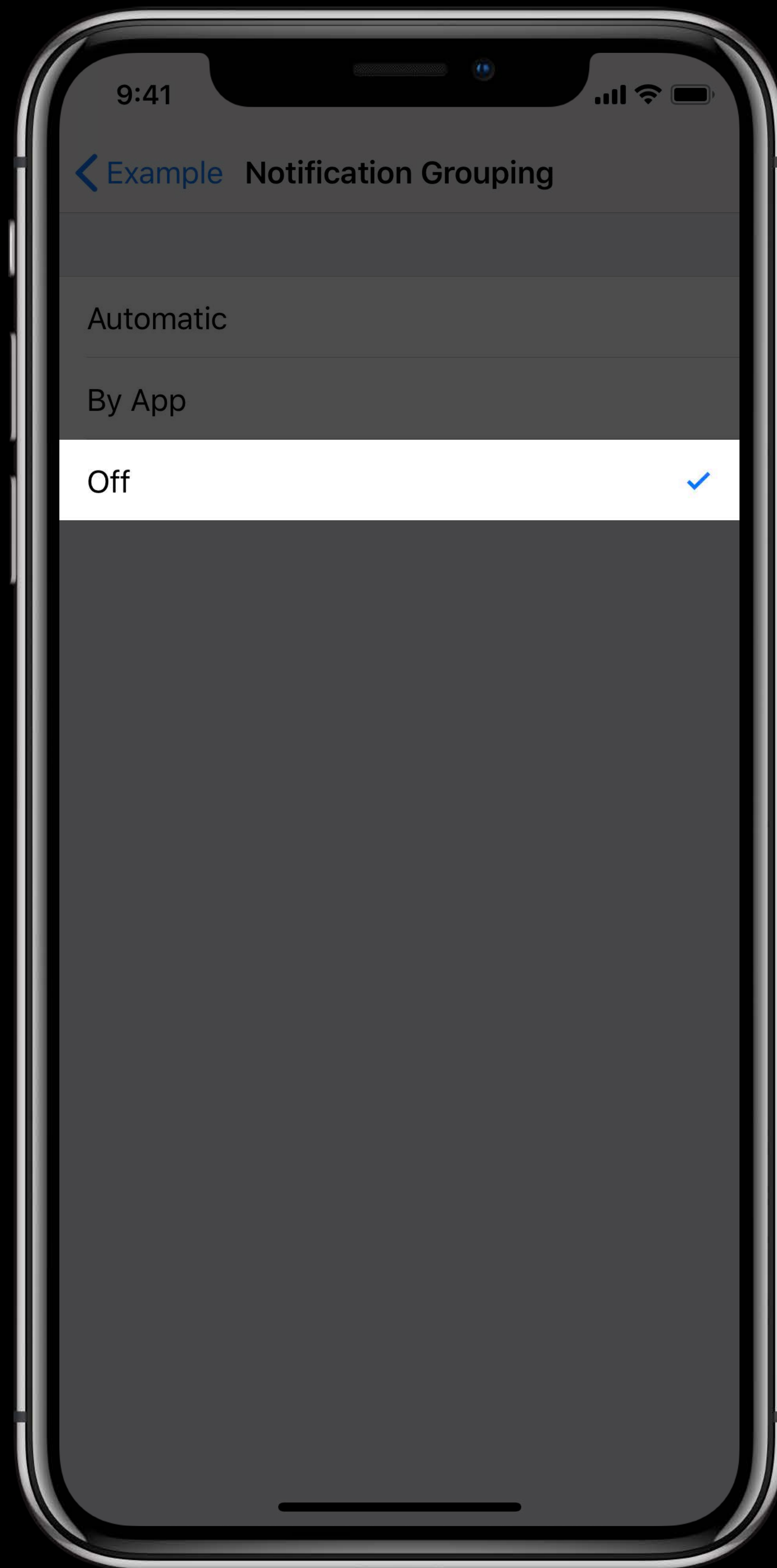
< Example Notification Grouping

Automatic

By App



Off



9:41



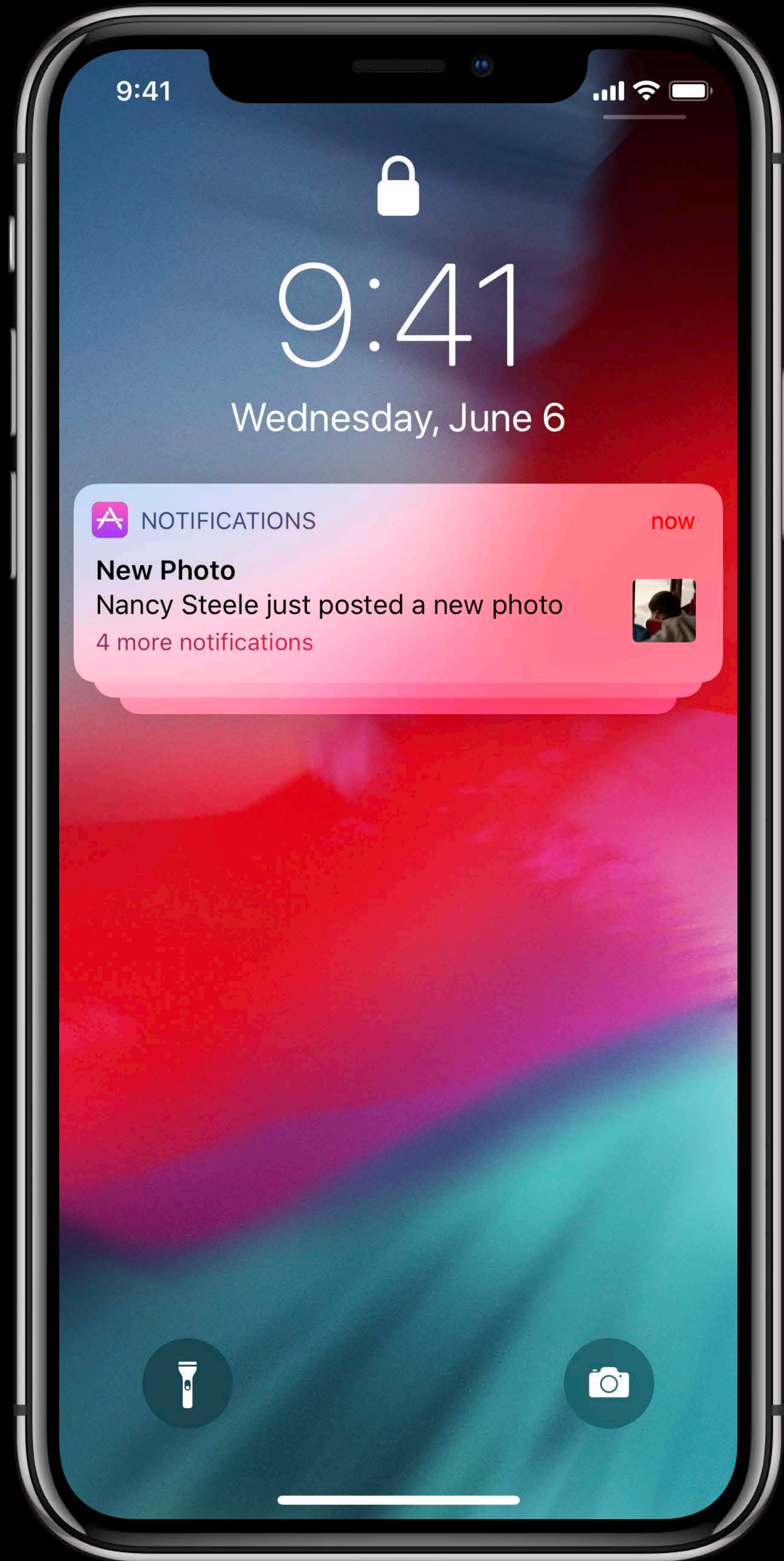
< Example Notification Grouping

Automatic

By App

Off





9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

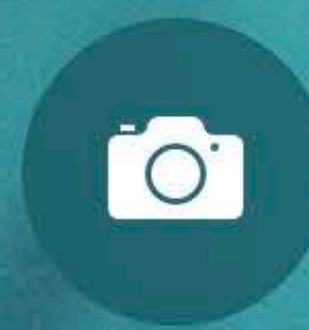
now

**New Photo**

Nancy Steele just posted a new photo



4 more notifications







9:41



9:41

Wednesday, June 6

NOTIFICATIONS

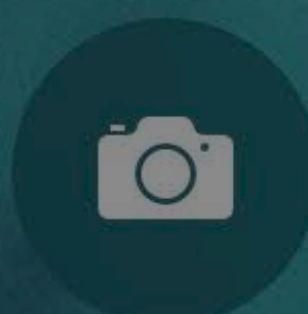
now

**New Photo**

Nancy Steele just posted a new photo



4 more notifications



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



[4 more notifications](#)



Swipe up to unlock



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



[4 more notifications](#)



Swipe up to unlock



9:41



9:41

Wednesday, June 6

# Notifications



Show less ^



NOTIFICATIONS

now

## New Photo

Nancy Steele just posted a new photo



NOTIFICATIONS

now

## Video Post

Jane Don commented on your post



NOTIFICATIONS

now

## Video Post

Sarah Jones commented on your post



NOTIFICATIONS

now

## New Photo

Kevin Dolan just posted a new photo



NOTIFICATIONS

now

## Video Post

You have 6 likes on your post

9:41



9:41

Wednesday, June 6

# Notifications



Show less ^



NOTIFICATIONS

now

## New Photo

Nancy Steele just posted a new photo



NOTIFICATIONS

now

## Video Post

Jane Don commented on your post



NOTIFICATIONS

now

## Video Post

Sarah Jones commented on your post



NOTIFICATIONS

now

## New Photo

Kevin Dolan just posted a new photo

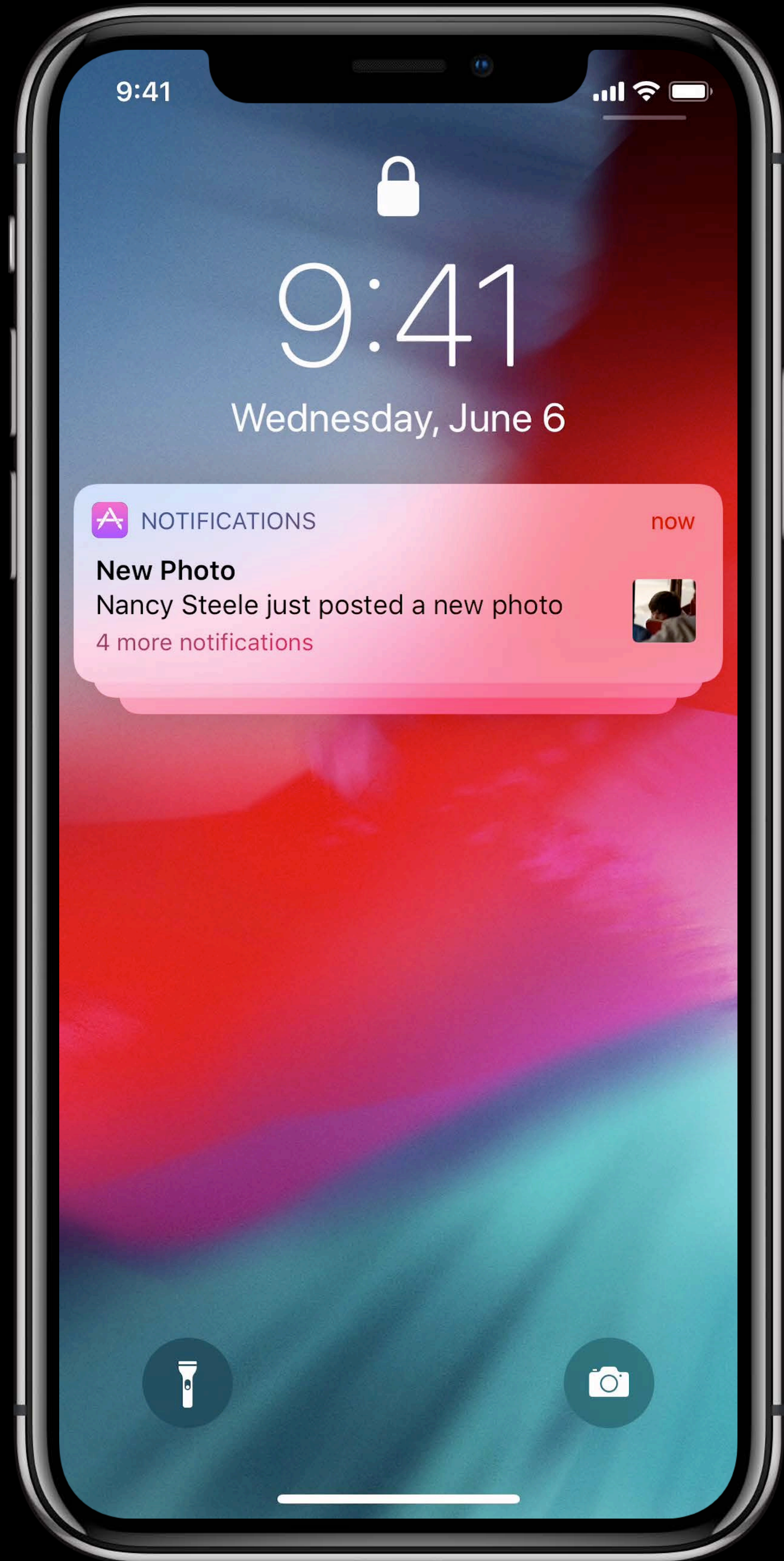


NOTIFICATIONS

now

## Video Post

You have 6 likes on your post



9:41



9:41

Wednesday, June 6



NOTIFICATIONS

now

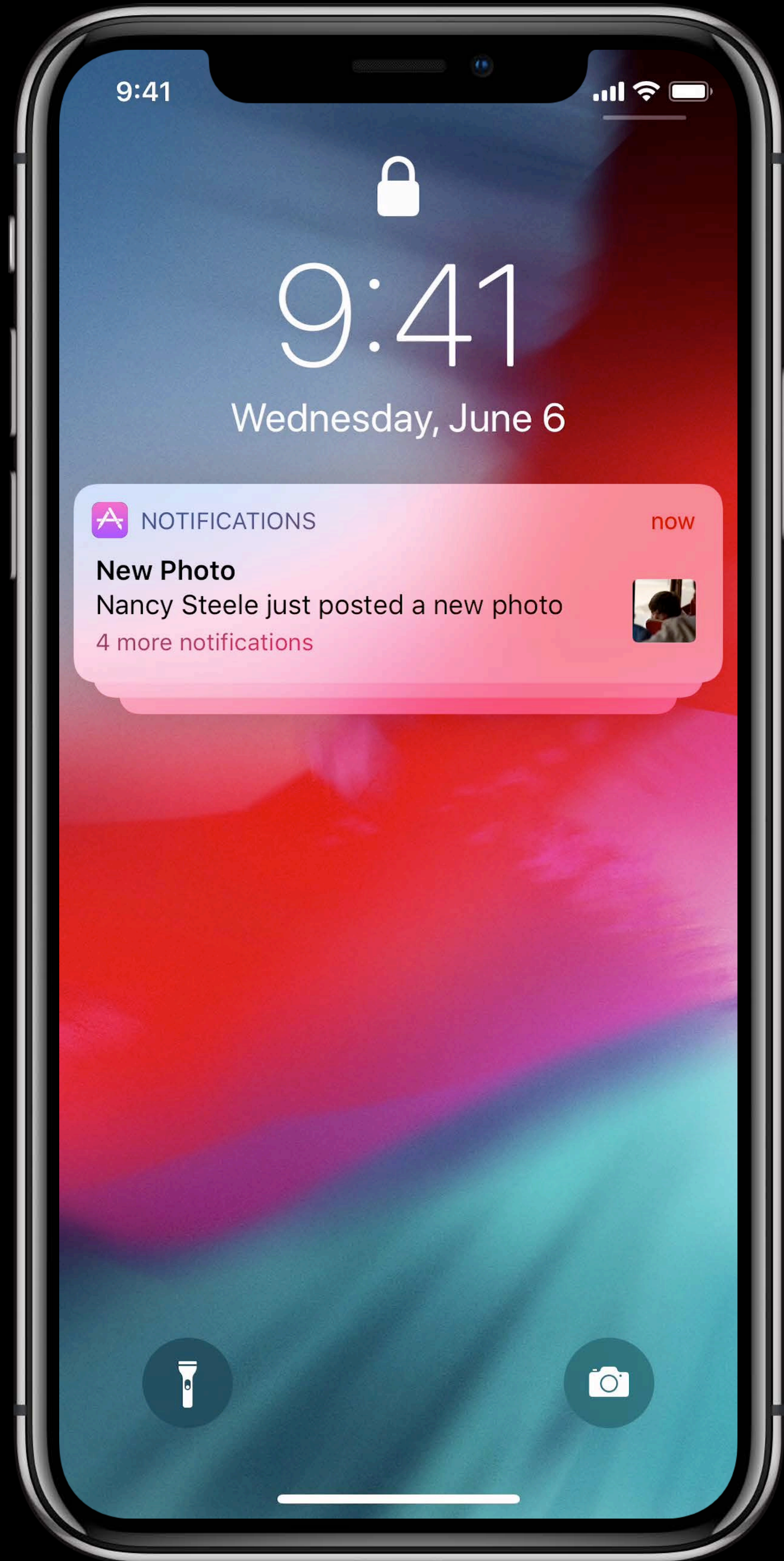
**New Photo**

Nancy Steele just posted a new photo



[4 more notifications](#)





9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

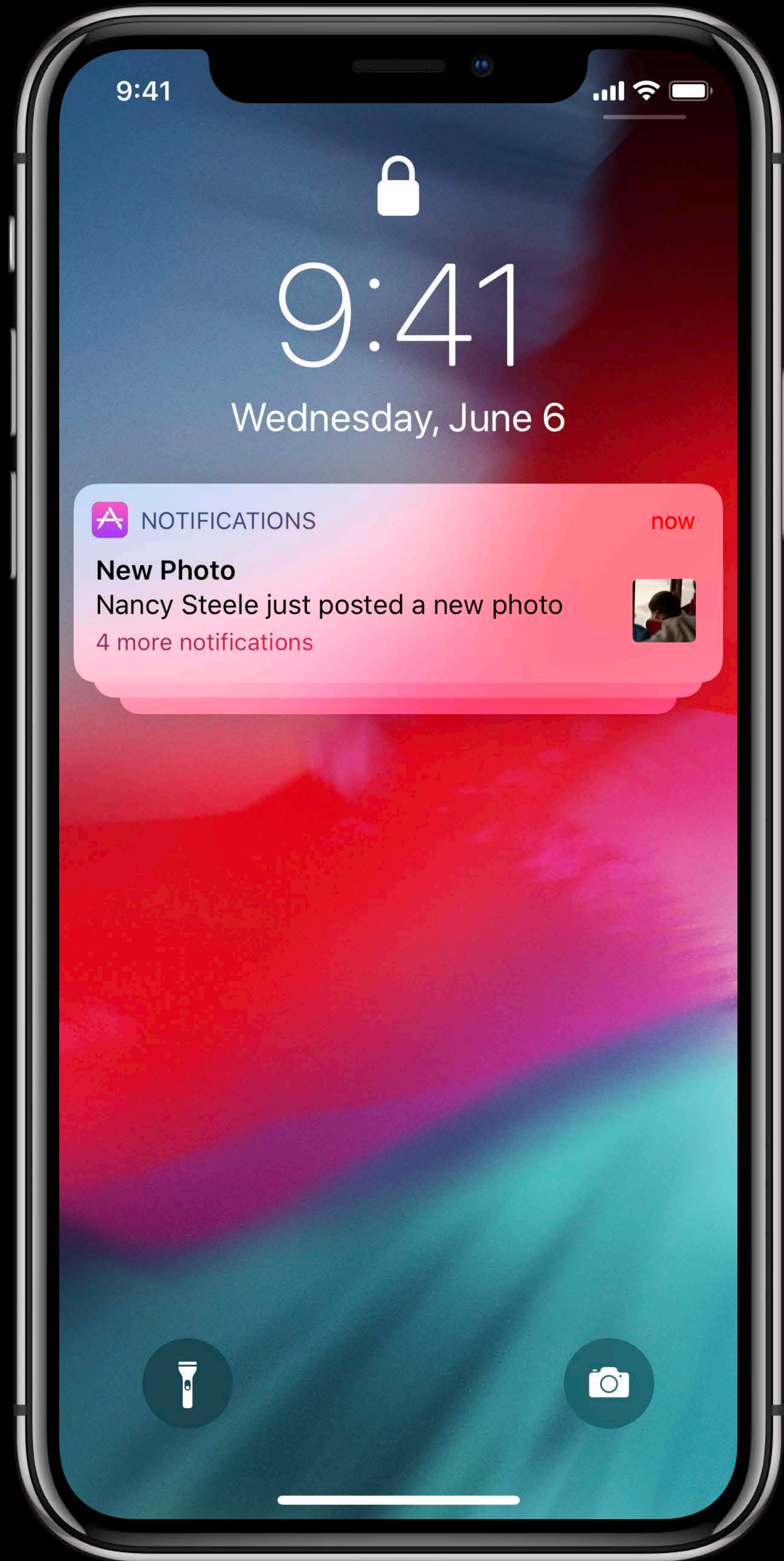
**New Photo**

Nancy Steele just posted a new photo



4 more notifications





9:41



9:41

Wednesday, June 6

NOTIFICATIONS

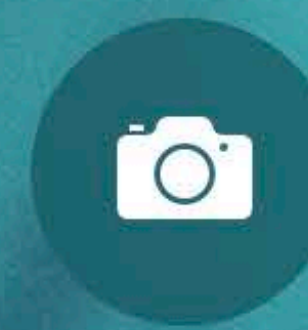
now

**New Photo**

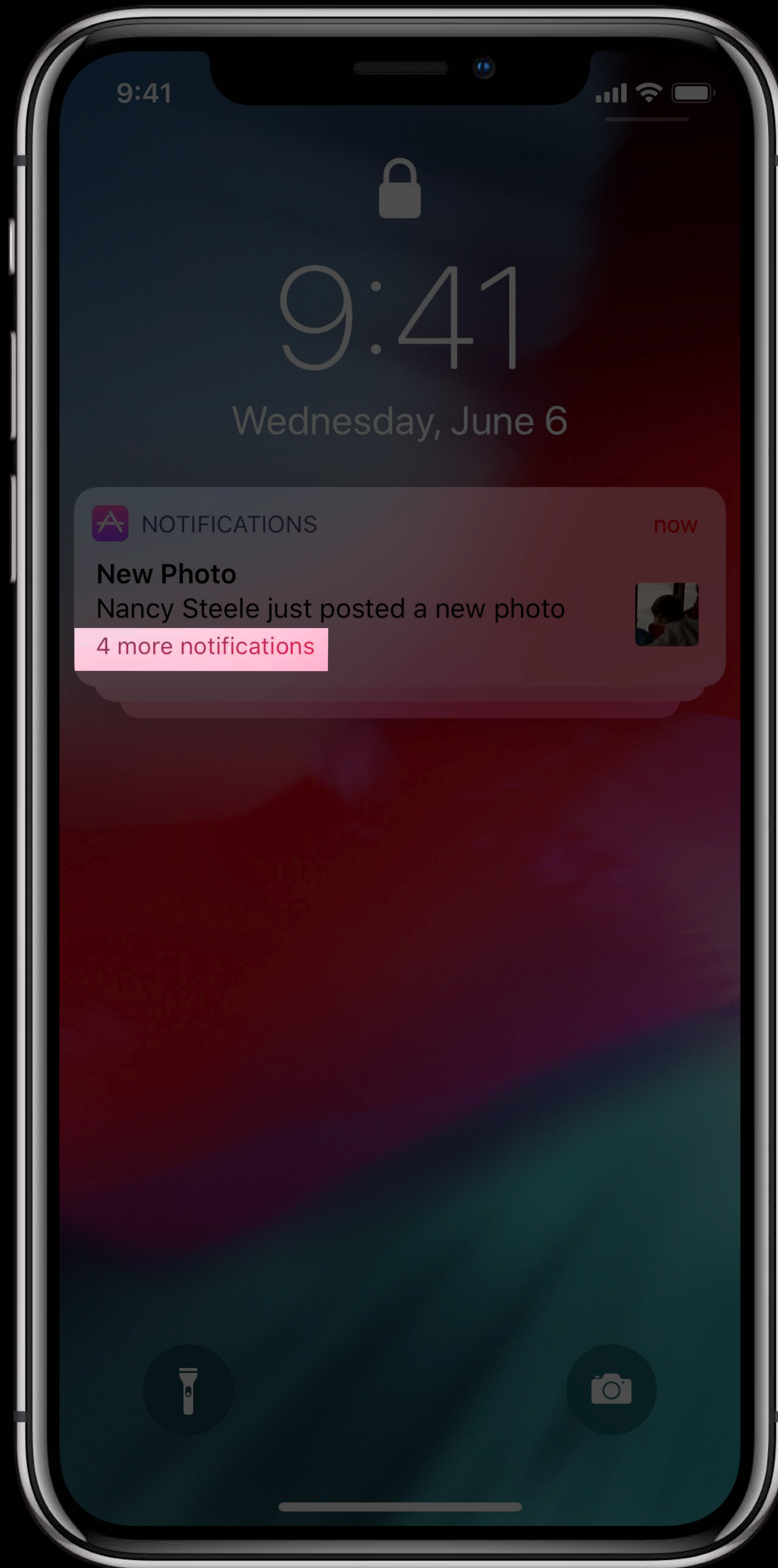
Nancy Steele just posted a new photo



4 more notifications







9:41



9:41

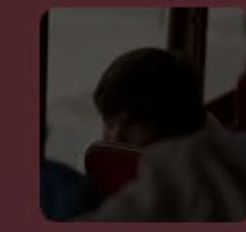
Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



4 more notifications



9:41



9:41

Wednesday, June 6



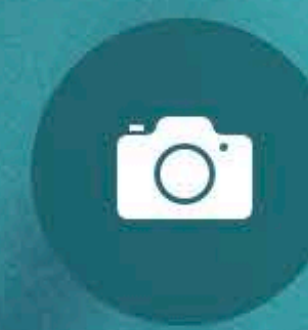
PODCASTS

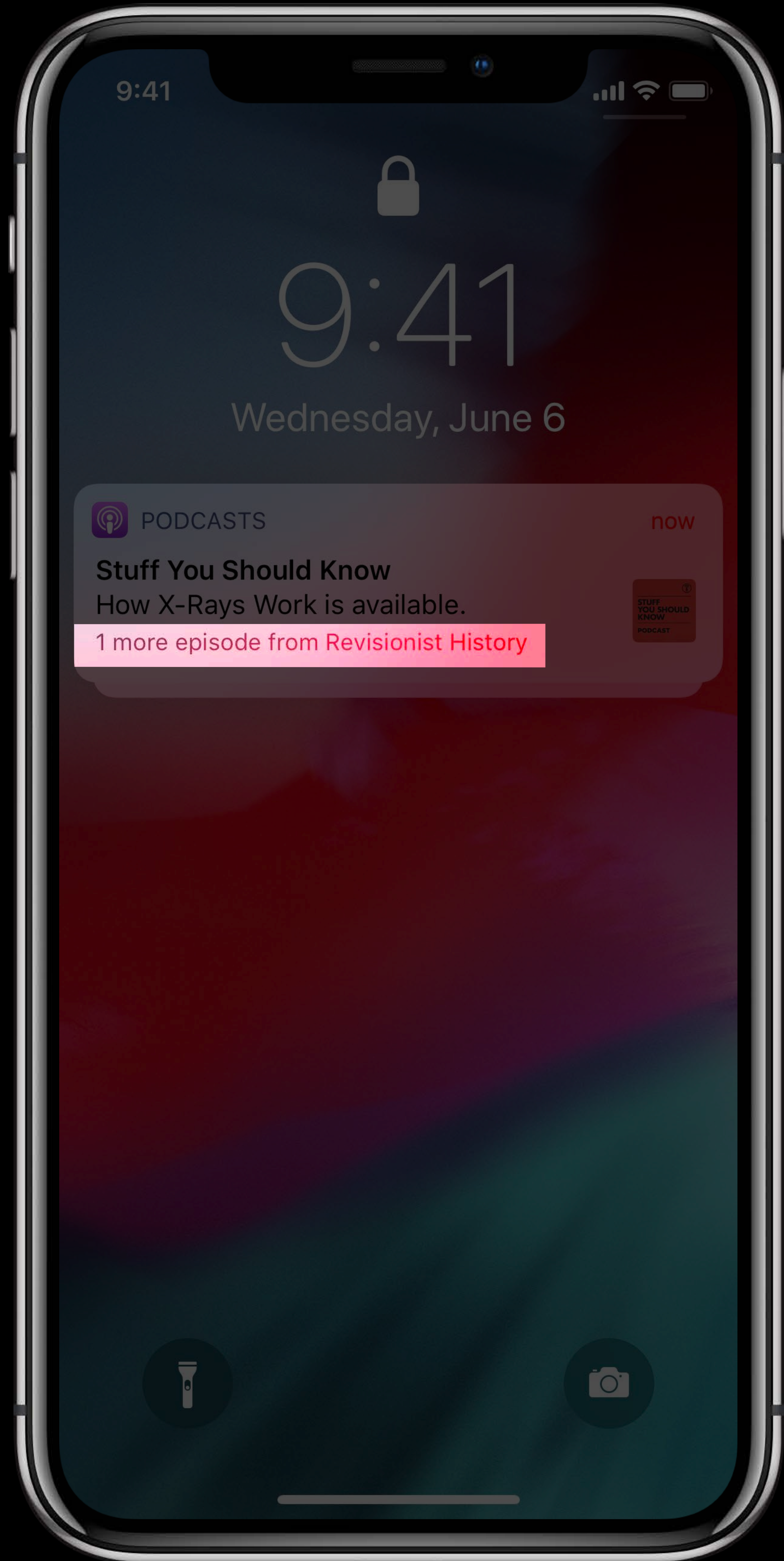
now

**Stuff You Should Know**

How X-Rays Work is available.

1 more episode from *Revisionist History*





9:41



9:41

Wednesday, June 6



PODCASTS

now

**Stuff You Should Know**

How X-Rays Work is available.

1 more episode from [Revisionist History](#)



# Grouped Notifications

---

Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---

# Grouped Notifications

## Summary

---

Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---

# Grouped Notifications

Summary

Automatic grouping

---

Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---

# Grouped Notifications

Summary

Automatic grouping

Thread identifier

---

Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---

# Grouped Notifications

Summary

Automatic grouping

Thread identifier

User setting

---

Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---



# Grouped Notifications

Summary

Automatic grouping

Thread identifier

User setting

Summary text

---

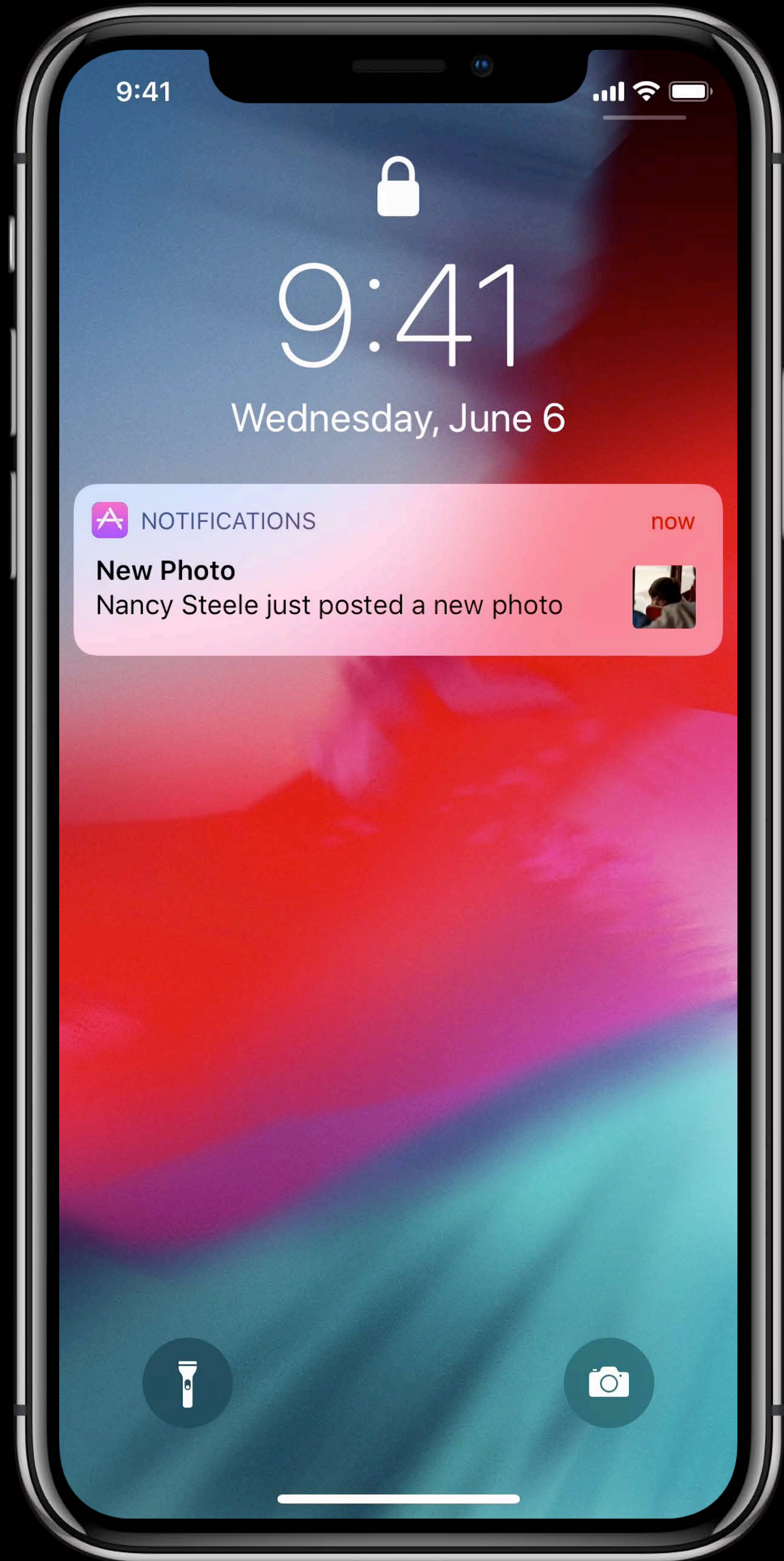
Using Grouped Notifications

Hall 3

Wednesday 3:00PM

---

# Notification Content Extensions



9:41



9:41

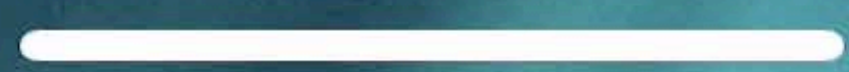
Wednesday, June 6

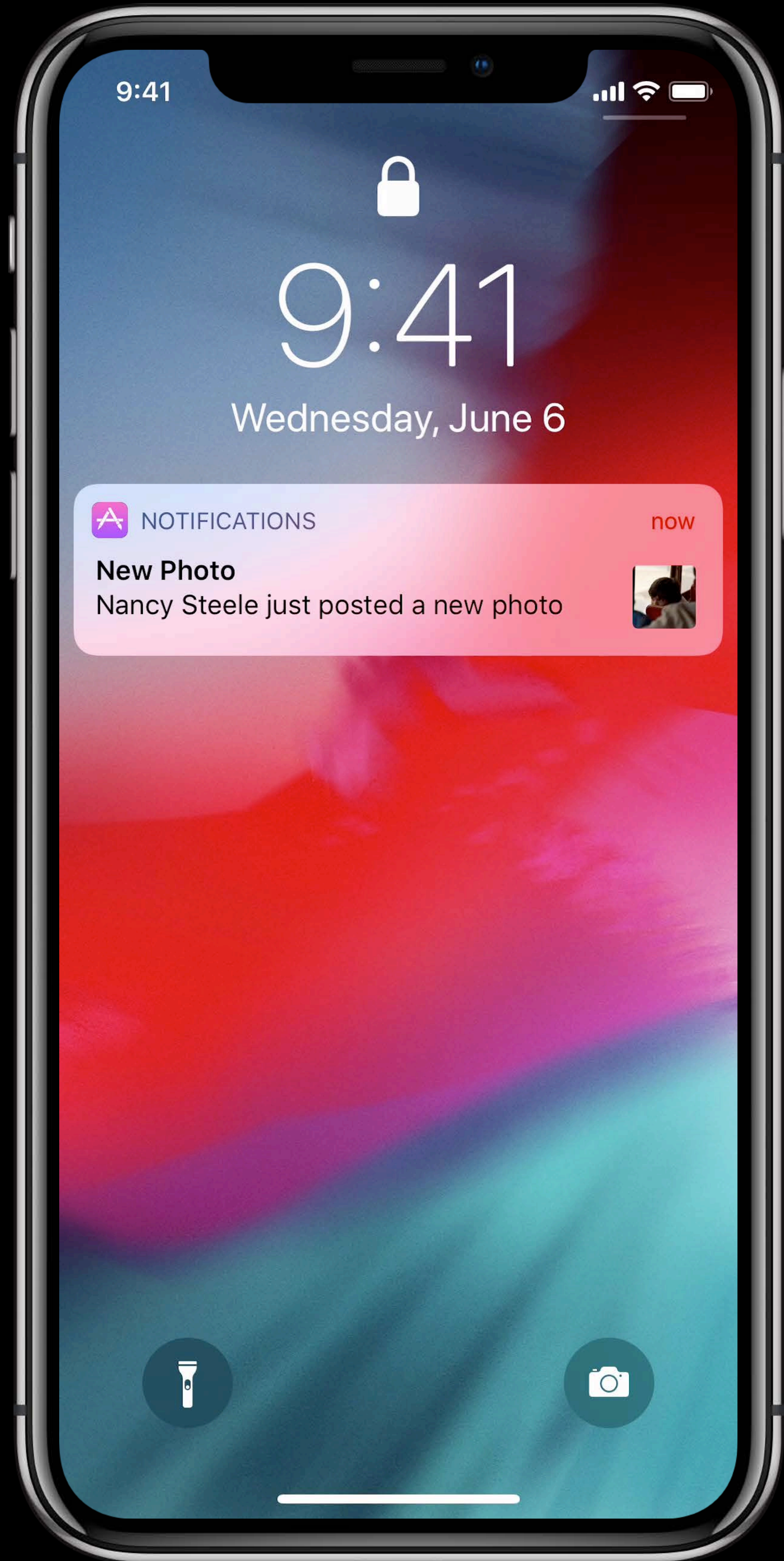
 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo





