

# PUTTING JAVA IN ITS PLACE

DIARY OF A SOLDIER IN DUKE'S ARMY

BY ROBERT BOR







# A STAR IS BORN




A faded, sepia-toned background image showing two men in a discussion. The man on the left is wearing a dark suit and is looking towards the right. The man on the right is wearing a light-colored jacket over a patterned shirt and is gesturing with his right hand while speaking. They appear to be in an office or a formal setting.

Java made no small claims

It claimed nothing less  
than universality





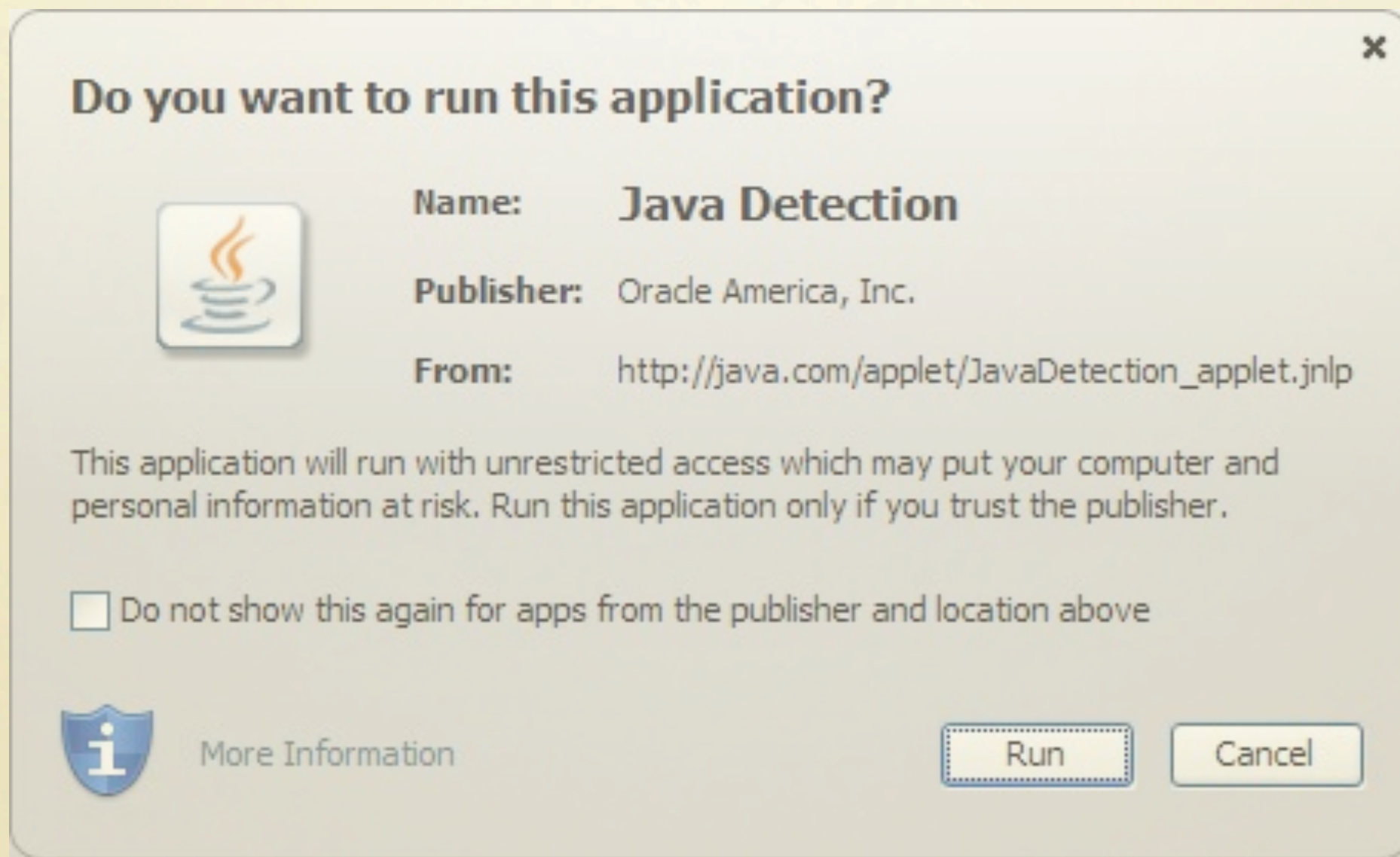
... although Java for the Desktop  
was not very popular

Swing

AWT



... and surely applets would  
not be the future?





A person is standing on a yellow step ladder in a public restroom, reaching up to adjust a urinal. The restroom has several white urinals mounted on a light-colored wall. The scene is dimly lit, with a circular vent visible on the left wall. The overall tone is humorous, suggesting that the JDK has flaws that need to be fixed.

... and the basic JDK had its flaws

messy exceptions

primitives

`java.util.Date`

security

`switch`

general  
inconsistencies

lack of a meta model





right time,  
right message...


... liberation from C / C++



A movie poster for 'Clash of the Titans' featuring Perseus (played by Jason Momoa) in the center, holding a glowing blue sword. He is surrounded by other characters, including a woman in a white dress (Athena) and a man in a red tunic (Hercules). The background is a dramatic, cloudy sky. The title 'CLASH OF THE TITANS' is prominently displayed in the center.

# CLASH OF THE TITANS





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

.NET



A group of approximately ten diverse people are captured in mid-air, jumping joyfully with their arms raised high. They are wearing casual clothing like t-shirts and jeans. The background is a clear, bright blue sky. The overall mood is one of celebration and community.

Whereas Java had a vibrant community

With lots of innovation and change



A close-up photograph of a hand holding a stack of five smooth, white, rounded stones. The hand is positioned in the center of the frame, with the fingers gently gripping the stones. The stones are stacked vertically, with the top stone slightly offset. The background is a soft, out-of-focus light blue and white, suggesting a bright, airy environment. The overall tone is calm and steady.

.NET had stability

With economy of scale



The background of the slide features two EasyJet aircraft in flight. The aircraft in the foreground is a white Airbus A320 with orange accents, including the tail and engine cowling. The text 'easyJet' is written in white on the orange tail, and 'easyJet.com' is written in orange on the white fuselage. The aircraft is flying towards the right. Another similar aircraft is visible in the background, slightly higher and further away. The overall image has a soft, faded appearance.

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





The background of the slide is a faded, sepia-toned illustration of the Tower of Babel. The tower is a massive, multi-tiered structure with numerous arches and windows, built on a hill. It is surrounded by a large crowd of people and various animals, including horses and oxen. The scene is set in a hilly, arid landscape with a body of water visible in the distance. The overall tone is historical and biblical.

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**<sup>TM</sup> VIRTUAL MACHINE

