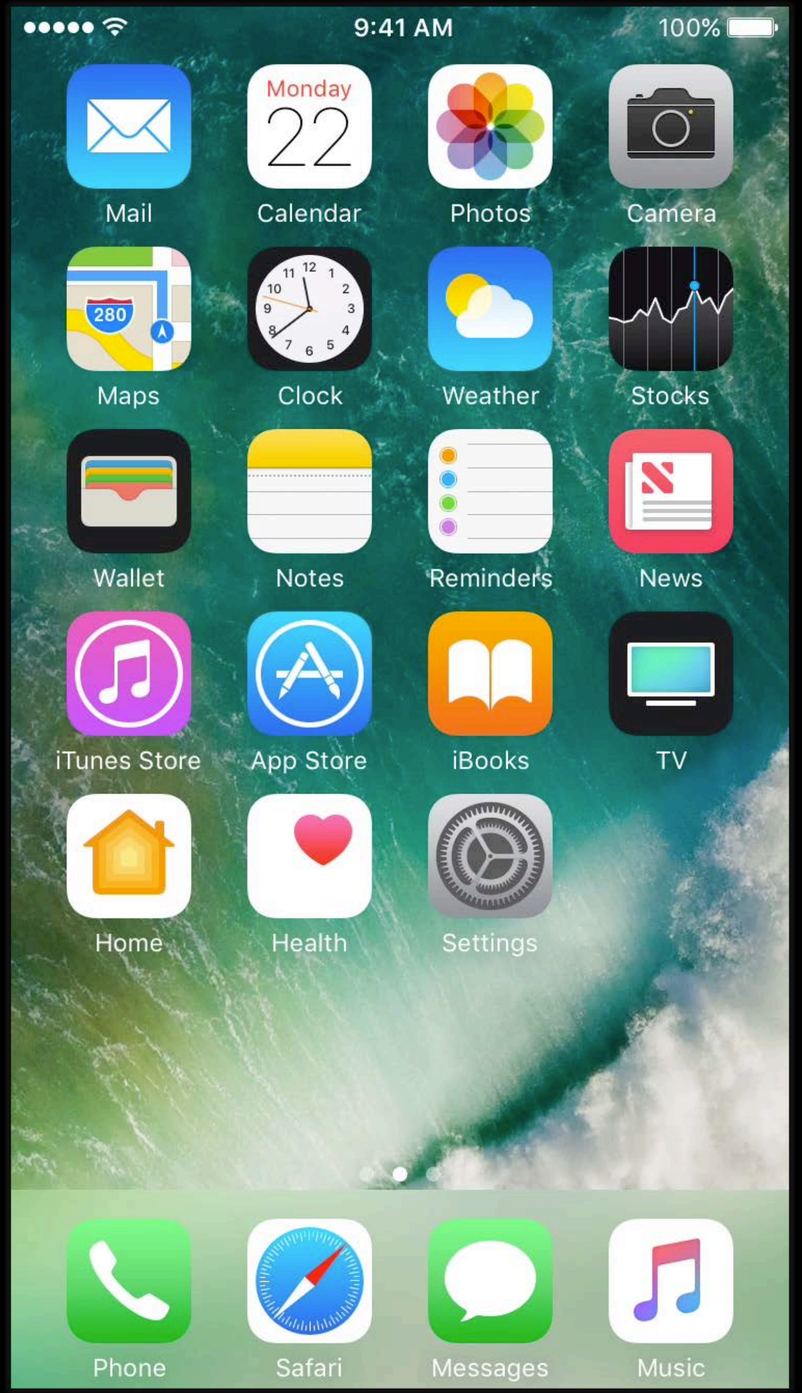
Filtering Unwanted Messages with Identity Lookup