9:41



9:41

Wednesday, June 6

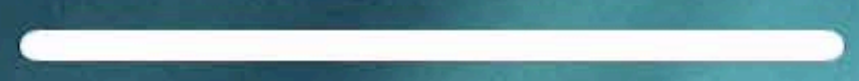


NOTIFICATIONS

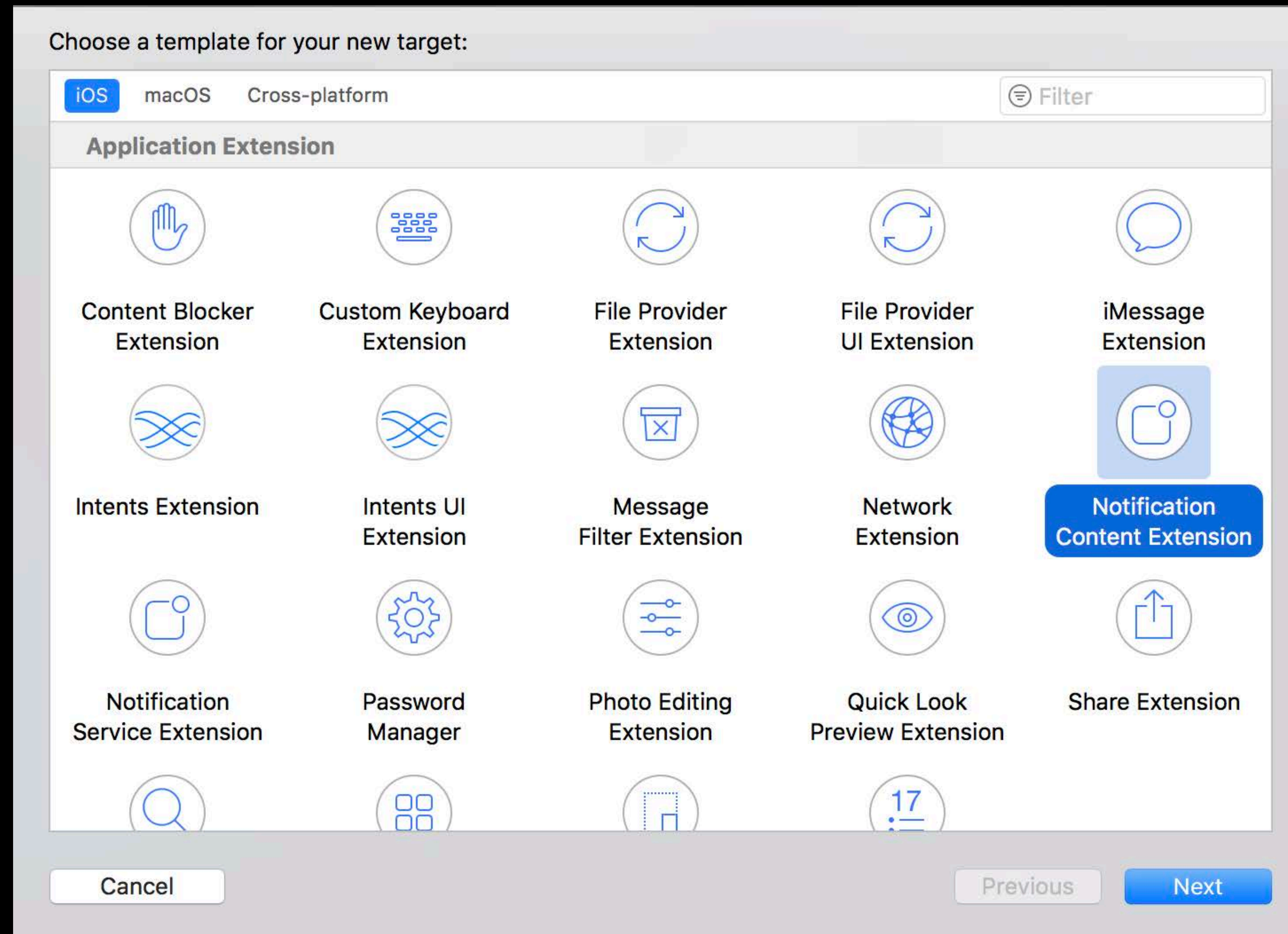
now

**New Photo**

Nancy Steele just posted a new photo



# Notification Content Extensions



```
// Notification Content Extensions

import UserNotifications
import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    func didReceive(_ notification: UNNotification) {
        // Set up content extension view
    }

}
```

```
// Notification Content Extensions
```

```
import UserNotifications
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

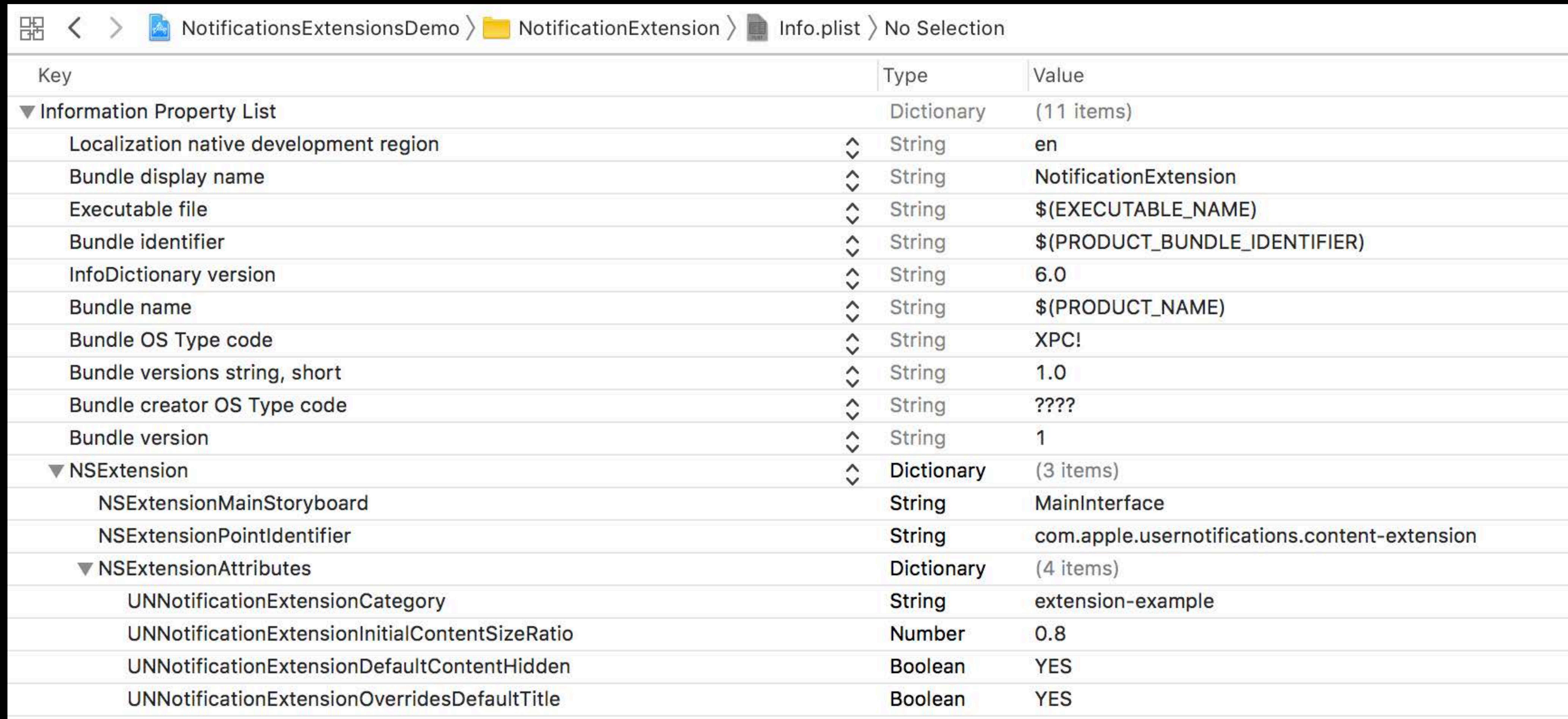
```
    func didReceive(_ notification: UNNotification) {
```

```
        // Set up content extension view
```

```
    }
```

```
}
```

# Notification Content Extensions

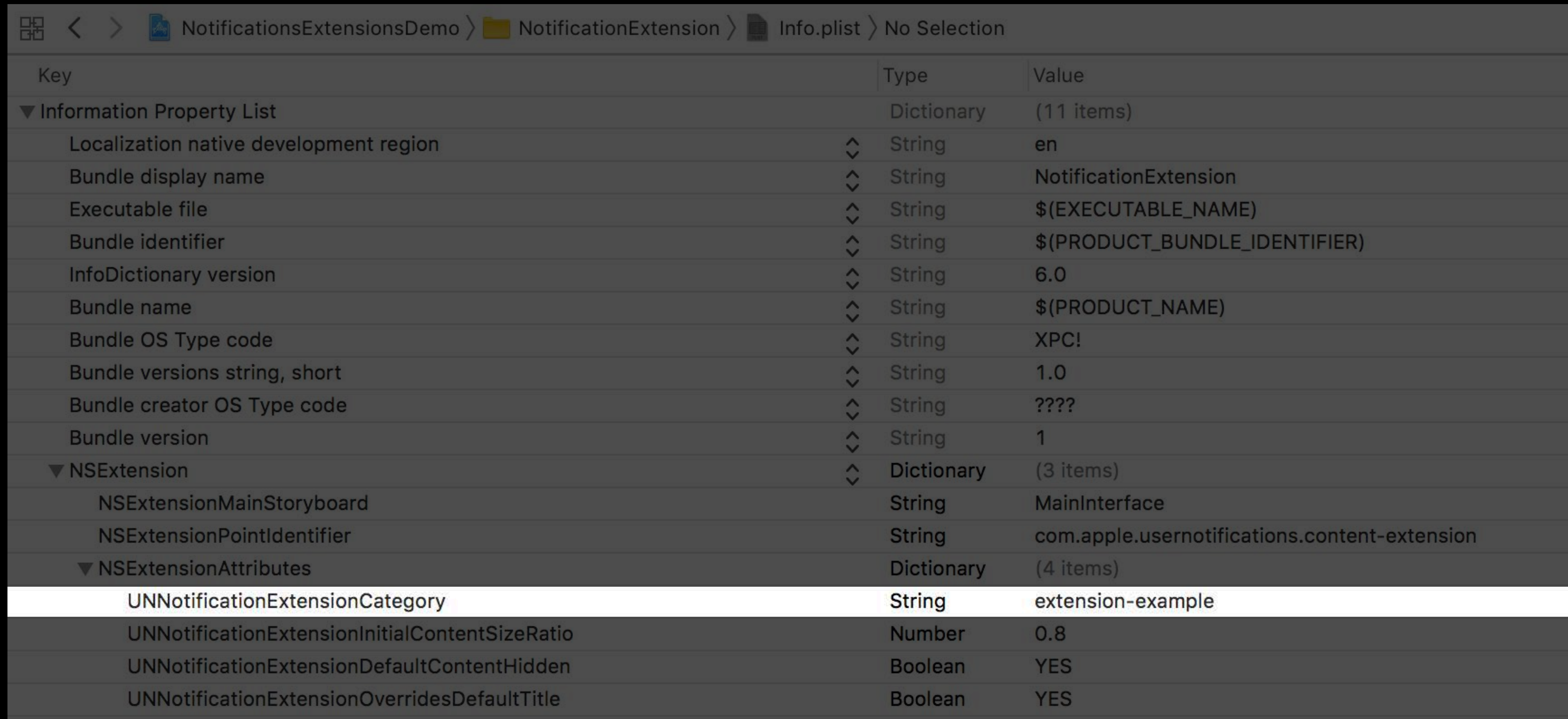


The screenshot shows the Xcode interface for editing an Info.plist file. The breadcrumb path is: NotificationsExtensionsDemo > NotificationExtension > Info.plist > No Selection. The table below represents the contents of the Info.plist file.

Key	Type	Value
▼ Information Property List	Dictionary	(11 items)
Localization native development region	String	en
Bundle display name	String	NotificationExtension
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0
Bundle name	String	\$(PRODUCT_NAME)
Bundle OS Type code	String	XPC!
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1
▼ NSExtension	Dictionary	(3 items)
NSExtensionMainStoryboard	String	MainInterface
NSExtensionPointIdentifier	String	com.apple.usernotifications.content-extension
▼ NSExtensionAttributes	Dictionary	(4 items)
UNNotificationExtensionCategory	String	extension-example
UNNotificationExtensionInitialContentSizeRatio	Number	0.8
UNNotificationExtensionDefaultContentHidden	Boolean	YES
UNNotificationExtensionOverridesDefaultTitle	Boolean	YES



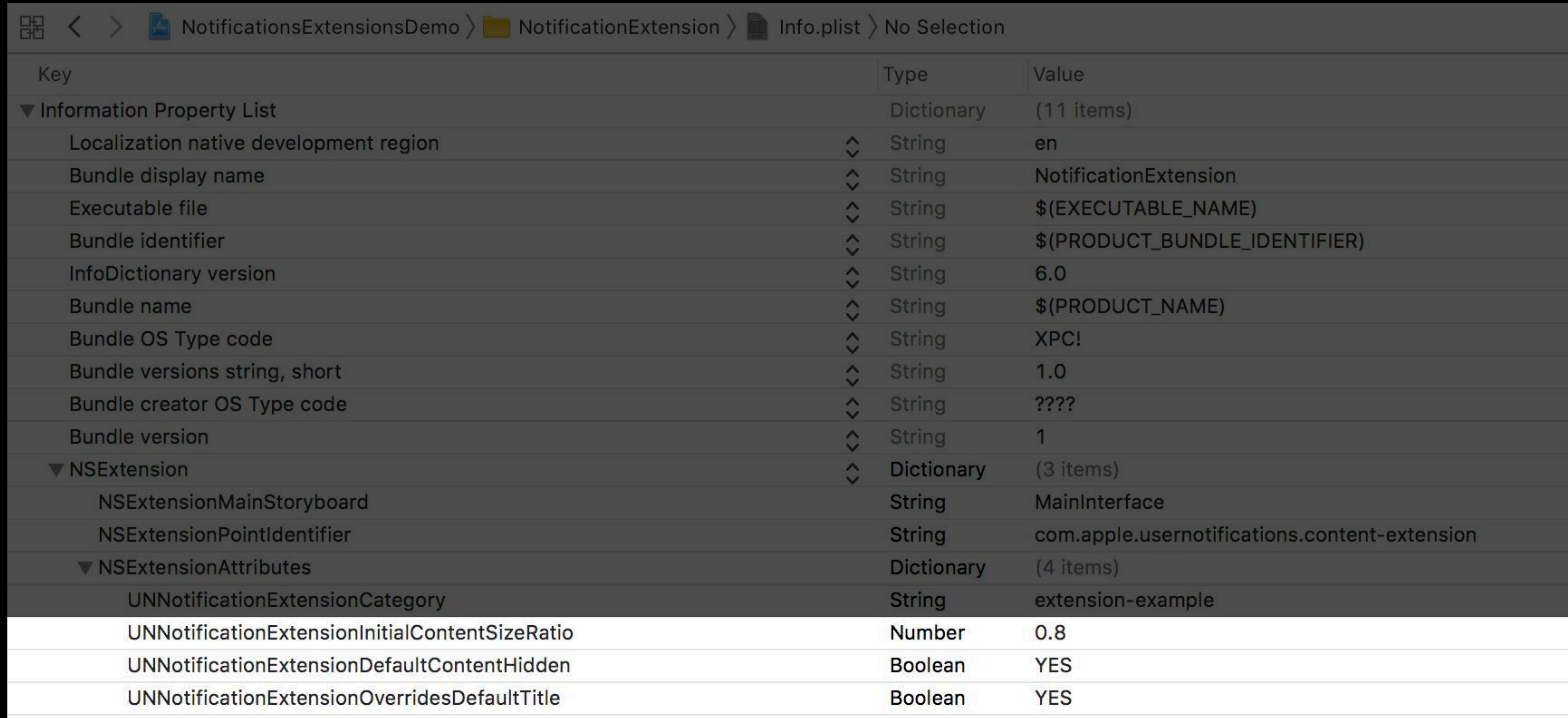
# Notification Content Extensions



The screenshot shows the Xcode interface for editing the Info.plist file of a NotificationExtension. The breadcrumb path is NotificationsExtensionsDemo > NotificationExtension > Info.plist > No Selection. The table below represents the data shown in the editor.

Key	Type	Value
▼ Information Property List	Dictionary	(11 items)
Localization native development region	String	en
Bundle display name	String	NotificationExtension
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0
Bundle name	String	\$(PRODUCT_NAME)
Bundle OS Type code	String	XPC!
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1
▼ NSExtension	Dictionary	(3 items)
NSExtensionMainStoryboard	String	MainInterface
NSExtensionPointIdentifier	String	com.apple.usernotifications.content-extension
▼ NSExtensionAttributes	Dictionary	(4 items)
UNNotificationExtensionCategory	String	extension-example
UNNotificationExtensionInitialContentSizeRatio	Number	0.8
UNNotificationExtensionDefaultContentHidden	Boolean	YES
UNNotificationExtensionOverridesDefaultTitle	Boolean	YES

# Notification Content Extensions

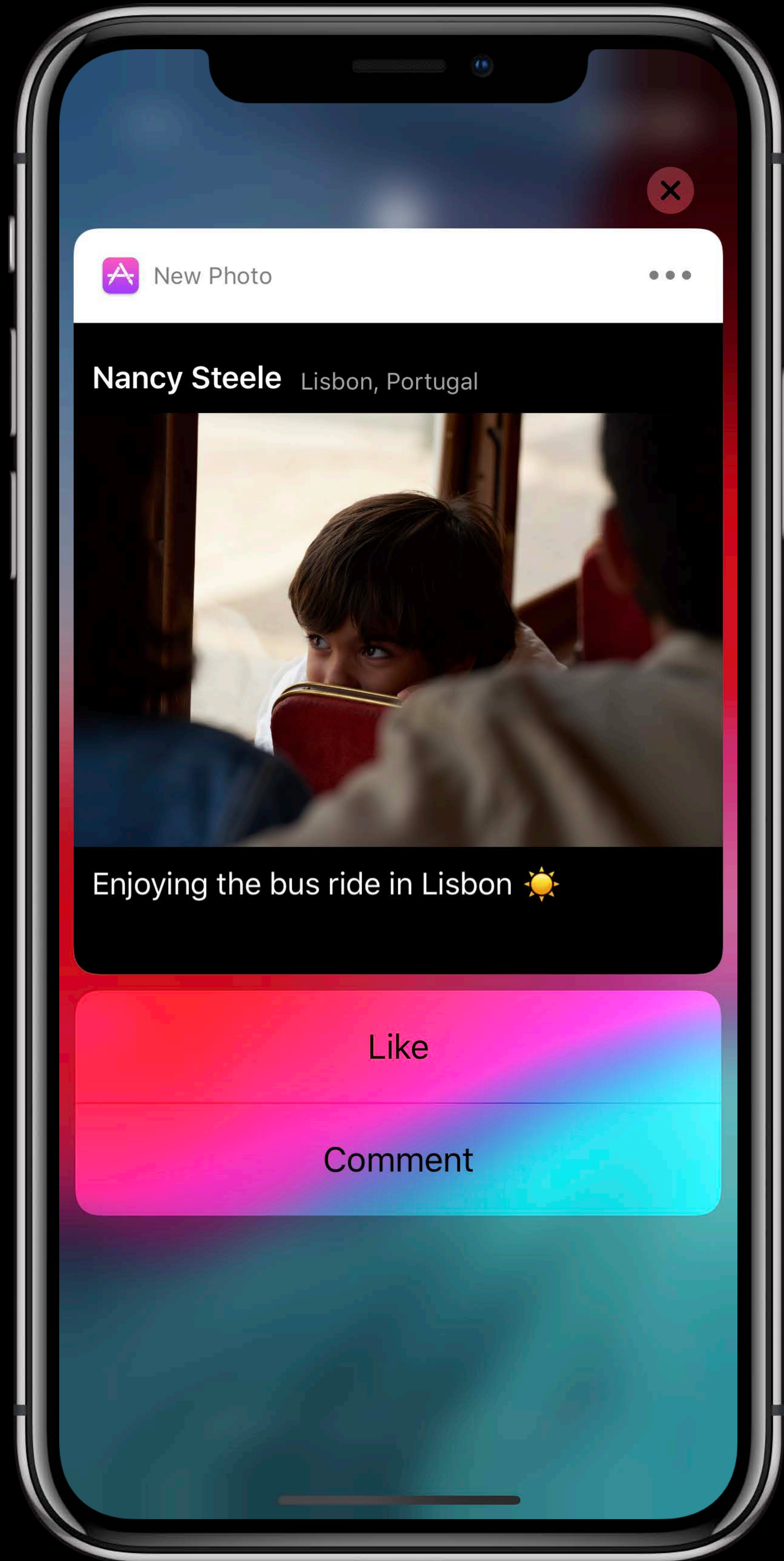


The screenshot shows the Xcode interface for editing the Info.plist file of a NotificationExtension. The breadcrumb path is NotificationsExtensionsDemo > NotificationExtension > Info.plist > No Selection. The table below represents the data visible in the 'Info' pane.

Key	Type	Value
▼ Information Property List	Dictionary	(11 items)
Localization native development region	String	en
Bundle display name	String	NotificationExtension
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0
Bundle name	String	\$(PRODUCT_NAME)
Bundle OS Type code	String	XPC!
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1
▼ NSExtension	Dictionary	(3 items)
NSExtensionMainStoryboard	String	MainInterface
NSExtensionPointIdentifier	String	com.apple.usernotifications.content-extension
▼ NSExtensionAttributes	Dictionary	(4 items)
UNNotificationExtensionCategory	String	extension-example
UNNotificationExtensionInitialContentSizeRatio	Number	0.8
UNNotificationExtensionDefaultContentHidden	Boolean	YES
UNNotificationExtensionOverridesDefaultTitle	Boolean	YES

# Notification Content Extensions

Actions



New Photo



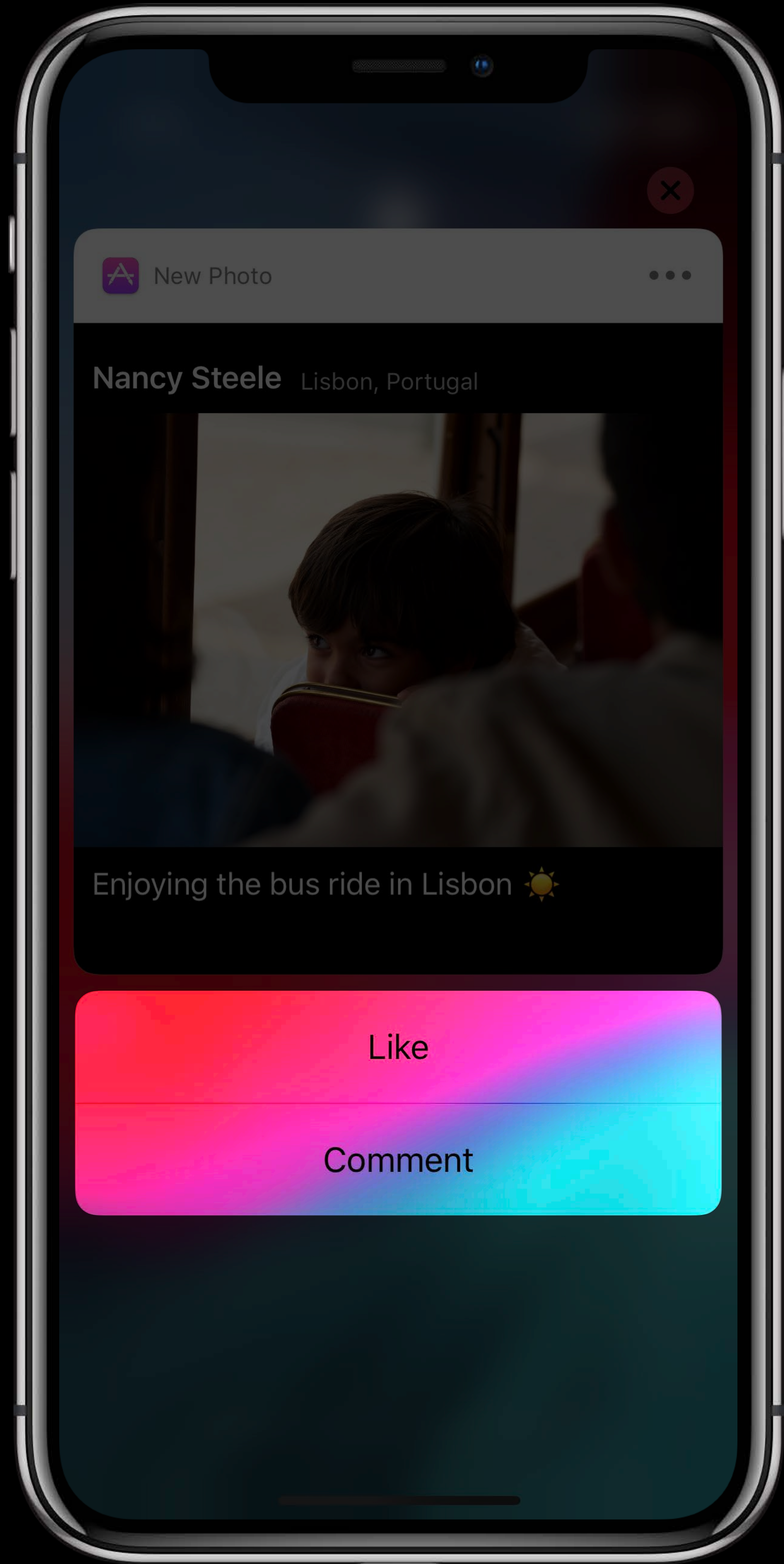
Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️

Like

Comment



New Photo

Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️

Like

Comment

```
// Notification Content Extensions
// Actions

let likeAction = UNNotificationAction(identifier: "like-action",
                                     title: "Like",
                                     options: [])

let commentAction = UNTextInputNotificationAction(identifier: "comment-action",
                                                  title: "Comment",
                                                  options: [],
                                                  textInputButtonTitle: "Comment",
                                                  textInputPlaceholder: "Type here...")

let category = UNNotificationCategory(identifier: "extension-example",
                                     actions: [ likeAction, commentAction ],
                                     intentIdentifiers: [],
                                     options: [])
```

```
// Notification Content Extensions  
// Actions
```

```
let likeAction = UNNotificationAction(identifier: "like-action",  
                                     title: "Like",  
                                     options: [])
```

```
let commentAction = UNTextInputNotificationAction(identifier: "comment-action",  
                                                  title: "Comment",  
                                                  options: [],  
                                                  textInputButtonTitle: "Comment",  
                                                  textInputPlaceholder: "Type here...")
```

```
let category = UNNotificationCategory(identifier: "extension-example",  
                                     actions: [ likeAction, commentAction ],  
                                     intentIdentifiers: [],  
                                     options: [])
```

```
// Notification Content Extensions  
// Actions
```

```
let likeAction = UNNotificationAction(identifier: "like-action",  
                                     title: "Like",  
                                     options: [])
```

```
let commentAction = UNTextInputNotificationAction(identifier: "comment-action",  
                                                  title: "Comment",  
                                                  options: [],  
                                                  textInputButtonTitle: "Comment",  
                                                  textInputPlaceholder: "Type here...")
```

```
let category = UNNotificationCategory(identifier: "extension-example",  
                                     actions: [ likeAction, commentAction ],  
                                     intentIdentifiers: [],  
                                     options: [])
```



```
// Notification Content Extensions  
// Actions
```

```
let likeAction = UNNotificationAction(identifier: "like-action",  
                                     title: "Like",  
                                     options: [])
```

```
let commentAction = UNTextInputNotificationAction(identifier: "comment-action",  
                                                  title: "Comment",  
                                                  options: [],  
                                                  textInputButtonTitle: "Comment",  
                                                  textInputPlaceholder: "Type here...")
```

```
let category = UNNotificationCategory(identifier: "extension-example",  
                                     actions: [ likeAction, commentAction ],  
                                     intentIdentifiers: [],  
                                     options: [])
```

```
// Notification Content Extensions
// Actions

let likeAction = UNNotificationAction(identifier: "like-action",
                                     title: "Like",
                                     options: [])

let commentAction = UNTextInputNotificationAction(identifier: "comment-action",
                                                  title: "Comment",
                                                  options: [],
                                                  textInputButtonTitle: "Comment",
                                                  textInputPlaceholder: "Type here...")

let category = UNNotificationCategory(identifier: "extension-example",
                                     actions: [ likeAction, commentAction ],
                                     intentIdentifiers: [],
                                     options: [])
```

```
// Notification Content Extensions
```

```
// Actions
```

```
let category = UNNotificationCategory(identifier: "extension-example",  
                                     actions: [ likeAction, commentAction ],  
                                     intentIdentifiers: [],  
                                     options: [])
```

```
UNUserNotificationCenter.current().setNotificationCategories([ category ])
```

```
// Notification Content Extensions
// Actions

let category = UNNotificationCategory(identifier: "extension-example",
                                     actions: [ likeAction, commentAction ],
                                     intentIdentifiers: [],
                                     options: [])
```

```
UNUserNotificationCenter.current().setNotificationCategories([ category ])
```

9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



```
// Notification Content Extensions
// Actions handling

import UserNotifications

extension AppDelegate: UNUserNotificationCenterDelegate {

    func userNotificationCenter(_ center: UNUserNotificationCenter,
                               didReceive response: UNNotificationResponse,
                               completionHandler: () -> Void) {
        // Handle action response here
    }

}
```

```
// Notification Content Extensions  
// Actions handling
```

```
import UserNotifications
```

```
extension AppDelegate: UNUserNotificationCenterDelegate {
```

```
    func userNotificationCenter(_ center: UNUserNotificationCenter,  
                               didReceive response: UNNotificationResponse,  
                               completionHandler: () -> Void) {  
        // Handle action response here  
    }
```

```
}
```



```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.doNotDismiss)
    }
}
```

```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
        (UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.doNotDismiss)
    }
}
```

```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.doNotDismiss)
    }
}
```

```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.doNotDismiss)
    }
}
```

```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

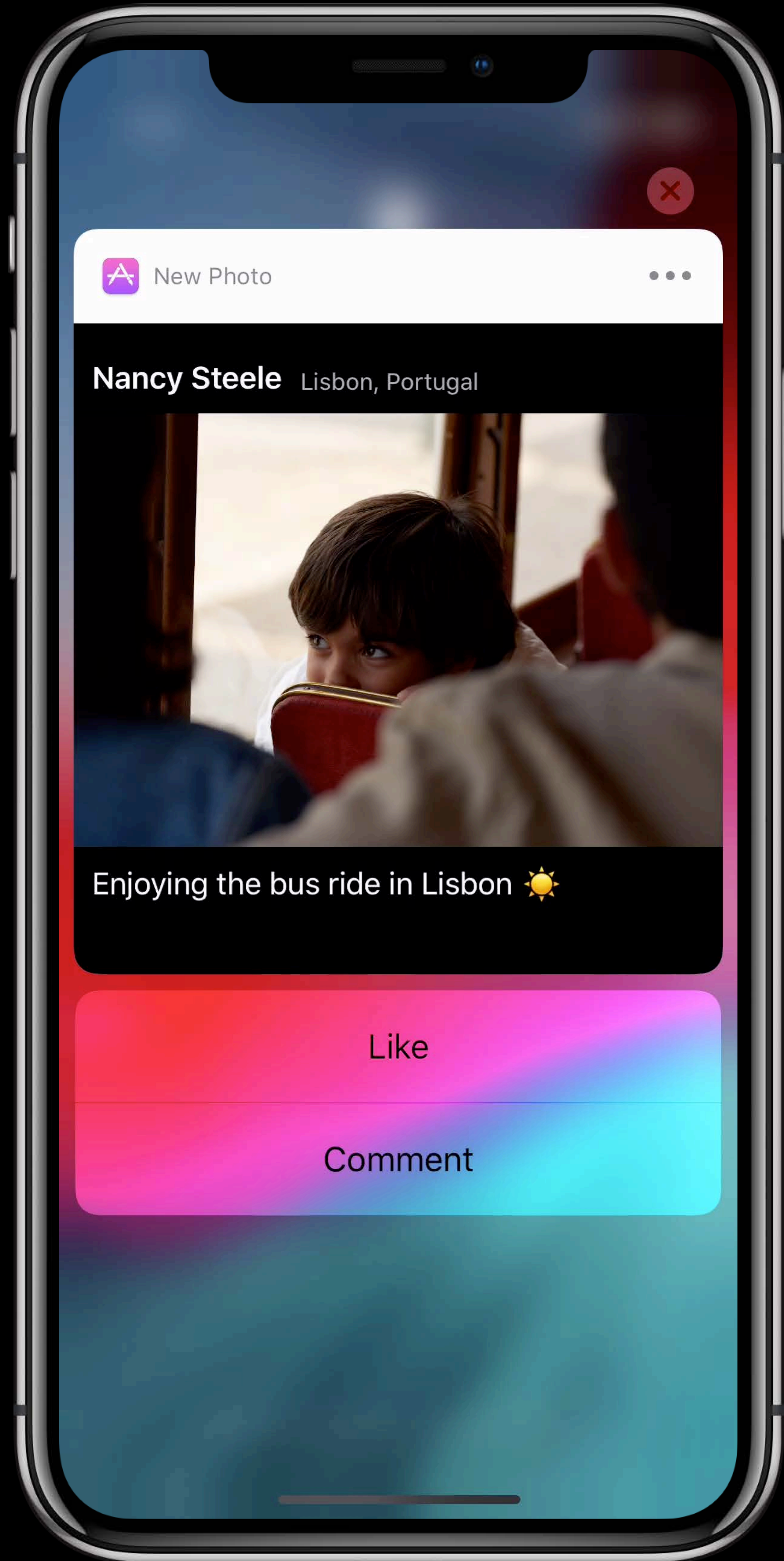
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.dismiss)
    }
}
```

```
// Notification Content Extensions
// Actions handling

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {
    @IBOutlet var likeLabel: UILabel?