JVM is here to stay

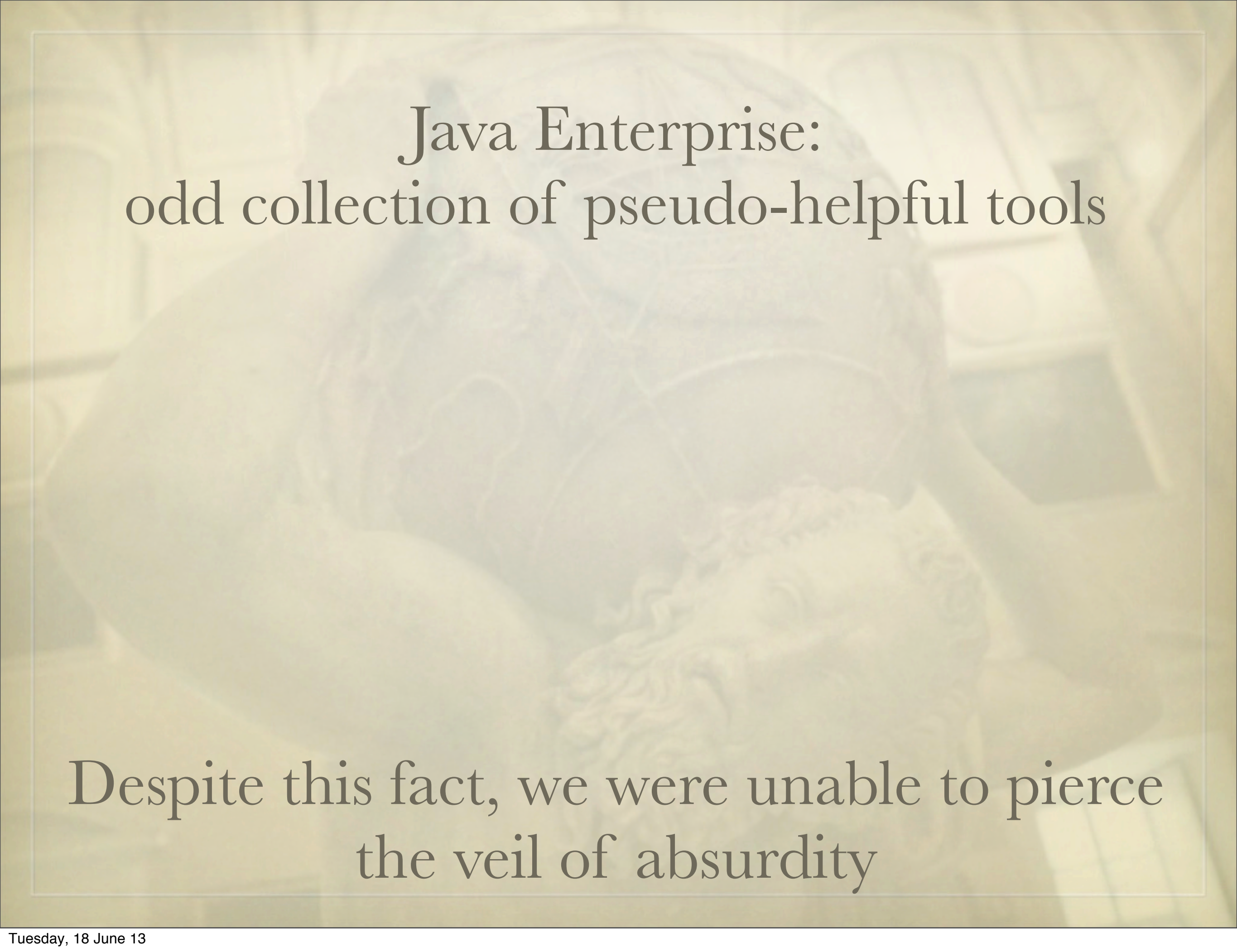




A woman with long blonde hair is shown from behind, kneeling in a circular cage. She is wearing a chain around her waist and has her hands cuffed in front of her. Two other women in similar cages are visible in the background. The scene is set in a room with a tiled floor and a wall with a repeating pattern. The text "BREAKING THE CHAINS" is overlaid in the center.

# 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



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



A background image showing the lower legs and feet of two people wearing high-heeled shoes. The person on the left is wearing a red skirt and a black belt, while the person on the right is wearing a yellow skirt. The image is faded and serves as a background for the text.

