

Embracing OCUnit

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Passion for Programming

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AND...

Testing Background

- * Been writing tests for 12+ years
- * Co-authored a book on JUnit (O'Reilly, 2002)
- * Developed a JUnit course for Washington University
- * Not a big fan of xDD
- * Do believe in writing *relevant* tests
- * Don't believe in chasing frameworks



Expectations

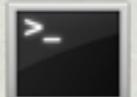
LIVE CODE DEMOS

Help you “Embrace OCUnit”

<https://github.com/briancoyner/Embracing-OCUnit>

Session Topics

Help you “Embrace OCUnit”

- * Introduction to OCUnit + Xcode 4.3 
- * Your First Test Case
- * “Test with Pleasure” using JetBrains’s AppCode 
- * “Parameterized” Test Cases
- * Test Concurrent Code 
- * Learn about xcdebuild 

No Running By The Pool

Don't chase frameworks

- * Yes, there are numerous unit testing frameworks
- * I don't chase them
- * Embrace the de-facto standard
- * Tool support will eventually improve



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ALL TESTING FRAMEWORKS HAVE ISSUES

Xcode Tries To Help

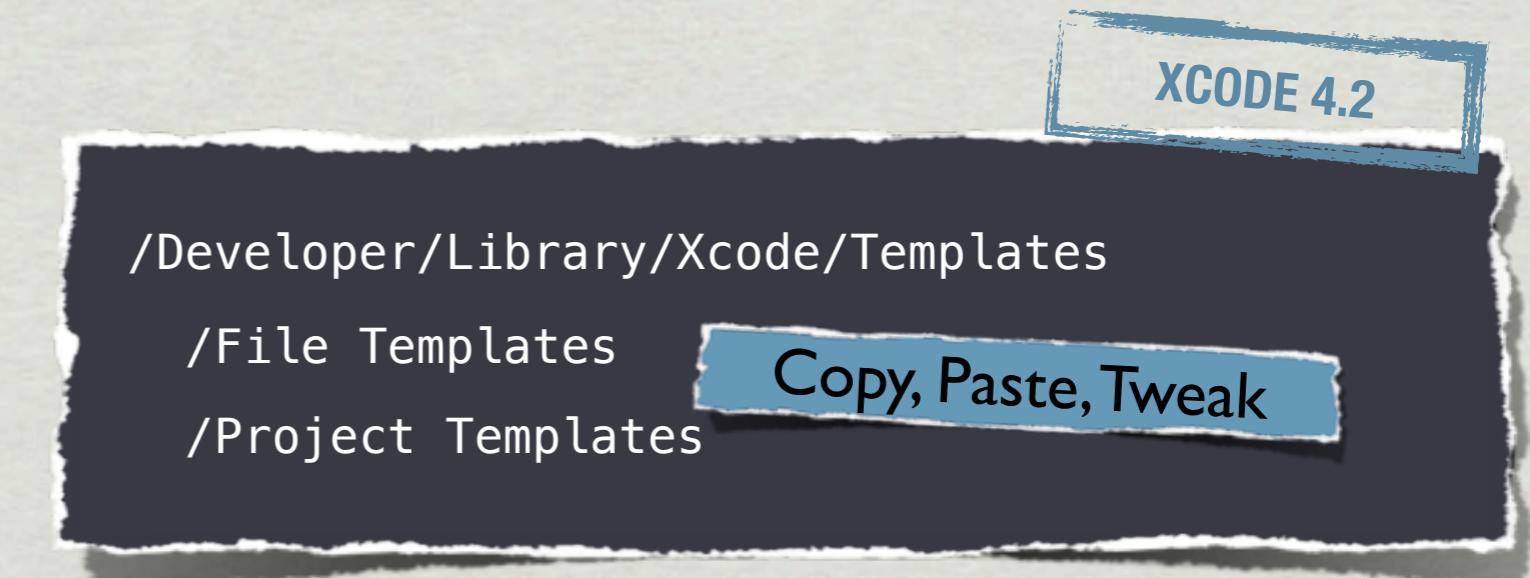
- ✳ File Templates
- ✳ Code Snippets
- ✳ Individual Test Execution

Room for improvement

Custom File Template



- ✳ Xcode OCUnit template generates
 - ✳ Header (.h)
 - ✳ Implementation (.m)
- ✳ Only need a .m
 - ✳ Reduces clutter
 - ✳ Tests do not typically import other tests



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XCODE 4.3

/Applications/Xcode.app/Contents /Developer/Library/Xcode/Templates

/File Templates

/Project Templates

XCODE 4.2

Copy, Paste, Tweak

Code Snippet

Custom Code Generator



The screenshot illustrates the process of creating and utilizing a custom code snippet in Xcode.

Code Snippet Editor: On the left, a modal window titled "OCUnit Test Method" is displayed. It includes fields for "Title" (set to "OCUnit Test Method"), "Summary", "Platform" (set to "All"), "Language" (set to "Objective-C"), "Completion Shortcut" (set to "test"), and "Completion Scopes" (set to "Class Implementation"). Below these settings is a code editor containing the following template:

```
- (void)test<#Description#>
{
    <# #>
}
```

At the bottom of the modal are "Edit" and "Done" buttons.

