

From 'Java Sucks' to 'Java...Eh, Not Bad'

How Vert.x & Java 21 Made Me Stop Complaining

Thomas Gebert

Who Am I?

- Software Engineer in New York City.

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- There is nothing else interesting about me.

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- Java programmers...

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- I/O is blocking by default
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Figure 1: CF

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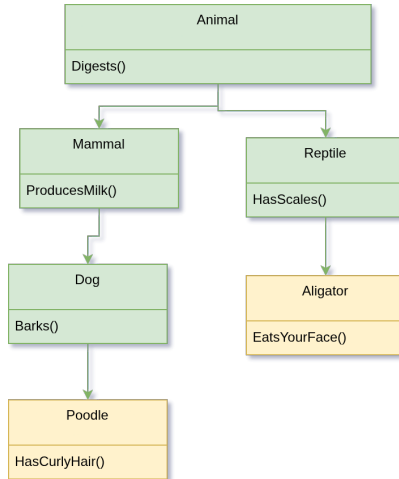


Figure 2: UML

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- (Can be) fast.

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- Many companies will find it infeasible to migrate to a better language, and would rather spend infinitely more money hiring dozens of engineers to write a million incremental patches to a Java codebase.
- Many of us are stuck in this hell.

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Java 8 and 11 New features

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```
int count = 0;
for (String word : words) {
    if (word.length() > 10) {
        count++;
    }
}
System.out.println("Long words: " + count);
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Java 8 and 11 New features

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long count = words.stream()
                    .filter(w -> w.length() > 10)
                    .count();

System.out.println("Long words: " + count);
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public interface Greeter {  
    void greet(String name);  
  
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- Useful for producer-consumer patterns
- Comes in several flavors: `ArrayBlockingQueue`, `LinkedBlockingQueue`, `PriorityBlockingQueue`, etc.

Old Underutilized Java Feature

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```
BlockingQueue<String> queue = new LinkedBlockingQueue<>();

// Producer
new Thread(() -> {
    queue.put("data");
}).start();

// Consumer
new Thread(() -> {
    String item = queue.take();
}).start();
```

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- **FINALLY! FINALLY!**

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- Provides constructs to handle local and distributed concurrency transparently.

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- Deployed with `vertx.deployVerticle(...)`

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- Designed for minimal context switching and high throughput

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Event Bus

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Timer / Periodic Tasks

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```
void doSomethingAsync(Promise<String> promise) {  
    vertx.setTimer(500, id -> {  
        promise.complete("Hello, future!");  
    });  
}
```

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- Data is paused/resumed automatically when the receiver can't keep up
- Useful when handling large streams (e.g., file uploads, HTTP bodies)

Backpressure in Vert.x

Backpressure in Vert.x

Example: Handling a slow WriteStream

```
source.pipeTo(slowSink, res -> {  
    if (res.succeeded()) {  
        System.out.println("All data written.");  
    } else {  
        res.cause().printStackTrace();  
    }  
});
```

Vert.x distributed concurrency example

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Deploying Verticles: Local vs Clustered

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```
public class MyVerticle extends AbstractVerticle {  
  
    @Override  
    public void start(Promise<Void> startPromise) {  
        System.out.println("Verticle started on thread: " + Thread.currentThread().getName());  
  
        vertx.setTimer(1000, id -> {  
            System.out.println("Timer fired after 1 second");  
        });  
  
        startPromise.complete();  
    }  
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Vert.x Concurrency Example.

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Local Deployment

```
Vertx vertx = Vertx.vertx();  
vertx.deployVerticle(new MyVerticle());
```

Vert.x Concurrency Example.

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Distributed Deployment

Vert.x Concurrency Example.

Distributed Deployment

```
Vertx.clusteredVertx(new VertxOptions(), res -> {  
    if (res.succeeded()) {  
        Vertx vertx = res.result();  
        vertx.deployVerticle(new MyVerticle());  
    } else {  
        res.cause().printStackTrace();  
    }  
});
```

Conclusion.

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- Java 21 isn't that bad.

Conclusion.

- Java 21 isn't that bad.
- Convince your employers to upgrade if you want to reclaim your sanity.
- Blah . . .
- Use libraries like Vert.x and Disruptor to make life simpler.

Conclusion.

- `thomas@gebert.app`
- `blog.tombert.com`