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            likeLabel?.text = "You liked this photo"
            likedPhoto()
        }
        completion(.dismissAndForward)
    }
}
```



New Photo

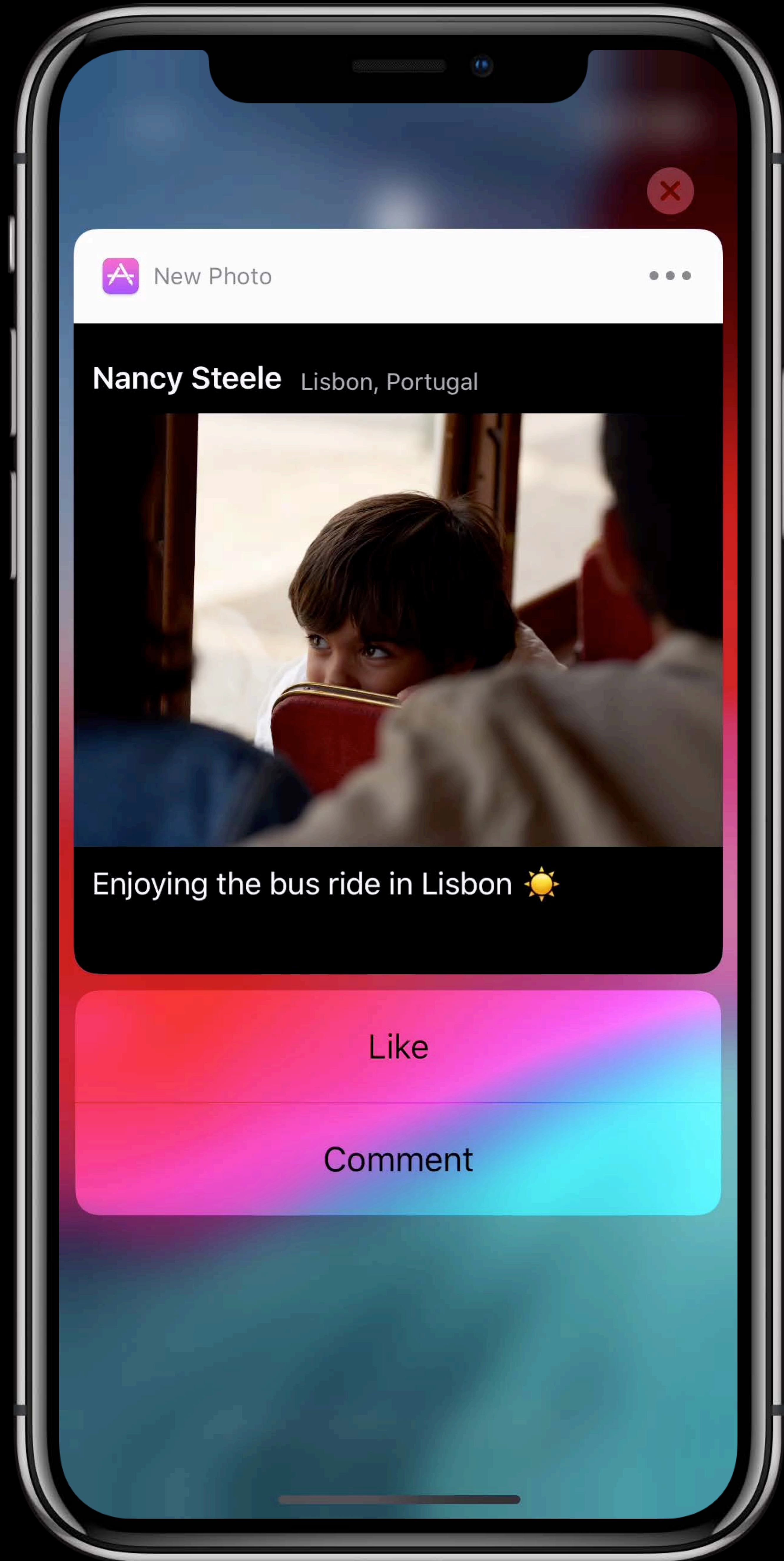
Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️

Like

Comment



New Photo

Nancy Steele Lisbon, Portugal

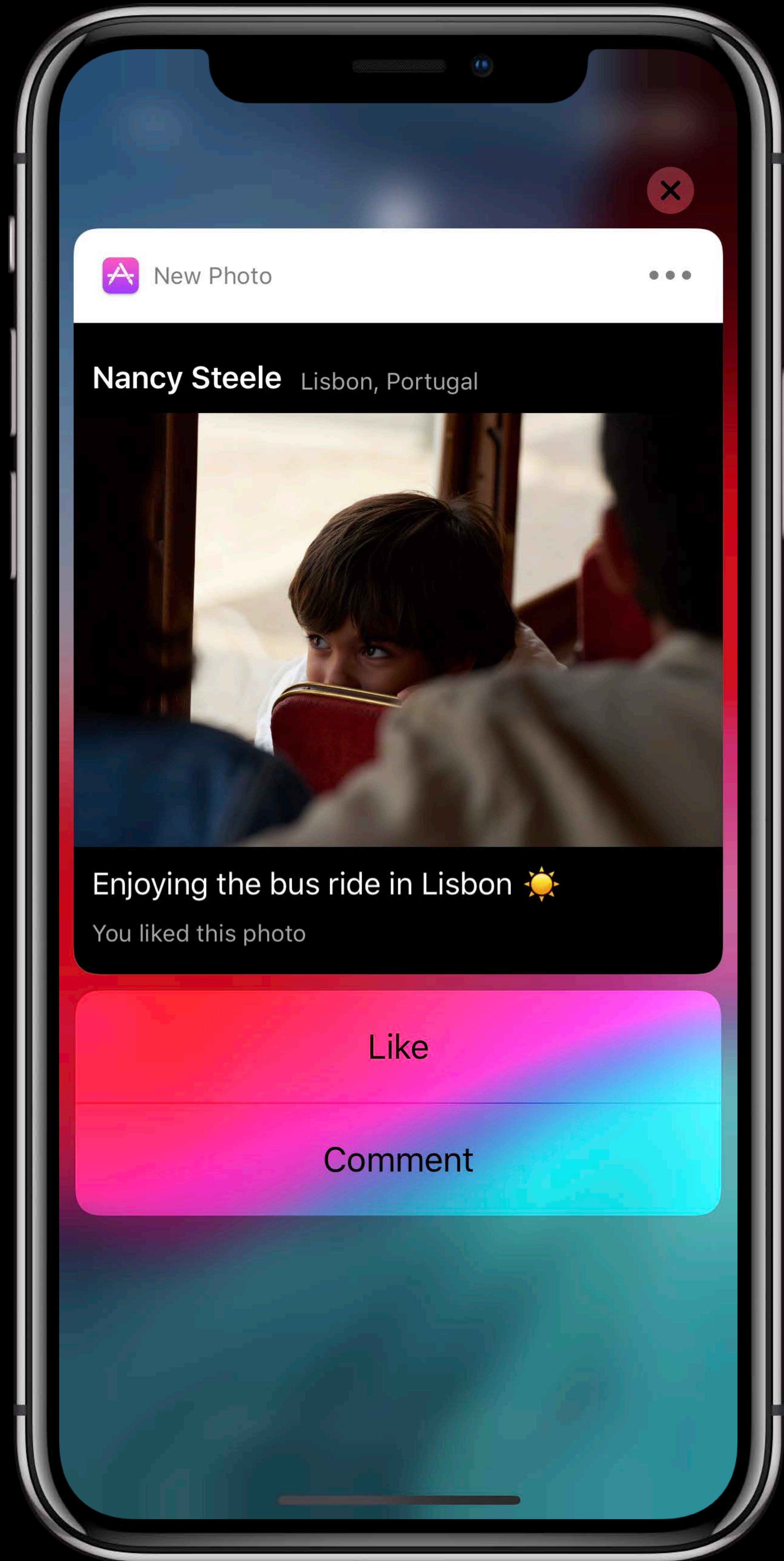


Enjoying the bus ride in Lisbon ☀️

Like

Comment





New Photo



**Nancy Steele** Lisbon, Portugal

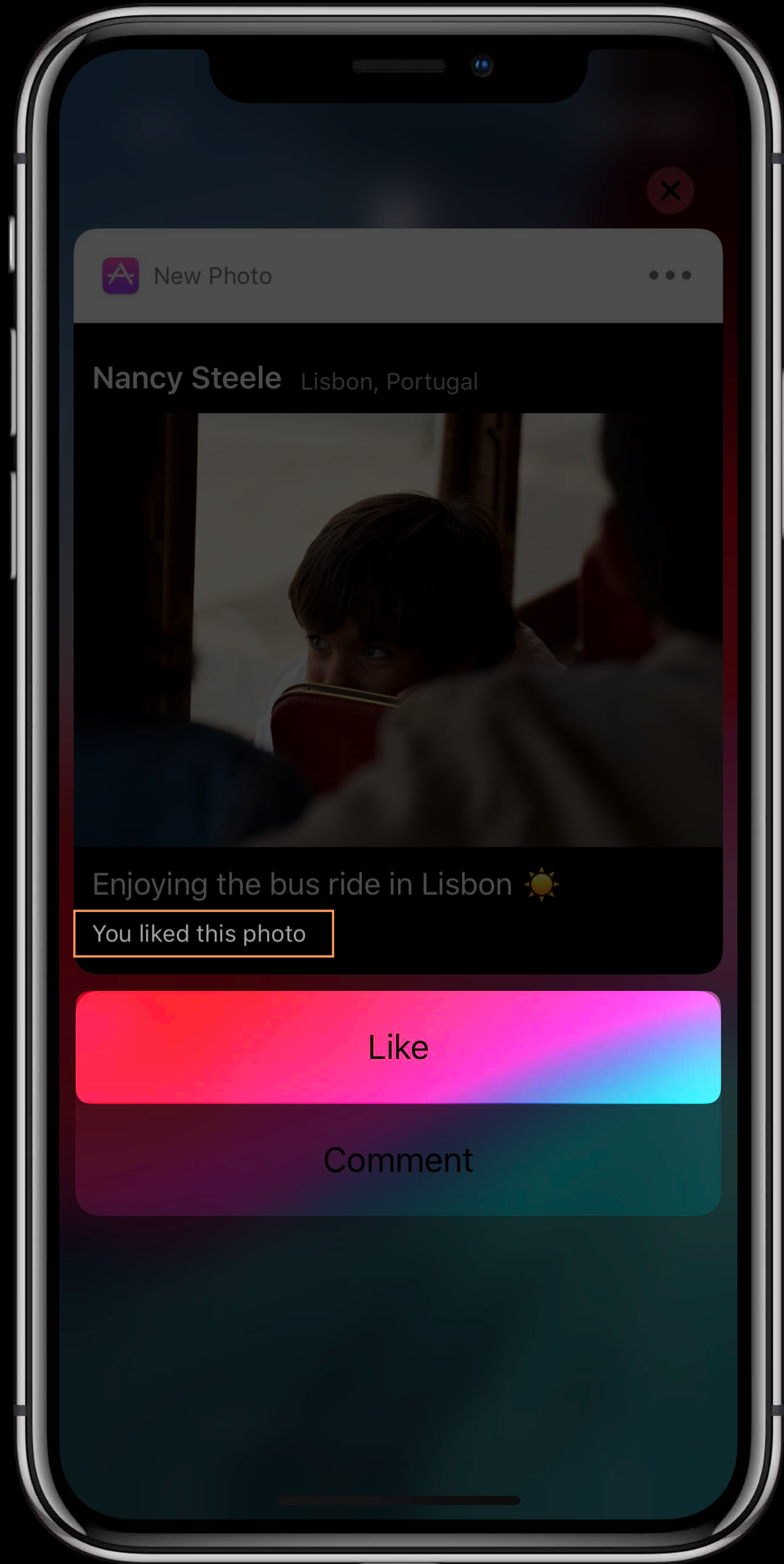


Enjoying the bus ride in Lisbon ☀️

You liked this photo

Like

Comment



New Photo

Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️

You liked this photo

Like

Comment

# Notification Content Extensions

Actions

# Notification Content Extensions

Actions

Not dynamic

# Notification Content Extensions

Actions

Not dynamic

Tied to category

```
// Notification Content Extensions
// Actions API

extension NSExtensionContext {

    @available(iOS 12.0, *)
    var notificationActions: [UNNotificationAction]

}

```



NEW



NEW

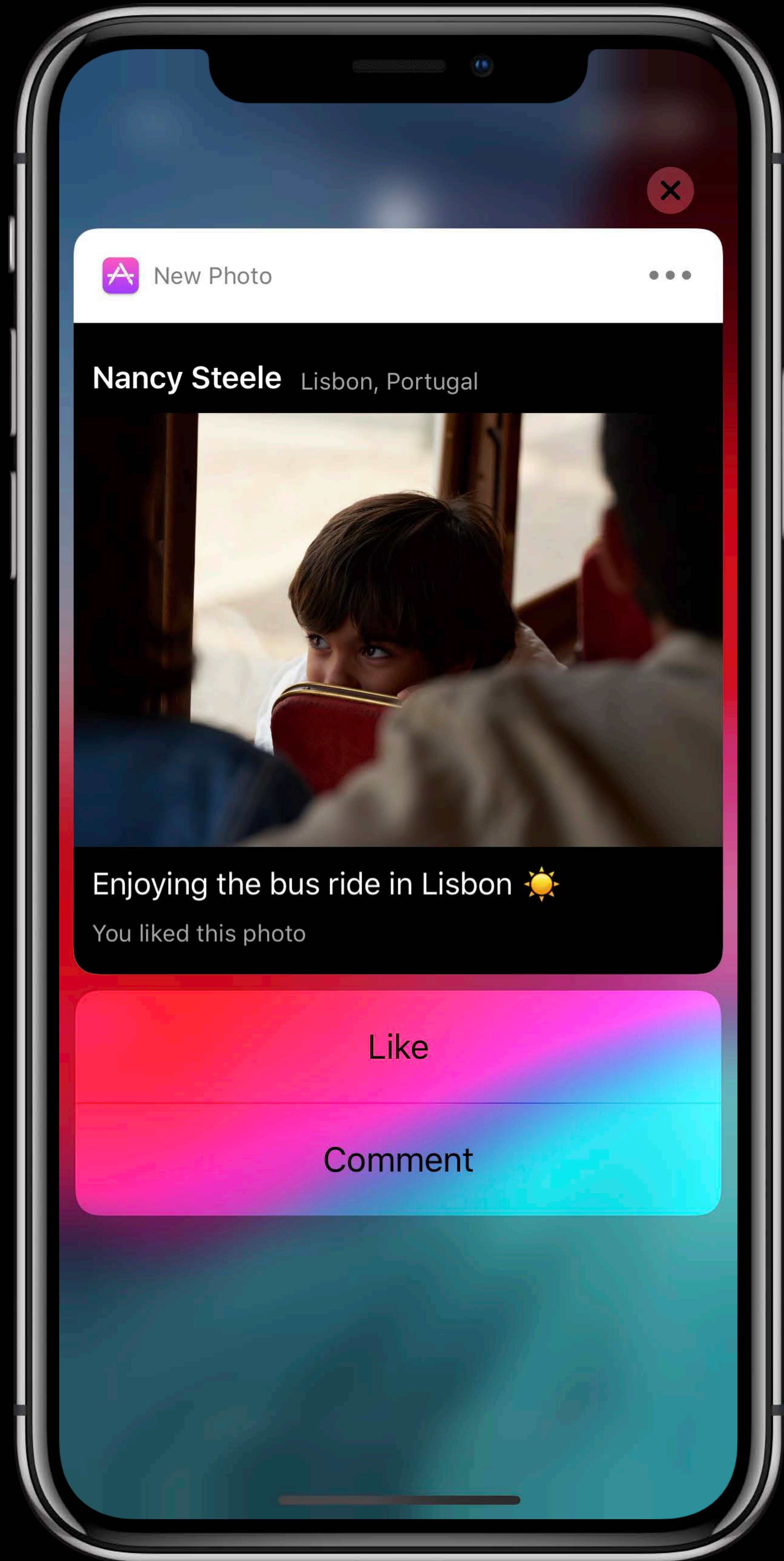
```
// Notification Content Extensions  
// Actions API
```

```
extension NSExtensionContext {
```

```
    @available(iOS 12.0, *)
```

```
    var notificationActions: [UNNotificationAction]
```

```
}
```



New Photo



**Nancy Steele** Lisbon, Portugal



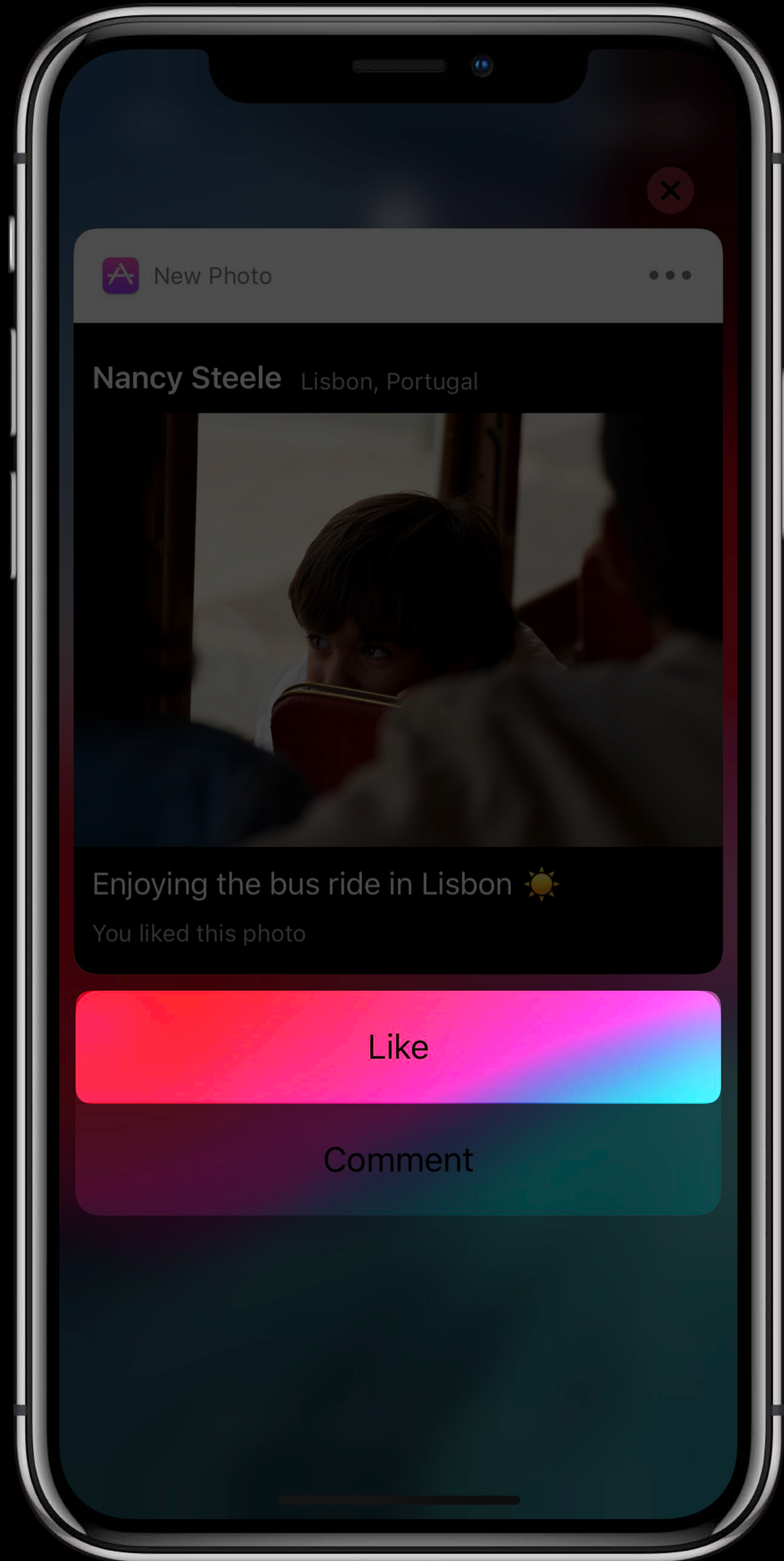
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You liked this photo

Like

Comment





New Photo

Nancy Steele Lisbon, Portugal

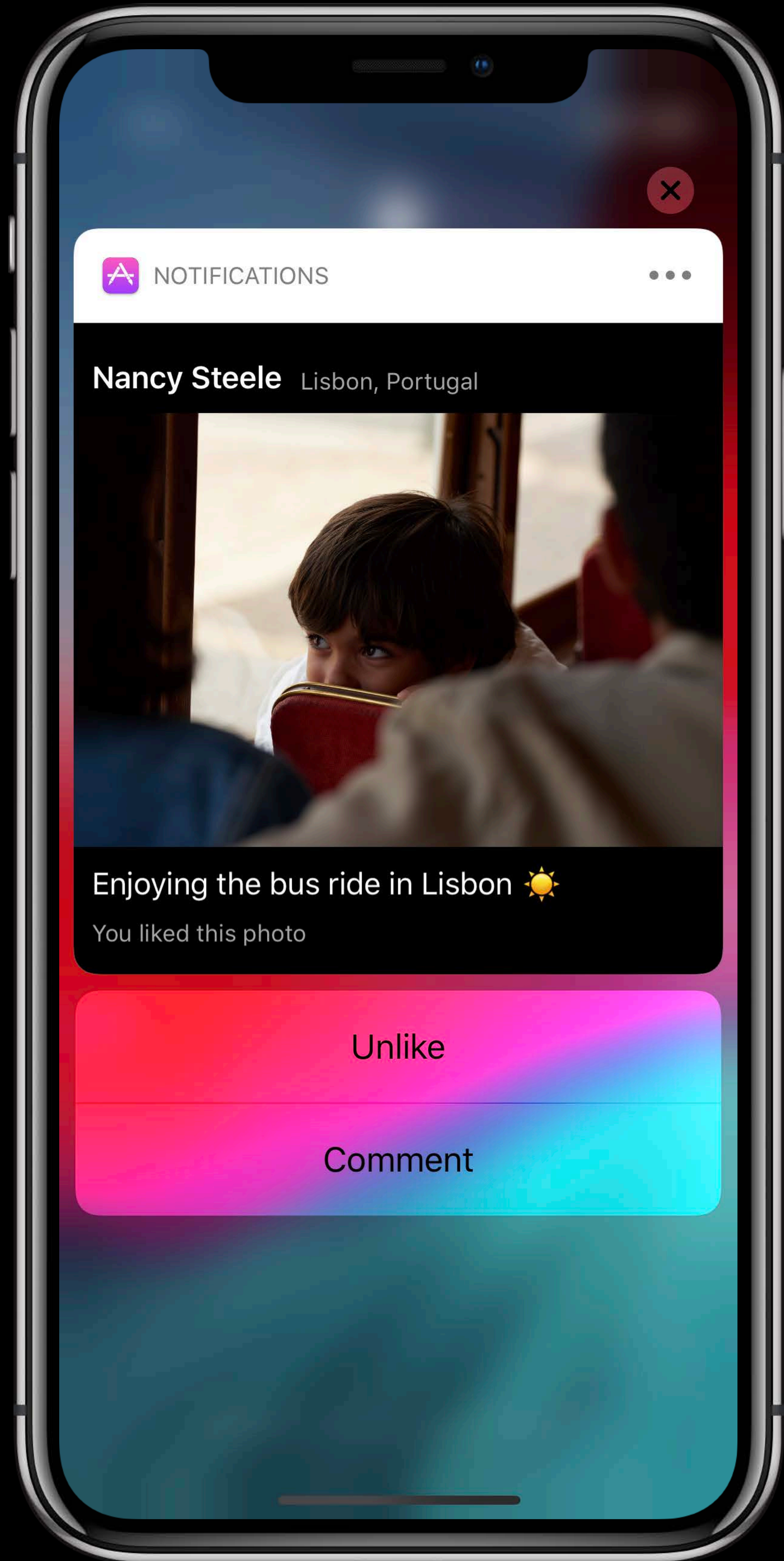


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You liked this photo

Like

Comment



NOTIFICATIONS



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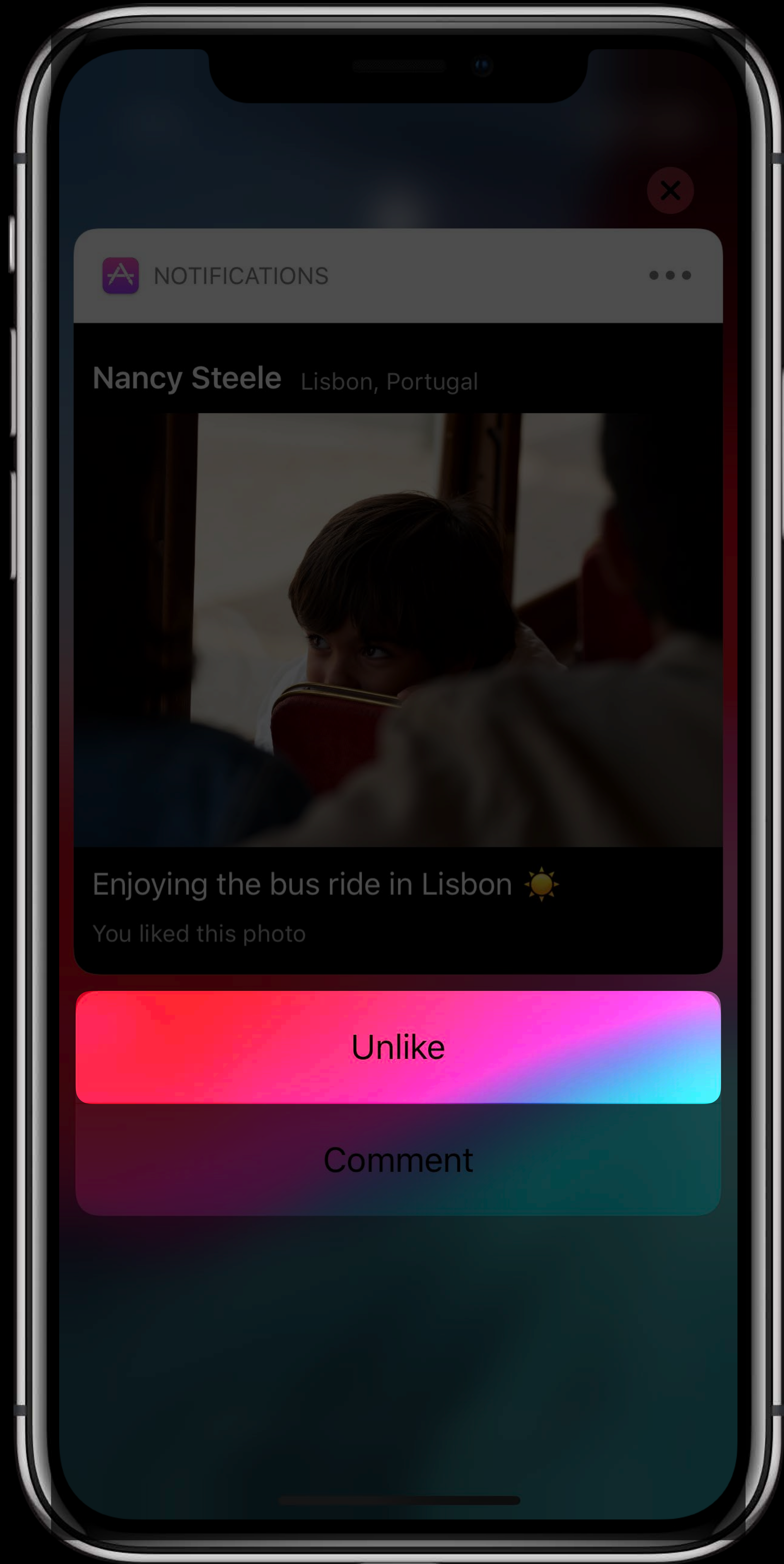


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You liked this photo

Unlike

Comment



NOTIFICATIONS



Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️

You liked this photo

Unlike

Comment

```
// Notification Content Extensions

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        if response.actionIdentifier == "like-action" {
            // Update state...
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",
                                                    title: "Unlike", options: [])

            let currentActions = extensionContext?.notificationActions
            let commentAction = currentActions![1]
            let newActions = [ unlikeAction, commentAction ]
            extensionContext?.notificationActions = newActions
        }
    }
}
```

```
// Notification Content Extensions
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {  
  
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:  
        (UNNotificationContentExtensionResponseOption) -> Void) {  
        if response.actionIdentifier == "like-action" {  
            // Update state...  
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",  
                                                    title: "Unlike", options: [])  
  
            let currentActions = extensionContext?.notificationActions  
            let commentAction = currentActions![1]  
            let newActions = [ unlikeAction, commentAction ]  
            extensionContext?.notificationActions = newActions  
        }  
    }  
}
```

```
// Notification Content Extensions
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {  
  
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:  
        (UNNotificationContentExtensionResponseOption) -> Void) {  
        if response.actionIdentifier == "like-action" {  
            // Update state...  
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",  
                                                    title: "Unlike", options: [])  
            let currentActions = extensionContext?.notificationActions  
            let commentAction = currentActions![1]  
            let newActions = [ unlikeAction, commentAction ]  
            extensionContext?.notificationActions = newActions  
        }  
    }  
}
```

```
// Notification Content Extensions
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {  
  
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:  
        (UNNotificationContentExtensionResponseOption) -> Void) {  
        if response.actionIdentifier == "like-action" {  
            // Update state...  
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",  
                                                    title: "Unlike", options: [])  
  
            let currentActions = extensionContext?.notificationActions  
            let commentAction = currentActions![1]  
            let newActions = [ unlikeAction, commentAction ]  
            extensionContext?.notificationActions = newActions  
        }  
    }  
}
```

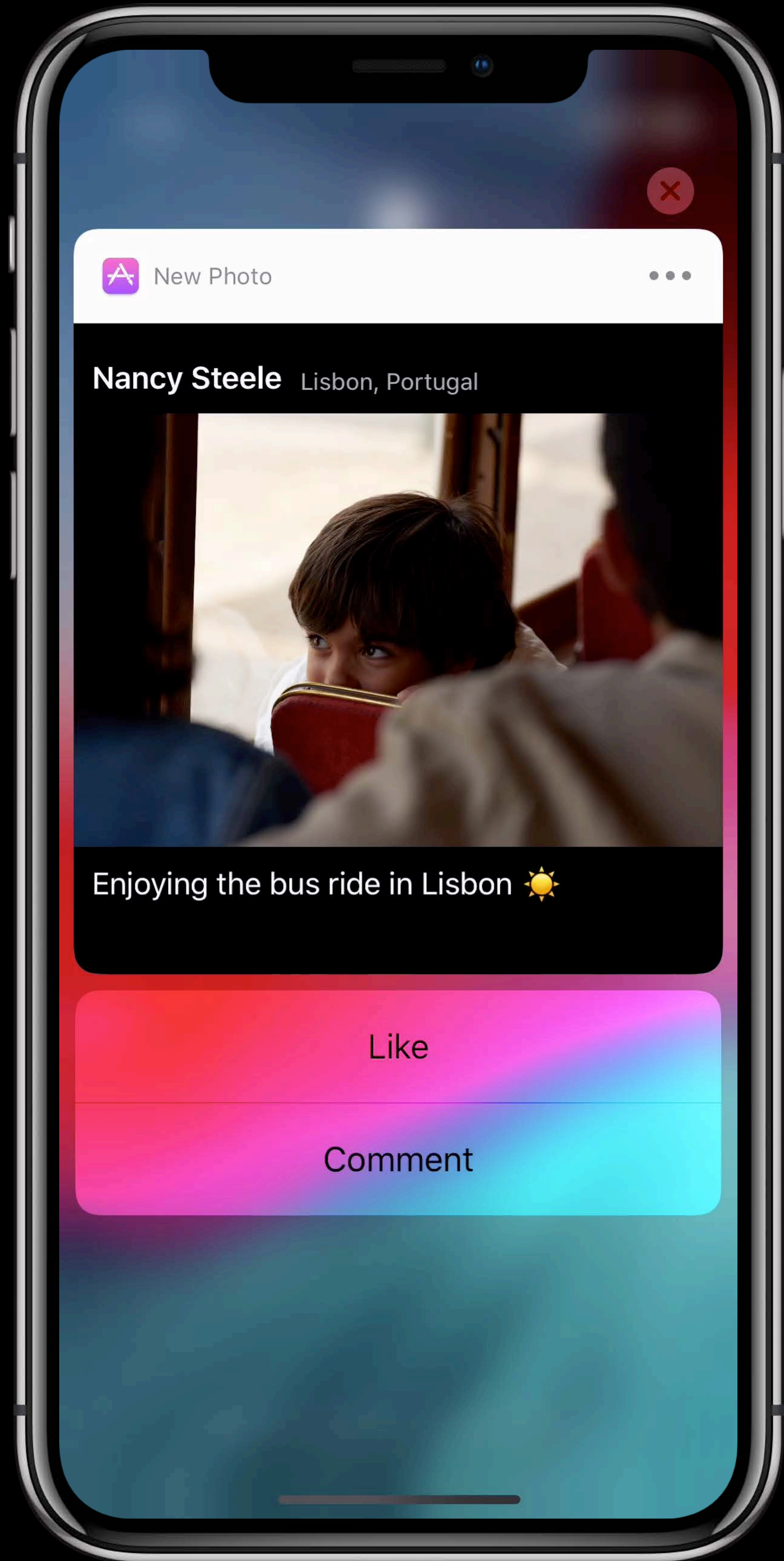
```
// Notification Content Extensions
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {  
  
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:  
        (UNNotificationContentExtensionResponseOption) -> Void) {  
        if response.actionIdentifier == "like-action" {  
            // Update state...  
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",  
                                                    title: "Unlike", options: [])  
  
            let currentActions = extensionContext?.notificationActions  
            let commentAction = currentActions![1]  
            let newActions = [ unlikeAction, commentAction ]  
            extensionContext?.notificationActions = newActions  
        }  
    }  
}
```



```
// Notification Content Extensions
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {  
  
    func didReceive(_ response: UNNotificationResponse, completionHandler completion:  
        (UNNotificationContentExtensionResponseOption) -> Void) {  
        if response.actionIdentifier == "like-action" {  
            // Update state...  
            let unlikeAction = UNNotificationAction(identifier: "unlike-action",  
                                                    title: "Unlike", options: [])  
  
            let currentActions = extensionContext?.notificationActions  
            let commentAction = currentActions![1]  
            let newActions = [ unlikeAction, commentAction ]  
            extensionContext?.notificationActions = newActions  
        }  
    }  
}
```



New Photo

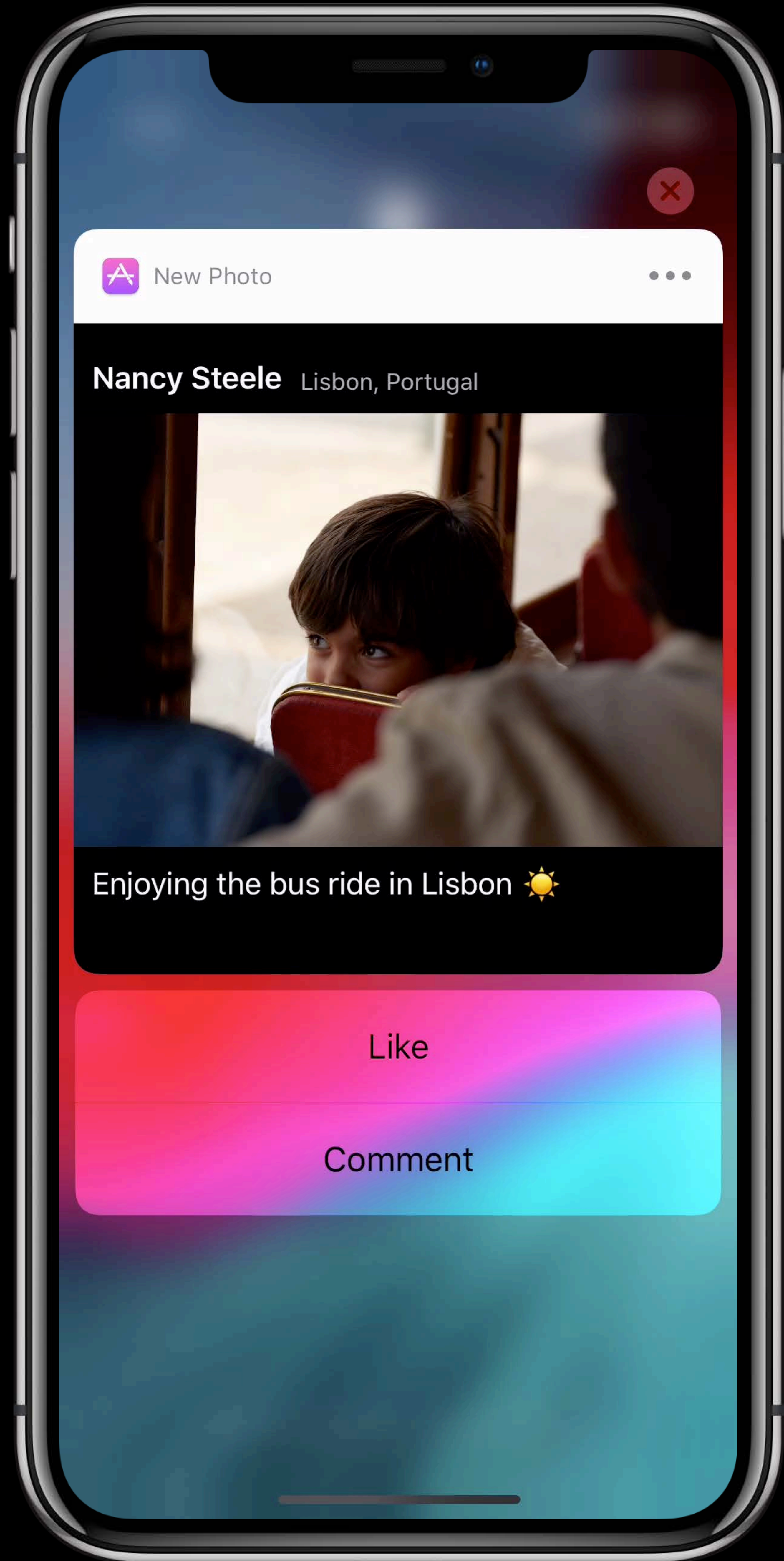
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Like

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Comment

# Notification Content Extensions

## Actions

Set actions when content extension view is set up

```
func didReceive(_ notification: UNNotification) {  
    // Set up content extension view...  
    extensionContext?.notificationActions = newActions  
}
```

# Notification Content Extensions

## Actions

Set actions when content extension view is set up

```
func didReceive(_ notification: UNNotification) {  
    // Set up content extension view...  
    extensionContext?.notificationActions = newActions  
}
```

# Notification Content Extensions

Actions

Secondary set of actions

```
func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
    if response.actionIdentifier == "rate-action" {
        extensionContext?.notificationActions = [ oneStarAction, twoStarAction,
threeStarAction ]
    }
}
```

# Notification Content Extensions

## Actions

Secondary set of actions

```
func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
    if response.actionIdentifier == "rate-action" {
        extensionContext?.notificationActions = [ oneStarAction, twoStarAction,
threeStarAction ]
    }
}
```

# Notification Content Extensions

## Actions

Remove all notification actions

```
func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
    if response.actionIdentifier == "done-action" {
        extensionContext?.notificationActions = []
    }
}
```



# Notification Content Extensions

## Actions

Remove all notification actions

```
func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
    if response.actionIdentifier == "done-action" {
        extensionContext?.notificationActions = []
    }
}
```

```
// Notification Content Extensions
// Actions API

extension NSExtensionContext {

    @available(iOS 12.0, *)
    var notificationActions: [UNNotificationAction]

}

```



**NEW**



NEW

```
// Notification Content Extensions  
// Actions API
```

```
extension NSExtensionContext {
```

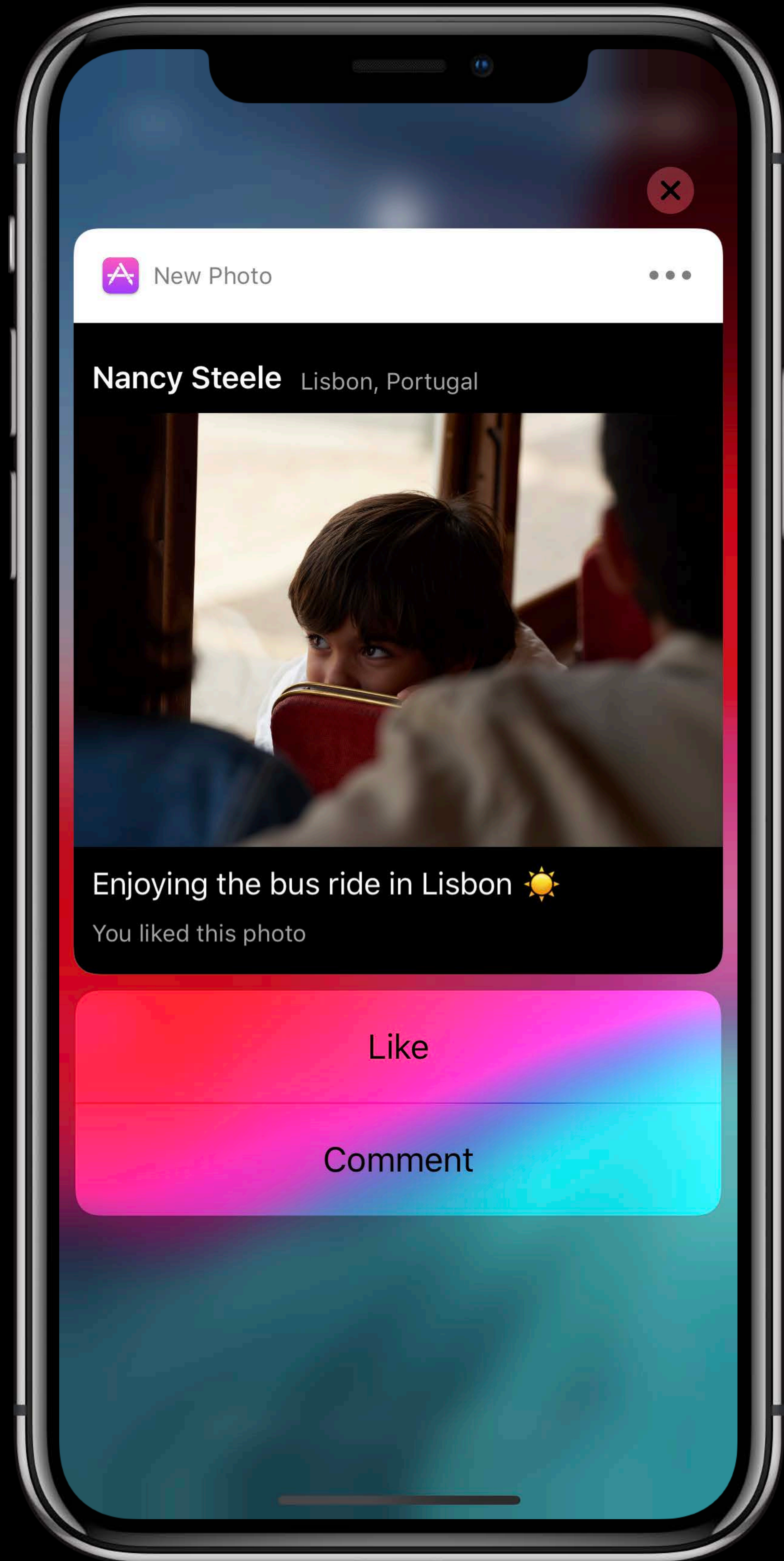
```
    @available(iOS 12.0, *)
```