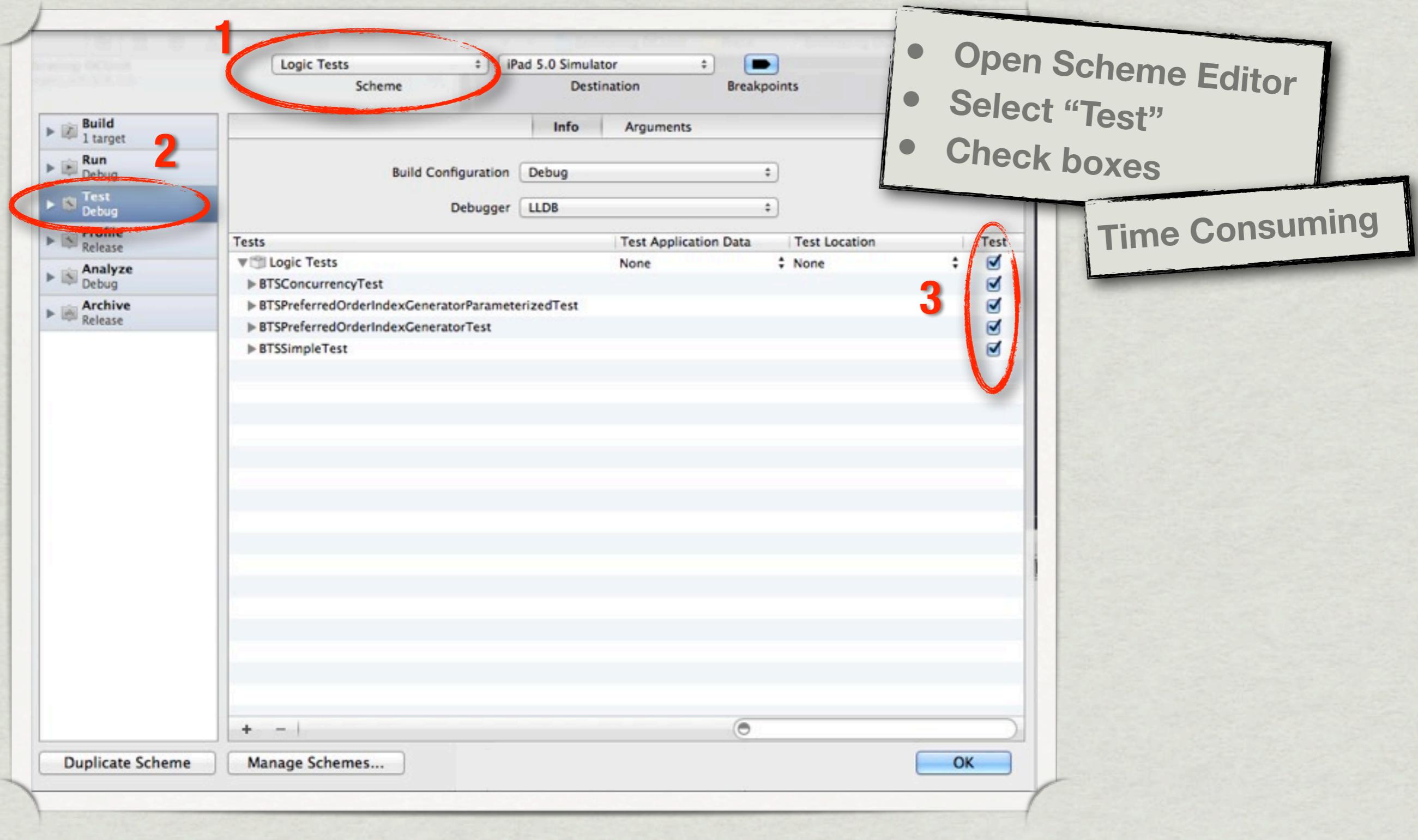
Code Snippet Library: To the right of the editor is a sidebar titled "Code Snippet Library". It lists the snippet under the category "User" with the title "OCUnit Test Method".

Code Editor: At the bottom, the main Xcode code editor shows a file with the following content:

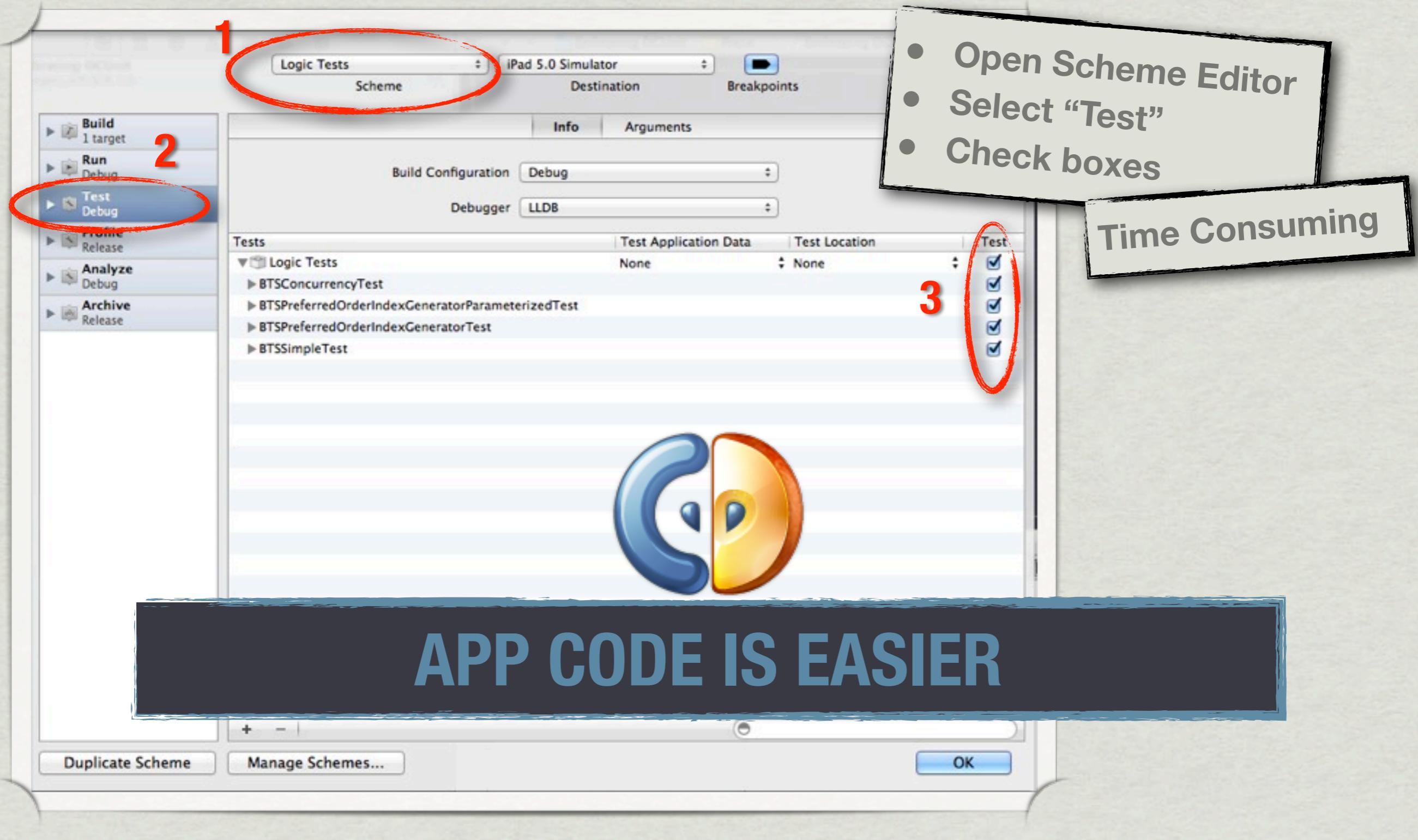
```
17
18 test
19
20 21 test - OCUnit Test Method
```

A blue arrow points from the "Edit" button in the snippet editor to the highlighted line in the code editor, indicating the result of using the generated snippet.

Selective Test Execution



Selective Test Execution



First Steps

- ✳ Create a New Test Case
- ✳ Add Some Tests
- ✳ Execute/ Debug the Tests
- ✳ Review Results



There is a ton of information on setting up Xcode + OCUnit

This session assumes that an Xcode + OCUnit project exists

https://developer.apple.com/library/ios/#documentation/DeveloperTools/Conceptual/UnitTesting/00-About_ Unit Testing/about.html

First Steps

DEMO



Testing with Pleasure



- * JetBrains has been around since 2000
- * Creators of the awesome IntelliJ IDEA
- * JetBrains recently created AppCode
 - * **Excellent** refactoring support
 - * **Terrific** VCS support
 - * **Fast** file navigation
 - * **Fantastic** OCUnit test runner support

BEEN A FAN SINCE
THE BEGINNING

INTEGRATES WITH
XCODE ENVIRONMENT

DOES NOT
REPLACE XCODE

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\$99

Fast Test Execution



Cursor in test method... executes single test method

Cursor between test methods... executes all tests in test case

SHORTCUTS BASED ON APPCODE 1.5 DEFAULT KEY MAPPING



First Steps

QUICK DEMO



Parameterized Tests

- * Data Driven Tests
- * Similar to JUnit's @RunWith(Parameterized.class)
- * Add tests by adding “data”, not test methods
- * Helps reduce boilerplate code
- * Helps you focus on input value combinations
- * Technique (not a framework)

THOUGH, YOU CAN
CREATE MINI-
FRAMEWORKS

Parameterized Tests

- * Data Driven Tests
- * Similar to JUnit's @RunWith(Parameterized.class)
- * Allows for reuse of code
- * Helps to keep tests DRY
- * Helps to keep tests readable
- * Technique (not a framework)



THOUGH, YOU CAN
CREATE MINI-
FRAMEWORKS

Parameterized Tests

Key is to manually build a test suite

+ (id)defaultTestSuite

```
+ (id)defaultTestSuite
{
    SenTestSuite *testSuite = [[SenTestSuite alloc] initWithName:NSStringFromClass(self)];
    // Add tests to the suite... more on how soon
    return testSuite;
}
```

Parameterized Tests

DEMO



Testing Concurrent Code

- ✳ Some APIs require executing on
 - ✳ a certain queue/ thread
- ✳ Can be tricky to coordinate threads

SLEEPS ARE BAD

What Can We Do?