Session 249

Stuart Montgomery, iOS Engineer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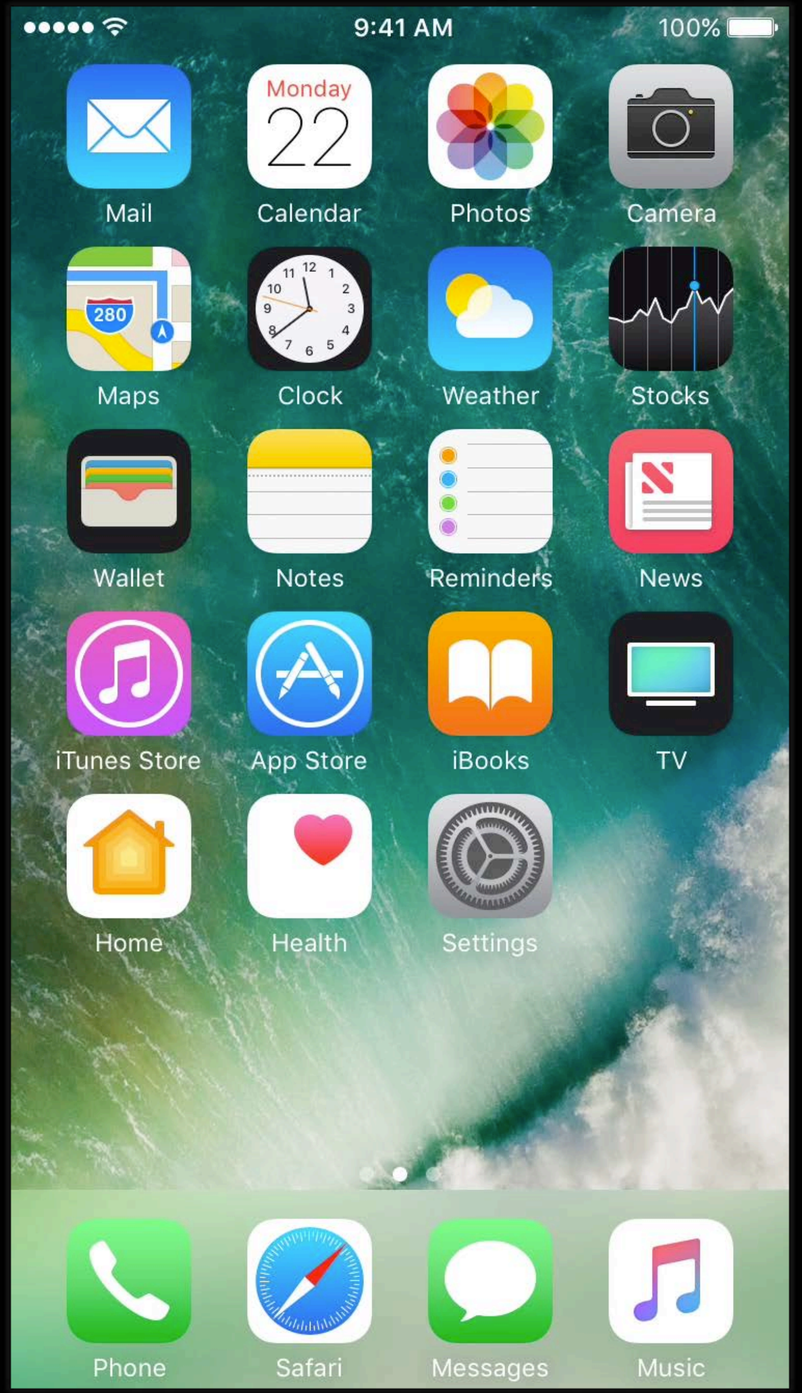
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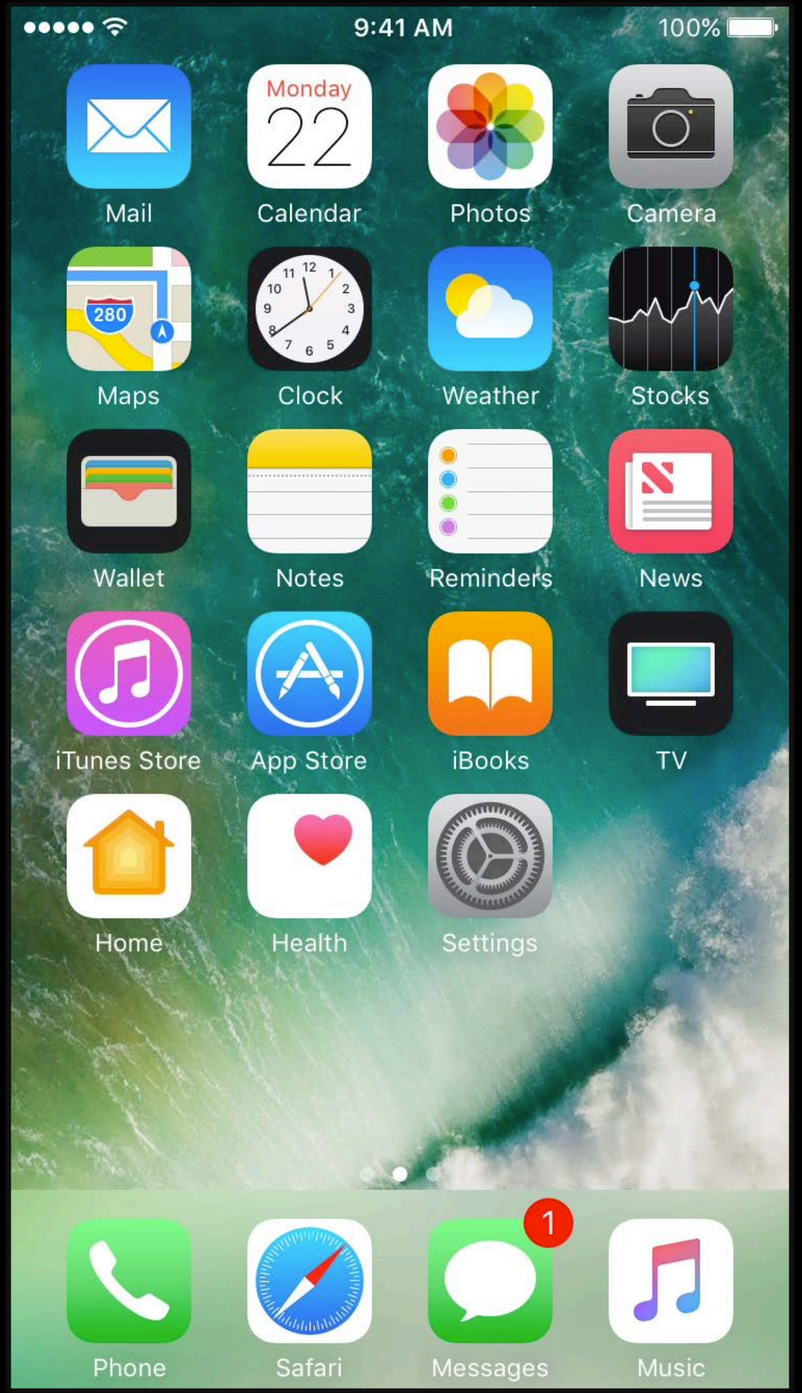
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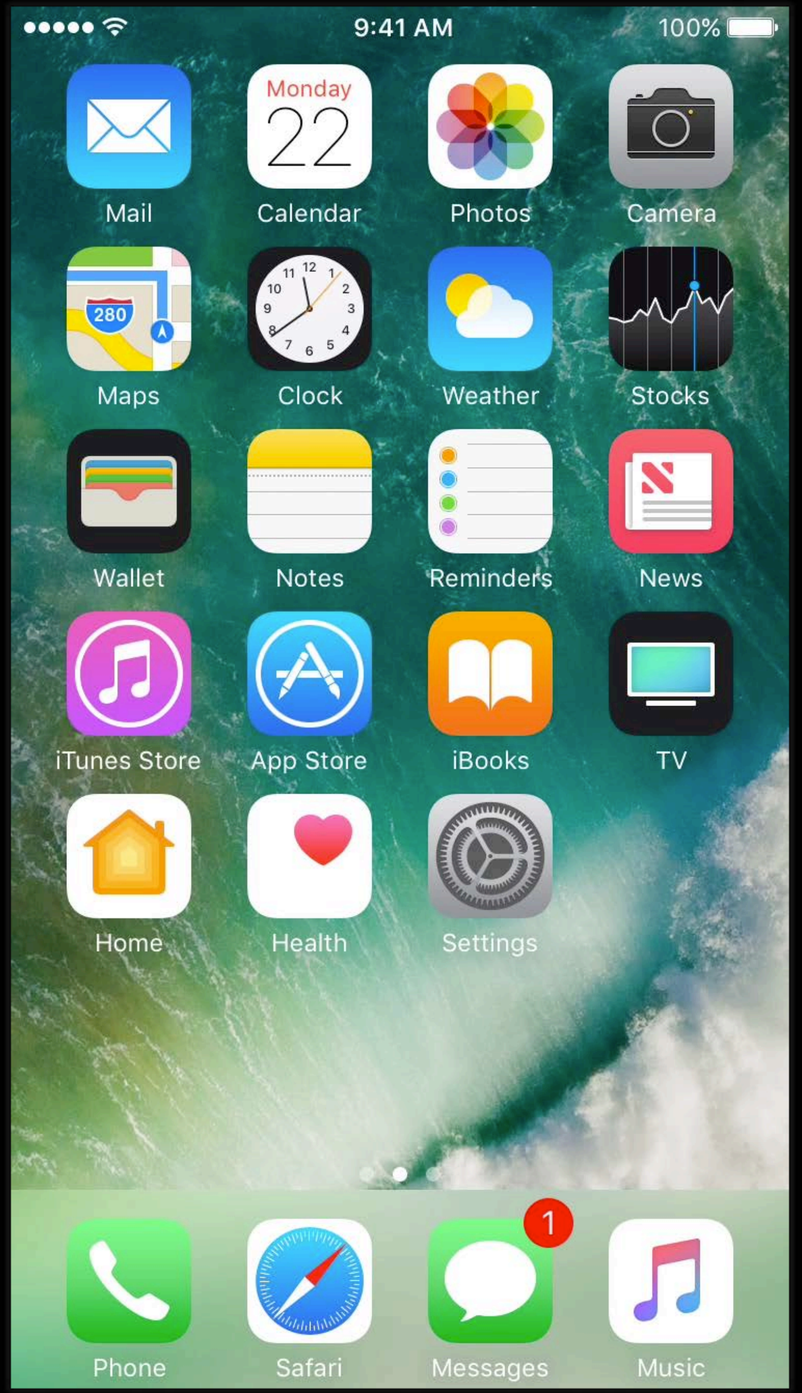
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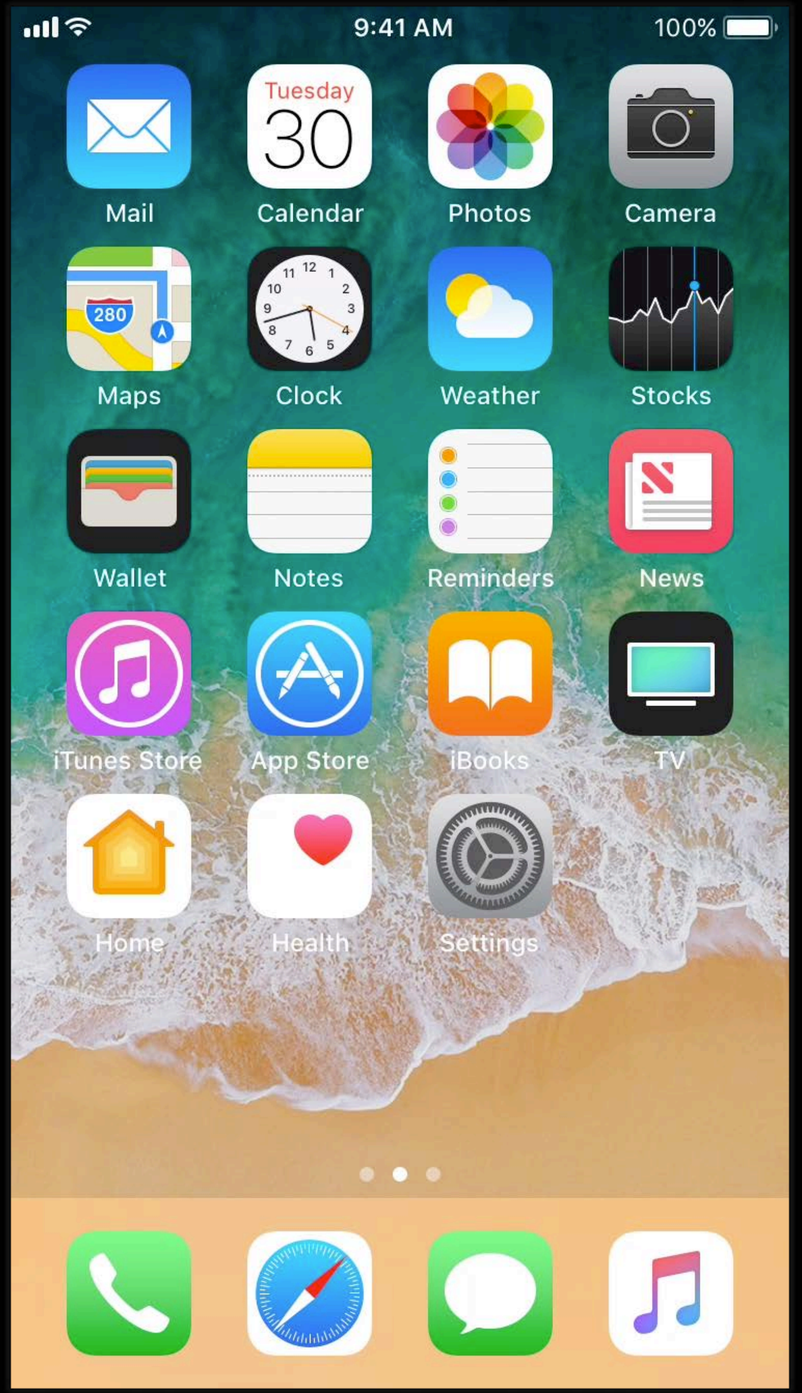
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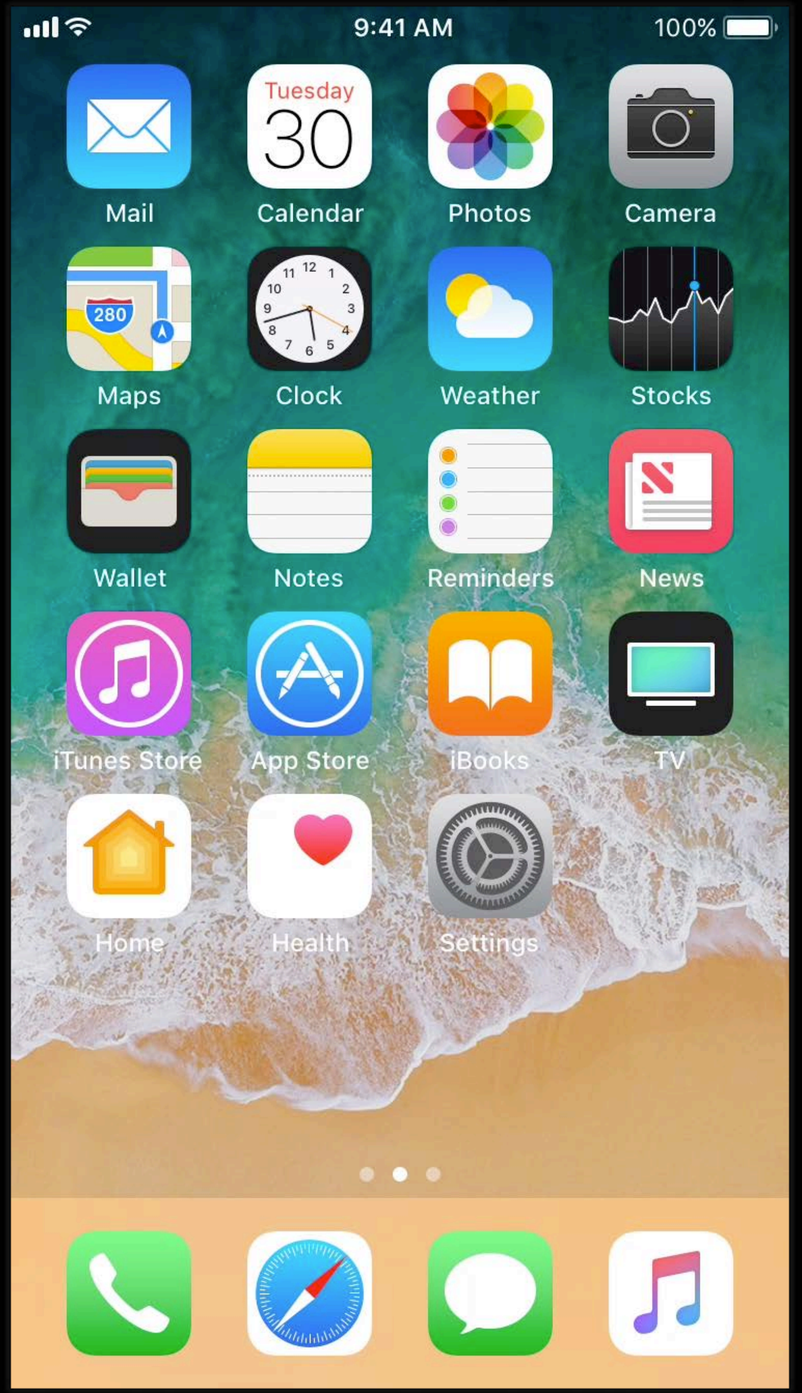
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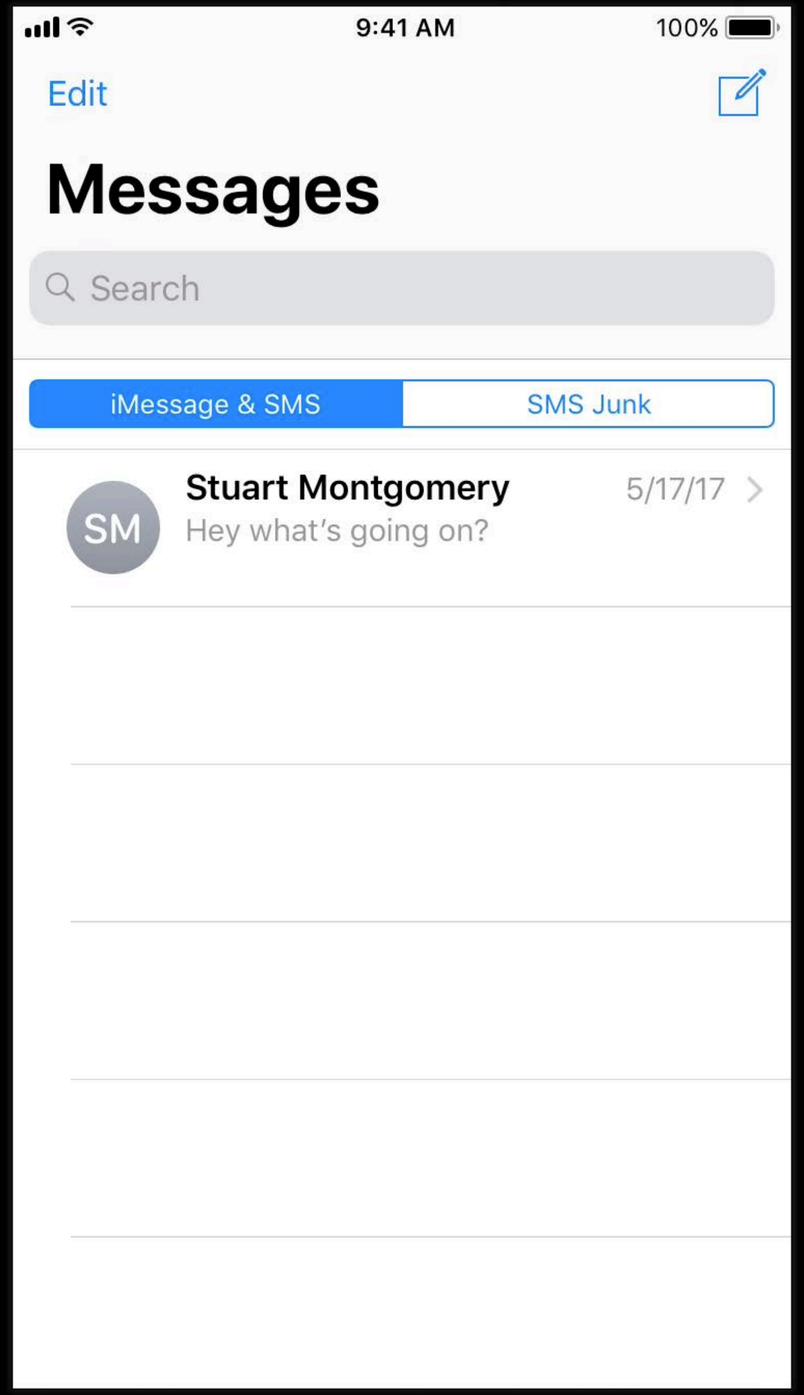
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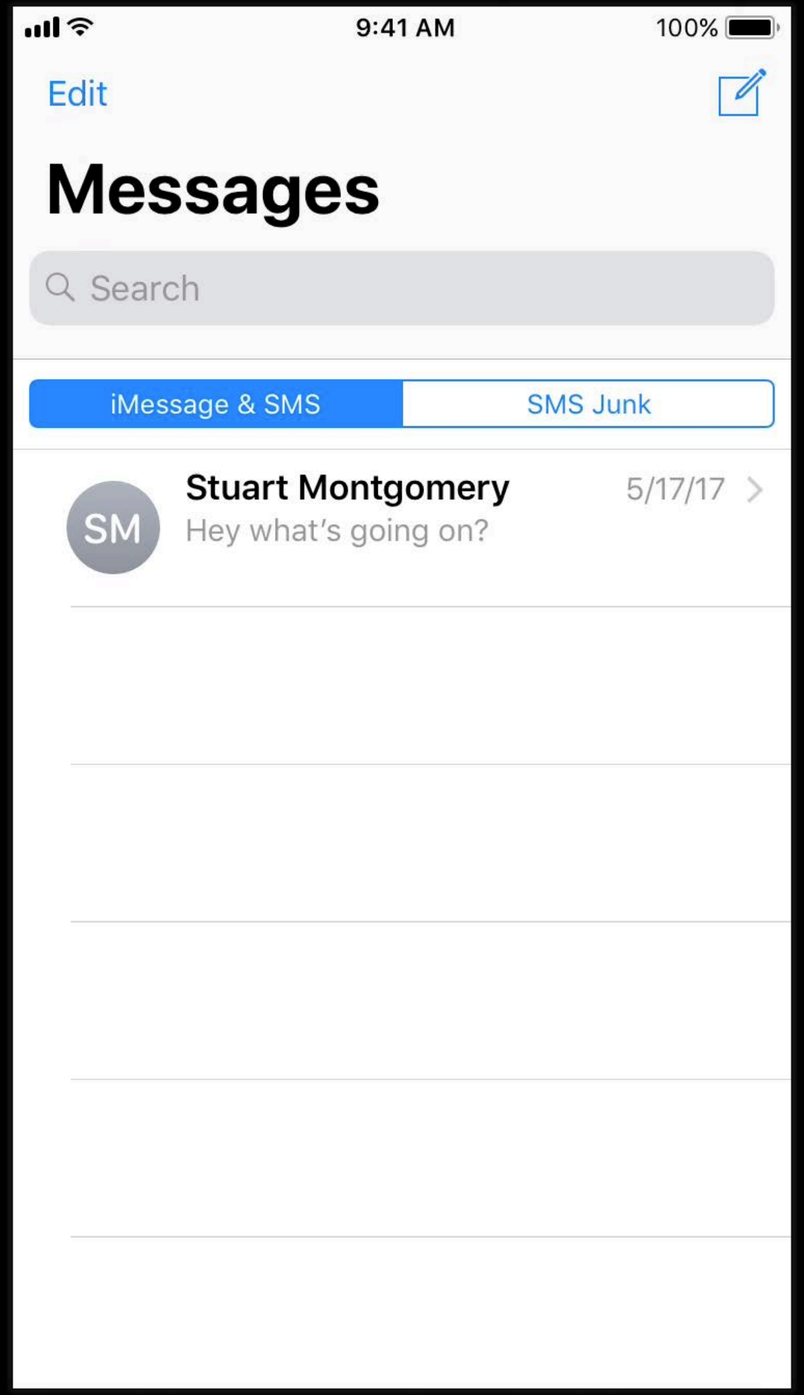
