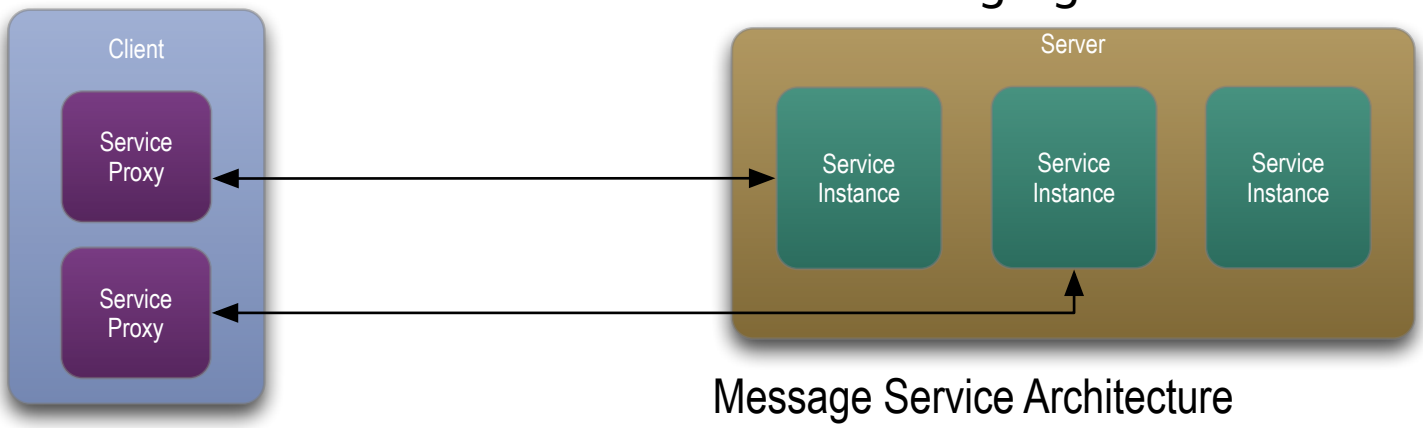
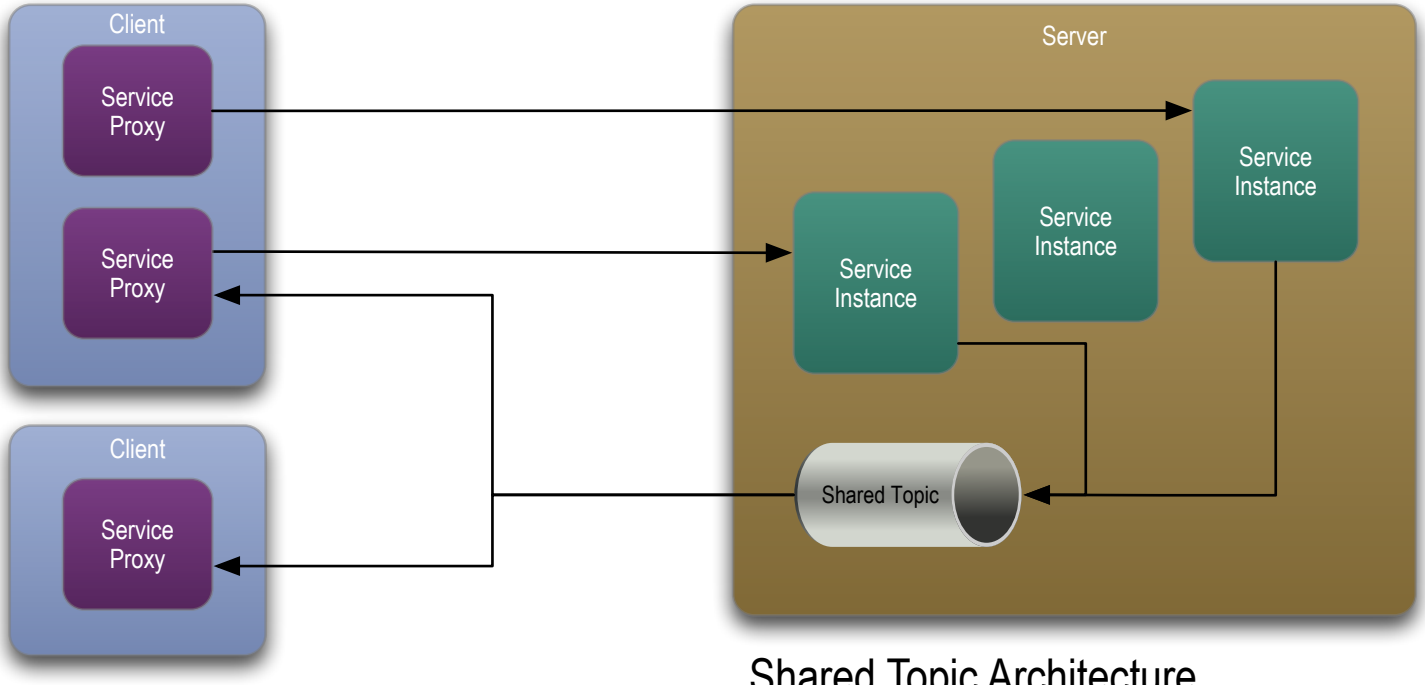