# Paradigm mismatch between OO and RDBMS

Despite several failed attempts at  
having true OO databases

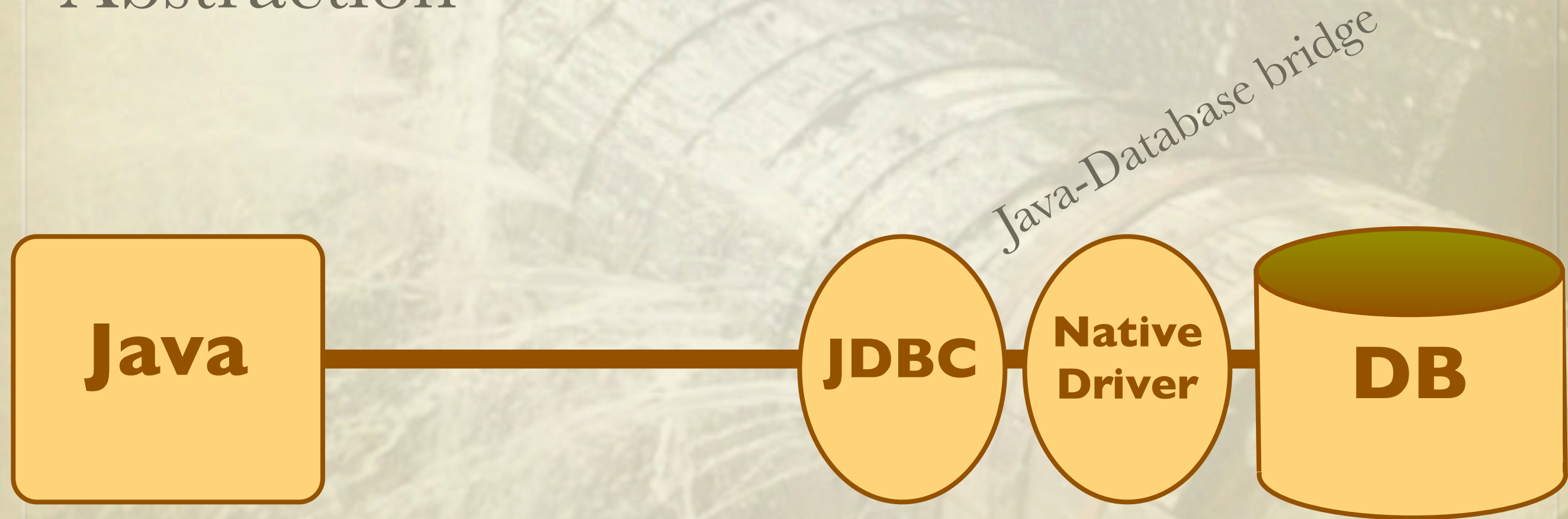


# Leaking Abstraction



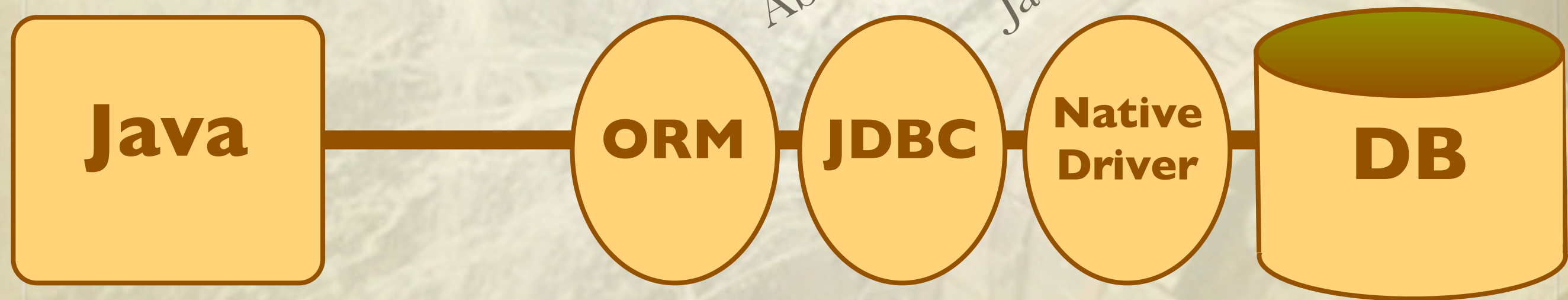


# Leaking Abstraction



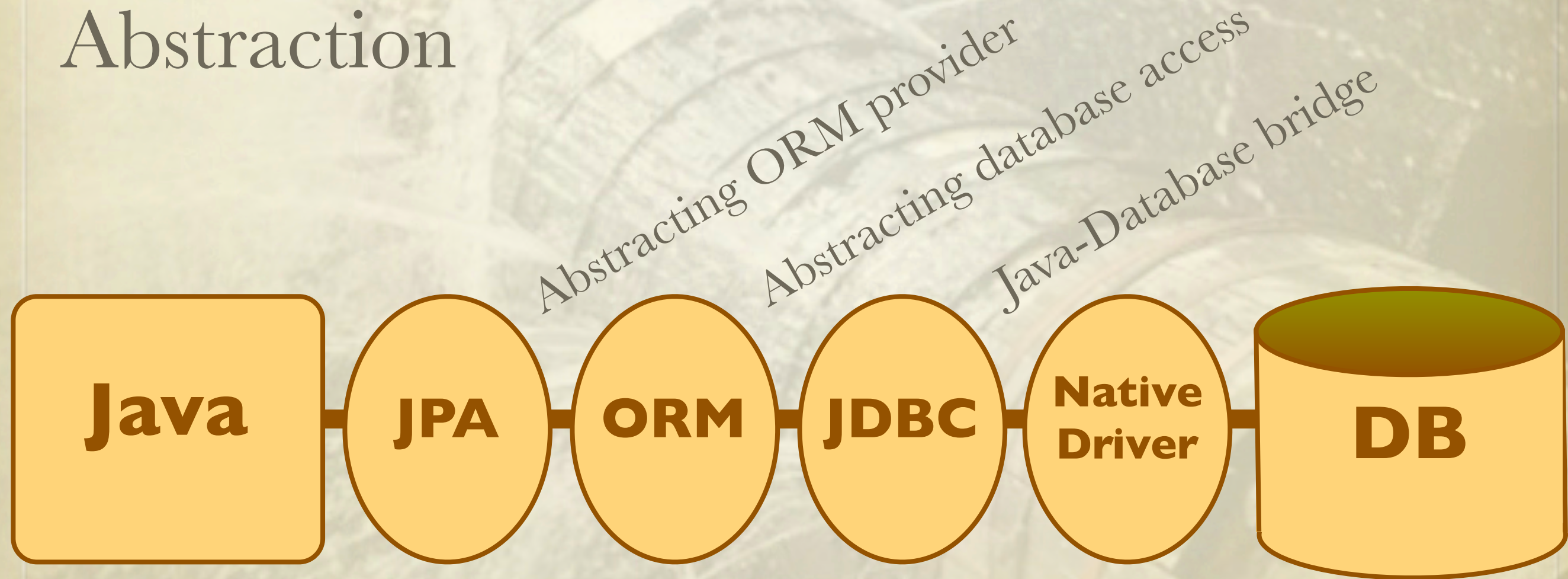


