

NSURLSession: New Features and Best Practices

Session 711

Jeff Jenkins Software Engineer, Internet Technologies

Agenda



Agenda

Evolving NSURLSession API



Agenda

Evolving NSURLSession API
Security



Agenda

Evolving NSURLSession API

Security

Best practices and tips



Networking API

Networking API

Foundation

NSURLConnection

NSNetServices

NSStream

Networking API

Foundation

NSURLConnection

NSNetServices

NSStream

Deprecated
2015

Networking API

Foundation

NSURLSession

NSNetServices

NSStream

New
2013

Foundation

NSURLConnection

NSNetServices

NSStream

Deprecated
2015

NSURLSession

Review

NSURLSession Example

Benefits

NSURLSession Example

Benefits

HTTP/1.1, SPDY, HTTP/2

NSURLSession Example

Benefits

HTTP/1.1, SPDY, HTTP/2

App Transport Security (ATS)

NSURLSession Example

Benefits

HTTP/1.1, SPDY, HTTP/2

App Transport Security (ATS)

HTTP Strict Transport Security (HSTS)

NSURLSession Example

Benefits

HTTP/1.1, SPDY, HTTP/2

App Transport Security (ATS)

HTTP Strict Transport Security (HSTS)

Cache, cookies, proxy, authentication

NSURLSession Example

Benefits

HTTP/1.1, SPDY, HTTP/2

App Transport Security (ATS)

HTTP Strict Transport Security (HSTS)

Cache, cookies, proxy, authentication

Configuration

NSURLSession Example

Benefits

NSURLSessionConfiguration

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

Network service type

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

Network service type

Cookie policy

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

Network service type

Cookie policy

Cache policy

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

Network service type

Cookie policy

Cache policy

Storage objects

NSURLSession Example

Benefits

NSURLSessionConfiguration

Transport Layer Security (TLS) version

Prohibit cellular usage

Network service type

Cookie policy

Cache policy

Storage objects

Request and resource timeouts

NSURLSession Example

Review

NSURLSession Example

Review

```
let config = URLSessionConfiguration.defaultSessionConfiguration()
```

NSURLSession Example

Review

```
let config = URLSessionConfiguration.defaultSessionConfiguration()
```

```
let session = URLSession(configuration: config)
```

NSURLSession Example

Review

NSURLSession Example

Review

```
let url = NSURL(string: "https://www.example.com/")!
```


NSURLSession Example

Review

```
let url = NSURL(string: "https://www.example.com/")!
```

```
let task = session.dataTask(with: url) { (data: NSData?, response: NSURLResponse?, error: NSError?) in  
    ...  
}
```

NSURLSession Example

Review

```
let url = NSURL(string: "https://www.example.com/")!
```

```
let task = session.dataTask(with: url) { (data: NSData?, response: NSURLResponse?, error:
NSError?) in
    ...
}
```

NSURLSession Example

Review

```
let url = NSURL(string: "https://www.example.com/")!
```

```
let task = session.dataTask(with: url) { (data: NSData?, response: NSURLResponse?, error: NSError?) in  
    ...  
}
```

```
task.resume()
```

NSURLSession Example

Review

NSURLSession Example

Review

Summary: Three-step process

NSURLSession Example

Review

Summary: Three-step process

- Configuration

NSURLSession Example

Review

Summary: Three-step process

- Configuration
- Session

NSURLSession Example

Review

Summary: Three-step process

- Configuration
- Session
- Tasks

NSURLSession Example

Review

Summary: Three-step process

- Configuration
- Session
- Tasks

Task 1 → Session 1

Task 2 → Session 2

Task 3 → Session 3

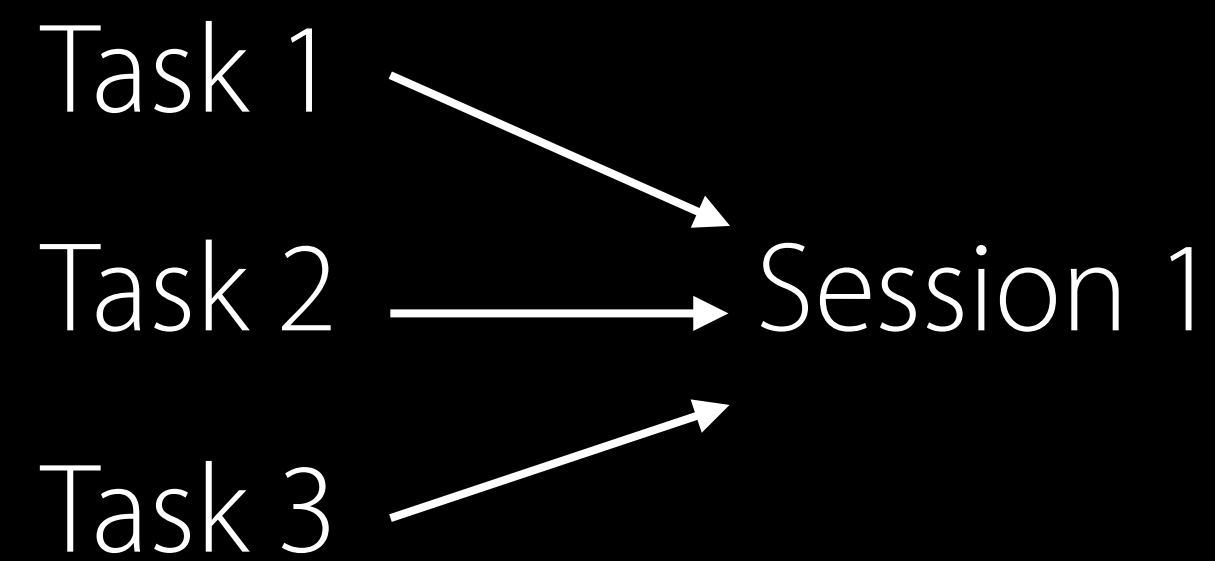
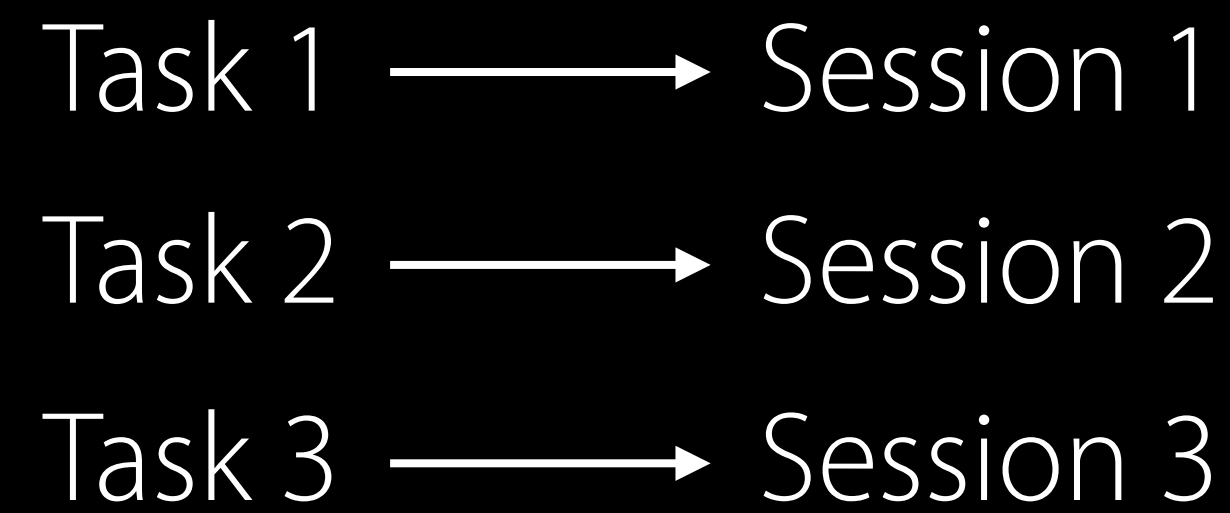


NSURLSession Example

Review

Summary: Three-step process

- Configuration
- Session
- Tasks

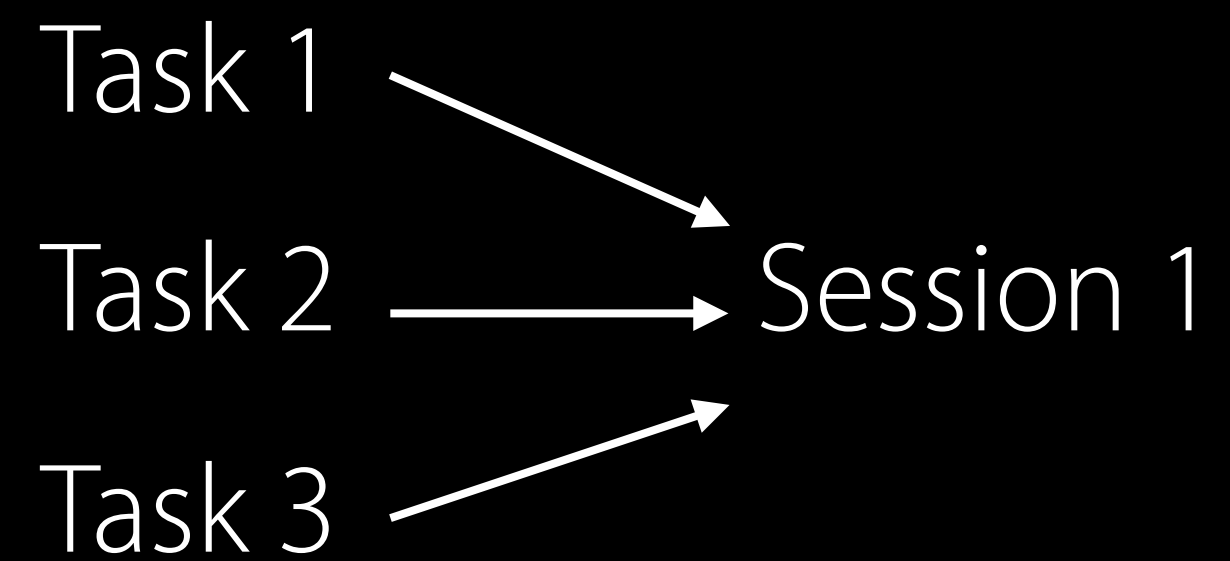
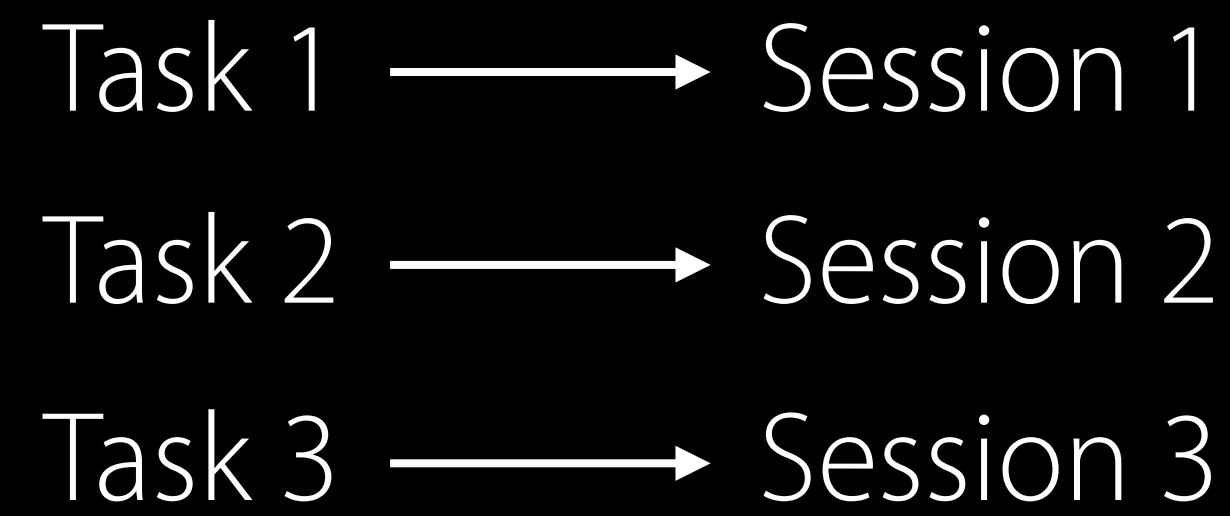


NSURLSession Example

Review

Summary: Three-step process

- Configuration
- Session
- Tasks



NSURLSession API

HTTP/2

NSURLSession API

HTTP/2

NEW

NSURLSession API

HTTP/2

NEW

- Apple
- Facebook
- Instagram
- Wikipedia
- Twitter
- YouTube
- Yahoo

NSURLSession API

HTTP/2

NEW

HTTP/2 Protocol

- Apple
- Facebook
- Instagram
- Wikipedia
- Twitter
- YouTube
- Yahoo

NSURLSession API

HTTP/2

NEW

HTTP/2 Protocol

- Multiplexing and concurrency

- Apple
- Facebook
- Instagram
- Wikipedia
- Twitter
- YouTube
- Yahoo

NSURLSession API

HTTP/2

NEW

HTTP/2 Protocol

- Multiplexing and concurrency
- Header compression
- Apple
- Facebook
- Instagram
- Wikipedia
- Twitter
- YouTube
- Yahoo

NSURLSession API

HTTP/2

NEW

HTTP/2 Protocol

- Multiplexing and concurrency
- Header compression
- Stream priorities
- Apple
- Facebook
- Instagram
- Wikipedia
- Twitter
- YouTube
- Yahoo

NSURLSession API

HTTP/2

NEW

HTTP/2 Protocol

- Multiplexing and concurrency
 - Header compression
 - Stream priorities
 - Server Push
- Apple
 - Facebook
 - Instagram
 - Wikipedia
 - Twitter
 - YouTube
 - Yahoo