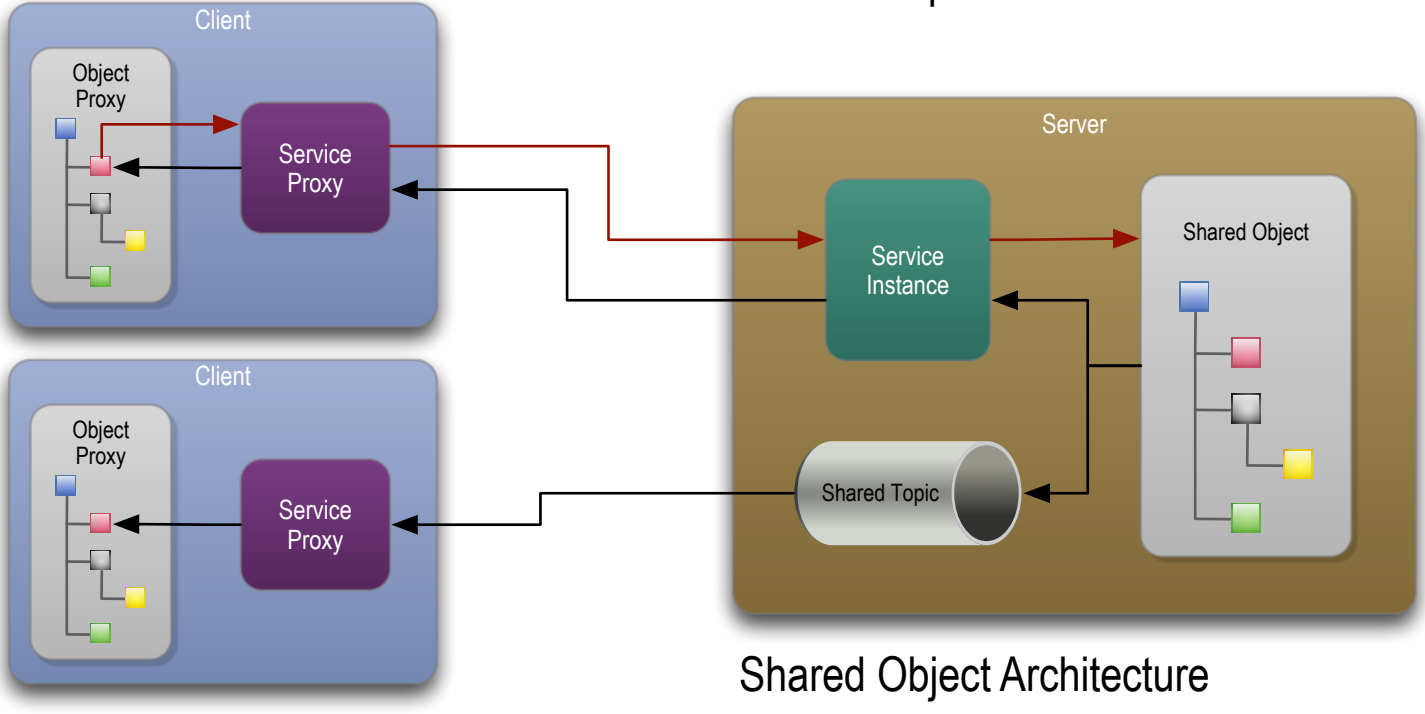
Distributed Messaging Framework



