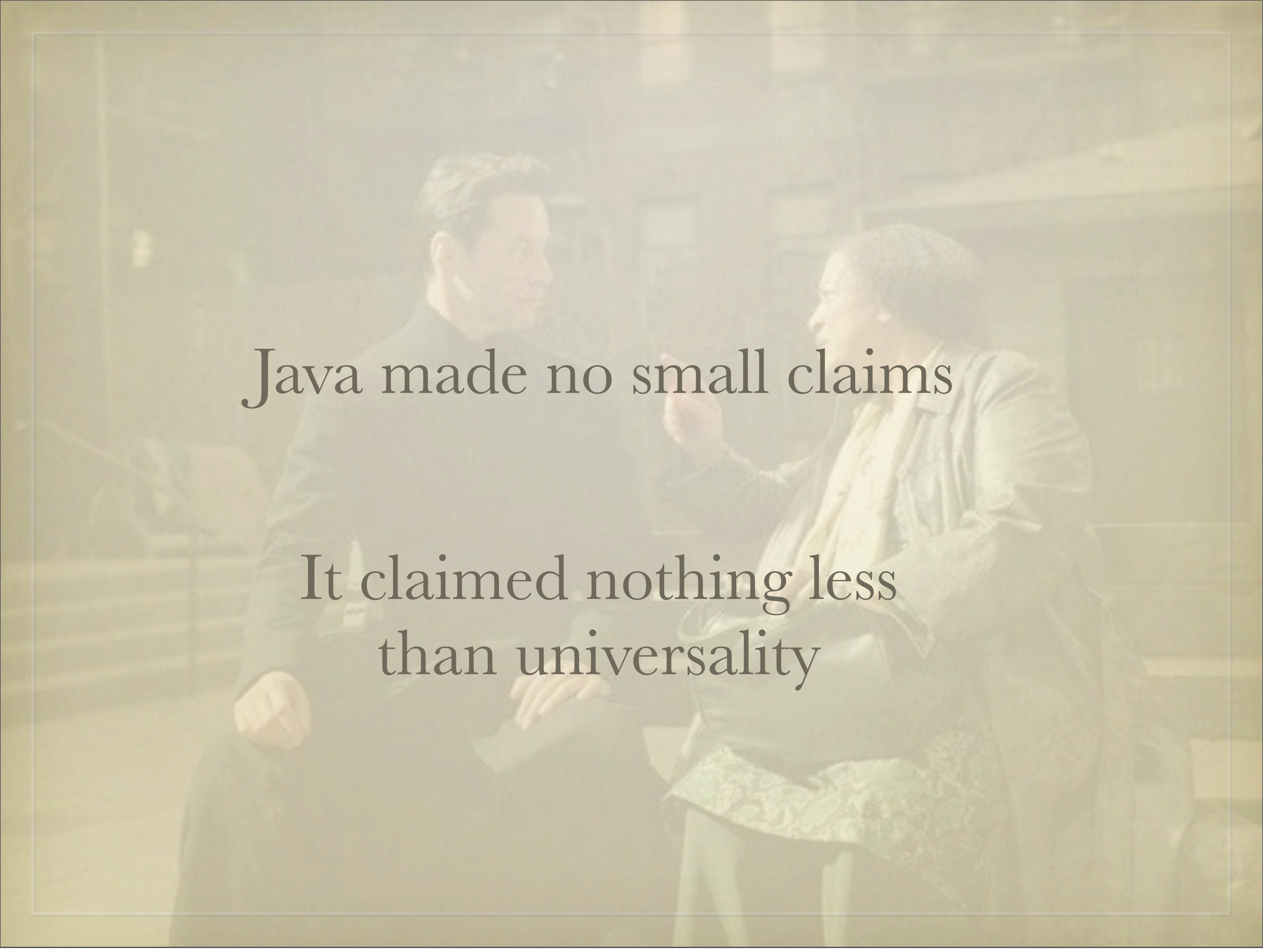
Putting Java in its place

Diary of a soldier in Duke's army

by Robert Bor

A Star is Born



Java made no small claims

It claimed nothing less
than universality

... although Java for the Desktop
was not very popular

Swing

AWT

… and surely applets would not be the future?

... and the basic JDK had its flaws

messy exceptions

primitives

java.util.Date

security

switch

lack of a meta model

general inconsistencies

<< < 1 / 83 > >>

Tuesday, 18 June 13

right time,
right message...

... liberation from C / C++

Clash of the Titans

inspired by Java's success,
Microsoft launched its competing product

.NET

Whereas Java had a vibrant community

With lots of innovation and change

.NET had stability

With economy of scale

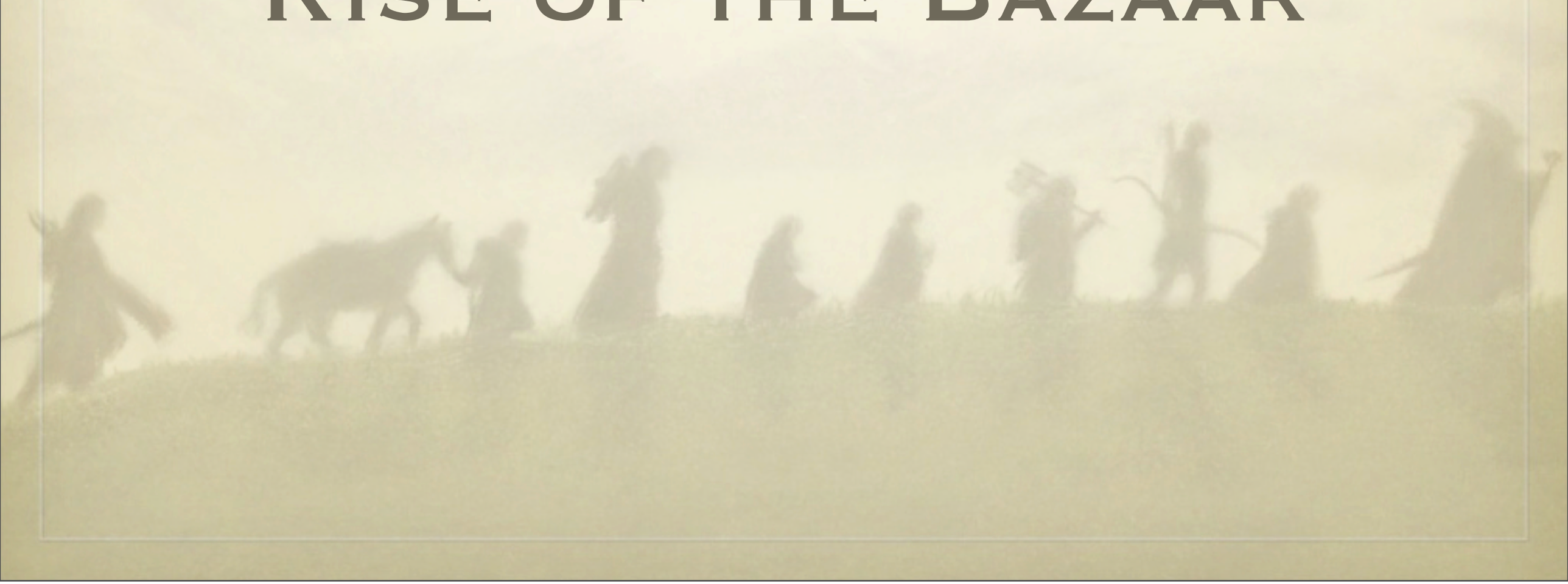
Whenever we competed with a .NET offering