NSURLSession API

HTTP/2 Server Push

NEW

NSURLSession API

HTTP/2 Server Push

Prevent network round trips

NEW

NSURLSession API

HTTP/2 Server Push

Prevent network round trips

Server support required

NEW

NSURLSession API

HTTP/2 Server Push

NEW

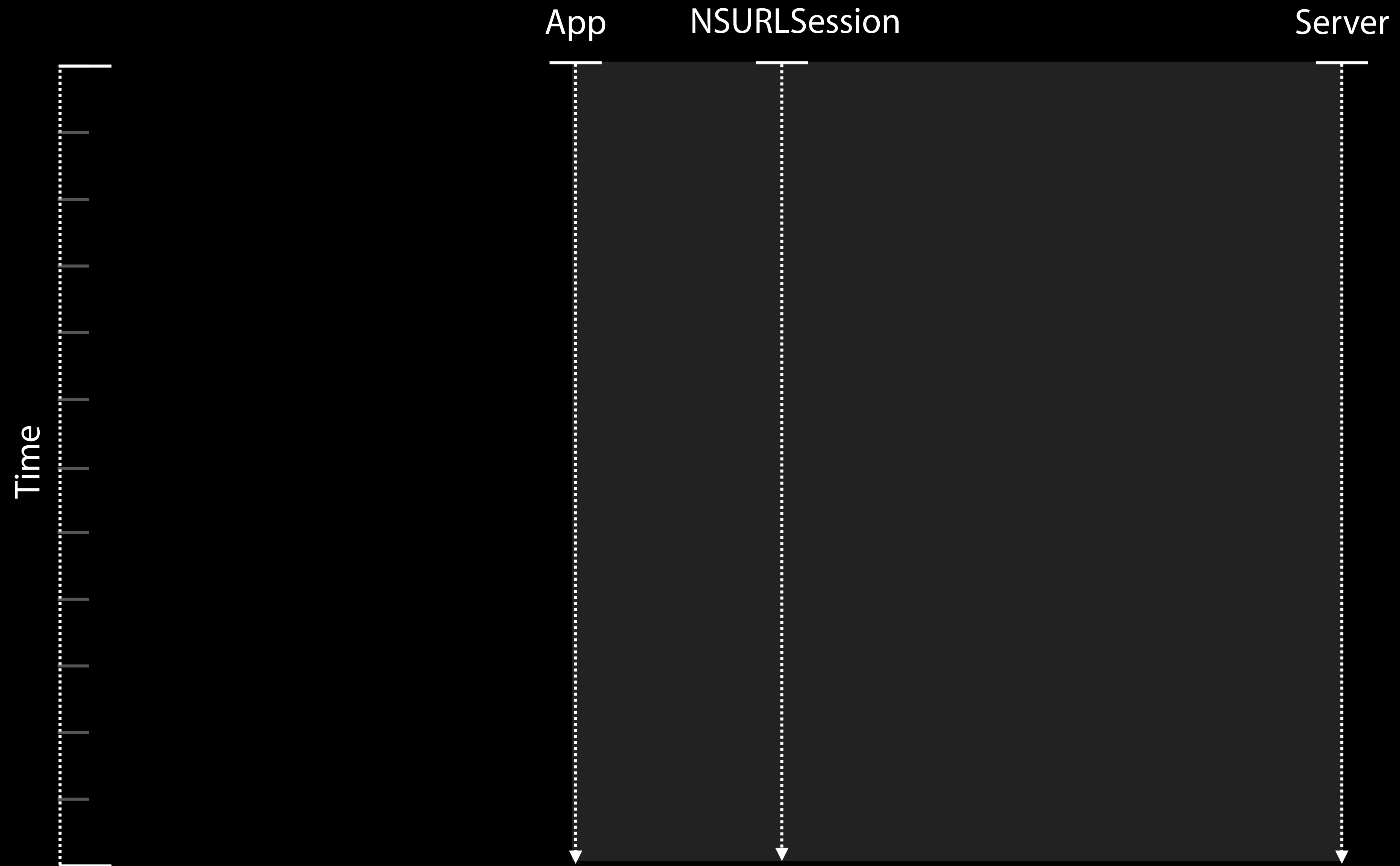
Prevent network round trips

Server support required

Now available in URLSession

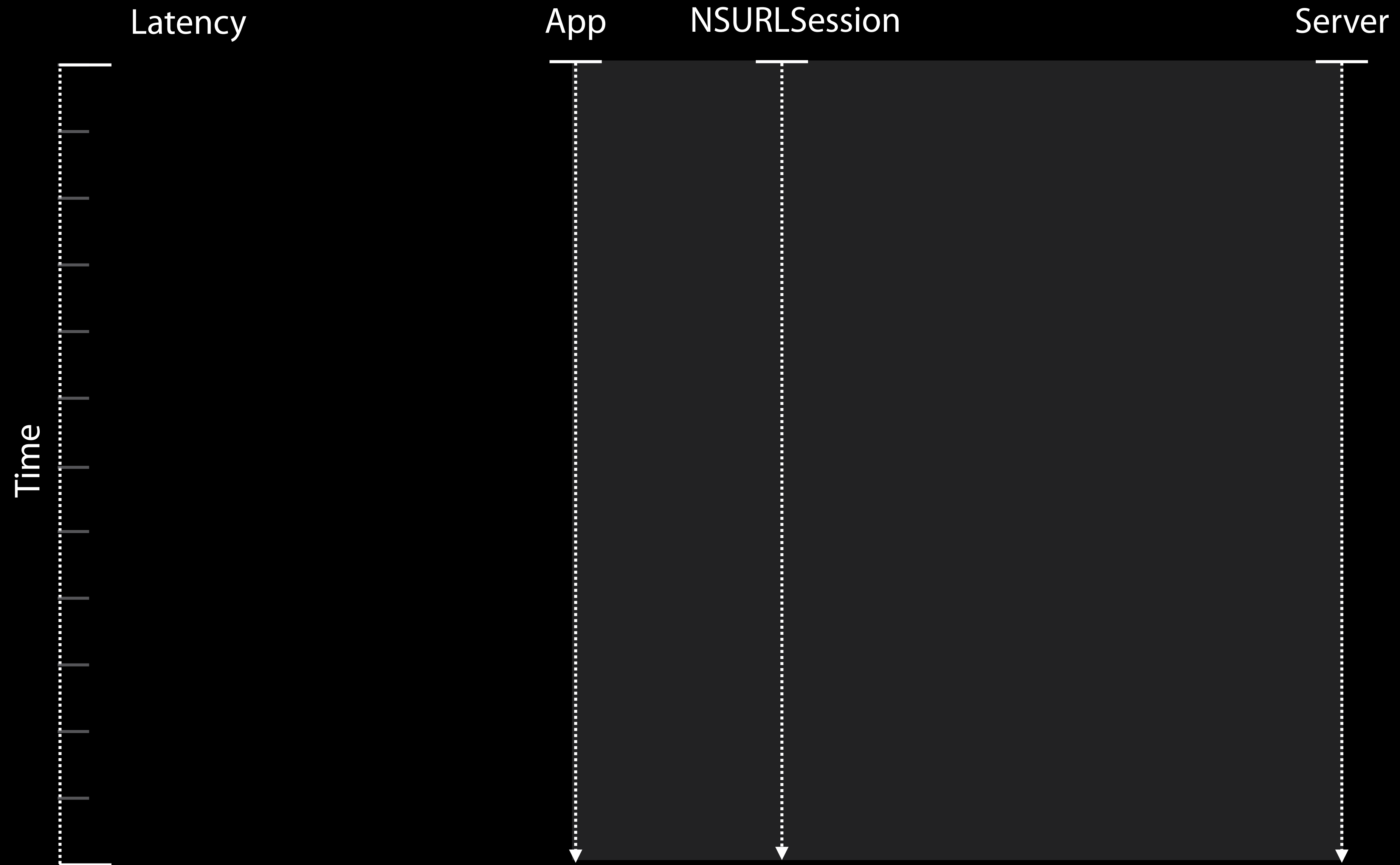
HTTP/1.1

Loading



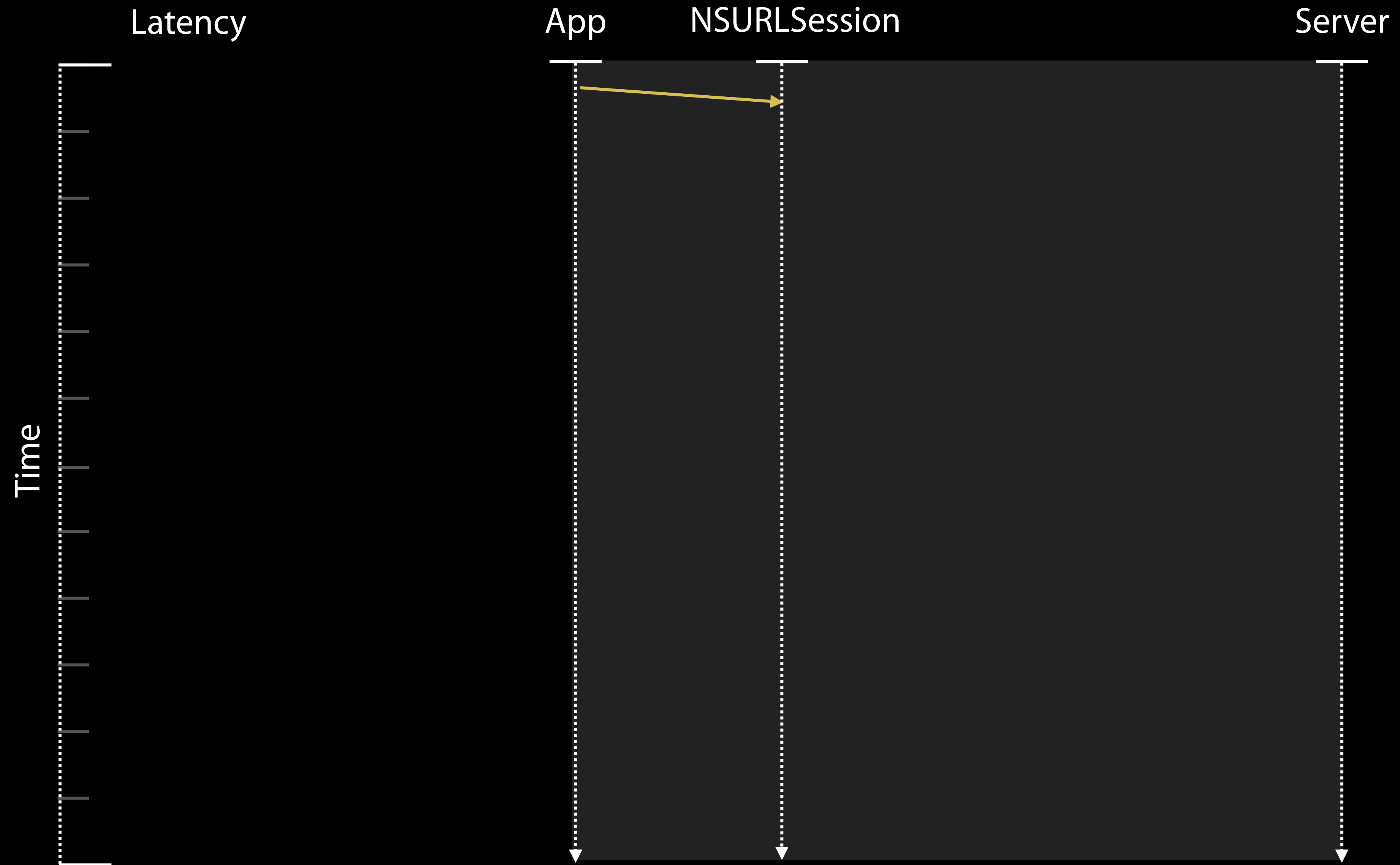
HTTP/1.1

Loading



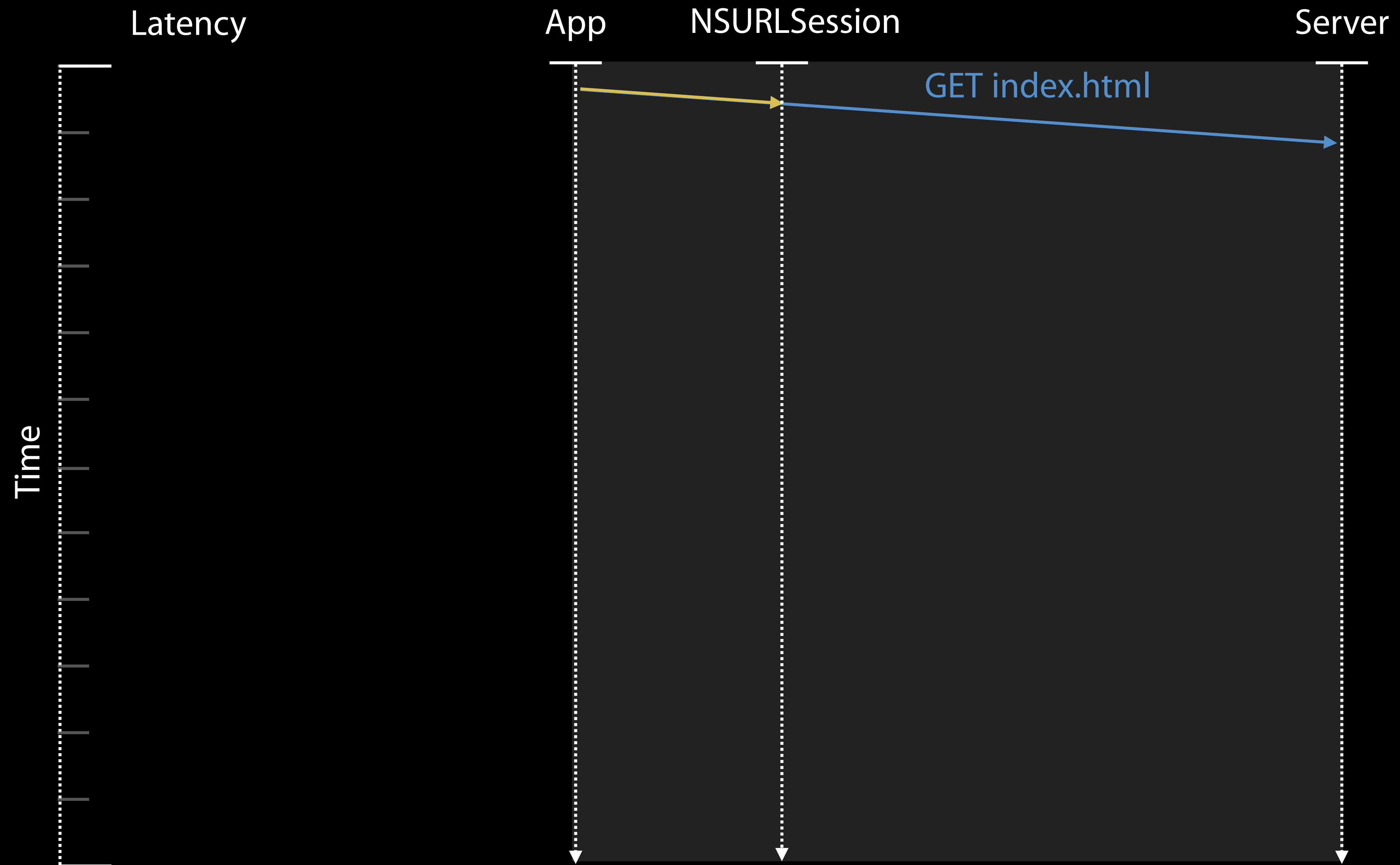
HTTP/1.1

Loading



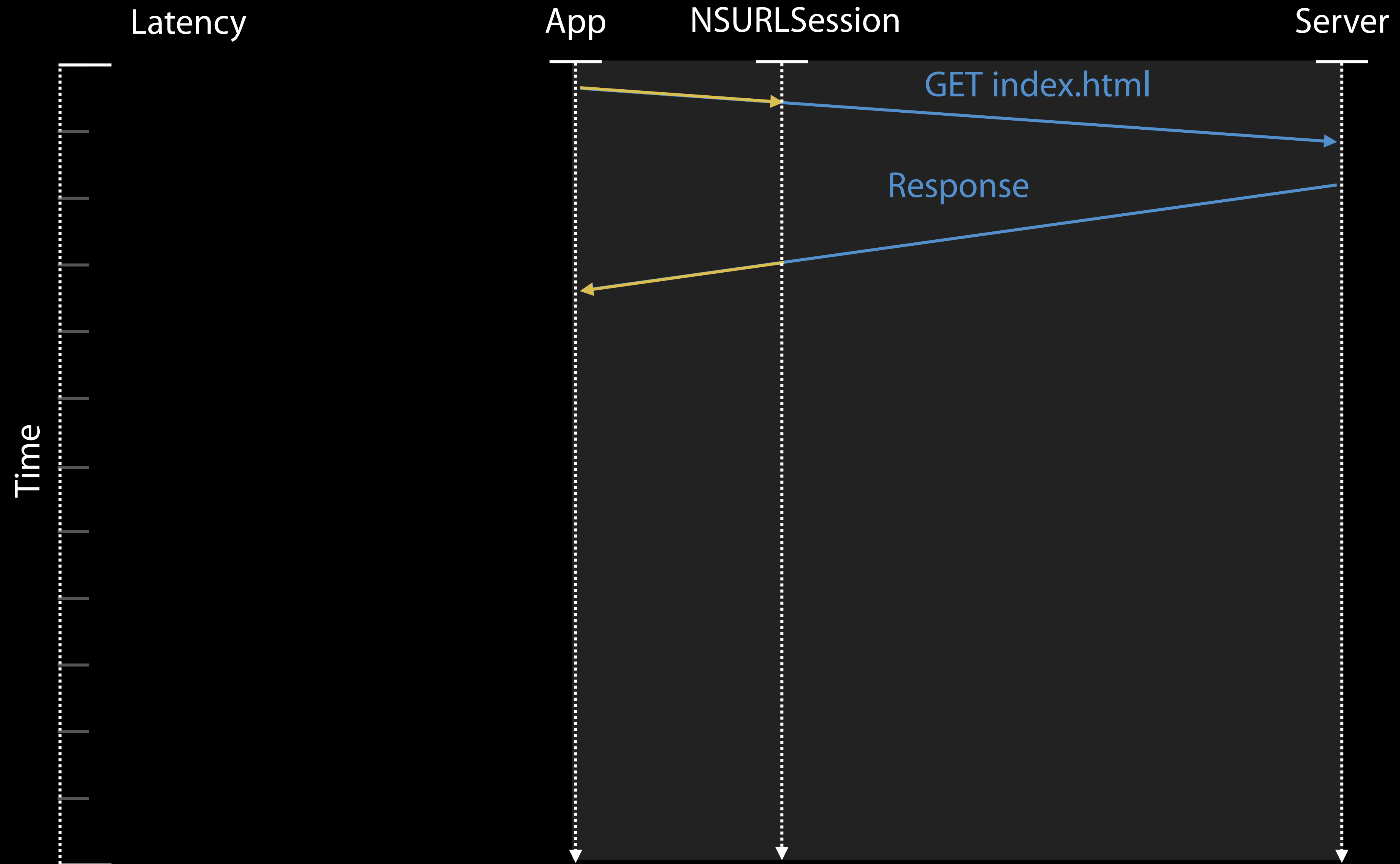
HTTP/1.1

Loading



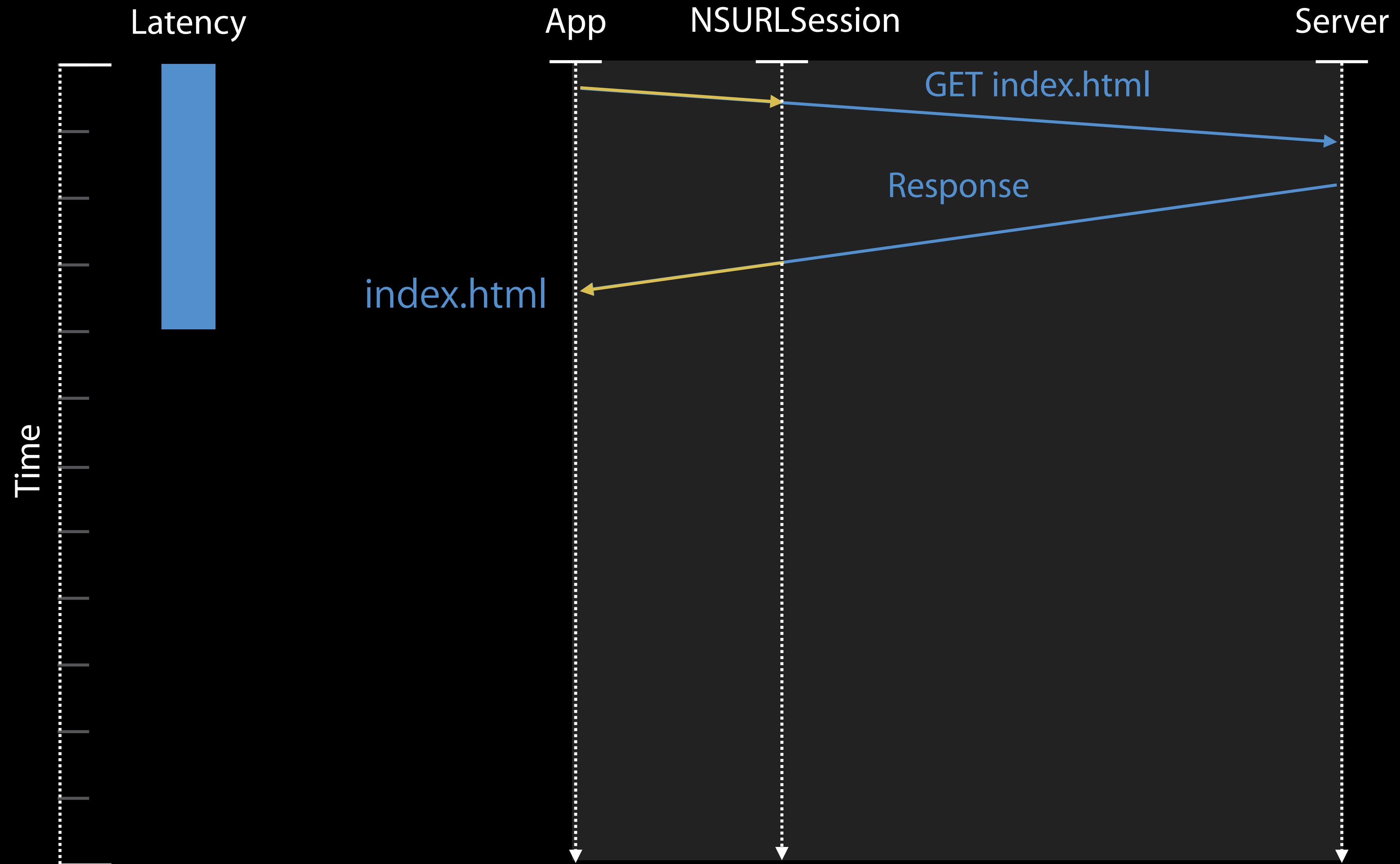
HTTP/1.1

Loading



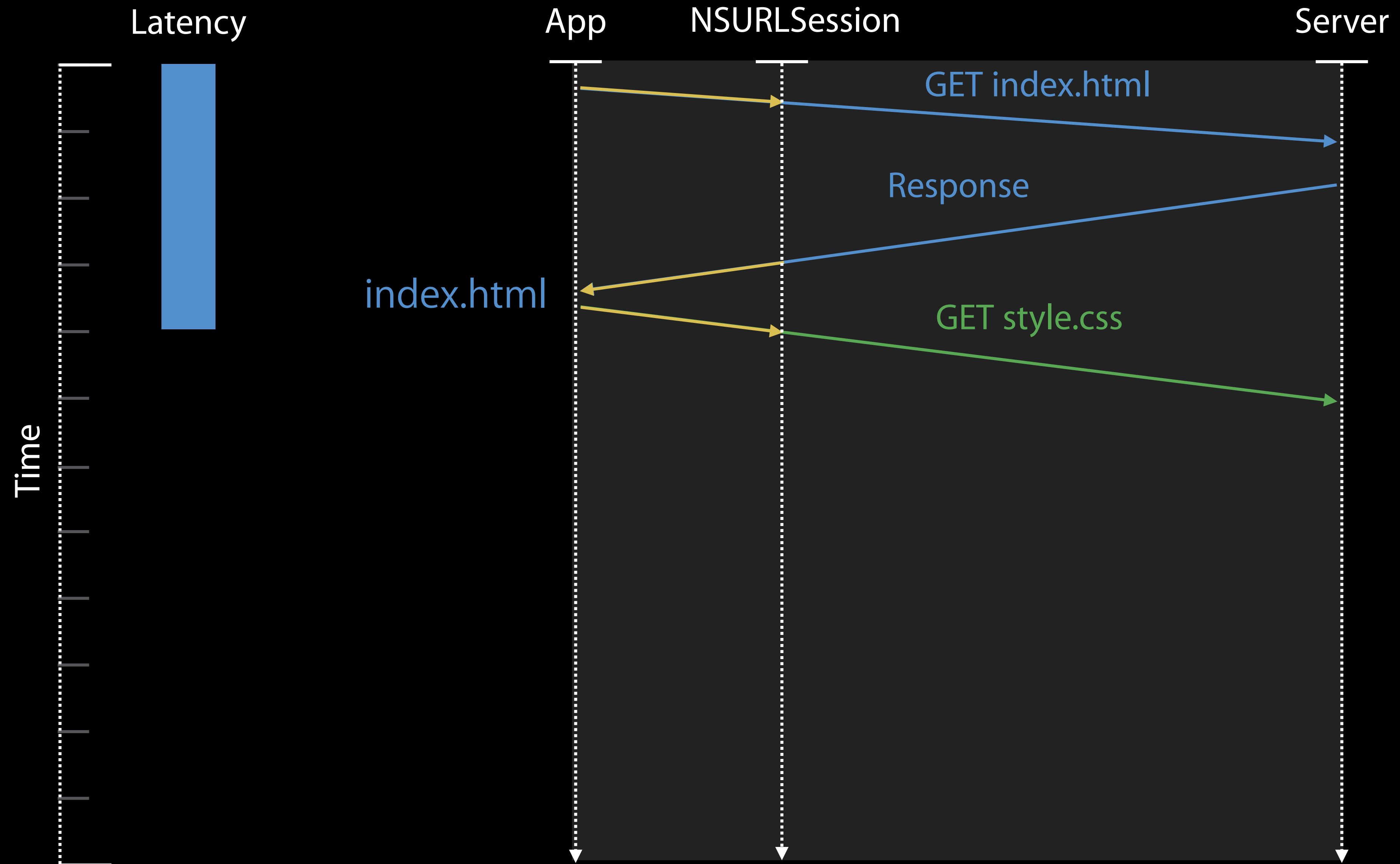
HTTP/1.1

Loading



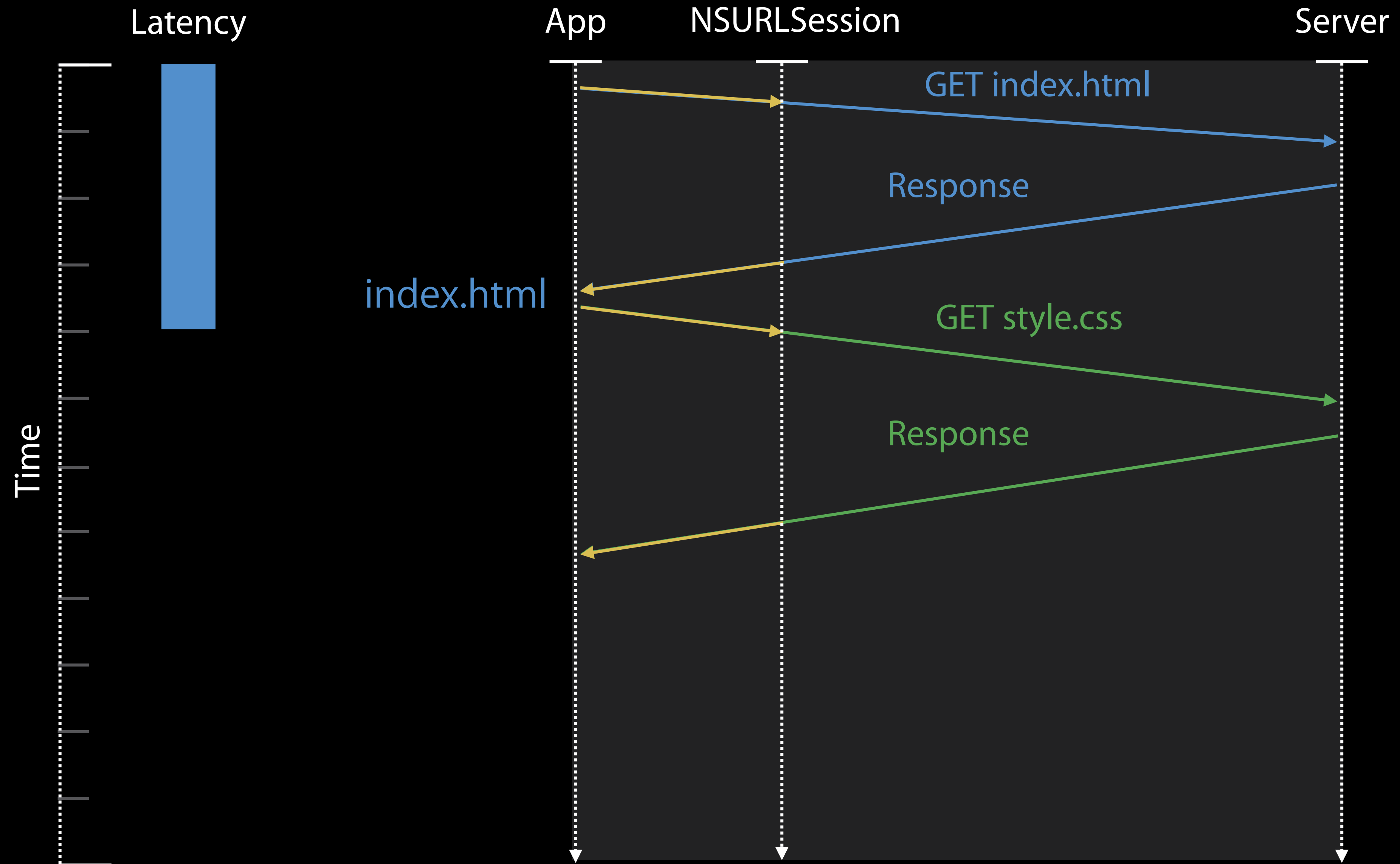
HTTP/1.1

Loading



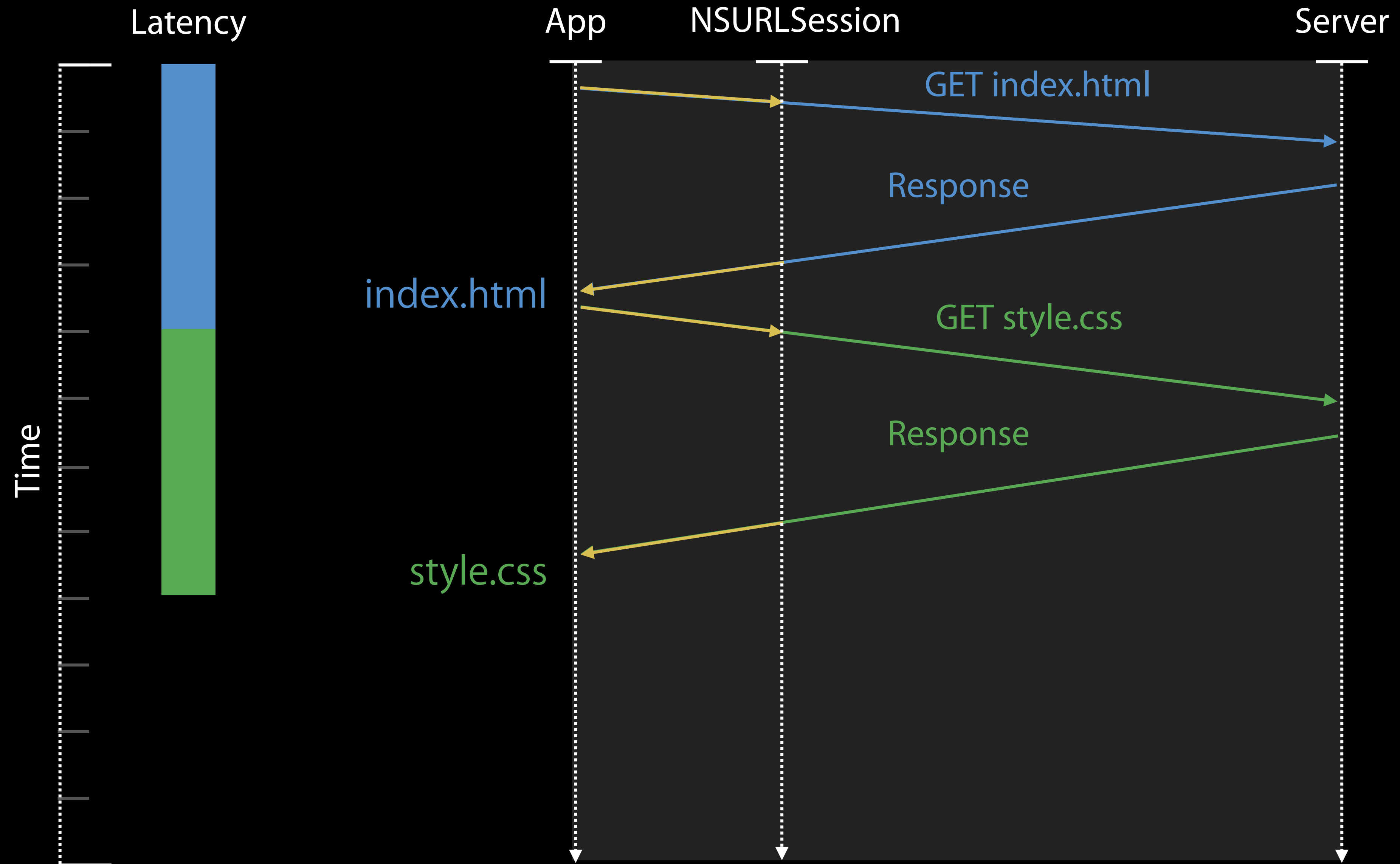
HTTP/1.1

Loading