- ✳ Use “Latches”
 - ✳ to coordinate thread progress
 - ✳ quickly fail test if background task takes too long

MULTIPLE “LATCHES” == DETERMINISTIC DANCE BETWEEN MULTIPLE THREADS

What is a “Latch”?

a simple primitive that allows a thread to wait
until another thread signals completion

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`dispatch_semaphore_t`

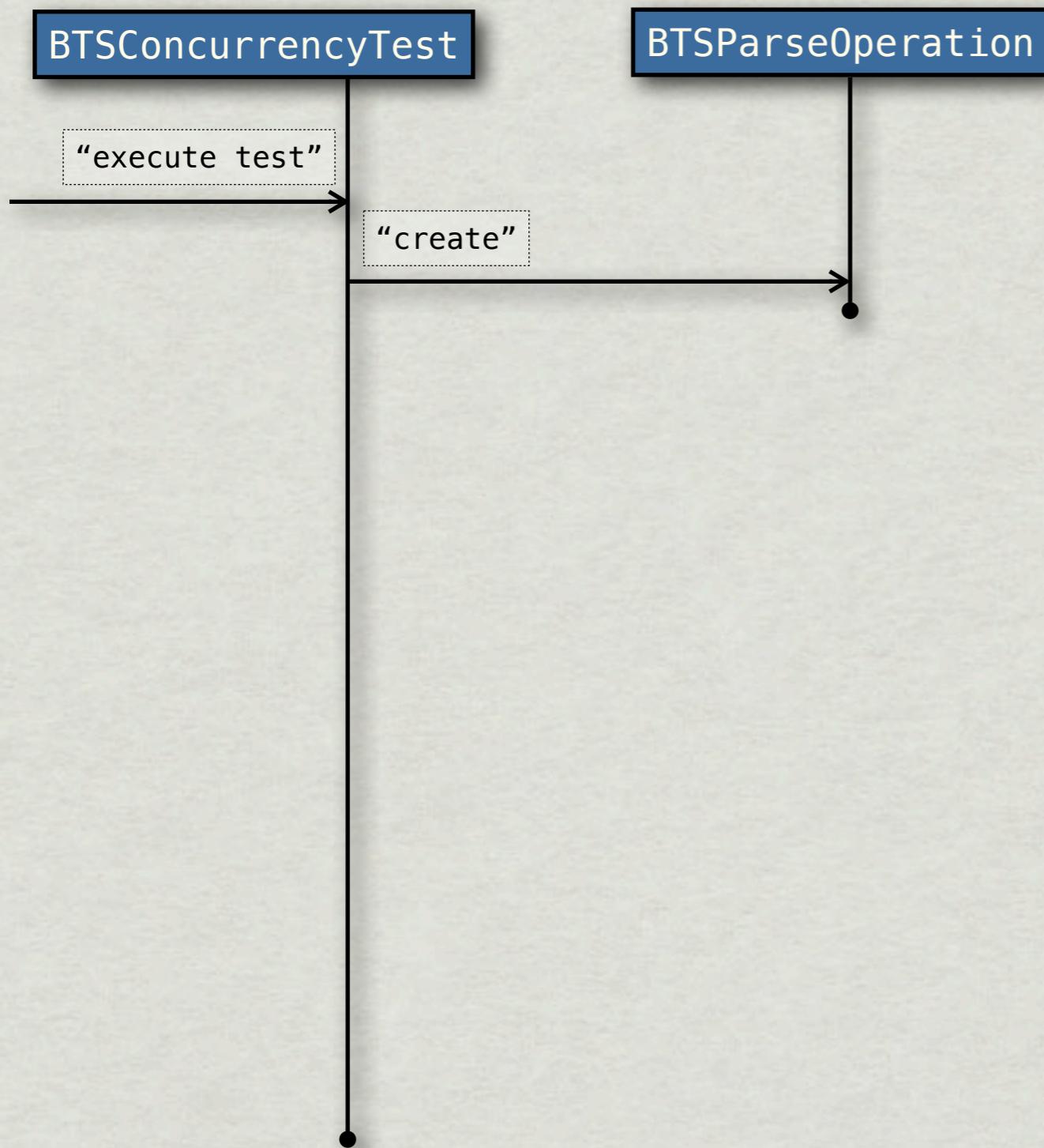
General Design

BTSCurrencyTest

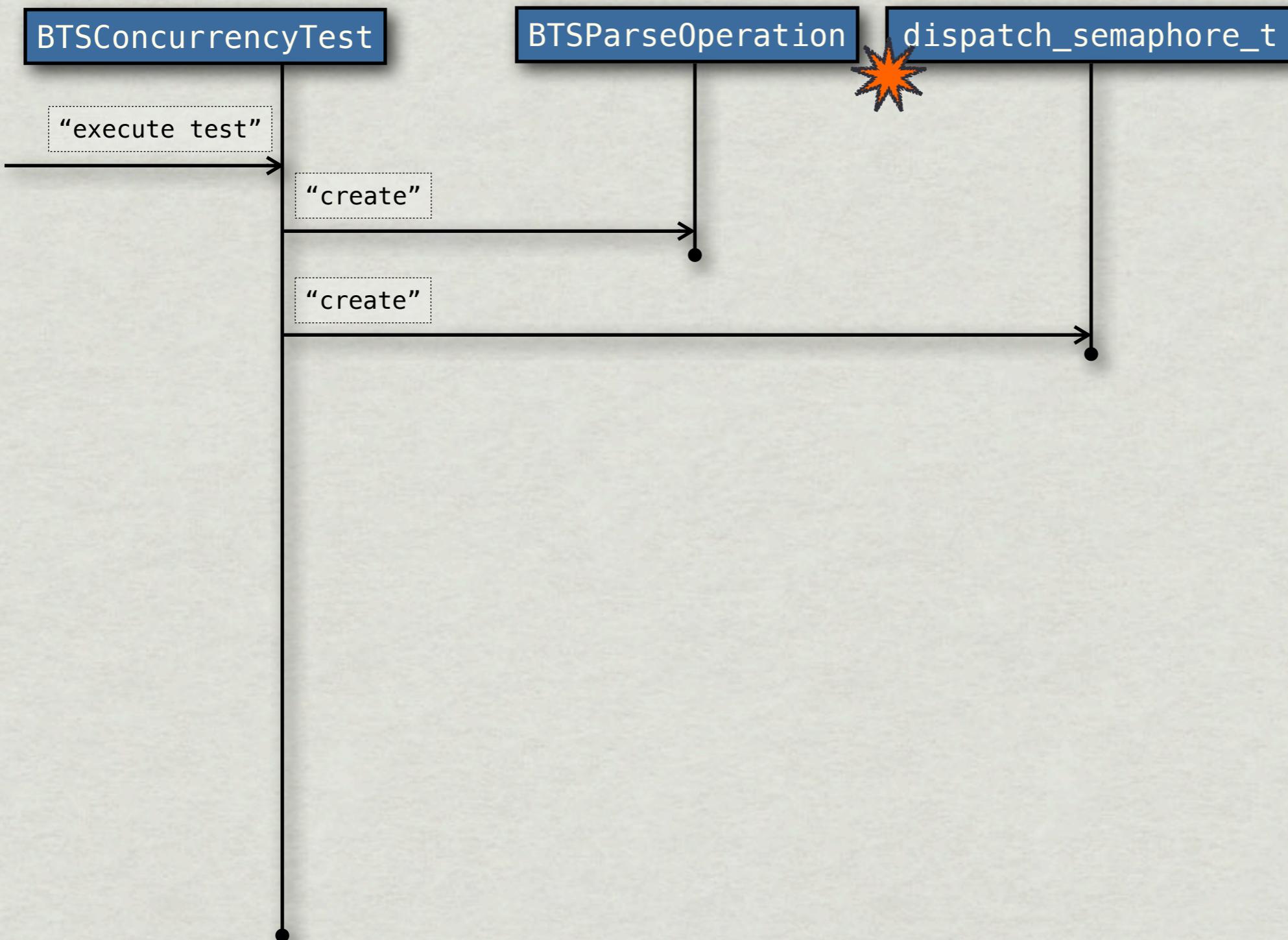
“execute test”