It was cheaper

.NET came to dominate small business

Java ruled the corporate world

Rise of the Bazaar



Java not standardized

Worked best with commercial tools

Mainframes replaced by Linux clusters

Commercial application servers replaced by Open Source ones

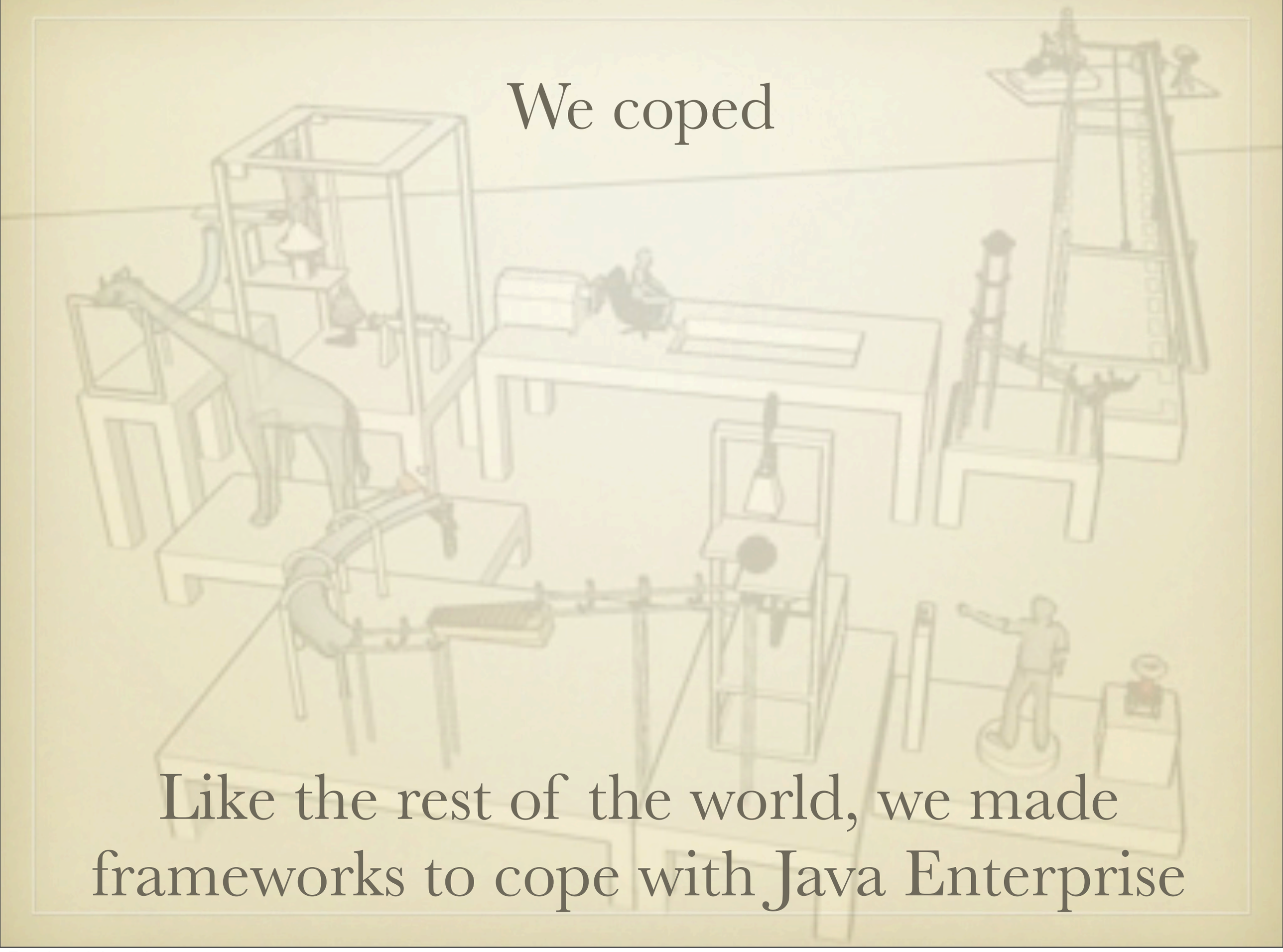
PROGRAMMING for the Java™ VIRTUAL MACHINE

JVM is here to stay

Breaking the chains

Java Enterprise:
odd collection of pseudo-helpful tools

Despite this fact, we were unable to pierce the veil of absurdity

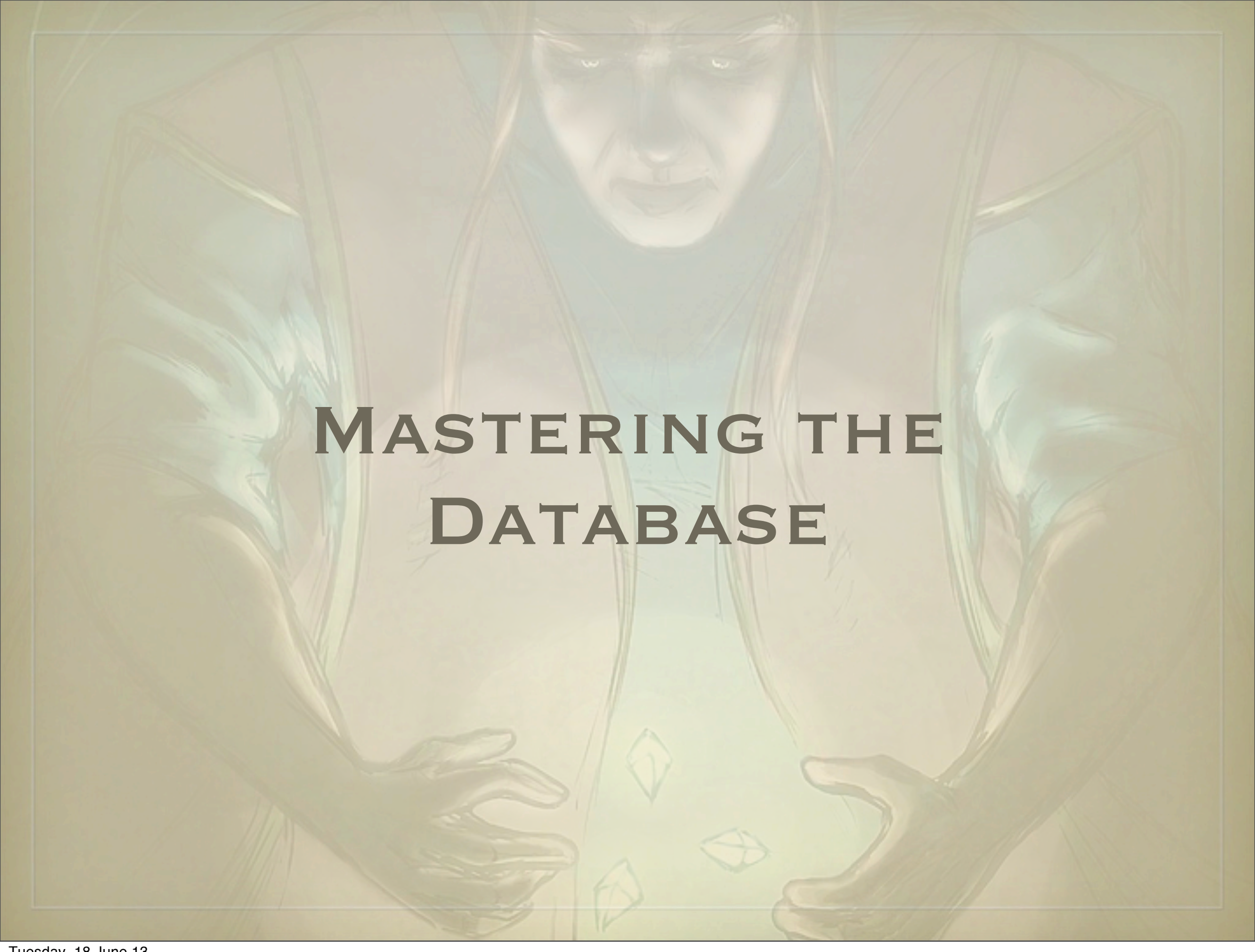

We coped
Like the rest of the world, we made frameworks to cope with Java Enterprise

spring
Then Rod Johnson came along and he actually pierced the veil
He re-introduced the POJO and gave us Spring. We all benefited