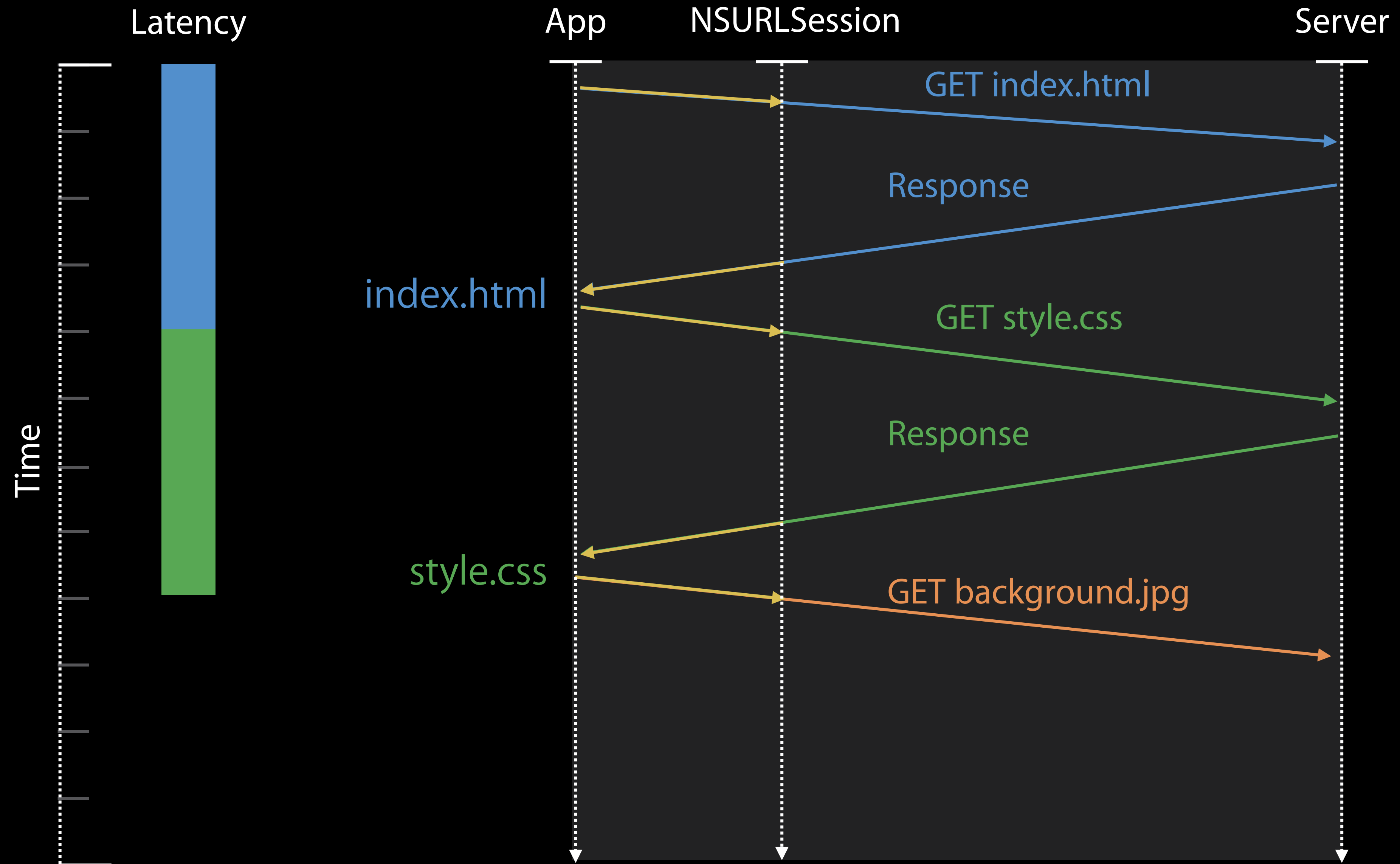
HTTP/1.1

Loading



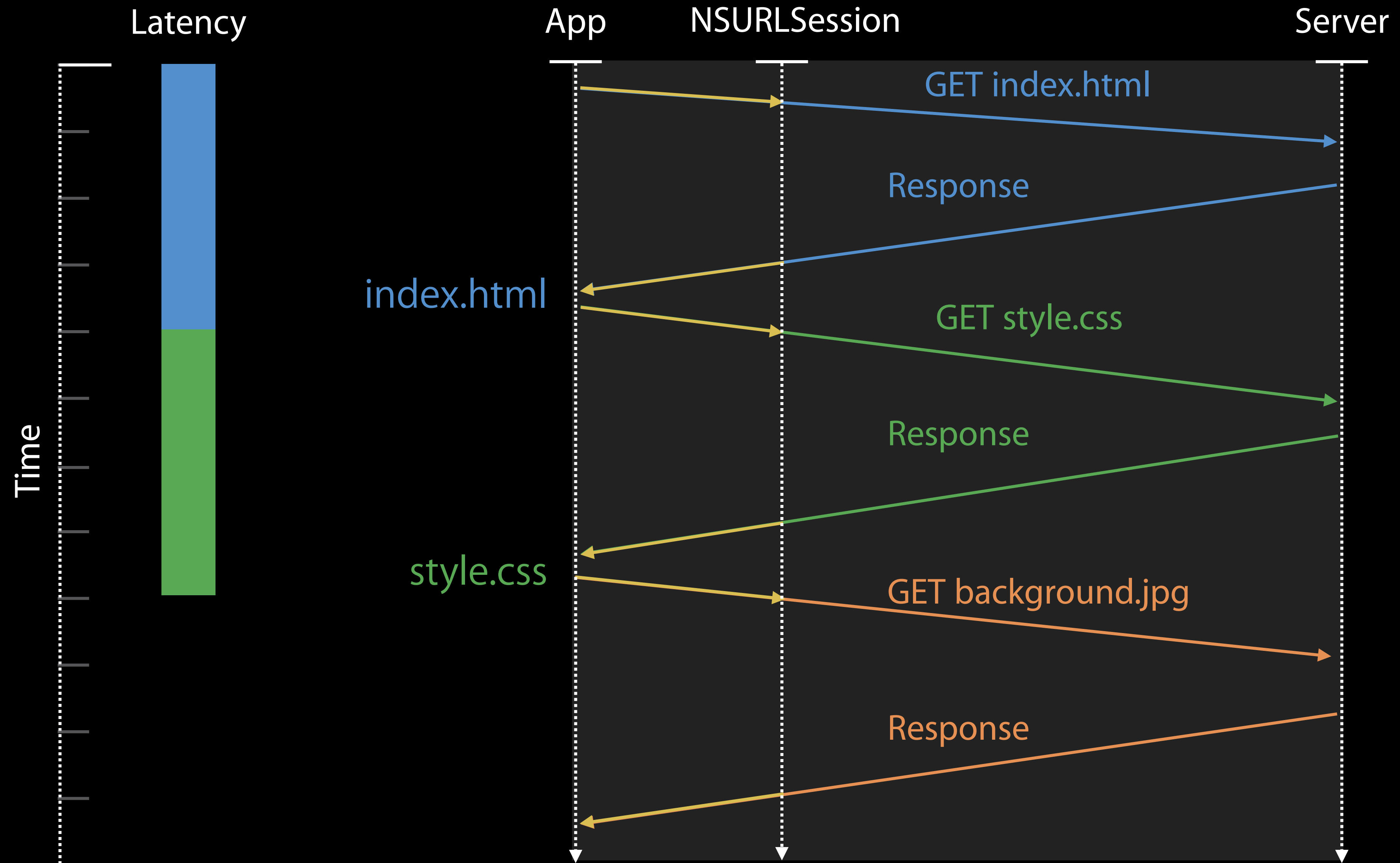
HTTP/1.1

Loading



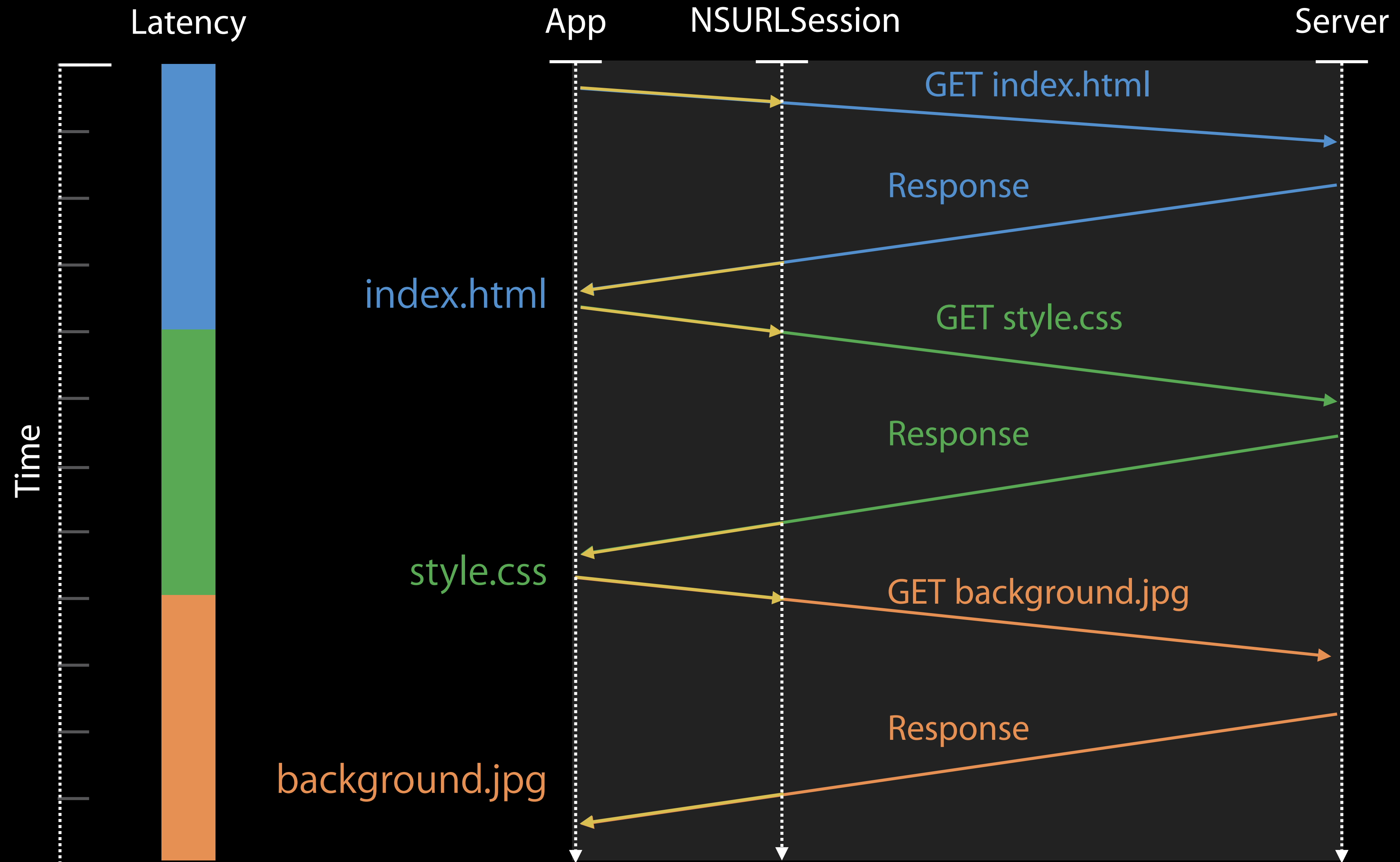
HTTP/1.1

Loading



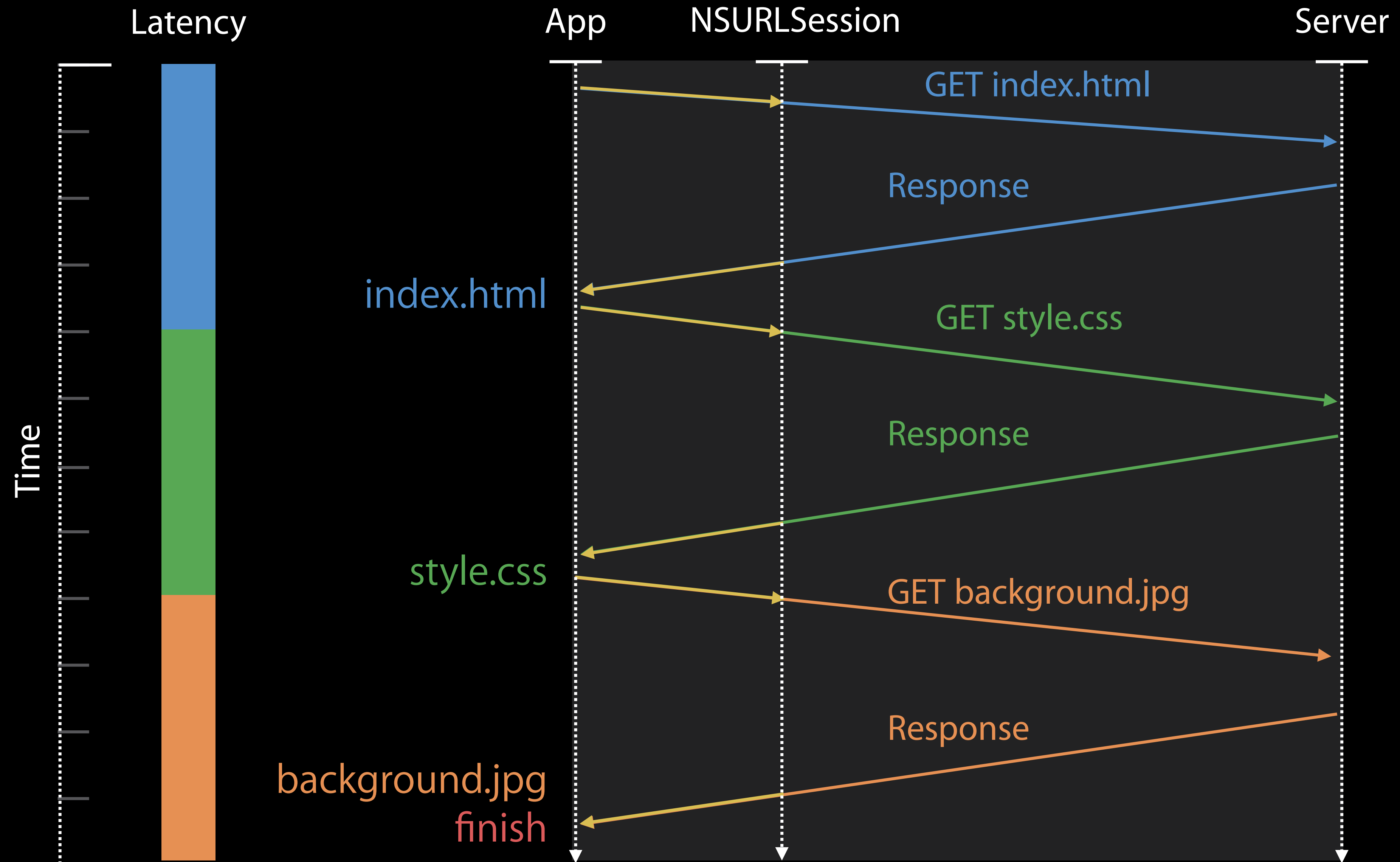
HTTP/1.1

Loading



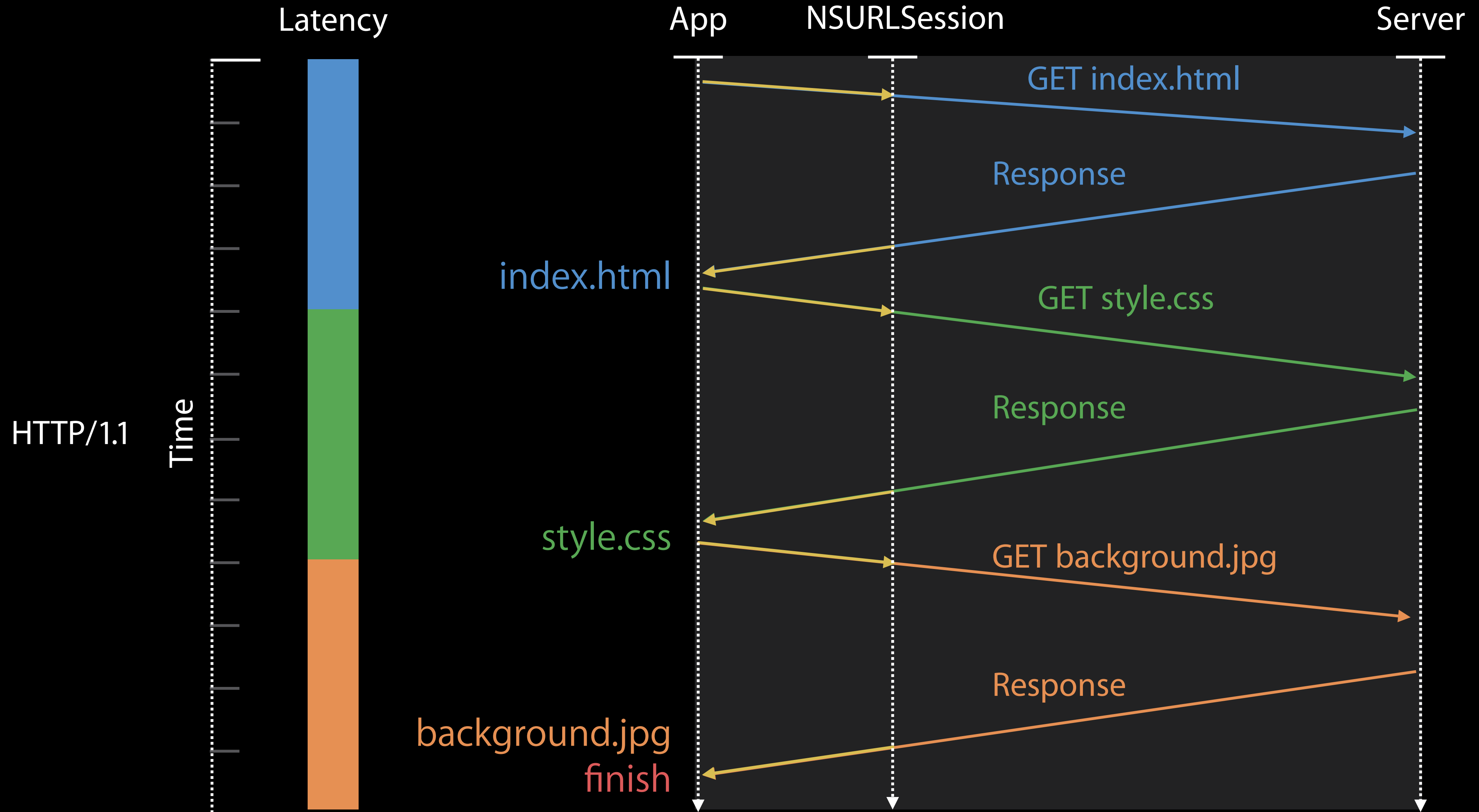
HTTP/1.1

Loading



HTTP/1.1

Loading

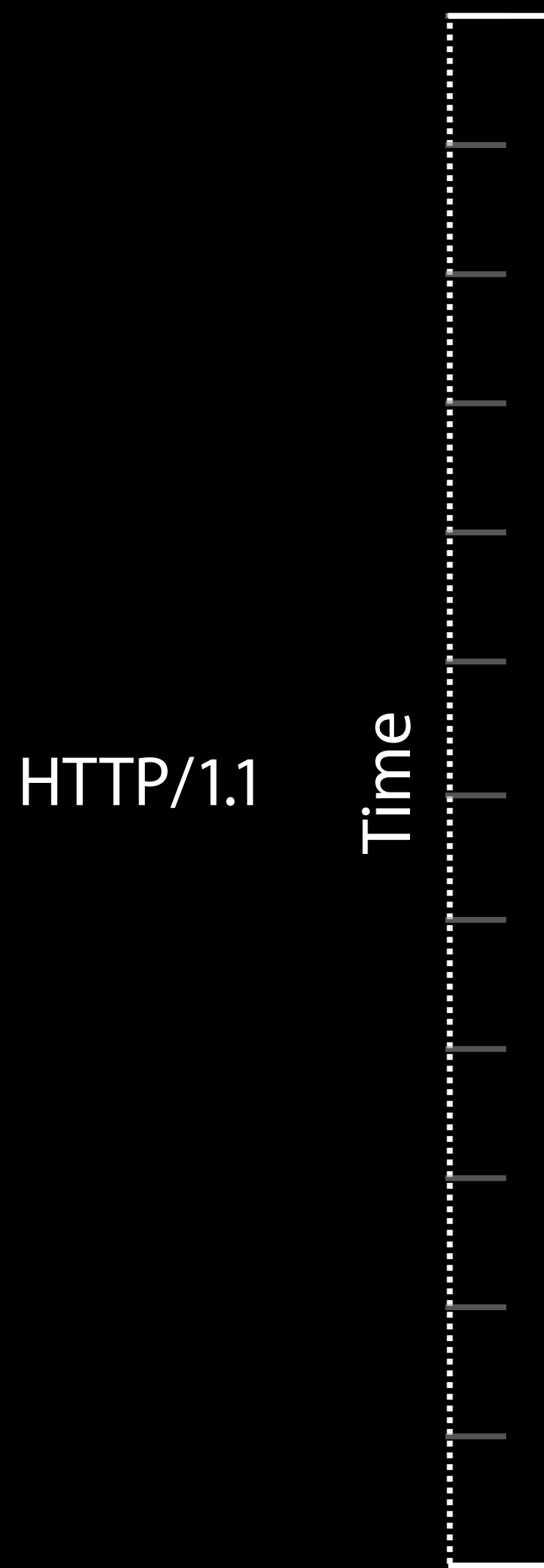


HTTP/2 Server Push



Loading

Latency

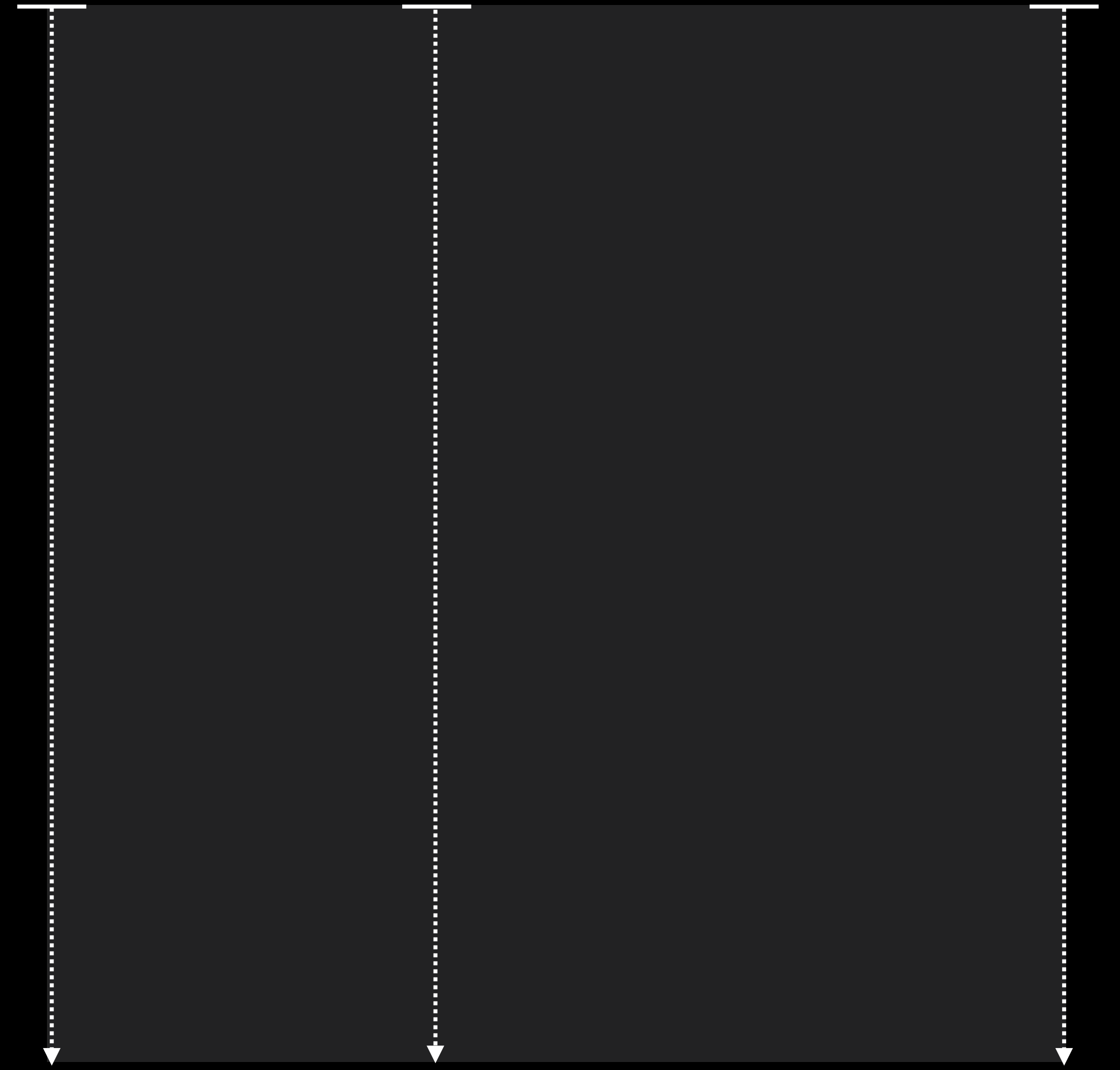


HTTP/1.1

App

NSURLSession

Server



HTTP/2 Server Push

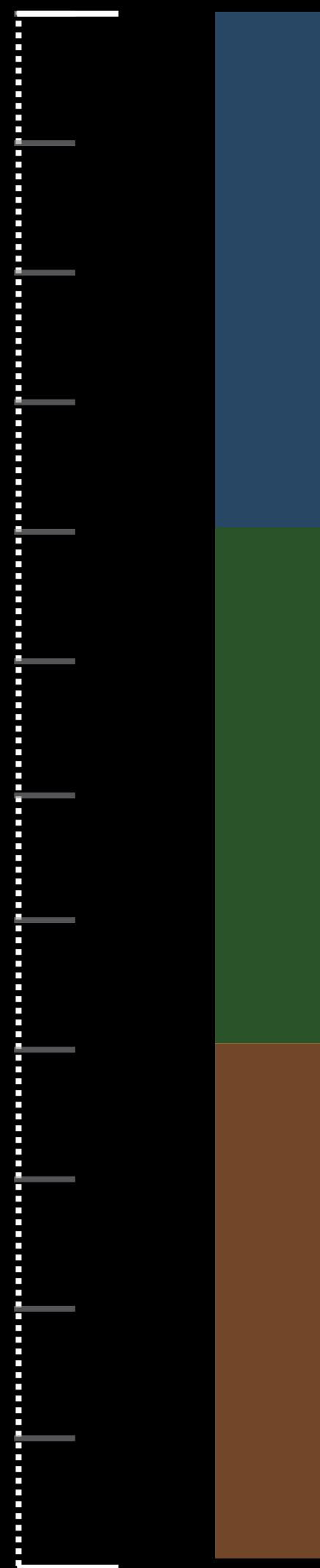


Loading

Latency

HTTP/1.1

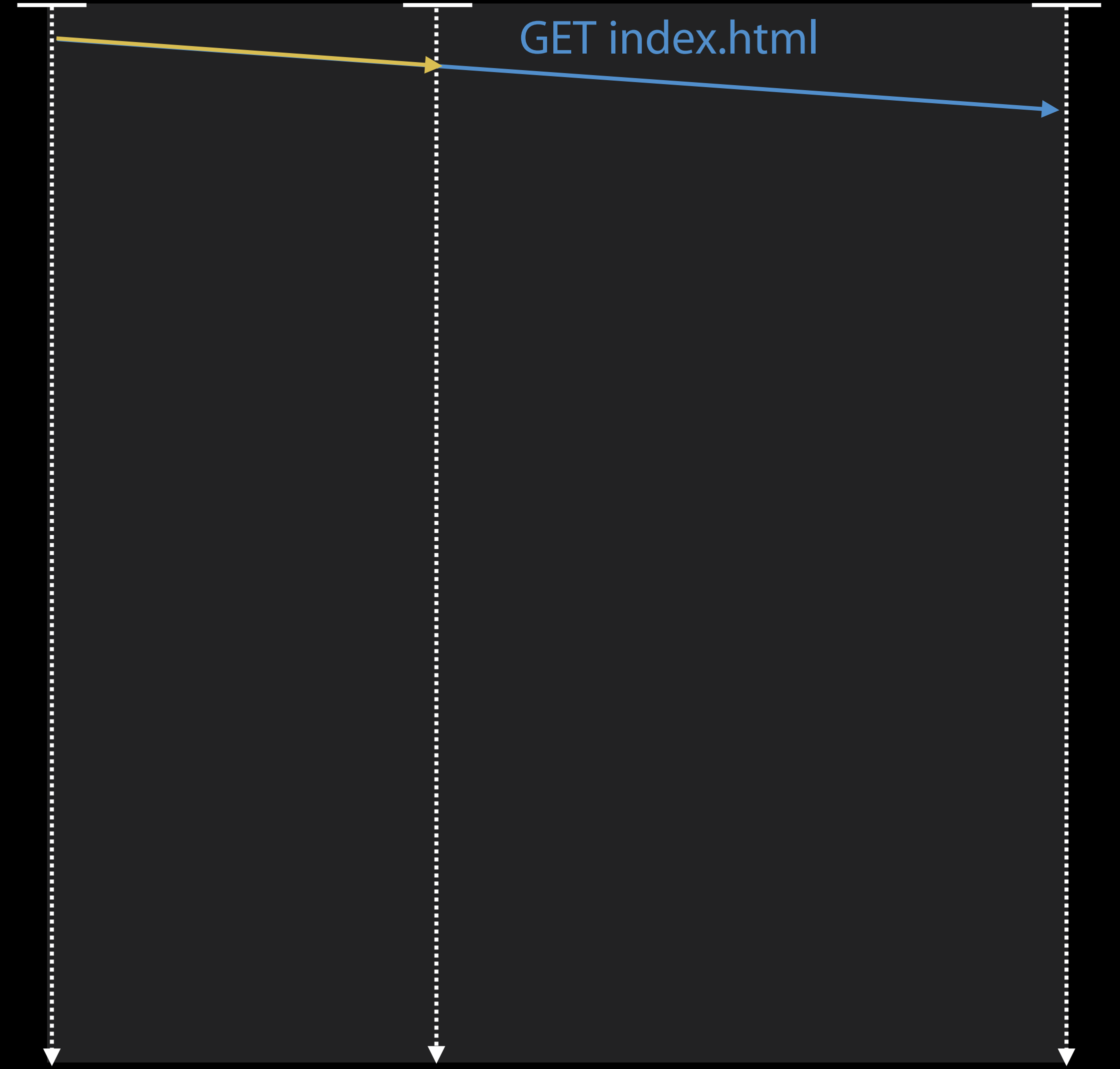
Time



App

NSURLSession

Server

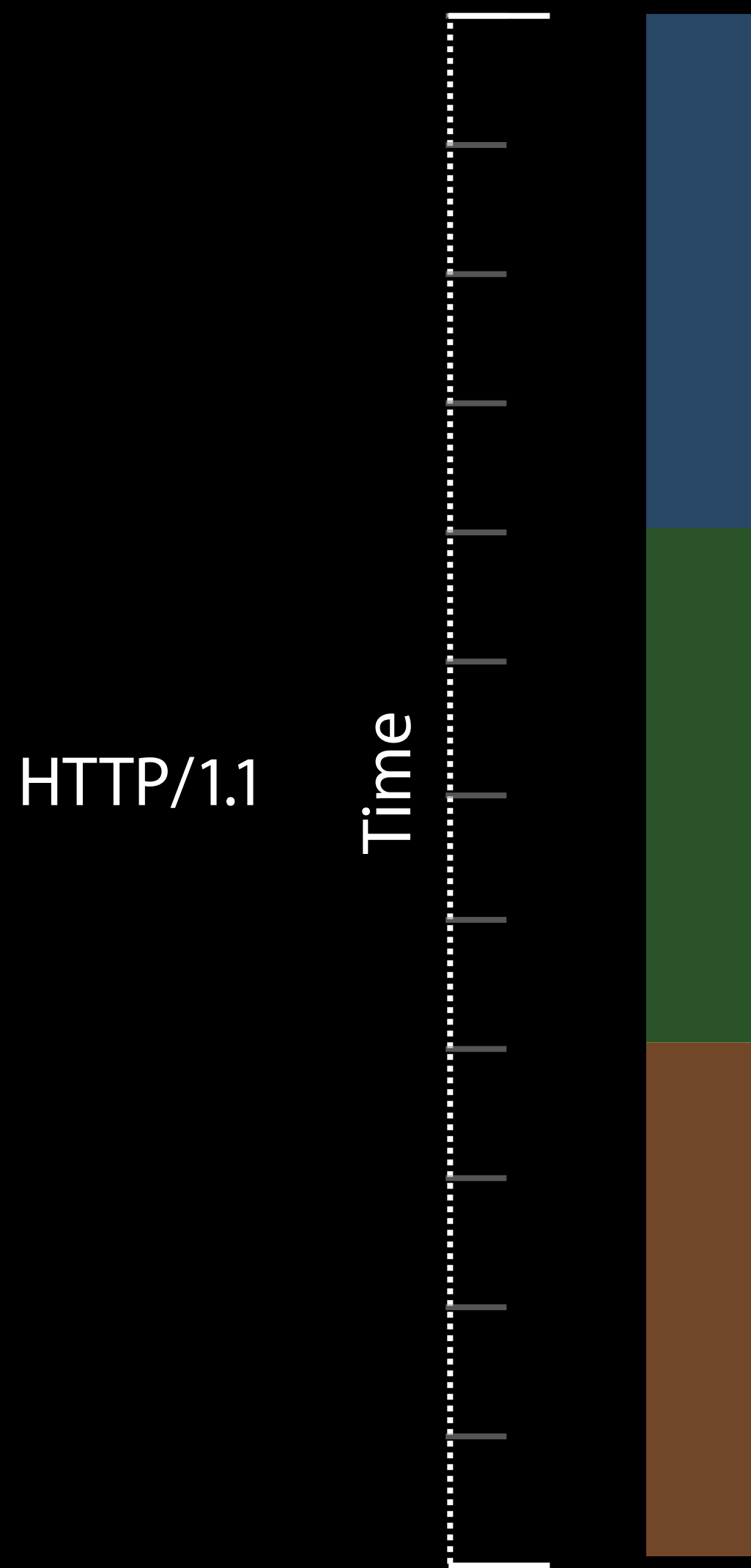


HTTP/2 Server Push

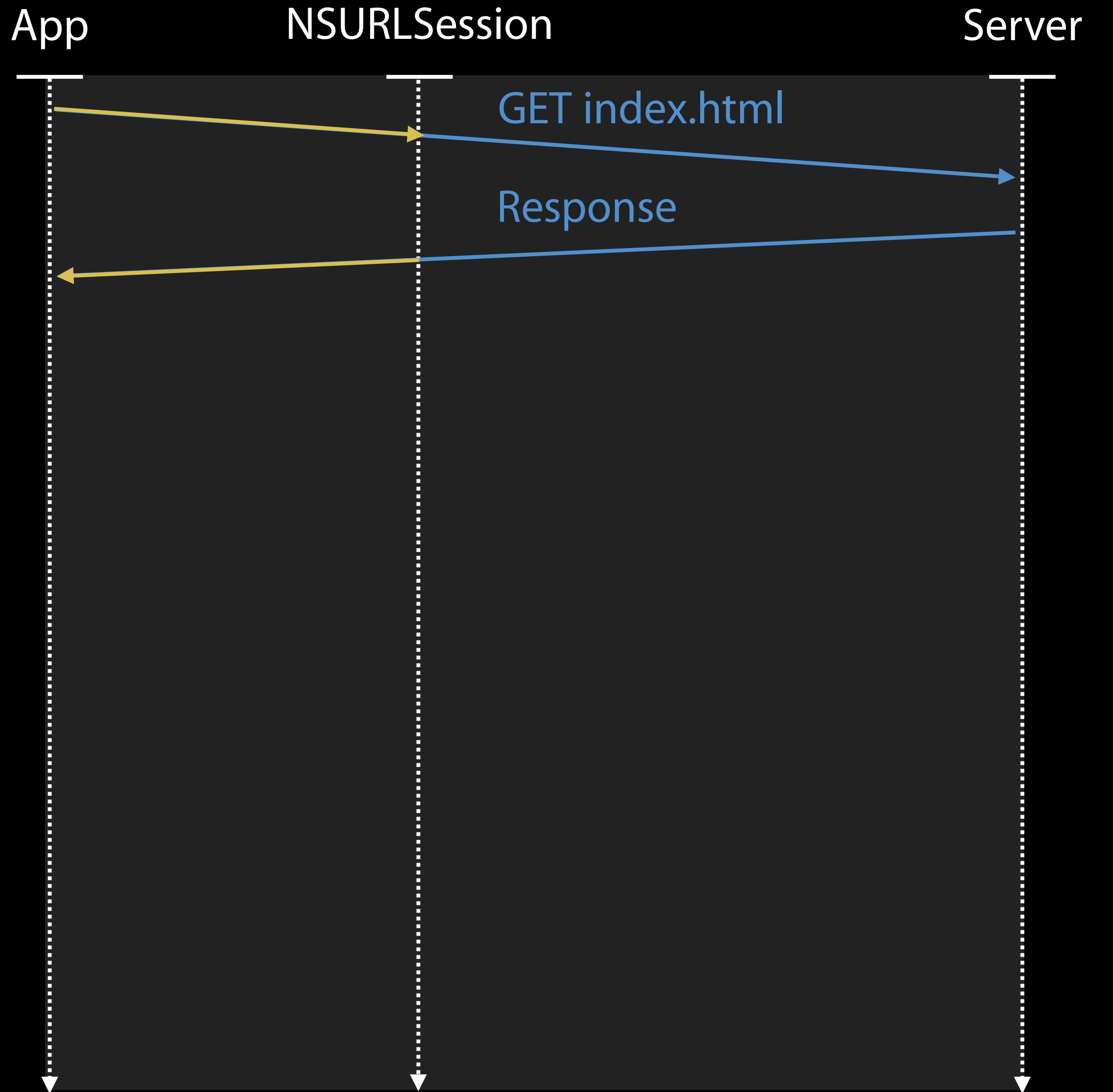


Loading

Latency



HTTP/1.1



HTTP/2 Server Push

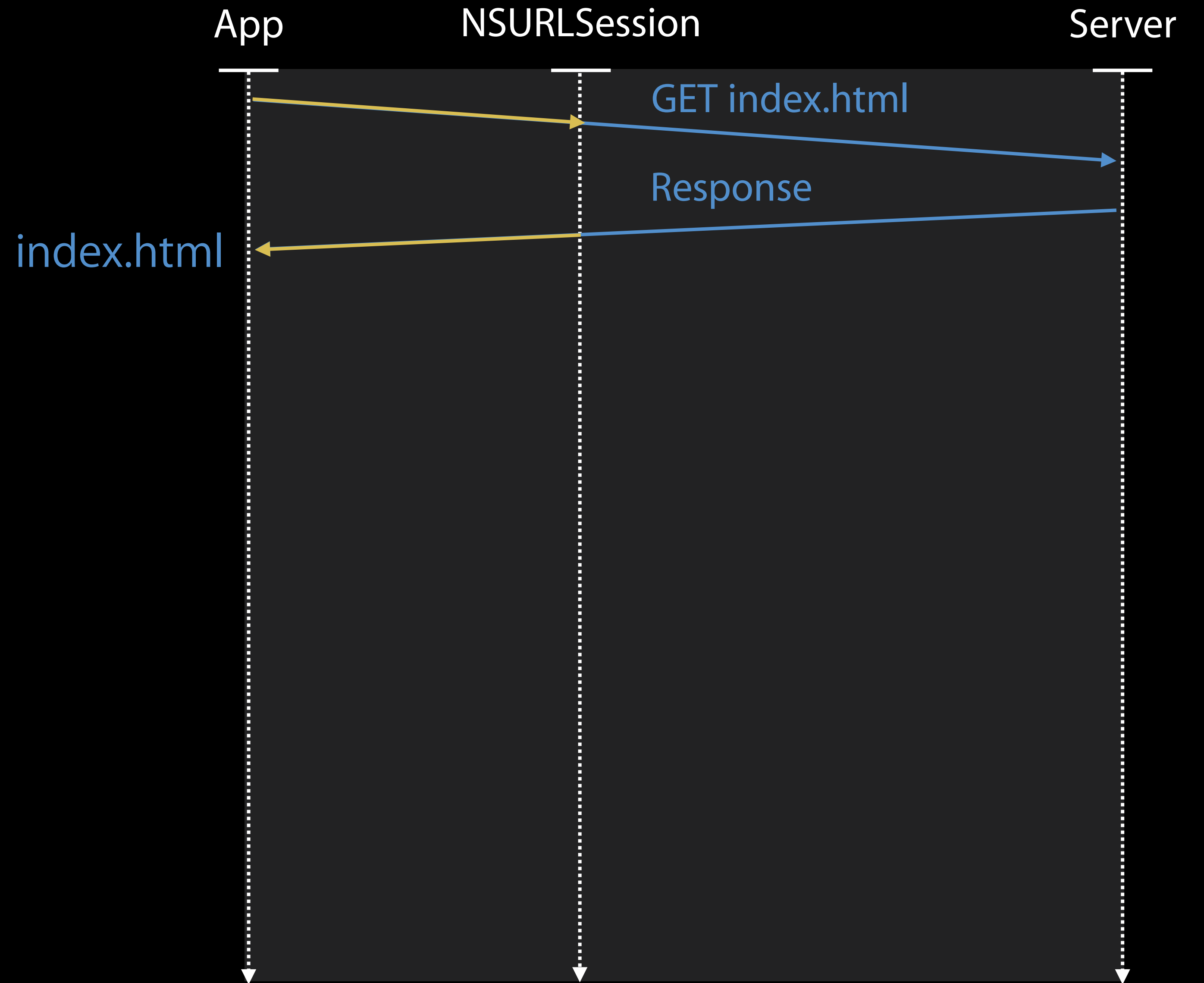
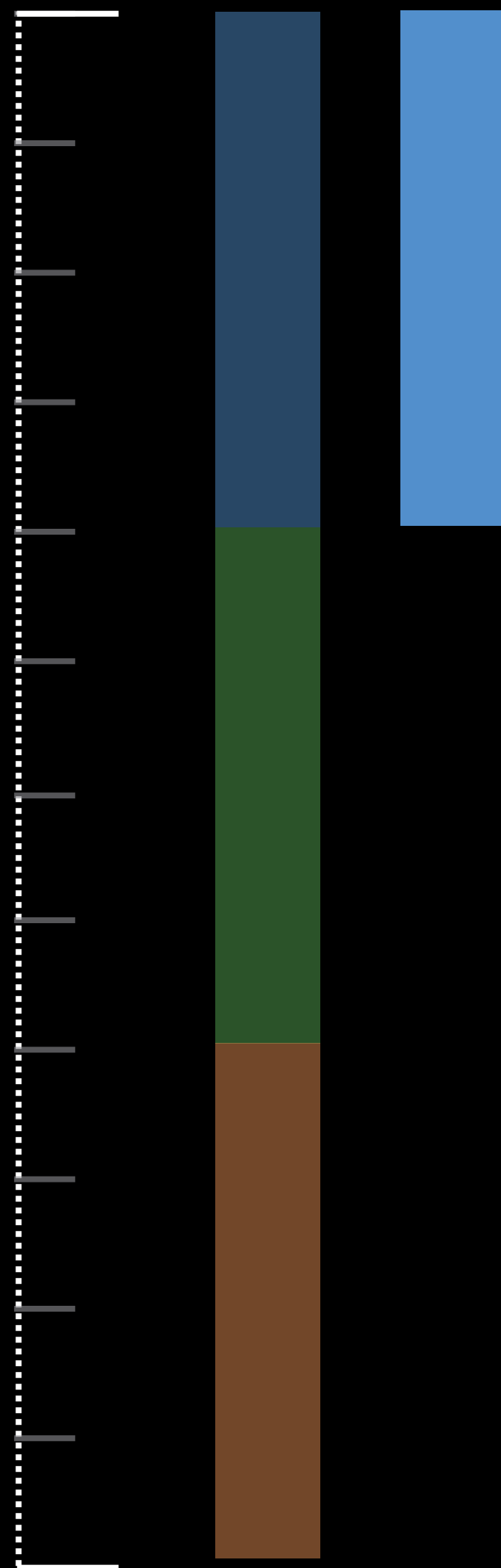