Message Service Architecture

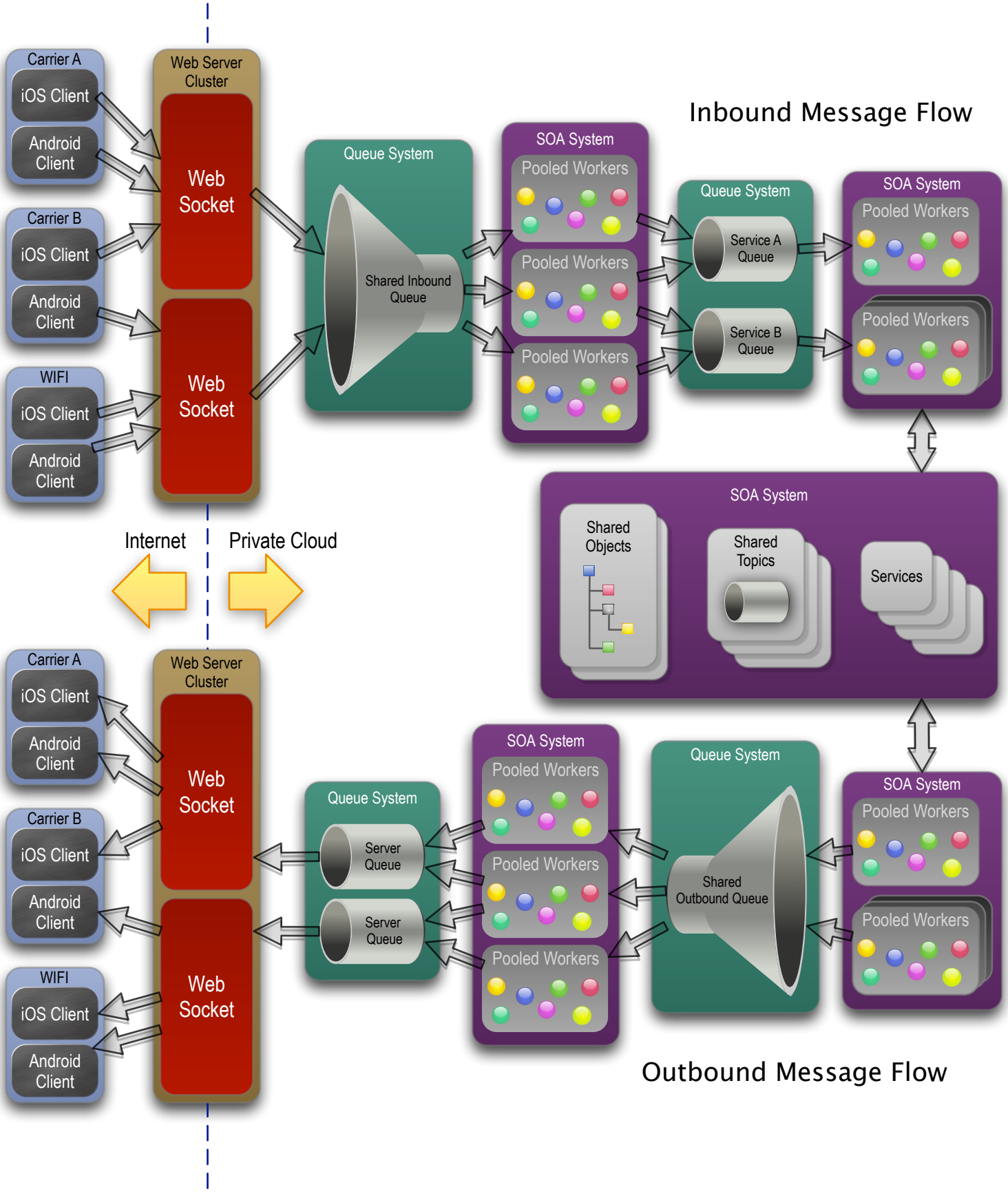


Shared Topic Architecture

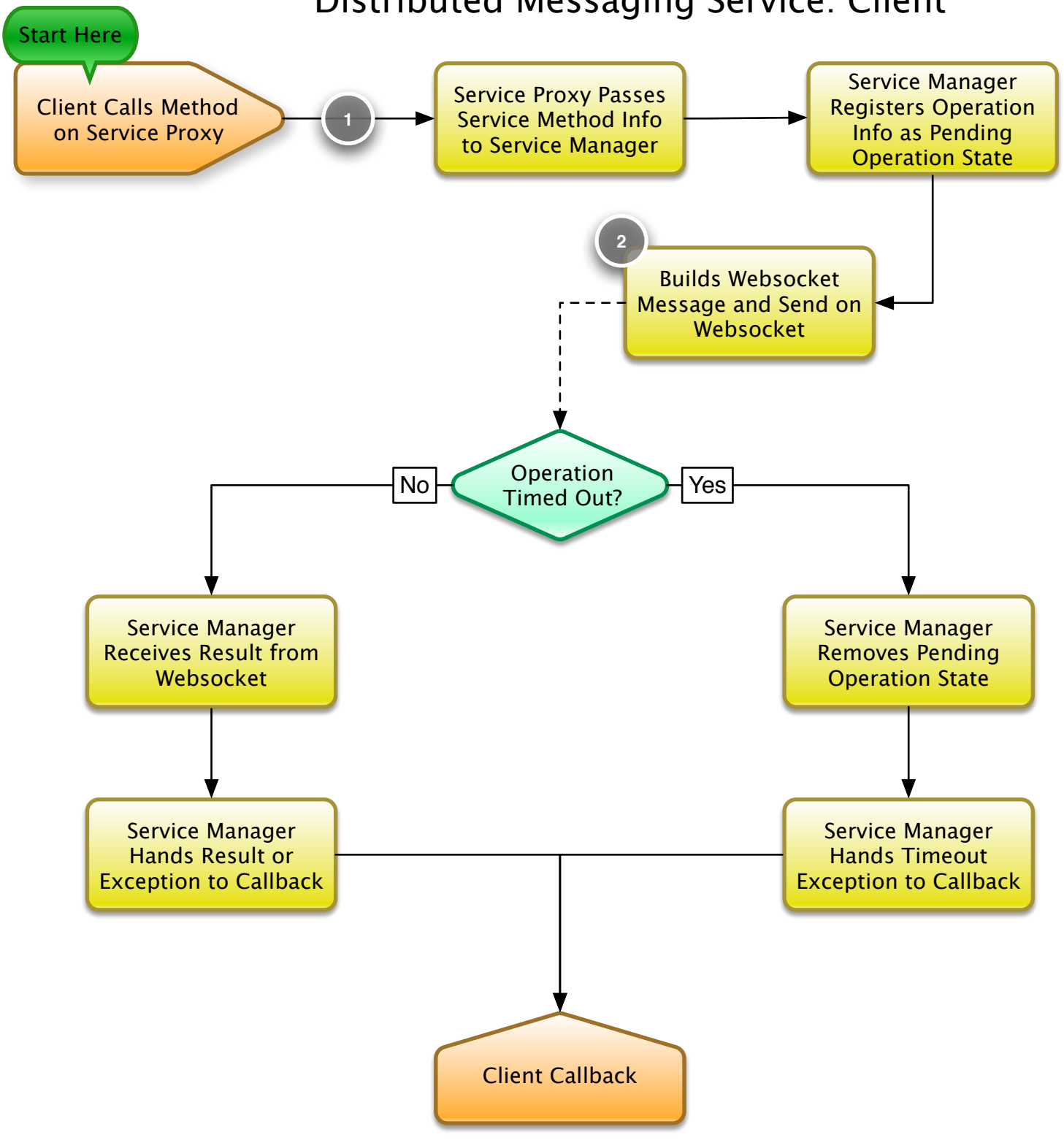


Shared Object Architecture

Distributed Messaging Service: Topology

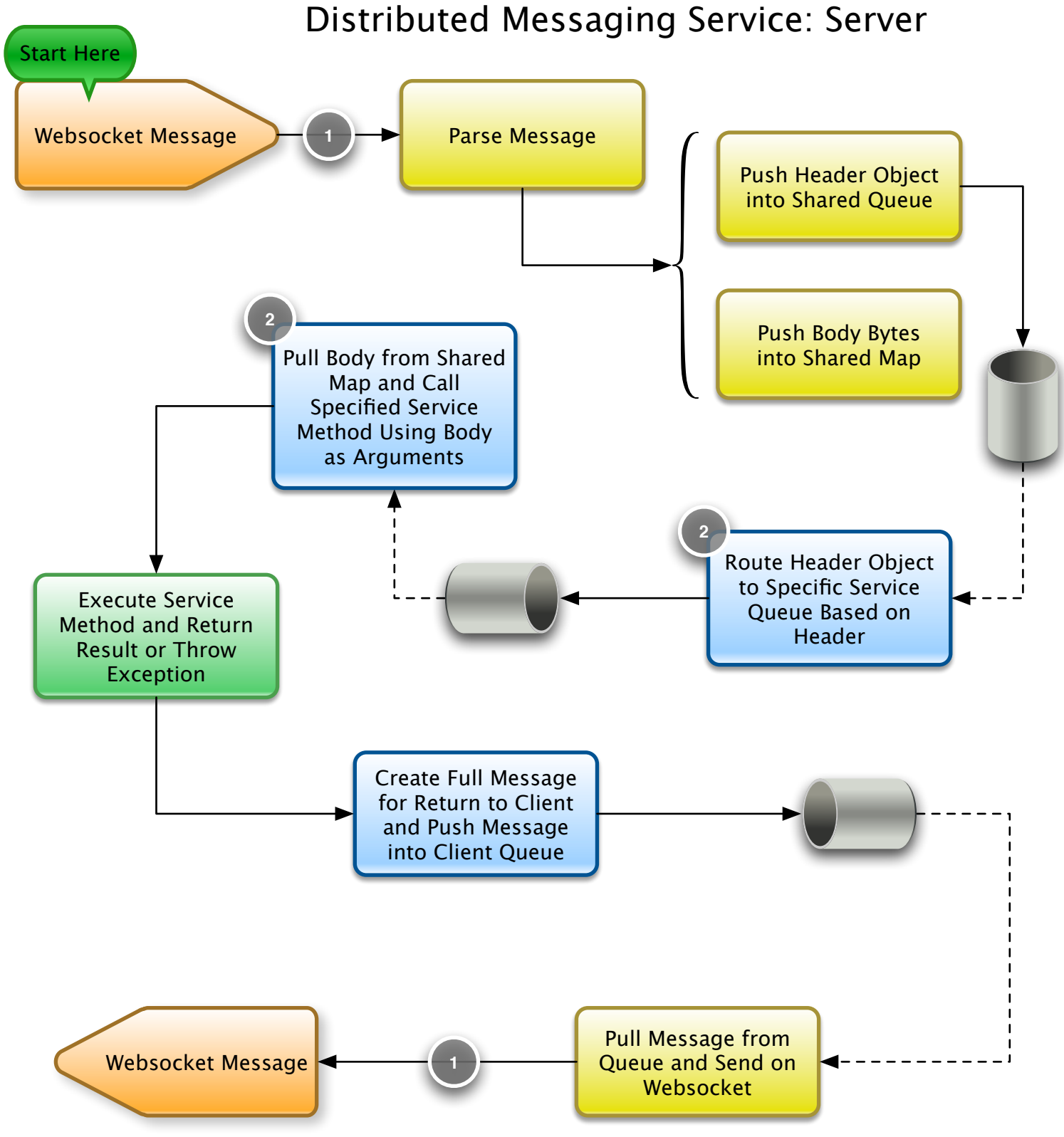


Distributed Messaging Service: Client



1. Every service proxy methods returns void and provides an additional argument for the caller to specify a callback. These callbacks handle successes & failures.

2. Message is 4 part binary message:
   1. Length of header in bytes (16 bit int)
   2. Type of Data Encoding/Serialization
   3. Header (byte array, UTF8 JSON or XML)
   4. Body (byte array, UTF8 JSON or XML)

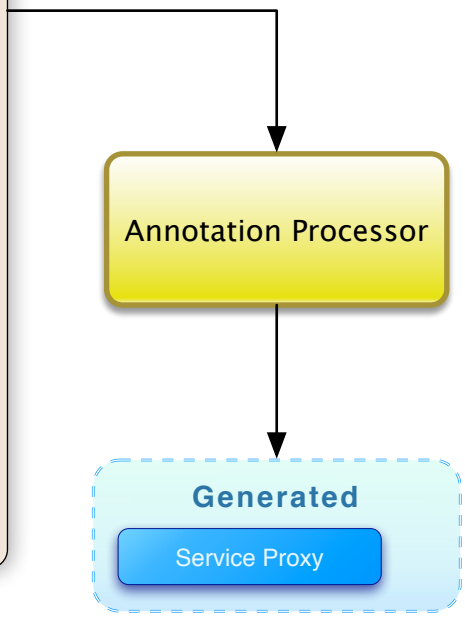

Distributed Messaging Service: Server
Start Here
Websocket Message
1
Parse Message
Push Header Object into Shared Queue
Push Body Bytes into Shared Map
2
Pull Body from Shared Map and Call Specified Service Method Using Body as Arguments
2
Route Header Object to Specific Service Queue Based on Header
Execute Service Method and Return Result or Throw Exception
Create Full Message for Return to Client and Push Message into Client Queue
Pull Message from Queue and Send on Websocket
1
Websocket Message
1
Message is 4 part binary message:
1. Length of header in bytes (16 bit int)
2. Type of Data Encoding/Serialization
3. Header (byte array, UTF8 JSON or XML)
4. Body (byte array, UTF8 JSON or XML)
2
Distributed workers that continually pull from Java concurrency queues, preferably distributed.