WORKFLOW BASED ON DEMO CODE COMING UP

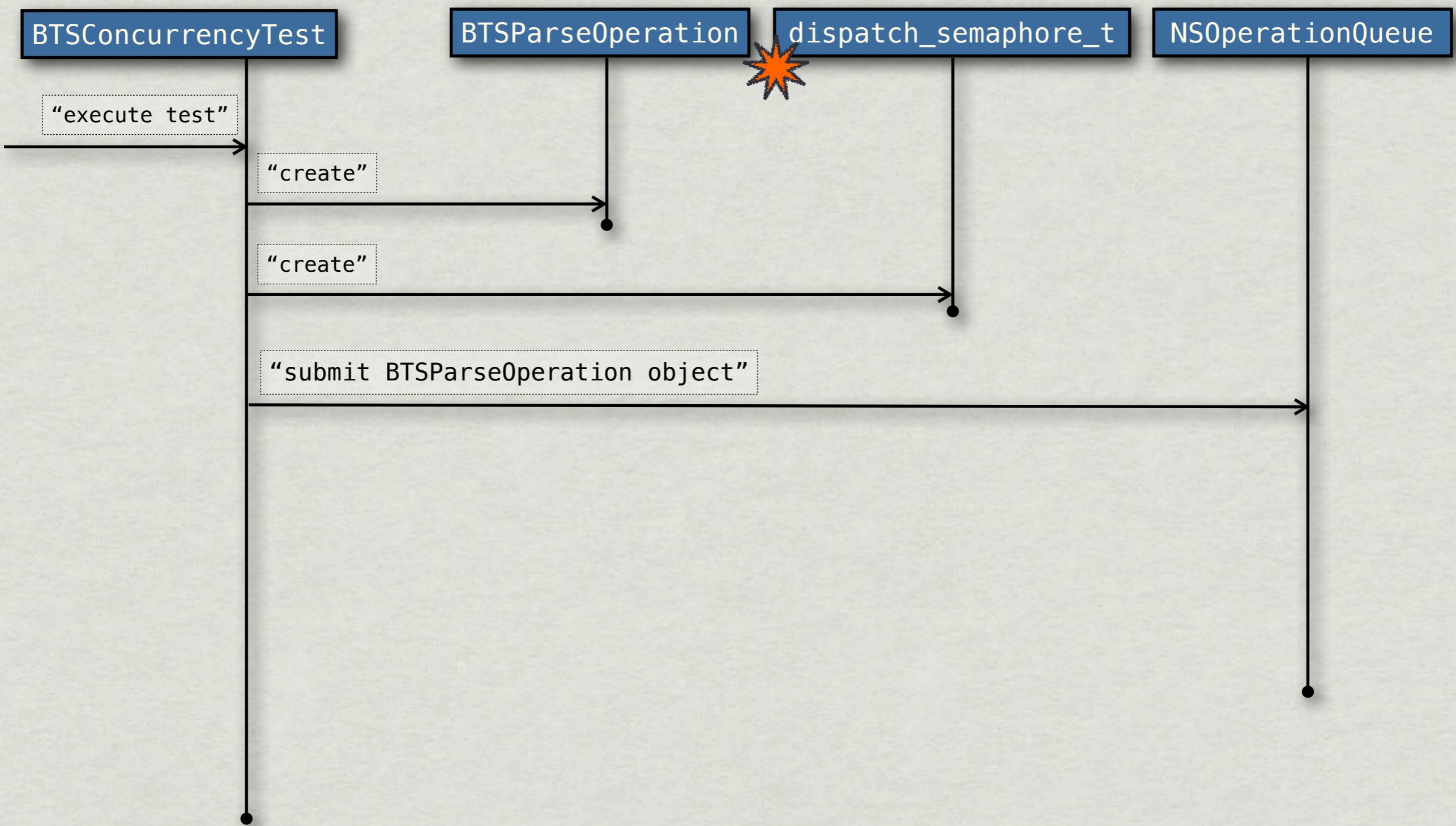
General Design



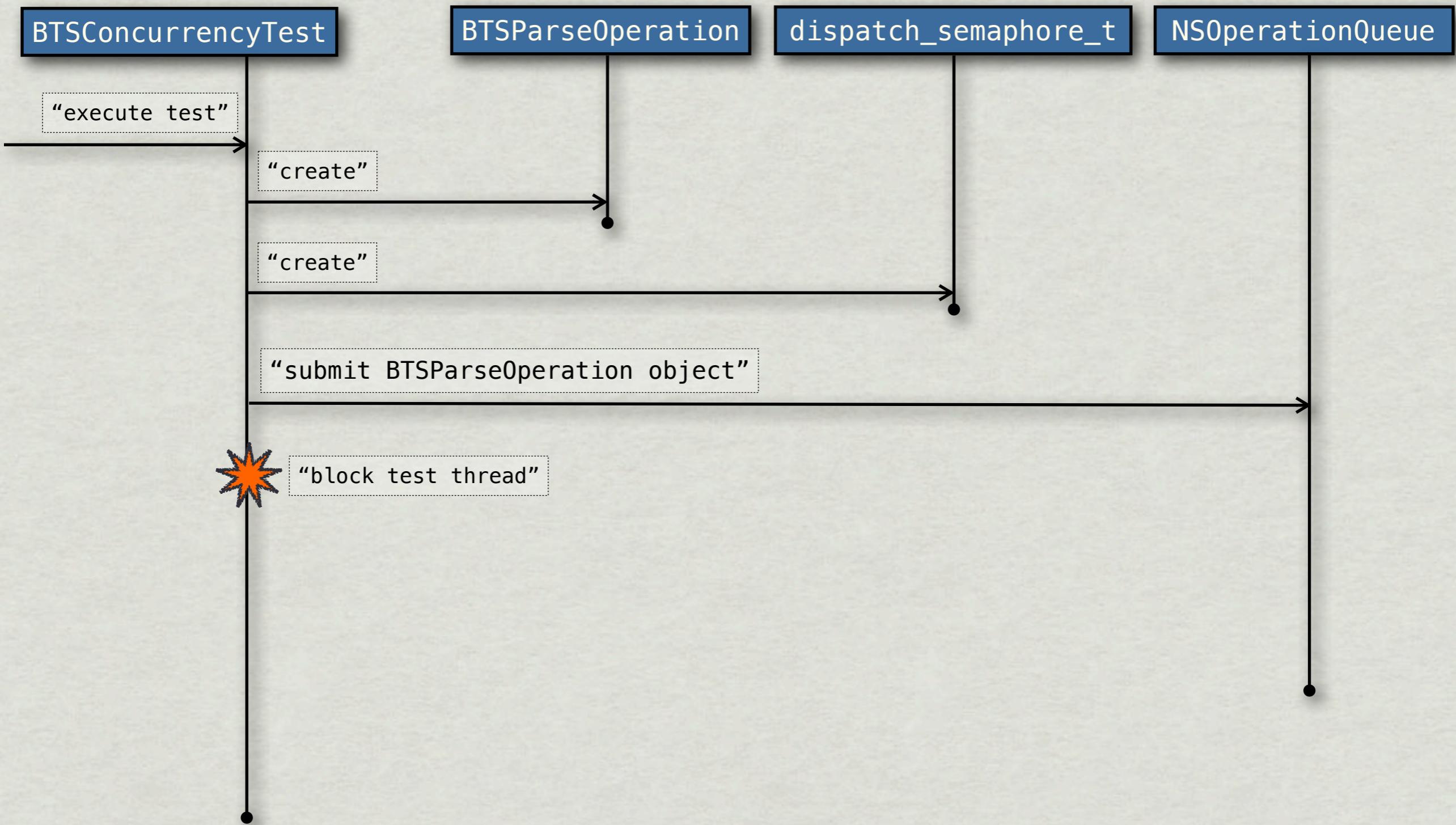
General Design



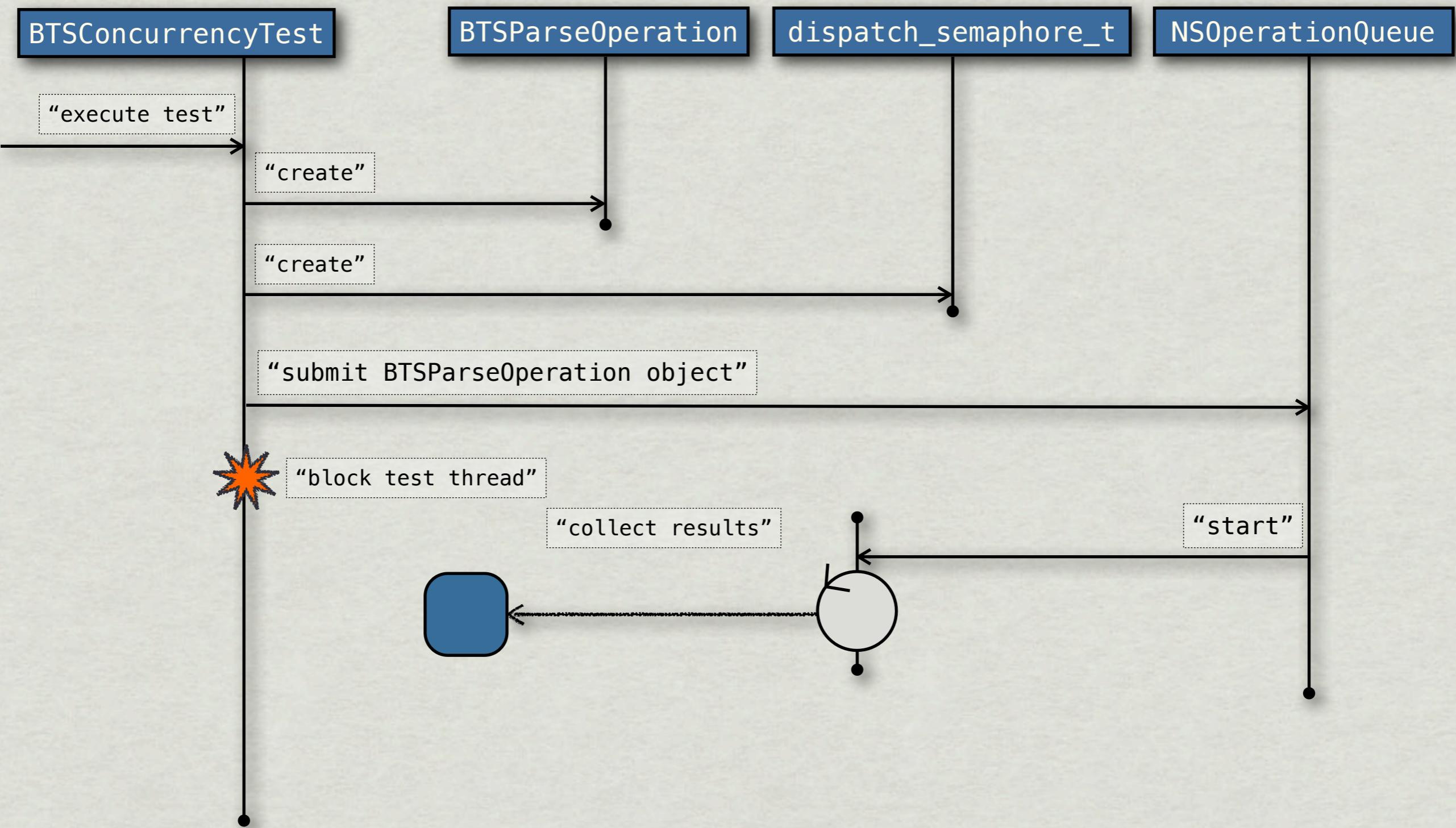