Ideas Spring adopted into Java Enterprise

Later versions of Java Enterprise were much, much better

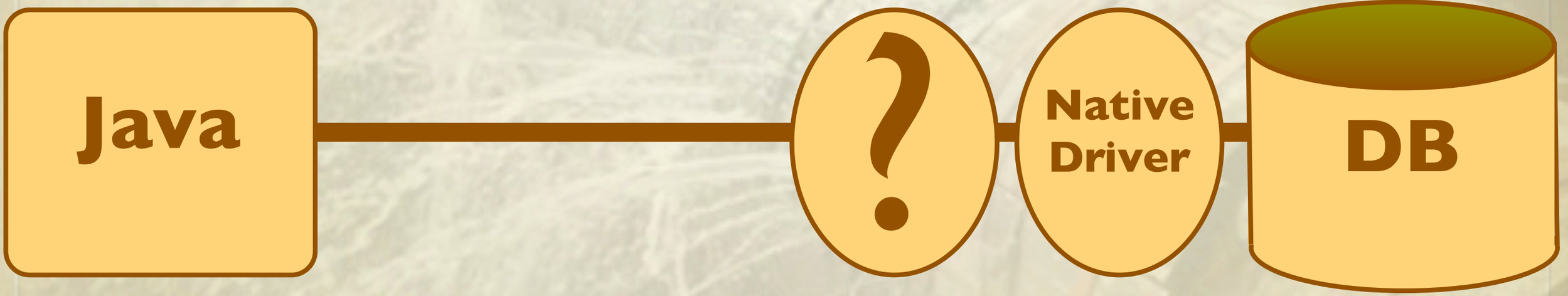
Java Enterprise was saved by Spring



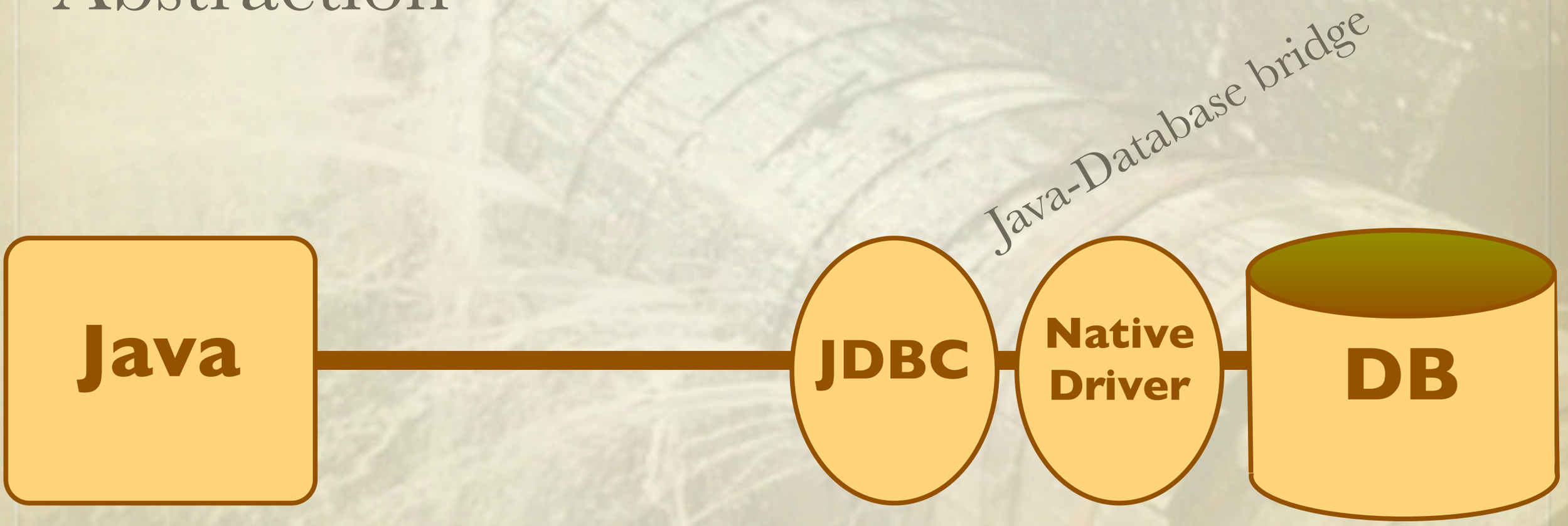
Mastering the Database

Paradigm mismatch between
OO and RDBMS
Despite several failed attempts at
having true OO databases