```
    var notificationActions: [UNNotificationAction]
```

```
}
```

# Notification Content Extensions

User interactions



New Photo



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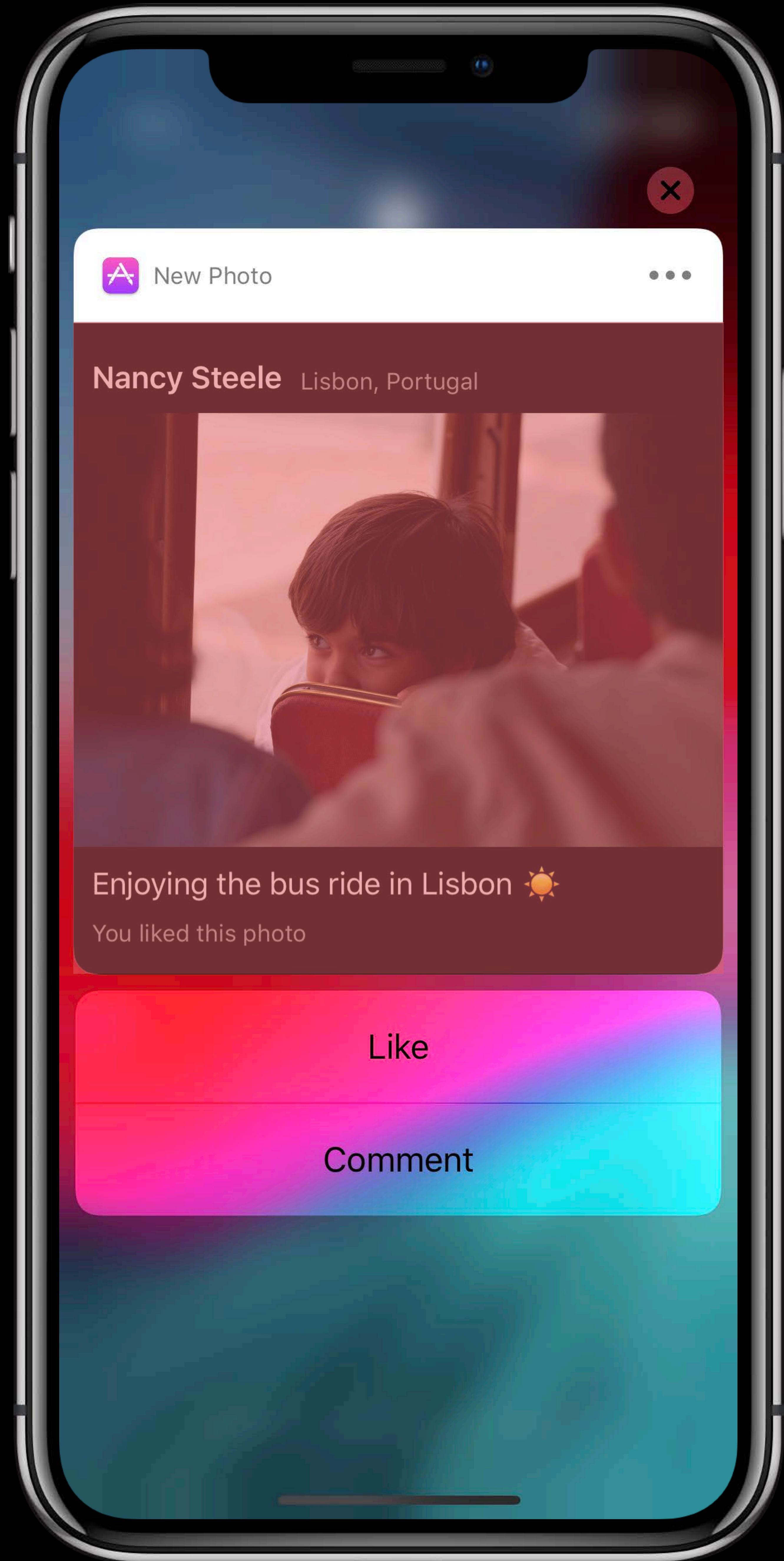


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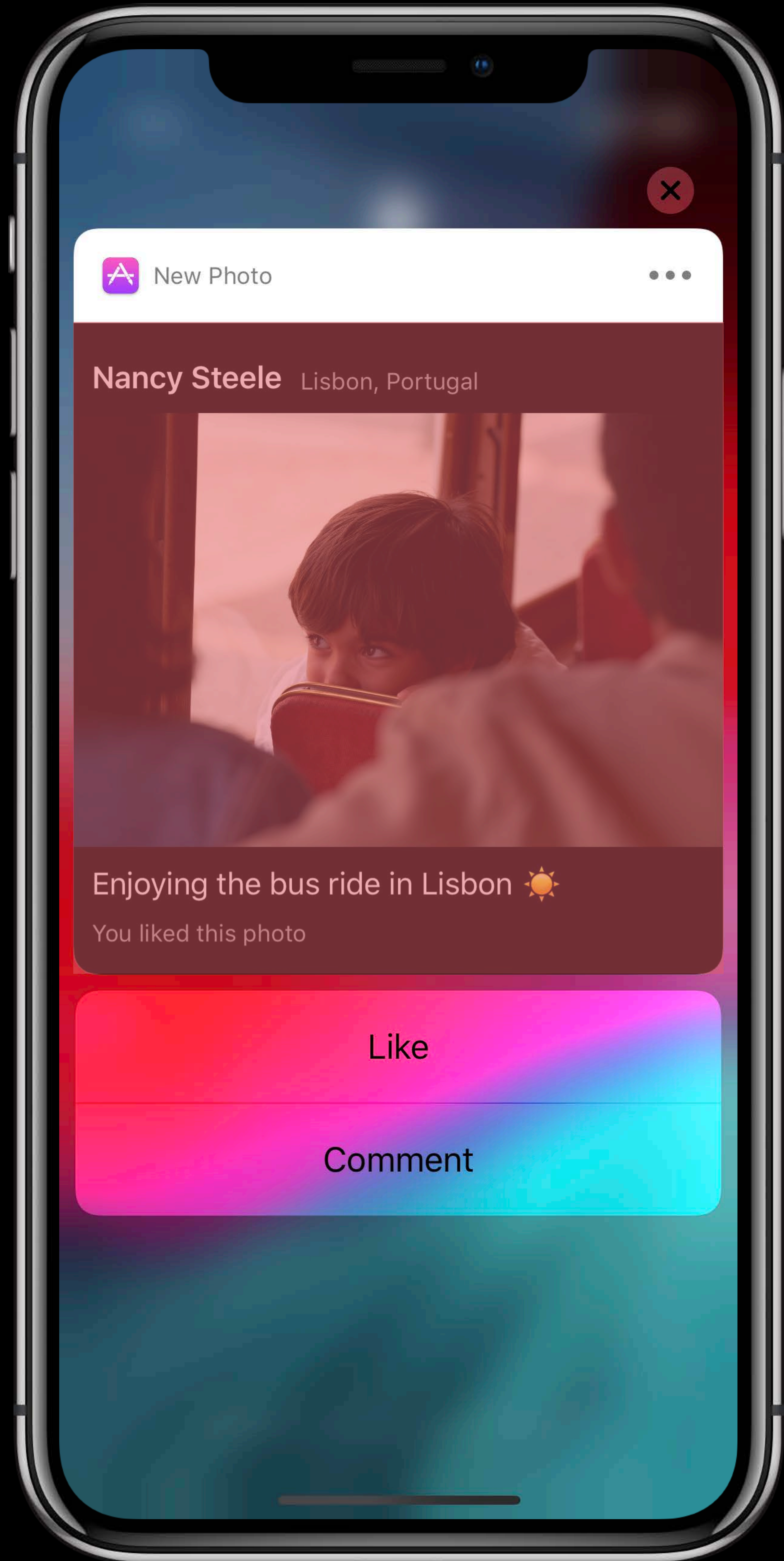


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New Photo



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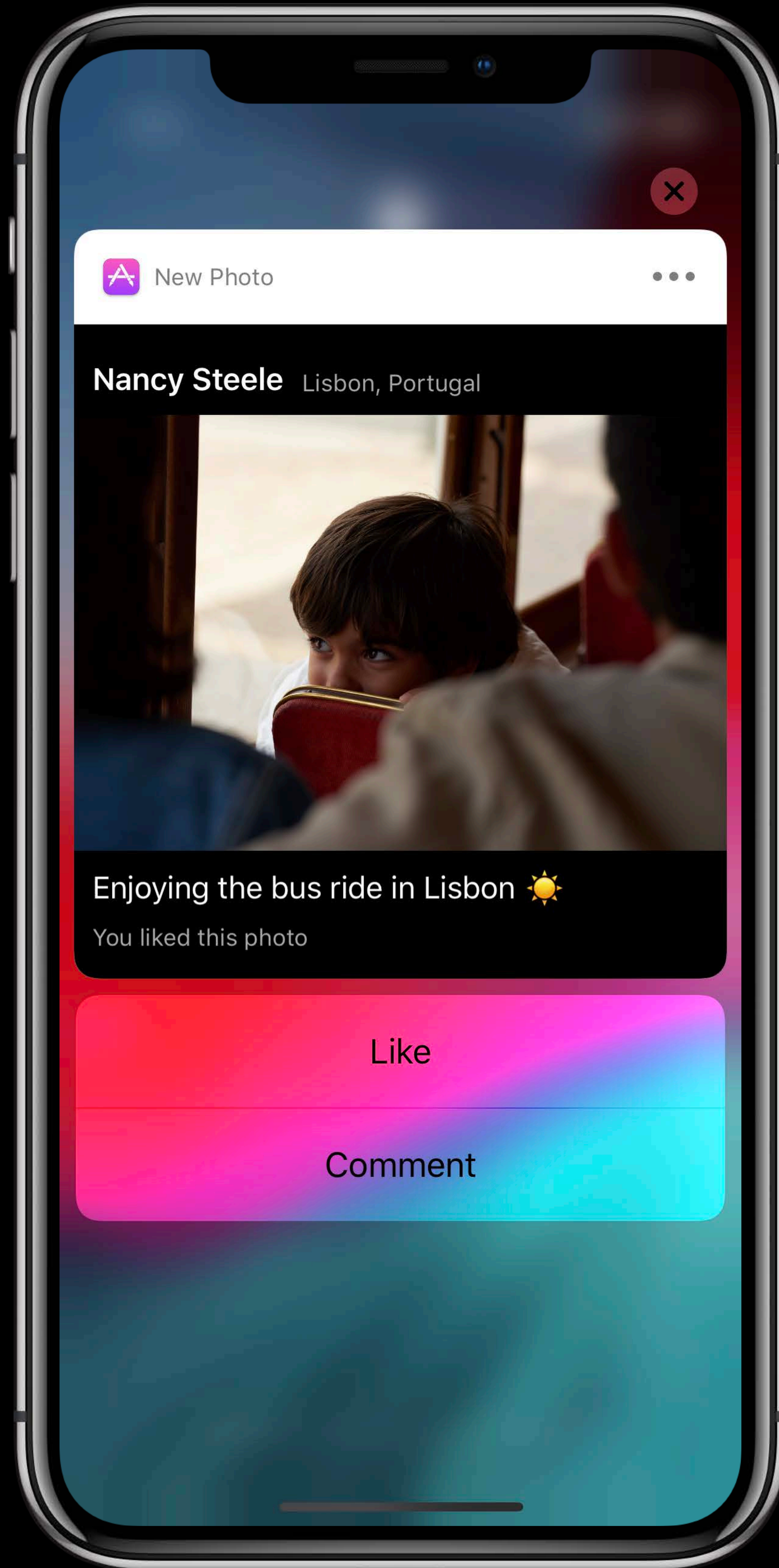


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You liked this photo

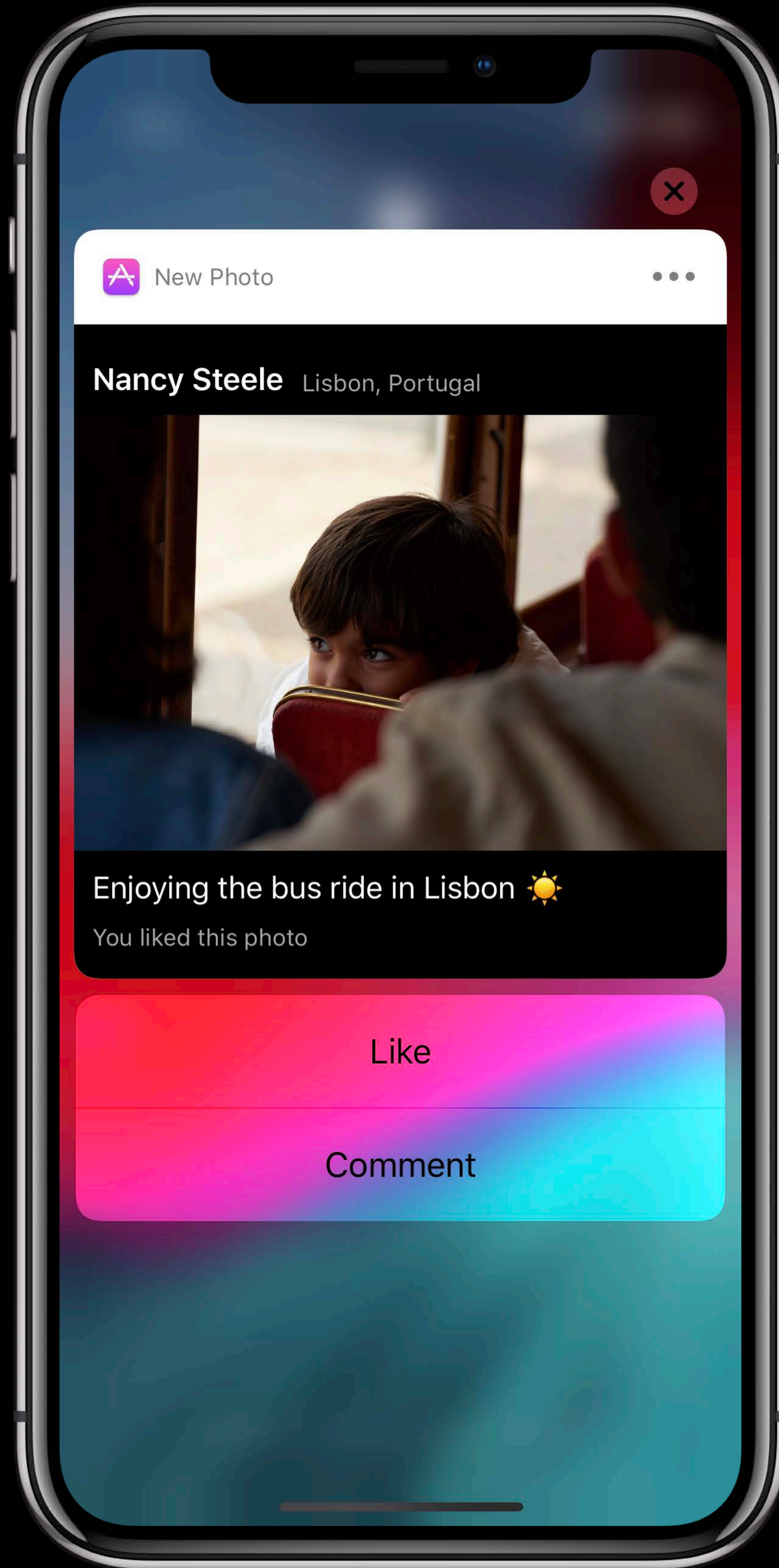
Like

Comment



NEW



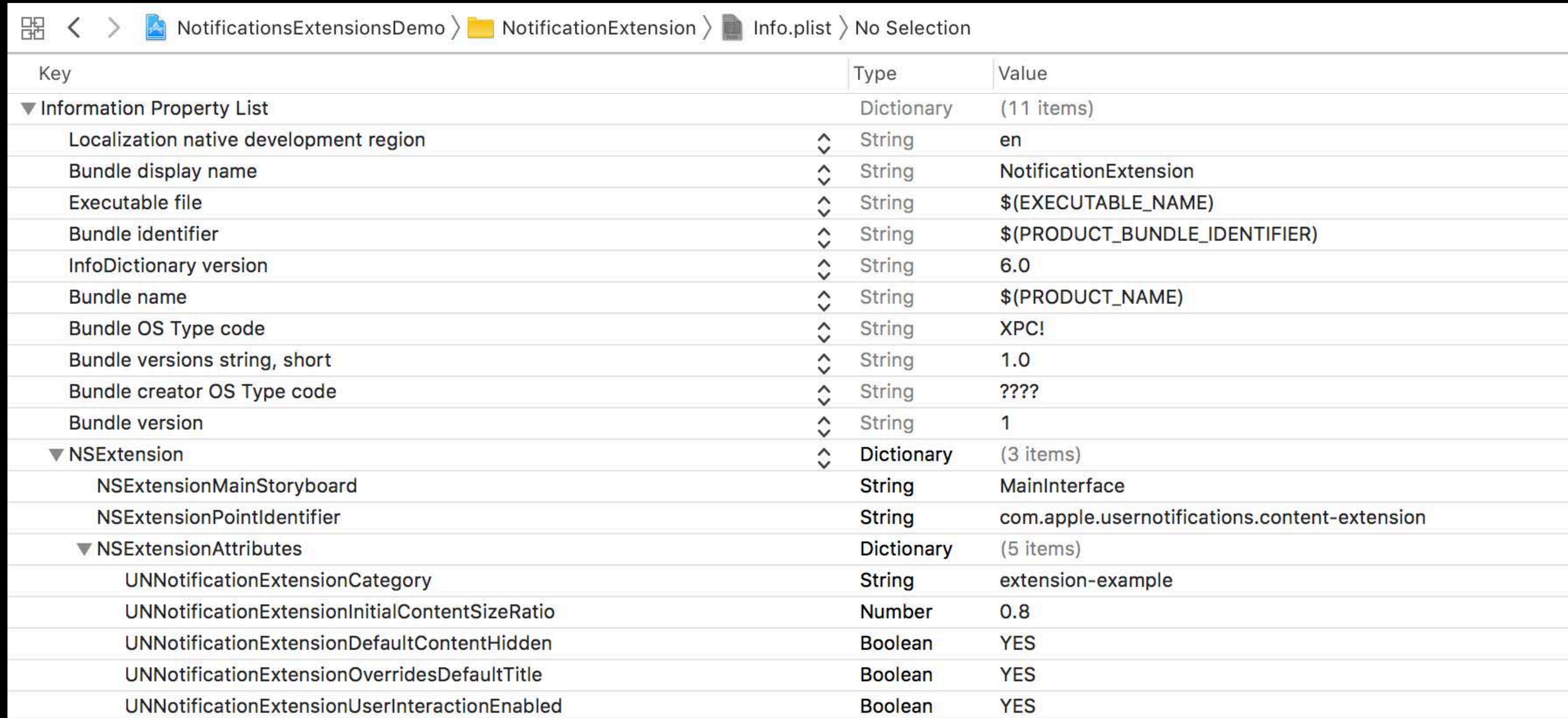


NEW

# Notification Content Extensions

## User interaction

NEW



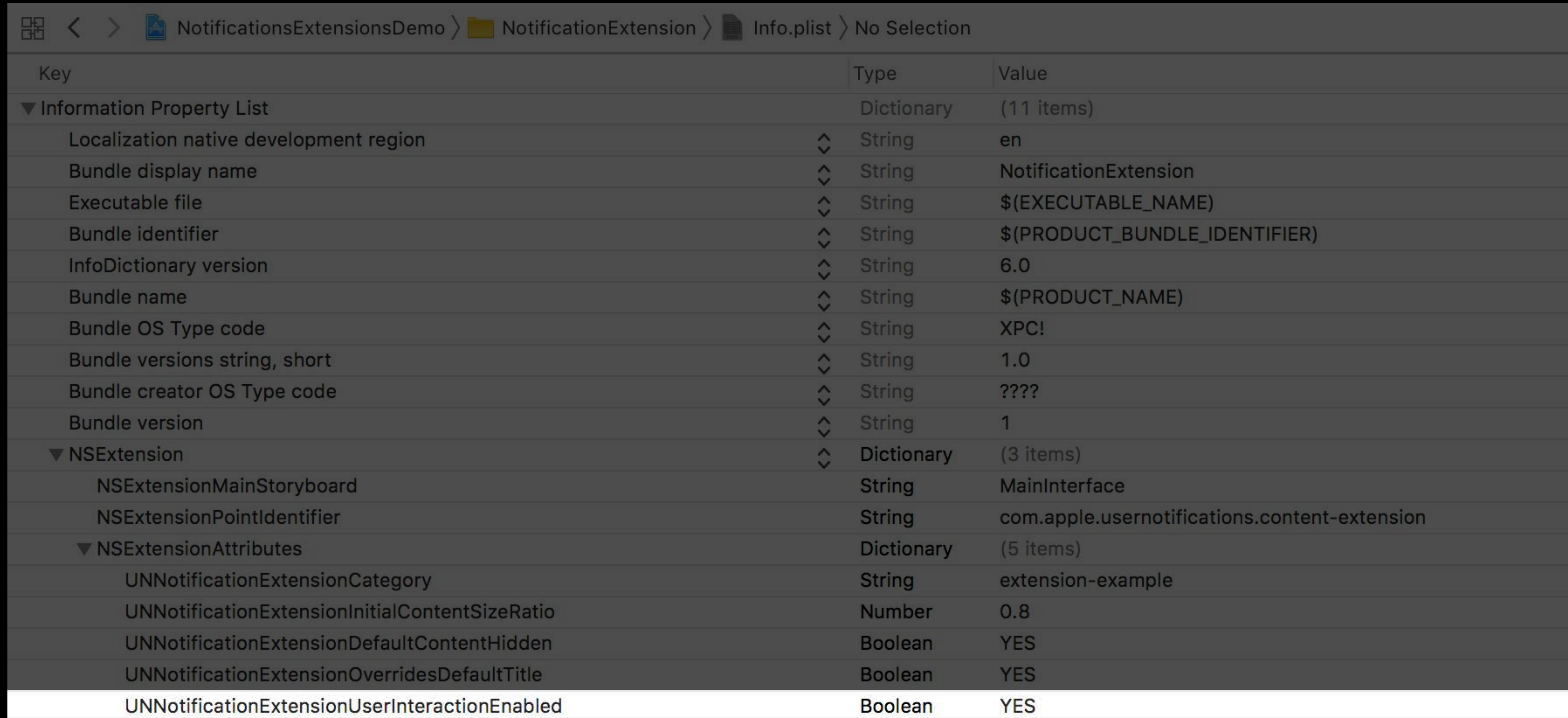
The screenshot shows the Xcode interface for editing an Info.plist file. The breadcrumb path is: NotificationsExtensionsDemo > NotificationExtension > Info.plist > No Selection. The table below represents the content of the Info.plist file.

Key	Type	Value
▼ Information Property List	Dictionary	(11 items)
Localization native development region	String	en
Bundle display name	String	NotificationExtension
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0
Bundle name	String	\$(PRODUCT_NAME)
Bundle OS Type code	String	XPC!
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1
▼ NSExtension	Dictionary	(3 items)
NSExtensionMainStoryboard	String	MainInterface
NSExtensionPointIdentifier	String	com.apple.usernotifications.content-extension
▼ NSExtensionAttributes	Dictionary	(5 items)
UNNotificationExtensionCategory	String	extension-example
UNNotificationExtensionInitialContentSizeRatio	Number	0.8
UNNotificationExtensionDefaultContentHidden	Boolean	YES
UNNotificationExtensionOverridesDefaultTitle	Boolean	YES
UNNotificationExtensionUserInteractionEnabled	Boolean	YES

# Notification Content Extensions

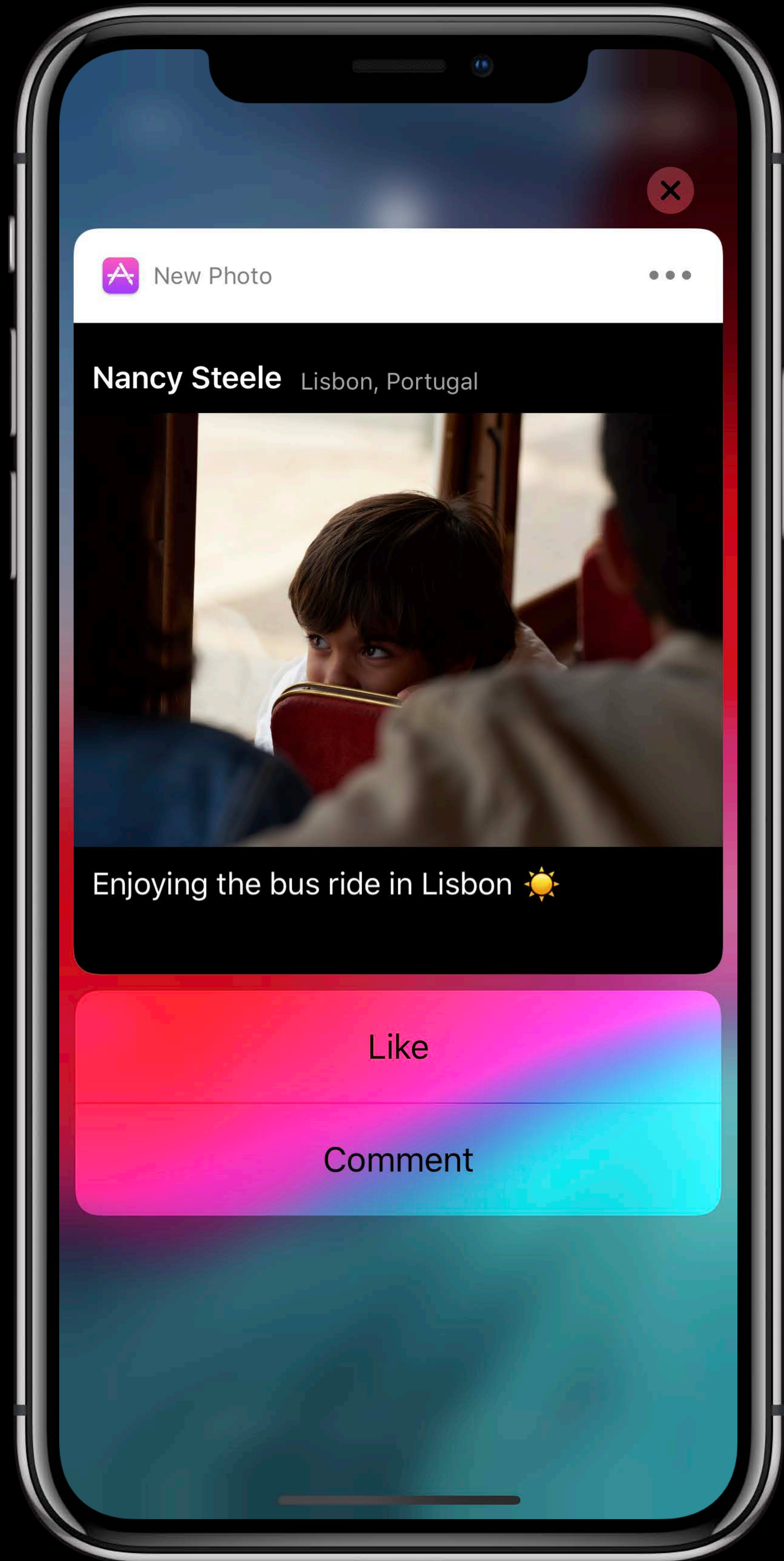
## User interaction

NEW



The screenshot shows the Xcode interface for editing an Info.plist file. The breadcrumb path is 'NotificationsExtensionsDemo > NotificationExtension > Info.plist > No Selection'. The table below represents the contents of the Info.plist file.

Key	Type	Value
▼ Information Property List	Dictionary	(11 items)
Localization native development region	String	en
Bundle display name	String	NotificationExtension
Executable file	String	\$(EXECUTABLE_NAME)
Bundle identifier	String	\$(PRODUCT_BUNDLE_IDENTIFIER)
InfoDictionary version	String	6.0
Bundle name	String	\$(PRODUCT_NAME)
Bundle OS Type code	String	XPC!
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1
▼ NSExtension	Dictionary	(3 items)
NSExtensionMainStoryboard	String	MainInterface
NSExtensionPointIdentifier	String	com.apple.usernotifications.content-extension
▼ NSExtensionAttributes	Dictionary	(5 items)
UNNotificationExtensionCategory	String	extension-example
UNNotificationExtensionInitialContentSizeRatio	Number	0.8
UNNotificationExtensionDefaultContentHidden	Boolean	YES
UNNotificationExtensionOverridesDefaultTitle	Boolean	YES
UNNotificationExtensionUserInteractionEnabled	Boolean	YES



New Photo



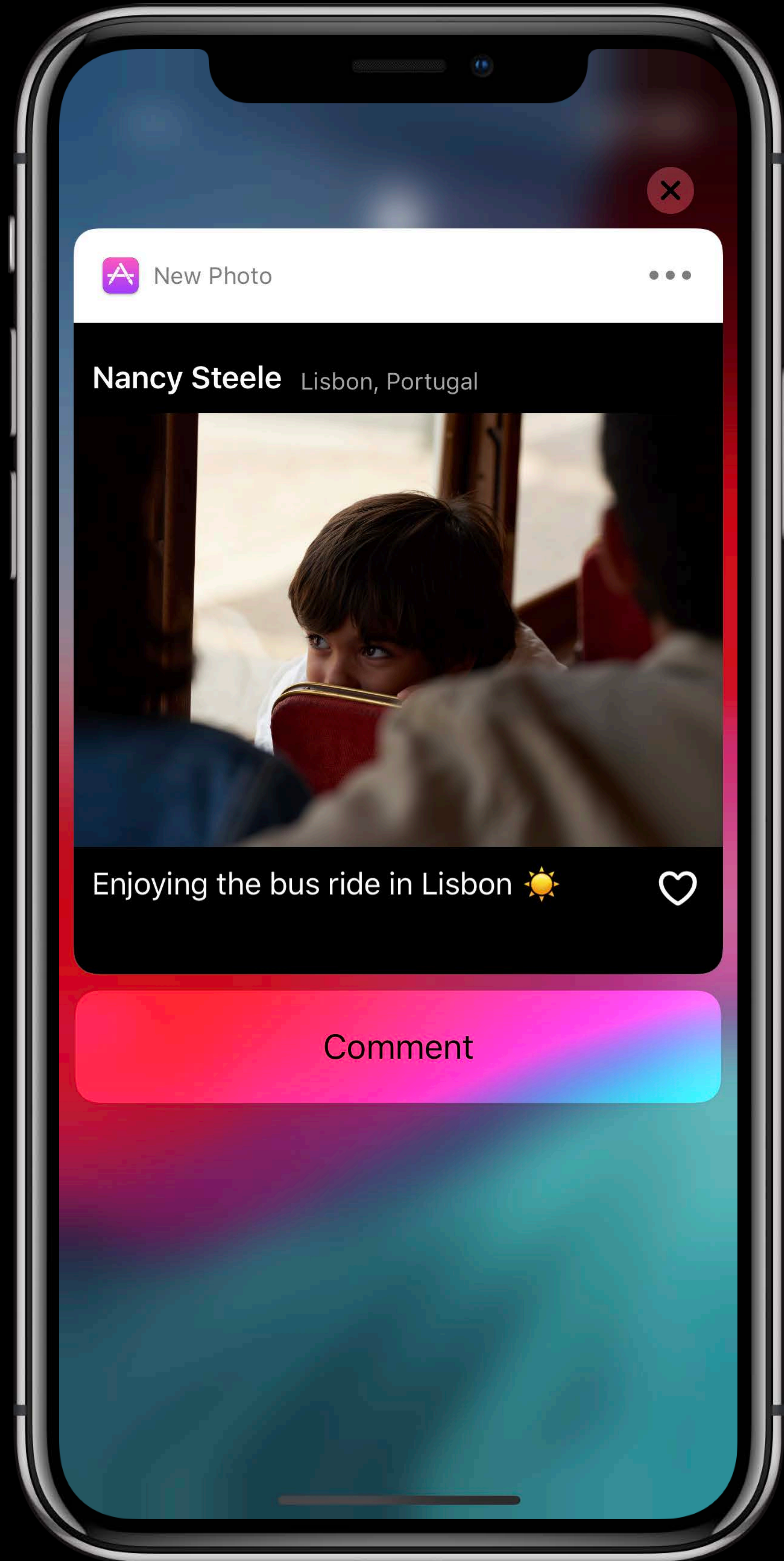
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Like

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New Photo



**Nancy Steele** Lisbon, Portugal



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Comment

```
// Notification Content Extensions
// User interaction

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var likeButton: UIButton?
    ...
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
    ...
    @objc func likeButtonTapped() {
        likeButton?.setTitle("♥", for: .normal)
        likedPhoto()
    }
}
}
```

```
// Notification Content Extensions
// User interaction
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

```
    @IBOutlet var likeButton: UIButton?
```

```
    ...
```

```
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
```

```
    ...
```

```
    @objc func likeButtonTapped() {
```

```
        likeButton?.setTitle("♥", for: .normal)
```

```
        likedPhoto()
```

```
    }
```

```
}
```

```
// Notification Content Extensions
// User interaction
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

```
    @IBOutlet var likeButton: UIButton?
```

```
    ...
```

```
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
```

```
    ...
```

```
    @objc func likeButtonTapped() {
```

```
        likeButton?.setTitle("♥", for: .normal)
```

```
        likedPhoto()
```

```
    }
```

```
}
```



```
// Notification Content Extensions
// User interaction
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

```
    @IBOutlet var likeButton: UIButton?
```

```
    ...
```

```
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
```

```
    ...
```

```
    @objc func likeButtonTapped() {
        likeButton?.setTitle("♥", for: .normal)
        likedPhoto()
    }
```

```
}
```