General Design



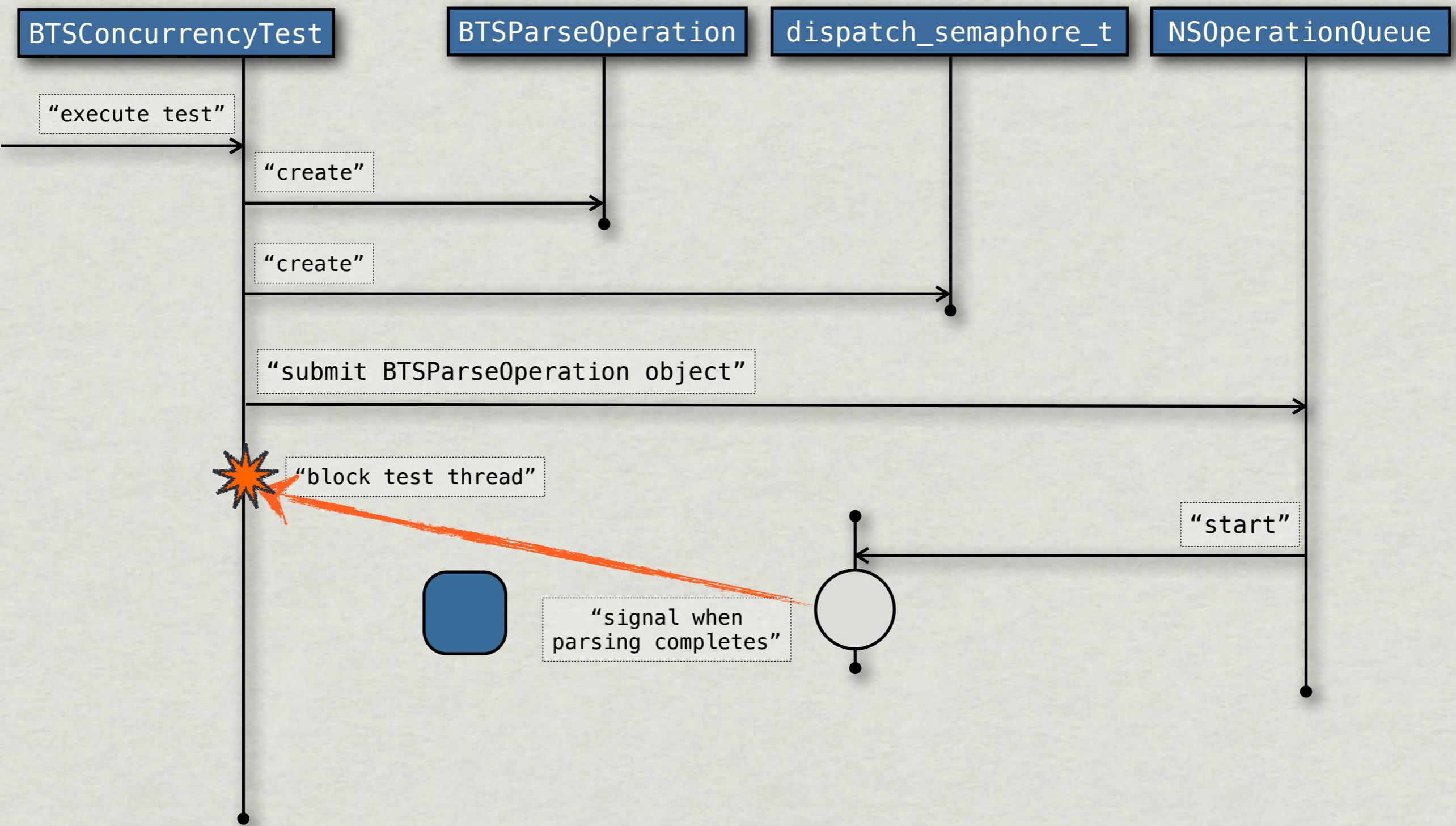
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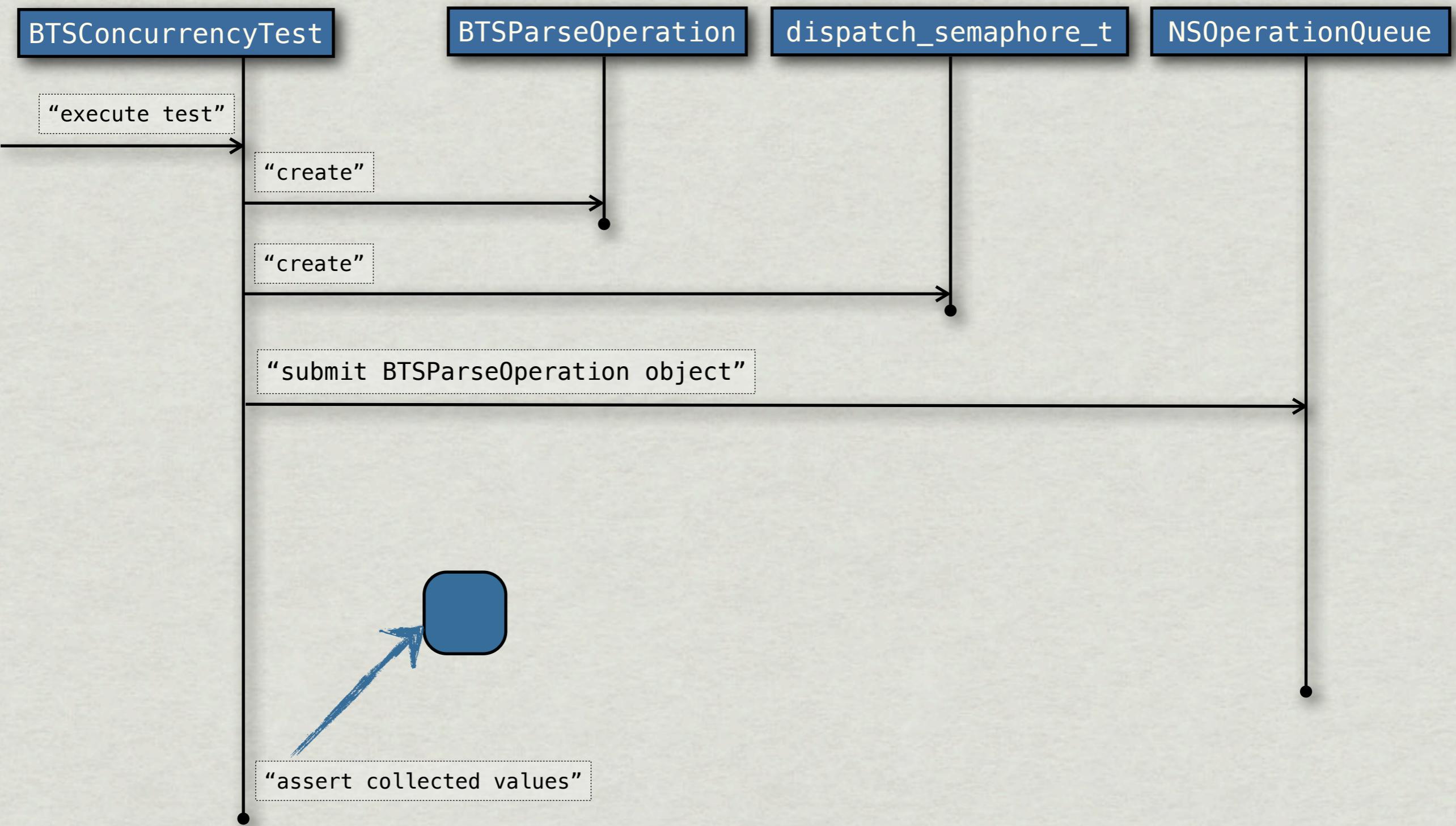
General Design



General Design



General Design



Testing Concurrent Code

DEMO



xcodebuild

A quick example

```
xcodebuild -target <target> -configuration <config> -sdk <sdk>
```



```
$ xcodebuild  
    -target 'Logic Tests'  
    -configuration Debug  
    -sdk iphonesimulator5.0
```

xcodebuild

DEMO



Questions?

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