Loading

Latency

HTTP/1.1

Time

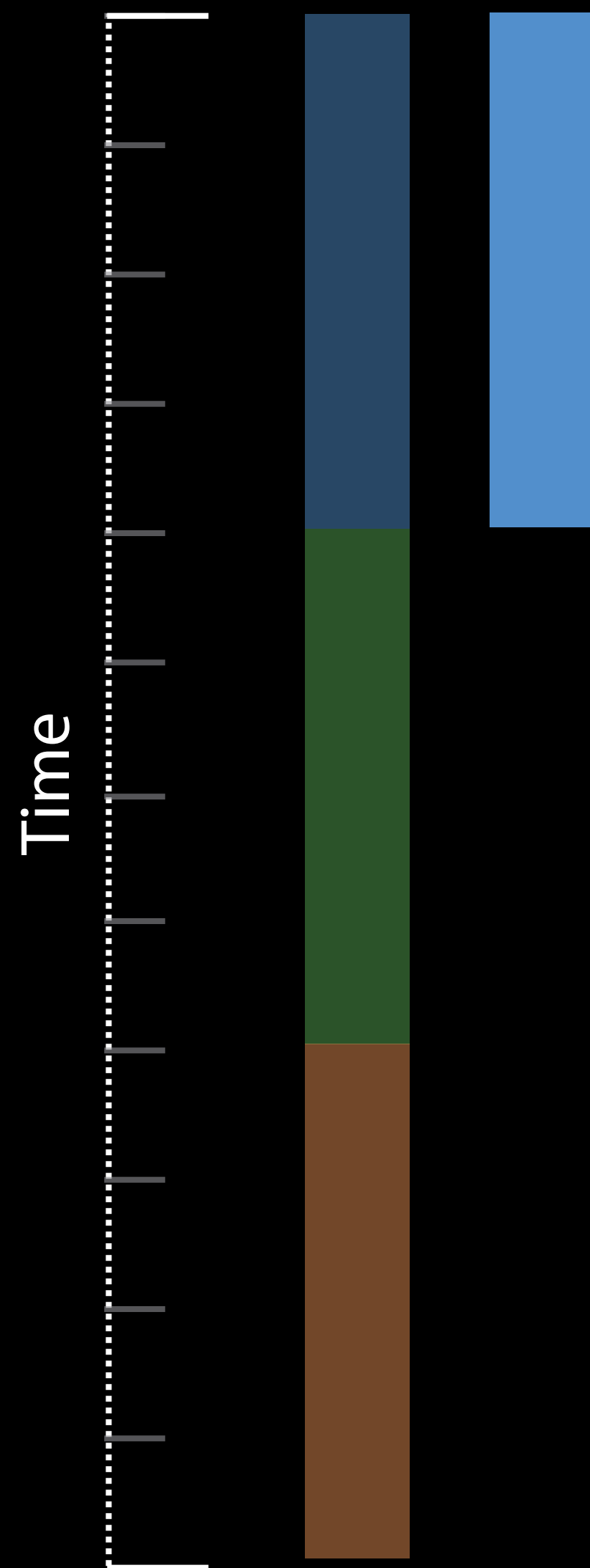


HTTP/2 Server Push

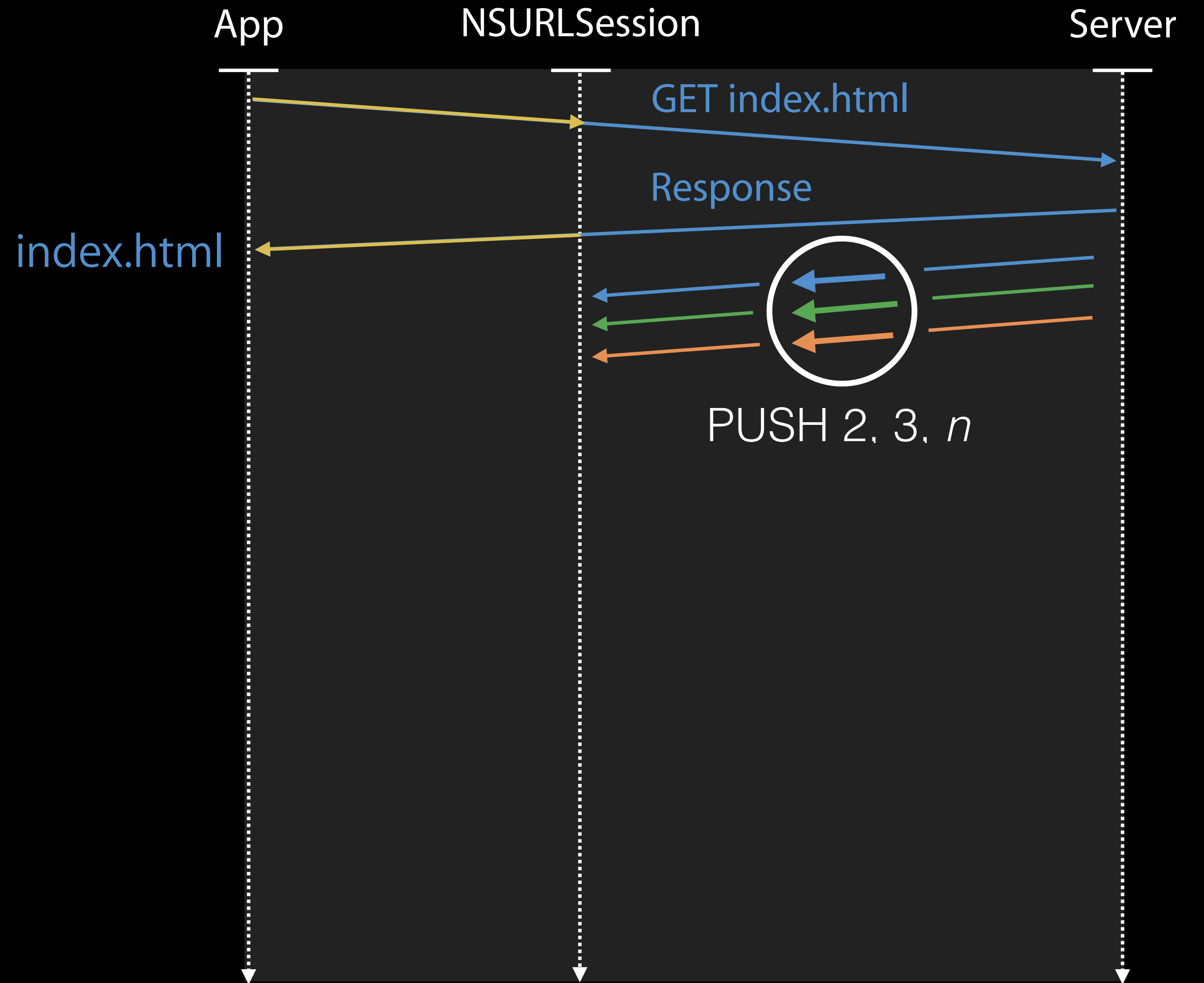
NEW

Loading

Latency



HTTP/1.1

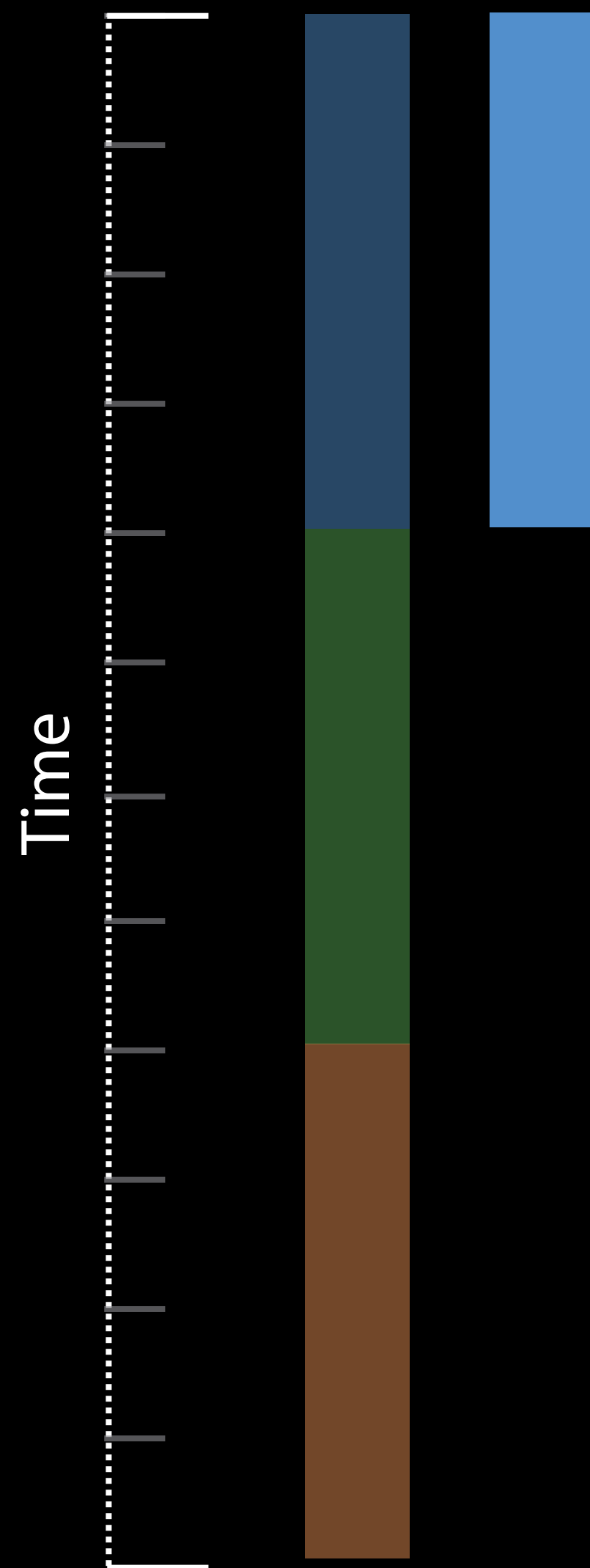


HTTP/2 Server Push

NEW

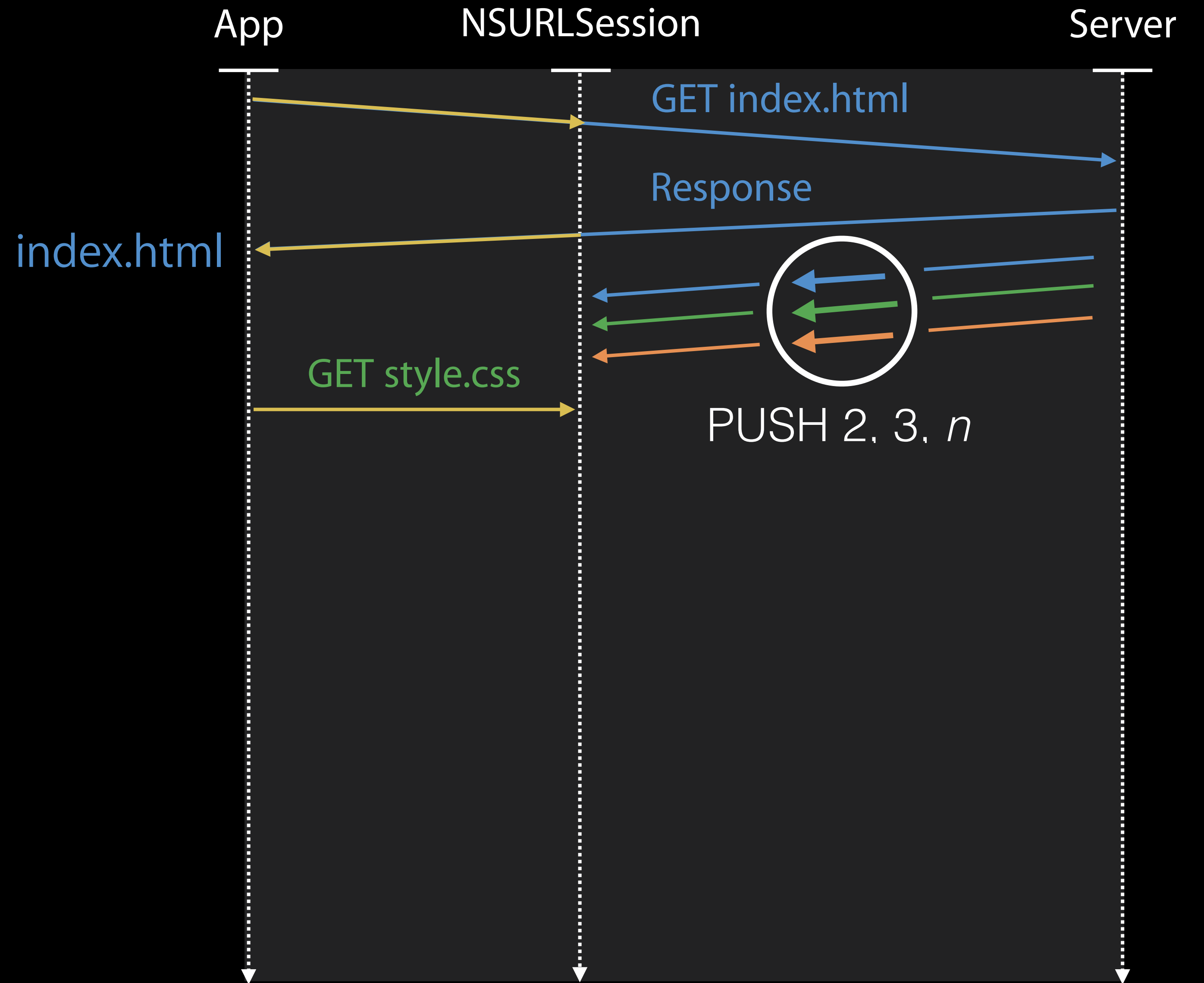
Loading

Latency



HTTP/1.1

Time

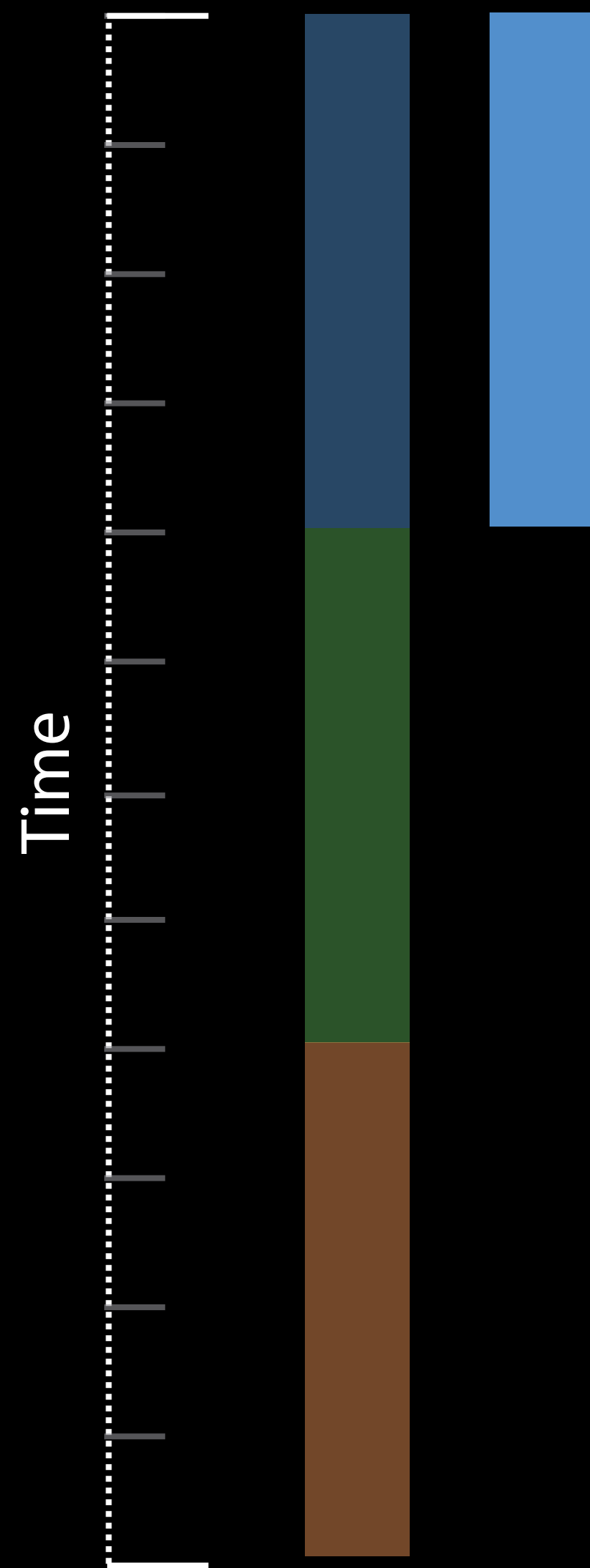


HTTP/2 Server Push

NEW

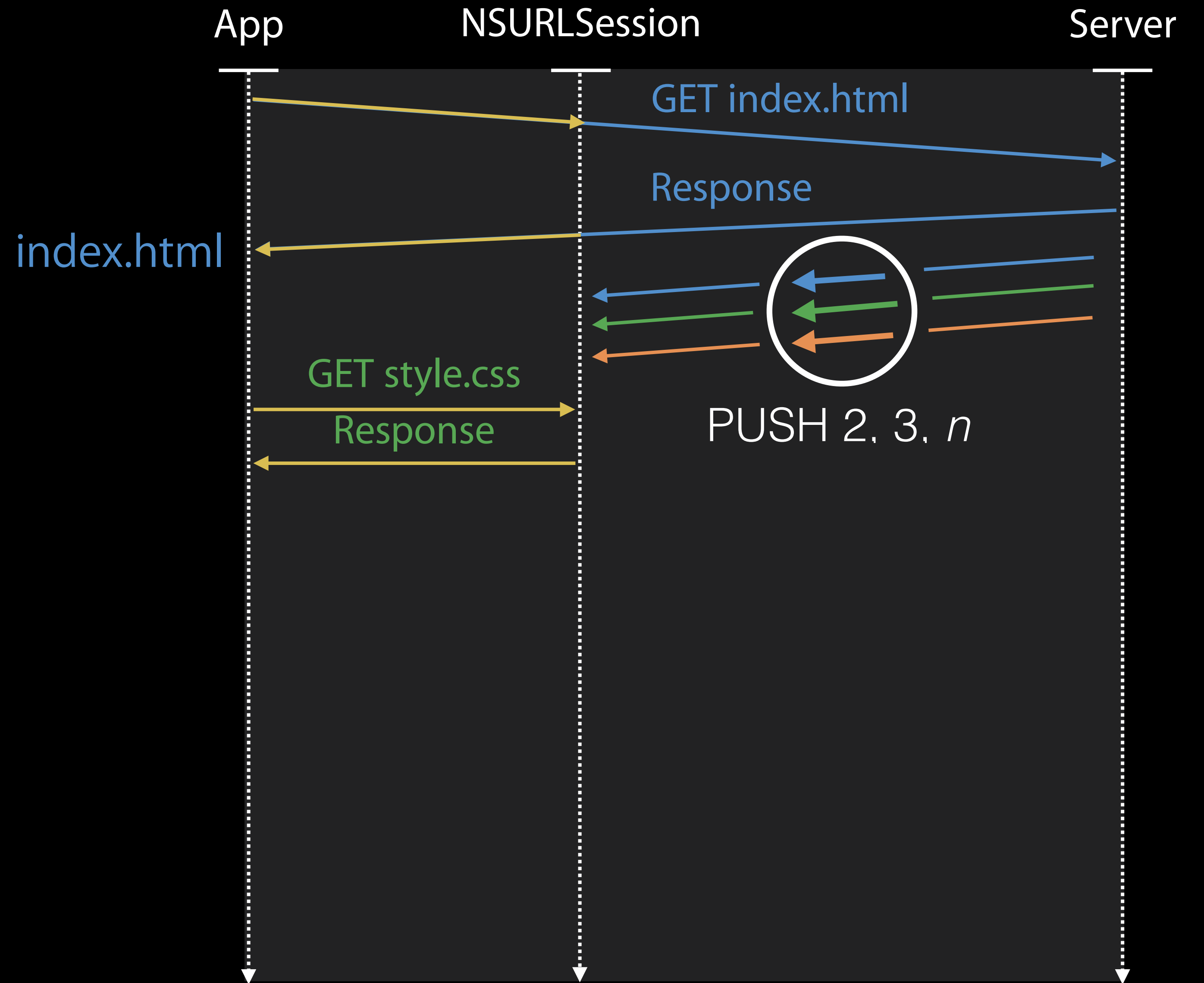
Loading

Latency



HTTP/1.1

Time

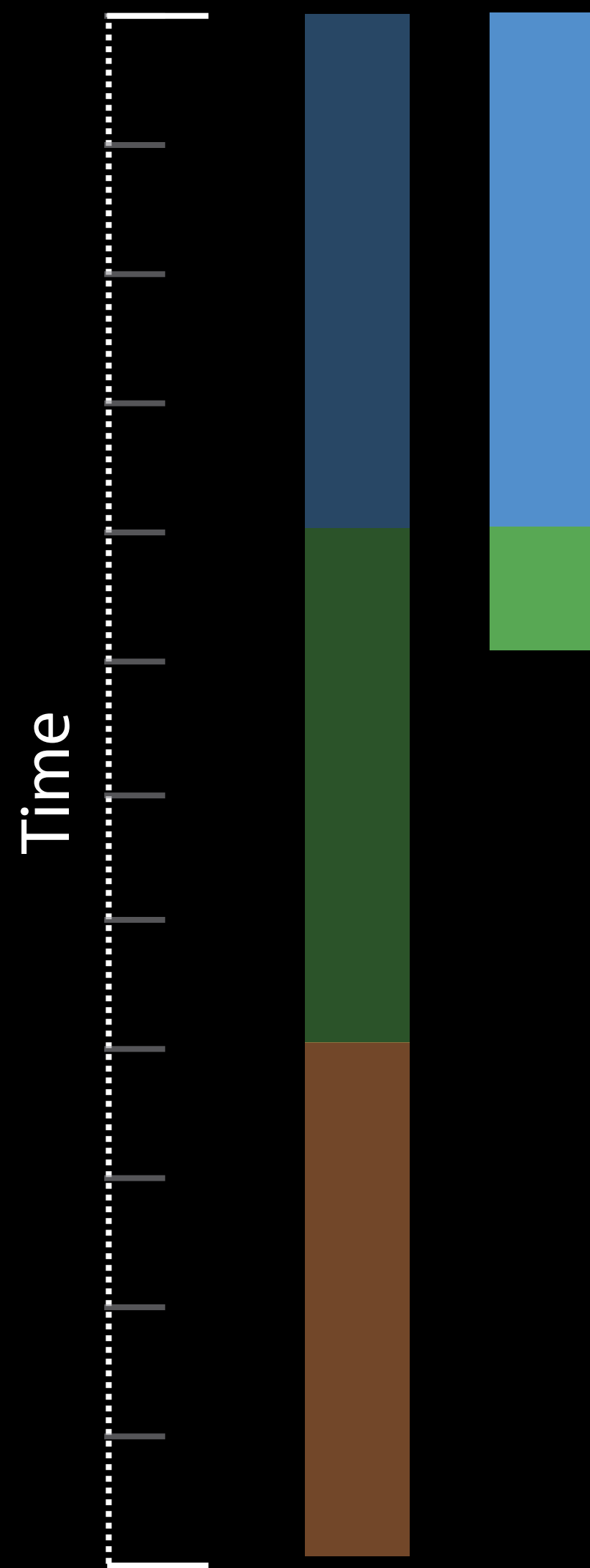


HTTP/2 Server Push

NEW

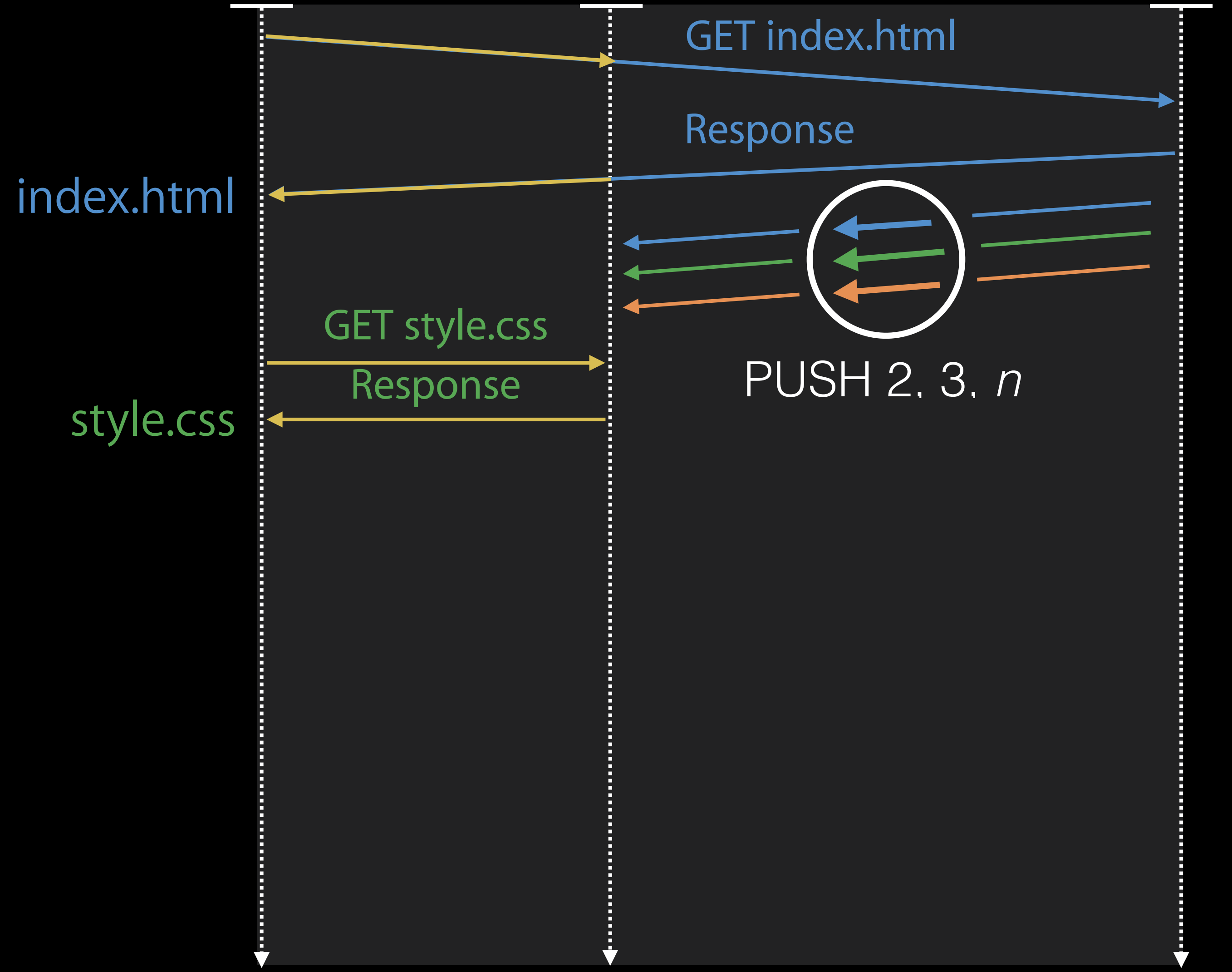
Loading

Latency



HTTP/1.1

App NSURLSession Server

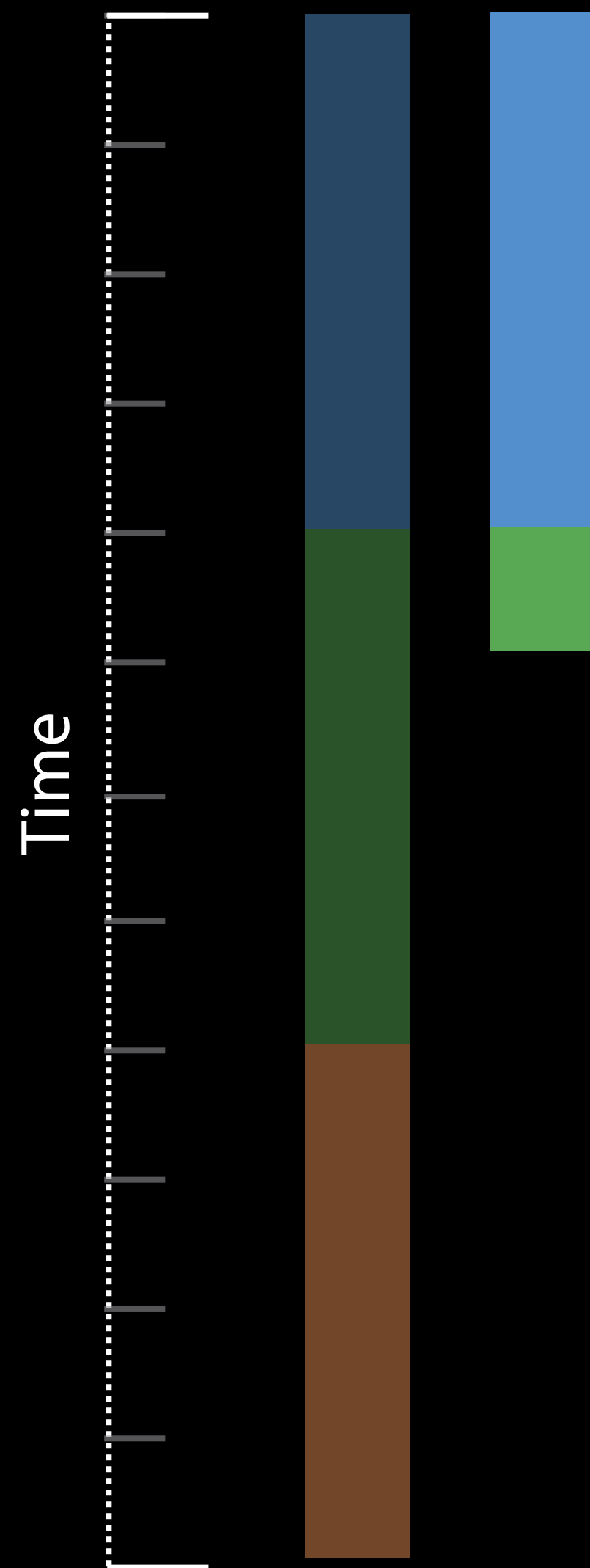


HTTP/2 Server Push

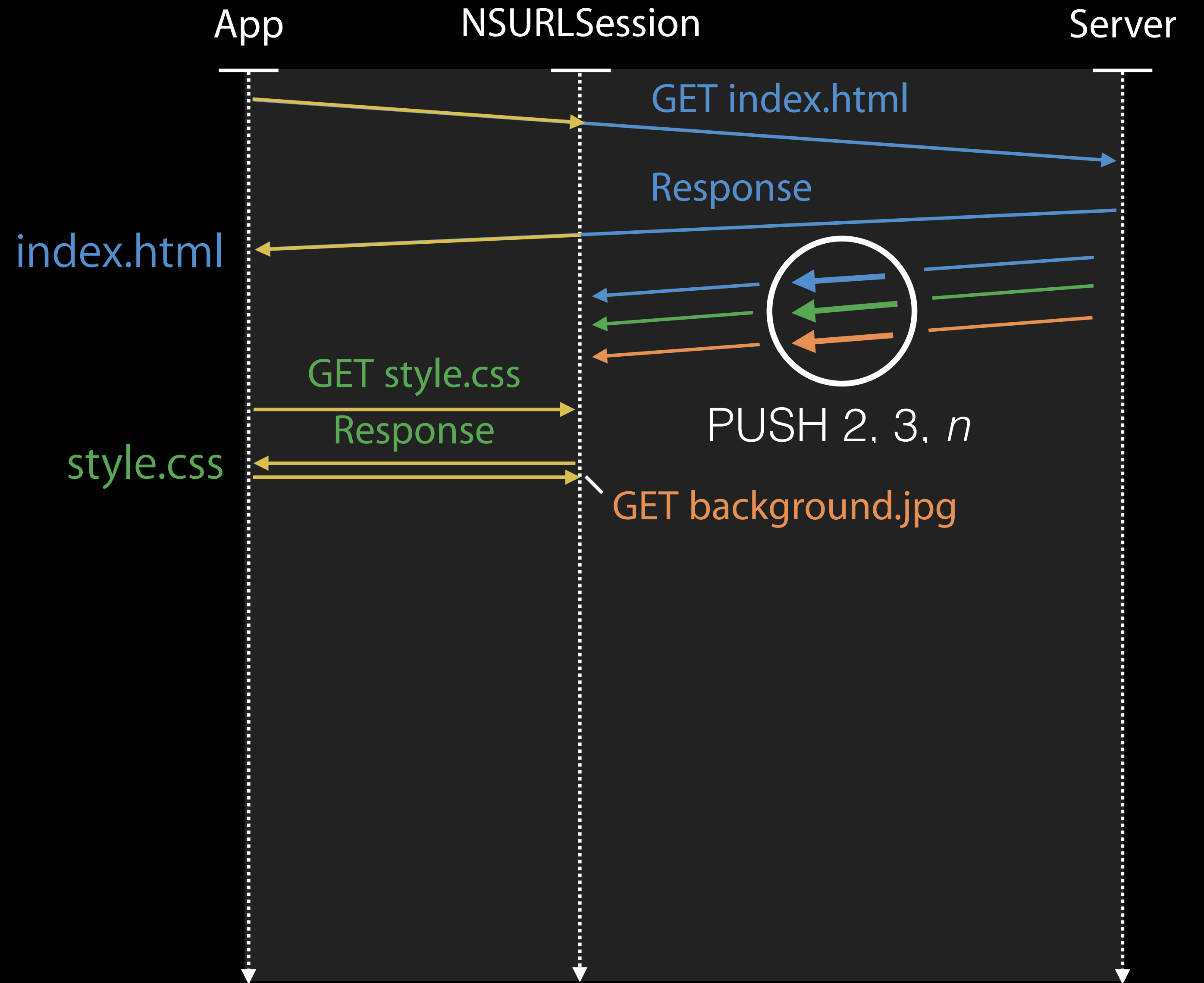
NEW

Loading

Latency



HTTP/1.1

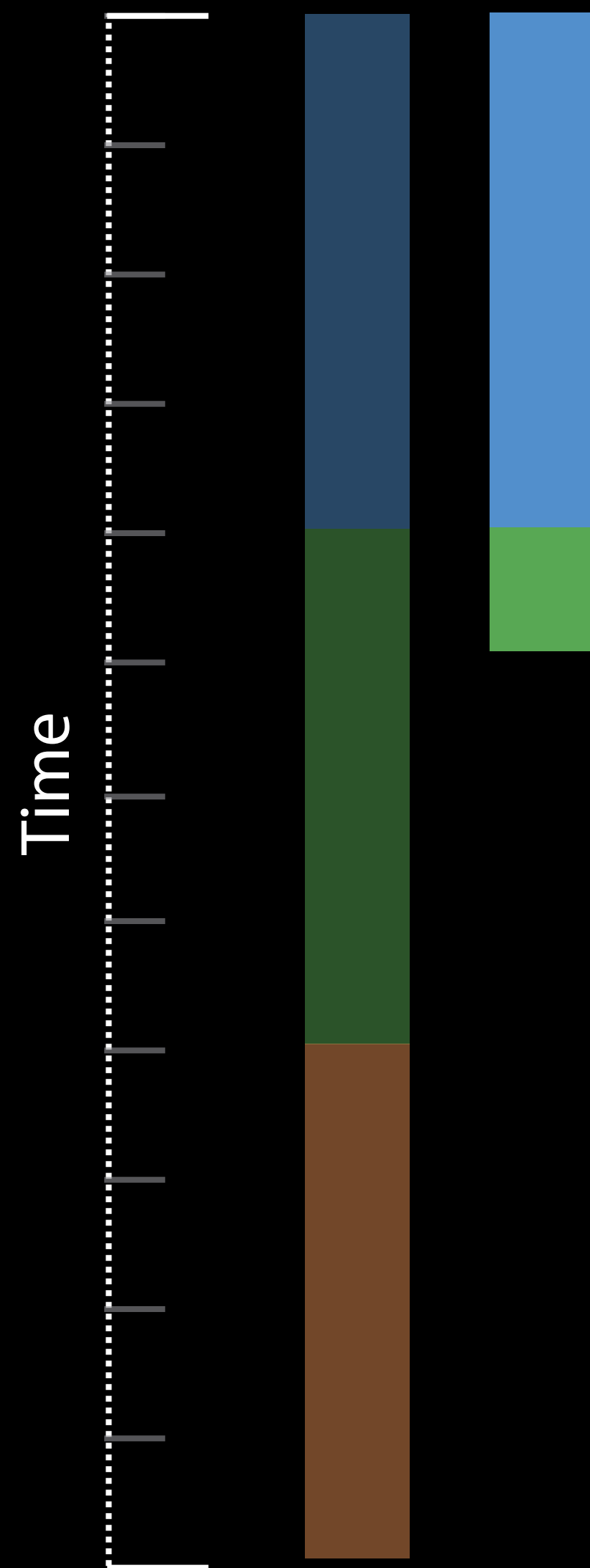


HTTP/2 Server Push

NEW

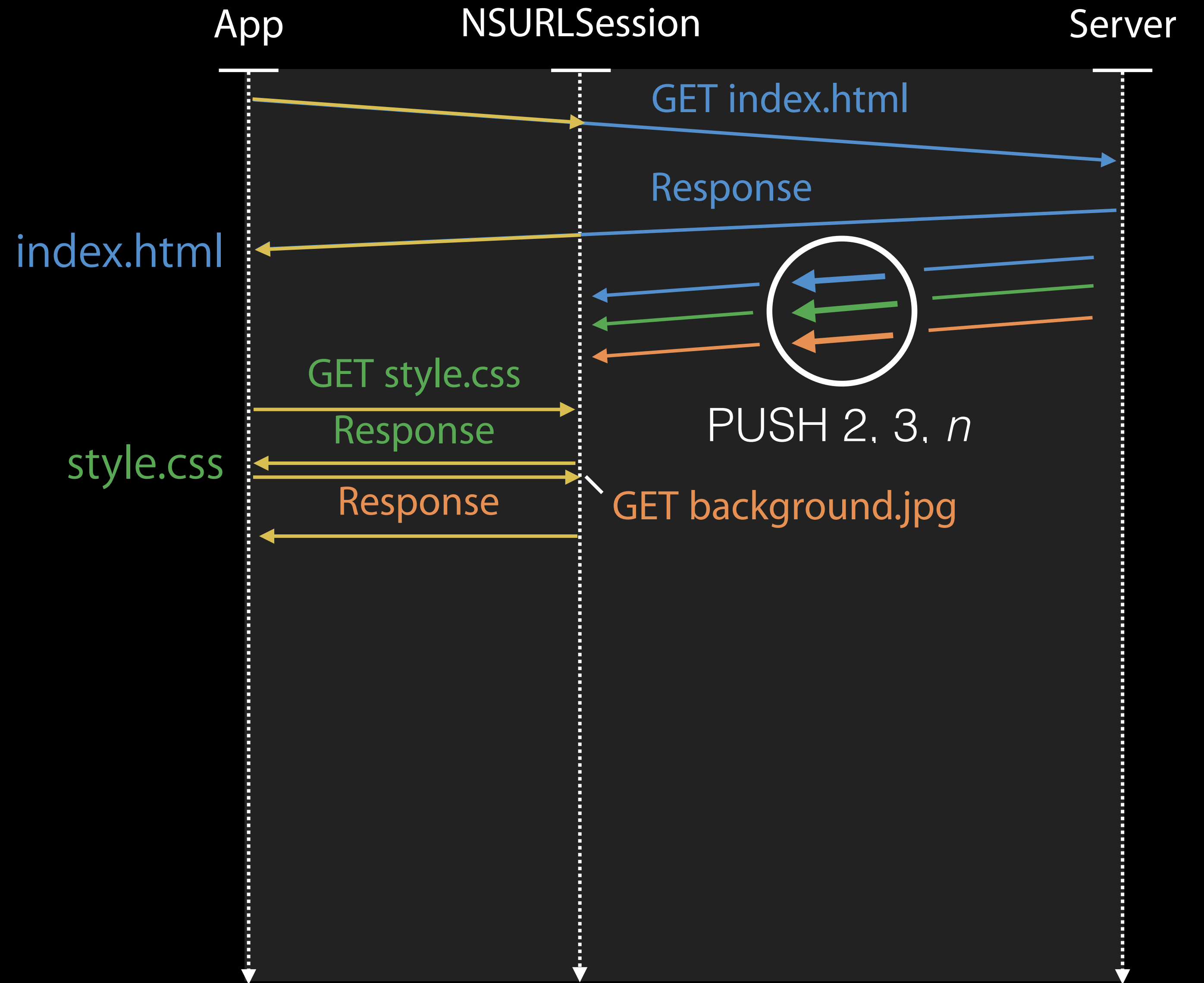
Loading

Latency



HTTP/1.1

Time

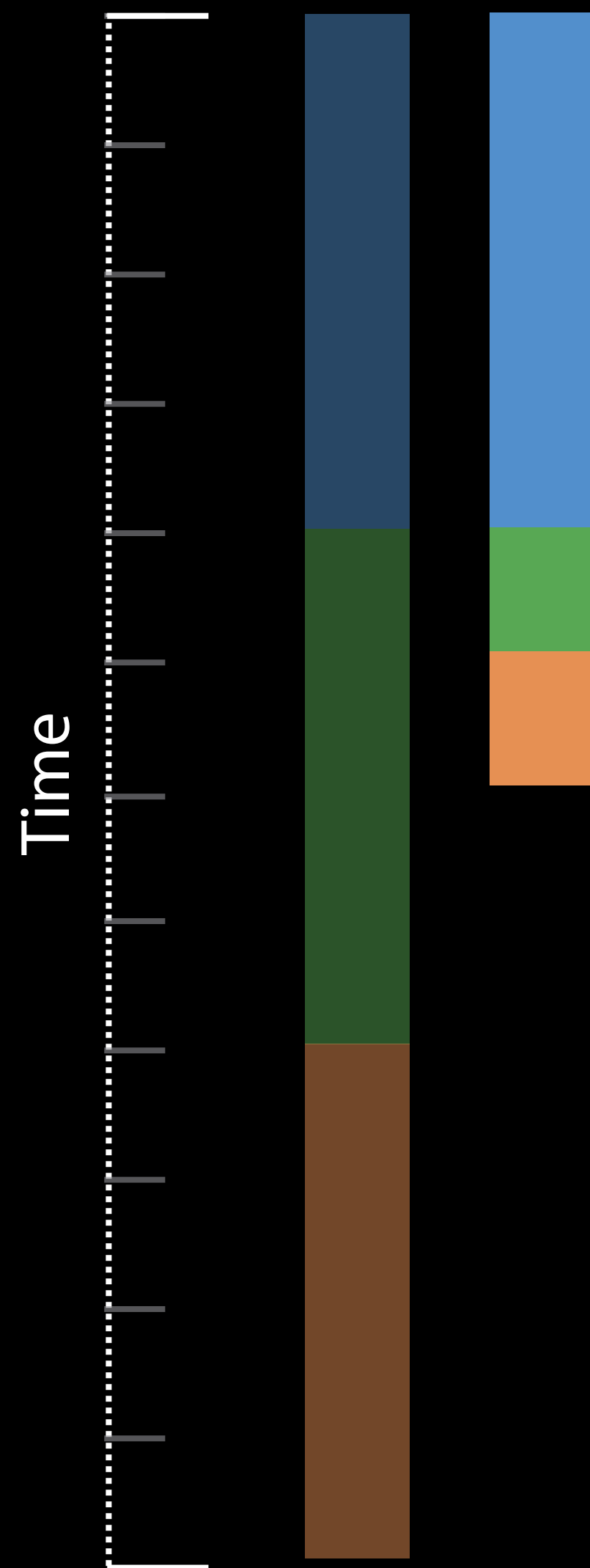


HTTP/2 Server Push

NEW

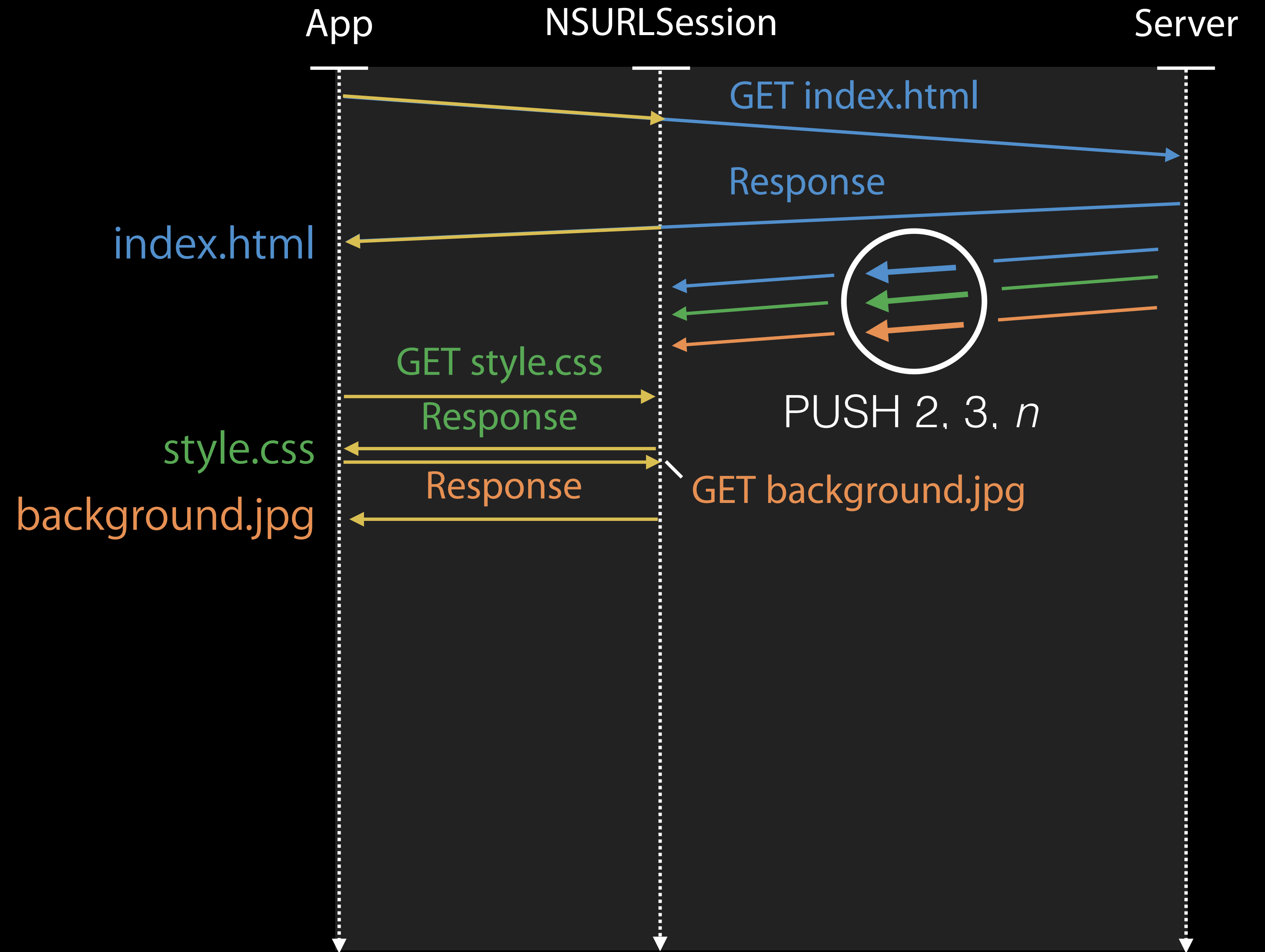
Loading

Latency



HTTP/1.1

Time

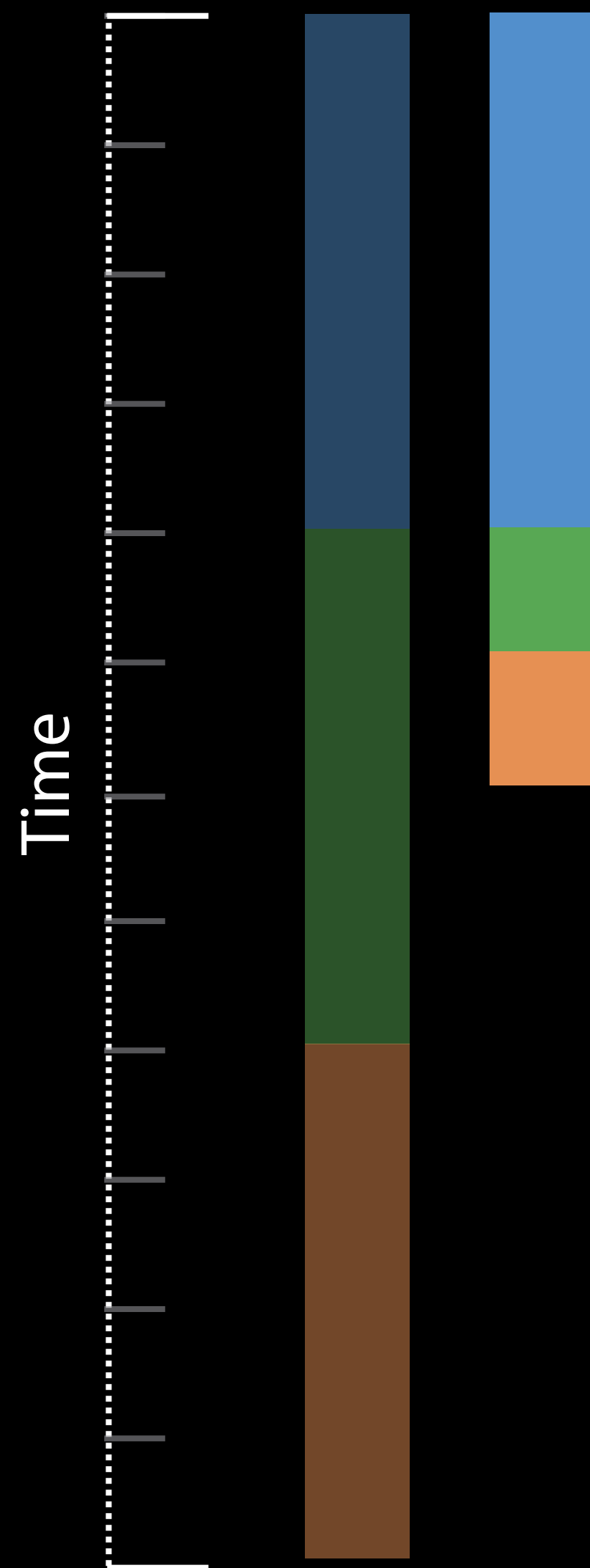


HTTP/2 Server Push

NEW

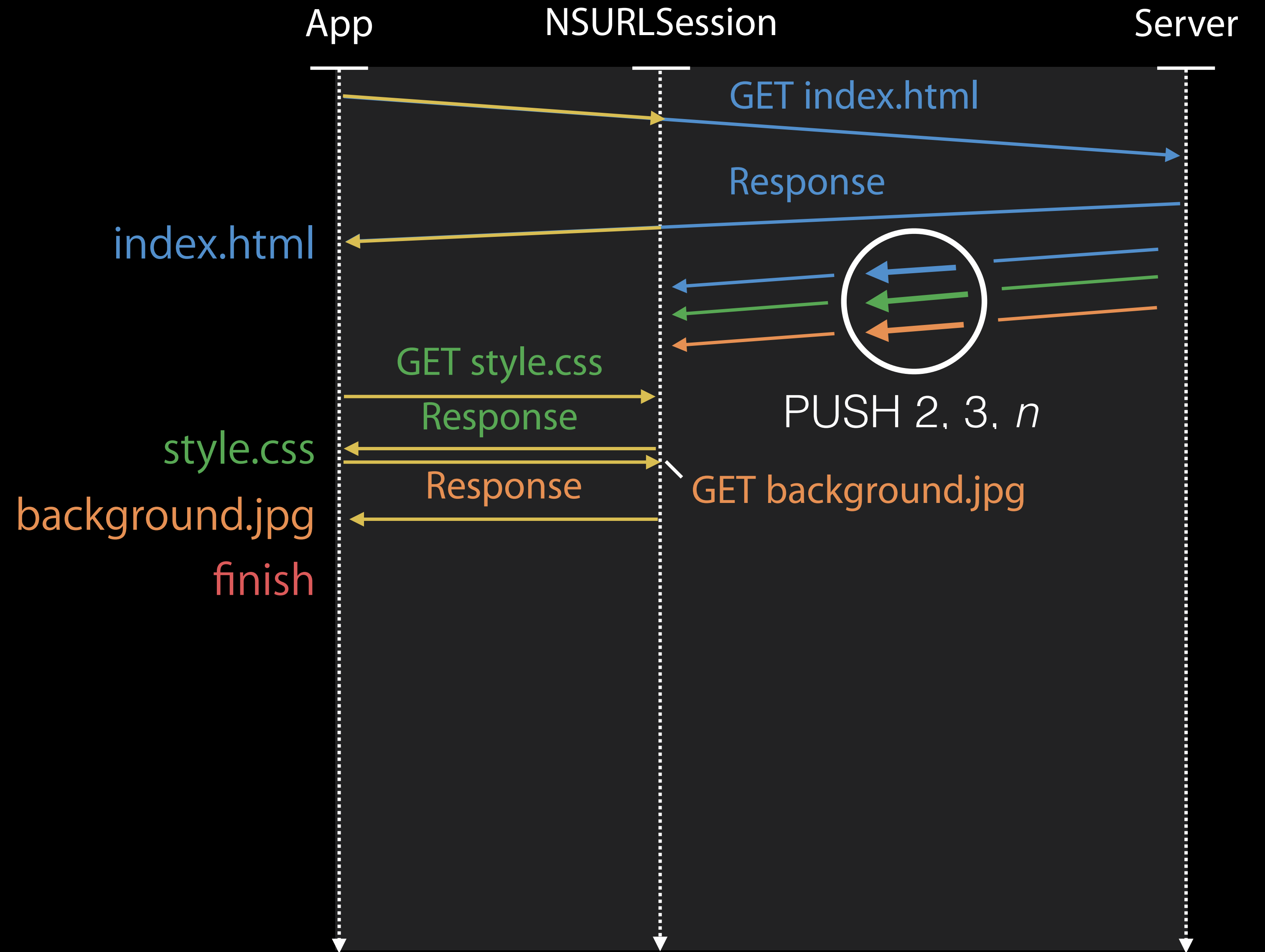
Loading

Latency



HTTP/1.1

Time



App

NSURLSession

Server

index.html

GET style.css

style.css

background.jpg

finish

GET index.html

Response

Response

Response

GET background.jpg

PUSH 2, 3, n

HTTP/2 Server Push

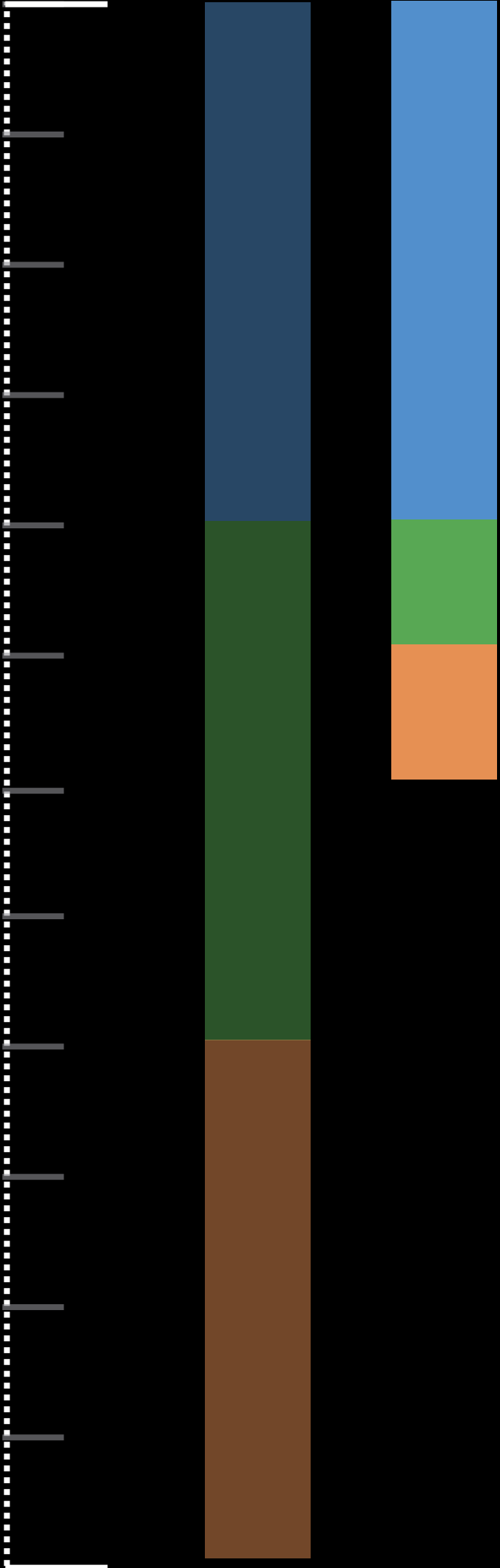
NEW

Loading

Latency

HTTP/1.1

Time



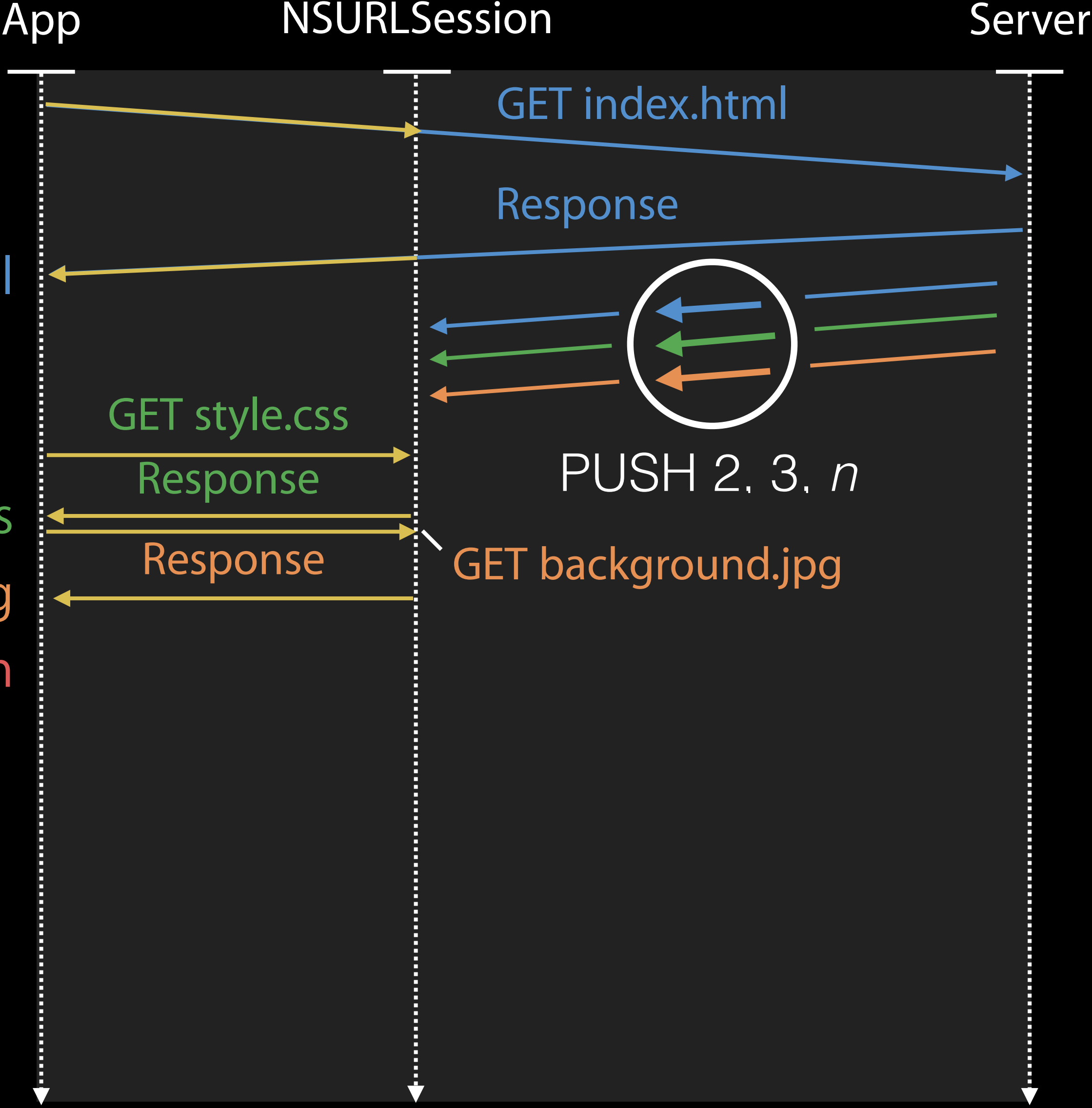
HTTP/2
Server Push

index.html

style.css

background.jpg

finish

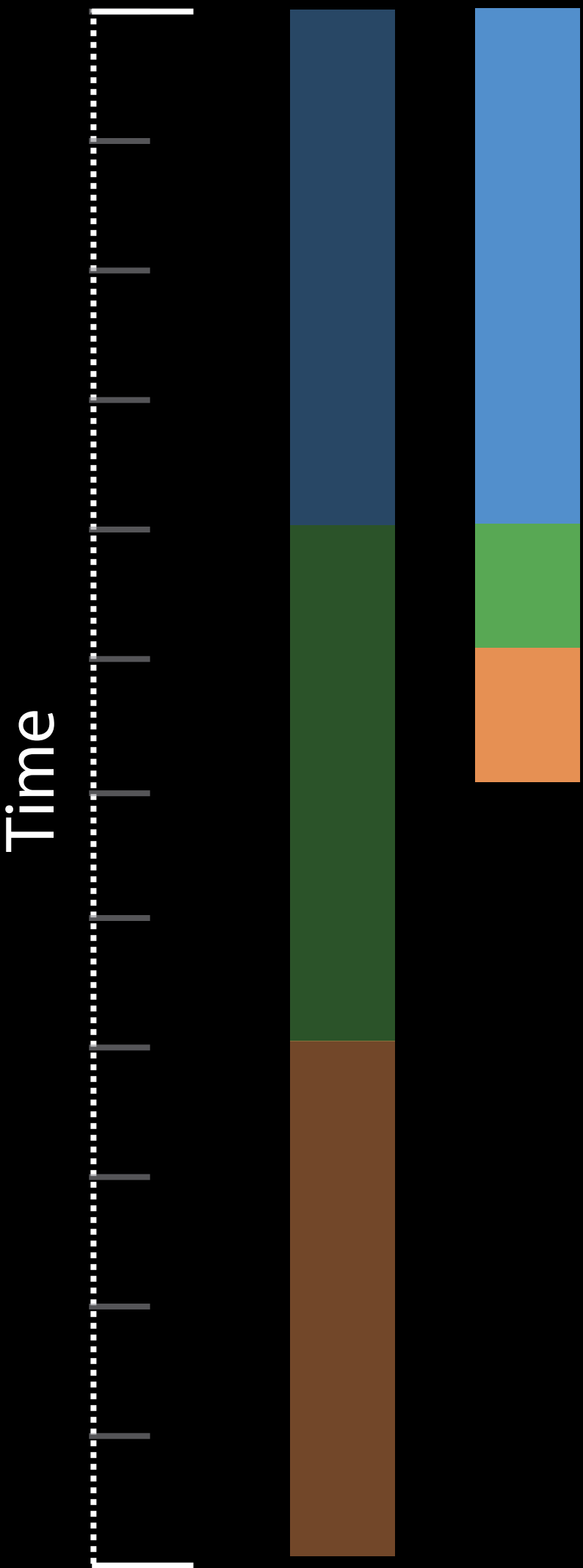


HTTP/2 Server Push



Loading

Latency



HTTP/2
Server Push

HTTP/1.1

App NSURLSession Server

index.html

style.css

background.jpg

finish

GET index.html

Response

GET style.css

Response

Response

GET background.jpg

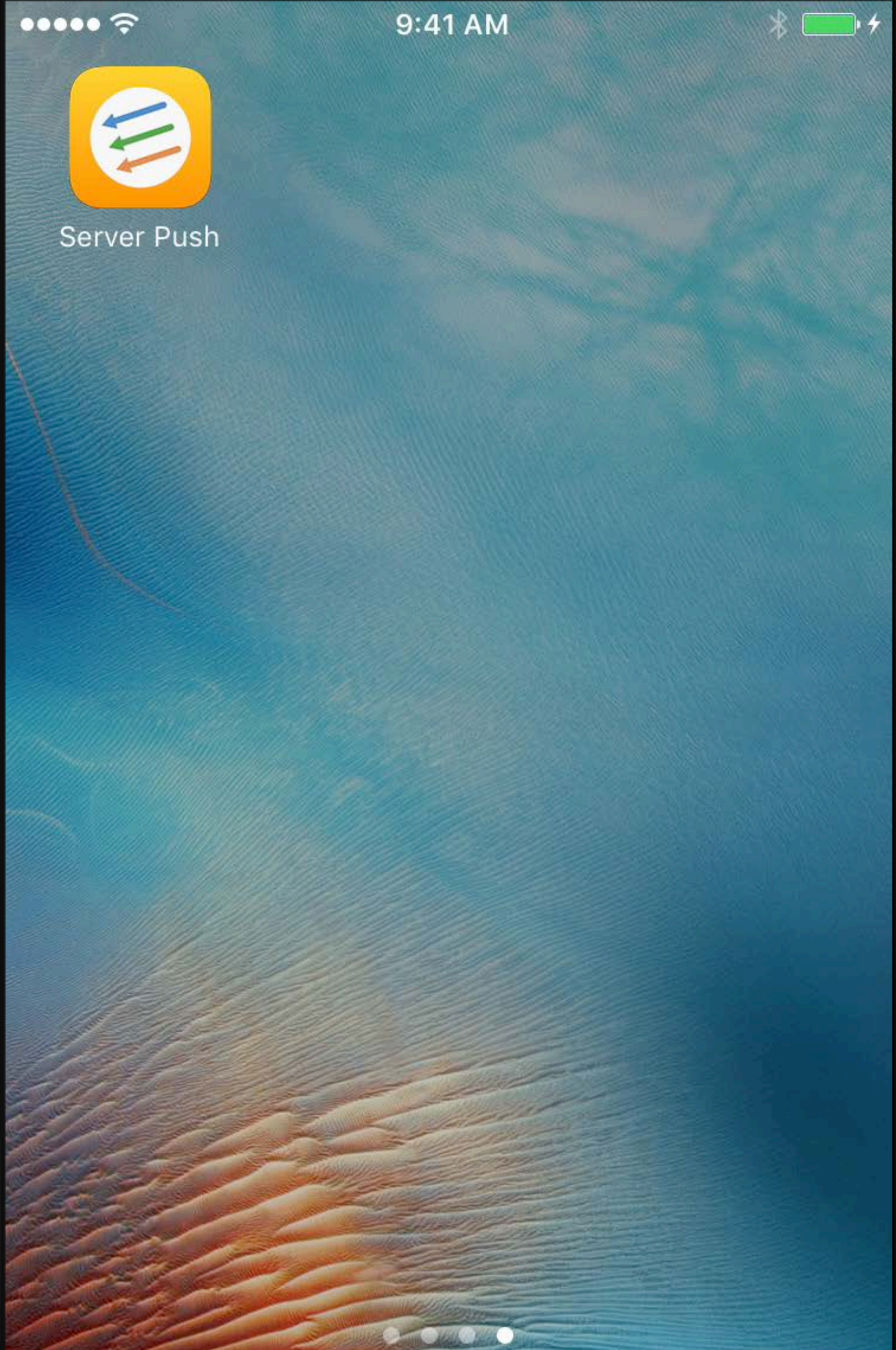
PUSH 2, 3, n



Demo

HTTP/2 Server Push

Andreas Garkuscha Software Engineer, Internet Technologies



Server Push



Phone



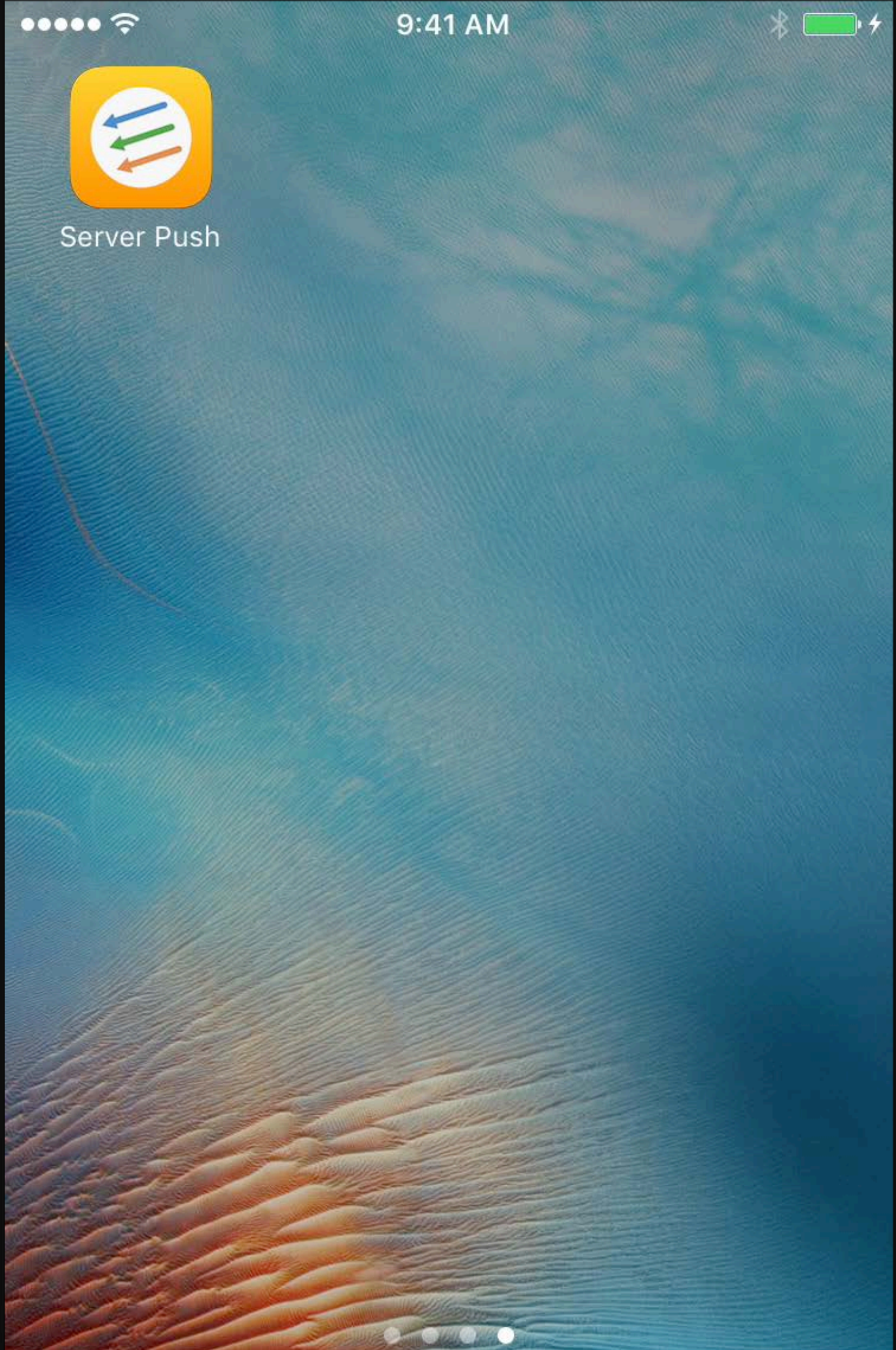
Safari



Mail



Music



Server Push



Phone



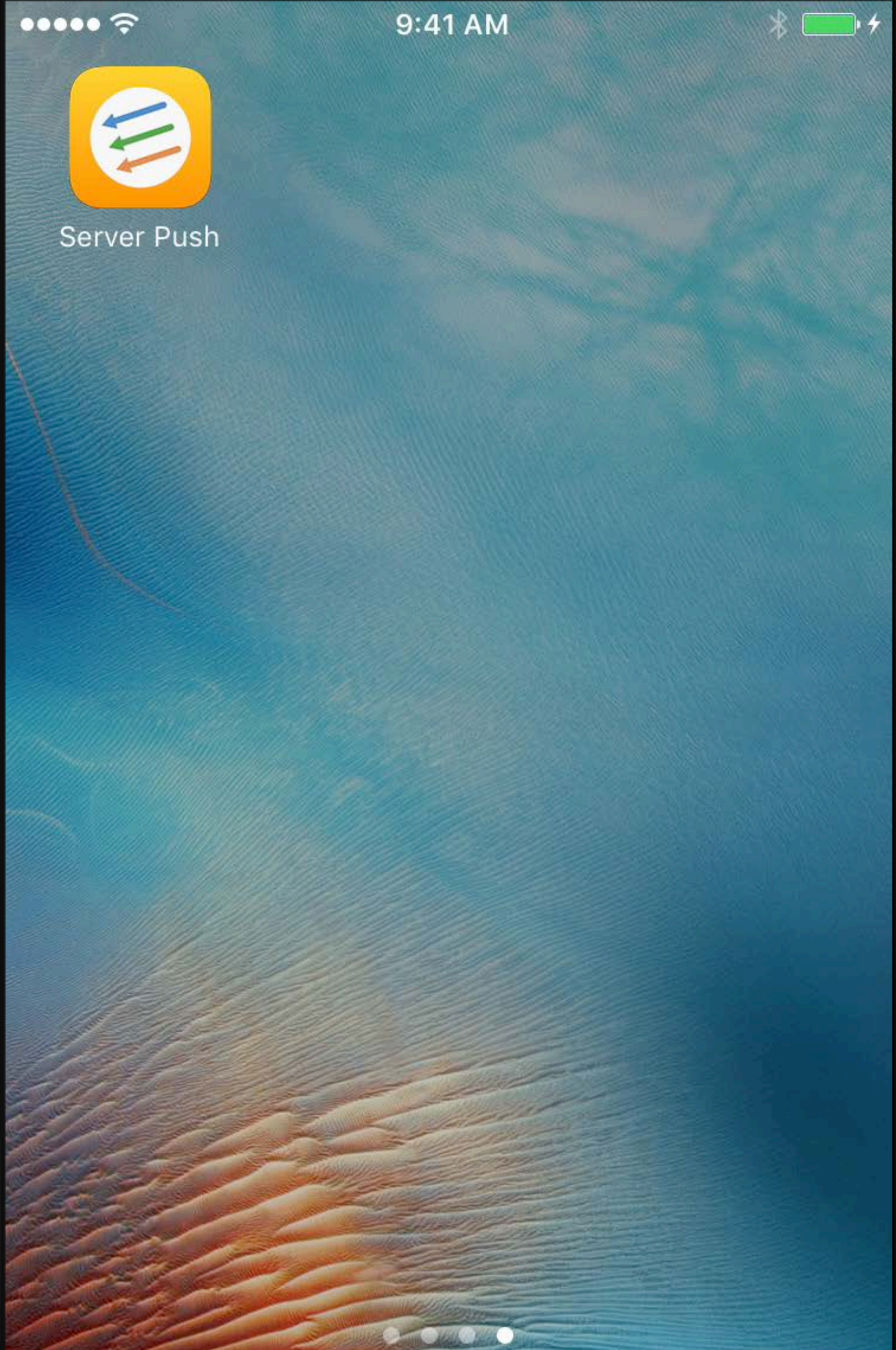
Safari



Mail



Music



Server Push



Phone