9:41



9:41

Wednesday, June 6

 NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo





9:41



9:41

Wednesday, June 6

NOTIFICATIONS

now

**New Photo**

Nancy Steele just posted a new photo



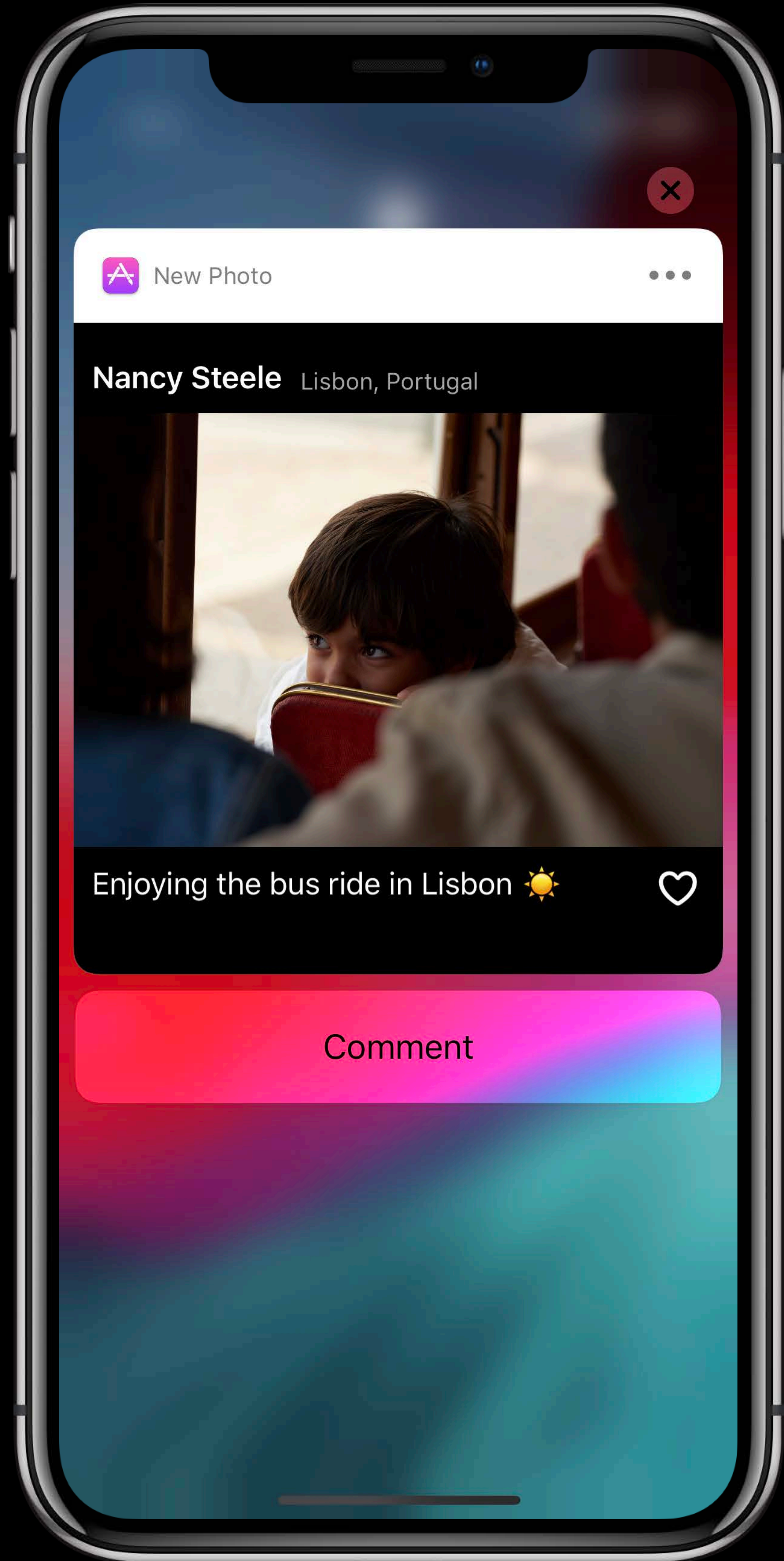
# Notification Content Extensions

User interaction

```
UNNotificationExtensionUserInteractionEnabled
```

# Notification Content Extensions

Launch application



New Photo

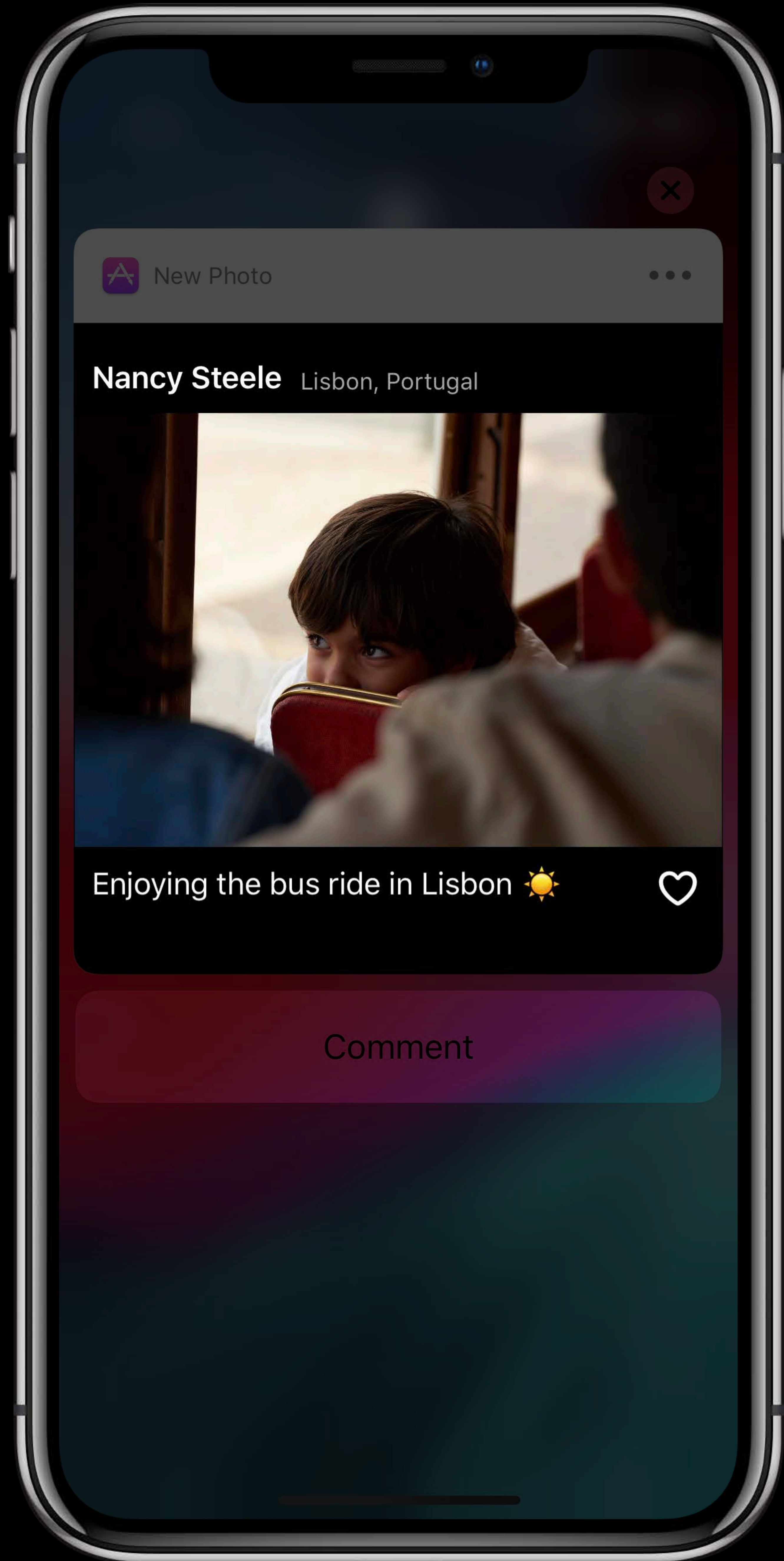
Nancy Steele Lisbon, Portugal

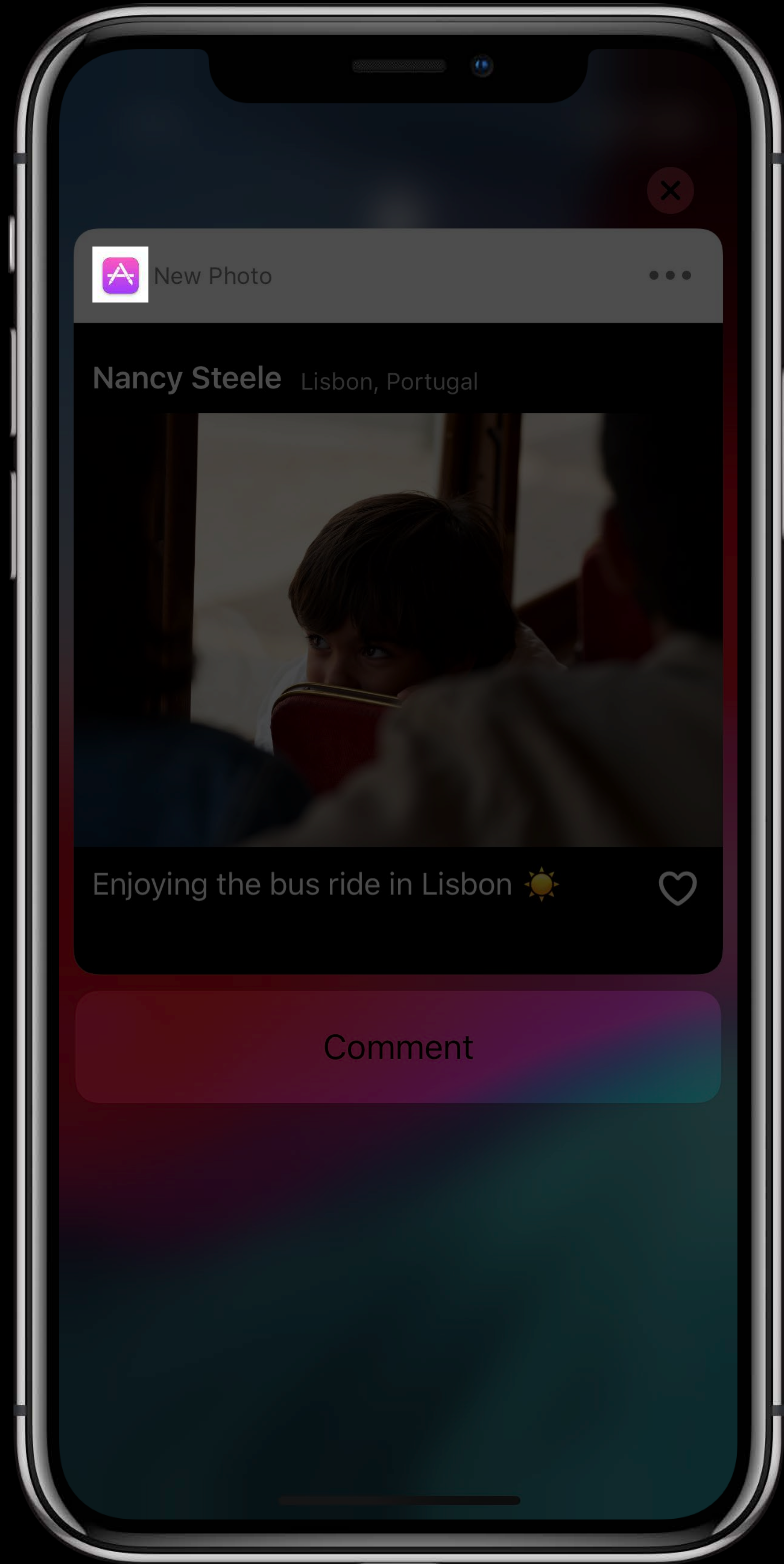


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New Photo



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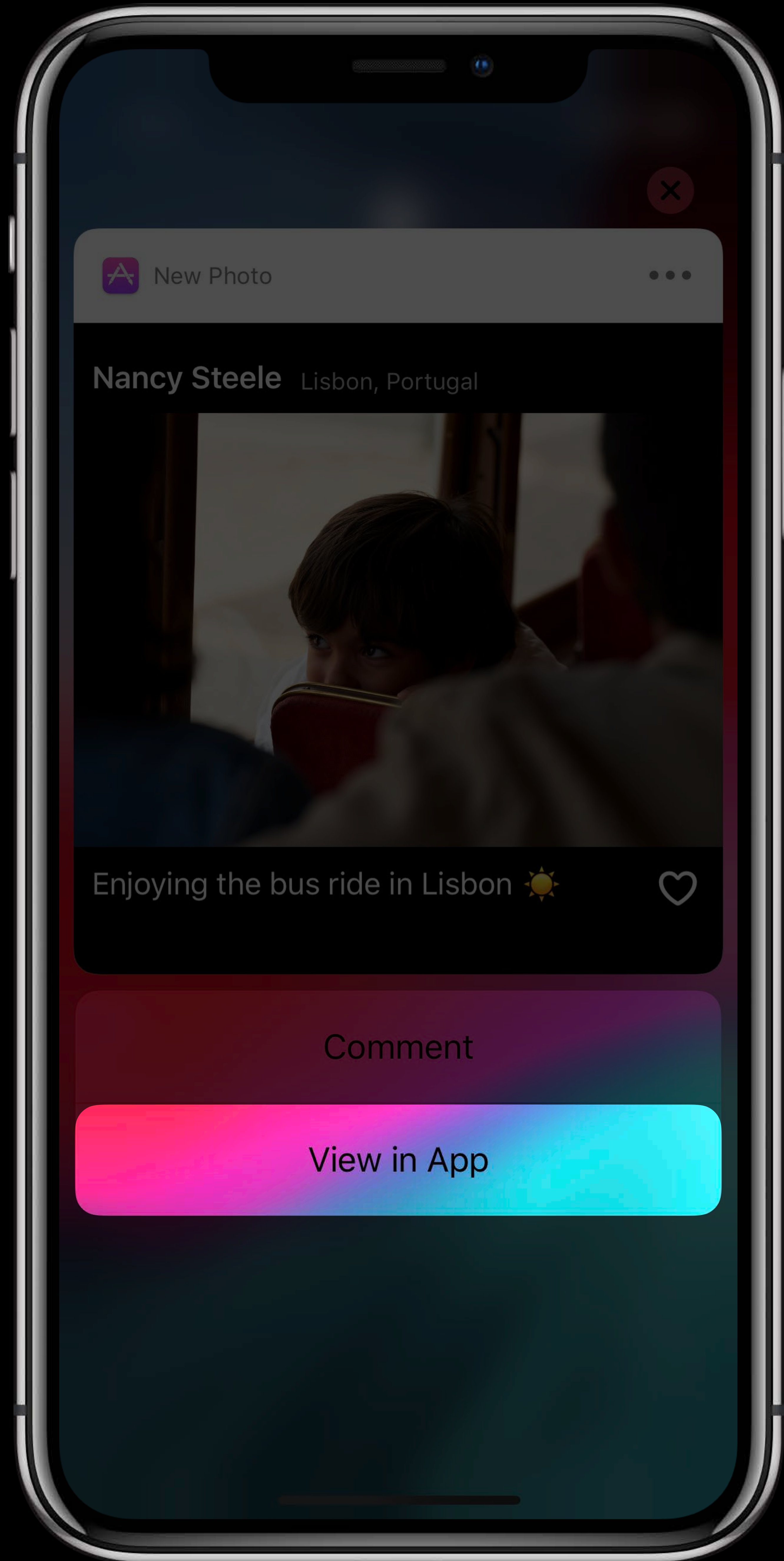


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Comment





New Photo

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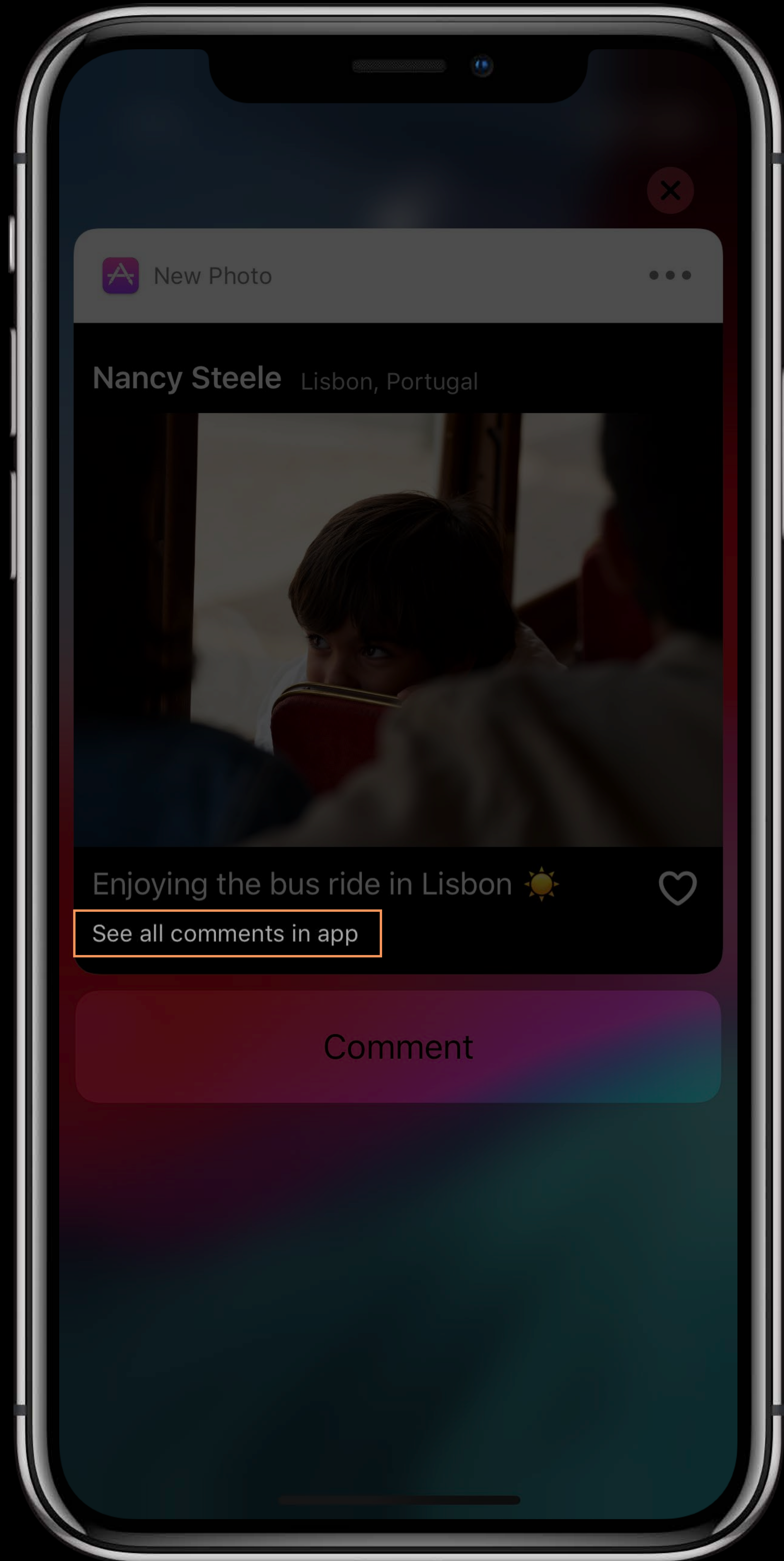


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Comment

View in App



New Photo

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See all comments in app

Comment

```
// Notification Content Extensions

extension NSExtensionContext {

    @available(iOS 12.0, *)
    func performNotificationDefaultAction()

}

}
```



**NEW**



NEW

```
// Notification Content Extensions

extension NSExtensionContext {

    @available(iOS 12.0, *)
    func performNotificationDefaultAction()

}
}
```

# Notification Content Extensions

Default action

# Notification Content Extensions

Default action

Launches the application

# Notification Content Extensions

Default action

Launches the application

UNNotificationResponse

```
func userNotificationCenter(_ center: UNUserNotificationCenter,  
    didReceive response: UNNotificationResponse,  
    withCompletionHandler completionHandler: () -> Void) {  
    // Handle action response  
}
```

# Notification Content Extensions

Default action

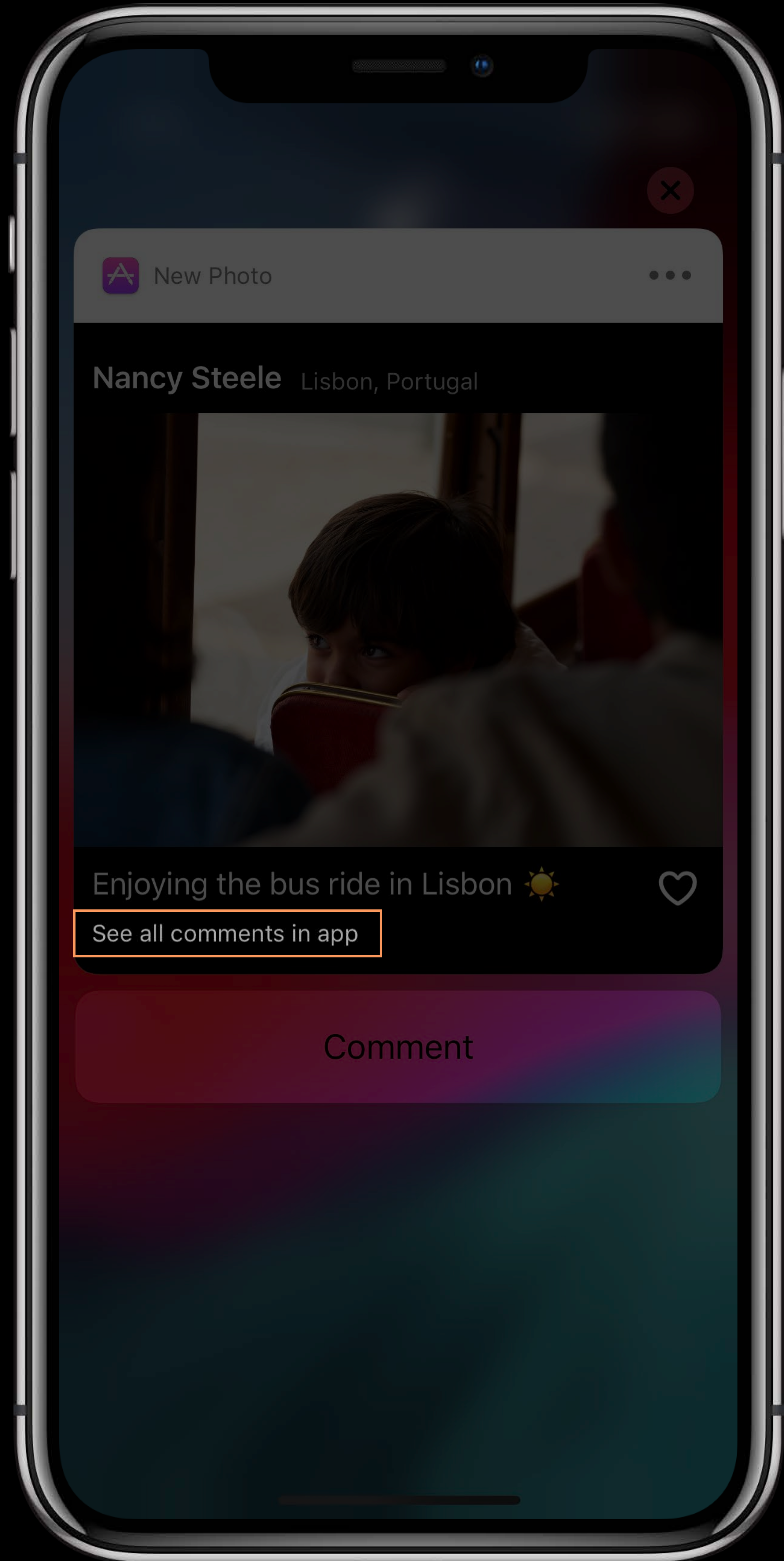
Launches the application

`UNNotificationResponse`

`UNNotificationDefaultActionIdentifier`

```
func userNotificationCenter(_ center: UNUserNotificationCenter,
    didReceive response: UNNotificationResponse,
    withCompletionHandler completionHandler: () -> Void) {
    // Handle action response
}
```





New Photo

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```
// Notification Content Extensions
// Default action

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var allCommentsButton: UIButton?
    ...
    allCommentsButton?.addTarget(self, action: #selector(launchApp), for: .touchUpInside)
    ...
    @objc func launchApp() {
        extensionContext?.performNotificationDefaultAction()
    }
}
}
```

```
// Notification Content Extensions
// Default action
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

```
    @IBOutlet var allCommentsButton: UIButton?
```

```
    ...
```

```
    allCommentsButton?.addTarget(self, action: #selector(launchApp), for: .touchUpInside)
```

```
    ...
```

```
    @objc func launchApp() {
```

```
        extensionContext?.performNotificationDefaultAction()
```

```
    }
```

```
}
```

```
// Notification Content Extensions
// Default action
```

```
import UserNotificationsUI
```

```
class NotificationViewController: UIViewController, UNNotificationContentExtension {
```

```
    @IBOutlet var allCommentsButton: UIButton?
```

```
    ...
```

```
    allCommentsButton?.addTarget(self, action: #selector(launchApp), for: .touchUpInside)
```

```
    ...
```

```
    @objc func launchApp() {
```

```
        extensionContext?.performNotificationDefaultAction()
```

```
    }
```

```
}
```

```
// Notification Content Extensions
// Default action

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var allCommentsButton: UIButton?
    ...
    allCommentsButton?.addTarget(self, action: #selector(launchApp), for: .touchUpInside)
    ...
    @objc func launchApp() {
        extensionContext?.performNotificationDefaultAction()
    }
}

}
```

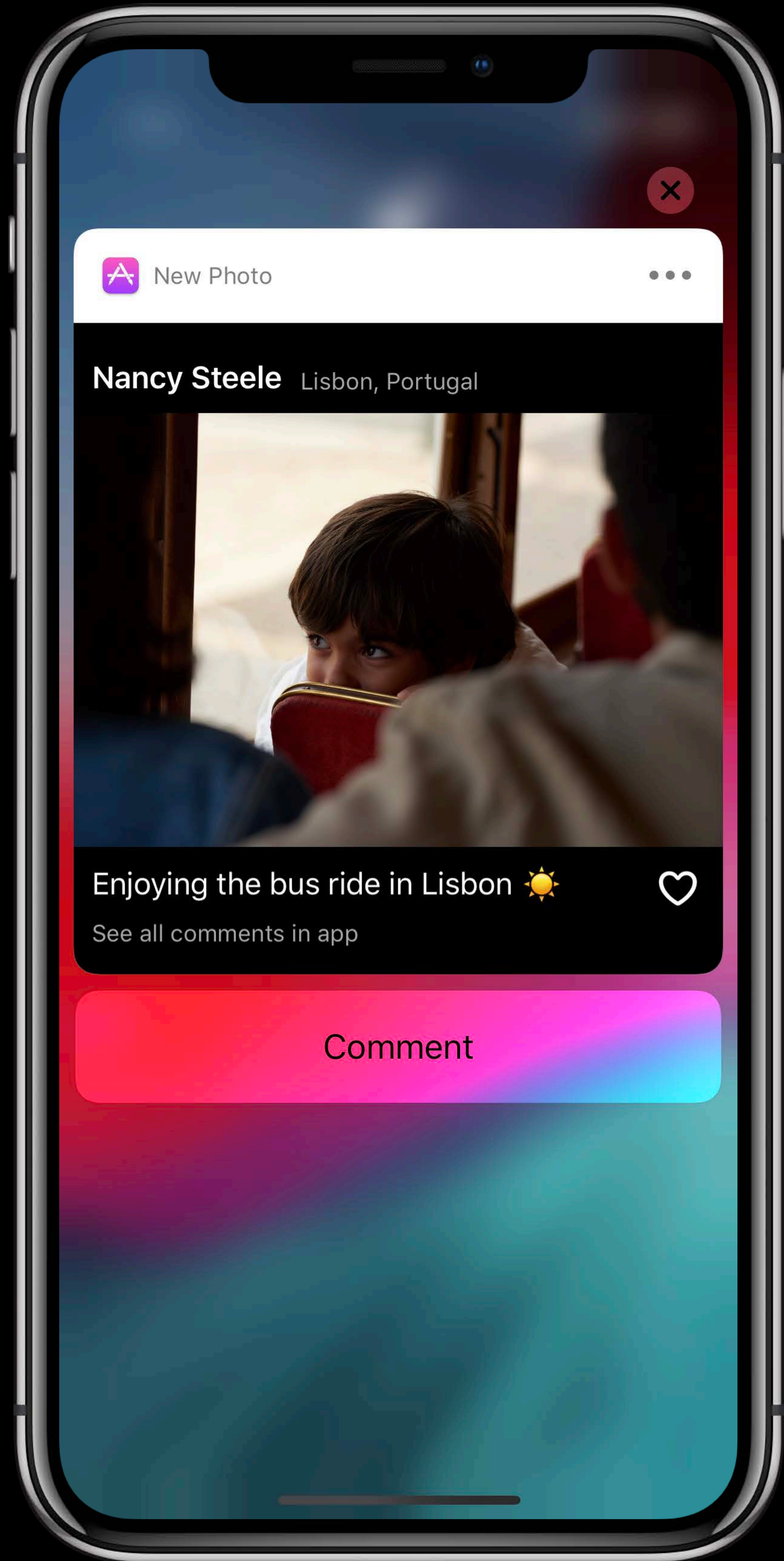
```
// Notification Content Extensions
// Default action

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var allCommentsButton: UIButton?
    ...
    allCommentsButton?.addTarget(self, action: #selector(launchApp), for: .touchUpInside)
    ...
    @objc func launchApp() {
        extensionContext?.performNotificationDefaultAction()
    }
}

}
```



New Photo

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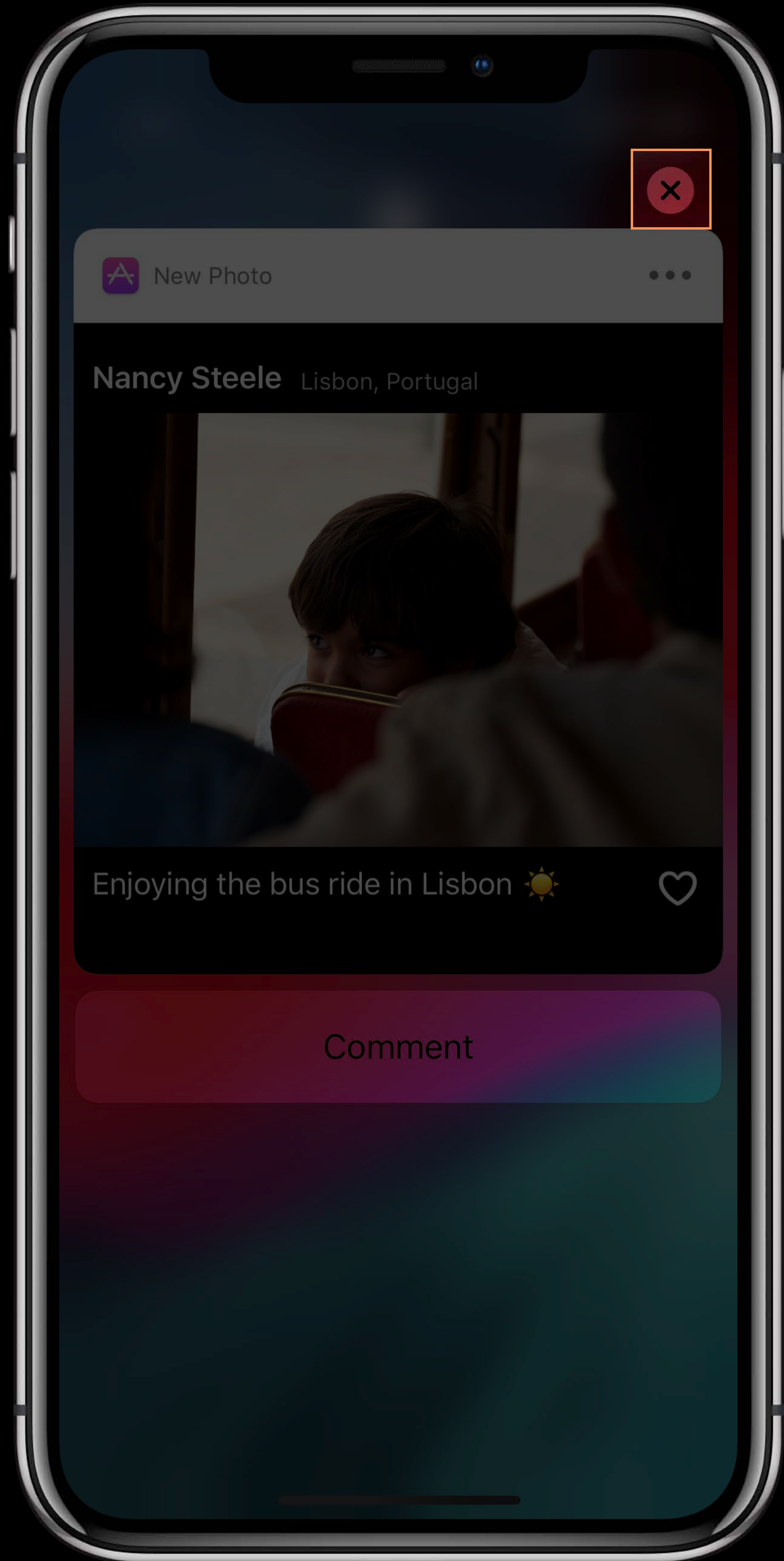
See all comments in app

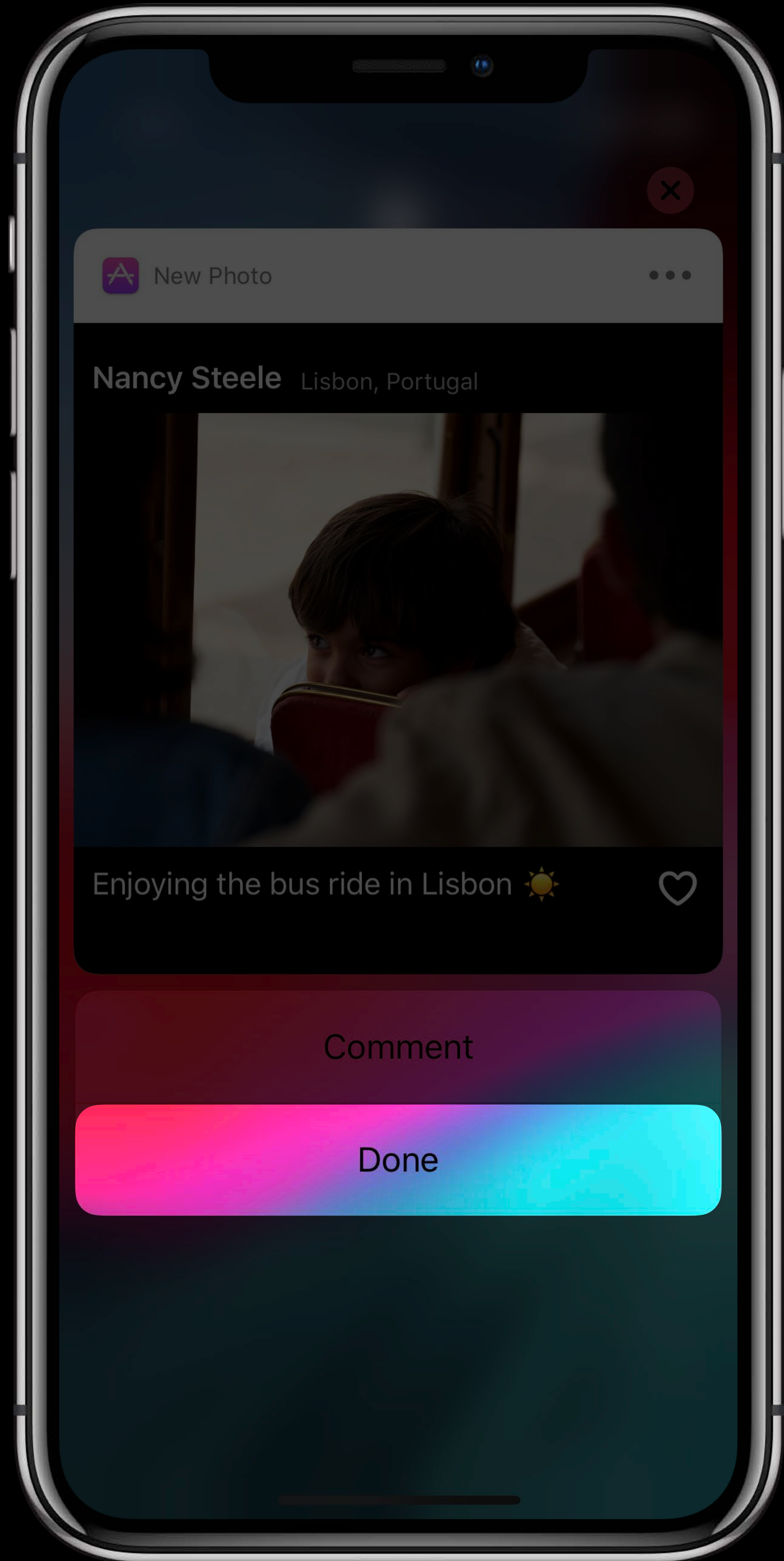
Comment

# Notification Content Extensions

Dismiss content extension view







New Photo

Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon 🌞



Comment

Done

```
// Notification Content Extensions

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        // Handle action...
        completion(.dismiss)
    }

}
```

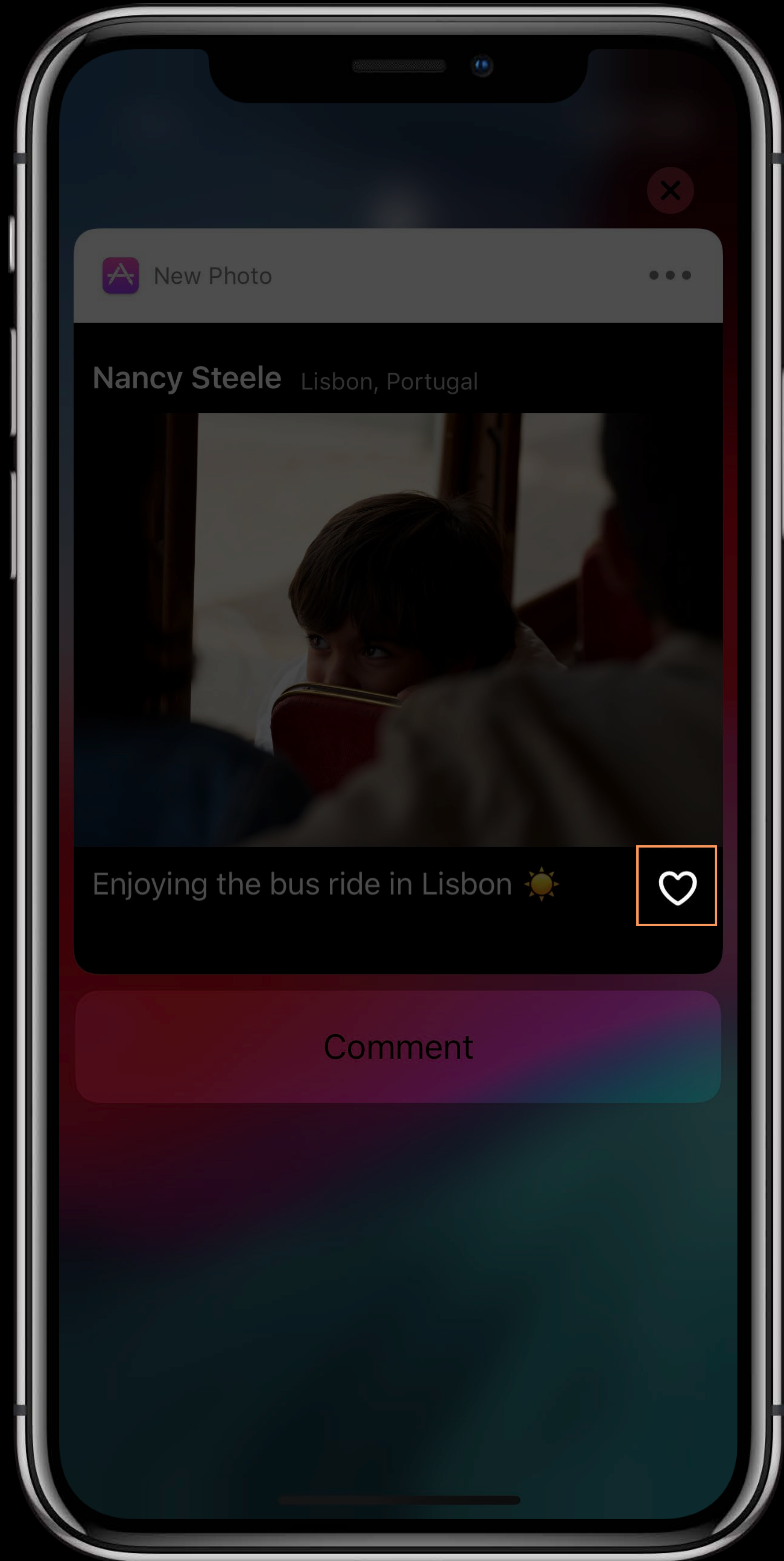
```
// Notification Content Extensions

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    func didReceive(_ response: UNNotificationResponse, completionHandler completion:
(UNNotificationContentExtensionResponseOption) -> Void) {
        // Handle action...
        completion(.dismiss)
    }

}
```