# Leaking Abstraction



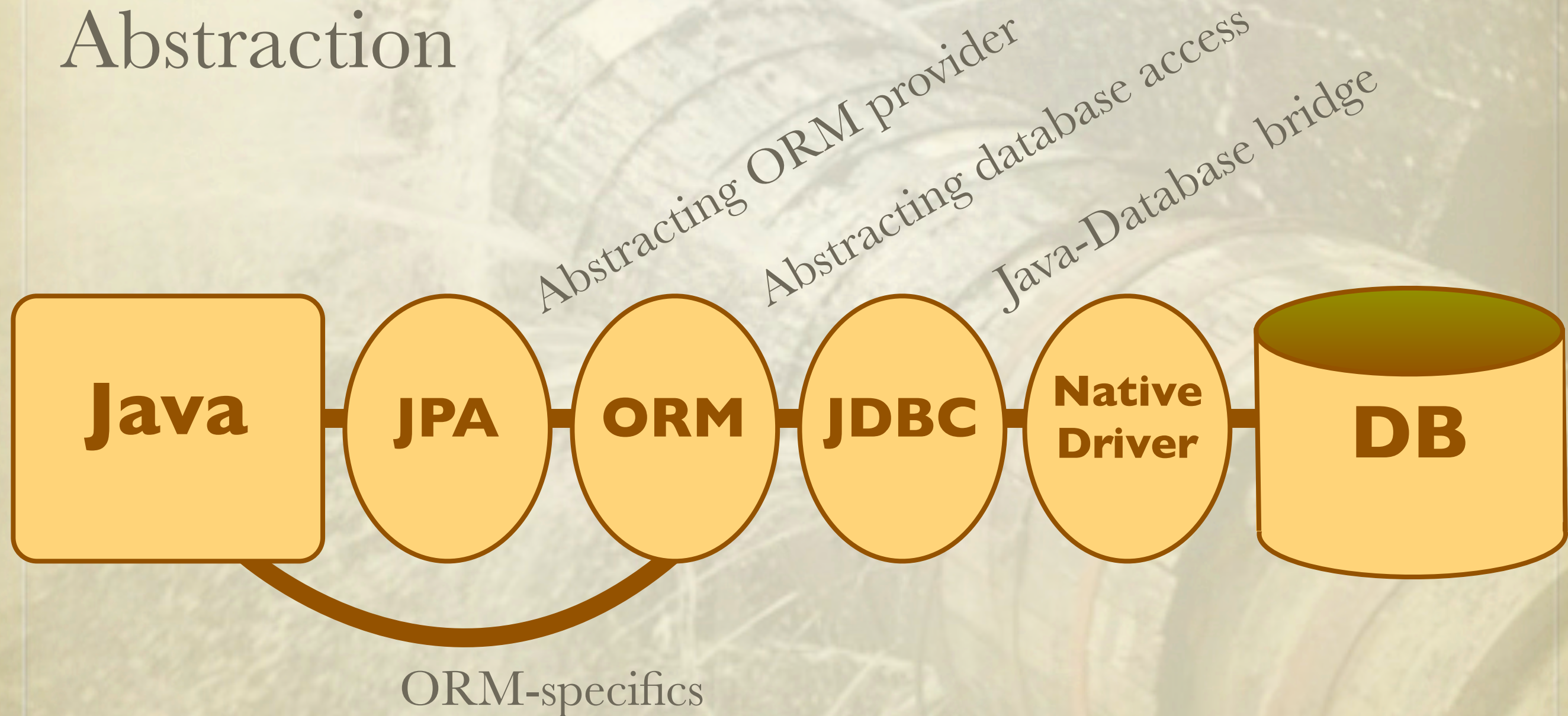


# Leaking Abstraction



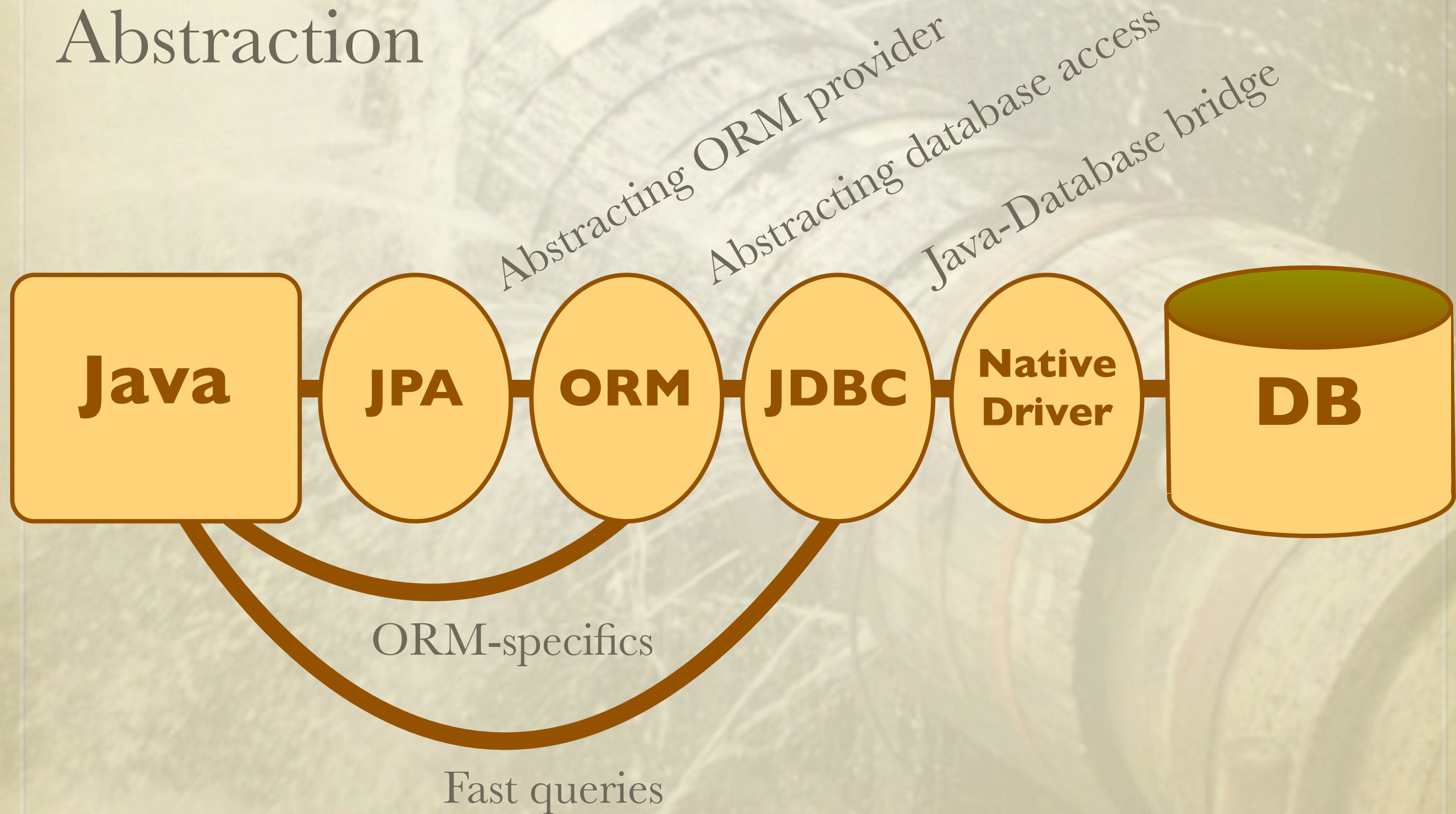


# Leaking Abstraction

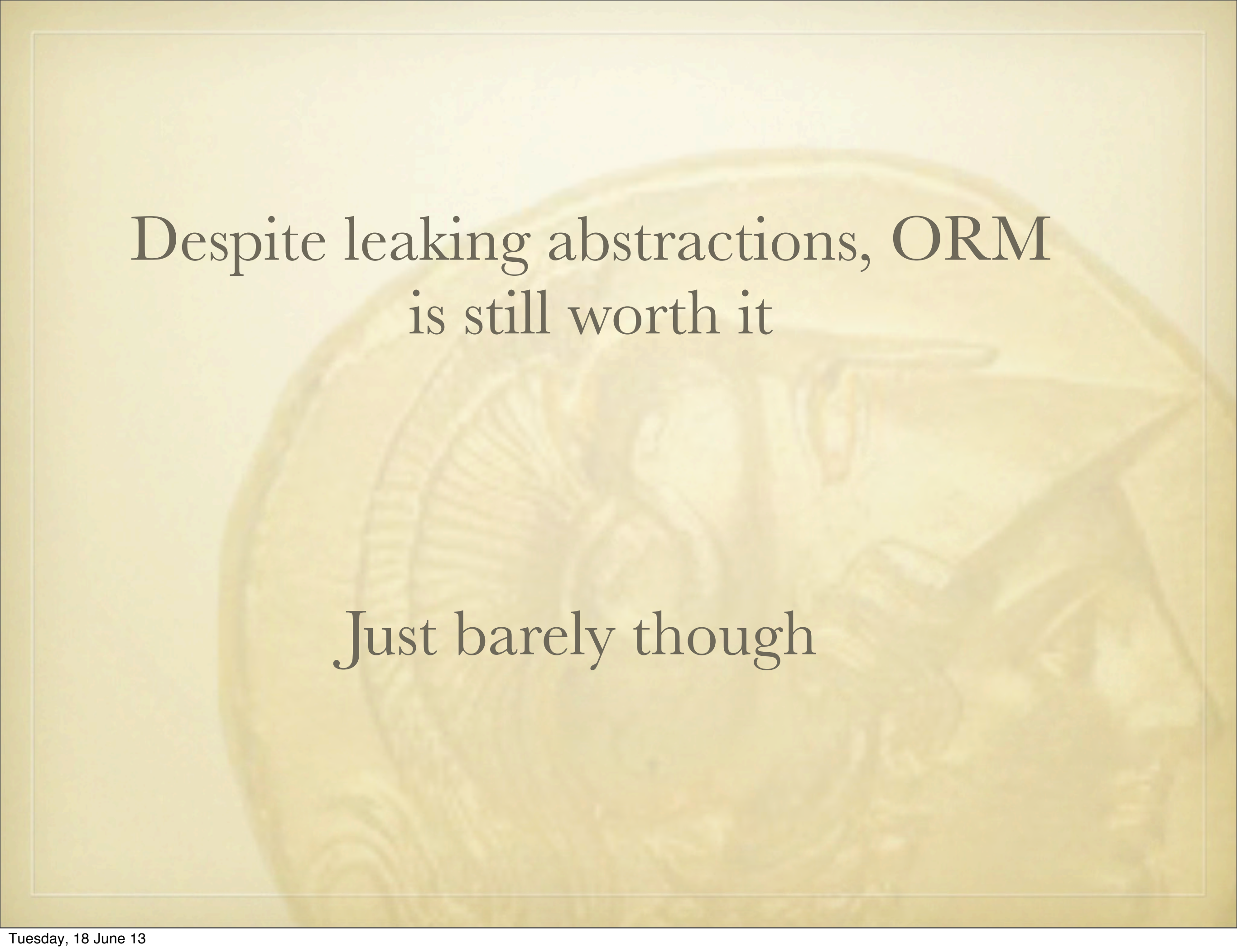




# Leaking Abstraction



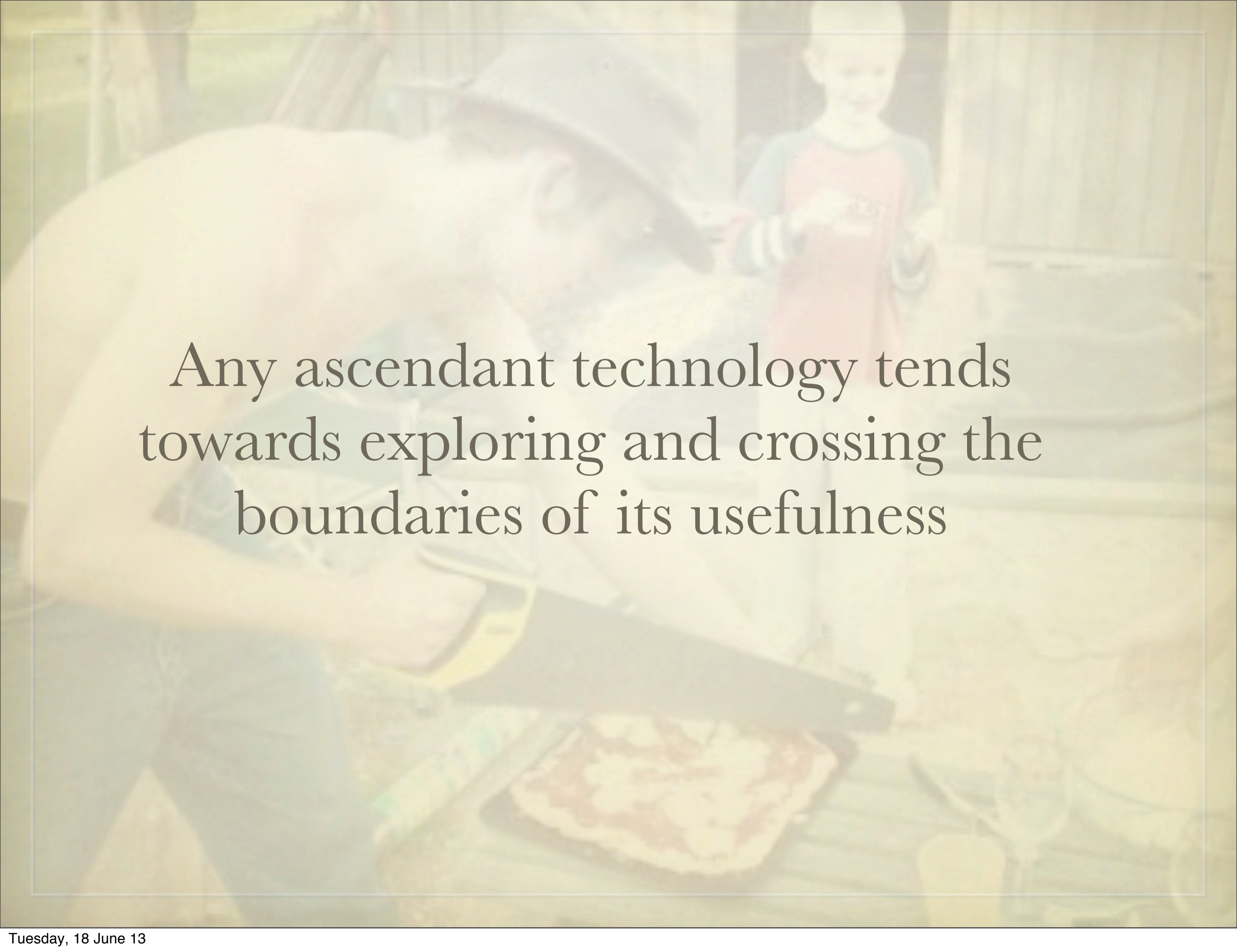


A faint, light-colored background image featuring a globe