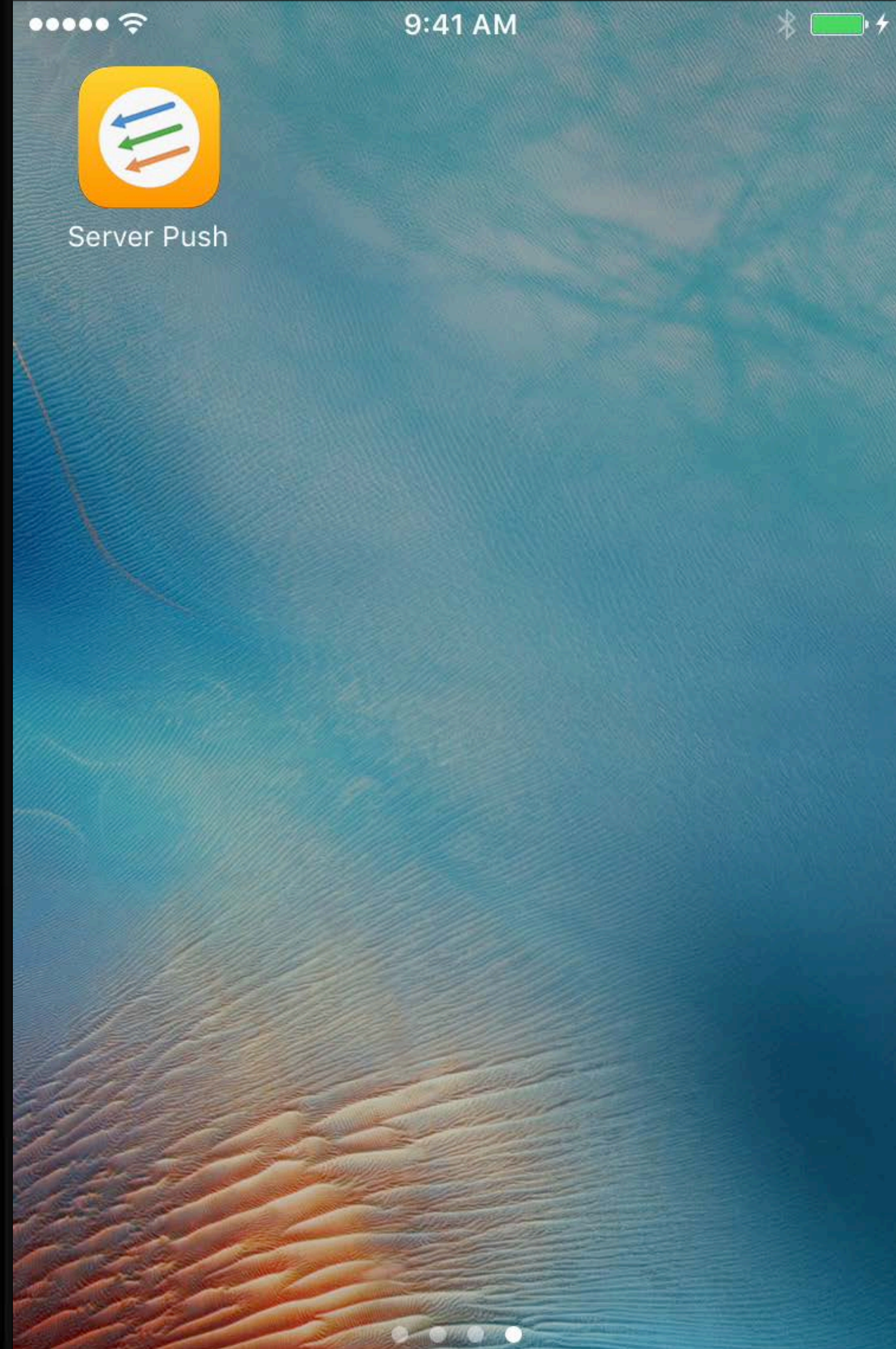
Safari



Mail



Music



Server Push



Phone



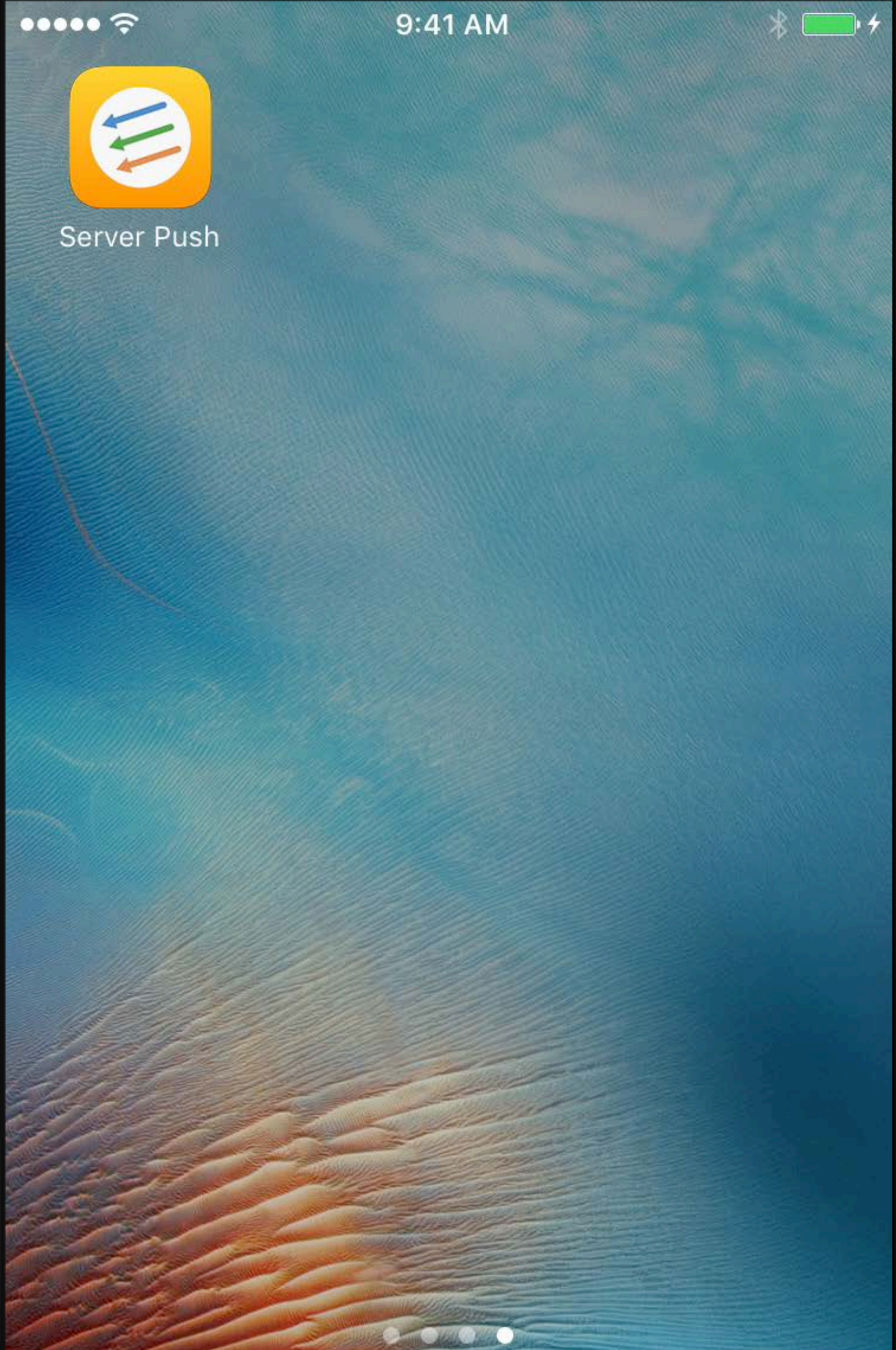
Safari



Mail



Music



Server Push



Phone



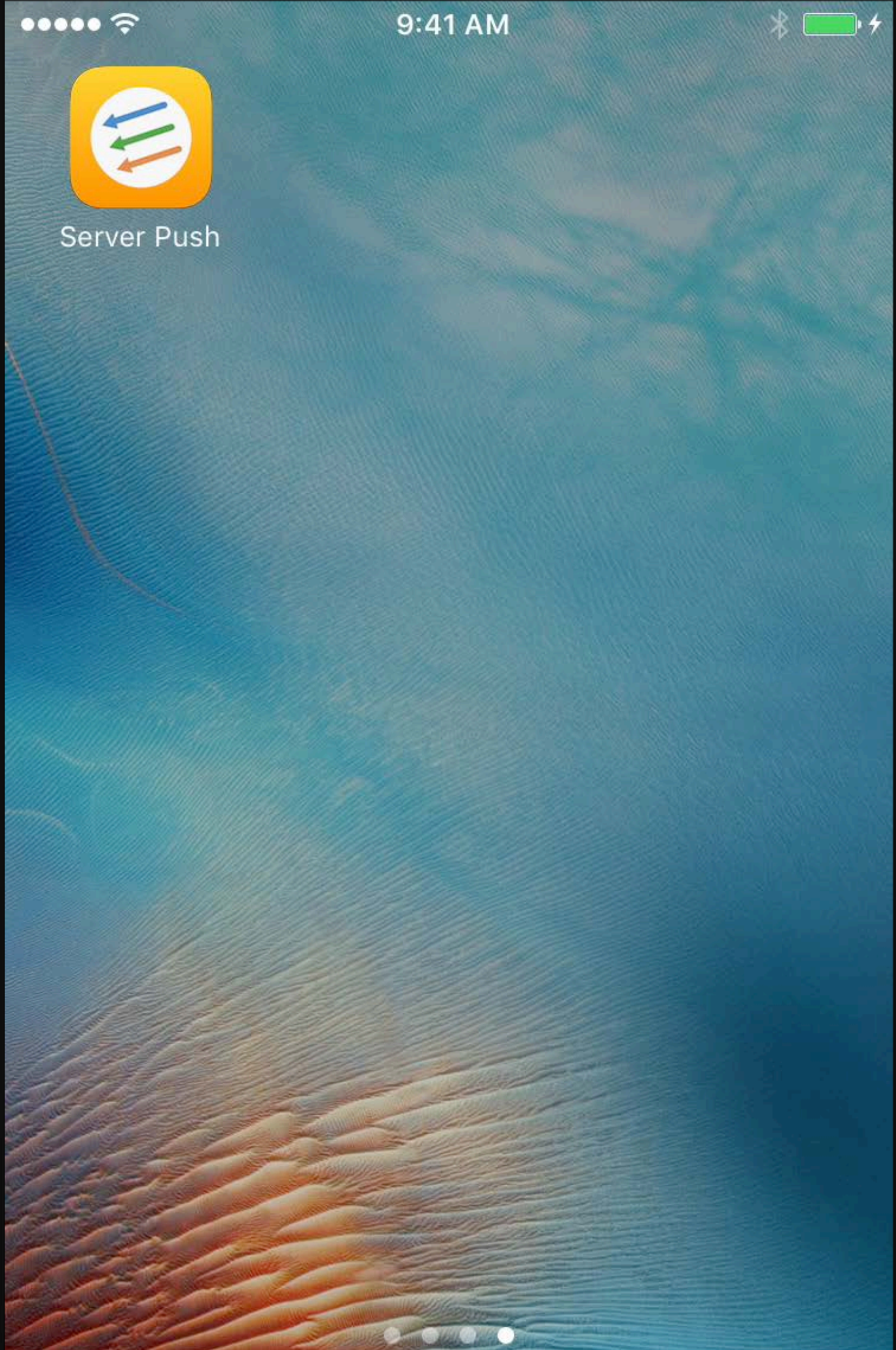
Safari



Mail



Music



Server Push



Phone



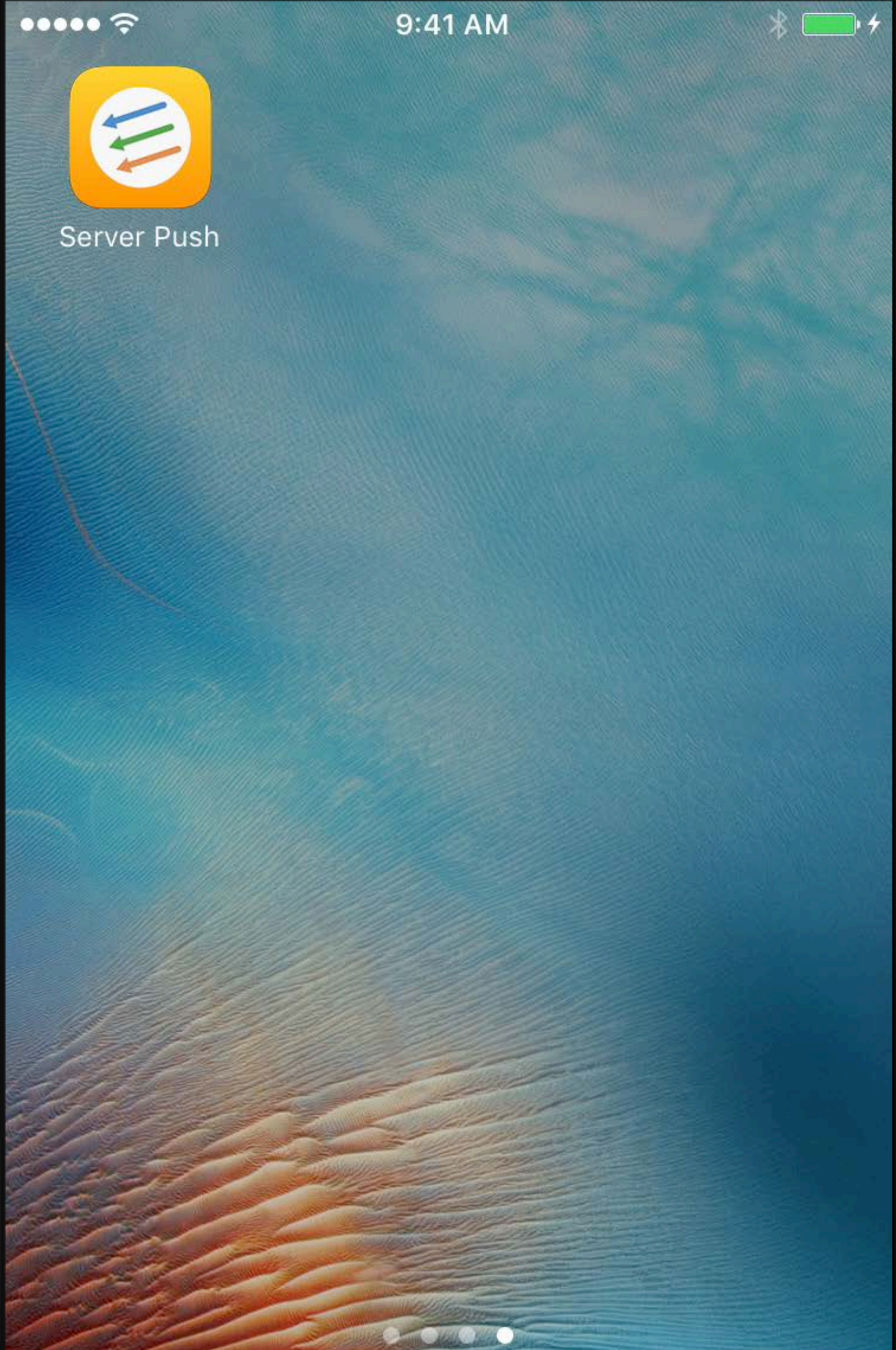
Safari



Mail



Music



Server Push



Phone



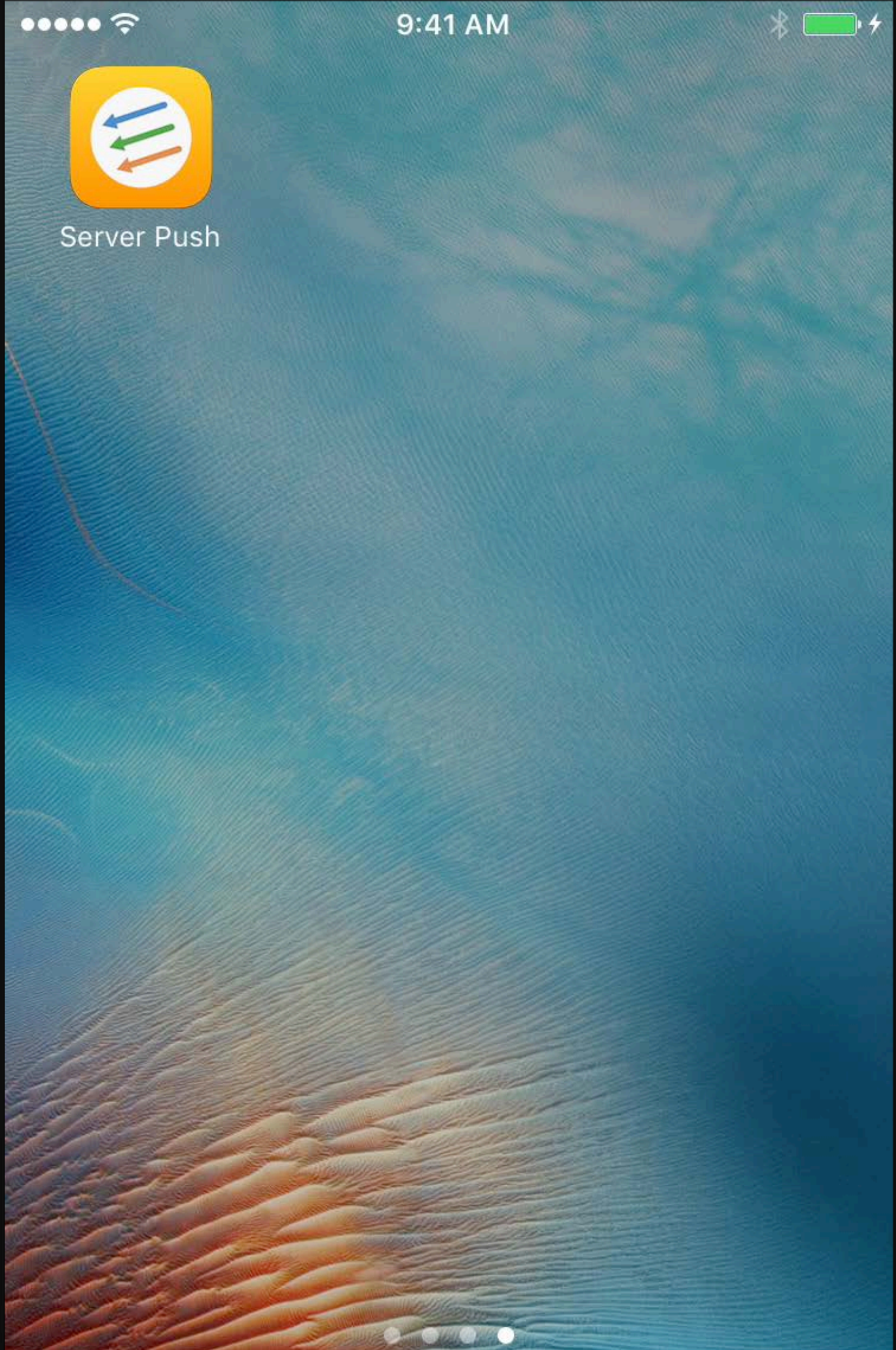
Safari



Mail



Music



Server Push



Phone



Safari



Mail



Music

Demo

HTTP/2 Server Push

Andreas Garkuscha Software Engineer, Internet Technologies

HTTP/2 Server Push

Summary

HTTP/2 Server Push

Summary

Server Push supported in NSURLSession

HTTP/2 Server Push

Summary

Server Push supported in NSURLSession

No opt in, just works

HTTP/2 Server Push

Summary

Server Push supported in NSURLSession

No opt in, just works

Even better performance

NSURLSession API

Network statistics

NSURLSession API

Network statistics

NEW

NSURLSession API

Network statistics

NEW

Did you know?

NSURLSession API

Network statistics

NEW

Did you know?

98% of all statistics are made up!

NSURLSession API

Network statistics

NEW

Did you know?

98% of all statistics are made up!

Network statistics: Performance, bugs, understanding

NSURLSession API

Network statistics

NEW

Did you know?

98% of all statistics are made up!

Network statistics: Performance, bugs, understanding

Currently supported on iOS, macOS, and tvOS

NSURLSession API

Network statistics delegate

NEW

NSURLSession API

Network statistics delegate

NEW

```
func urlSession(_ session: URLSession, task: URLSessionTask,  
didFinishCollecting metrics: URLSessionTaskMetrics)
```

NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSessionTaskMetrics

NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSessionTaskMetrics

```
taskInterval: NSDateInterval
```

NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSessionTaskMetrics

```
taskInterval: NSDateInterval
```

```
redirectCount: Int
```

NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSessionTaskMetrics

```
taskInterval: NSDateInterval
```

```
redirectCount: Int
```

```
transactionMetrics: [NSURLSessionTaskTransactionMetrics]
```


NSURLSession API