New Photo

Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon 🌞



Comment

```
// Notification Content Extensions

extension NSExtensionContext {

    @available(iOS 12.0, *)
    func dismissNotificationContentExtension()

}

}
```



**NEW**



NEW

```
// Notification Content Extensions
```

```
extension NSExtensionContext {
```

```
    @available(iOS 12.0, *)
```

```
    func dismissNotificationContentExtension()
```

```
}
```

```
// Notification Content Extensions
// User interaction

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var likeButton: UIButton?
    ...
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
    ...
    @objc func likeButtonTapped() {
        likedPhoto()
        extensionContext?.dismissNotificationContentExtension()
    }
}
}
```



```
// Notification Content Extensions
// User interaction

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var likeButton: UIButton?
    ...
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
    ...
    @objc func likeButtonTapped() {
        likedPhoto()
        extensionContext?.dismissNotificationContentExtension()
    }
}

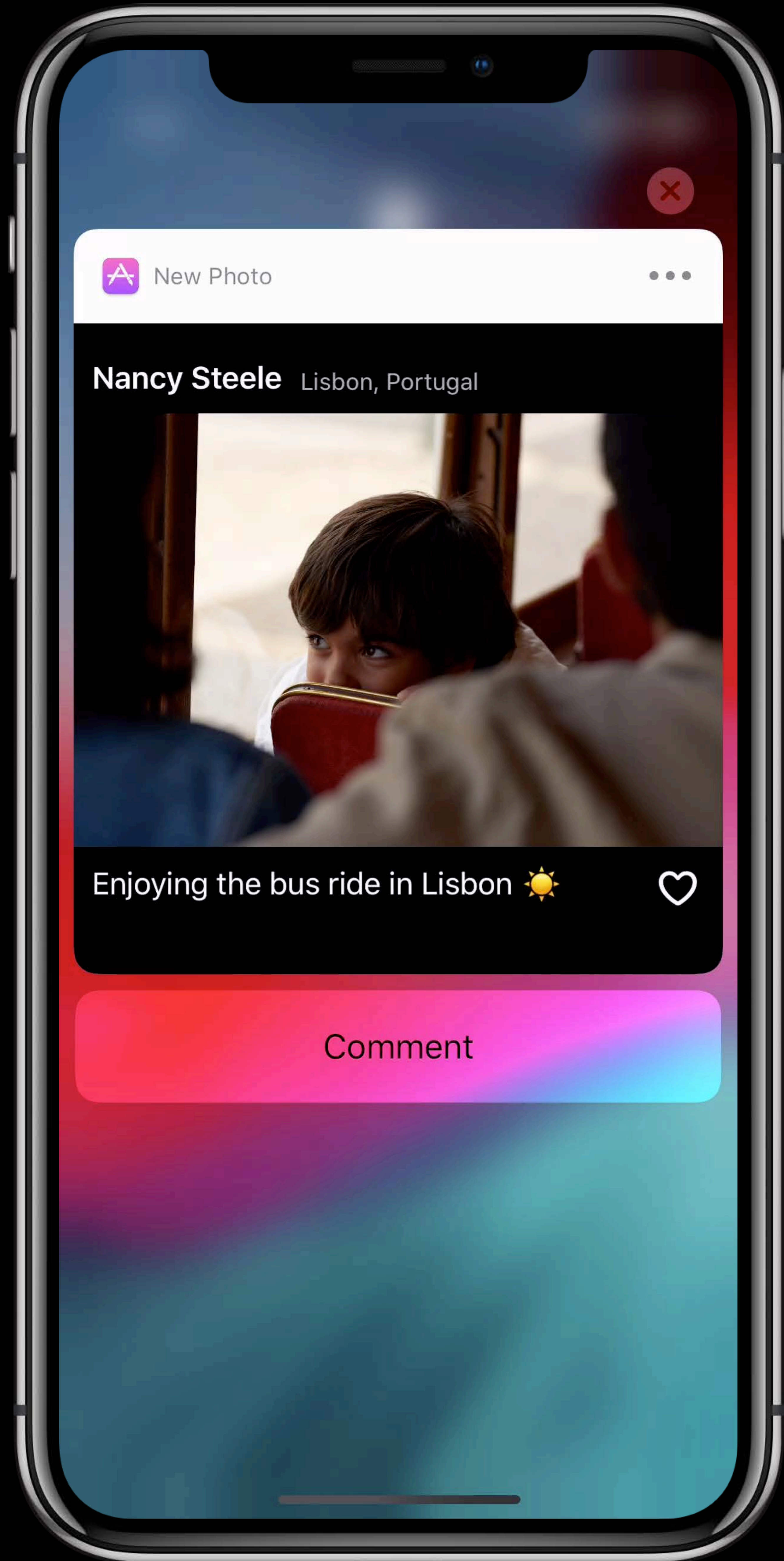
}
```

```
// Notification Content Extensions
// User interaction

import UserNotificationsUI

class NotificationViewController: UIViewController, UNNotificationContentExtension {

    @IBOutlet var likeButton: UIButton?
    ...
    likeButton?.addTarget(self, action: #selector(likeButtonTapped), for: .touchUpInside)
    ...
    @objc func likeButtonTapped() {
        likedPhoto()
        extensionContext?.dismissNotificationContentExtension()
    }
}
```



New Photo

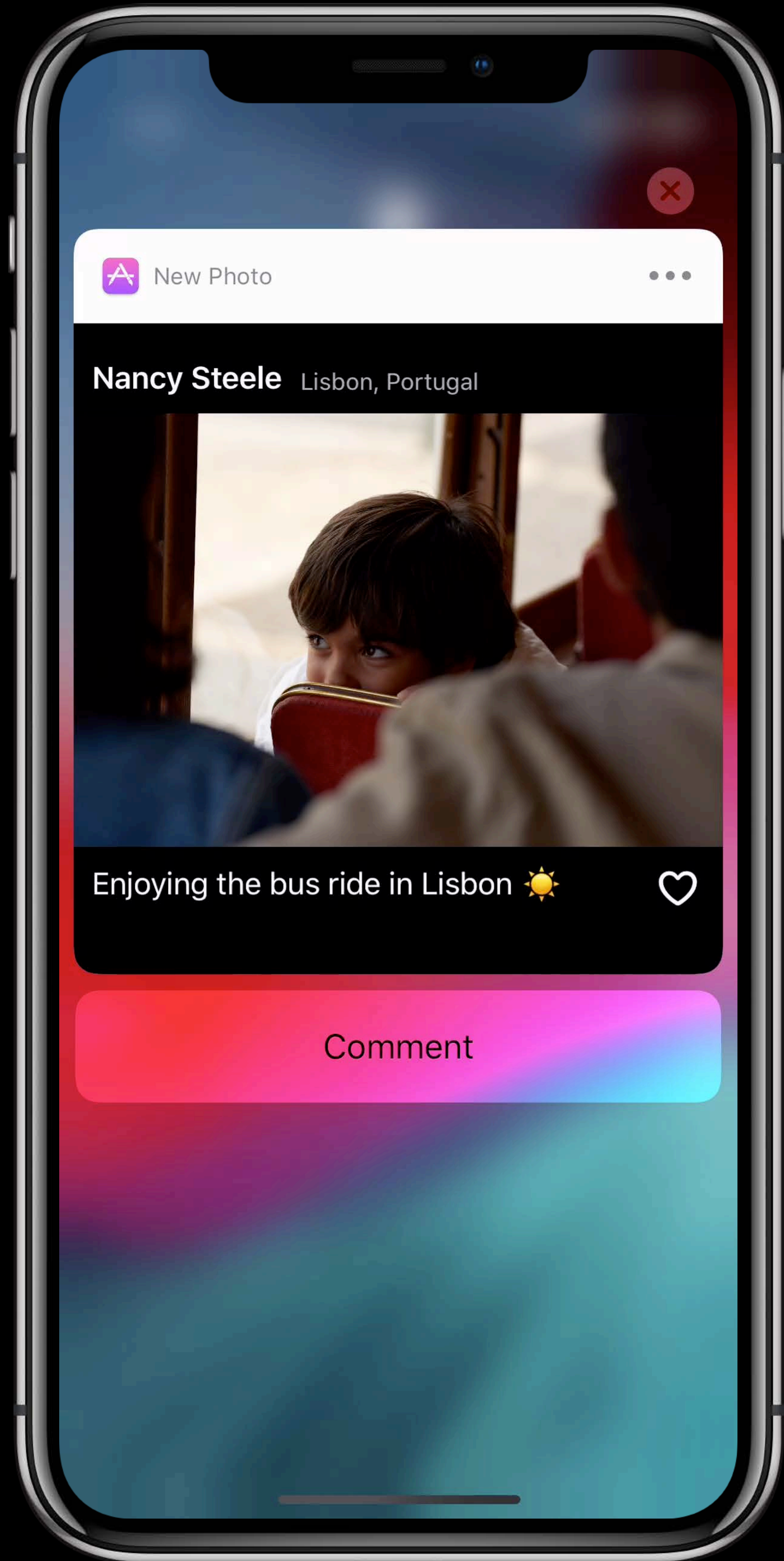
Nancy Steele Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️



Comment



New Photo



**Nancy Steele** Lisbon, Portugal



Enjoying the bus ride in Lisbon ☀️



Comment

# Notification Content Extensions

Dismiss content extension view

# Notification Content Extensions

Dismiss content extension view

Does not withdraw the notification

# Notification Content Extensions

Dismiss content extension view

Does not withdraw the notification

```
class UNUserNotificationCenter {  
  
    func removeDeliveredNotifications(withIdentifiers identifiers: [String])  
  
}
```

# Notification Content Extensions

Dismiss content extension view

Does not withdraw the notification

```
class UNUserNotificationCenter {  
    func removeDeliveredNotifications(withIdentifiers identifiers: [String])  
  
}
```



# Notification Content Extensions

Summary

# Notification Content Extensions

Summary

# Notification Content Extensions

## Summary

## Notification actions

```
extension NSExtensionContext {  
    var notificationActions: [UNNotificationAction]  
}
```

# Notification Content Extensions

## Summary

Notification actions

User interaction enabled in extension view

```
UNNotificationExtensionUserInteractionEnabled
```

# Notification Content Extensions

## Summary

Notification actions

User interaction enabled in extension view

Perform default action to launch app

```
extension NSExtensionContext {  
    func performNotificationDefaultAction()  
}
```

# Notification Content Extensions

## Summary

Notification actions

User interaction enabled in extension view

Perform default action to launch app

Dismiss content extension view

```
extension NSExtensionContext {  
    func dismissNotificationContentExtension()  
}
```

# Notification Content Extensions

## Summary

Notification actions

User interaction enabled in extension view

Perform default action to launch app

Dismiss content extension view

# Notification Management

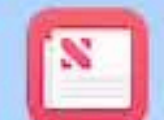
Teja Kondapalli, iOS Notifications



9:41



# Notification Center



NEWS

54m ago

## The New York Times

Are pizza boxes recyclable? How about coffee cups? Here are six things you're recycling wrong.



CHASE | WALLET

2h ago

## Chase Sapphire Reserve

Apple Park Caffe

\$7.00



INSTAGRAM

3h ago

b\_lwhiz sent you a photo.



VENMO

10:59 AM

You completed Bihter's request for \$70.00 - May 30



NEWS

8:56 AM

## Food Network

Bad news: Your water bottle is actually really dirty, and cleaning it every few days isn't enough. 🙄

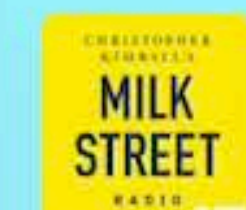


PODCASTS

8:29 AM

## Christopher Kimball's Milk Street Radio

Nigella Lawson Speaks Out on Hash, Traybakes, Salad Snobs and Kierkegaard (corrected) is available.



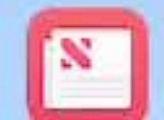
NEWS

5:09 AM

9:41



# Notification Center



NEWS

54m ago

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Are pizza boxes recyclable? How about coffee cups? Here are six things you're recycling wrong.



CHASE | WALLET

2h ago

## Chase Sapphire Reserve

Apple Park Caffe

\$7.00



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PODCASTS

8:29 AM

## Christopher Kimball's Milk Street Radio

Nigella Lawson Speaks Out on Hash, Traybakes, Salad Snobs and Kierkegaard (corrected) is available.



NEWS

5:09 AM

9:41



# Settings

Q Search



Saitejaswi Kondapalli

Apple ID, iCloud, iTunes & App Store

Apple ID Suggestions

2



Airplane Mode



Wi-Fi

Big Red 



Bluetooth

On



Cellular



VPN



Notifications



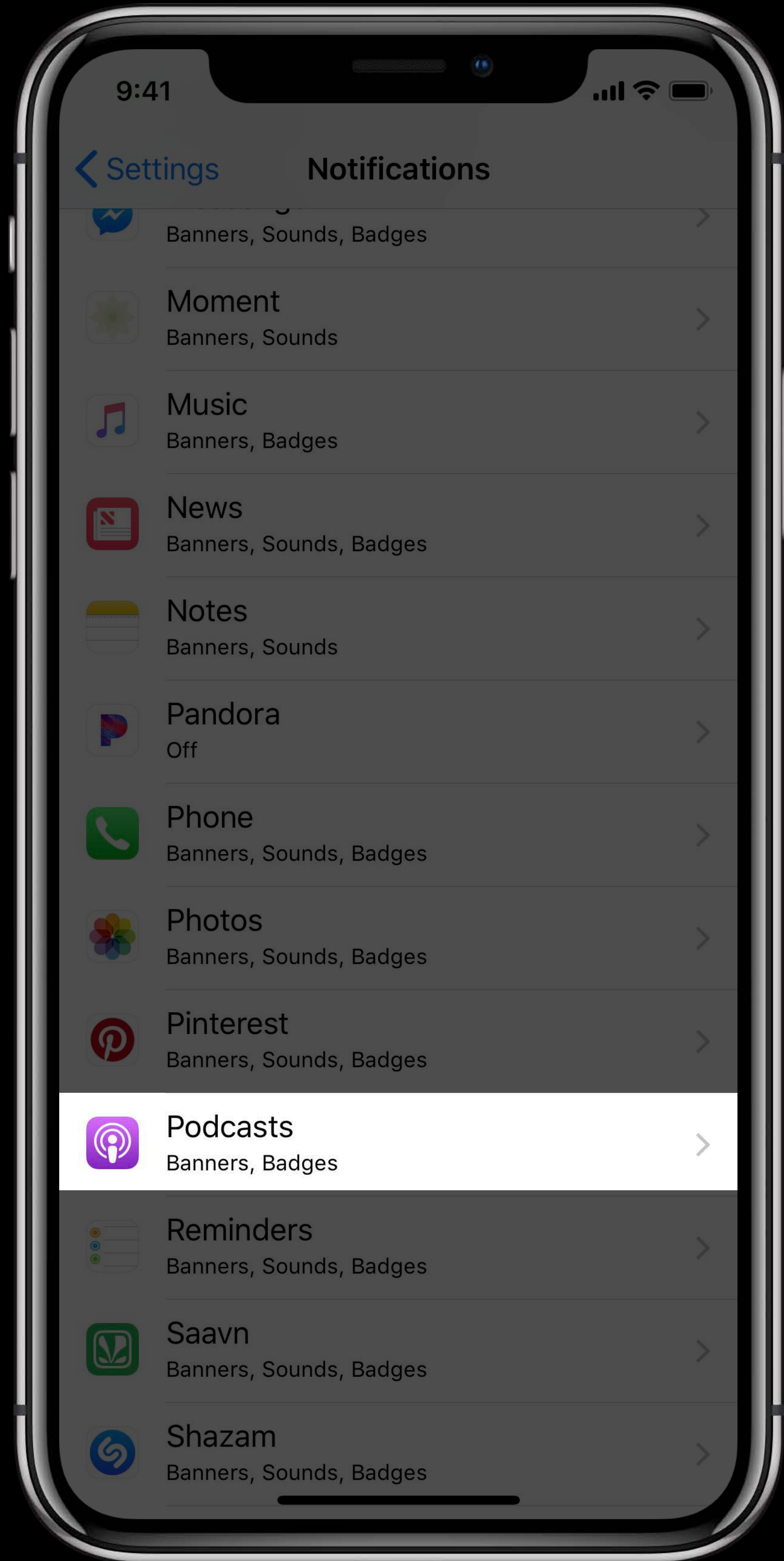
Sounds & Haptics



Do Not Disturb
















Screen Time

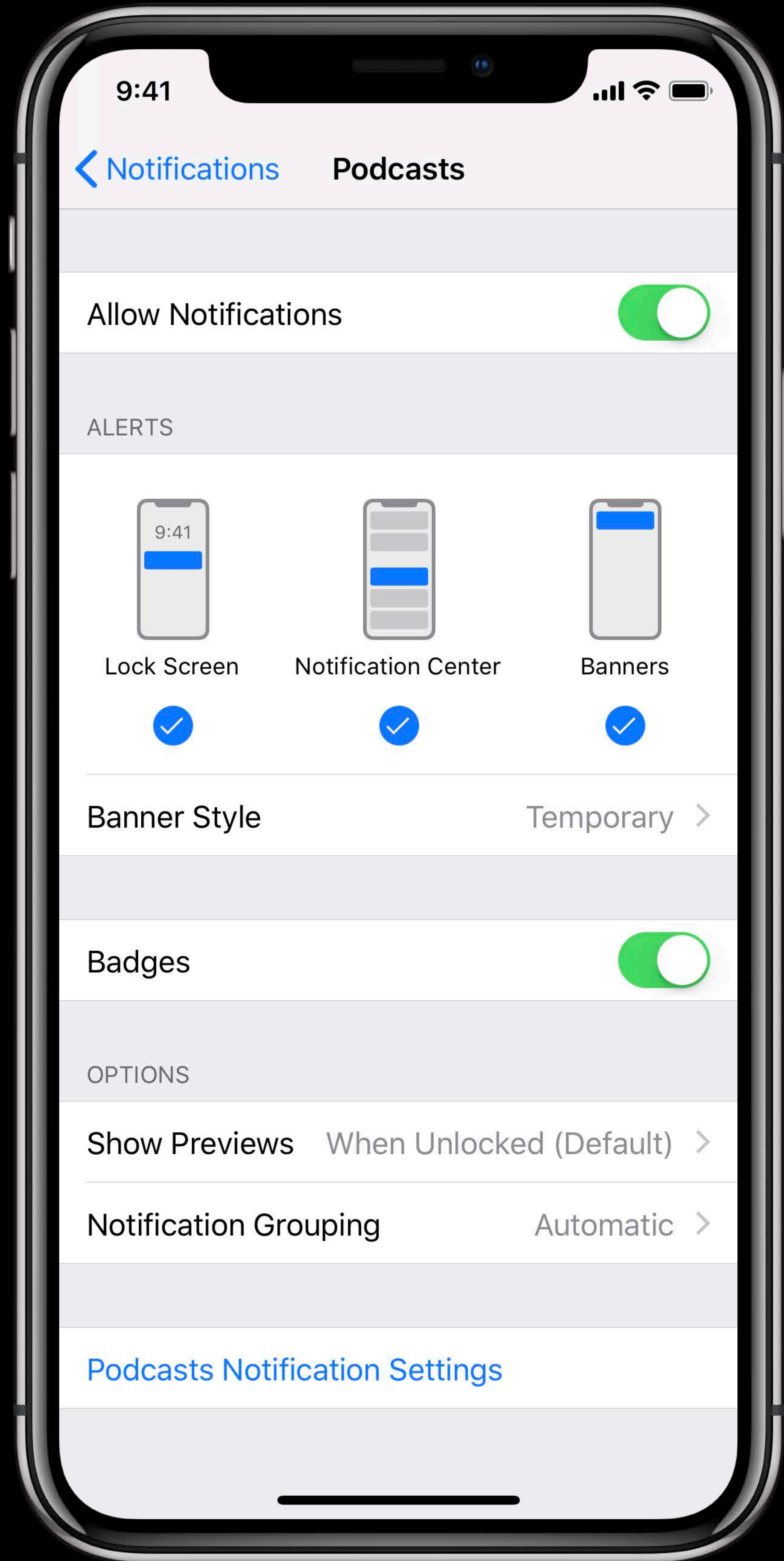


9:41



< Settings Notifications

-  Banners, Sounds, Badges >
-  Moment  
Banners, Sounds >
-  Music  
Banners, Badges >
-  News  
Banners, Sounds, Badges >
-  Notes  
Banners, Sounds >
-  Pandora  
Off >
-  Phone  
Banners, Sounds, Badges >
-  Photos  
Banners, Sounds, Badges >
-  Pinterest  
Banners, Sounds, Badges >
-  Podcasts  
Banners, Badges >
-  Reminders  
Banners, Sounds, Badges >
-  Saavn  
Banners, Sounds, Badges >
-  Shazam  
Banners, Sounds, Badges >



9:41



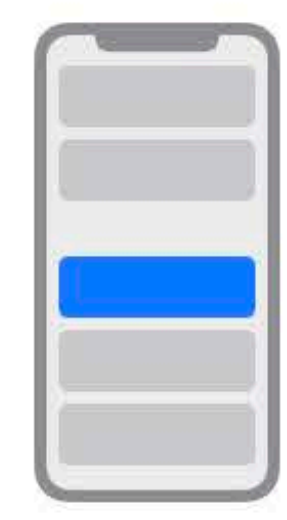
< Notifications Podcasts

Allow Notifications

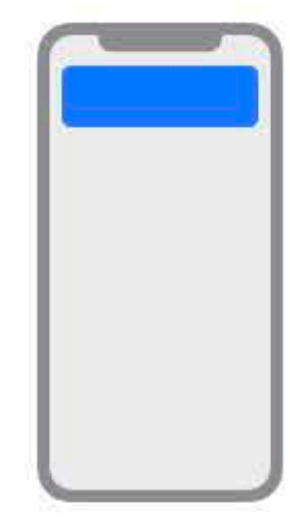
ALERTS



Lock Screen



Notification Center



Banners



Banner Style Temporary >

Badges

OPTIONS

Show Previews When Unlocked (Default) >

Notification Grouping Automatic >

[Podcasts Notification Settings](#)



NEW



NEW



NEW





NEW



NEW



NEW



9:41



9:41

Wednesday, June 6



PODCASTS

now

**Christopher Kimball's Milk Street Radio**  
5 new episodes are available.



Keep receiving notifications from the Podcasts app?

Keep

Manage...



NEW



NEW

9:41



9:41

Wednesday, June 6



PODCASTS

in 1m

Christopher Kimball's Milk Street Radio  
5 new episodes are available.



## Podcasts

Manage notifications

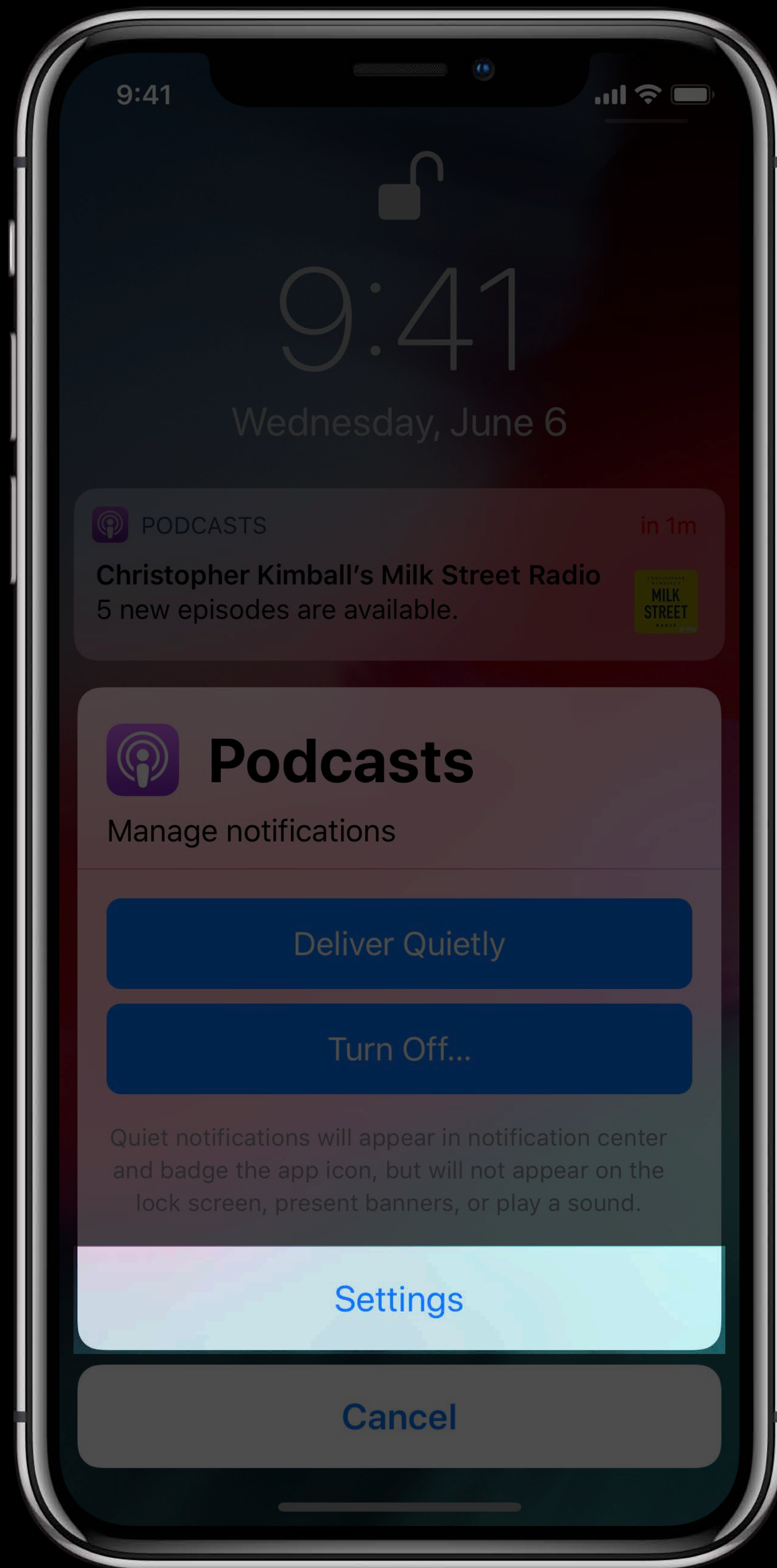
Deliver Quietly

Turn Off...

Quiet notifications will appear in notification center and badge the app icon, but will not appear on the lock screen, present banners, or play a sound.

Settings

Cancel



9:41



9:41

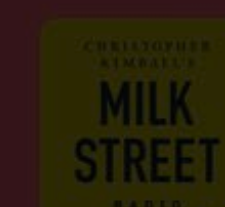
Wednesday, June 6



PODCASTS

in 1m

Christopher Kimball's Milk Street Radio  
5 new episodes are available.



## Podcasts

Manage notifications

Deliver Quietly

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Settings

Cancel



9:41



9:41

Wednesday, June 6



PODCASTS

in 1m

Christopher Kimball's Milk Street Radio  
5 new episodes are available.



## Podcasts

Manage notifications

Deliver Quietly

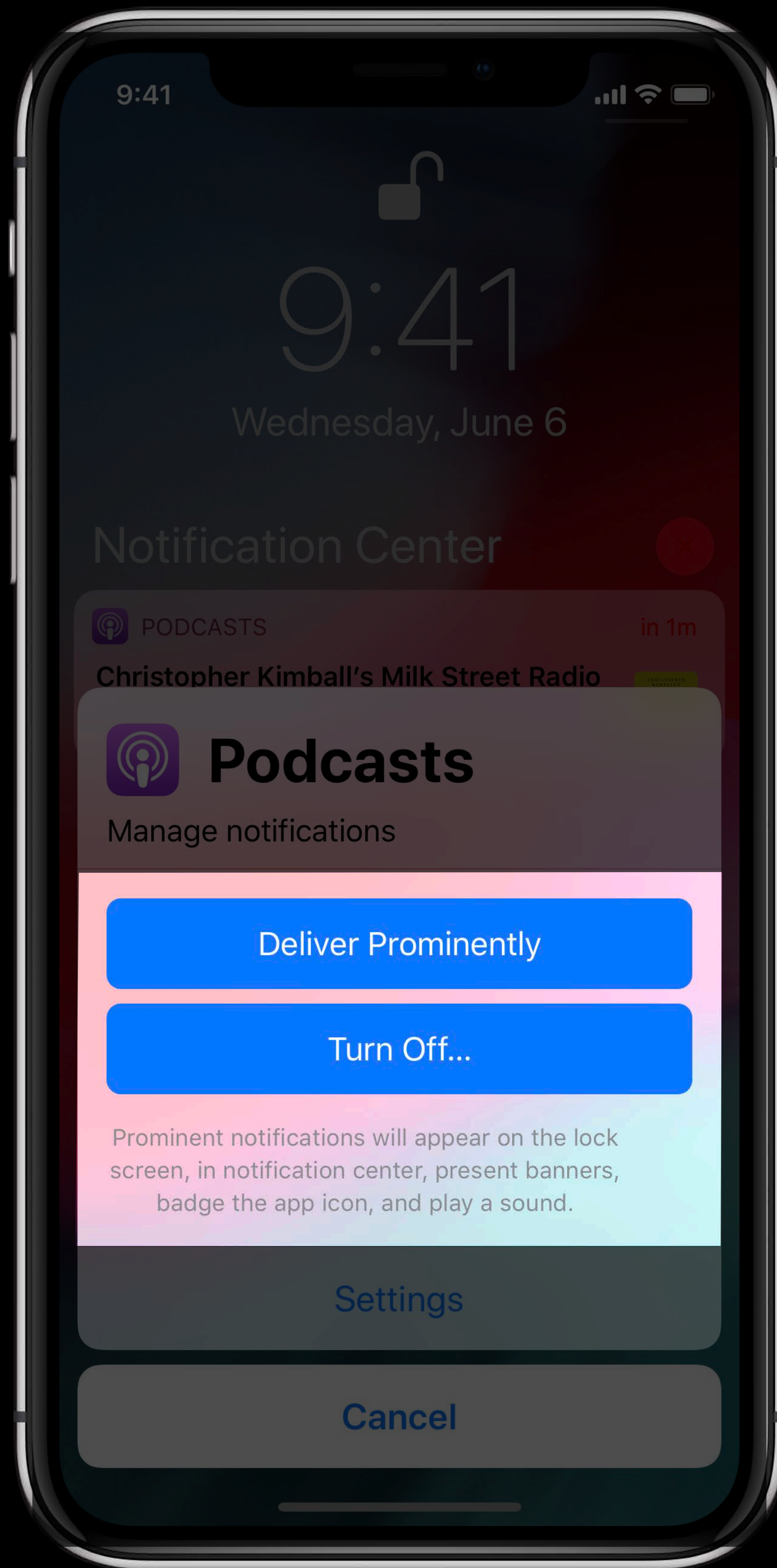
Turn Off...

Quiet notifications will appear in notification center and badge the app icon, but will not appear on the lock screen, present banners, or play a sound.

Settings

Cancel





9:41



9:41

Wednesday, June 6

Notification Center

PODCASTS

in 1m

Christopher Kimball's Milk Street Radio



Podcasts

Manage notifications

Deliver Prominently

Turn Off...

Prominent notifications will appear on the lock screen, in notification center, present banners, badge the app icon, and play a sound.

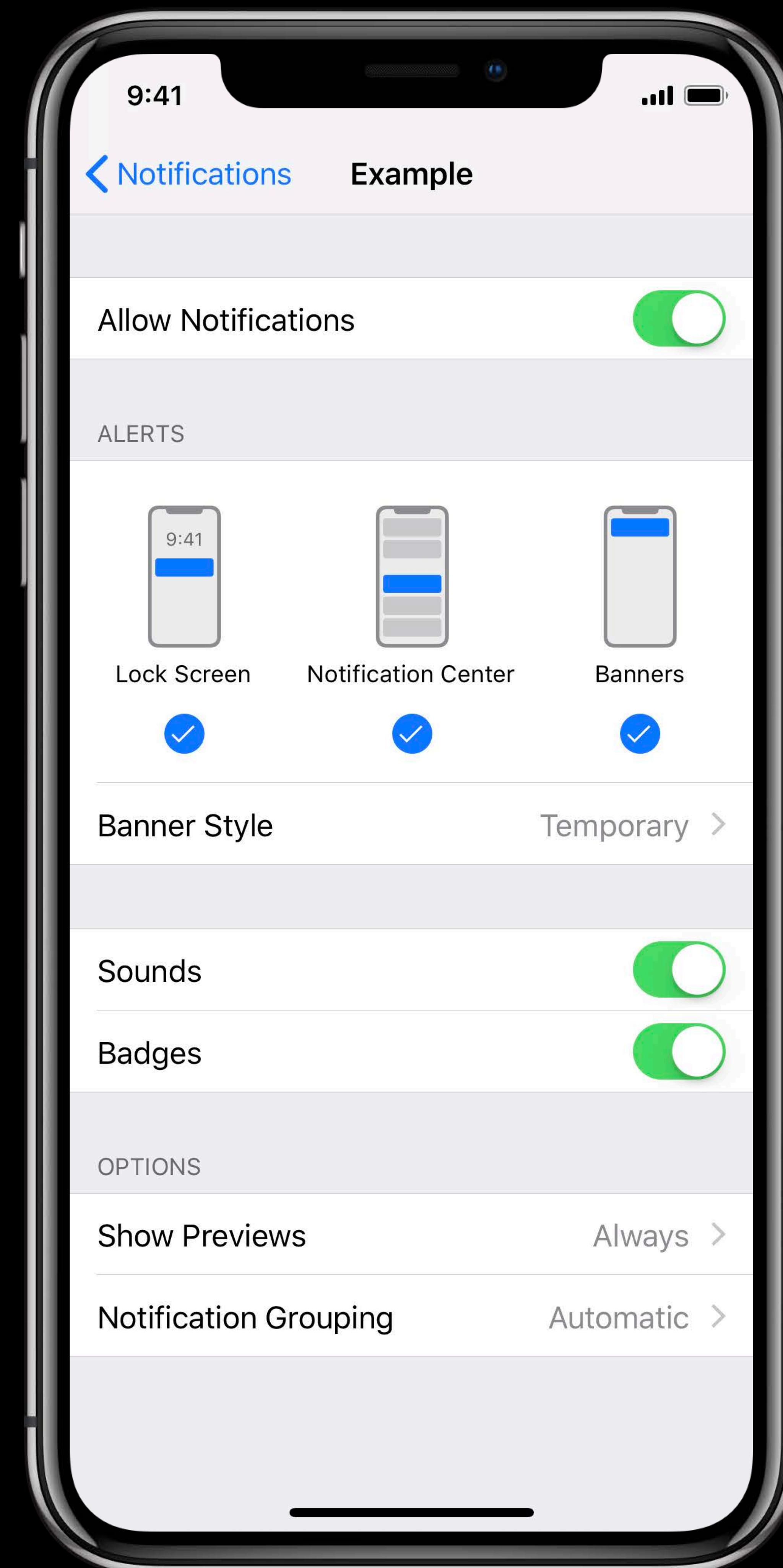
Settings

Cancel

# Notification Management

Deliver Prominently

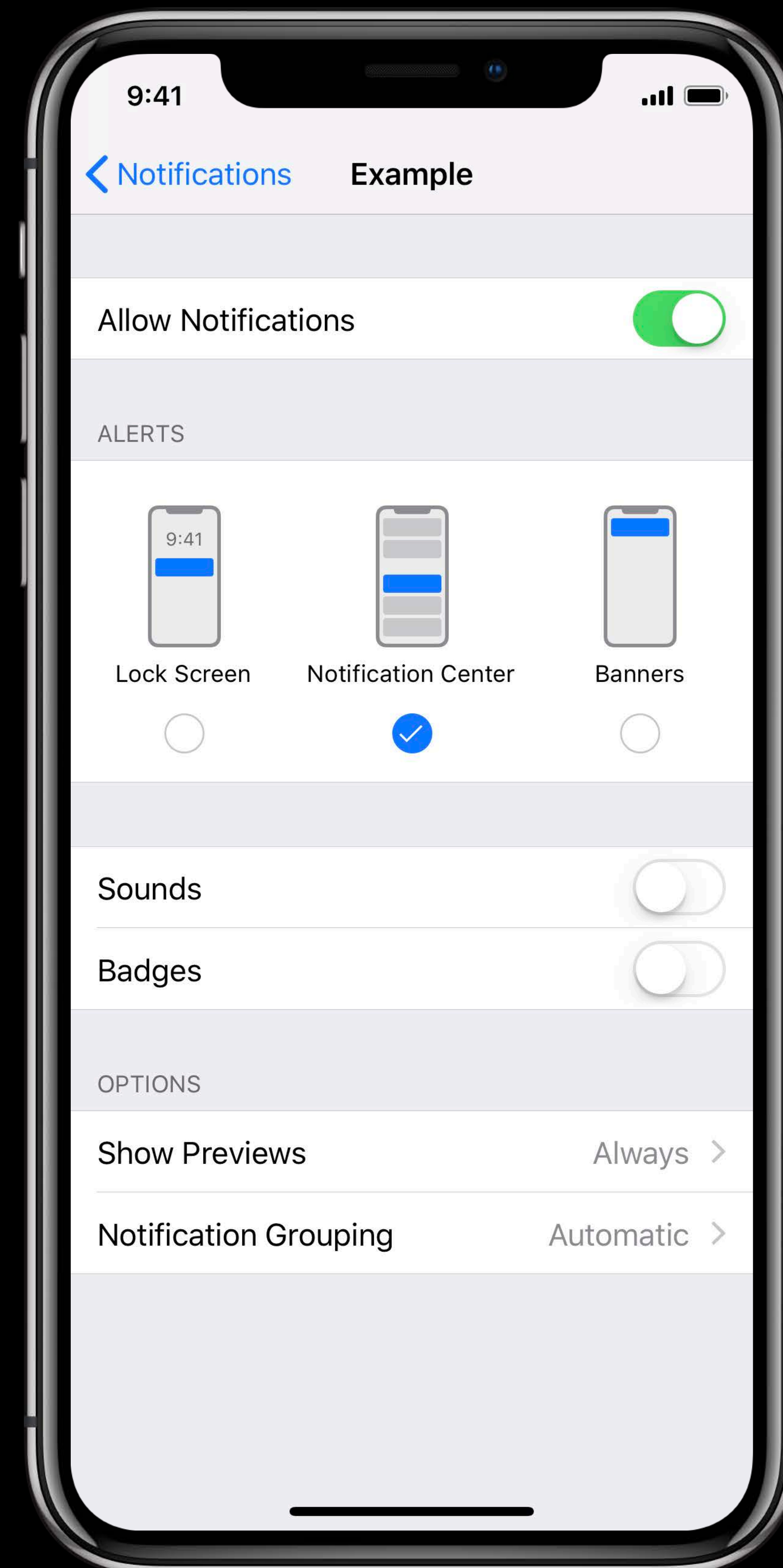
NEW



# Notification Management

Deliver Quietly

NEW



9:41



9:41

Wednesday, June 6



PODCASTS

in 1m

Christopher Kimball's Milk Street Radio  
5 new episodes are available.