Search
iMessage & SMS
SMS Junk
SM
Stuart Montgomery
5/17/17
Hey what's going on?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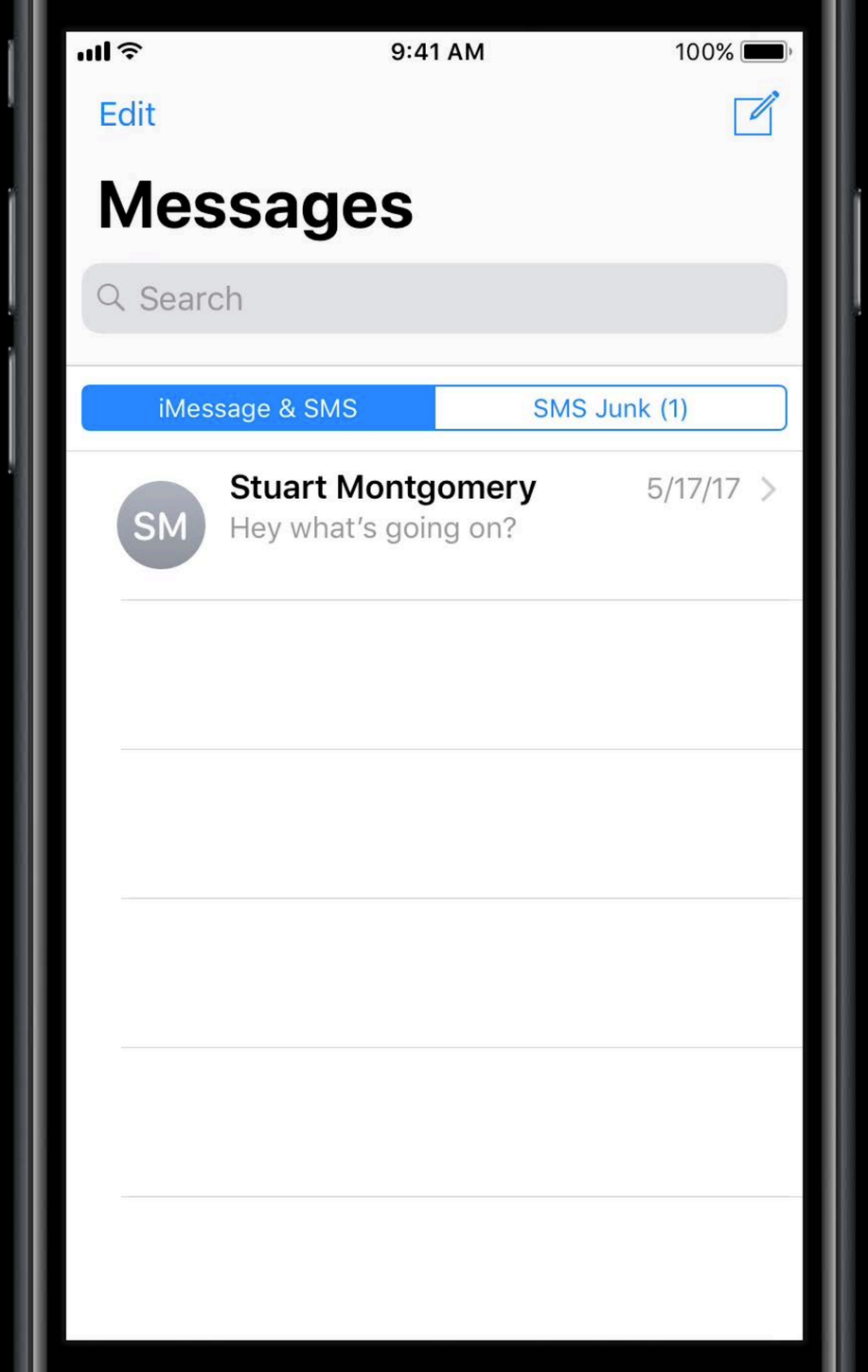
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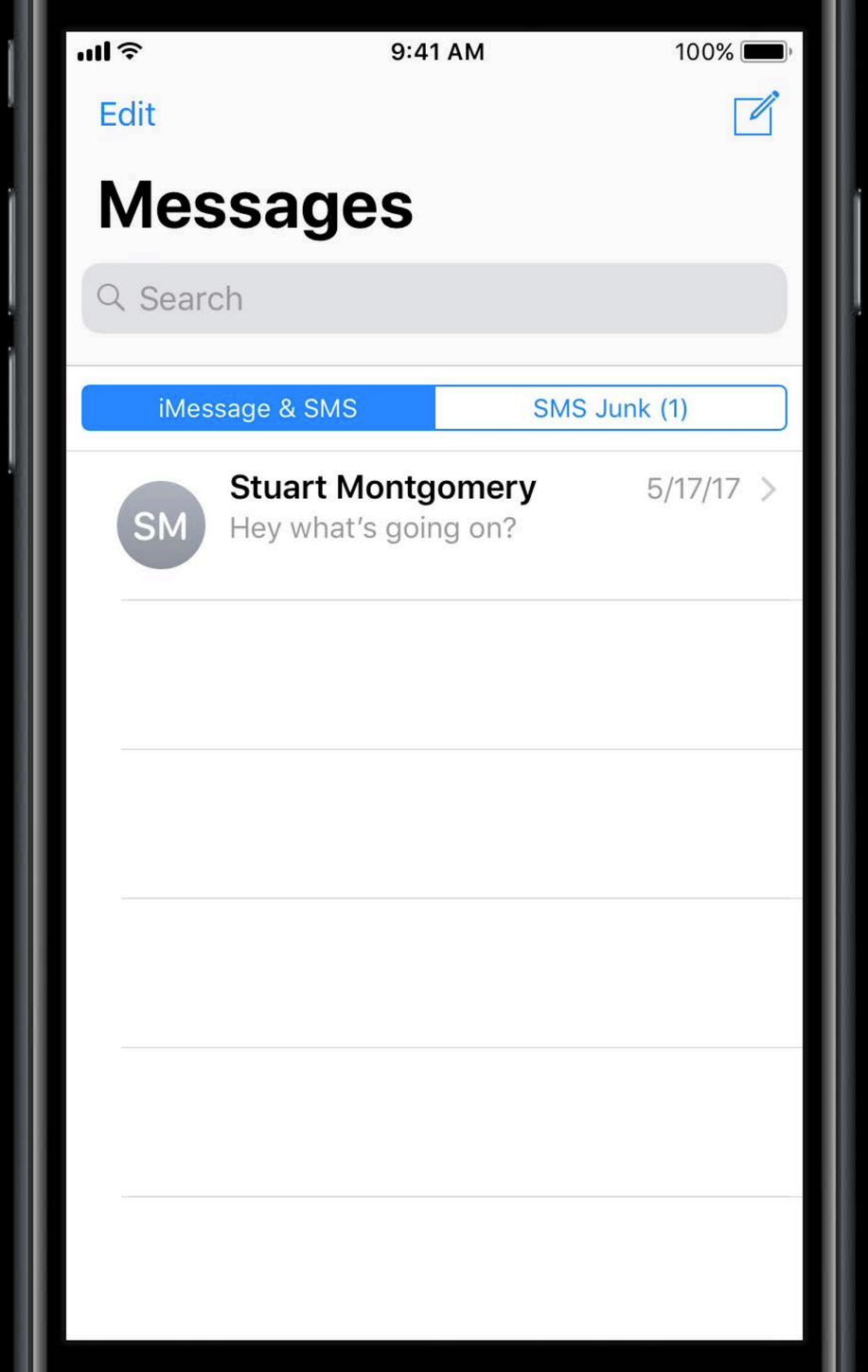
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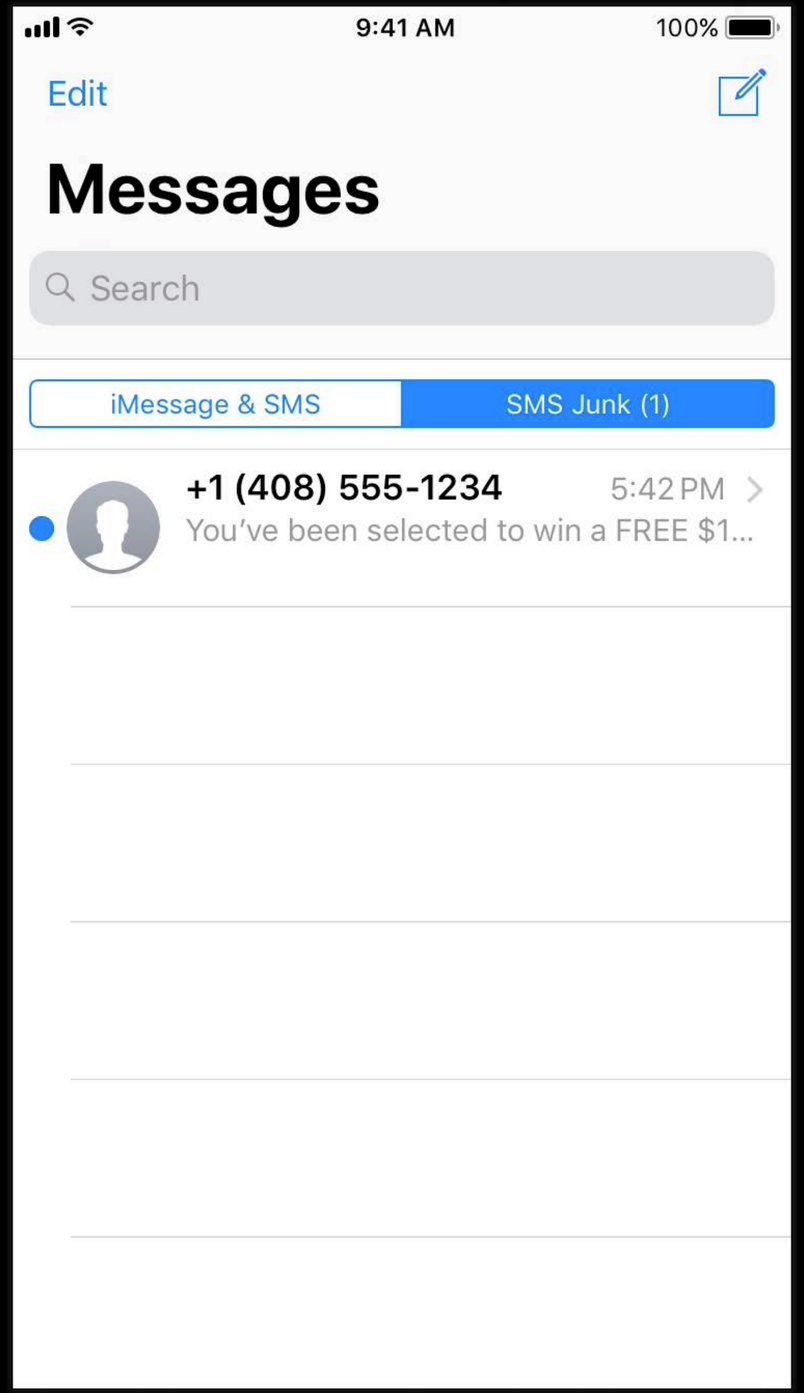
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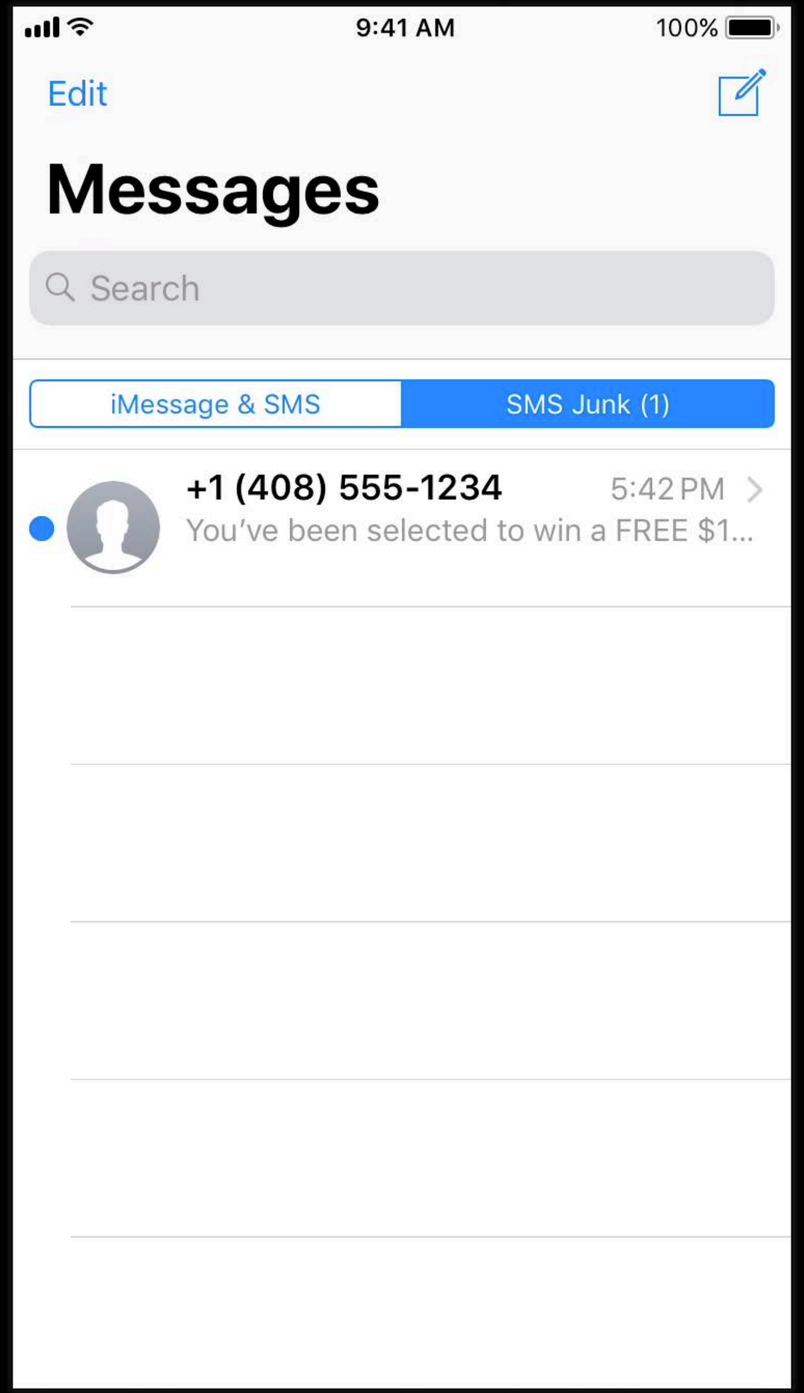
Messages
Search
iMessage & SMS
SMS Junk (1)
+1 (408) 555-1234
5:42 PM
You've been selected to win a FREE $1...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Motivation