Distributed Messaging Service: Generators

Java Service Interface

```
@MessageService
public interface MyMessageService
{
   @RemoteMessage
   public String sayHello(String aMyName)
   {
      ...
   }

   public String sayGoodbye(String aMyName)
   {
      ...
   }
}
```



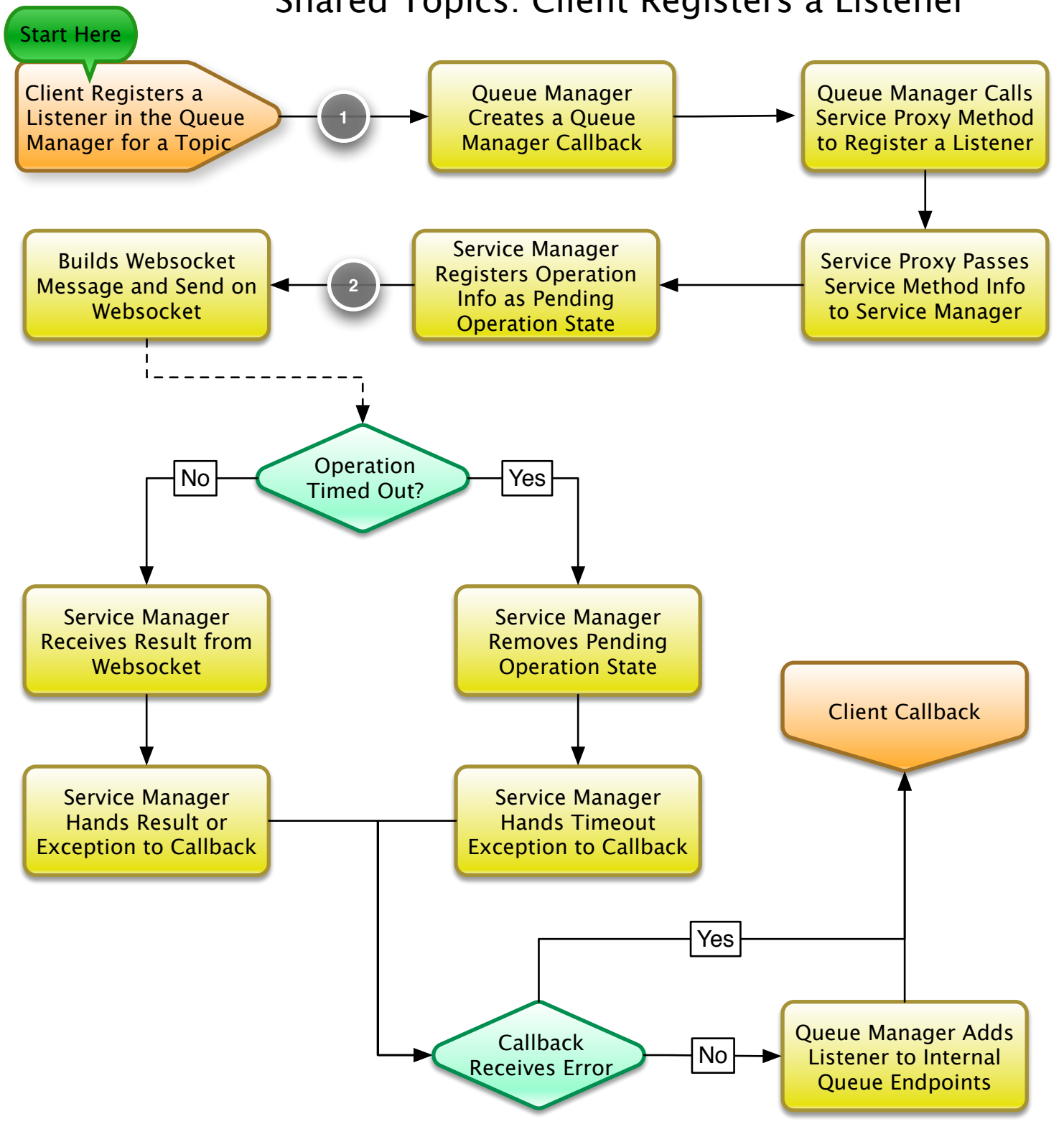
Service Proxy

```
@implementation MyMessageService

#pragma mark Message Service
- (void) sayHelloWithCallback:(Callback*) aCallback myName:(NSString*) aMyName
{
    MethodInfo* info = [MethodInfo info];
    info.channel = @"MyMessageService";
    info.destination = @"sayHello#java.lang.String";
    info.args = [NSArray arrayWithObjects:aMyName];
    info.callback = aCallback;
    [self.manager callWithInfo:info];
}

@end
```