## Podcasts

Manage notifications

Deliver Quietly

Turn Off...

Quiet notifications will appear in notification center and badge the app icon, but will not appear on the lock screen, present banners, or play a sound.

Settings

Cancel

9:41



9:41

Wednesday, June 6



PODCASTS

in 1m

Christopher Kimball's Milk Street Radio  
5 new episodes are available.



## Podcasts

Manage notifications

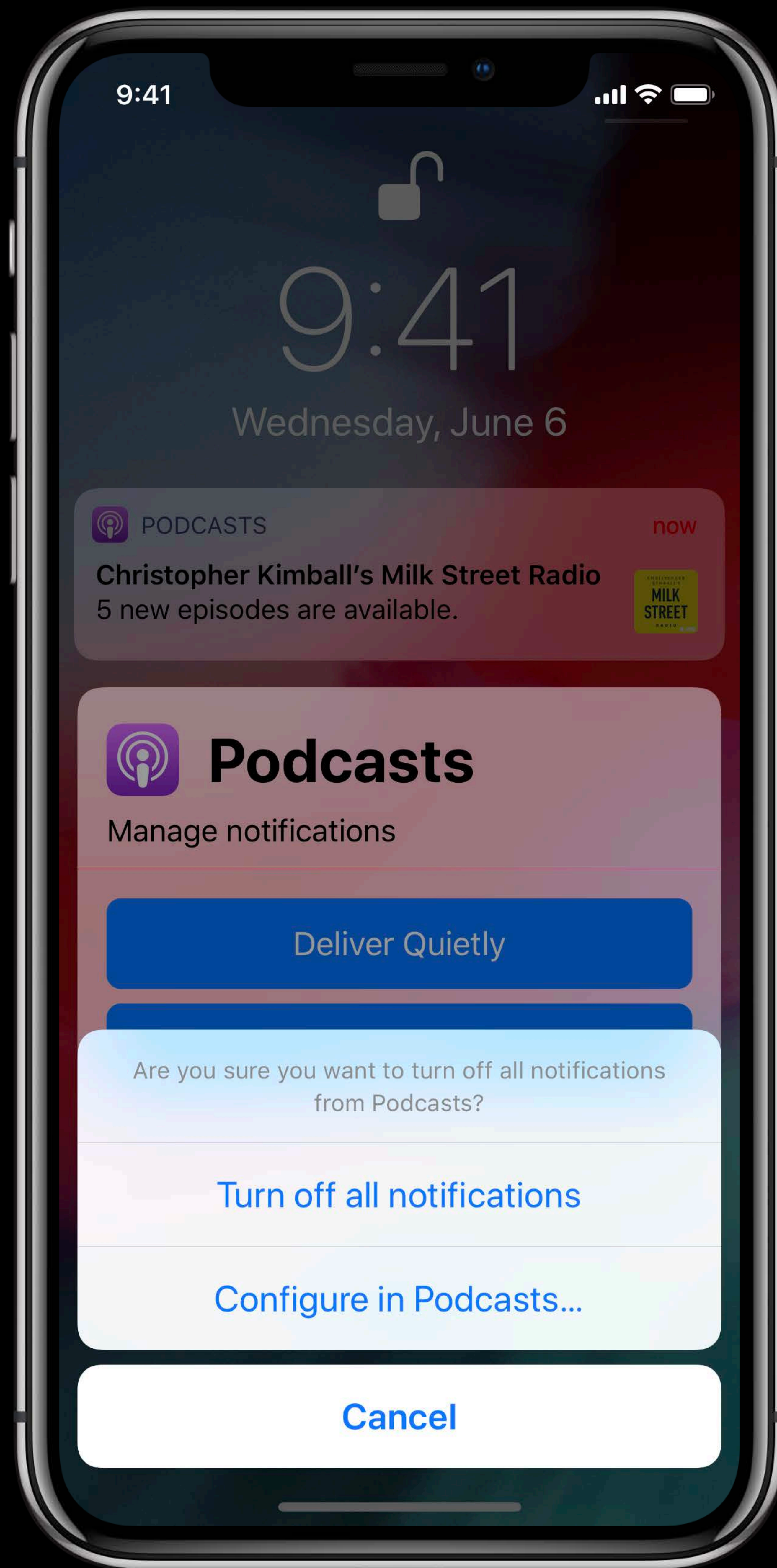
Deliver Quietly

Turn Off...

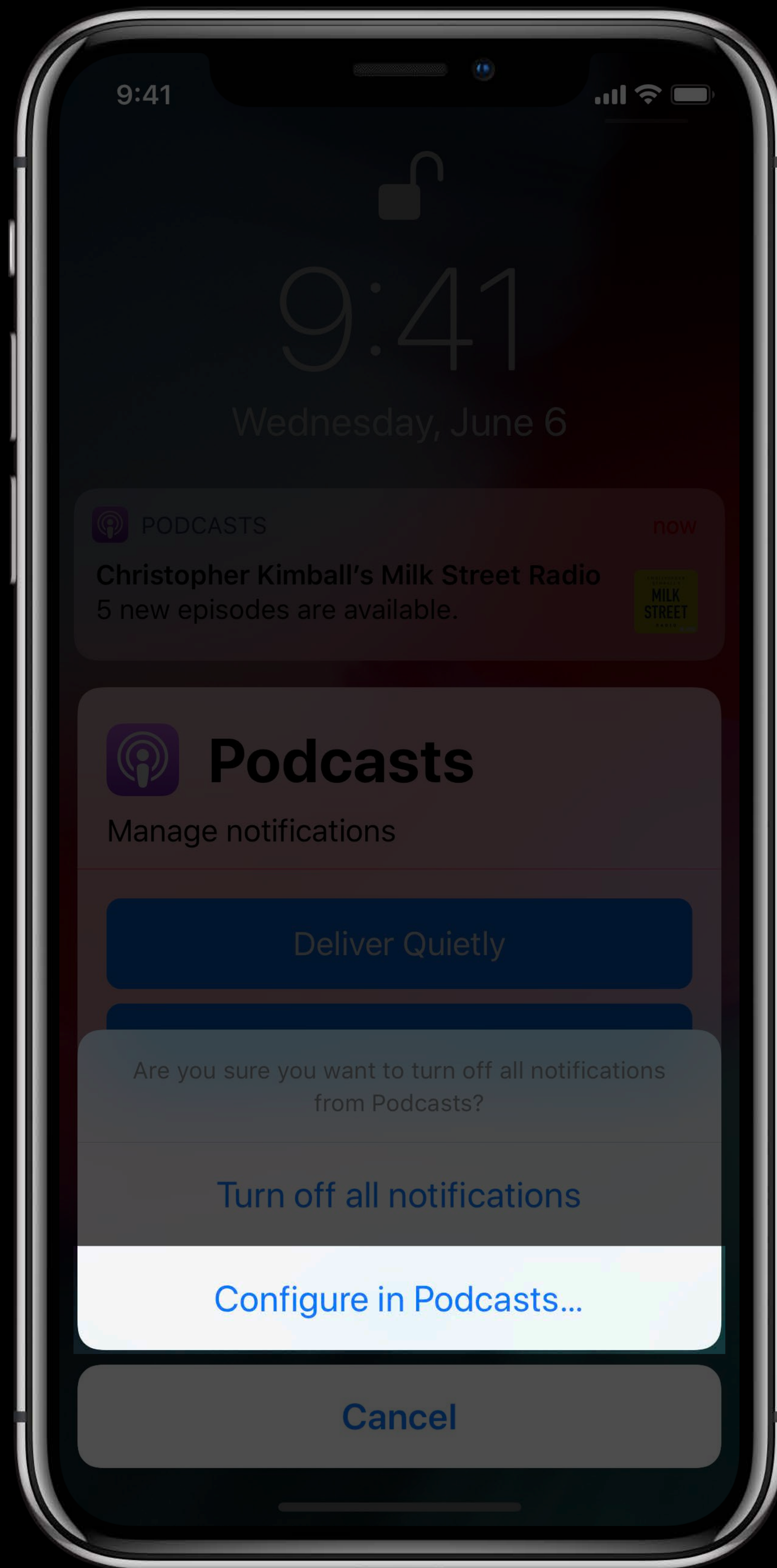
Quiet notifications will appear in notification center and badge the app icon, but will not appear on the lock screen, present banners, or play a sound.

Settings

Cancel



NEW



NEW



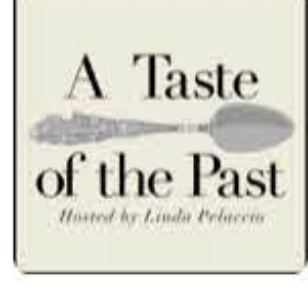
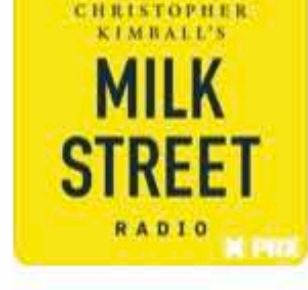







9:41



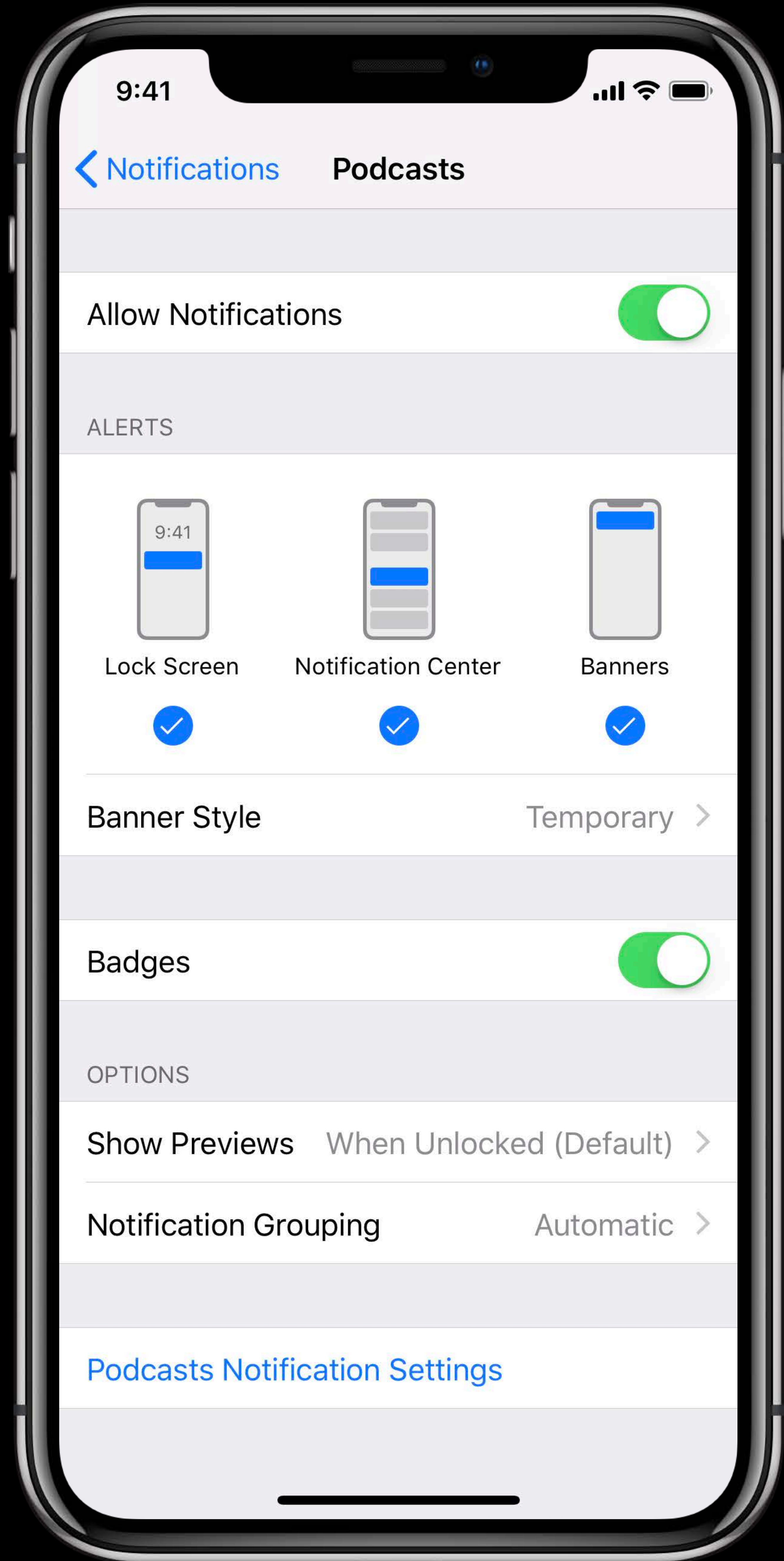
# Notifications

Done

## NEW EPISODES

-  50 Things That Made the Modern Economy
-  A History of the World in 100 Objects
-  A Taste of the Past
-  Christopher Kimball's Milk Street Radio
-  Civics 101
-  Dear Sugars
-  Developer Tea
-  FoodStuff
-  Freakonomics Radio
-  How to Start a Startup
- 





9:41



< Notifications Podcasts

Allow Notifications

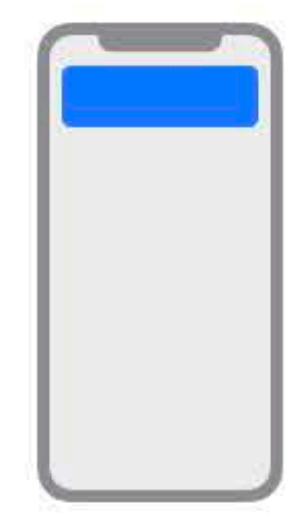
ALERTS



Lock Screen



Notification Center



Banners



Banner Style Temporary >

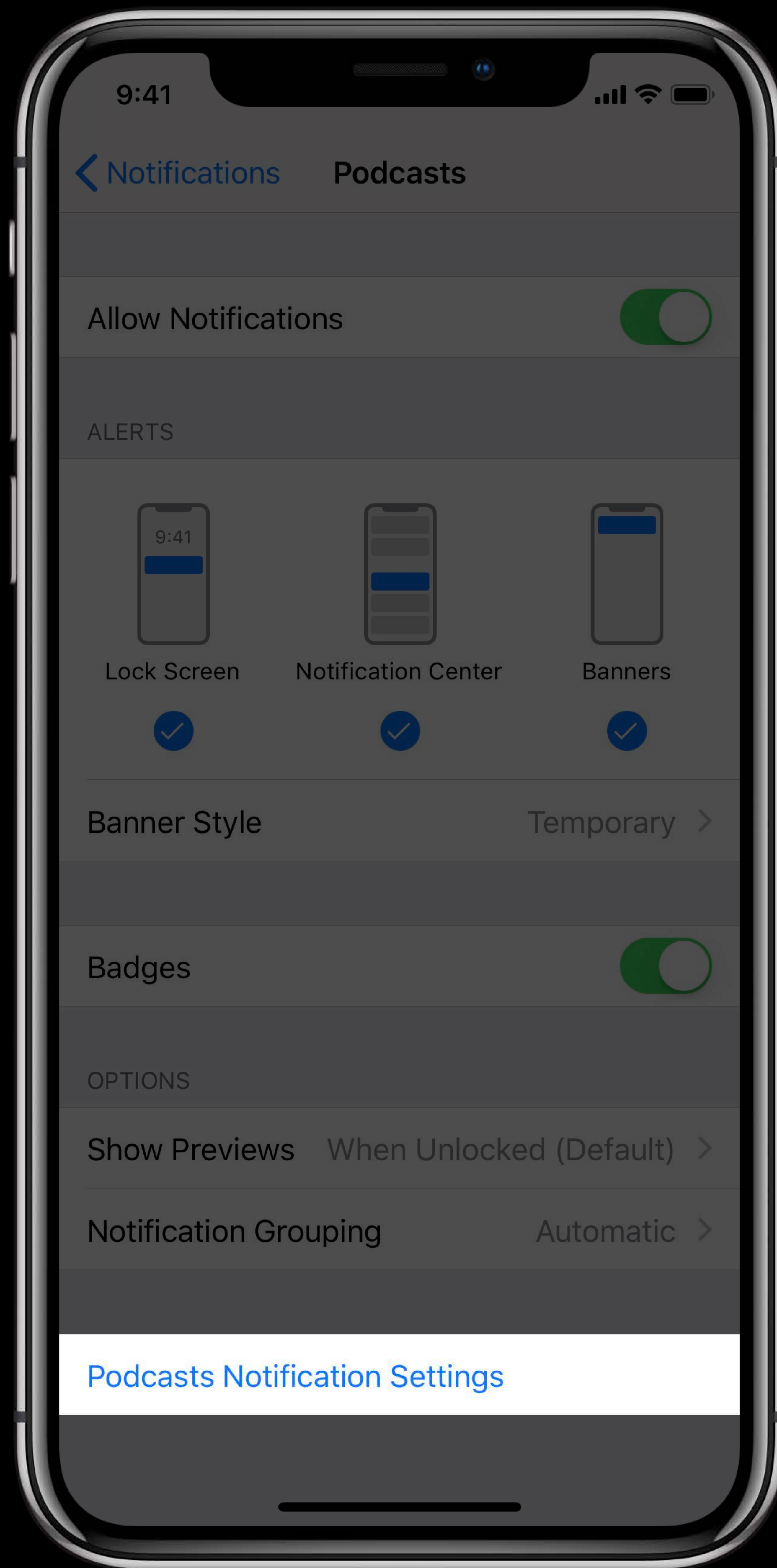
Badges

OPTIONS

Show Previews When Unlocked (Default) >

Notification Grouping Automatic >

[Podcasts Notification Settings](#)



NEW

```
// Custom Settings Link
```

```
import UIKit
```

```
import UserNotifications
```

```
class AppDelegate: UIApplicationDelegate, UNUserNotificationCenterDelegate {
```

```
    func userNotificationCenter(_ center: UNUserNotificationCenter,
```

```
        openSettingsFor notification: UNNotification? ) {
```

```
    }
```

```
}
```



NEW



NEW

```
// Custom Settings Link
```

```
import UIKit
```

```
import UserNotifications
```

```
class AppDelegate: UIApplicationDelegate, UNUserNotificationCenterDelegate {
```

```
    func userNotificationCenter(_ center: UNUserNotificationCenter,  
                               openSettingsFor notification: UNNotification? ) {
```

```
    }
```

```
}
```



NEW

```
// Custom Settings Link
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```
import UIKit
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import UserNotifications
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```
class AppDelegate: UIApplicationDelegate, UNUserNotificationCenterDelegate {
```

```
    func userNotificationCenter(_ center: UNUserNotificationCenter,  
                               openSettingsFor notification: UNNotification? ) {
```

```
    }
```

```
}
```

# Notification Management

## Summary

# Notification Management

## Summary

Make notification content relevant

# Notification Management

## Summary

Make notification content relevant

Group notifications



# Notification Management

## Summary

Make notification content relevant

Group notifications

Provide custom settings view

# Provisional Authorization

**“PersonalTracker” Would  
Like to Send You Notifications**

Notifications may include alerts,  
sounds, and icon badges. These can  
be configured in Settings.