NSURLSessionTaskMetrics

NEW

NSURLSessionTaskMetrics

NSURLSessionTaskTransactionMetrics

```
taskInterval: NSDateInterval
```

```
redirectCount: Int
```

```
transactionMetrics: [NSURLSessionTaskTransactionMetrics]
```

Four Categories of Metrics

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

1 - Request and Response

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

1 - Request and Response

request: NSURLRequest

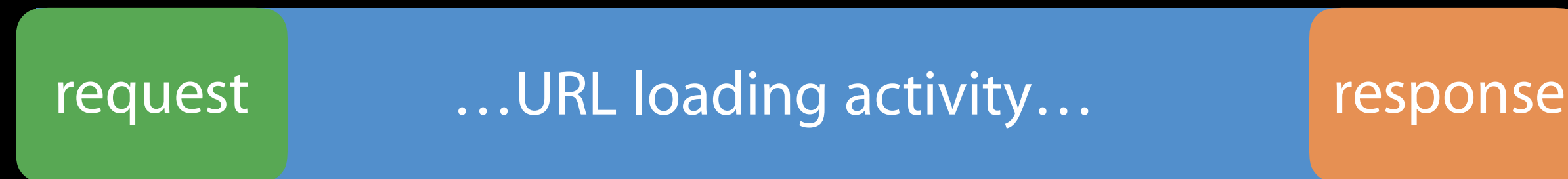
response: NSURLResponse?

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

1 - Request and Response



request: NSURLRequest

response: NSURLResponse?

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

2 - Protocol and Connection

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

2 - Protocol and Connection

```
networkProtocolName: String?
```

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

2 - Protocol and Connection

```
networkProtocolName: String?
```

http/1.1

h2

spdy/3, spdy/3.1

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

2 - Protocol and Connection

```
networkProtocolName: String?
```

http/1.1

h2

spdy/3, spdy/3.1

```
isProxyConnection: Bool
```

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

2 - Protocol and Connection

```
networkProtocolName: String?
```

http/1.1

h2

spdy/3, spdy/3.1

```
isProxyConnection: Bool
```

```
isReusedConnection: Bool
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

3 - Load Info

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

3 - Load Info

```
resourceFetchType: NSURLSessionTaskMetricsResourceFetchType
```


NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

3 - Load Info

```
resourceFetchType: NSURLSessionTaskMetricsResourceFetchType
```

```
.networkLoad
```

```
.localCache
```

```
.serverPush
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

4 - Connection Establishment and Transmission

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

4 - Connection Establishment and Transmission

```
fetchStartDate: NSDate?  
domainLookupStartDate: NSDate?  
domainLookupEndDate: NSDate?  
connectStartDate: NSDate?  
secureConnectionStartDate: NSDate?  
secureConnectionEndDate: NSDate?  
connectEndDate: NSDate?
```