Leaking Abstraction



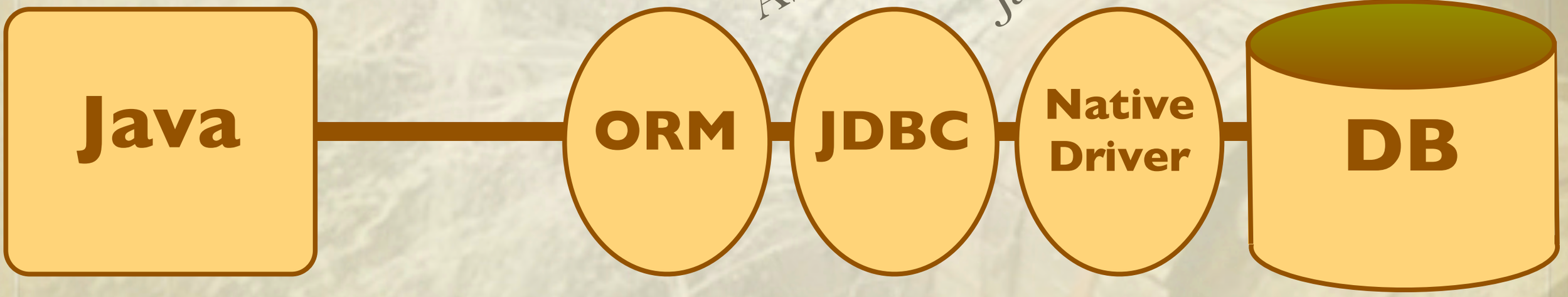
Leaking Abstraction



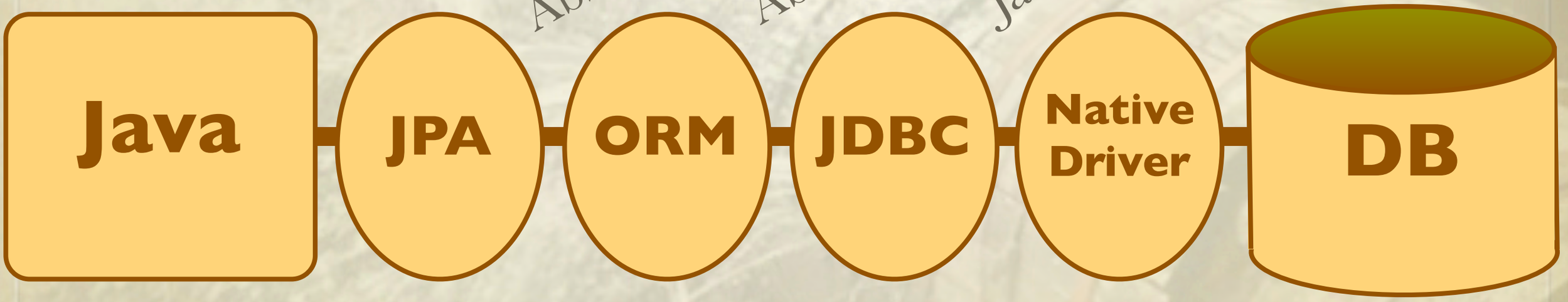
Leaking Abstraction

Abstracting database access

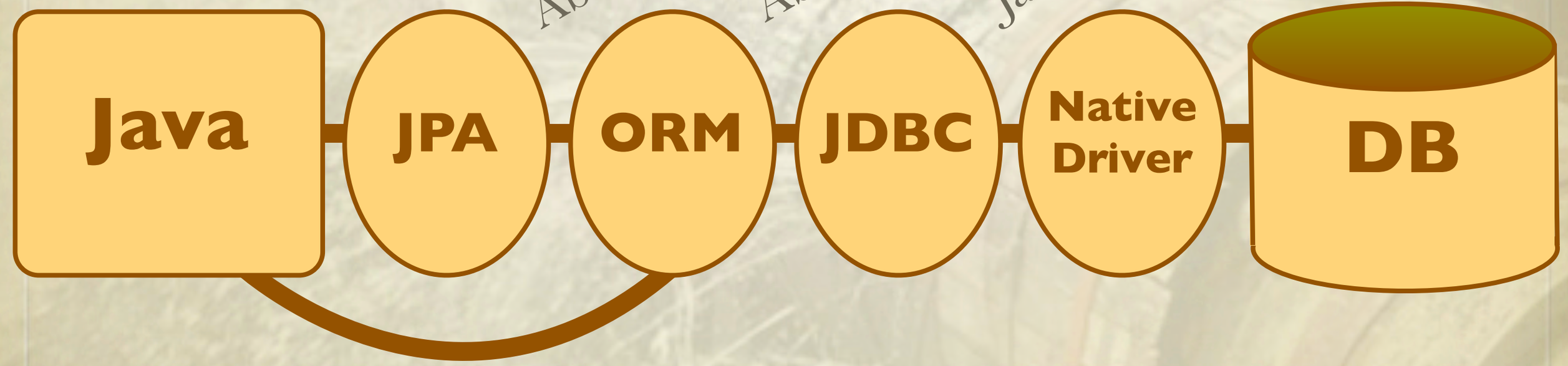
Java-Database bridge



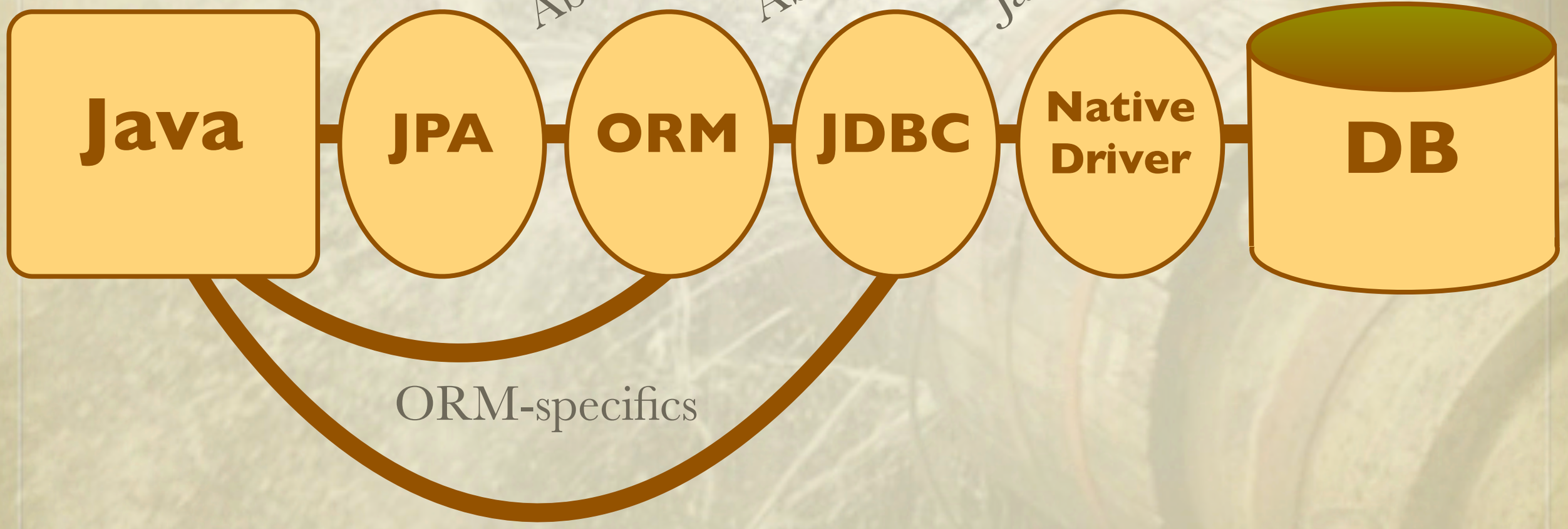
Leaking Abstraction



Leaking Abstraction



Leaking Abstraction

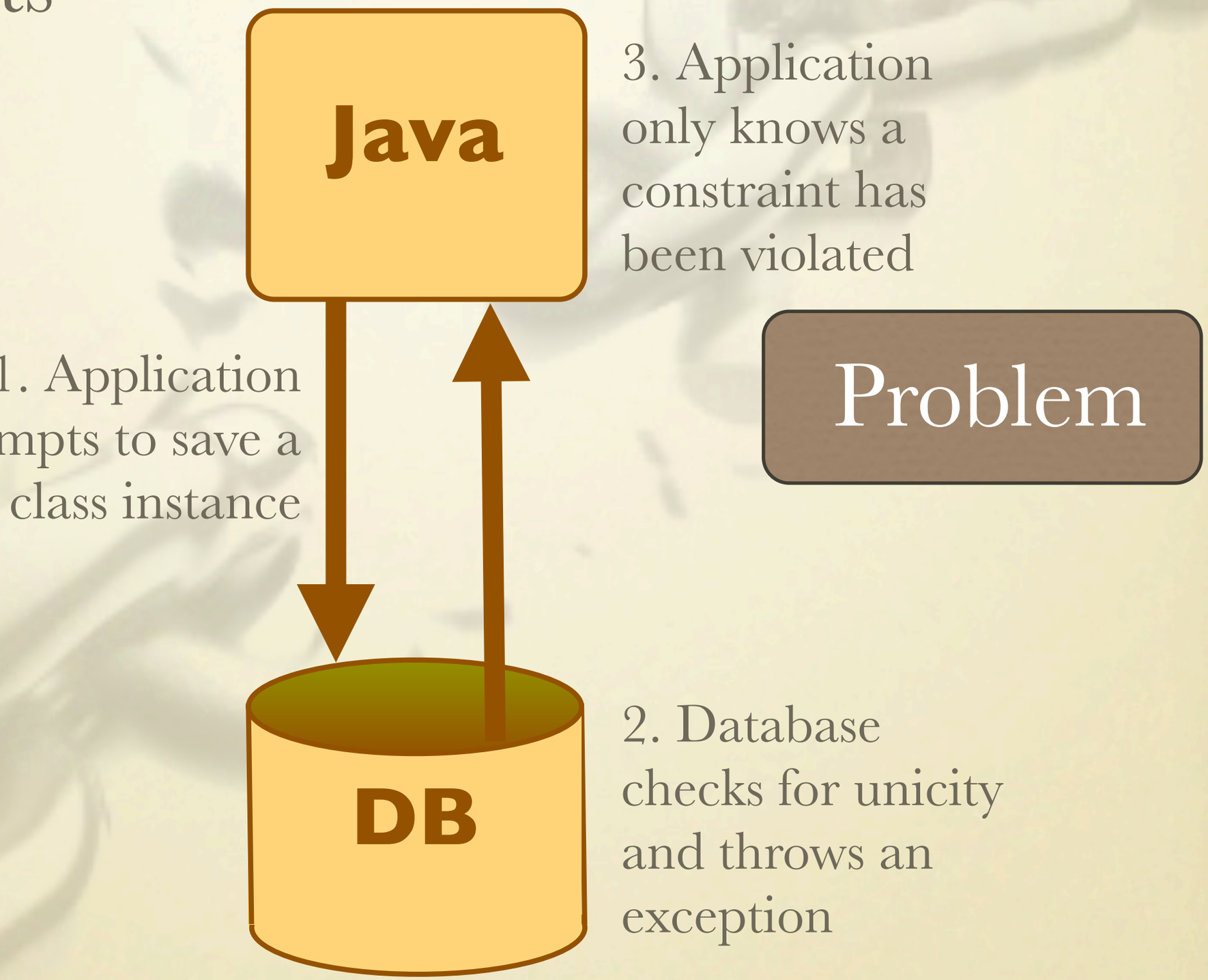


Despite leaking abstractions, ORM is still worth it

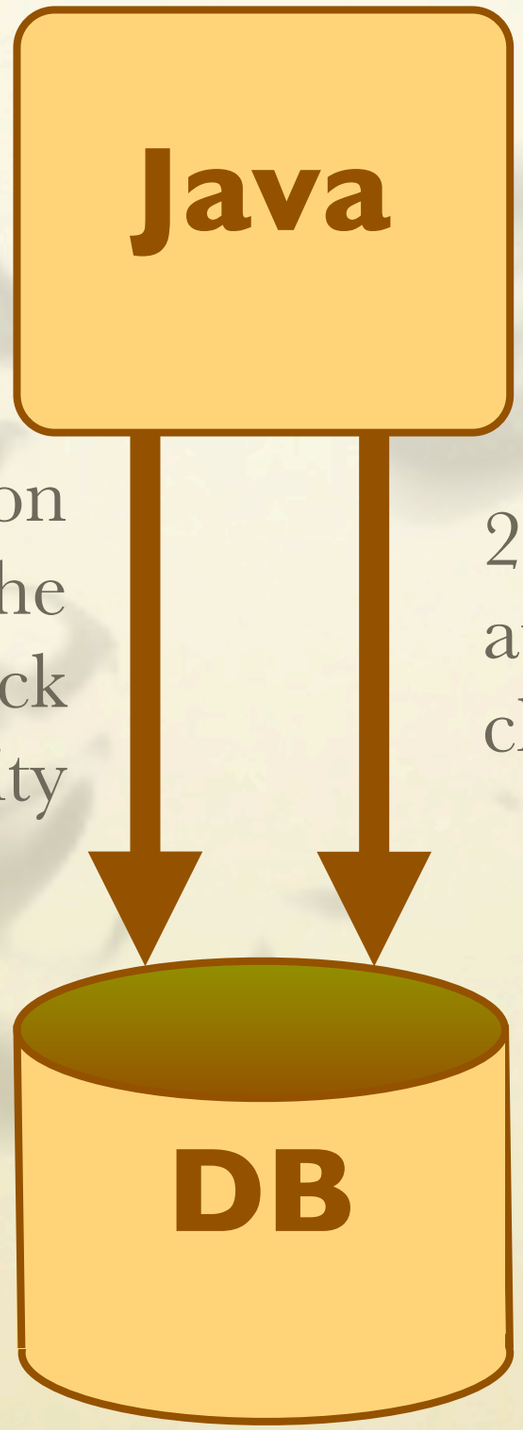
Just barely though

Any ascendant technology tends towards exploring and crossing the boundaries of its usefulness

