

Exploring Advanced HttpClient Features



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WebSocket

Full-duplex communication

Message-based protocol

Text and binary



WebSocket Builder

```
CompletableFuture<WebSocket> wsFuture =  
    HttpClient.newHttpClient()  
        .newWebSocketBuilder()  
        .buildAsync(  
            URI.create("ws://server-url"),  
            websocketListener  
        );
```

WebSocket.Listener

onOpen

onClose

onError

onText

onBinary

onPing

onPong

Only implement
methods you need

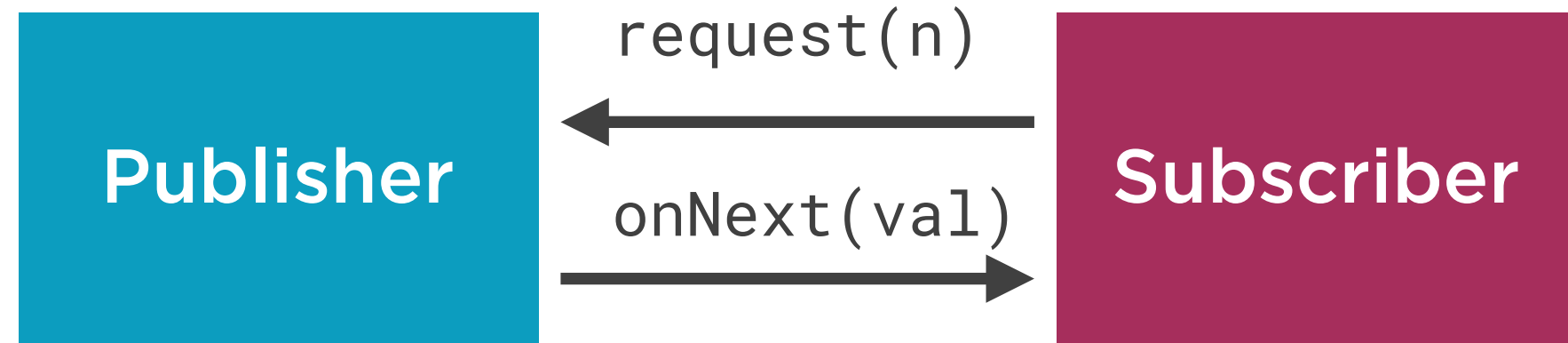
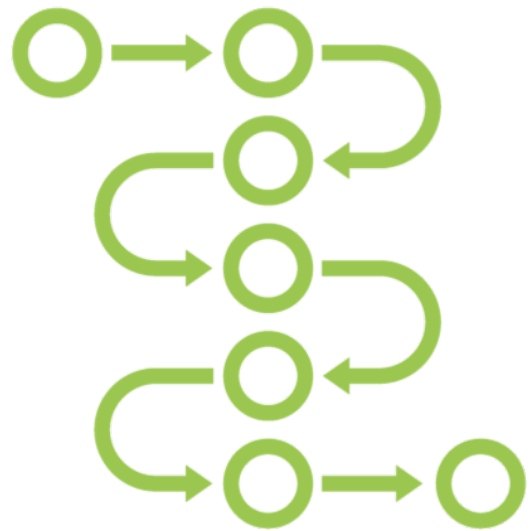


Demo

WebSocket

Reactive Streams

Java 9 Flow API

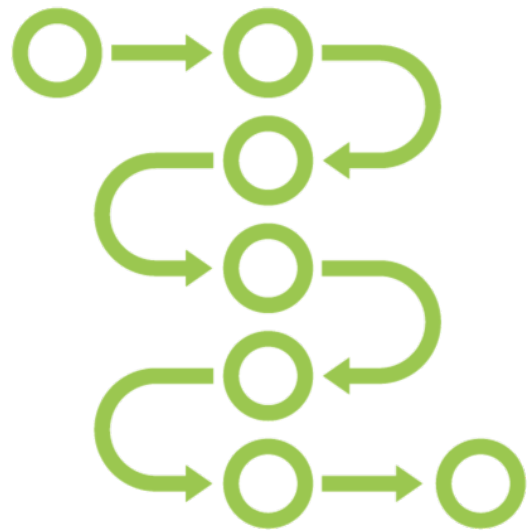


Back pressure



What's New in Java 9

Reactive Streams: BodyPublisher



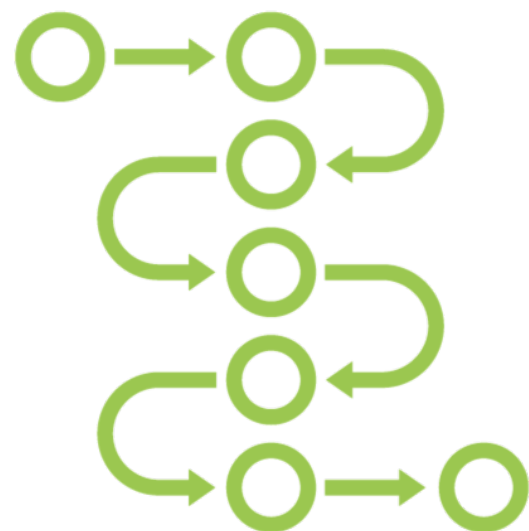
```
public interface BodyPublisher extends  
    Flow.Publisher<ByteBuffer> {  
  
    long contentLength();  
  
}
```