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

4 - Connection Establishment and Transmission

```
fetchStartDate: NSDate?  
domainLookupStartDate: NSDate?  
domainLookupEndDate: NSDate?  
connectStartDate: NSDate?  
secureConnectionStartDate: NSDate?  
secureConnectionEndDate: NSDate?  
connectEndDate: NSDate?
```

```
requestStartDate: NSDate?  
requestEndDate: NSDate?  
responseStartDate: NSDate?  
responseEndDate: NSDate?
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

fetchStart



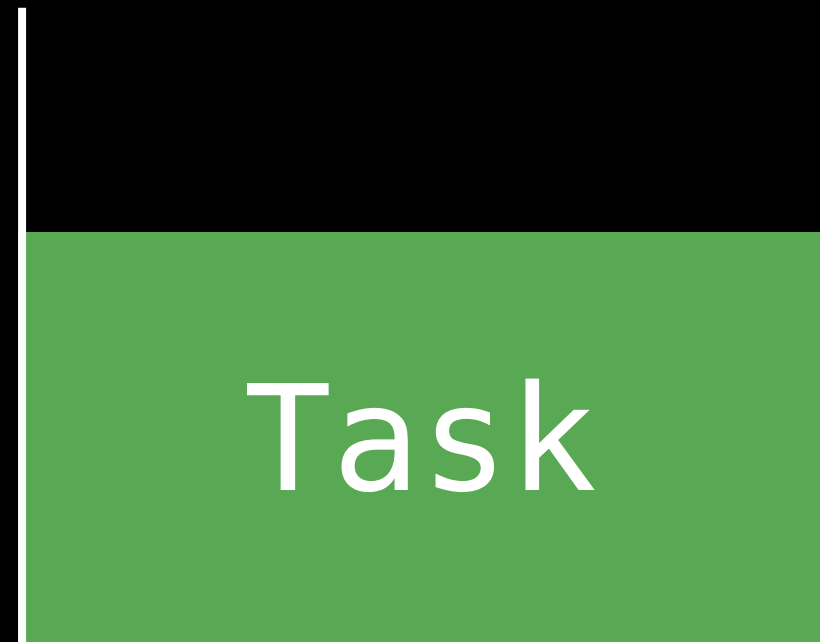
Task

NSURLSession API

NSURLSessionTaskTransactionMetrics



fetchStart



Task

NSURLSession API

NSURLSessionTaskTransactionMetrics

NEW

fetchStart

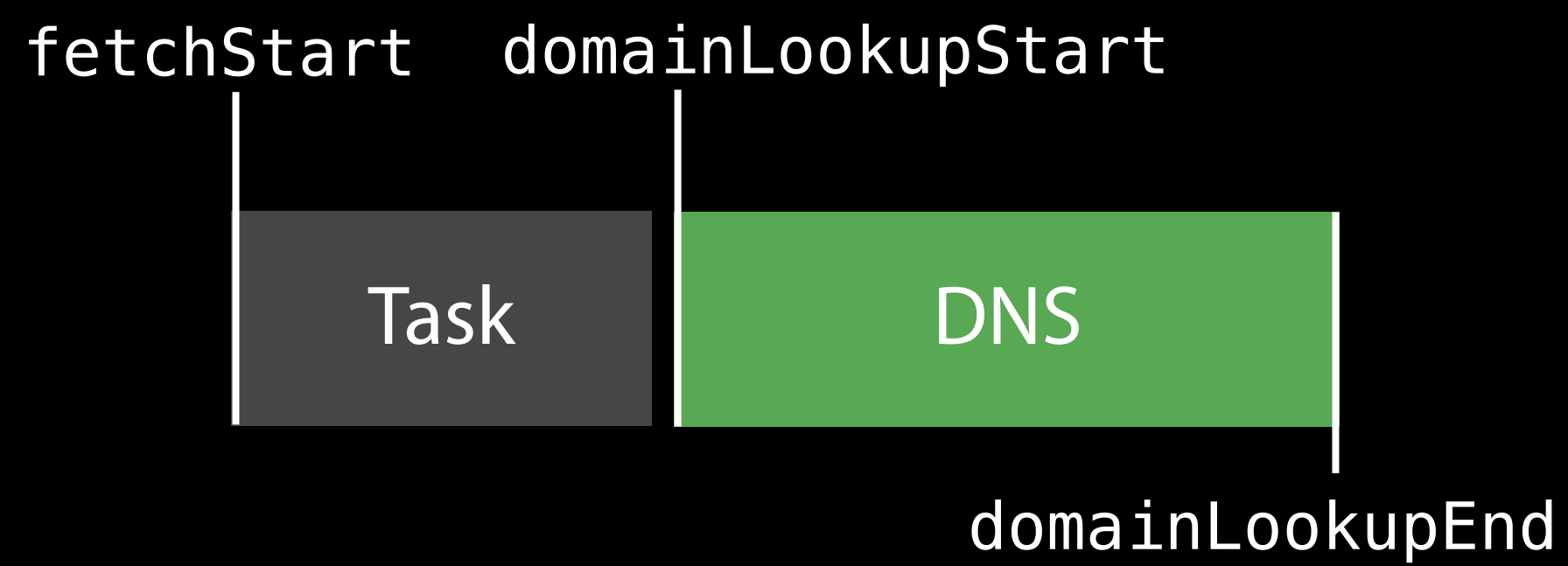


Task

NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics

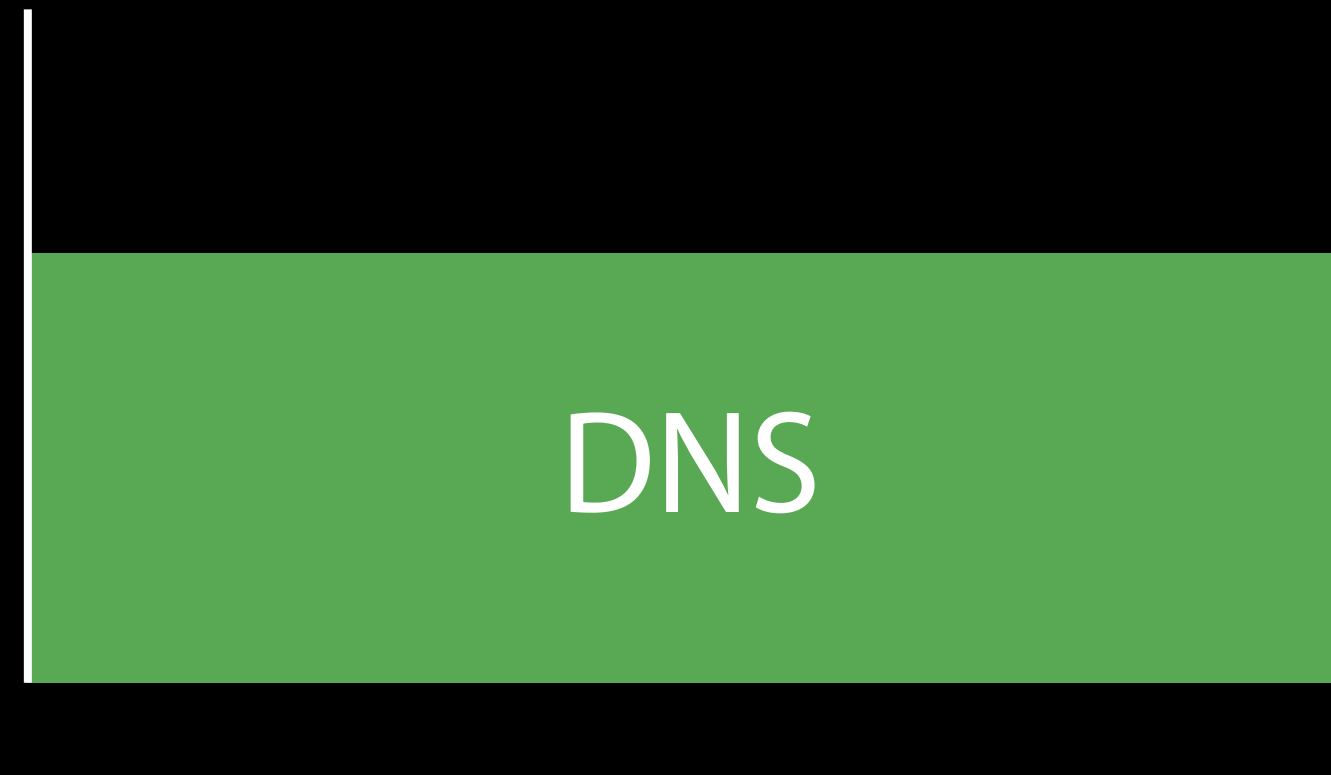


NSURLSession API

NEW

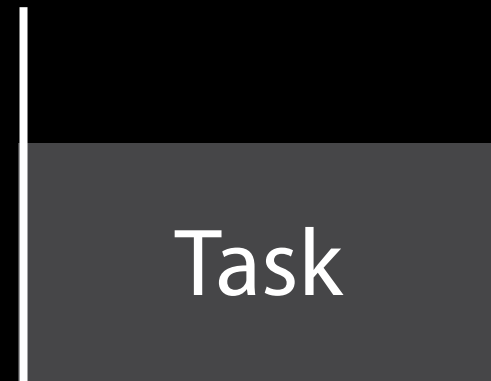
NSURLSessionTaskTransactionMetrics

domainLookupStart



domainLookupEnd

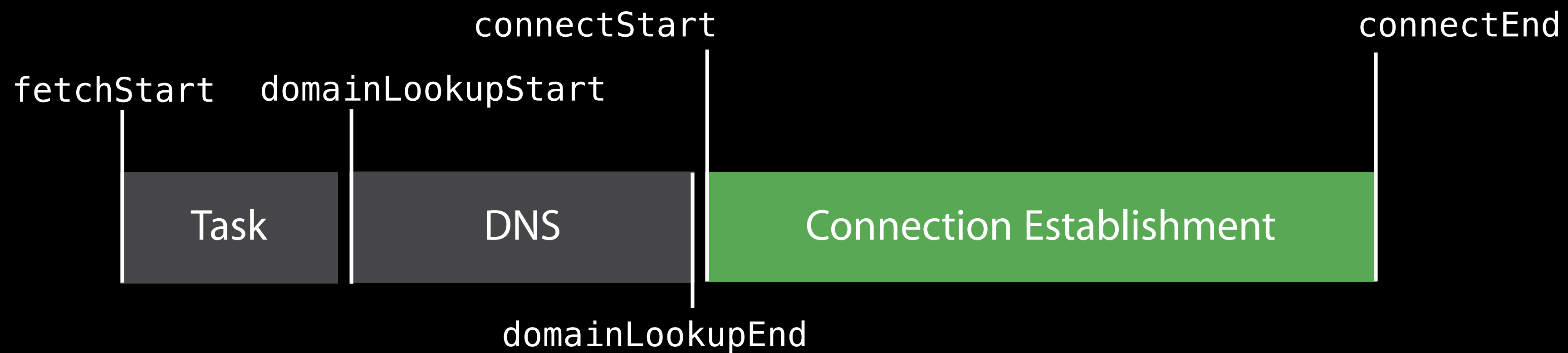
fetchStart



NSURLSession API

NEW

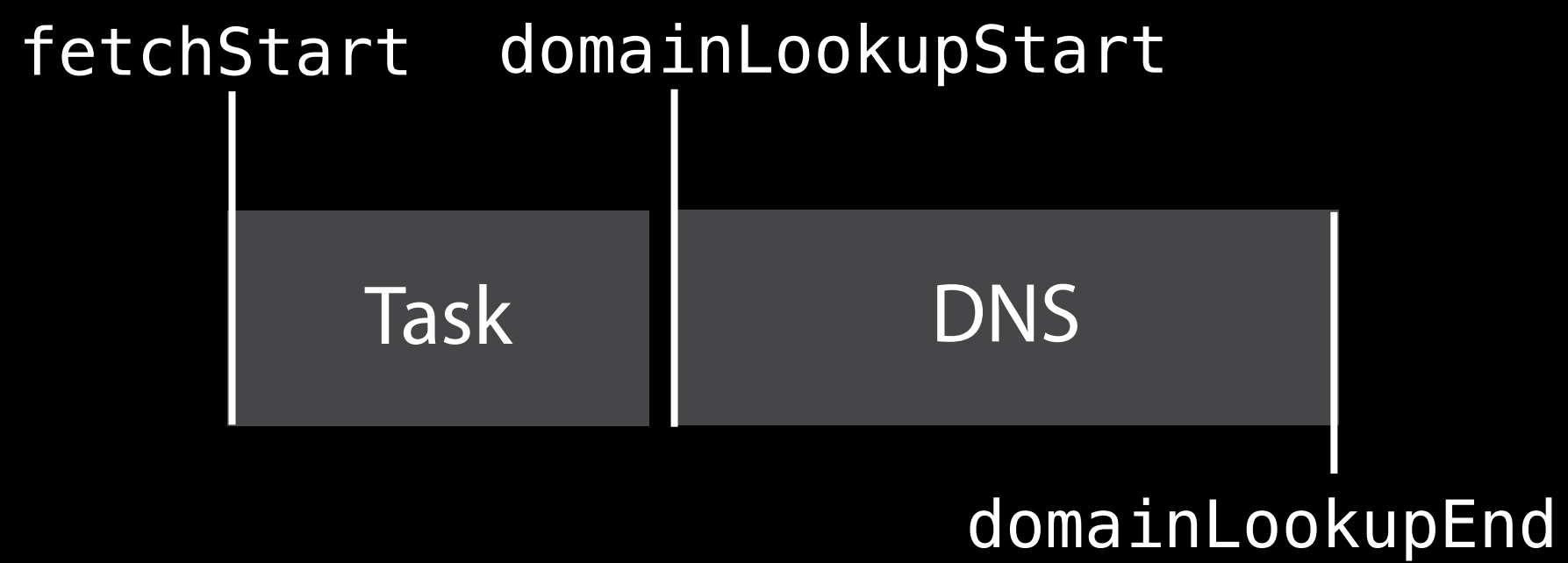
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

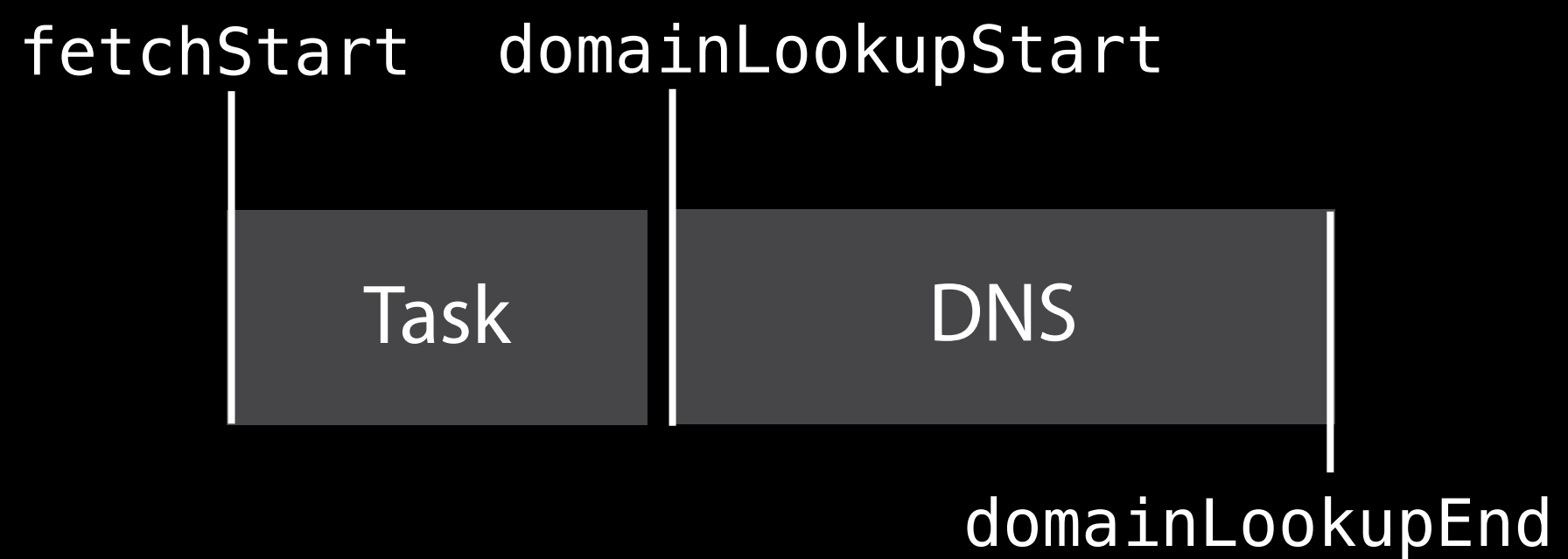
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

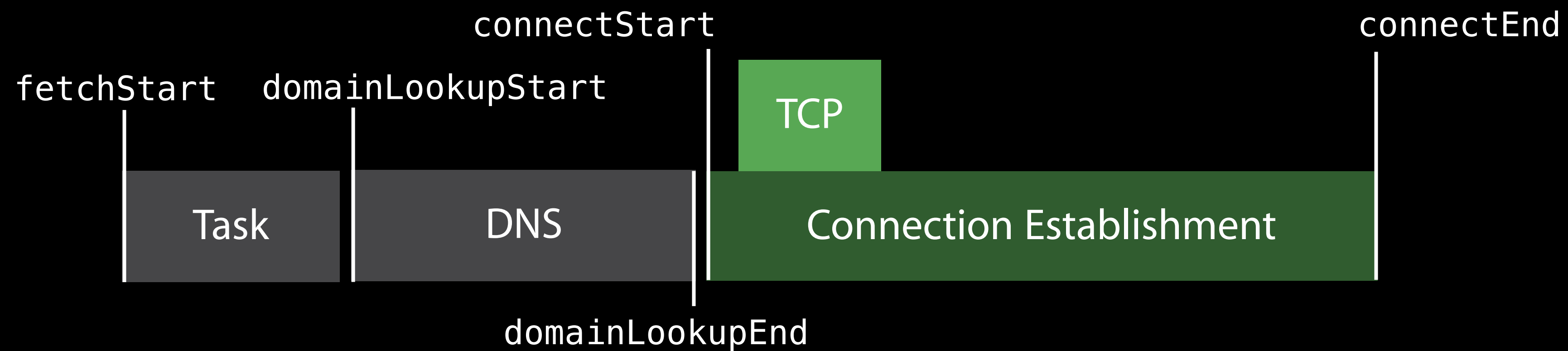
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

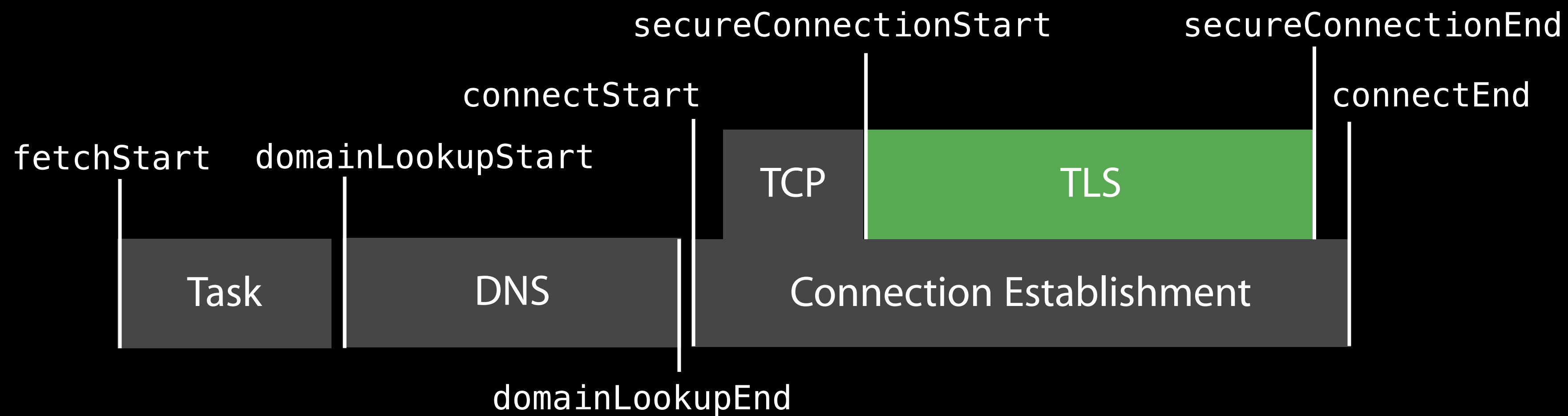
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

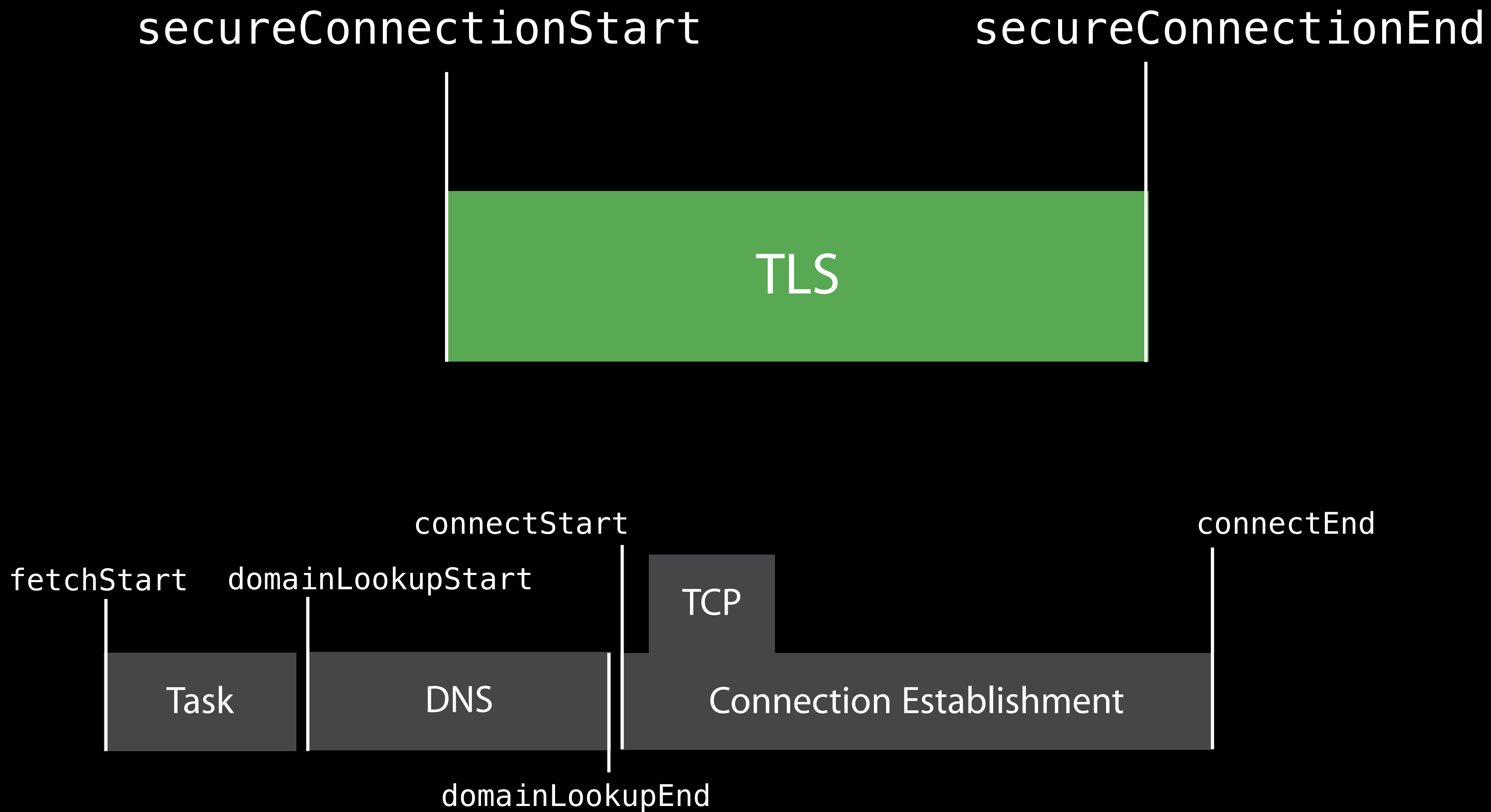
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

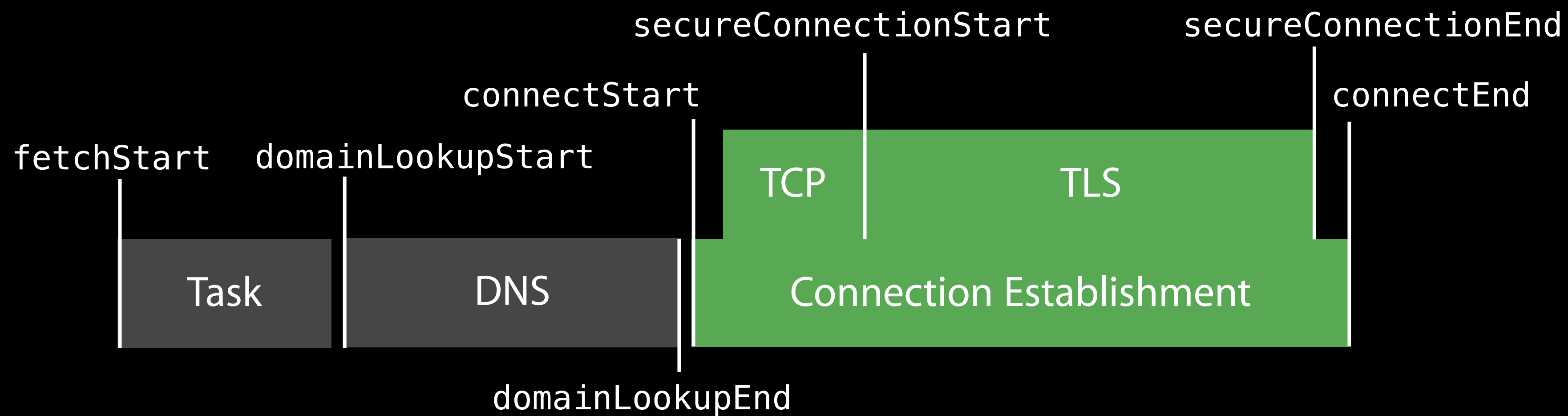
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

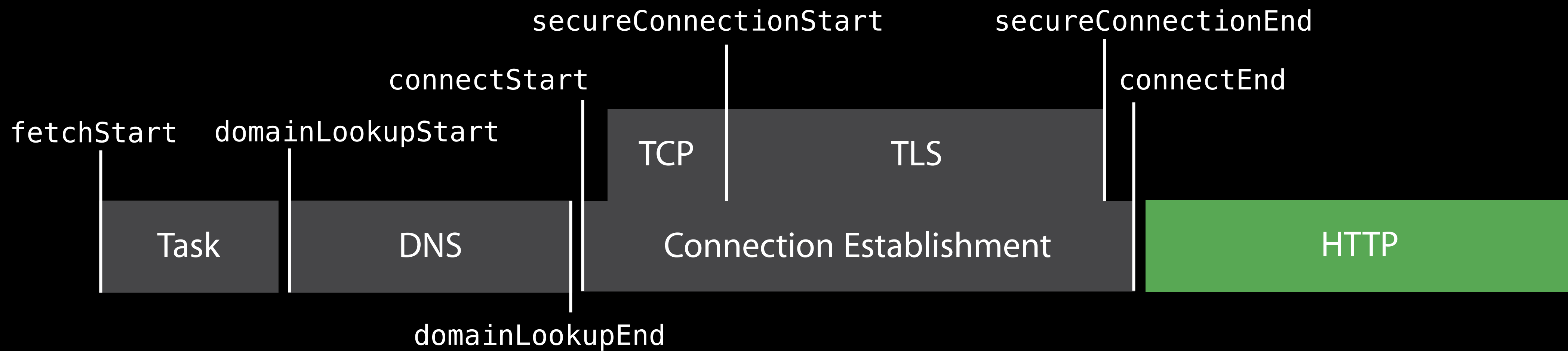
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

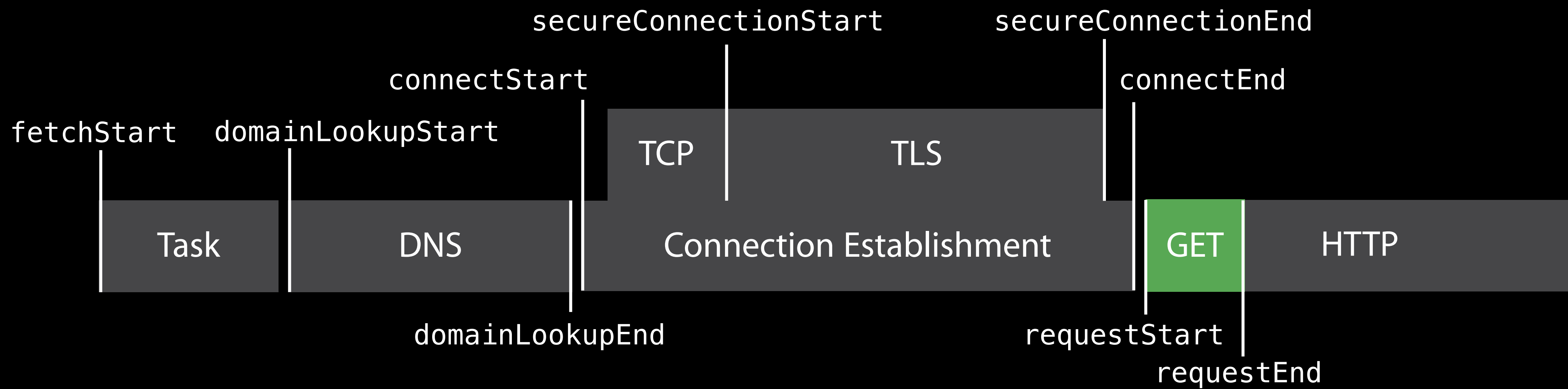
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

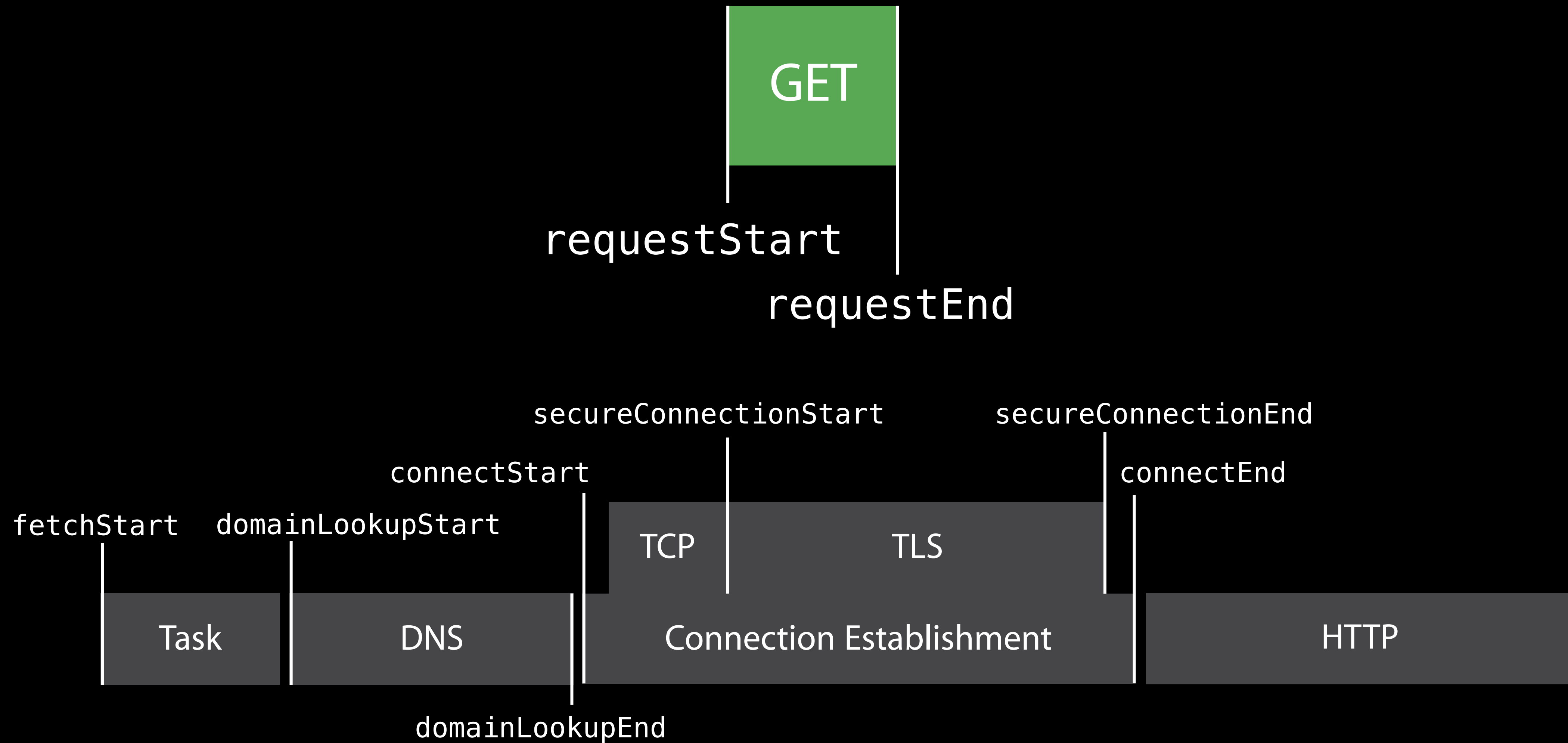
NSURLSessionTaskTransactionMetrics



NSURLSession API



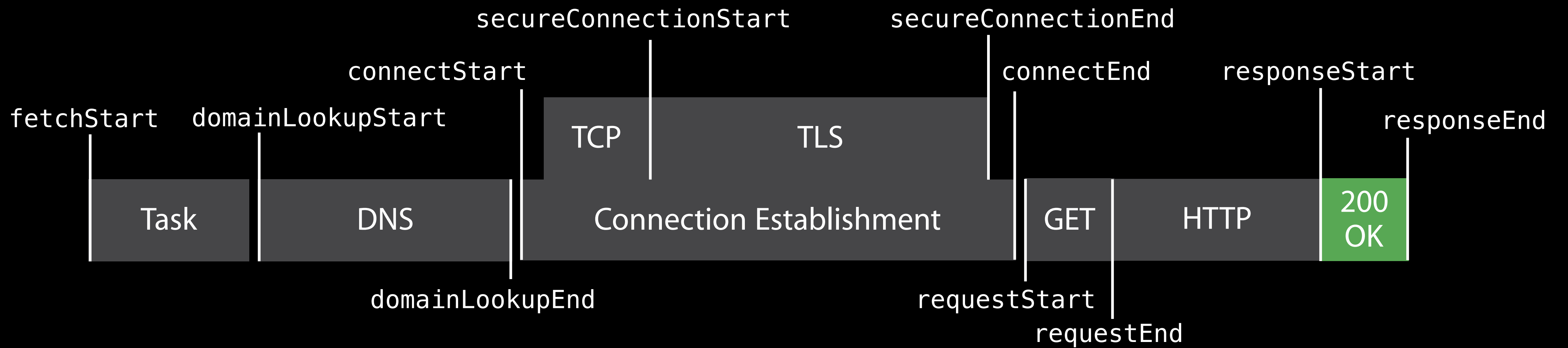
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

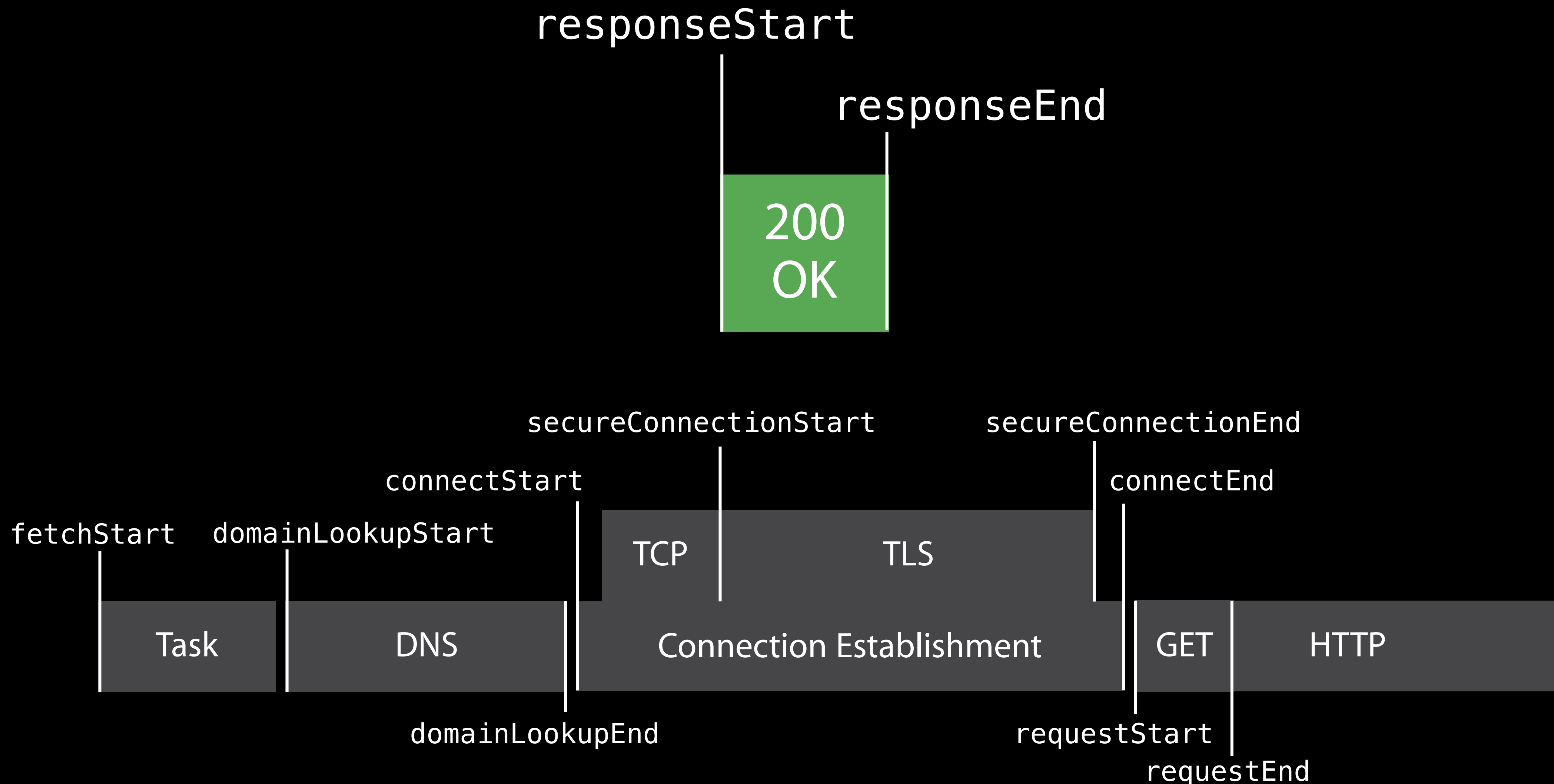
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

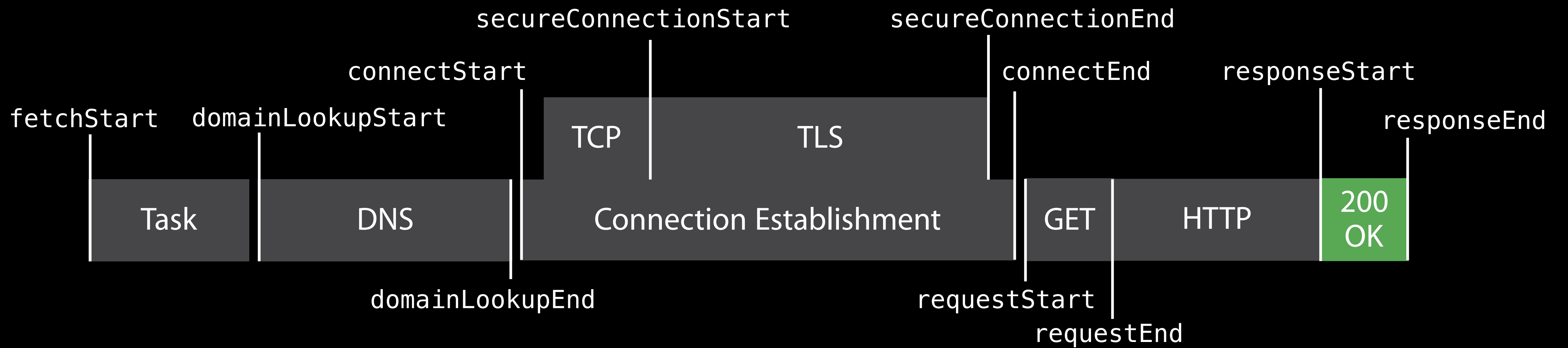
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

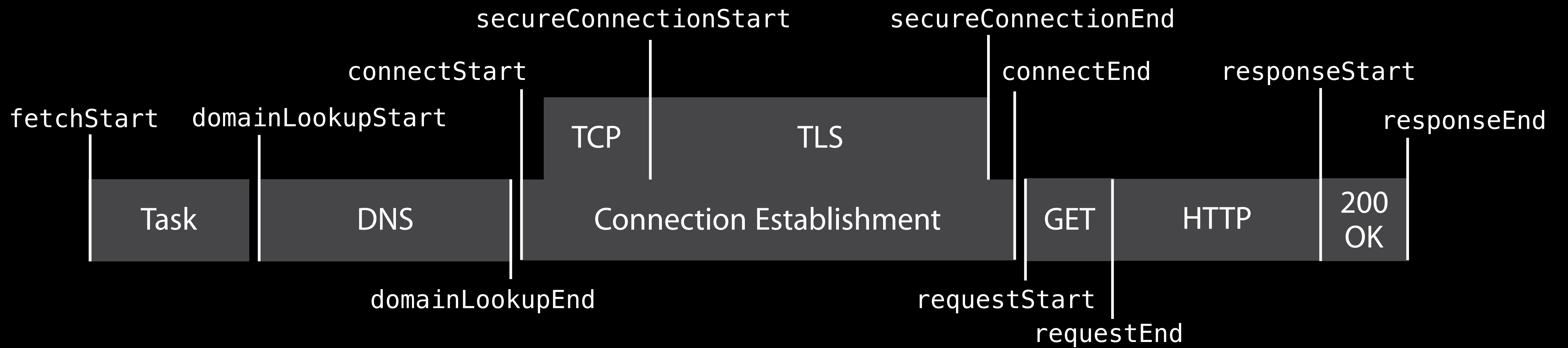
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

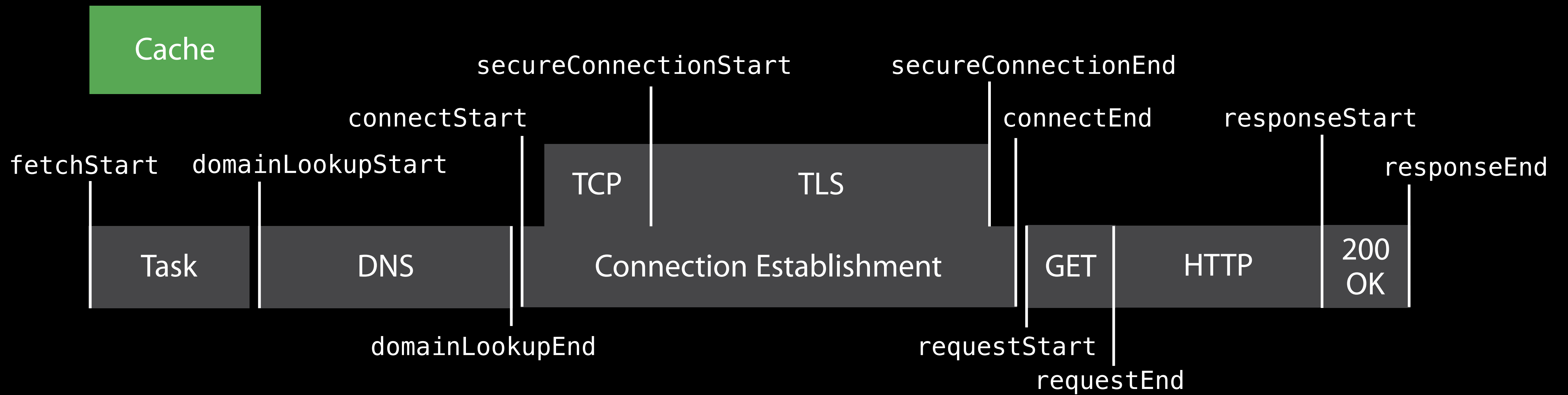
NSURLSessionTaskTransactionMetrics



NSURLSession API

NEW

NSURLSessionTaskTransactionMetrics



NSURLSession API

NSURLSessionTaskTransactionMetrics

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }
}
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }
}
```

```
let myDelegate = MySessionDelegate()
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }
}
```

```
let myDelegate = MySessionDelegate()
```

```
let config = NSURLSessionConfiguration.defaultSessionConfiguration()
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }
}
```

```
let myDelegate = MySessionDelegate()
```

```
let config = NSURLSessionConfiguration.defaultSessionConfiguration()
```

```
let myDelegateQueue = NSOperationQueue()
```


NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }
}
```

```
let myDelegate = MySessionDelegate()
```

```
let config = NSURLSessionConfiguration.defaultSessionConfiguration()
```

```
let myDelegateQueue = NSOperationQueue()
```

```
let session = NSURLSession(configuration: config, delegate: myDelegate, delegateQueue: myDelegateQueue)
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }

let myDelegate = MySessionDelegate()

let config = NSURLSessionConfiguration.defaultSessionConfiguration()

let myDelegateQueue = NSOperationQueue()

let session = NSURLSession(configuration: config, delegate: myDelegate, delegateQueue: myDelegateQueue)

let url = NSURL(string: "https://www.example.com/")!
let task = session.dataTask(with: url) { (data: NSData?, response: NSURLResponse?, error: NSError?) in
    ...
}
```

NSURLSession API

NSURLSessionTaskTransactionMetrics

```
class MySessionDelegate: NSObject, NSURLSessionTaskDelegate {