Violated Constraints



Violated Constraints



1. Application pre-flights the save call to check for unicity

2. Application attempts to save a class instance

"Best practice"

Violated Constraints

1. Application attempts to save a class instance

4. Application knows exactly which constraint has been violated

3. Bridge translates constraint violation to Java exception

2. Database checks for unicity and throws an exception

JARB framework

http://42bv.github.io/jarb/

RDBMS contested by many different products at once

riak

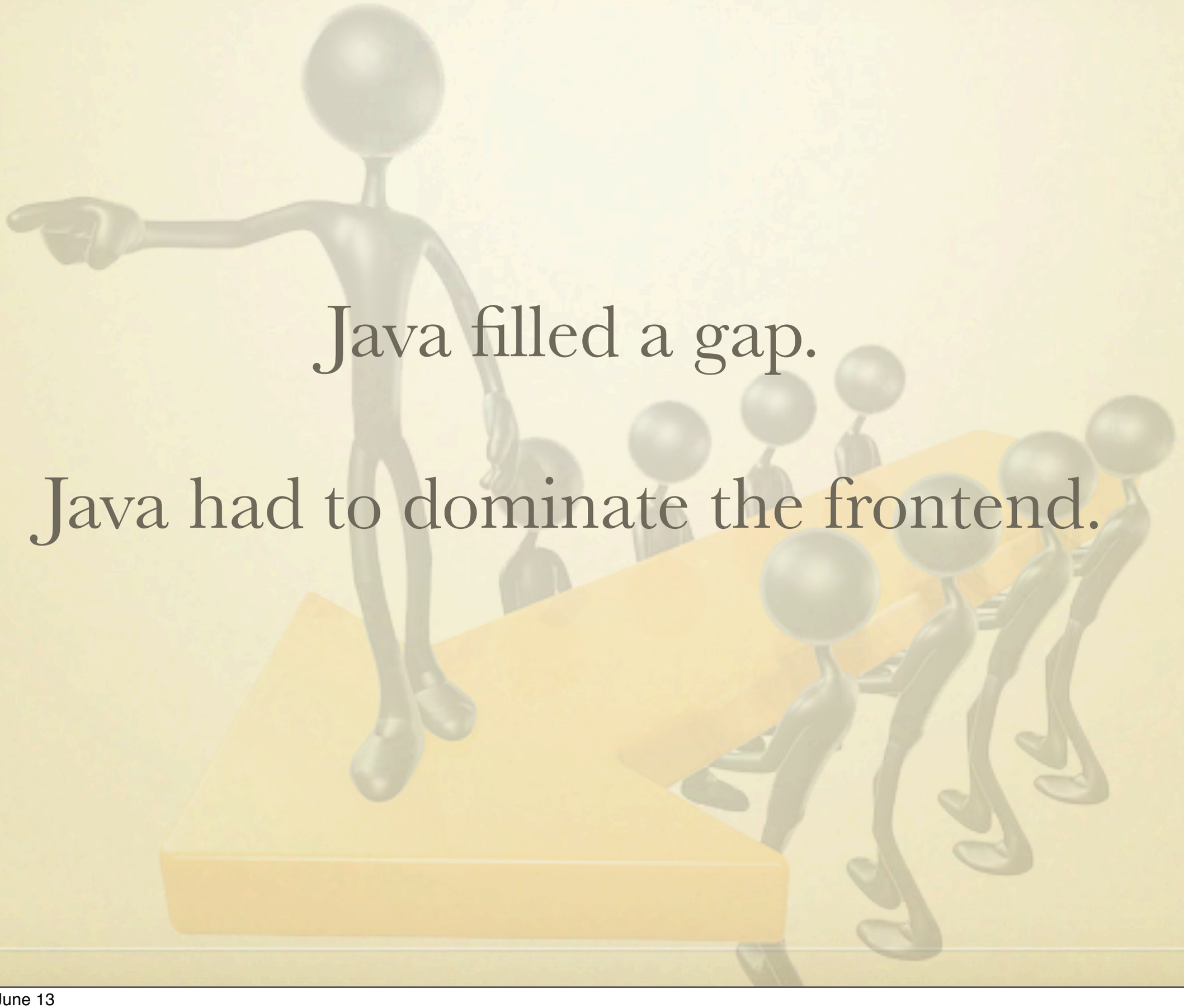
mongoDB

openstack™

Cassandra

Neo4j

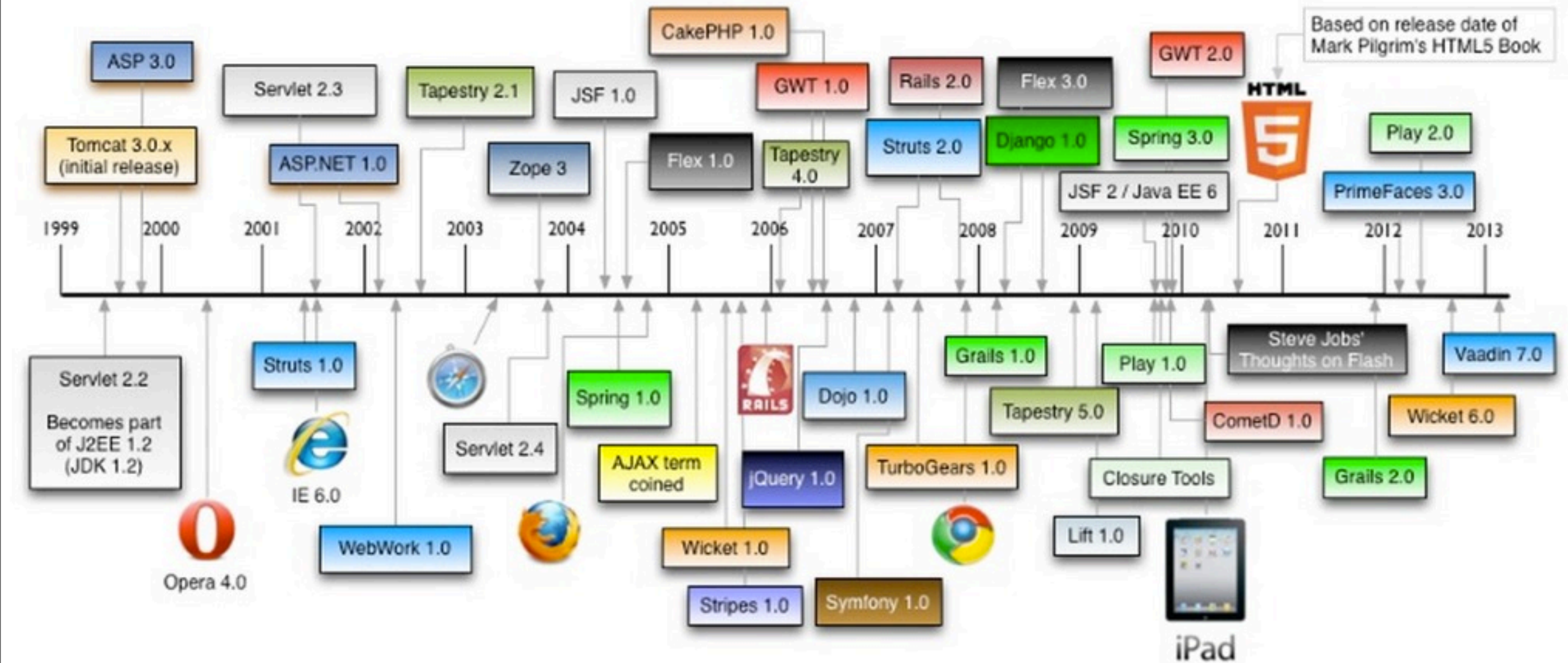
Weaving the Web



Java filled a gap.