BodyPublishers::ofFile

Continually publishes 16k bytes

BodyPublishers::ofPublisher

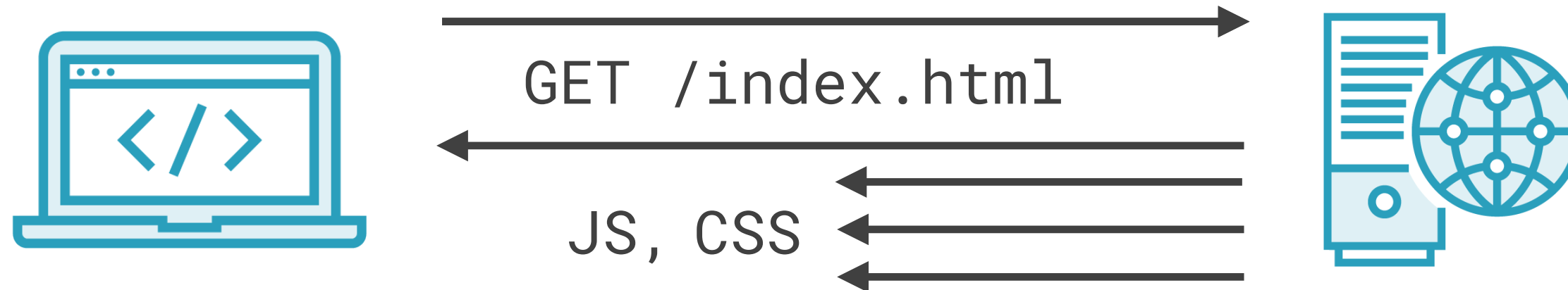
Reactive Streams: BodyHandler



```
public interface BodyHandler<T> {  
  
    public BodySubscriber<T> apply(  
        ResponseInfo responseInfo);  
  
}
```

```
public interface BodySubscriber<T> extends  
    Flow.Subscriber<List<ByteBuffer>>
```


HTTP/2 Server Push



Push Promise

PushPromiseHandler

```
HttpClient::sendAsync(HttpRequest request,  
                      BodyHandler bodyHandler,  
                      PushPromiseHandler pushHandler)
```

```
public interface PushPromiseHandler<T> {  
    public void applyPushPromise(  
        HttpRequest initiatingRequest,  
        HttpRequest pushPromiseRequest,  
        Function<HttpResponse.BodyHandler<T>,  
            CompletableFuture<HttpResponse<T>>> acceptor  
    );  
}
```

PushPromiseHandler

```
HttpClient::sendAsync(HttpRequest request,  
                      BodyHandler bodyHandler,  
                      PushPromiseHandler pushHandler)
```

```
var resultMap = new ConcurrentHashMap<HttpRequest,  
    CompletableFuture<HttpResponse<String>>>();
```

```
PushPromiseHandler<String> pph =  
    PushPromiseHandler.of(pushPromise ->  
        BodyHandlers.ofString(), resultMap);
```

Summary

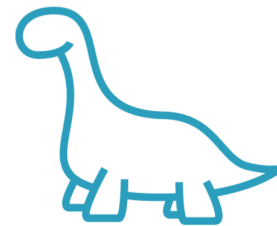
Java Fundamentals:
HttpClient

Course Wrap-up

Introducing
HttpClient



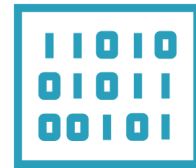
HttpClient: essential types



Replaces HttpURLConnection

Course Wrap-up

Performing Your
First HTTP
Requests



BodyHandlers



Synchronous vs. asynchronous



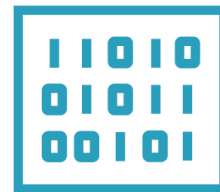
CompletableFuture

Course Wrap-up

Using HttpClient



HttpClient configuration



BodyPublishers



Headers & Cookies

Course Wrap-up

Security



Secure connections



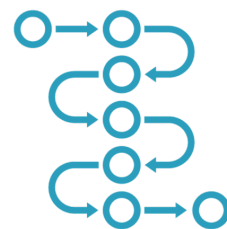
HTTP Basic authentication

Course Wrap-up

**Exploring
Advanced
HttpClient
Features**



WebSocket



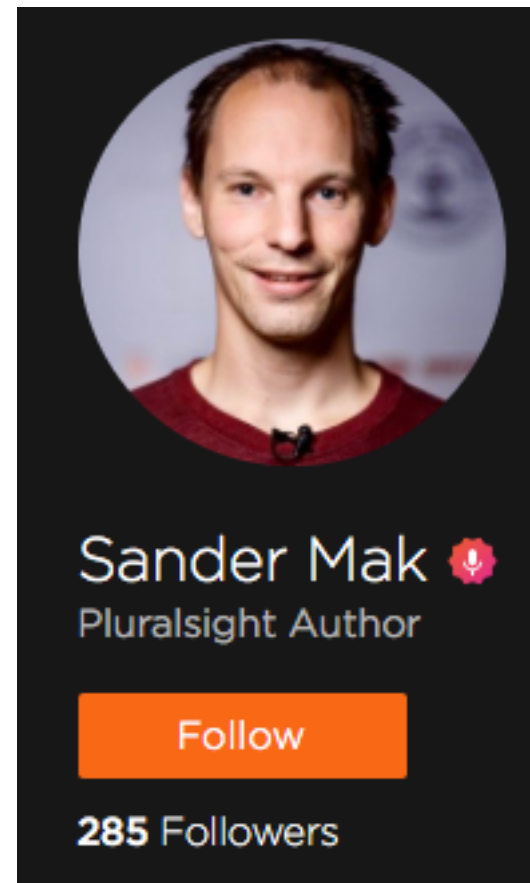
Reactive Streams integration



HTTP/2 Server Push

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