with a person's silhouette standing on it, set against a warm, yellowish-gold gradient.

Despite leaking abstractions, ORM  
is still worth it

Just barely though

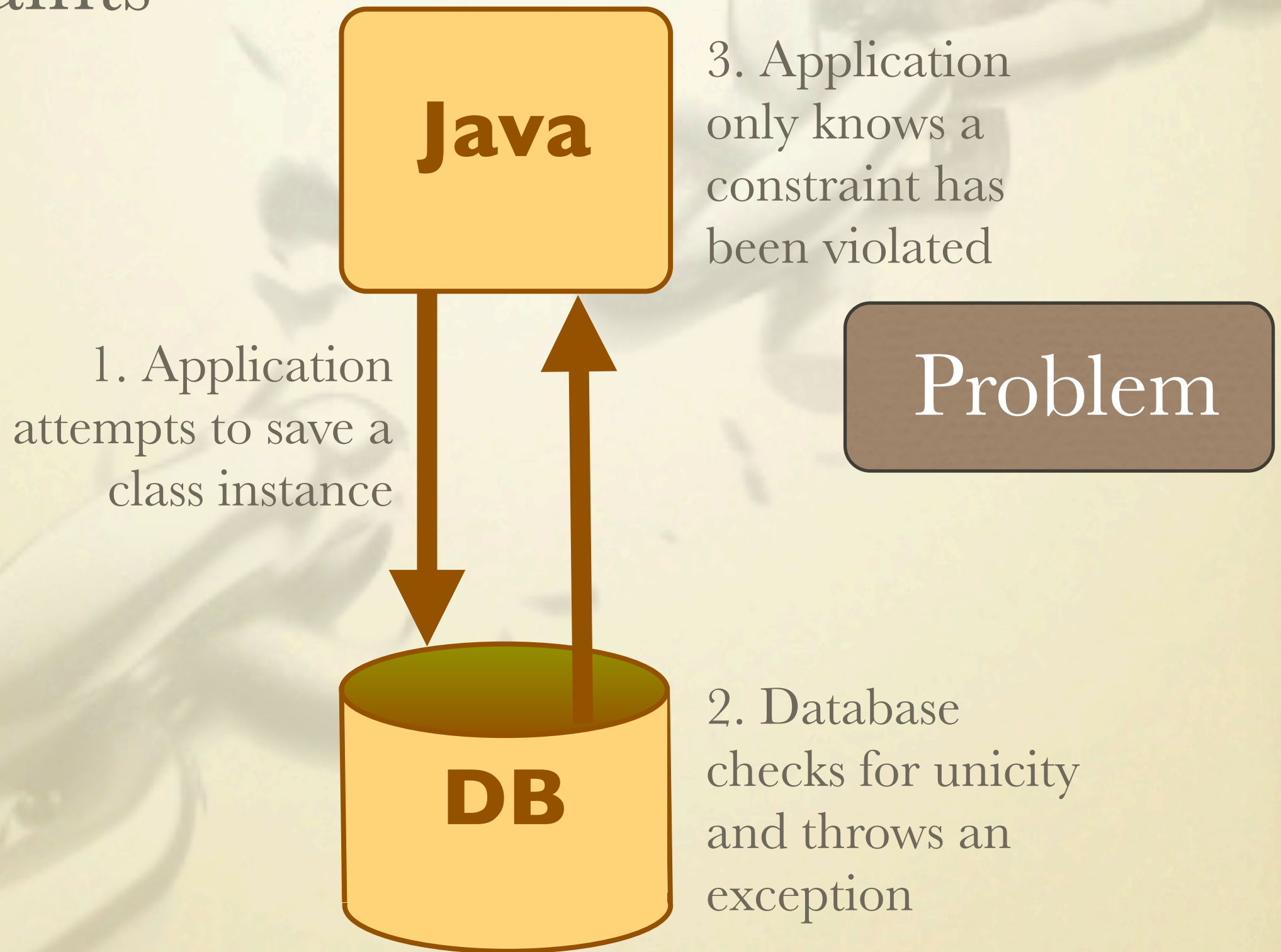




Any ascendant technology tends  
towards exploring and crossing the  
boundaries of its usefulness