Java had to dominate the frontend.

Today: many web frameworks



source: http://www.slideshare.net/mraible/comparing-jvm-web-frameworks-devoxx-france-2013

Web frameworks we worked with

spring

WICKET

JSF

Jakarta Struts

tapestry

play

Degree to which a framework dominates the frontend

The more it does,
the more it spells trouble

HTML

```
<div id="some-id" class="tutorial-next-step">
    <a href="some-link">Go to the next step</a>
</div>
```

Framework page

```
[TUTORIAL LINK]
```

```
<div id="some-id" class="tutorial-next-step">
    <a href="some-link">Go to the next step</a>
</div>
```

Java

The backend dominating the frontend causes long “supply lines”, which implies extra logistical effort to cross the distance

This is the cause of feeling like doing a lot of work, yet accomplishing not a whole lot

Complicating factor:

Frontend technologies took flight

Customers demanded it

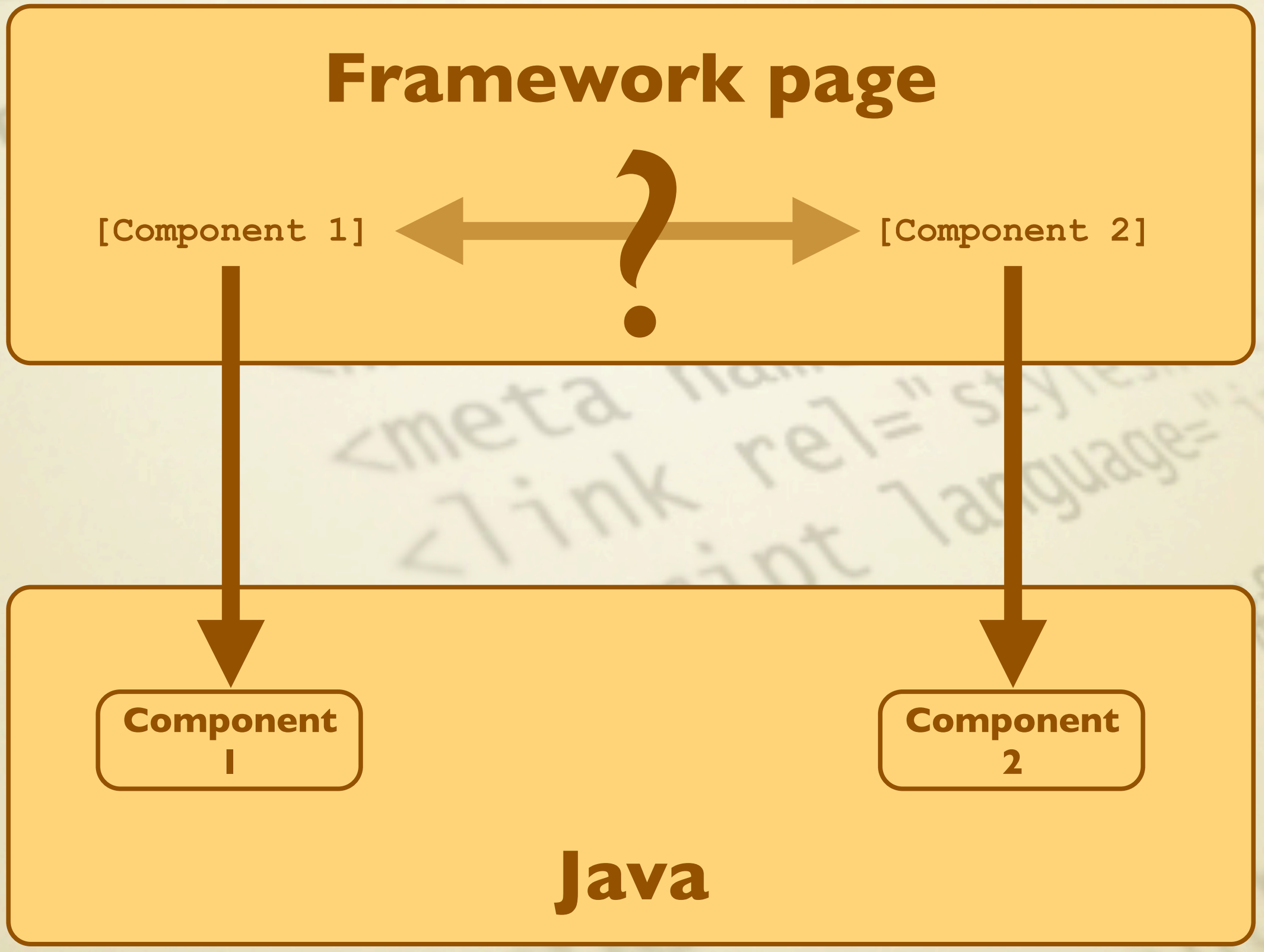
Many of the functions offered by web frameworks became obsolete

... worse, they were hard to get to play nice with each other

Framework page

[Component 1]

[Component 2]


Framework page
[Component 1]
?
[Component 2]
Component 1
Component 2
Java

Technology working near or beyond the boundaries of its usefulness, invite competition

S O F E A

Service Oriented Front End Architecture

source: http://www.slideshare.net/mraible/comparing-jvm-web-frameworks-devoxx-france-2013

Main boons of SOFEA

Short logistical lines

Seamless cooperation with modern tech

Backend blissfully ignorant of frontend

Division of labor corresponds with developer profiles

Uncertain Times

Uncertain future

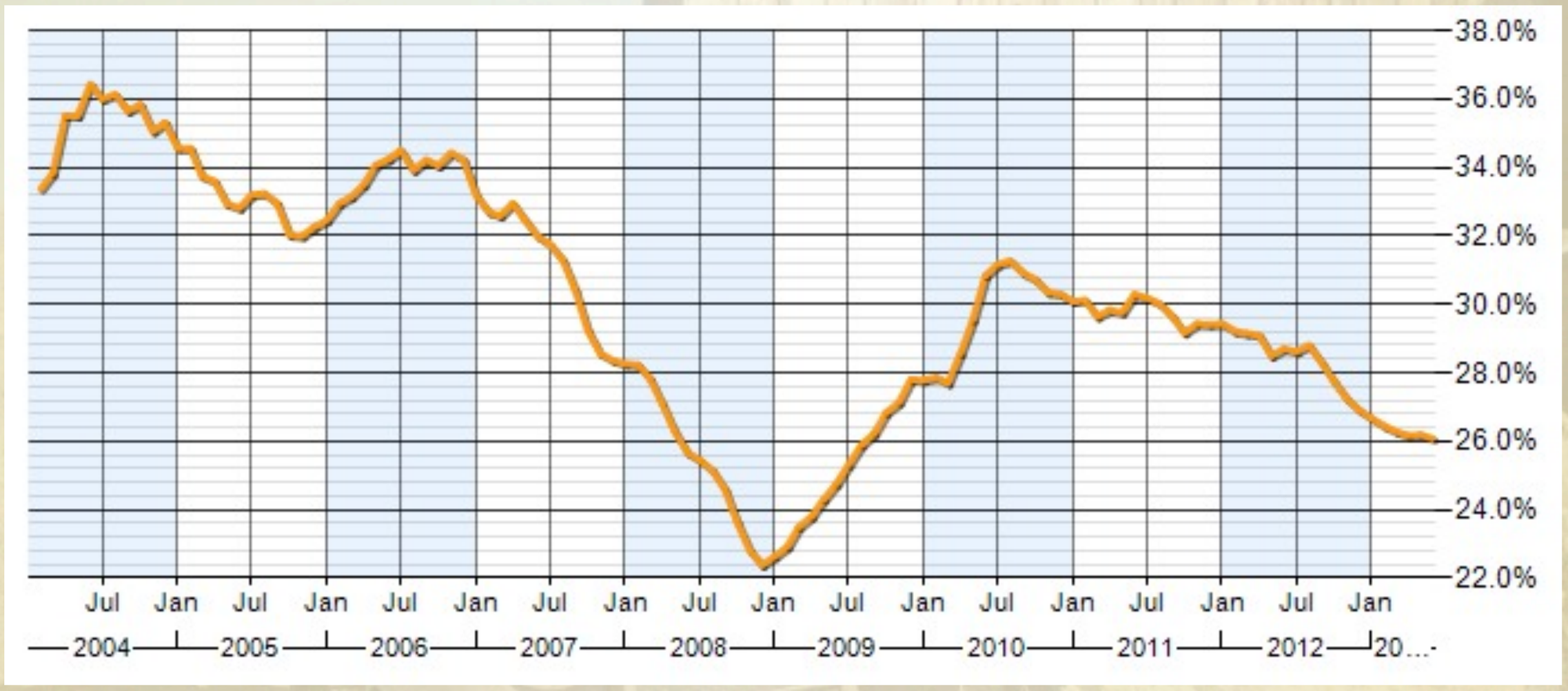
JDK Releases

Alpha / Beta
1.0
1.1
1.2
1.3
1.4
5.0
6
7
8

1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

the dark ages

Oracle acquires Sun... what now?