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Increasing nuisance for users

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Sometimes phishing attempts

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Delivered via carrier, unlike iMessage

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Increasing nuisance for users

Sometimes phishing attempts

Delivered via carrier, unlike iMessage

Leverage expertise in detecting unwanted messages

Message Filter extensions

Privacy considerations

Network deferral

Demo

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New app extension point

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Part of Identity Lookup framework, new in iOS 11

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Must be enabled by user in Messages settings

One extension enabled at a time

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Must be enabled by user in Messages settings

One extension enabled at a time

Invoked for each SMS from an unknown sender

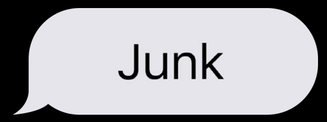
Message Filter Extensions

Offline-only

Messages

Message Filter Extensions

Offline-only



Messages

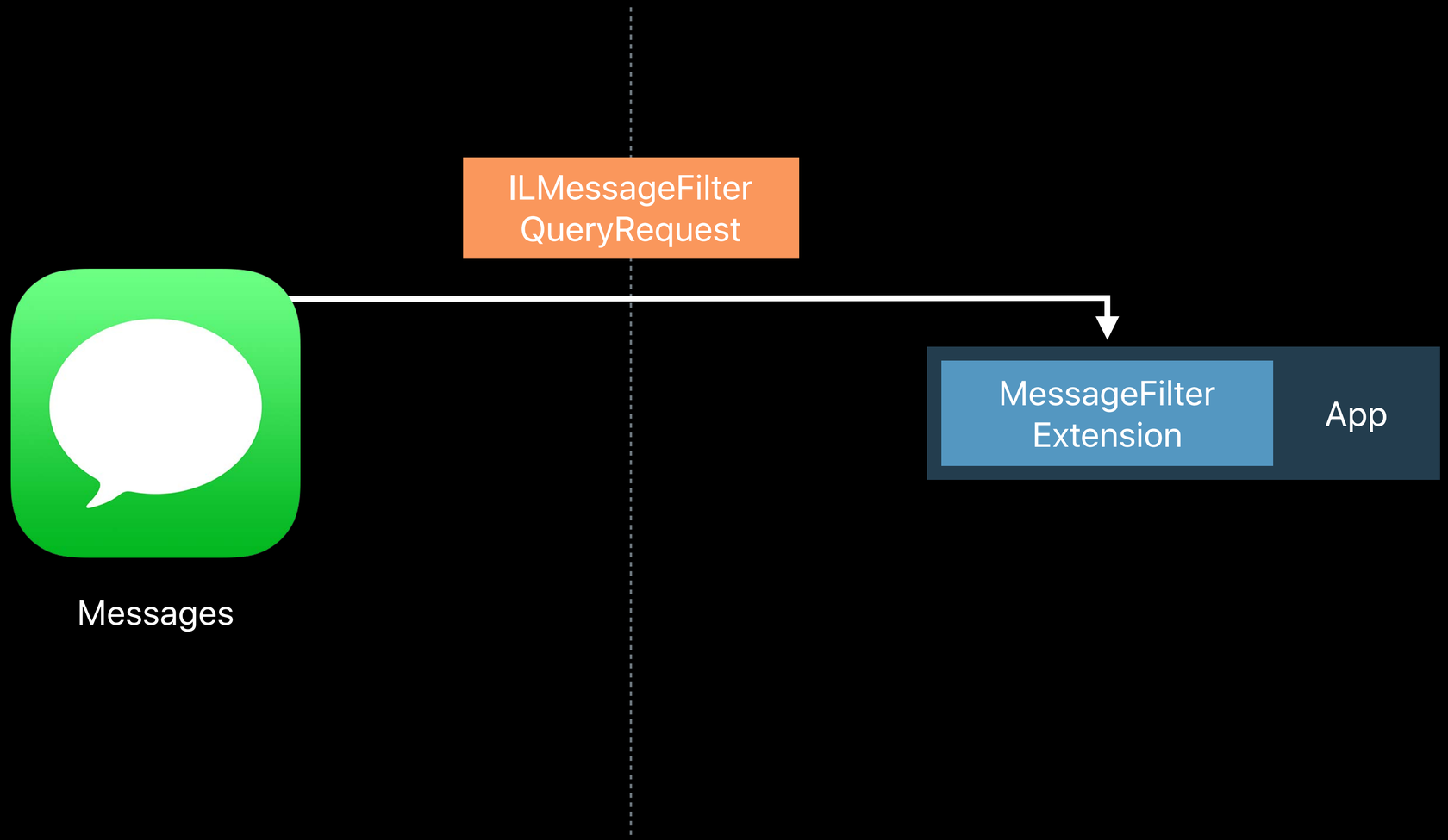
Message Filter Extensions

Offline-only

Messages

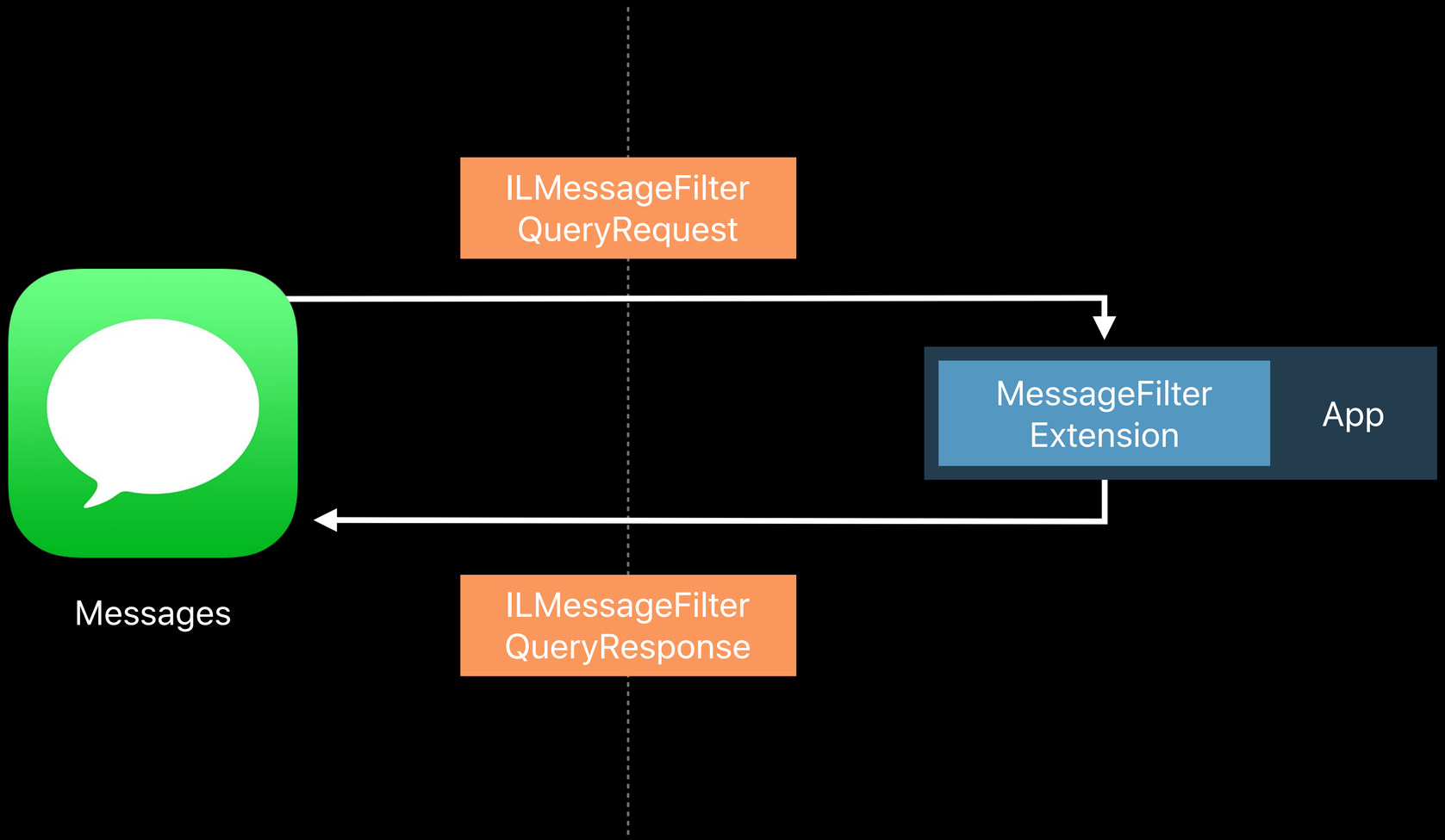
Message Filter Extensions

Offline-only



Message Filter Extensions

Offline-only



Privacy Considerations

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Recipient’s phone number not sent to extension, only sender’s