Don't Allow

Allow

# Provisional Authorization

NEW

# Provisional Authorization

NEW

Automatic trial

# Provisional Authorization



NEW

Automatic trial

No authorization prompt

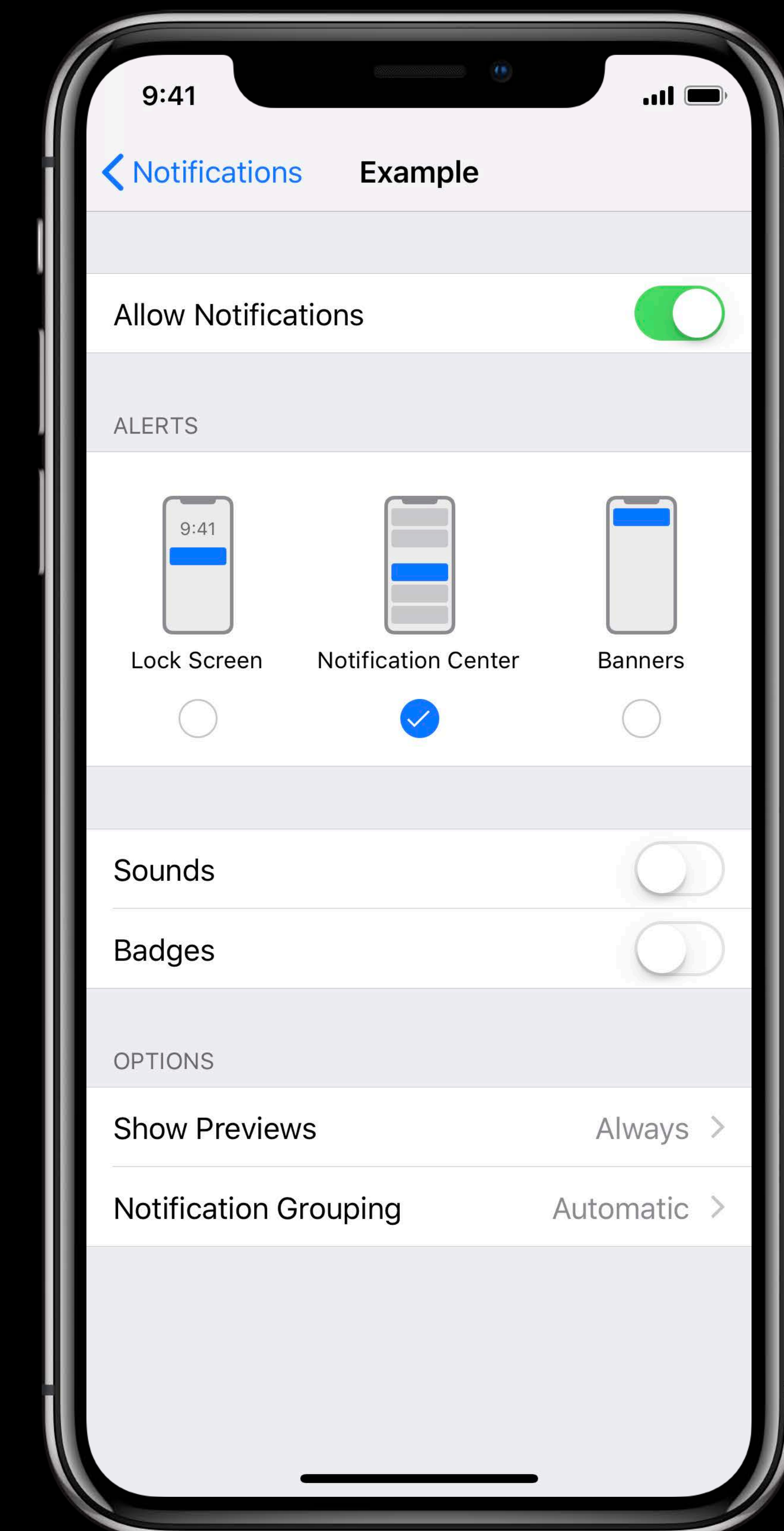
# Provisional Authorization

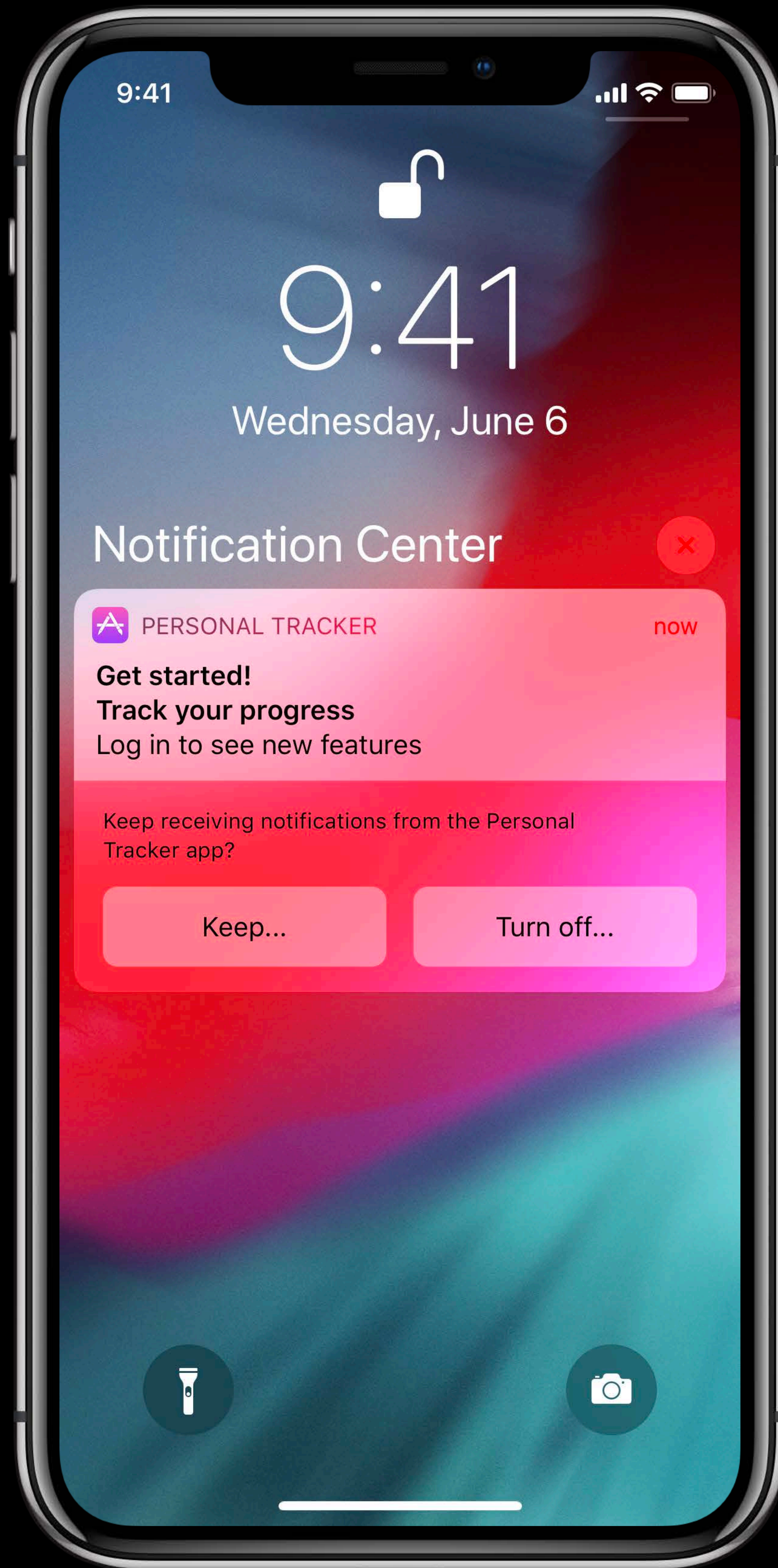
NEW

Automatic trial

No authorization prompt

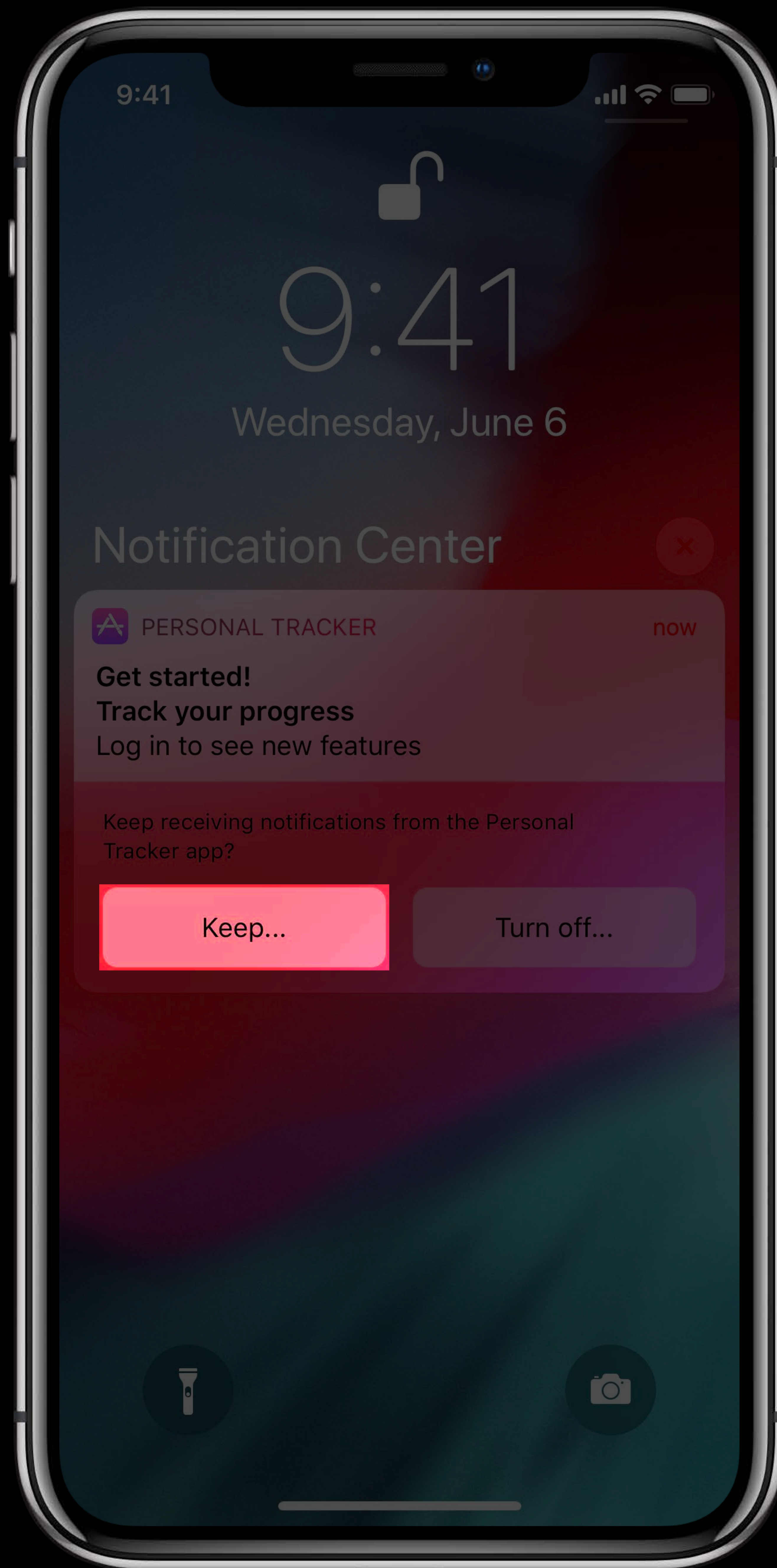
Notifications delivered quietly



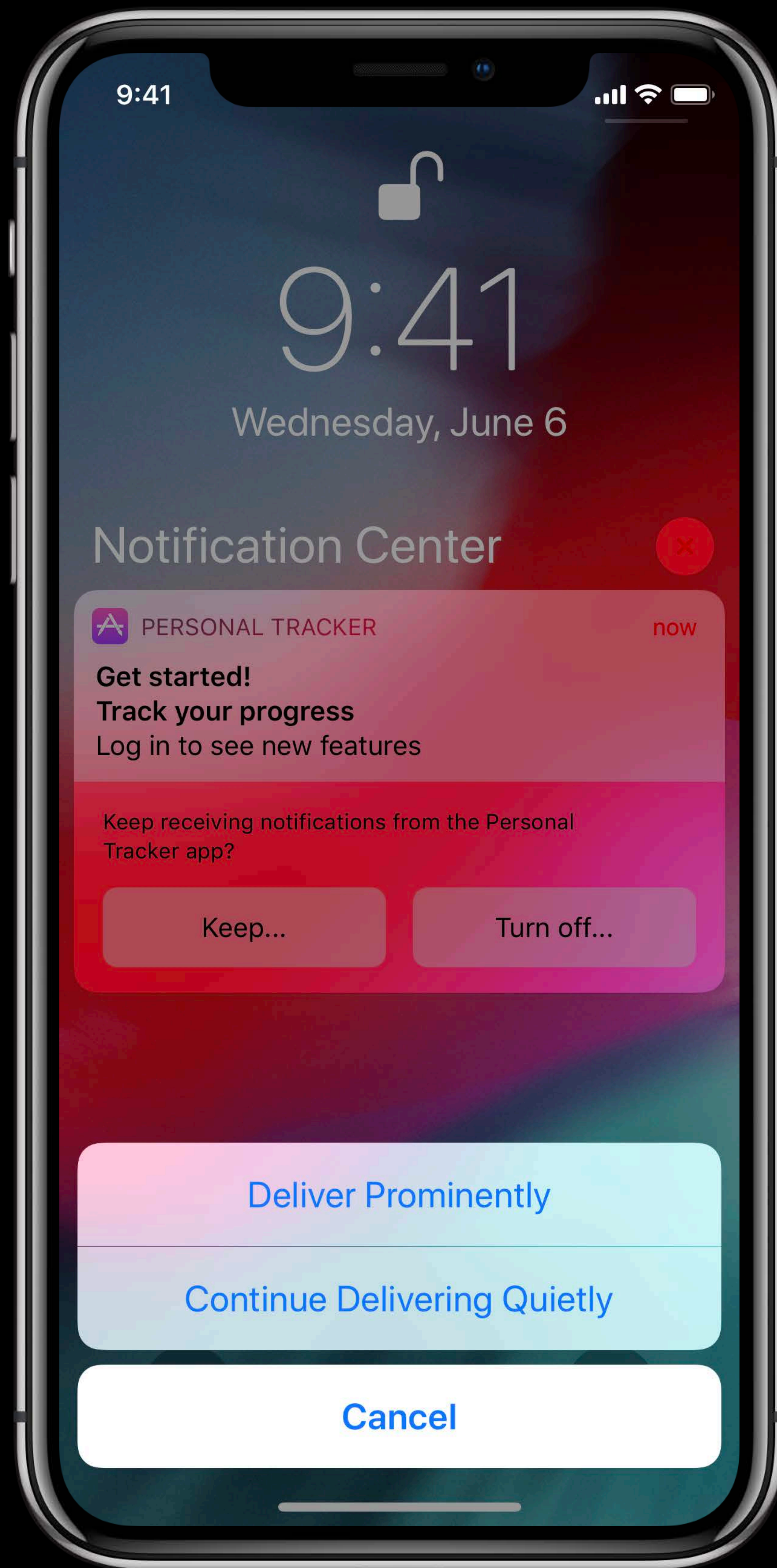


NEW

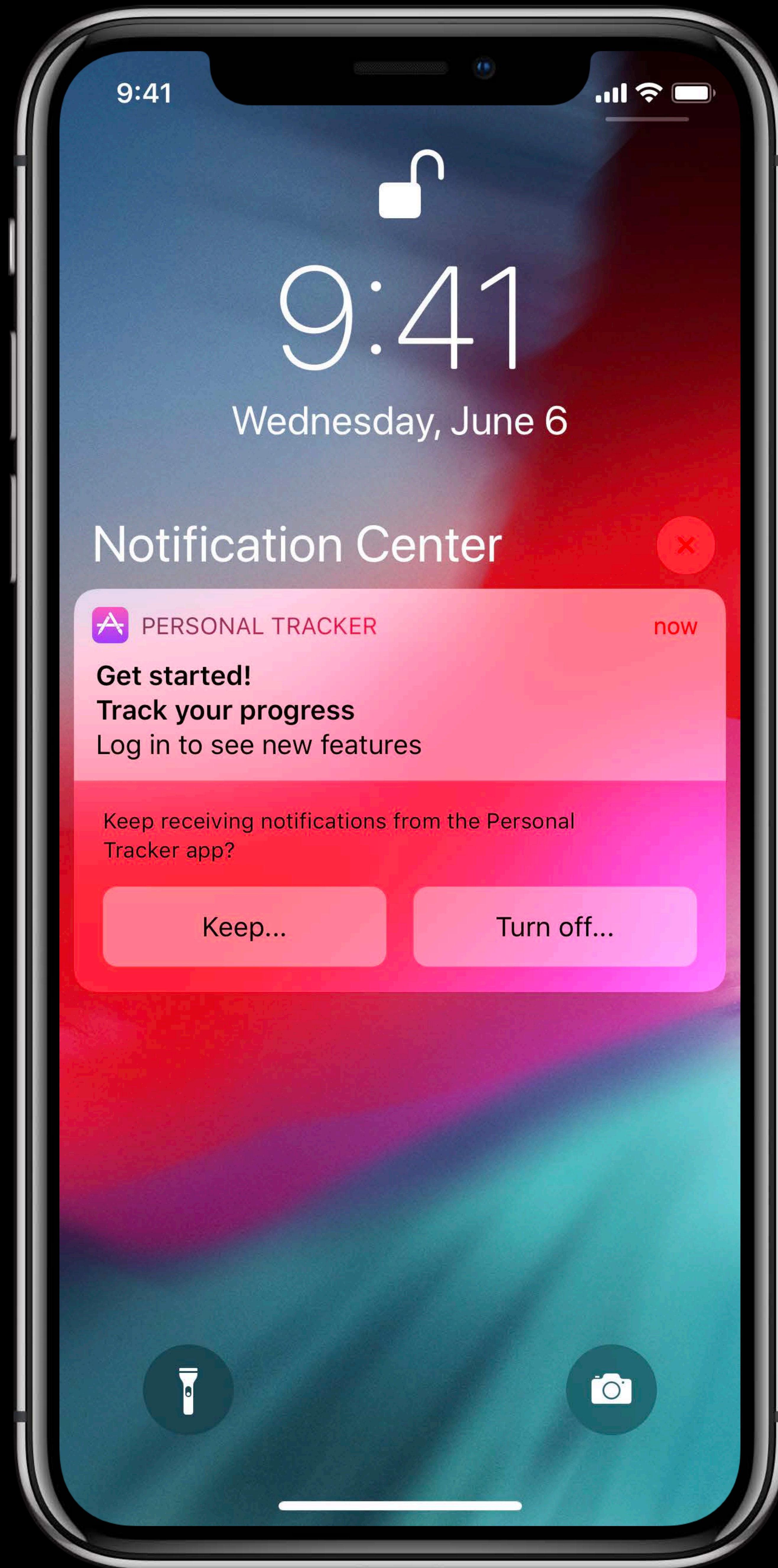




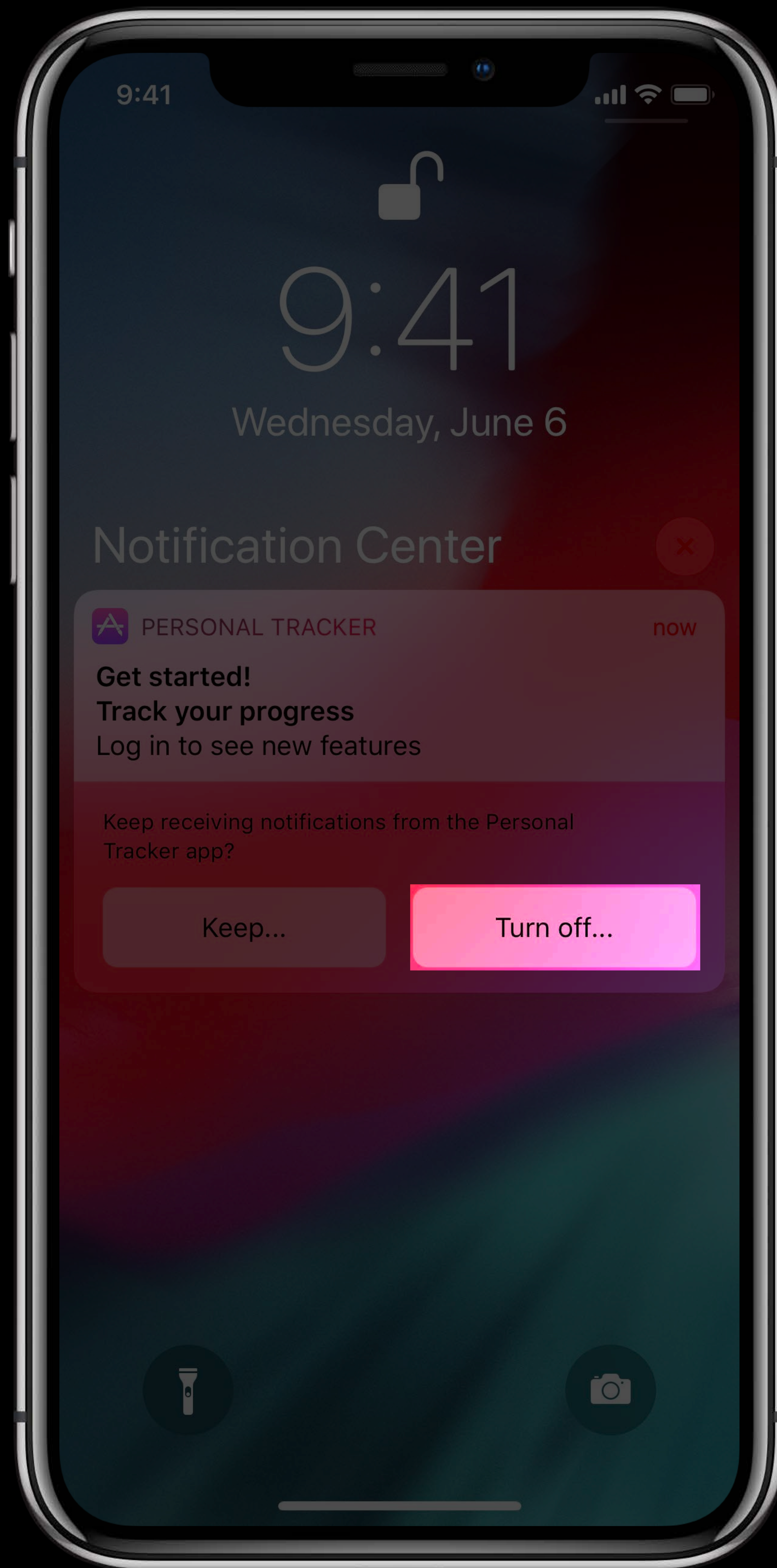
NEW



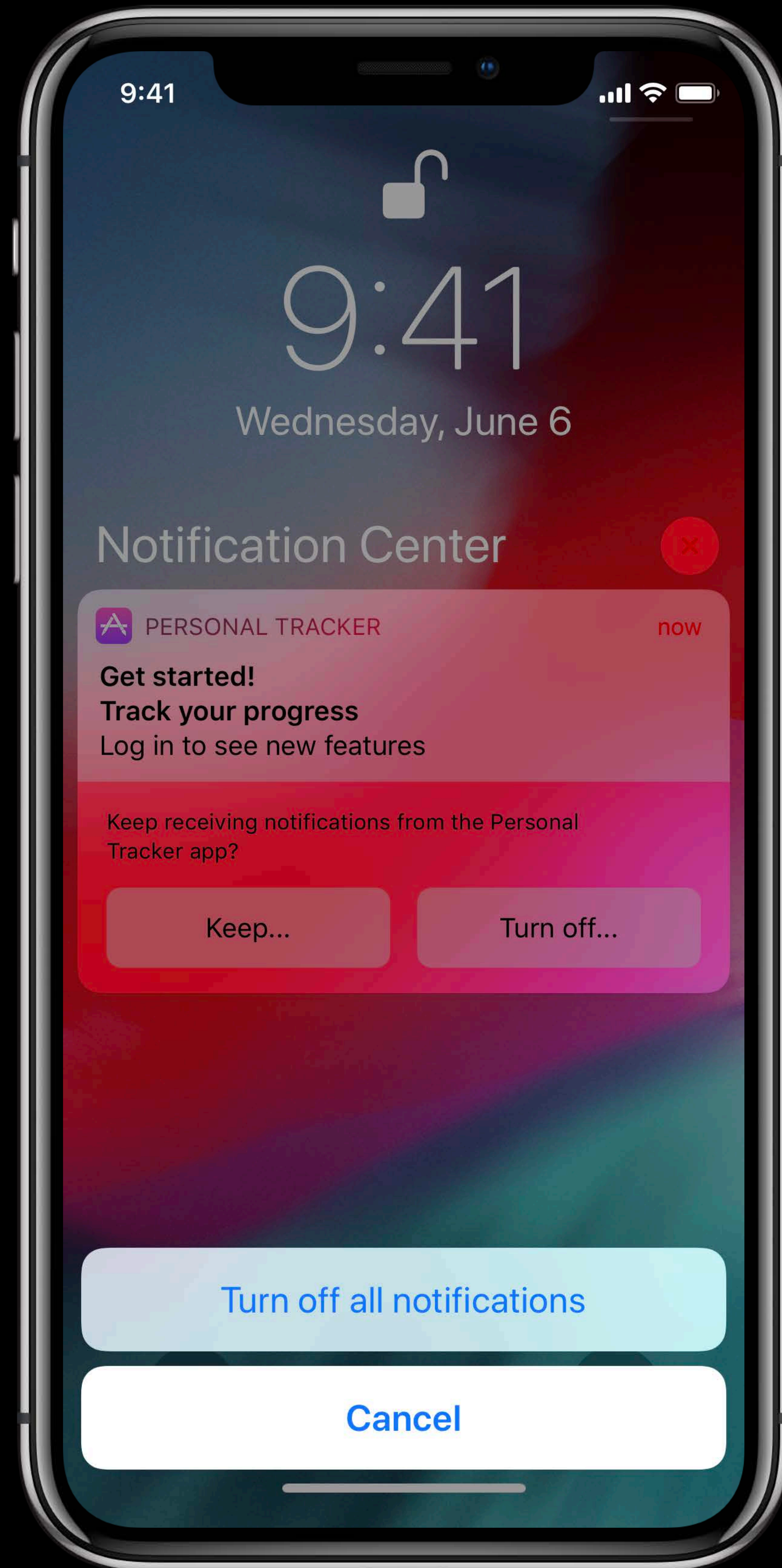
NEW



NEW



NEW



NEW

```
// Requesting Provisional Authorization
```



**NEW**

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.badge, .sound, .alert, .provisional]) {  
}
```



NEW

```
// Requesting Provisional Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.badge, .sound, .alert, .provisional]) {  
}
```



NEW

```
// Requesting Provisional Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.badge, .sound, .alert, .provisional]) {  
}
```





NEW

```
// Requesting Provisional Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.badge, .sound, .alert, .provisional]) {  
}
```

```
// Requesting Provisional Authorization
```



NEW

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.badge, .sound, .alert, .provisional]) {  
}
```

# Provisional Authorization

Summary

# Provisional Authorization

## Summary

Make notification content relevant

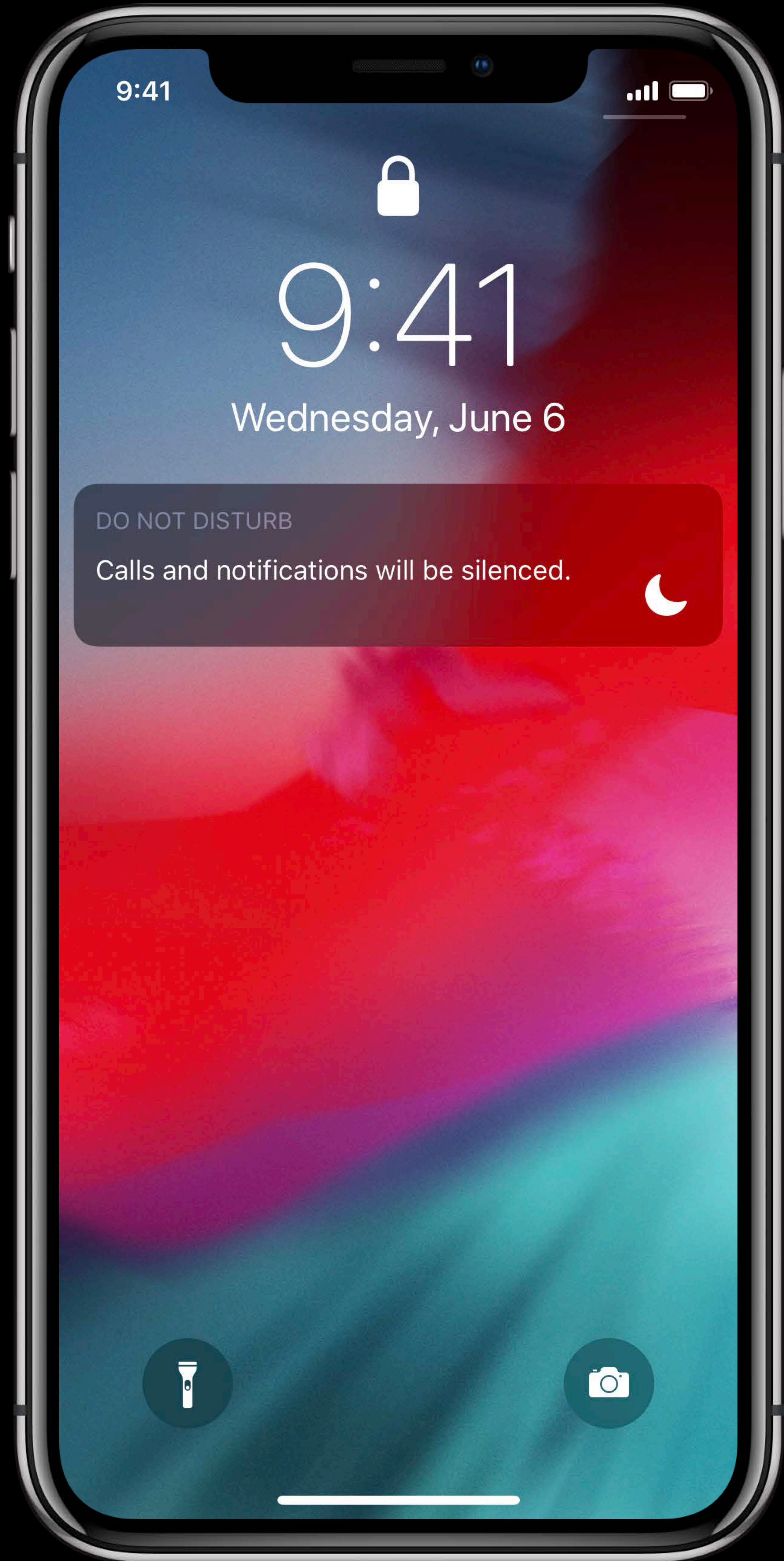
# Provisional Authorization

## Summary

Make notification content relevant

Use `.provisional` option as a qualifier

**Critical Alerts**



9:41

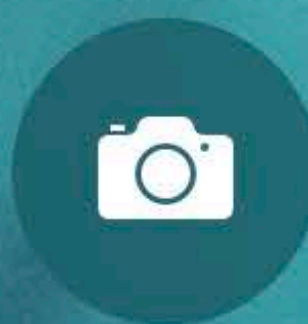


9:41

Wednesday, June 6

DO NOT DISTURB

Calls and notifications will be silenced.



9:41



9:41

Wednesday, June 6

DO NOT DISTURB

Calls and notifications will be silenced.

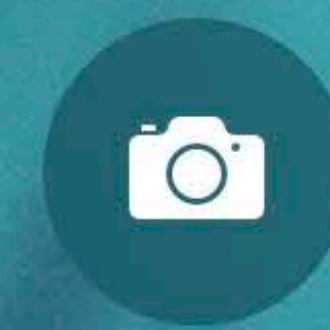


GLUCOSE MONITOR

now

**WARNING: LOW BLOOD SUGAR**

Glucose level at 57.





# Critical Alerts

# Critical Alerts

Medical and health

# Critical Alerts

Medical and health

Home and security

# Critical Alerts

Medical and health

Home and security

Public safety

# Critical Alerts

Medical and health

Home and security

Public safety

**Key:** Alerts that require the user to take action

# Critical Alerts

NEW

# Critical Alerts

NEW

Bypass Do Not Disturb and ringer switch

# Critical Alerts

NEW

Bypass Do Not Disturb and ringer switch

Play a sound



# Critical Alerts

NEW

Bypass Do Not Disturb and ringer switch

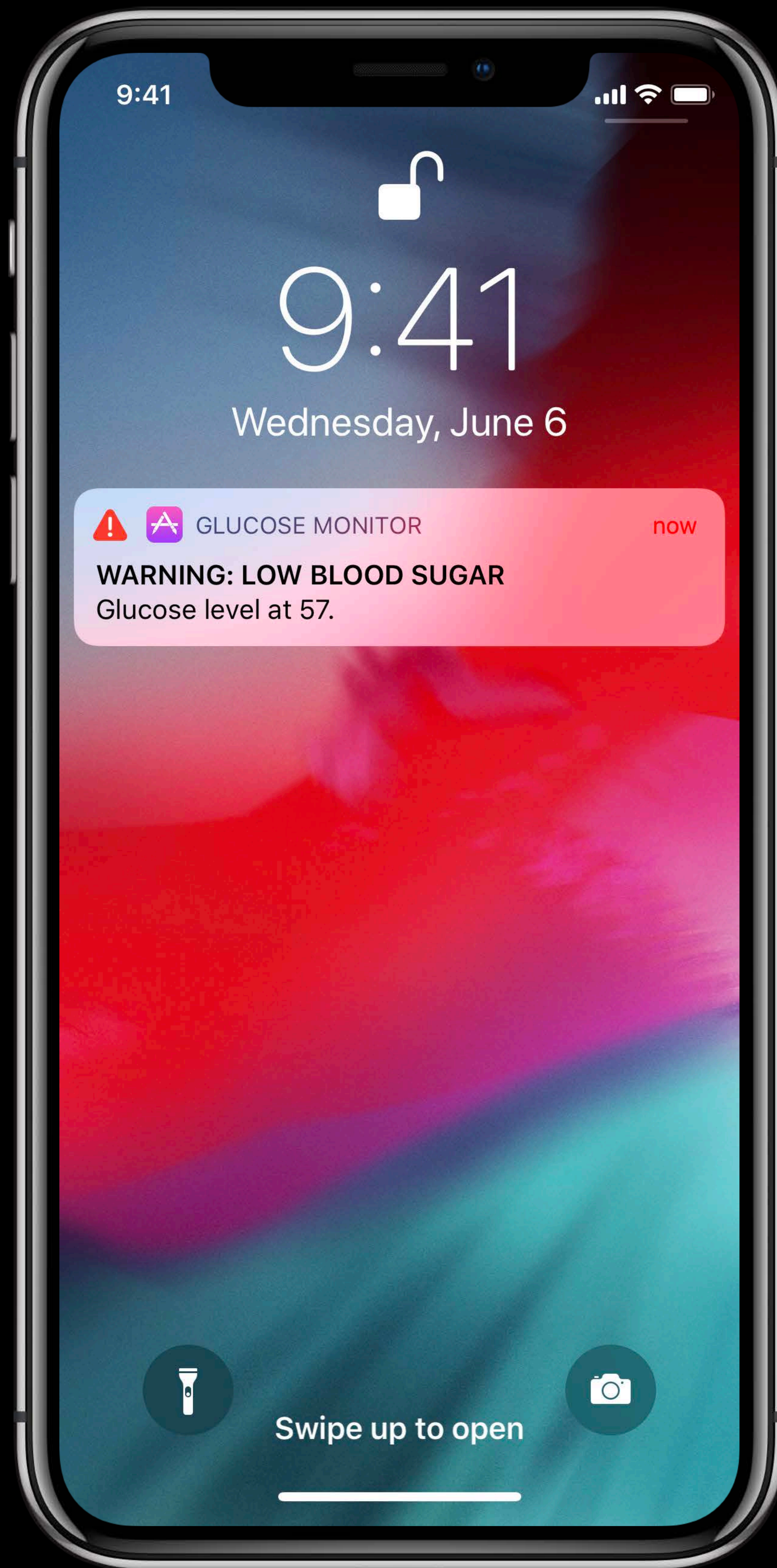
Play a sound

Disruptive

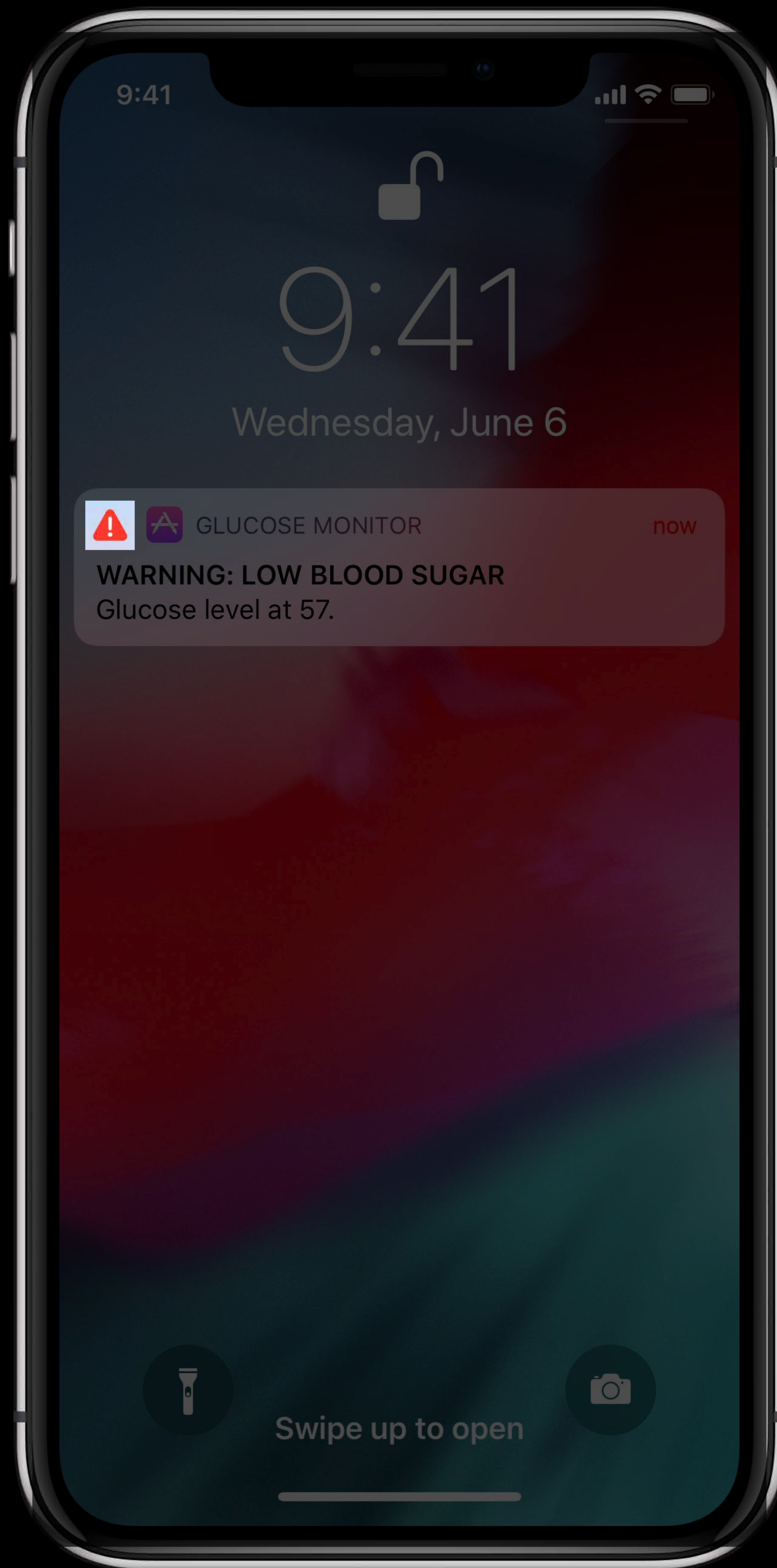
# Critical Alerts

Entitlement

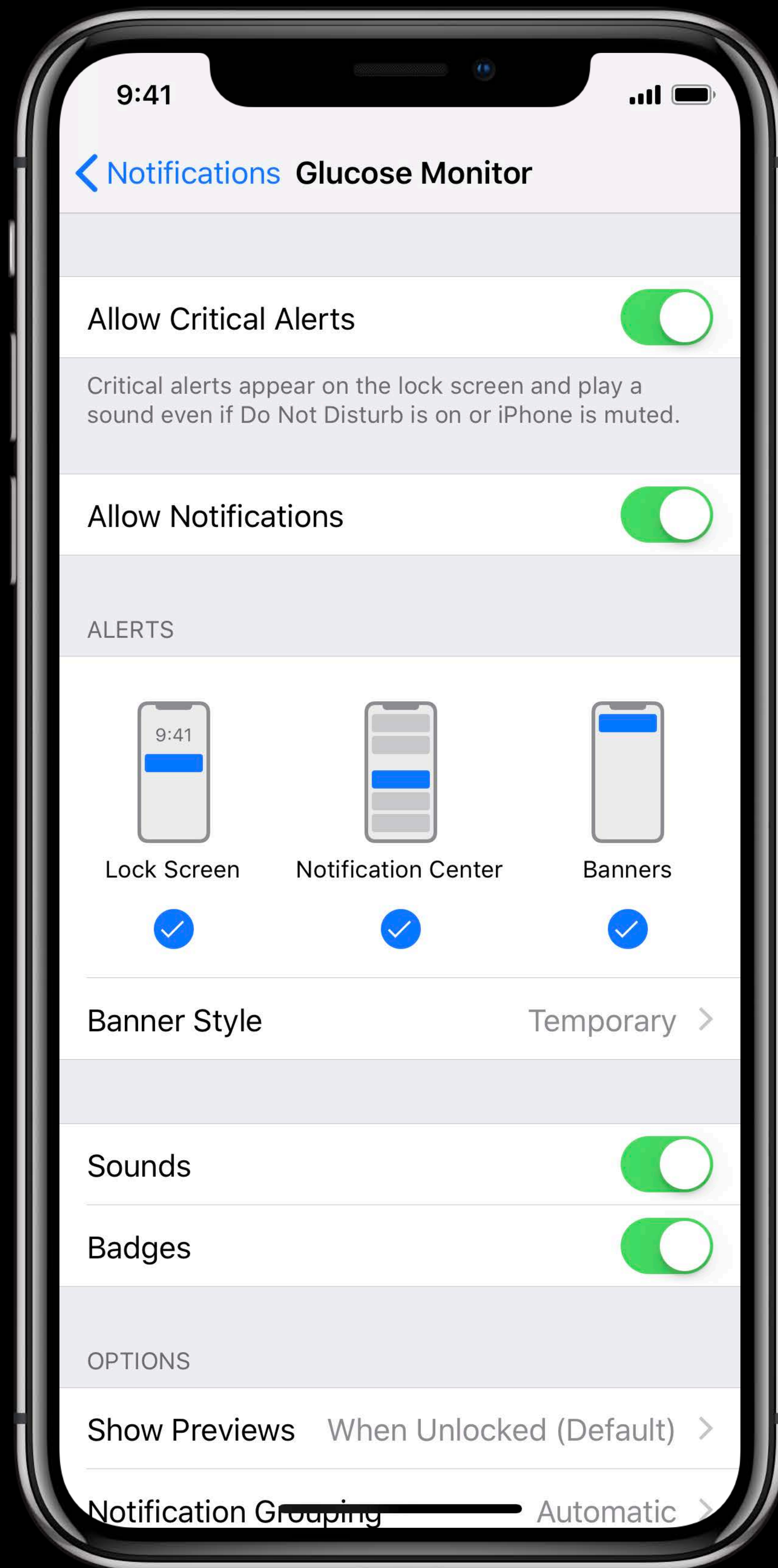
[https://developer.apple.com/contact/request/  
notifications-critical-alerts-entitlement/](https://developer.apple.com/contact/request/notifications-critical-alerts-entitlement/)



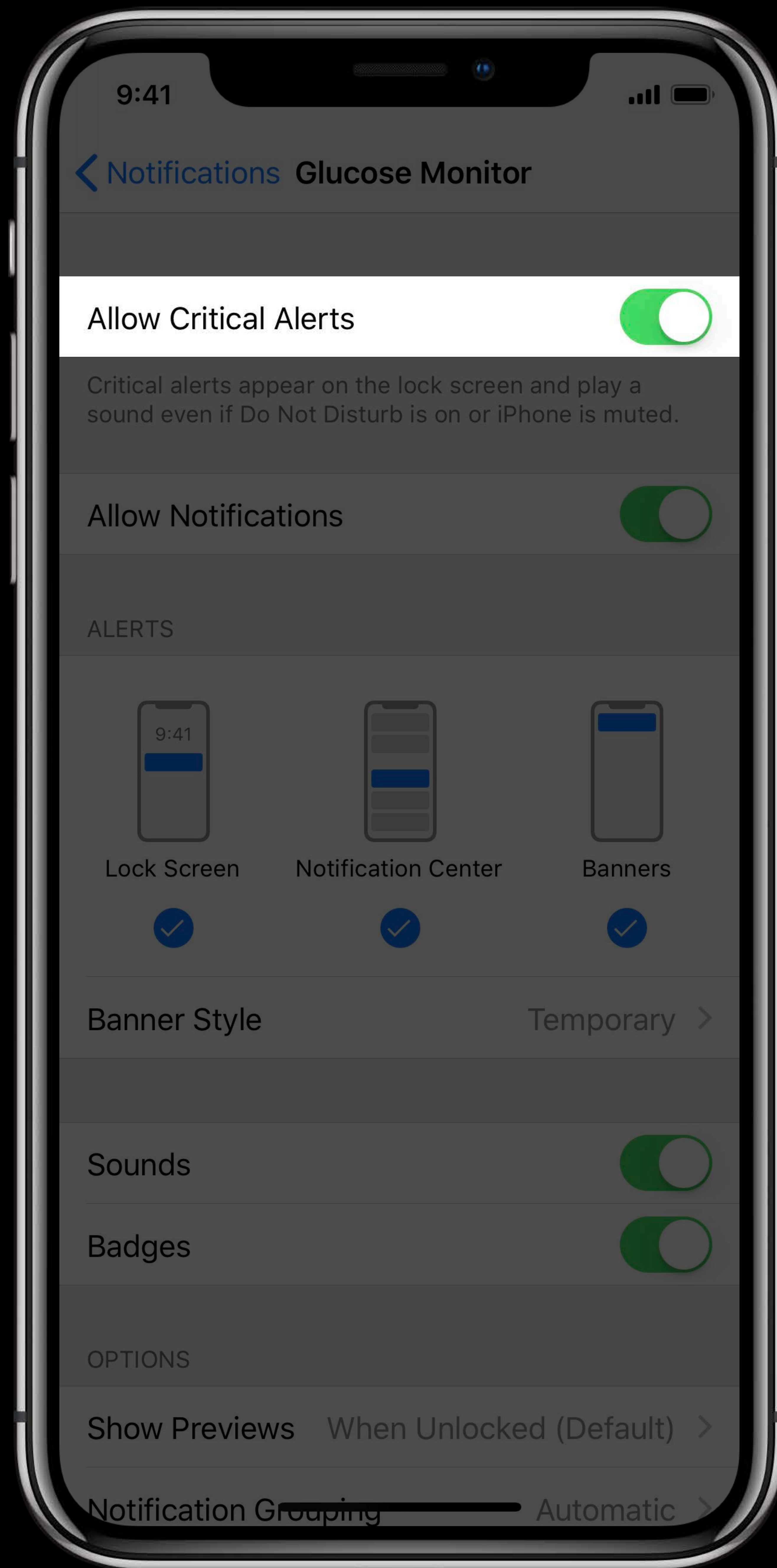
NEW



NEW



NEW



NEW

9:41



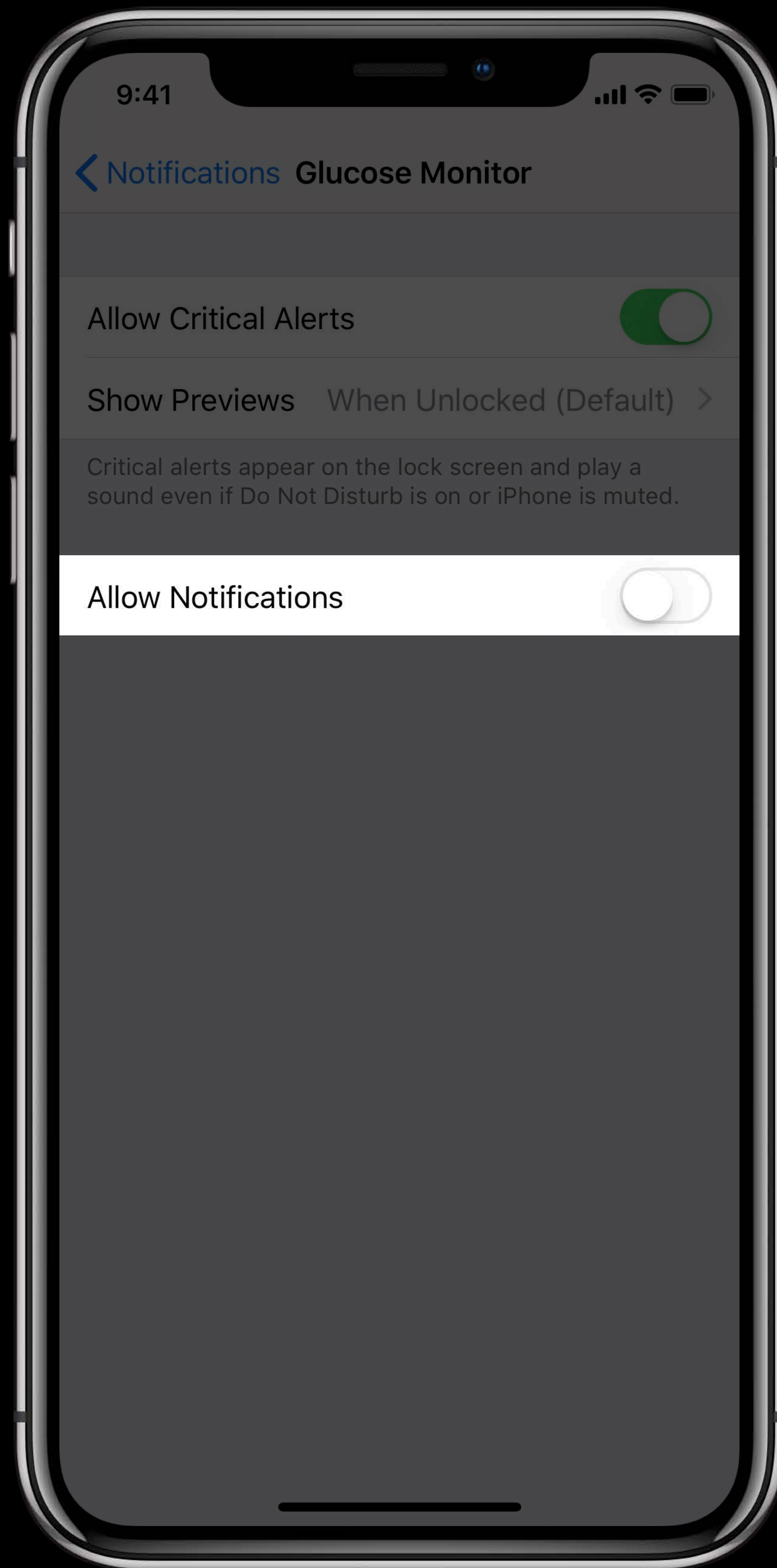
[< Notifications](#) Glucose Monitor

Allow Critical Alerts

Show Previews When Unlocked (Default) >

Critical alerts appear on the lock screen and play a sound even if Do Not Disturb is on or iPhone is muted.

Allow Notifications



9:41



< Notifications Glucose Monitor

Allow Critical Alerts



Show Previews When Unlocked (Default) >

Critical alerts appear on the lock screen and play a sound even if Do Not Disturb is on or iPhone is muted.

Allow Notifications







**“Glucose Monitor” Would  
Like to Send You Critical  
Alerts**

Critical Alerts always play a sound and appear on the lock screen even if your iPhone is muted or Do Not Disturb is on. Manage Critical Alerts in Settings.

Don't Allow

Allow

```
// Requesting Critical Alerts Authorization
```



NEW

```
let notificationCenter = UNUserNotificationCenter.current()

notificationCenter.requestAuthorization(
    options:[.sound, .badge, .alert, .criticalAlert]) {
}
}
```

NEW

```
// Requesting Critical Alerts Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.sound, .badge, .alert, .criticalAlert]) {  
}
```



NEW

```
// Requesting Critical Alerts Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.sound, .badge, .alert, .criticalAlert]) {  
}
```



NEW

```
// Requesting Critical Alerts Authorization
```

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.sound, .badge, .alert, .criticalAlert]) {  
}
```

```
// Requesting Critical Alerts Authorization
```



NEW

```
let notificationCenter = UNUserNotificationCenter.current()
```

```
notificationCenter.requestAuthorization(  
    options:[.sound, .badge, .alert, .criticalAlert]) {  
}
```

```
// Critical alert with default sound

let content = UNMutableNotificationContent()
content.title = "WARNING: LOW BLOOD SUGAR"
content.body = "Glucose level at 57."
content.categoryIdentifier = "low-glucose-alert"
content.sound = UNNotificationSound.defaultCritical
```



NEW

```
// Critical alert with default sound

let content = UNMutableNotificationContent()
content.title = "WARNING: LOW BLOOD SUGAR"
content.body = "Glucose level at 57."
content.categoryIdentifier = "low-glucose-alert"
content.sound = UNNotificationSound.defaultCritical
```



NEW



```
// Critical alert with custom sound and custom audio volume
```

```
let content = UNMutableNotificationContent()
```

```
content.title = "WARNING: LOW BLOOD SUGAR"
```

```
content.body = "Glucose level at 57."
```

```
content.categoryIdentifier = "low-glucose-alert"
```

```
content.sound = UNNotificationSound.criticalSoundNamed(@"warning-sound" withAudioVolume: 1.00)
```



**NEW**



NEW

```
// Critical alert with custom sound and custom audio volume
```

```
let content = UNMutableNotificationContent()
```

```
content.title = "WARNING: LOW BLOOD SUGAR"
```

```
content.body = "Glucose level at 57."
```

```
content.categoryIdentifier = "low-glucose-alert"
```

```
content.sound = UNNotificationSound.criticalSoundNamed(@"warning-sound" withAudioVolume: 1.00)
```

```
// Critical alert push payload
```

```
{  
  "aps" : {  
    "sound" : {  
      "critical": 1,  
      "name": "warning-sound.aiff",  
      "volume": 1.0  
    }  
  }  
}
```



**NEW**

```
// Critical alert push payload
```

```
{  
  "aps" : {  
    "sound" : {  
      "critical": 1,  
      "name": "warning-sound.aiff",  
      "volume": 1.0  
    }  
  }  
}
```



NEW

# Critical Alerts

Summary

# Critical Alerts

## Summary

Alerts that require the user to take action

# Critical Alerts

## Summary

Alerts that require the user to take action

Disruptive

# Summary



# Summary

**Summary**

**Grouped notifications**

# Summary

Grouped notifications

Notification content extensions

# Summary

Grouped notifications

Notification content extensions

Notification management

# Summary

Grouped notifications

Notification content extensions

Notification management

Provisional authorization

# Summary

Grouped notifications

Notification content extensions

Notification management

Provisional authorization

Critical alerts

# More Information

<https://developer.apple.com/wwdc18/710>

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Using Grouped Notifications

Hall 3

Wednesday 3:00PM

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Notifications Lab

Technology Lab 1

Wednesday 4:00PM

---

Notifications Lab

Technology Lab 1

Thursday 9:00AM

---

Designing Notifications

Hall 2

Friday 10:00AM

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 **WWDC18**