source: http://www.itjobswatch.co.uk/jobs/uk/java.do

source: http://www.indeed.com/jobtrends?q=java&l=&relative=1

JAVA IS A DEAD-END FOR ENTERPRISE APP DEVELOPMENT

source: http://blogs.forrester.com/mike_gualtieri/10-11-23-java_is_a_dead_end_for_enterprise_app_development

THE FUTURE OF JAVA

source: http://blogs.forrester.com/john_r_rymer/11-01-23-the_future_of_java

'Ruby on Rails serieuze bedreiging voor Java'

source: http://tweakers.net/nieuws/45137/ruby-on-rails-serieuze-bedreiging-voor-java.html

We tried Ruby on Rails...

... initially, it was faster, but it tended to bog down quickly.

We tried Groovy / Grails...

... RoR beats Grails handsdown. Lots of problems with immature technology, imperfect tooling and lack of documentation.

Renewed Interest

LinkedIn

Ruby on Rails vs. Node.js at LinkedIn

After pinpointing some of the problems, Lan eventually admitted that "v8 is freaking fast" but added: "Don't assume that you must build your next technology using node.js. It was definitely a better fit than Ruby on Rails for what the mobile server ended up doing, but it is not a performance panacea. You're comparing a lower level server to a full stack web framework."

source: http://www.indeed.com/jobtrends?q=java&l=&relative=1

Twitter

Twitter Shifting More Code to JVM, Citing Performance and Encapsulation As Primary Drivers

source: http://www.infoq.com/articles/twitter-java-use

Twitter Search is Now 3x Faster

source: https://blog.twitter.com/2011/twitter-search-now-3x-faster

Twitter's Shift from Ruby to Java Helps it Survive US Election

source: http://www.infoq.com/news/2012/11/twitter-ruby-to-java

Twitter survives election after Ruby-to-Java move

source: http://www.theregister.co.uk/2012/11/08/twitter_epic_traffic_saved_by_java/

tweakers.net

Tweakers 7: waarom een eigen Java-back-end?

source: http://tweakers.net/reviews/2779/tweakers-7-waarom-een-eigen-java-back-end.html

Our customers' interest in Grails and Ruby on Rails was stabilizing

Oracle proved to be a better steward
than expected

despite some hiccups...

Lawsuit against Google

various resignations

Apache Software
Foundation resignation

Android used Java

Android caused a surge in Java development need

So, Java was still in the game

However, we still had
one issue to address...

... developing for the frontend

Because Grails and RoR taught
the world what was possible,
going back was not an option

HTML / CSS / Javascript

REST / JSON

Java

Walls are Down

What You Need to Know About the Java Exploit

How to Disable Java

Most Java-enabled browsers vulnerable to widespread Java exploits, Websense says

No, Seriously, Just Disable Java in Your Browser Right Now

Enterprises abandon Java due to security holes

Researchers: Java's security problems unlikely to be resolved soon

> **Oracle is being forced to address these security issues because browsers are now blacklisting Java**

Oracle Issues Emergency Java Security Update

Java update: Oracle fixes 42 security issues today

Java's Security Renaissance Begins

Oracle's Java security improvements don't quite satisfy

What You Need to Know About the Java Exploit
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SECURITY CRISIS
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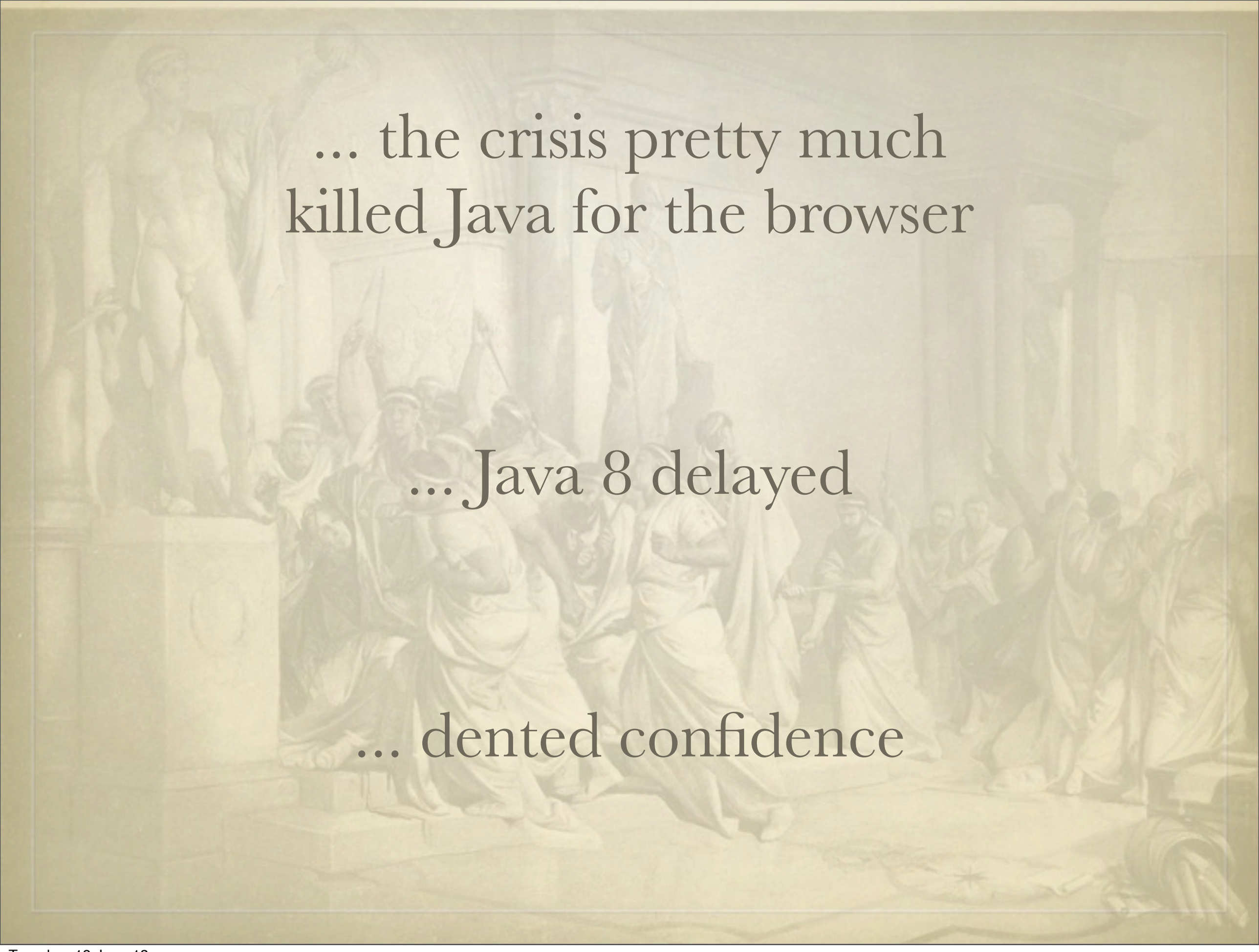
Up
Java update: Oracle fixes 42 security issues today
Java's Security Renaissance Begins
Oracle's Java security improvements don't quite satisfy