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Restrictions on extension

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- Cannot write to files shared with containing app

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- Cannot perform networking

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Restrictions on extension

- Cannot write to files shared with containing app
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Do not export messages outside extension’s container

Message Criteria

Requirements for messages to be sent to extension

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SMS and MMS only

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Never iMessage

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Only unknown senders (not in recipient’s Contacts)

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- Stops sending to extension

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Requirements for messages to be sent to extension

SMS and MMS only

Never iMessage

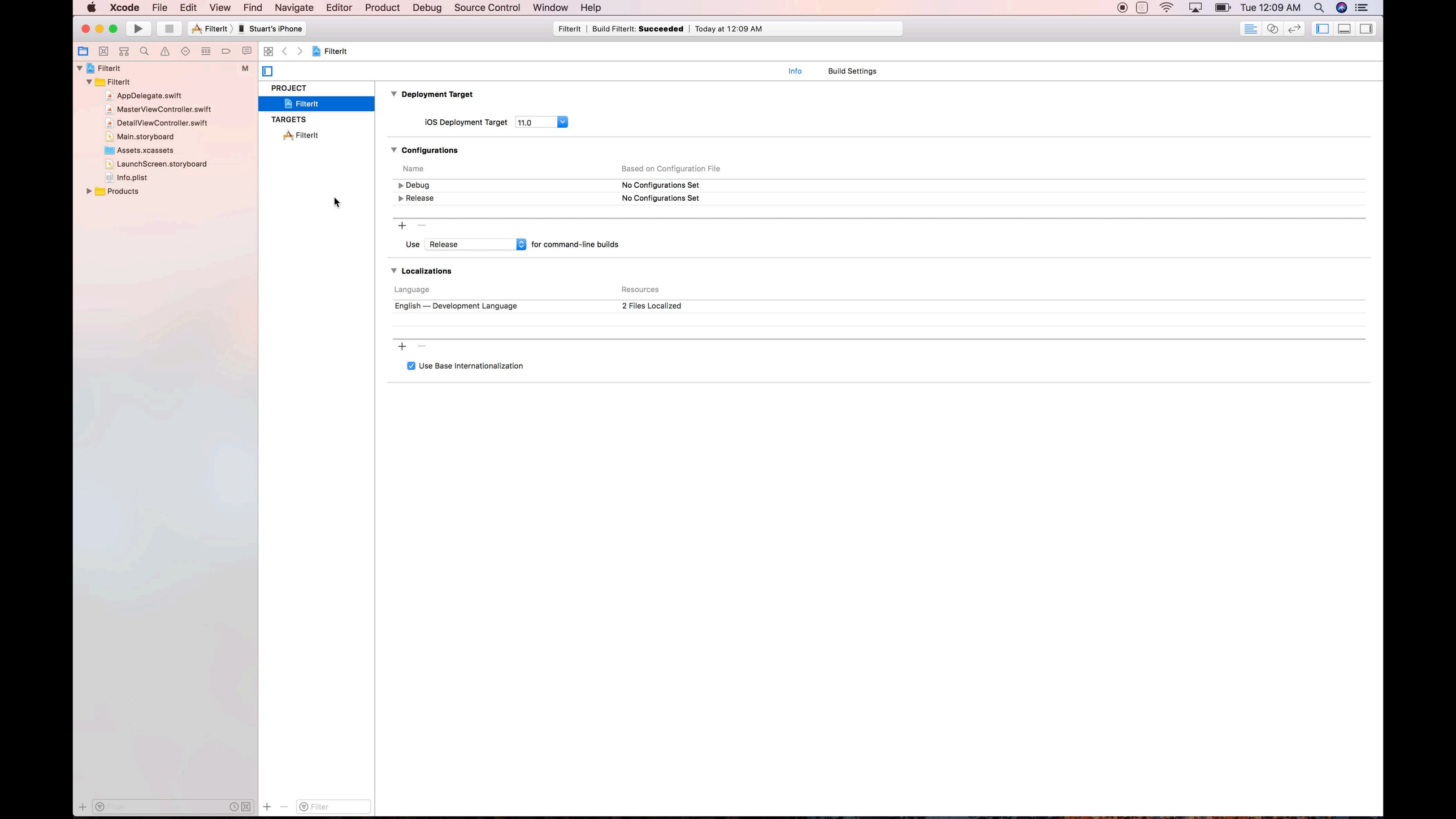
Only unknown senders (not in recipient’s Contacts)