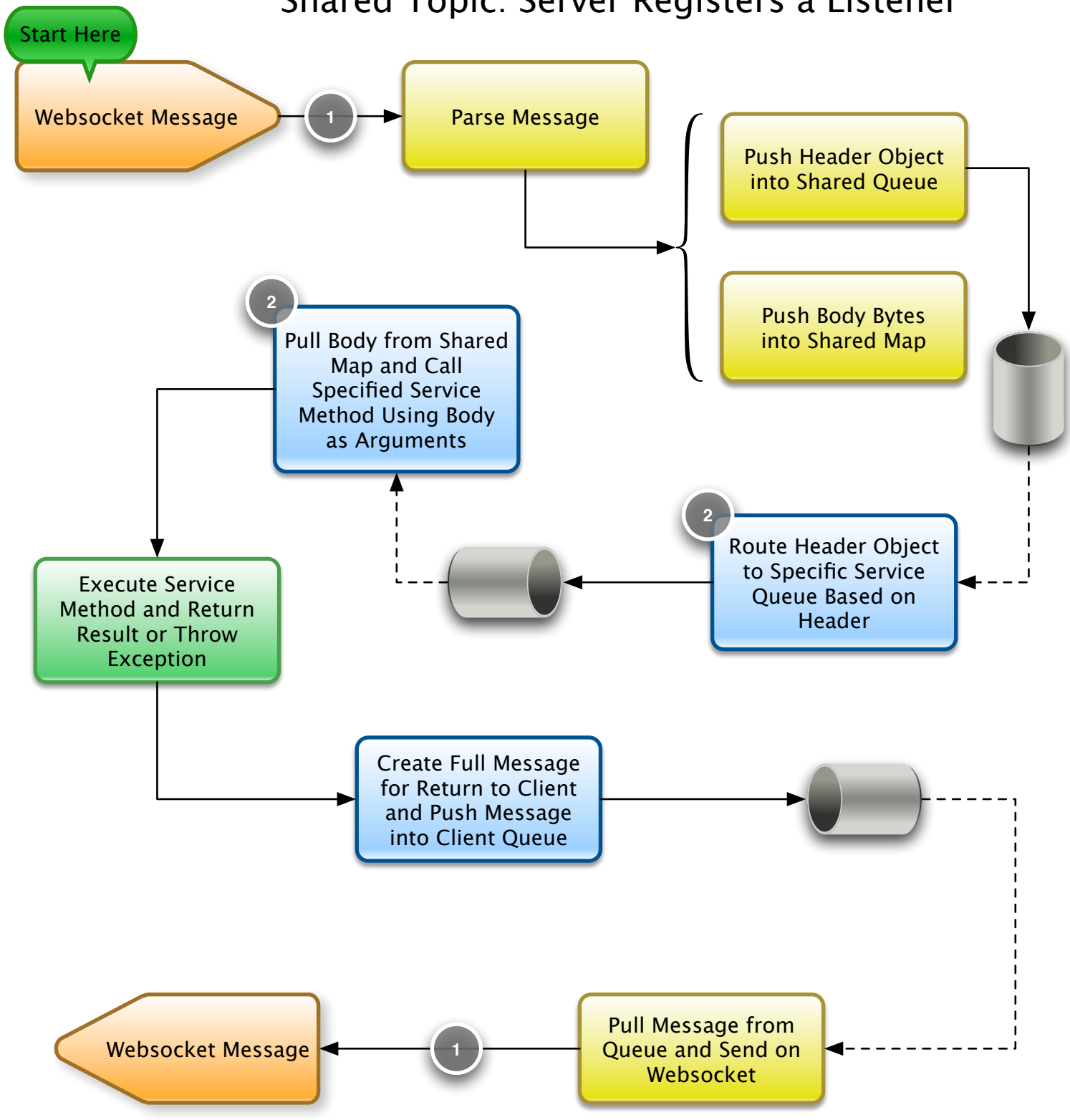
Shared Topics: Client Registers a Listener



1. Listener registration methods return void and provide an additional argument for the caller to specify a callback to handle registration successes & failures.

2. Message is 4 part binary message:
   1. Length of header in bytes (16 bit int)
   2. Type of Data Encoding/Serialization
   3. Header (byte array, UTF8 JSON or XML)
   4. Body (byte array, UTF8 JSON or XML)