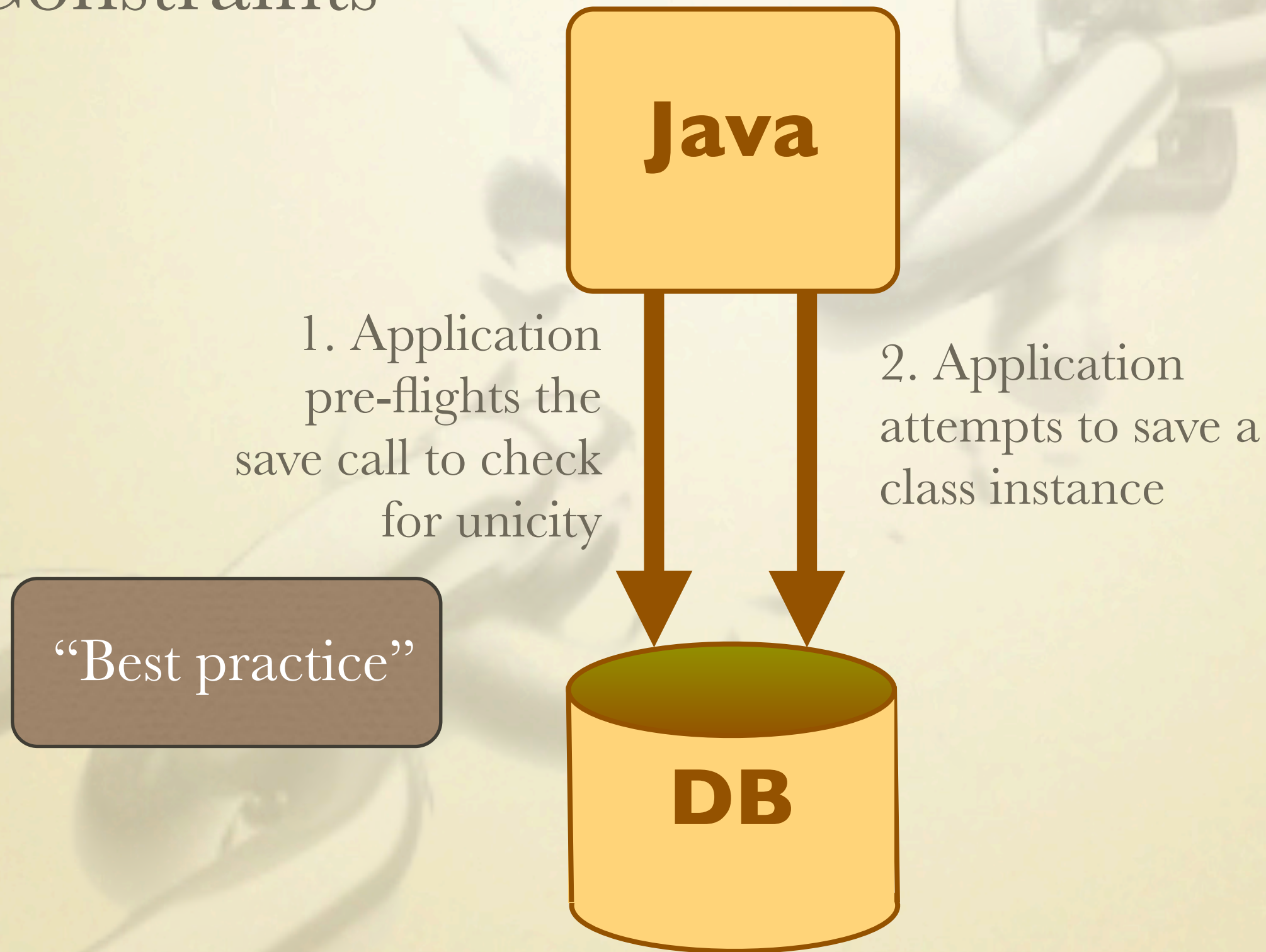


# Violated Constraints





# Violated Constraints





# 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





A large, detailed illustration of a spider on its web, with the text "WEAVING THE WEB" overlaid. The spider is a large, brown, hairy arachnid with long, thin legs. It is positioned in the center of the frame, facing the viewer. The web is a complex, spiral structure made of fine, white threads. The background is a soft, out-of-focus landscape with warm, golden-brown tones, suggesting a sunset or sunrise. The overall mood is serene and contemplative.

# WEAVING THE WEB



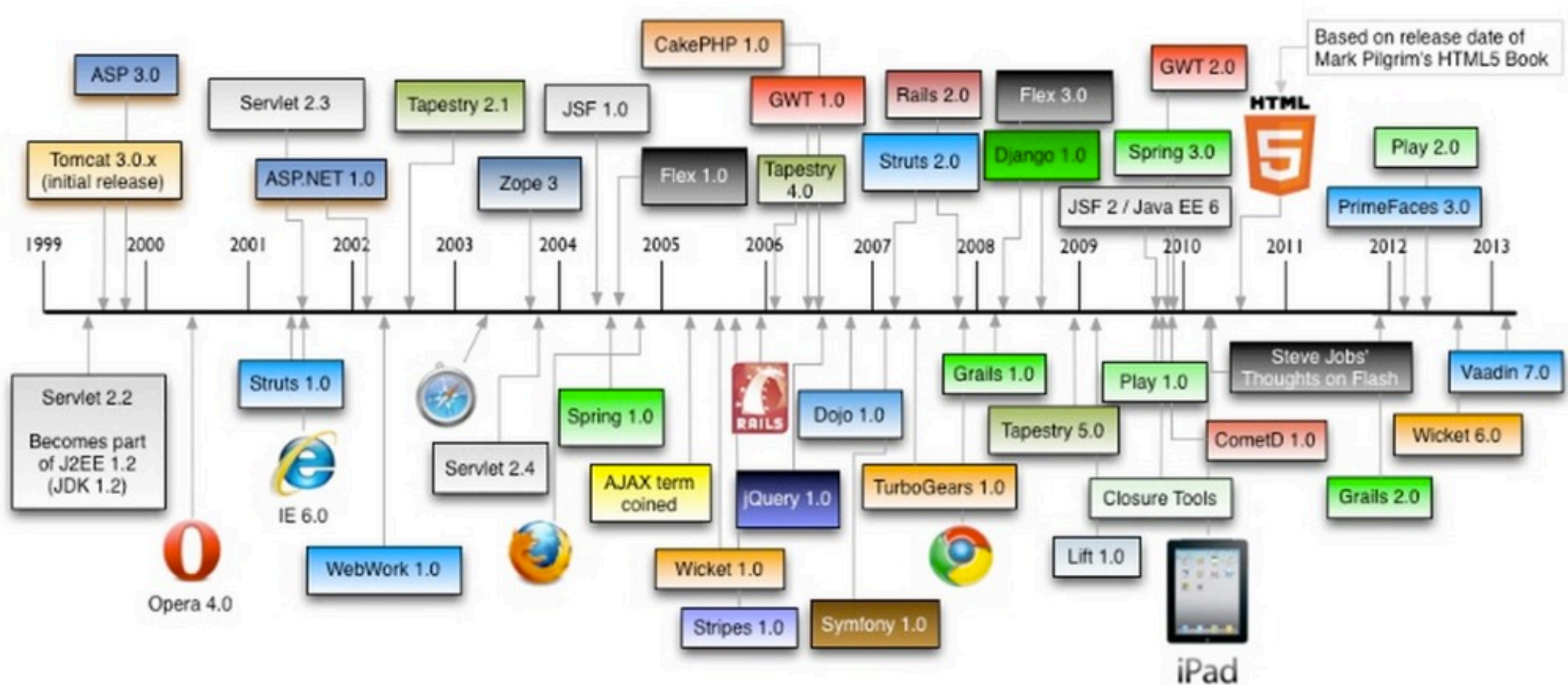


Java filled a gap.

Java had to dominate the frontend.