After multiple responses

- Stops sending to extension
- Junk threads promoted to non-junk

Demo

Offline-only extension


Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help
Tue 12:09 AM
FilterIt 〉 Stuart's iPhone
FilterIt | Build FilterIt: Succeeded | Today at 12:09 AM
FilterIt
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AppDelegate.swift
MasterViewController.swift
DetailViewController.swift
Main.storyboard
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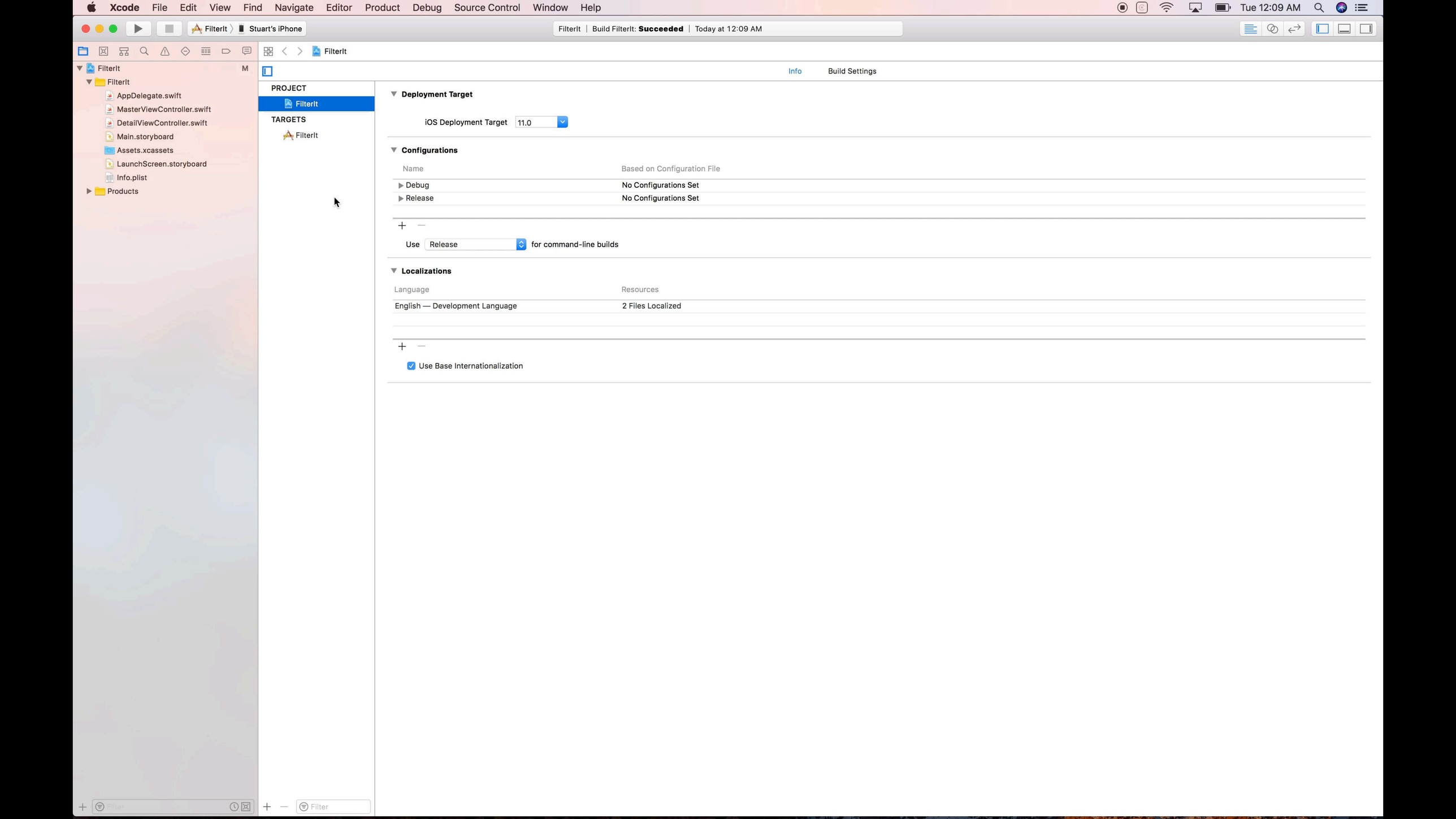
Info.plist
Products
Info
Build Settings
PROJECT
FilterIt
TARGETS
FilterIt
Deployment Target
iOS Deployment Target
11.0
Configurations
Name
Based on Configuration File
Debug
No Configurations Set
Release
No Configurations Set
Use
Release
for command-line builds
Localizations
Language
Resources
English — Development Language
2 Files Localized
Use Base Internationalization
Filter
Filter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11.0
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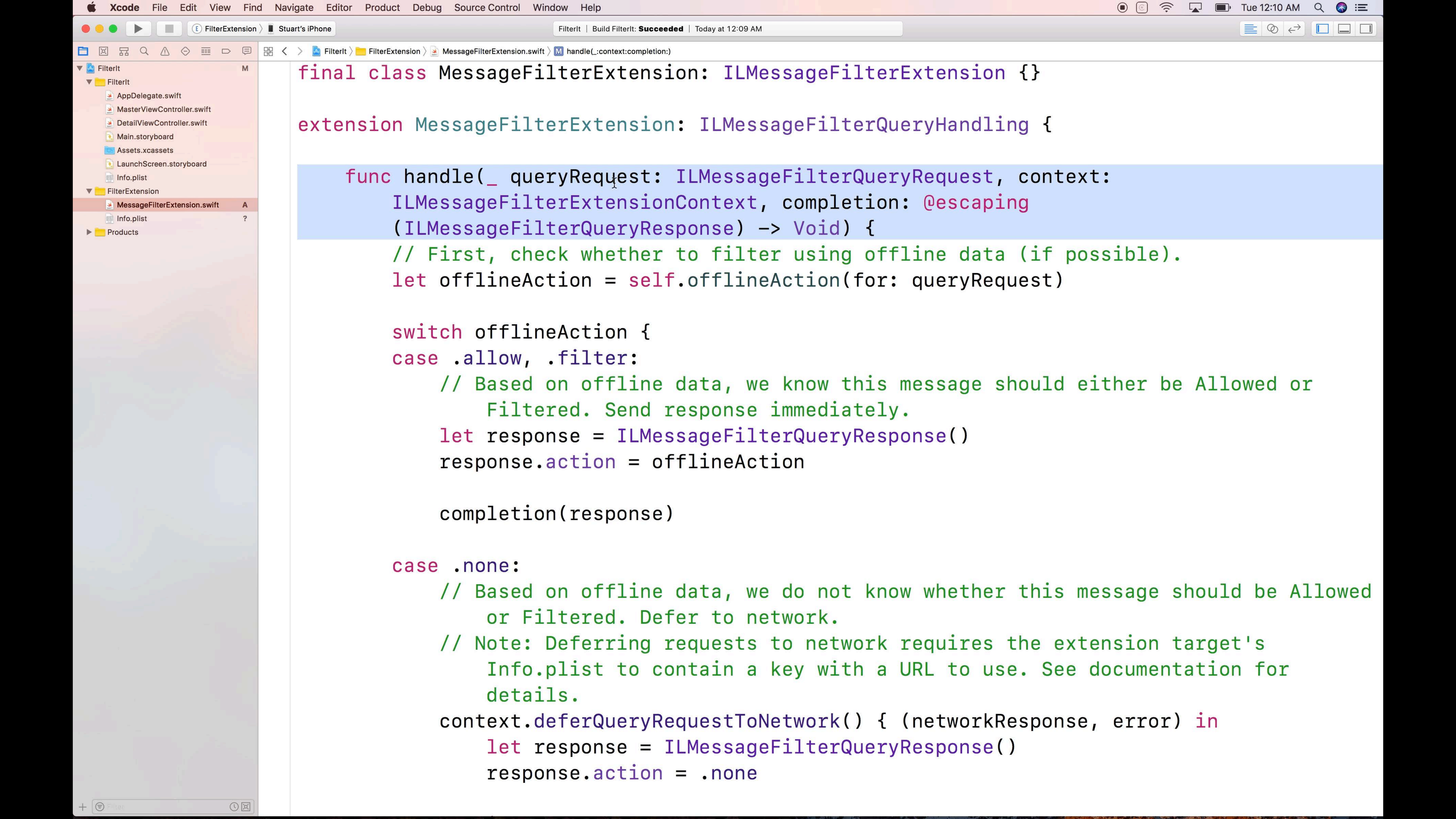
Based on Configuration File
Debug
No Configurations Set
Release
No Configurations Set
Use
Release
for command-line builds
Localizations
Language
Resources
English — Development Language
2 Files Localized
Use Base Internationalization
Filter
Filter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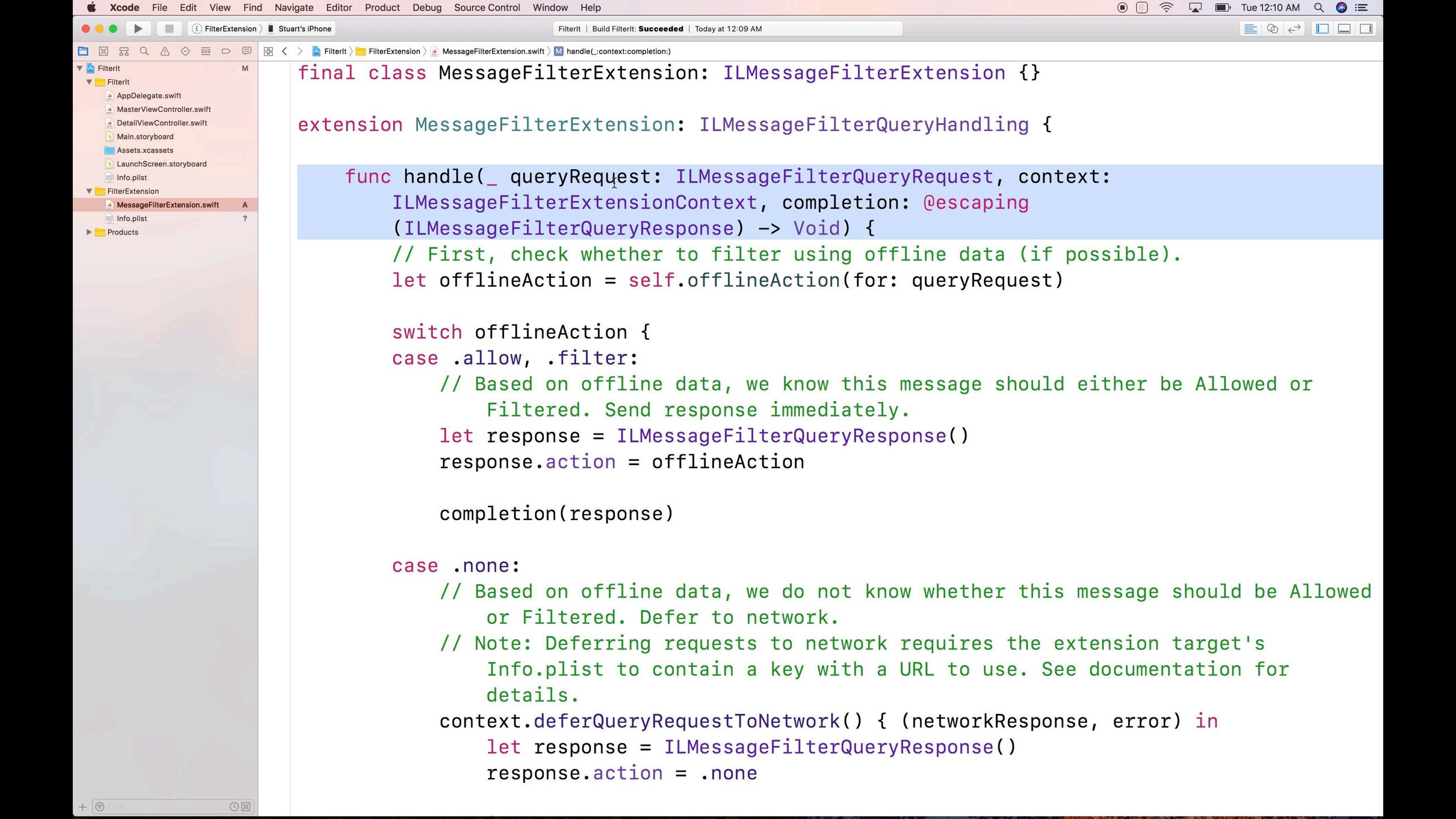
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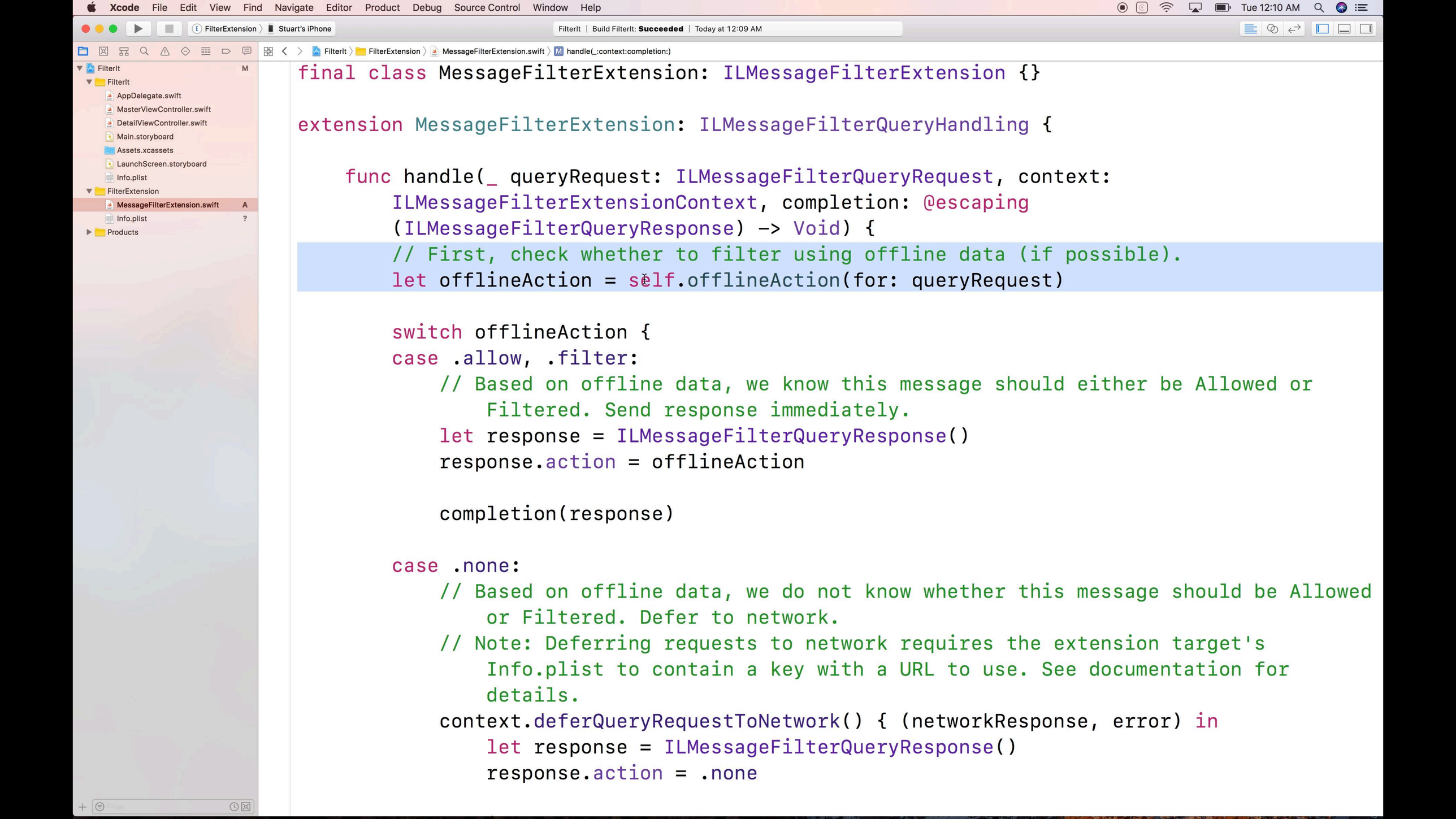
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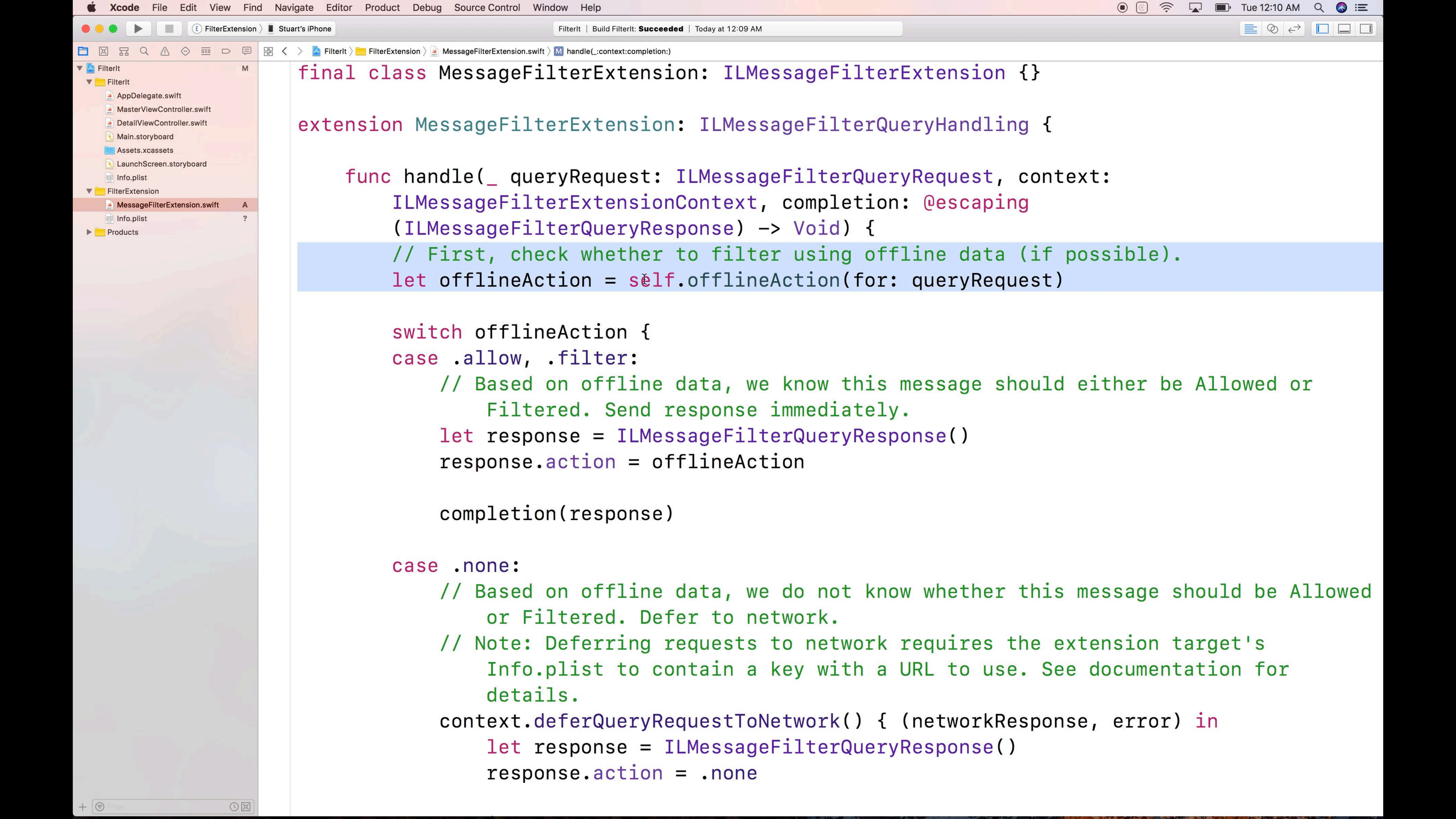
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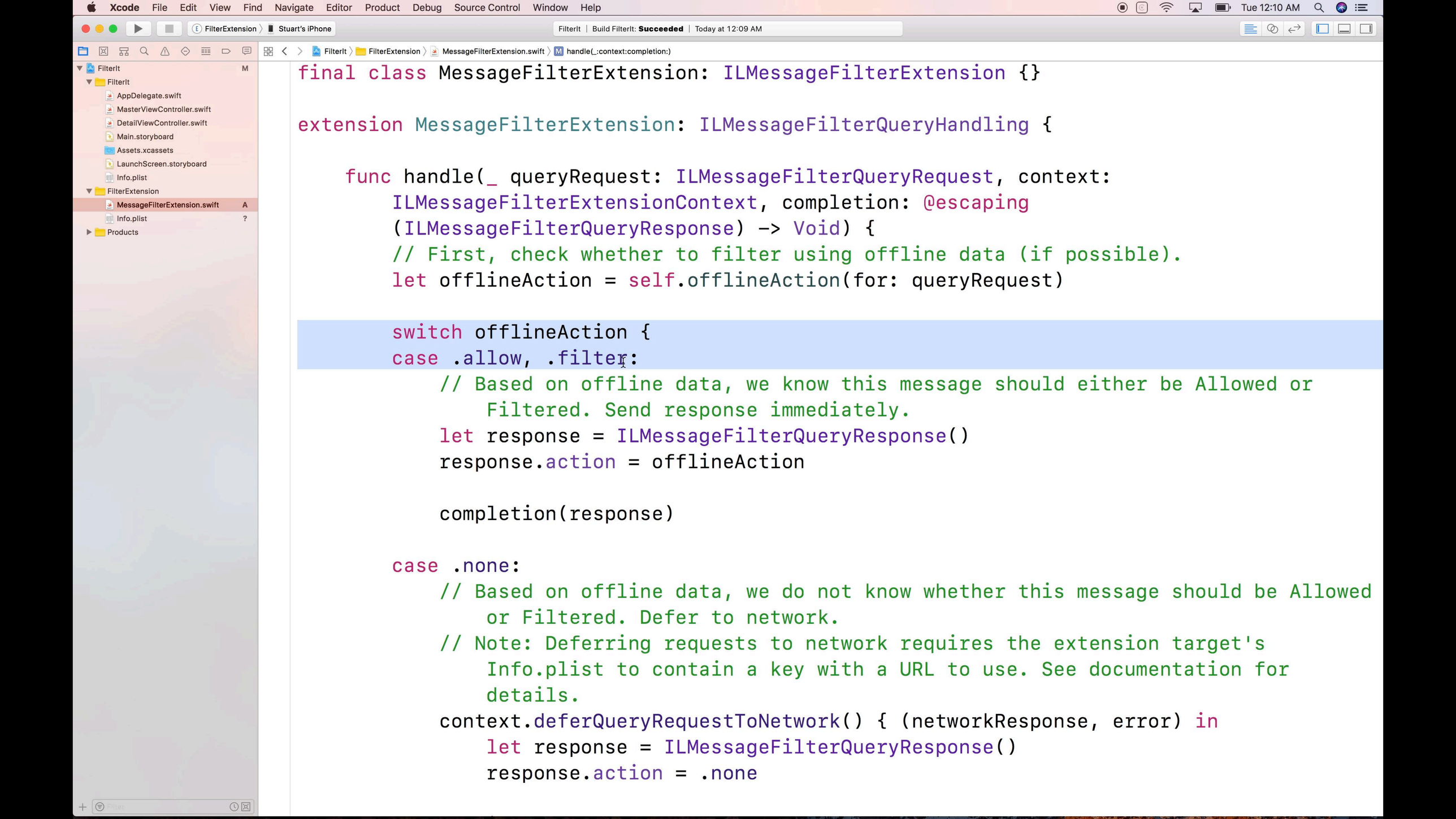
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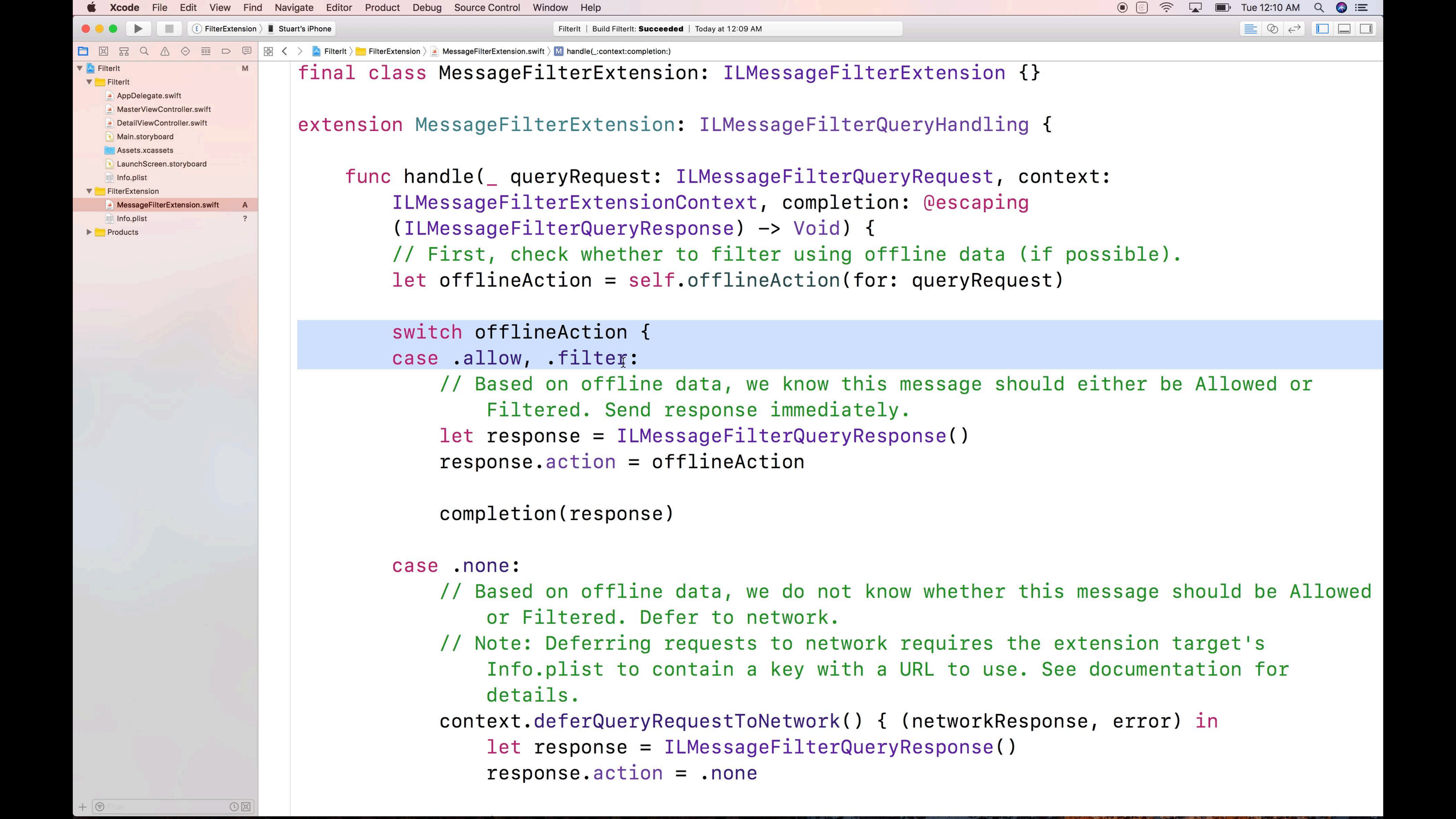
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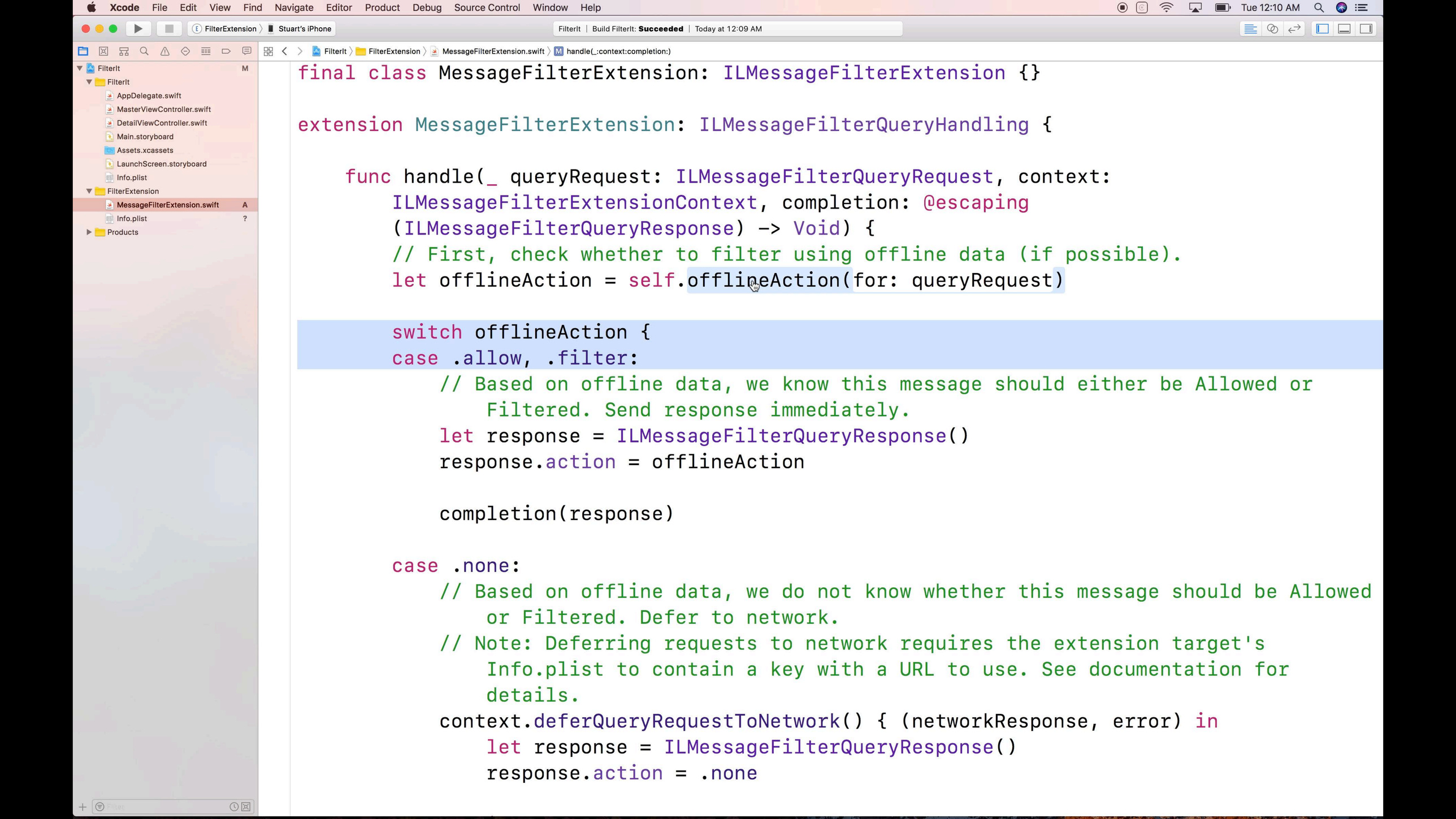
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let offlineAction = self.offlineAction(for: queryRequest)
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let response = ILMessageFilterQueryResponse()
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details.
context.deferQueryRequestToNetwork() { (networkResponse, error) in
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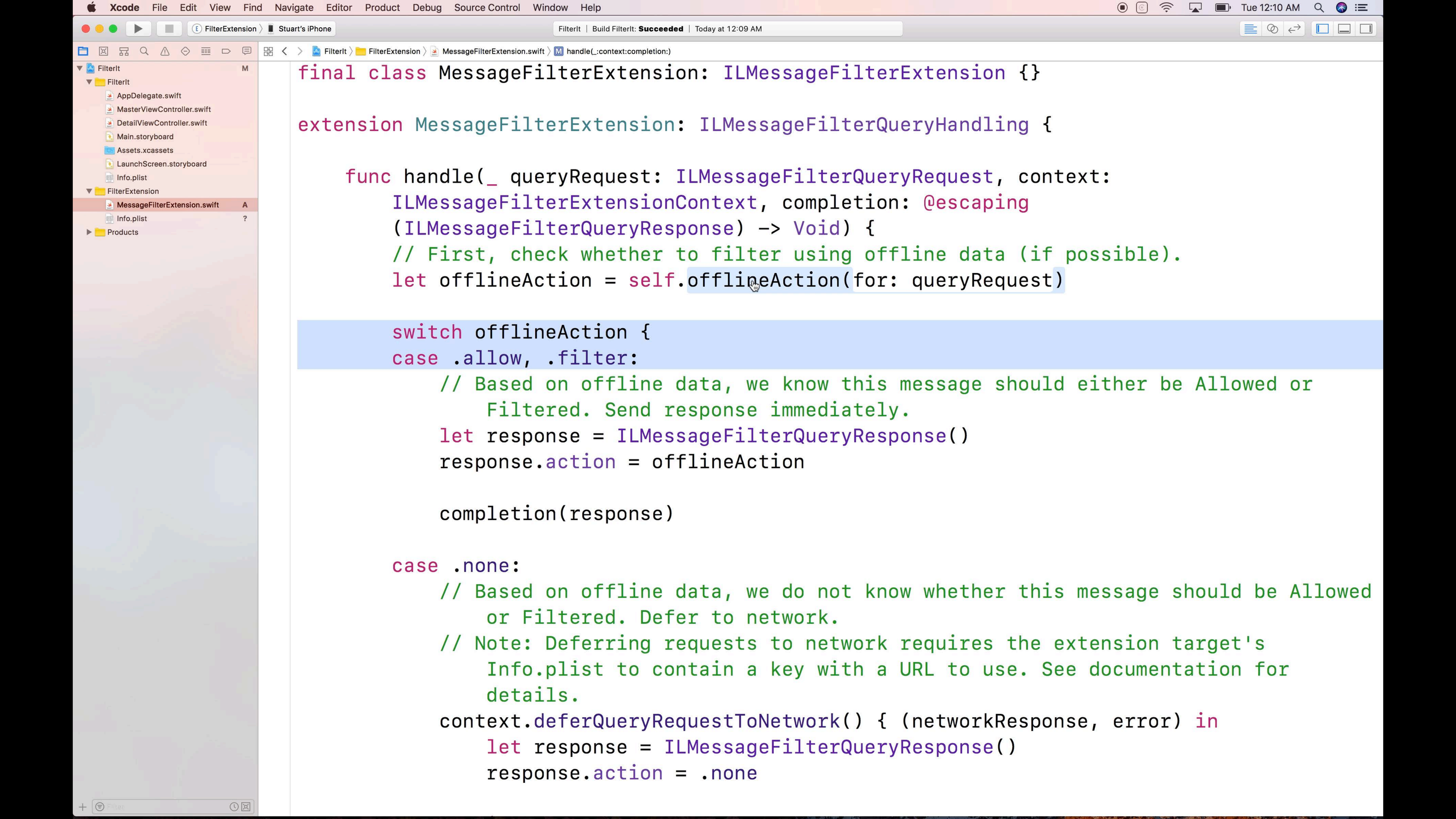
response.action = .none


Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help
Tue 12:10 AM
FilterExtension Stuart's iPhone
FilterIt | Build FilterIt: Succeeded | Today at 12:09 AM
FilterIt FilterExtension MessageFilterExtension.swift handle(_:context:completion:)
FilterIt
FilterIt
AppDelegate.swift
MasterViewController.swift
DetailViewController.swift
Main.storyboard
Assets.xcassets
LaunchScreen.storyboard
Info.plist
FilterExtension
MessageFilterExtension.swift
Info.plist
Products
final class MessageFilterExtension: ILMessageFilterExtension {}
extension MessageFilterExtension: ILMessageFilterQueryHandling {
func handle(_ queryRequest: ILMessageFilterQueryRequest, context:
ILMessageFilterExtensionContext, completion: @escaping
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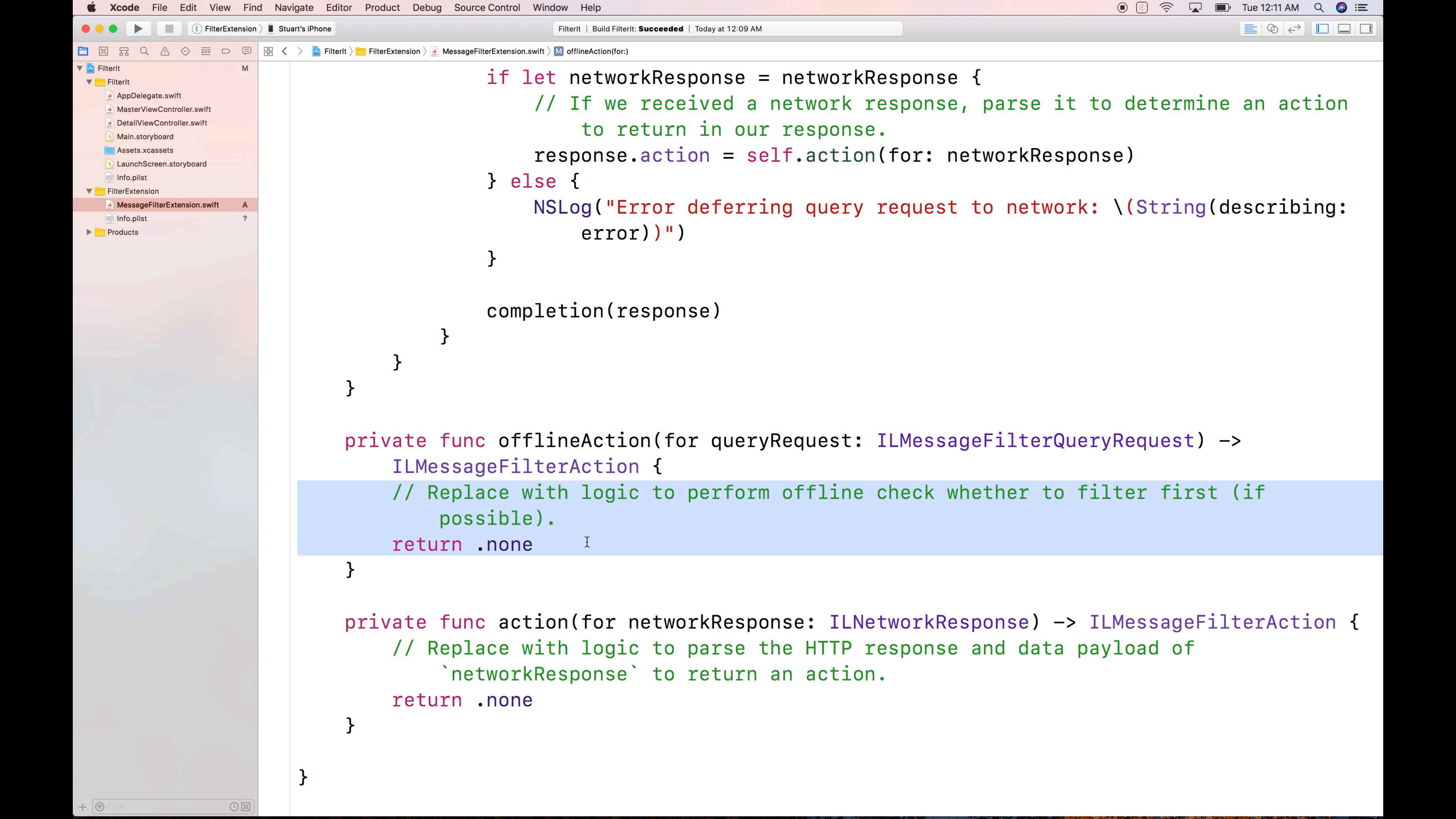
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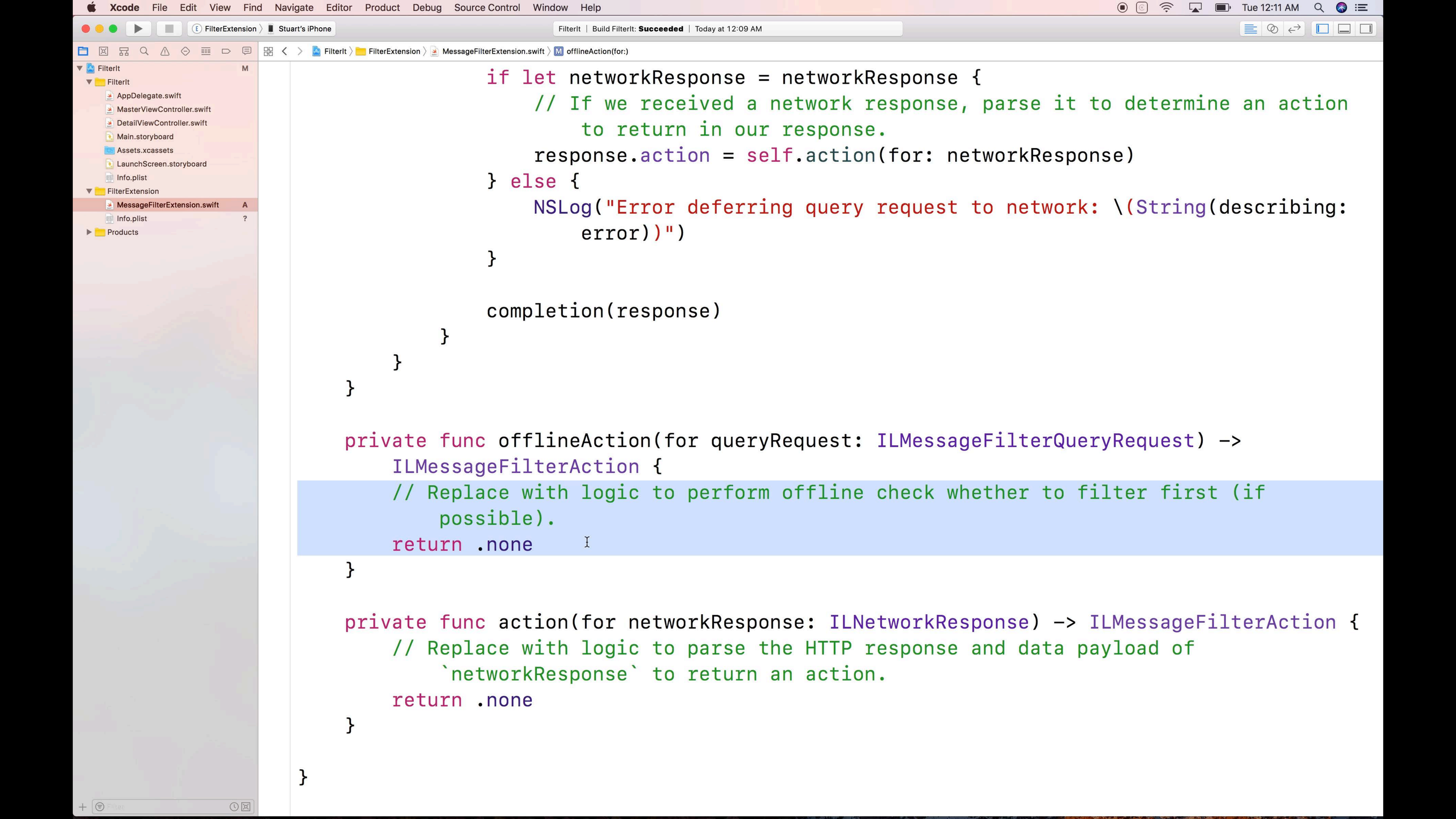
if let networkResponse = networkResponse {
// If we received a network response, parse it to determine an action to return in our response.
response.action = self.action(for: networkResponse)
} else {
NSLog("Error deferring query request to network: \(String(describing: error))")
}
completion(response)
}
}
}
private func offlineAction(for queryRequest: ILMessageFilterQueryRequest) -> ILMessageFilterAction {
// Replace with logic to perform offline check whether to filter first (if possible).
return .none
}
private func action(for networkResponse: ILNetworkResponse) -> ILMessageFilterAction {
// Replace with logic to parse the HTTP response and data payload of `networkResponse` to return an action.
return .none
}
}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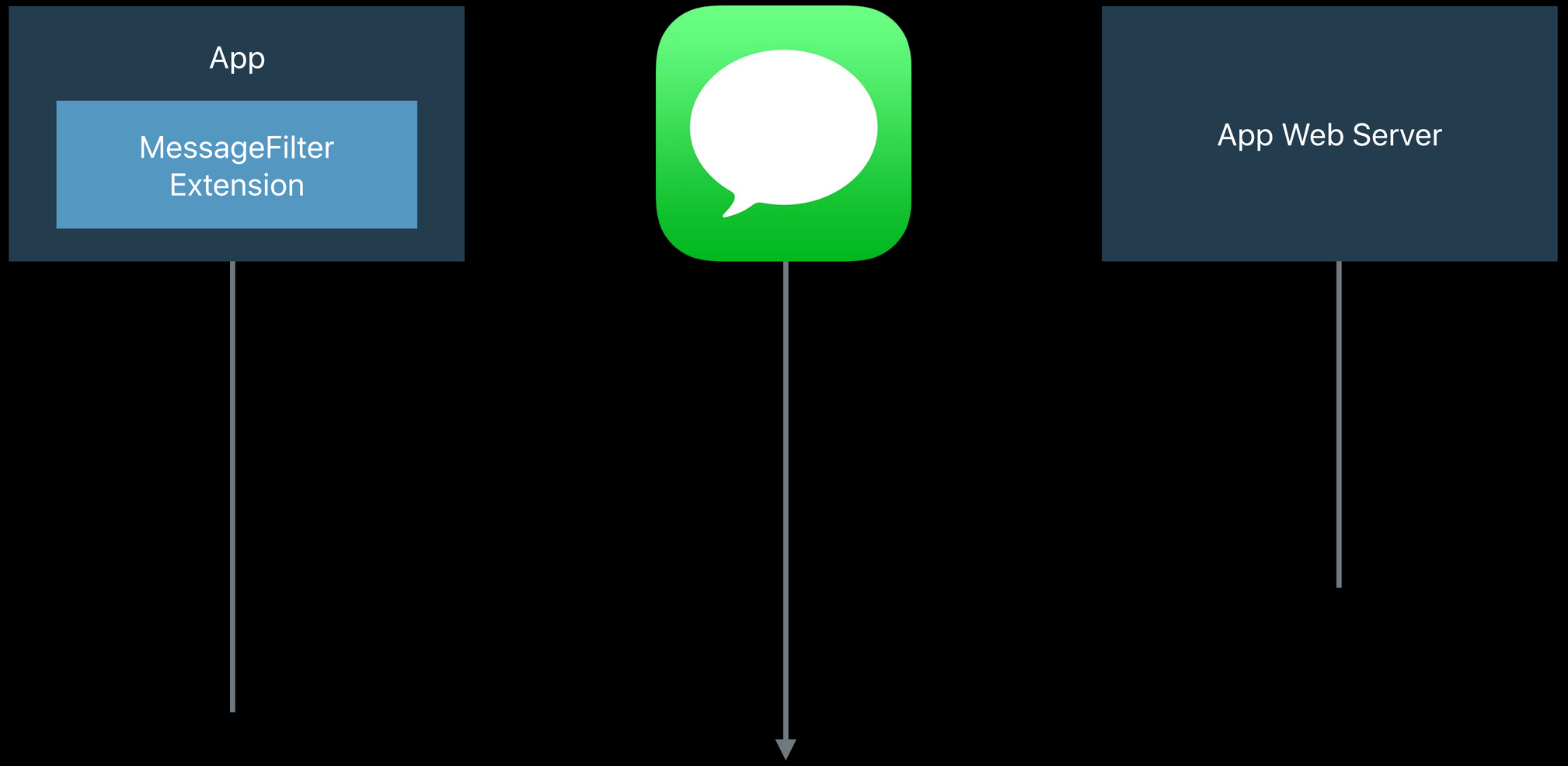
Network Deferral