    @objc(URLSession:task:didFinishCollectingMetrics:)
    func urlSession(_ session: NSURLSession, task: NSURLSessionTask, didFinishCollecting metrics:
NSURLSessionTaskMetrics) {
        //metrics.redirectCount
        //metrics.taskInterval
        //metrics.transactionMetrics[0].connectStartDate ...
    }

let myDelegate = MySessionDelegate()

let config = NSURLSessionConfiguration.defaultSessionConfiguration()

let myDelegateQueue = NSOperationQueue()

let session = NSURLSession(configuration: config, delegate: myDelegate, delegateQueue: myDelegateQueue)

let url = NSURL(string: "https://www.example.com/")!
let task = session.dataTask(with: url) { (data: NSData?, response: NSURLResponse?, error: NSError?) in
    ...
}

task.resume()
```

NSURLSession API

Network statistics

NSURLSession API

Network statistics

Summary

NSURLSession API

Network statistics

Summary





Deep view into network loading

NSURLSession API

Network statistics

Summary

-  Deep view into network loading
-  Faster debugging, easier profiling, better performance

NSURLSession API

Network statistics

Summary

- ✓ Deep view into network loading
- ✓ Faster debugging, easier profiling, better performance
- ✓ Available in NSURLSession

Security

Never an afterthought

Security

Transport Layer Security

Security

Transport Layer Security

Protects data

Security

Transport Layer Security

Protects data

Cipher—algorithm for encrypting/decrypting data

Security

Transport Layer Security

Protects data

Cipher—algorithm for encrypting/decrypting data

The RC4 cipher is no longer supported



Security

Transport Layer Security

Protects data

Cipher—algorithm for encrypting/decrypting data

The RC4 cipher is no longer supported



- Tuesday—Security session and labs

How iOS Security Really Works

Nob Hill

Tuesday 4:00PM

What's New in Security

Nob Hill

Tuesday 5:00PM

Security

nscurl

Security

nscurl

```
$ nscurl https://insecure.example.com/
```


Security

nscurl

```
$ nscurl https://insecure.example.com/
```

```
nscurl[1234:123456] NSURLSession/NSURLConnection HTTP load failed  
(kCFStreamErrorDomainSSL, -9824)
```

Security

nscurl

```
$ nscurl --enable-rc4 https://insecure.example.com/
```

Security

nscurl

```
$ nscurl --enable-rc4 https://insecure.example.com/
```

```
Enabling RC4 cipher suites
```

```
<html><body><h1>It works!</h1></body></html>
```

App Transport Security

App Transport Security

NSAllowsArbitraryLoadsInWebContent

App Transport Security

NSAllowsArbitraryLoadsInWebContent

NSRequiresCertificateTransparency

App Transport Security

NSAllowsArbitraryLoadsInWebContent

NSRequiresCertificateTransparency

How iOS Security Really Works

Nob Hill

Tuesday 4:00PM

What's New in Security

Nob Hill

Tuesday 5:00PM

Summary

Summary

NSURLSession

Summary

NSURLSession

- HTTP/2 Server Push

Summary

NSURLSession

- HTTP/2 Server Push

Performance!

Summary

NSURLSession

- HTTP/2 Server Push
- Network statistics

Performance!

Summary

NSURLSession

- HTTP/2 Server Push
- Network statistics

Performance!

Faster and better analysis of applications

Summary

NSURLSession

- HTTP/2 Server Push
- Network statistics
- Security

Performance!

Faster and better analysis of applications

Summary

NSURLSession

- HTTP/2 Server Push
- Network statistics
- Security

Performance!

Faster and better analysis of applications

Protect user data

Summary

NSURLSession

- HTTP/2 Server Push Performance!
- Network statistics Faster and better analysis of applications
- Security Protect user data

NSURLSession in your applications!

More Information

<https://developer.apple.com/wwdc16/711>

Related Sessions

What's New in Foundation for Swift

Mission

Tuesday 4:00PM

What's New in Security

Nob Hill

Tuesday 5:00PM

Engineering Privacy for Your Users

Pacific Heights

Wednesday 4:00PM

Networking for the Modern Internet

Pacific Heights

Thursday 3:00PM

Related Labs

Networking Lab 1

Frameworks Lab B

Thursday 4:00PM

Networking Lab 2

Frameworks Lab D

Friday 2:00PM



W

W

D

C

1

6