Shared Topic: Server Registers a Listener

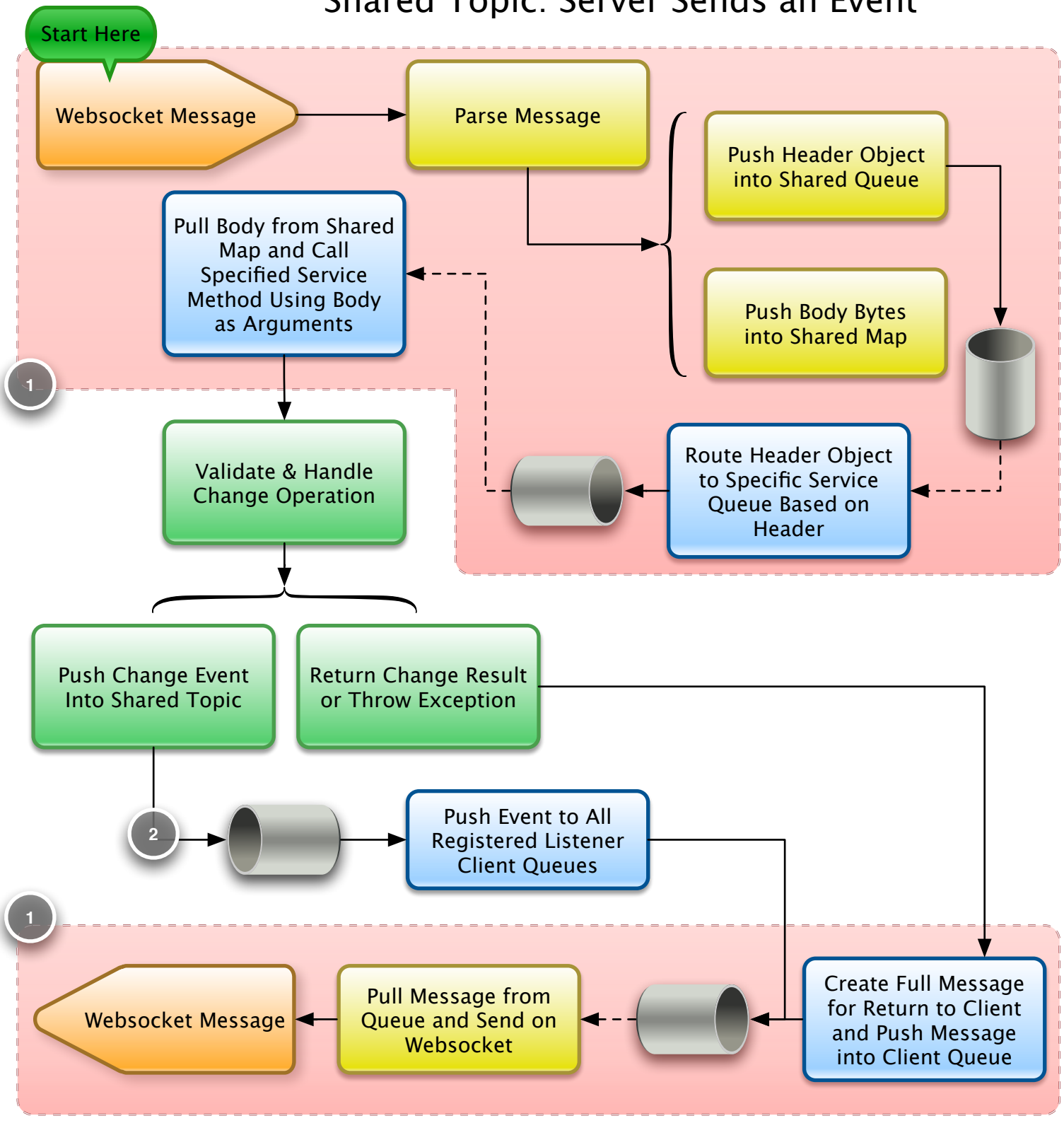


1 Message is 4 part binary message:

1. Length of header in bytes (16 bit int)
2. Type of Data Encoding/Serialization
3. Header (byte array, UTF8 JSON or XML)
4. Body (byte array, UTF8 JSON or XML)

2 Distributed workers that continually pull from Java concurrency queues, preferably distributed.

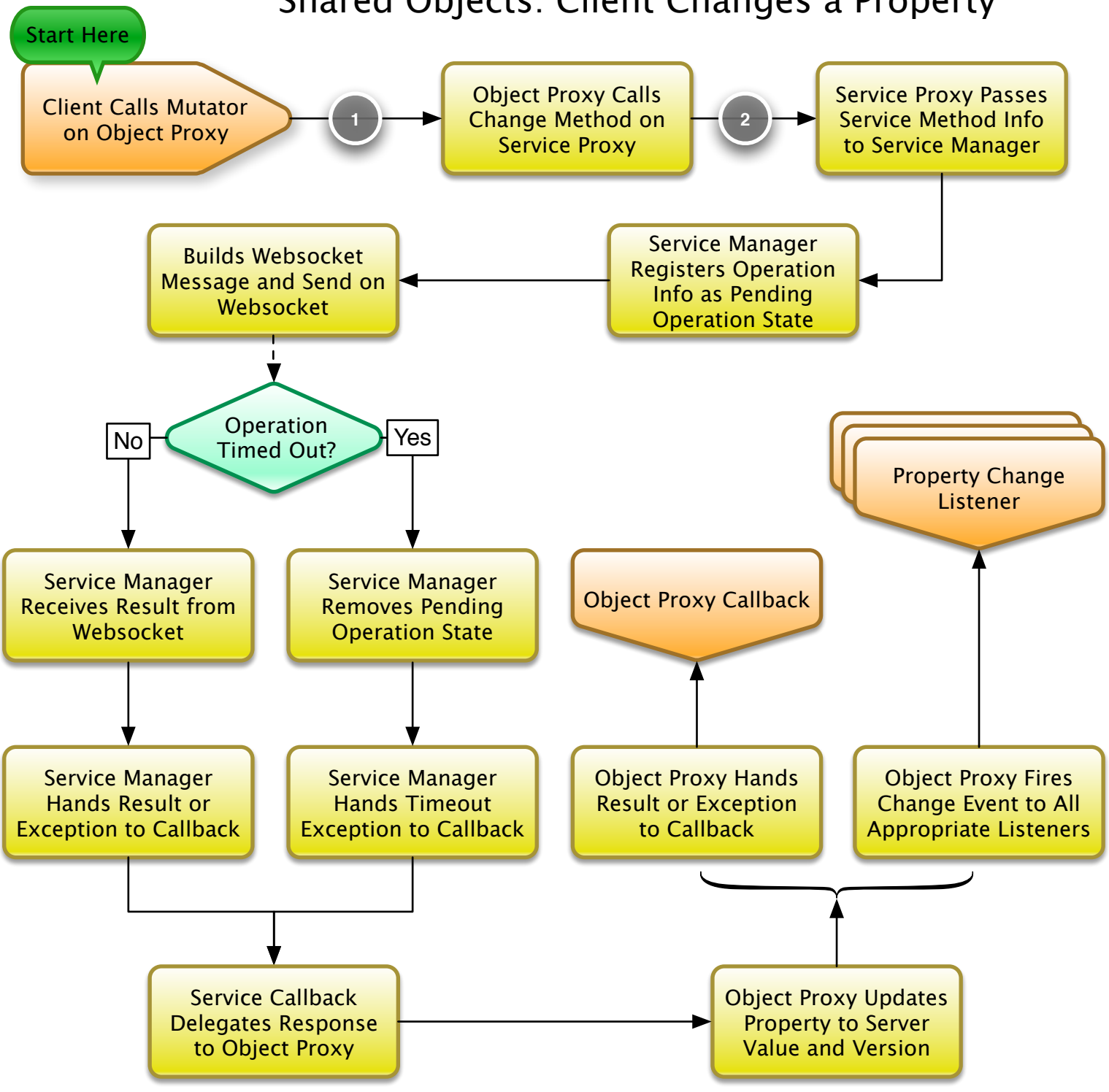
Shared Topic: Server Sends an Event



1 System uses a service to manage a shared object. The service controls all access and changes to the object. This service uses the existing messaging service framework.

2 Changes to a shared object are returned as a part of the result and as a separate event sent through a shared topic to the remaining listeners.