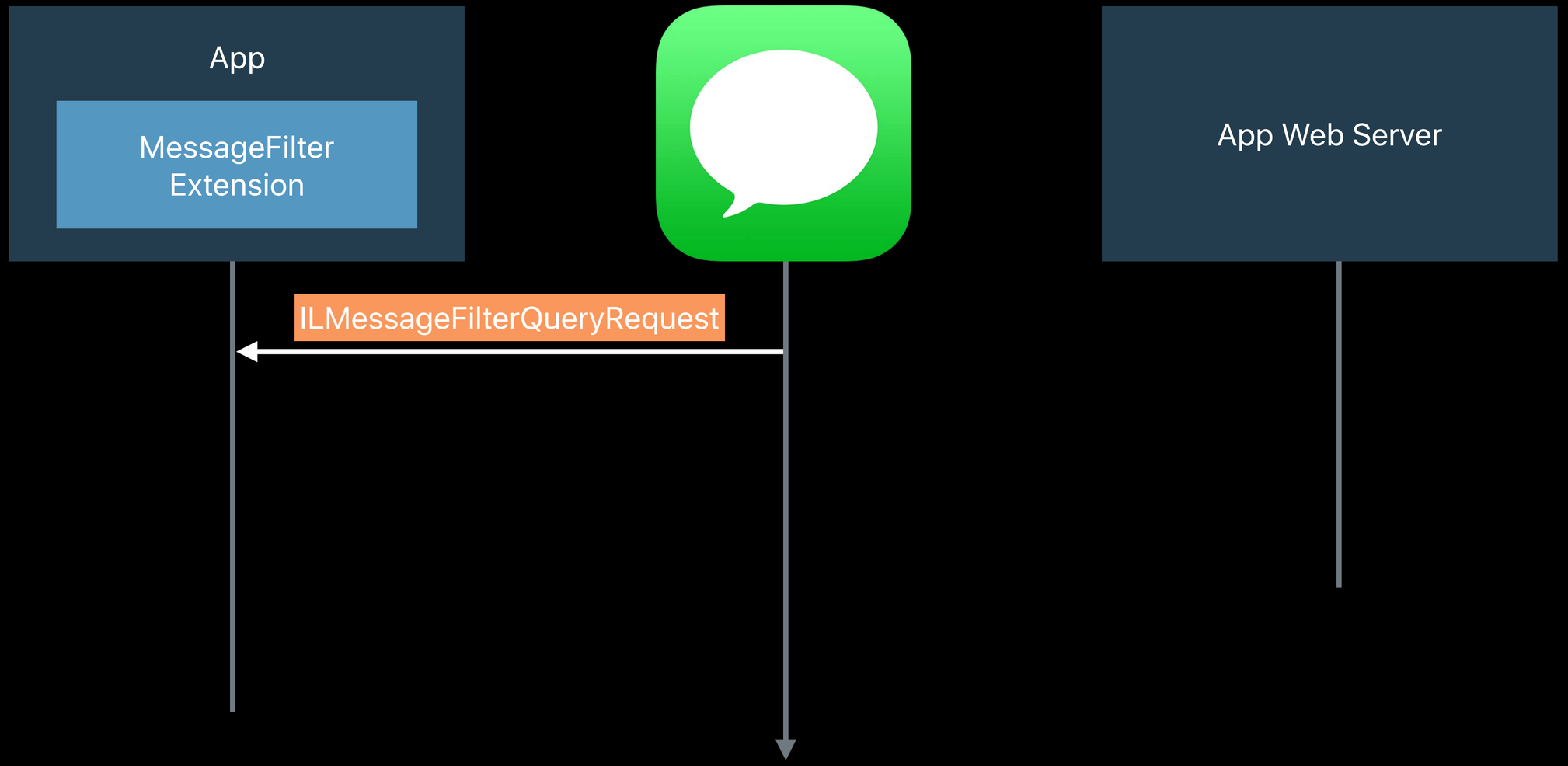
Message Filter Extensions

With network deferral



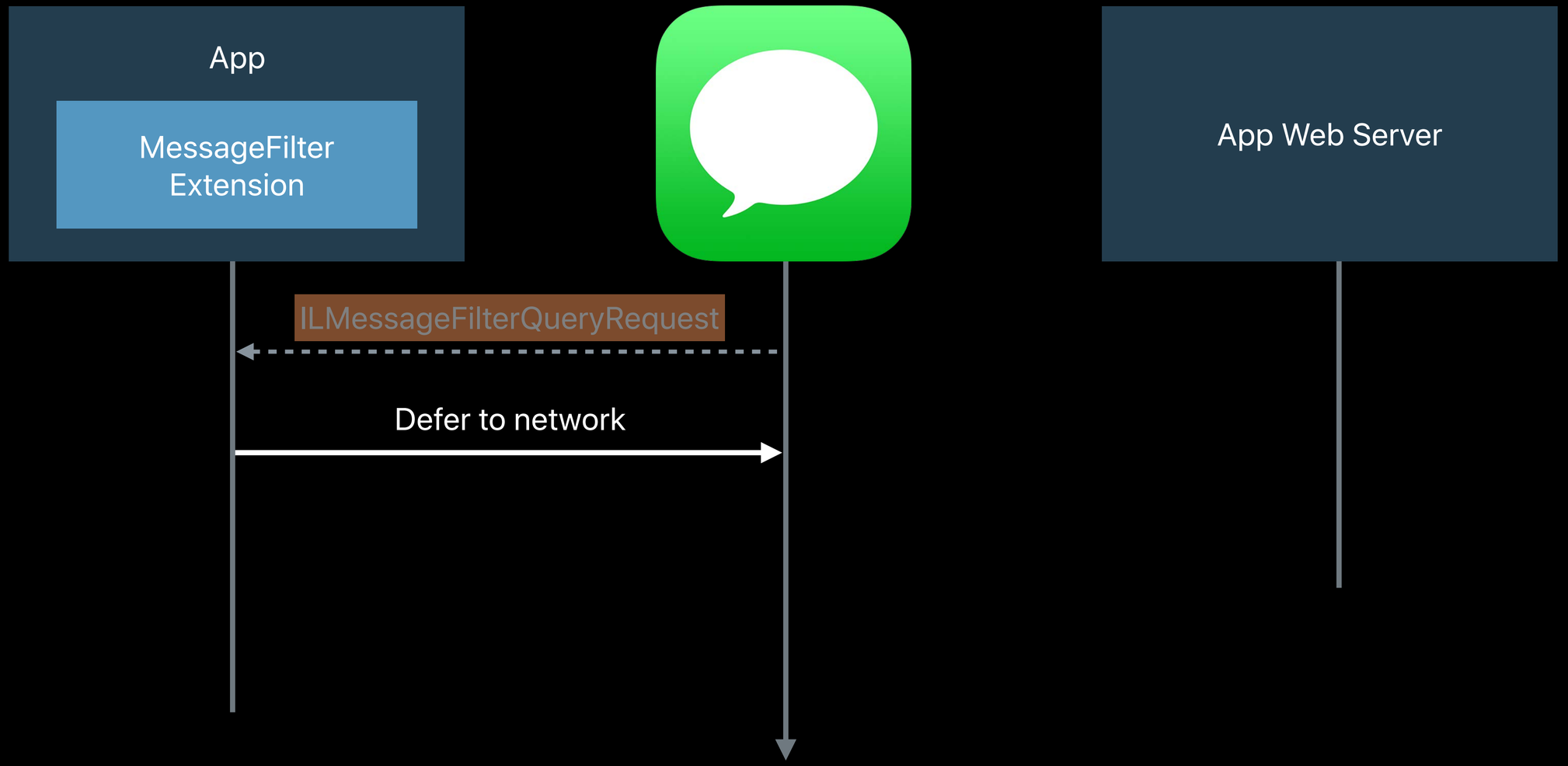
Message Filter Extensions

With network deferral



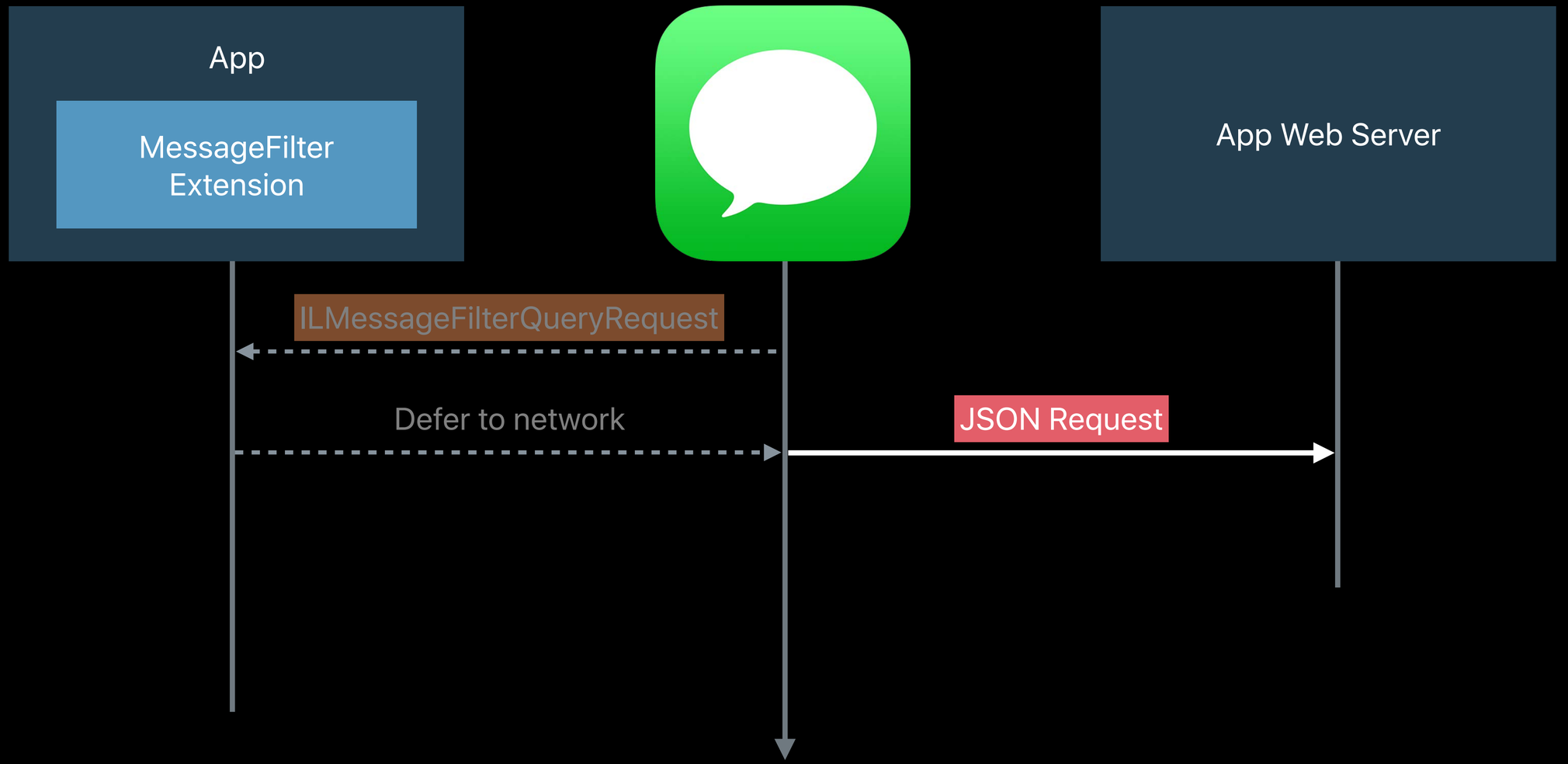
Message Filter Extensions

With network deferral



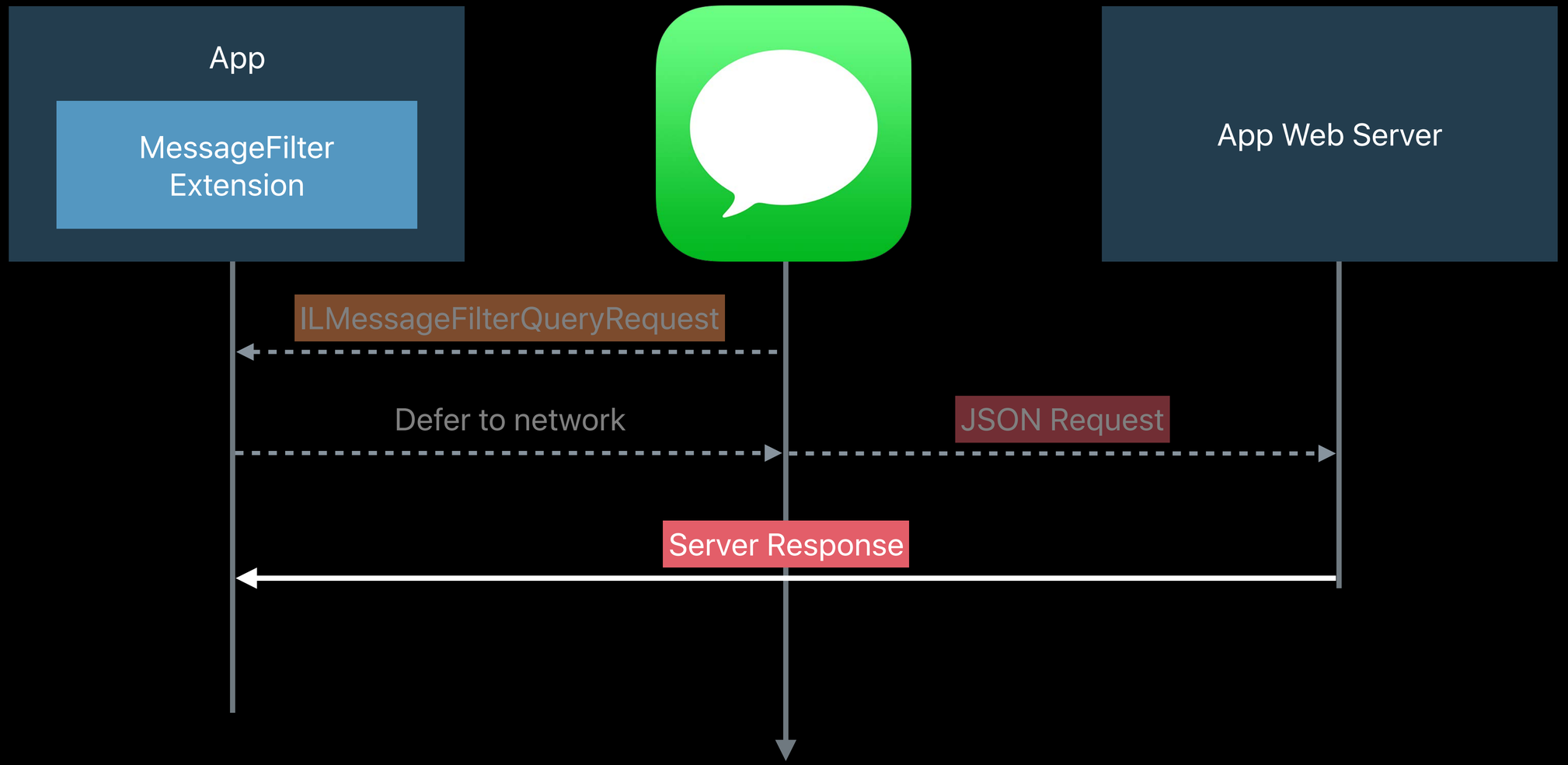
Message Filter Extensions

With network deferral



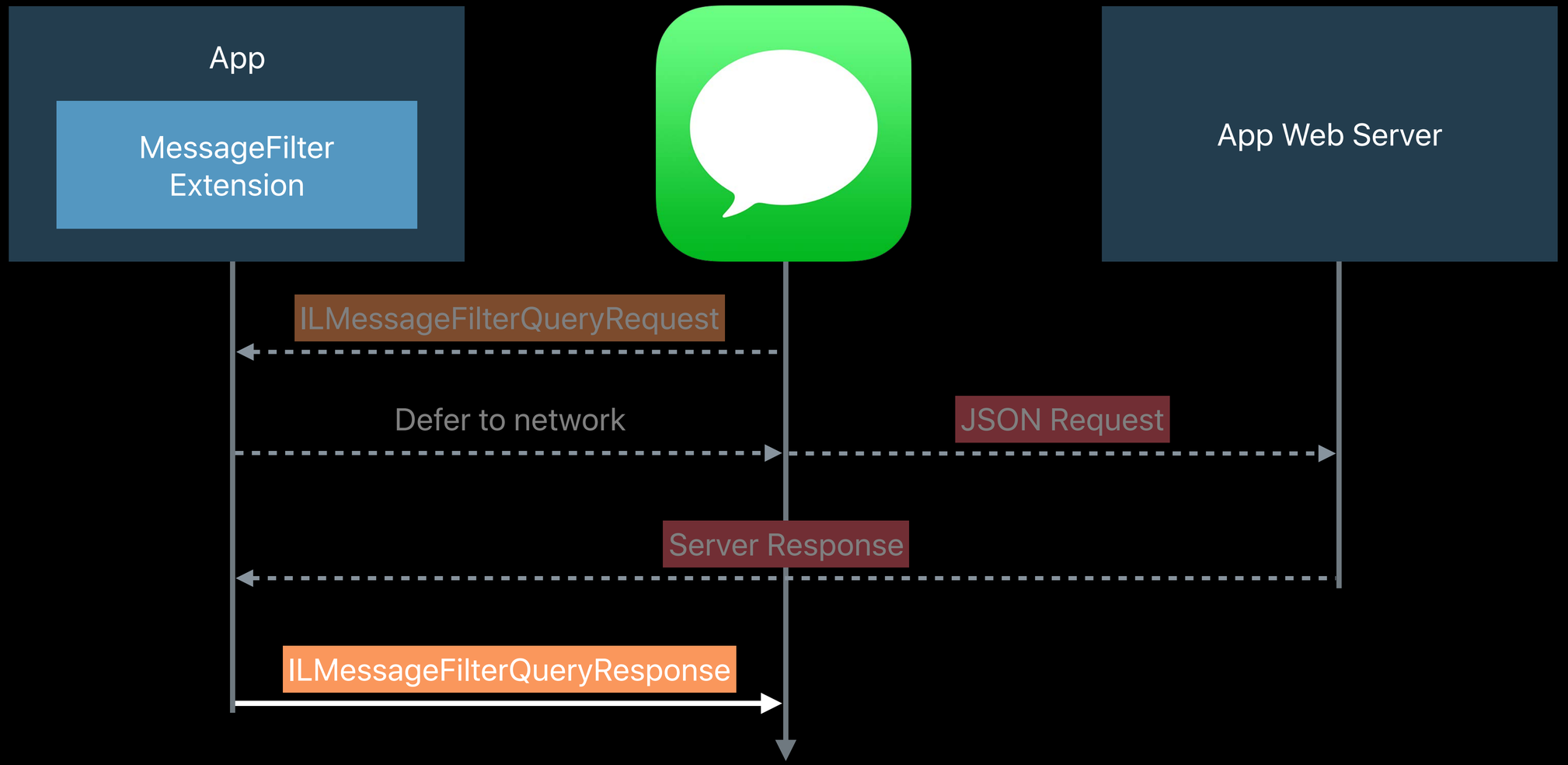
Message Filter Extensions

With network deferral



Message Filter Extensions

With network deferral



Network Deferral Restrictions

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Network requests contain no personally identifiable information

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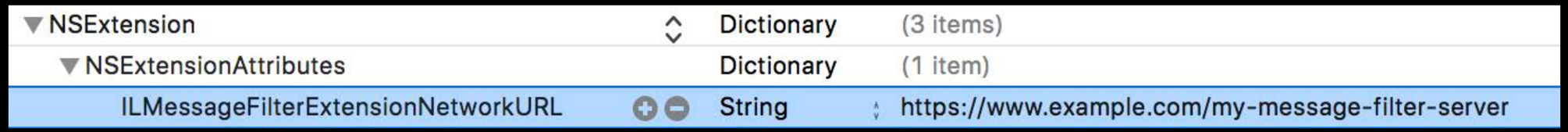
URL specified in extension’s Info.plist



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Cookies are not preserved

Network Request and Response Formats

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Response format is up to your app to define

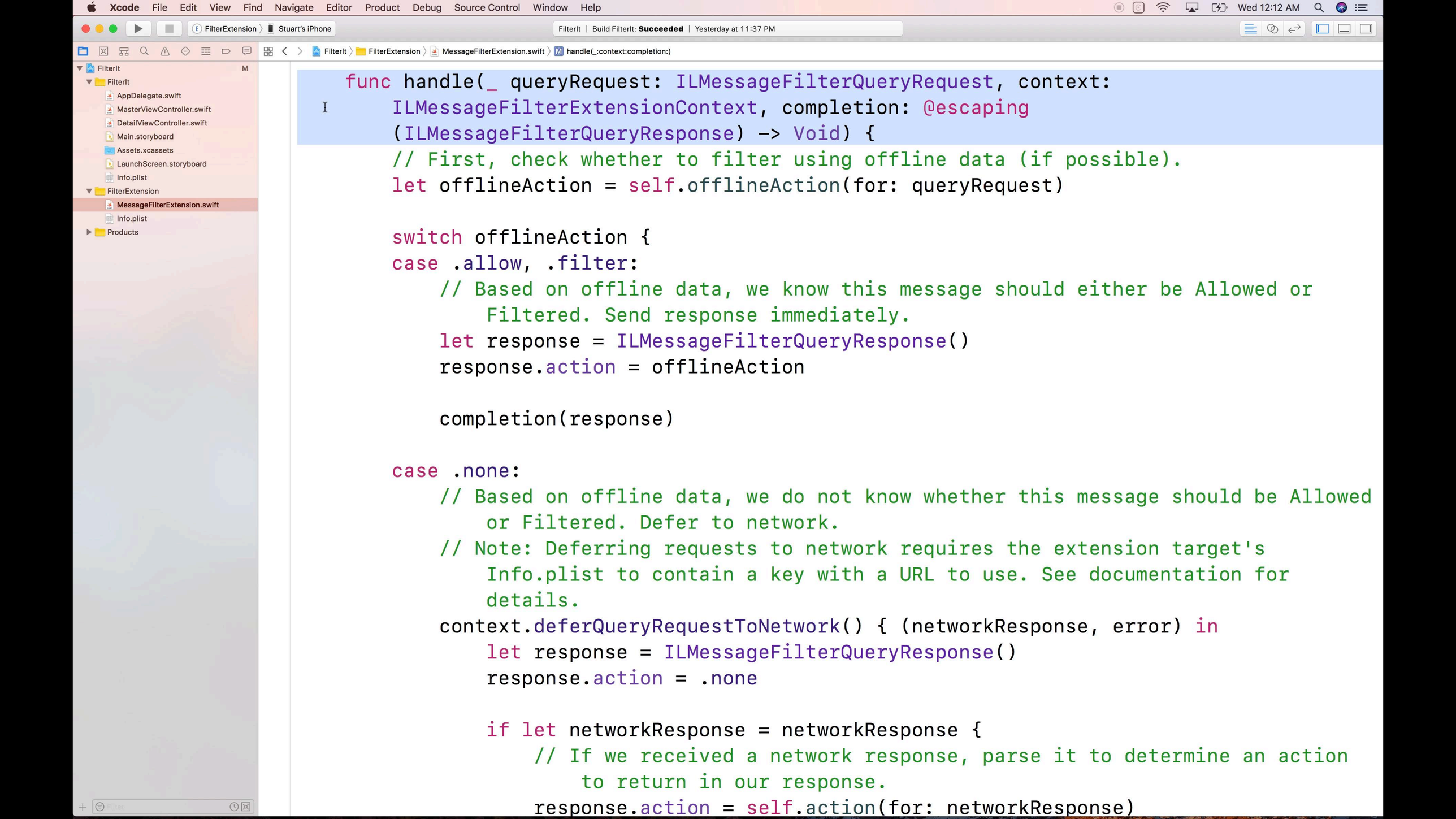
```
// Example of Network HTTP Request Sent to Server

POST /server-url-path HTTP/1.1
Accept: */*
Content-Type: application/json; charset=utf-8
Content-Length: 148

{   "_version": 1,
    "query": {
        "sender": "14085550001",
        "message": {
            "text": "This is a message"
        }
    },
    "app": {
        "version": "1.1"
    }
}
```

Demo

Network-deferring extension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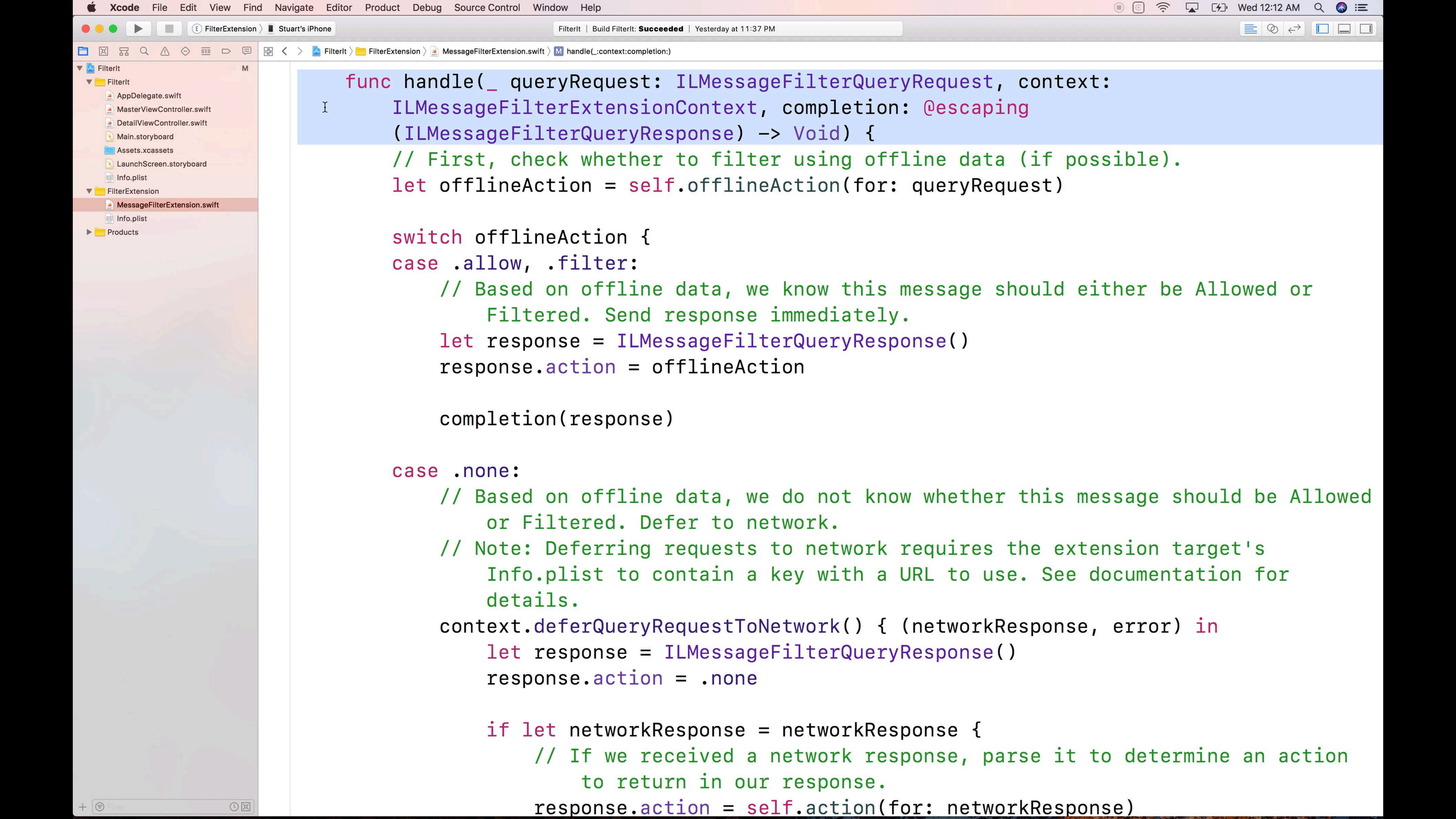
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Summary

Message Filter extensions

Powerful but subject to privacy restrictions

Try making one!

More Information

https://developer.apple.com/wwdc17/249

Related Sessions

Privacy and Your Apps	Executive Ballroom	Tuesday 11:20AM
What's New in Foundation	Hall 2	Wednesday 11:00AM
Seamless Linking to Your App		WWDC15

Labs

CallKit and Identity Lookup Lab	Technology Lab H	Tuesday 12:40PM–2:50PM


WWDC17