# Today: many web frameworks



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

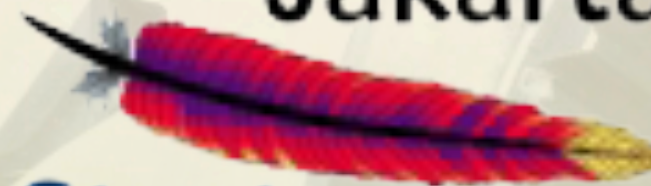


# Web frameworks we worked with



JSF

Jakarta



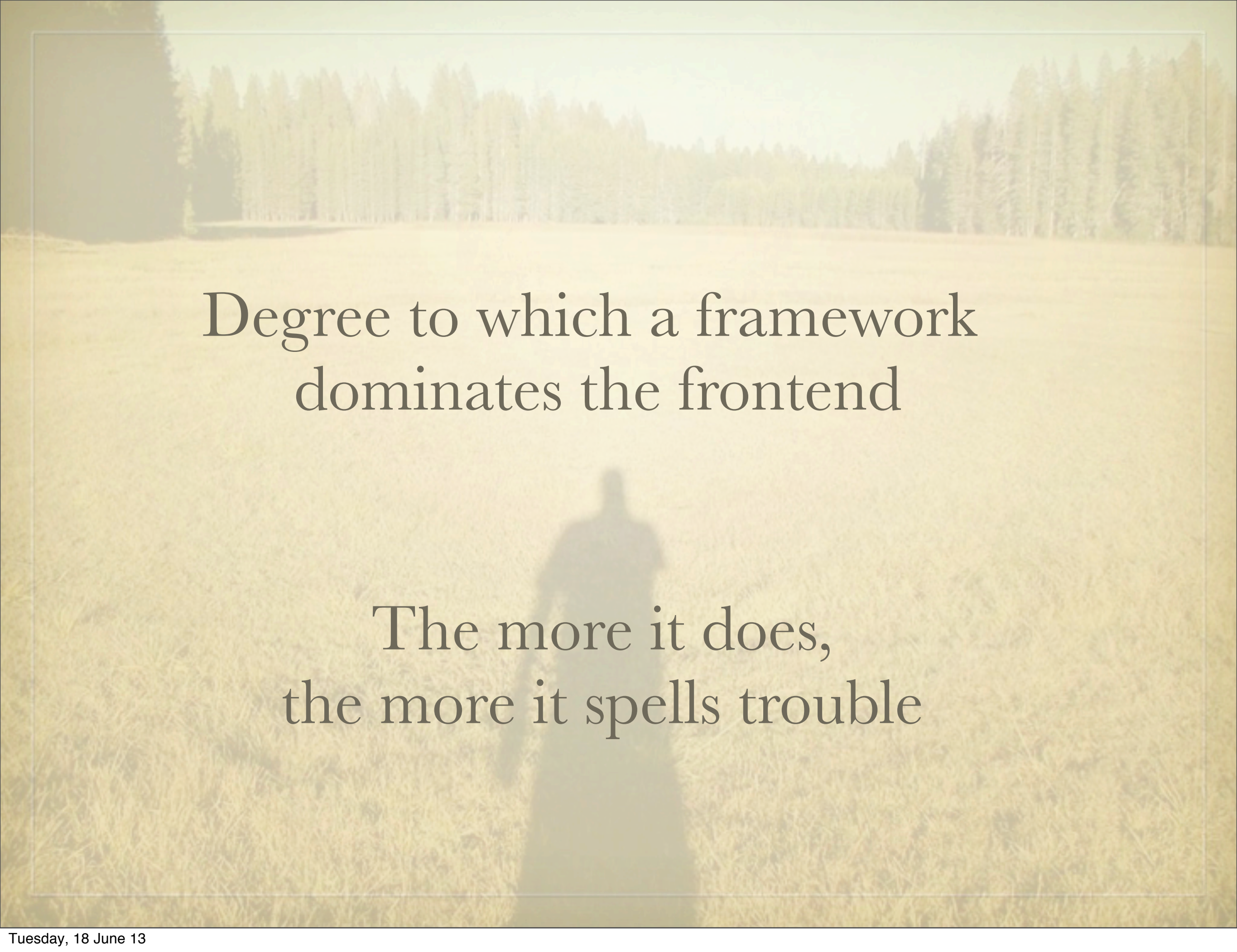
Struts



tapestry





A person is walking away from the camera in a vast, open field of tall, golden-brown grass. In the background, a dense line of evergreen trees stretches across the horizon under a pale, overcast sky. The person's shadow is cast long and dark on the grass in front of them.