... the crisis pretty much
killed Java for the browser

... Java 8 delayed

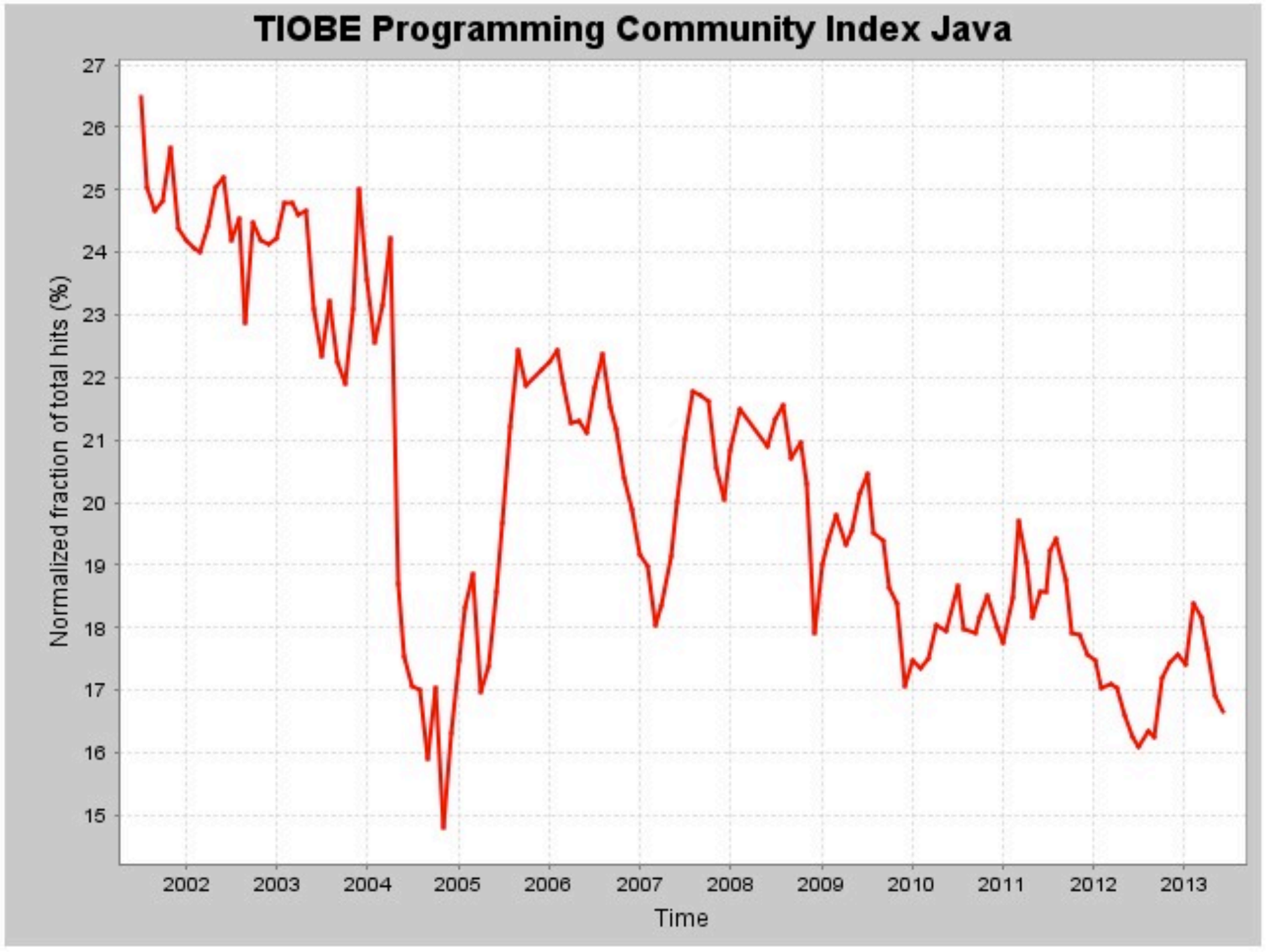
... dented confidence

... luckily, Java in the backend is still secure

which is more than some other technologies can claim

Critical Ruby On Rails Issue Threatens 240,000 Websites

Future of Java



source: http://www.tiobe.com/index.php/paperinfo/tpci/Java.html

The absolute number of developers is still increasing

So Java takes a smaller bite out of more

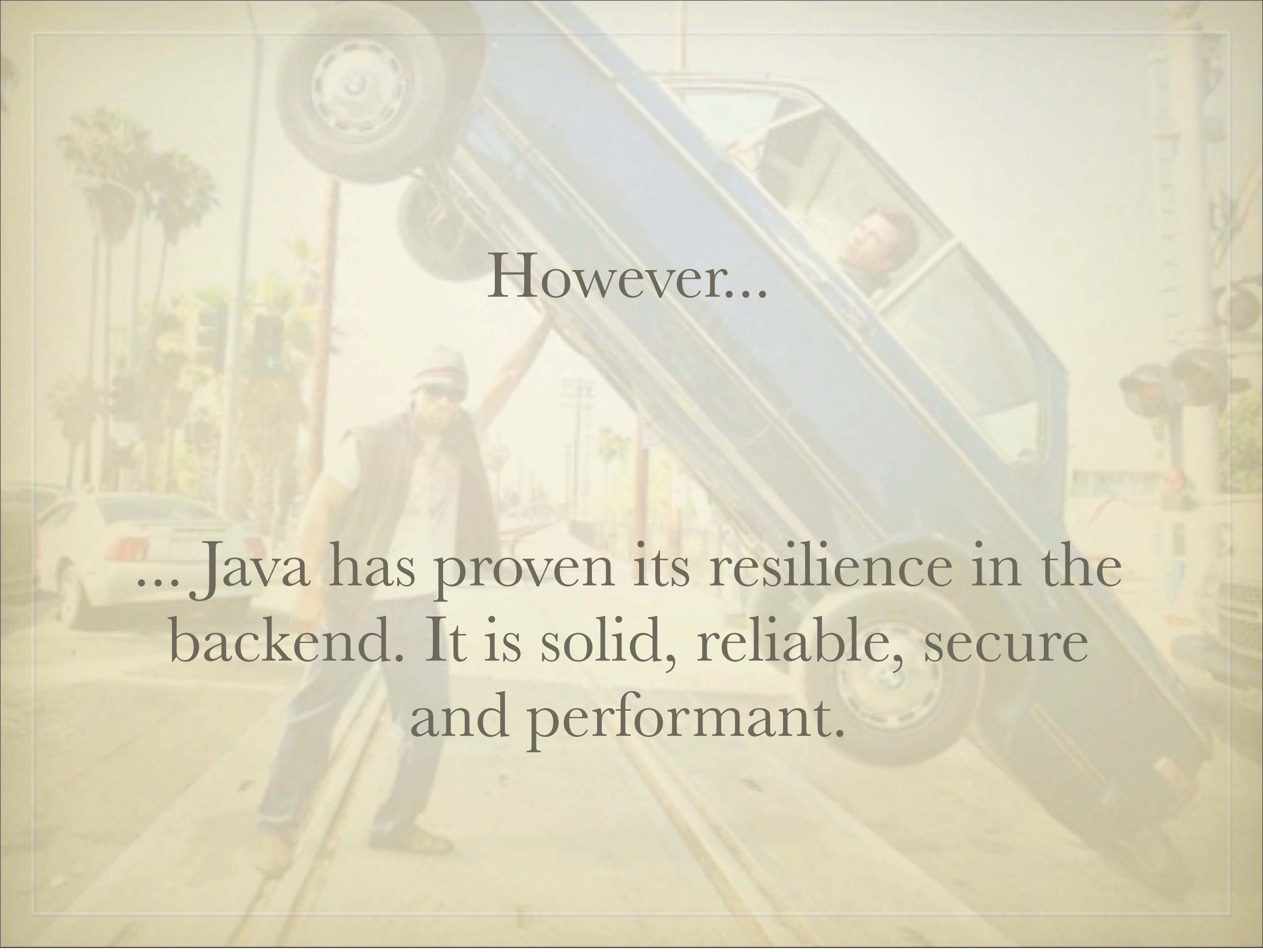
Java started out with a claim to universality

As we have seen, this claim could not be upheld

Java is not for the Desktop

Java is not for **in** the Browser

Java is not for rendering **to** the browser



However...

... Java has proven its resilience in the backend. It is solid, reliable, secure and performant.

JVM is here to stay

Great for integration

Vibrant community, lots of innovation

Mature and varied tooling (dev + ops)