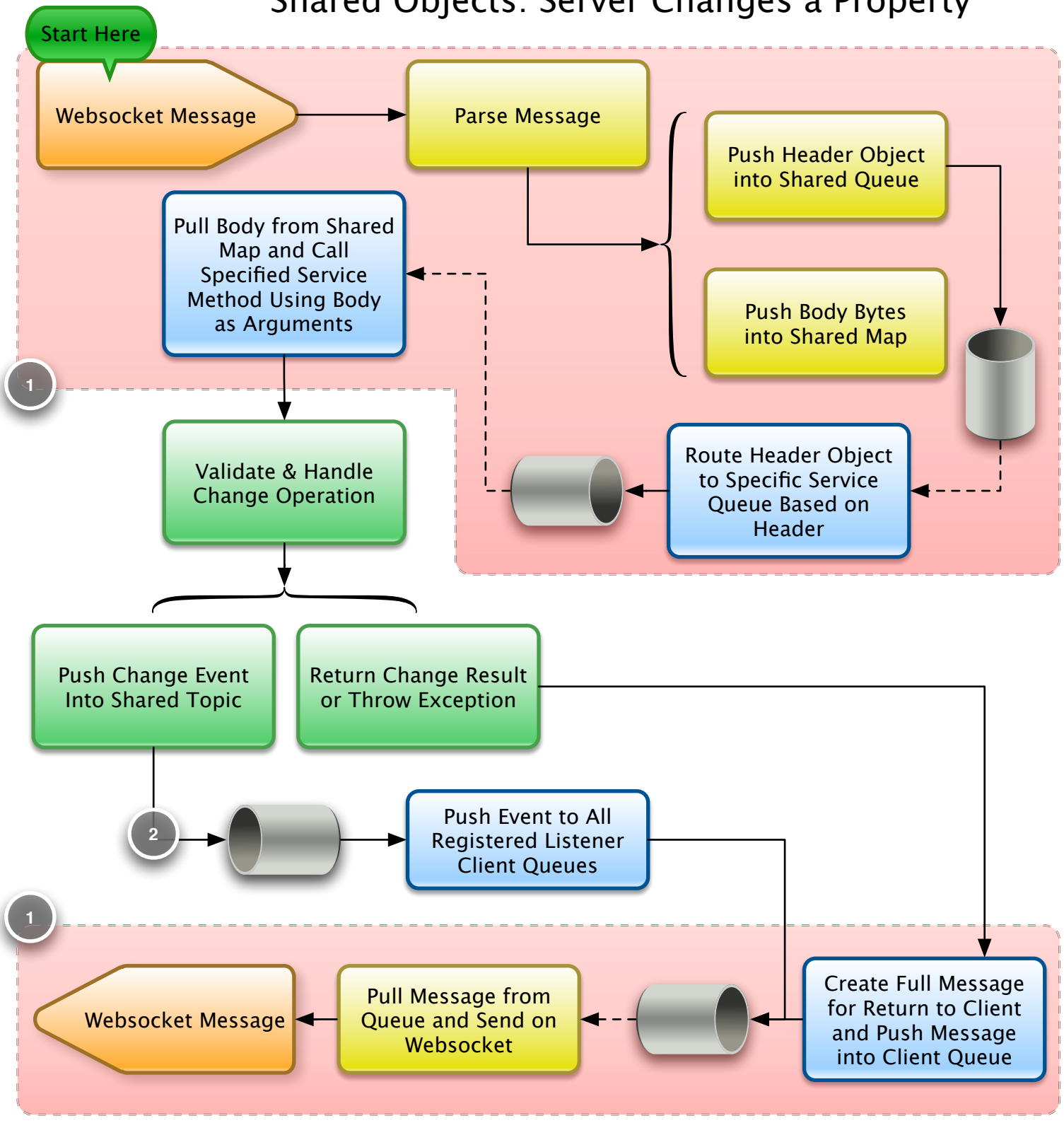
Shared Objects: Client Changes a Property



1. Every object proxy mutator method returns void and provides an additional argument for the caller to specify a callback. These callbacks handle successes & failures.

2. Property Change Method Requires:
   1. Property Version Number
   2. New Value
   3. Shared Object UUID

Shared Objects: Server Changes a Property



1 System uses a service to manage a shared object. The service controls all access and changes to the object. This service uses the existing messaging service framework.

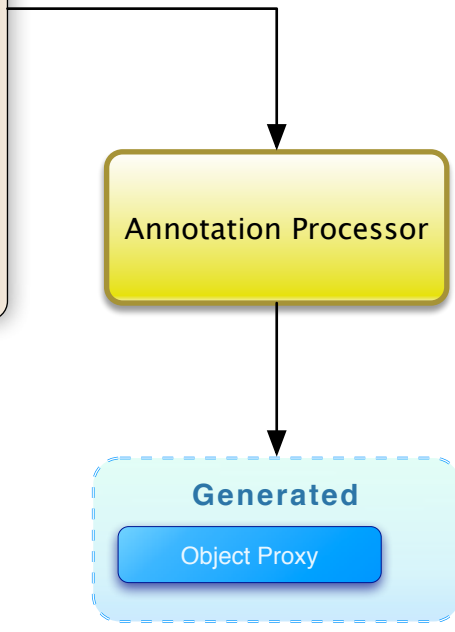
2 Changes to a shared object are returned as a part of the result and as a separate event sent through a shared topic to the remaining listeners.

Shared Object: Generators

Java Service Interface

```
@SharedObject
public interface MySharedObject
{
    public String getName();
    public void setName(String aName);

    ...
}
```



Object Proxy

```
@implementation MyMessageService

#pragma mark My Shared Object
- (void) setName:(Callback*) aCallback value:(NSString*) aValue
{
    [serviceProxy setProperty:@"name" value:aValue callback:aCallback];
}

@end
```