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

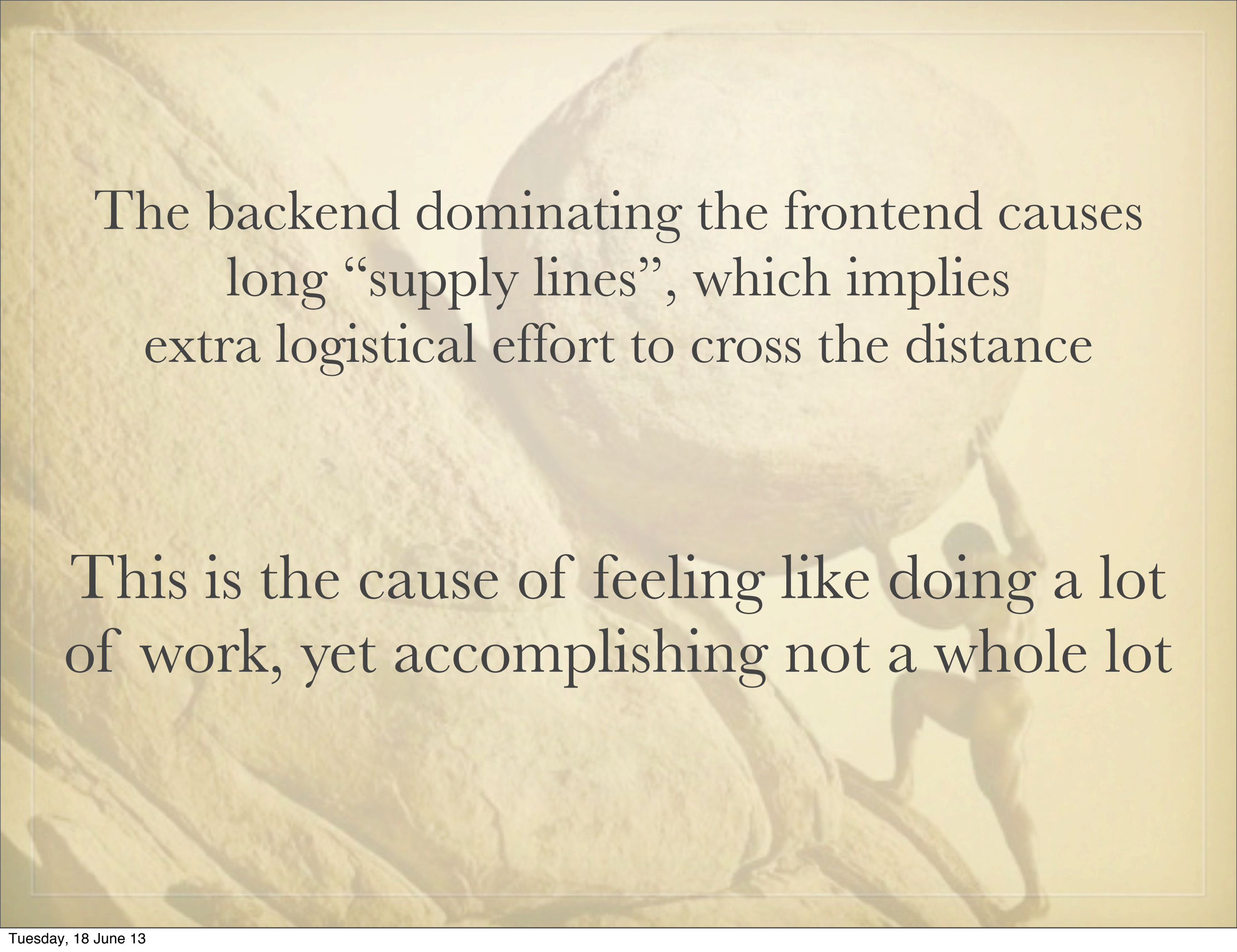
[TUTORIAL LINK]



```
<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



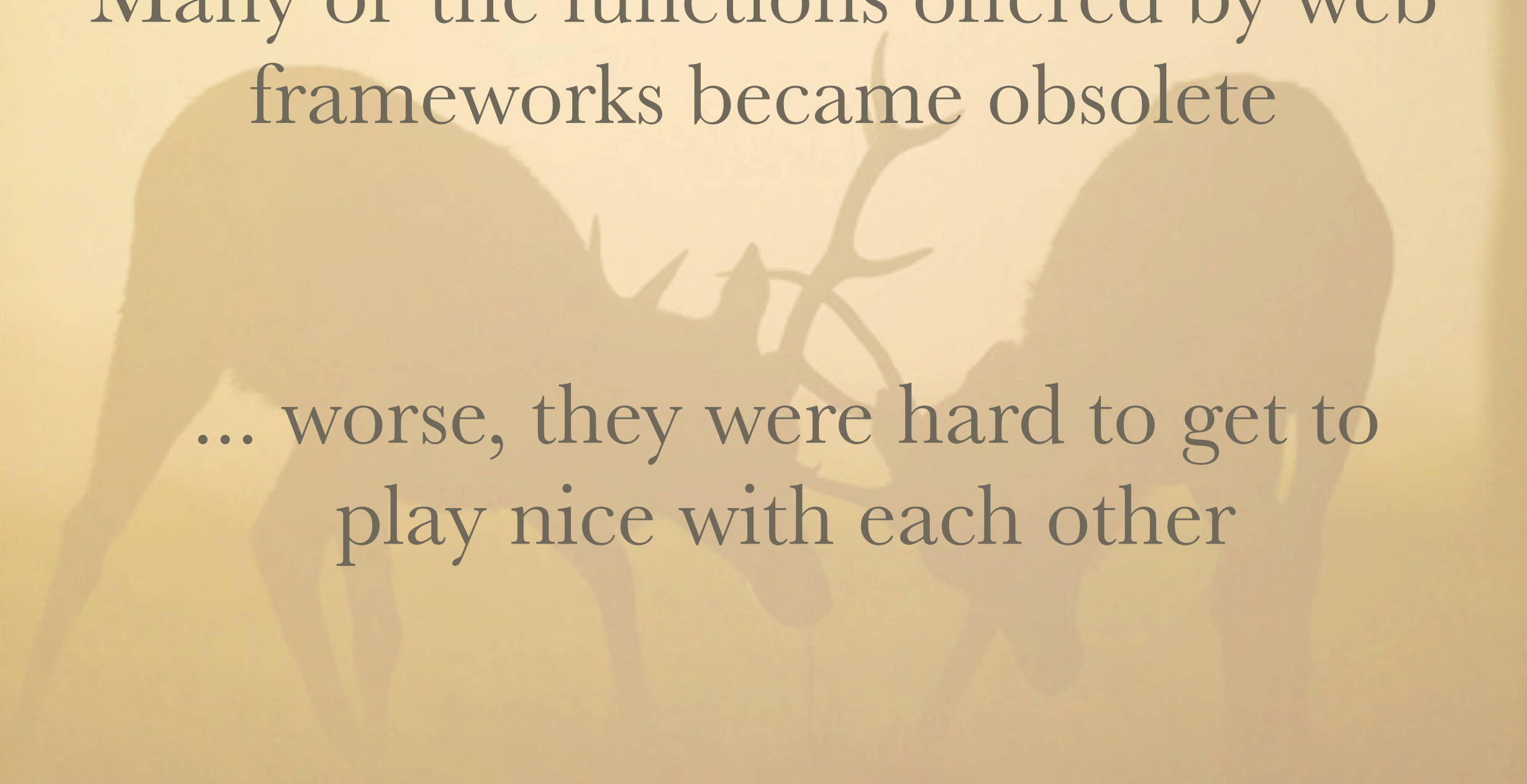
Complicating factor:

Frontend technologies took flight



Customers demanded it



A faint, stylized illustration of two reindeer with antlers, facing each other, serves as a background for the text. The reindeer are rendered in a light, sketchy style, with their antlers clearly visible. They are positioned behind the text, which is centered on the slide.

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]



**Component  
1**

**Component  
2**

**Java**



# 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



JavaScript **MVC**



 **SPROUTCORE**

**HTML**



**Sencha Ext JS**



**PhoneGap**

source: <http://www.slideshare.net/mraible/comparing-jvm-web-frameworks-devonxx-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



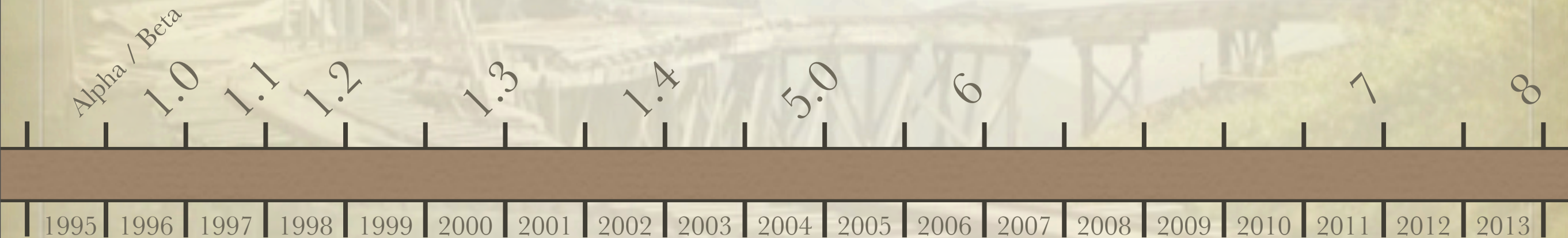
The background is a painting of a mountainous landscape. In the foreground, there are rolling hills in shades of green and yellow. In the middle ground, a fortified town or castle sits on a hill, featuring a large central dome and several smaller buildings with red roofs. The town is surrounded by a stone wall. In the background, towering, rugged mountains rise, their peaks partially covered in snow and shrouded in a thick, pale mist or fog. The overall color palette is muted, with greens, yellows, greys, and soft blues.

# UNCERTAIN TIMES



# UNCERTAIN FUTURE

## JDK RELEASES



the dark ages

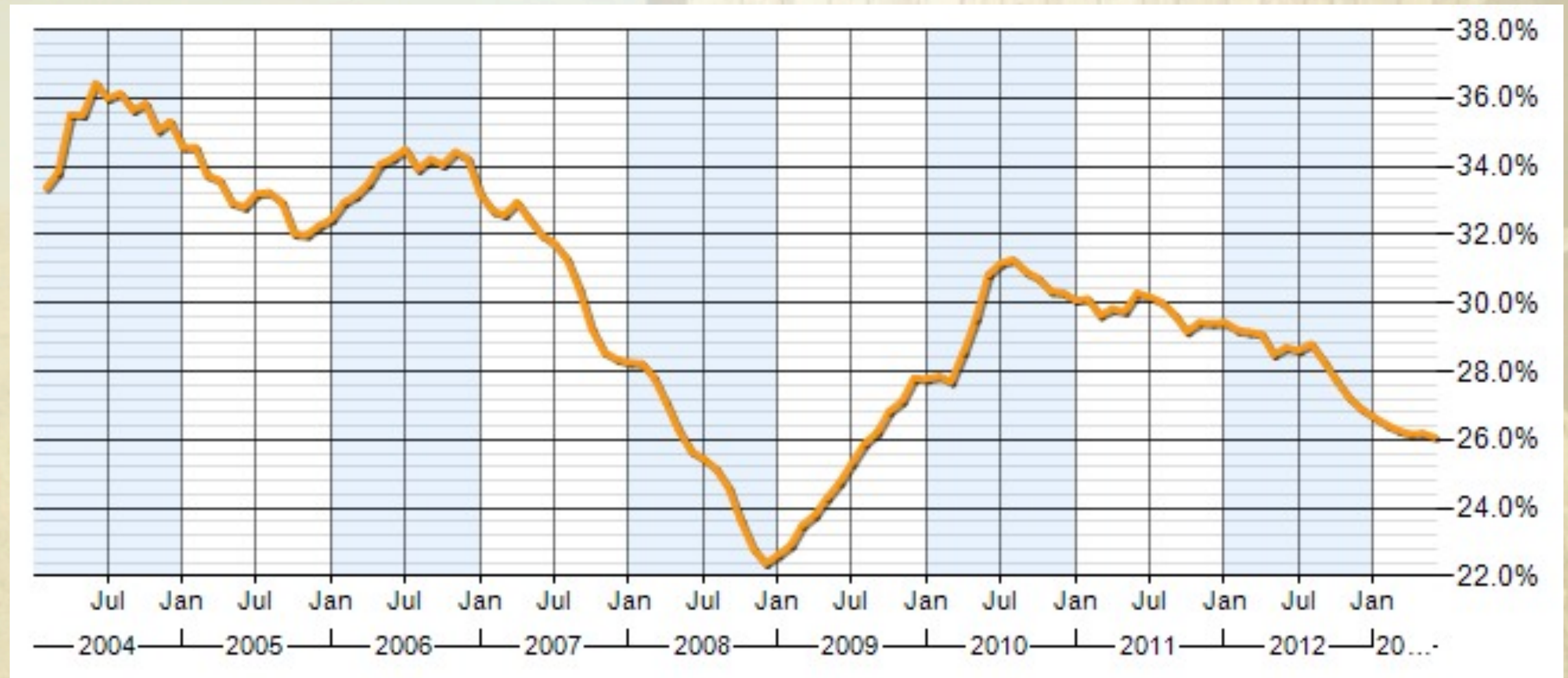




Oracle acquires Sun... what now?

ORACLE®





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](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](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





## 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/](http://www.theregister.co.uk/2012/11/08/twitter_epic_traffic_saved_by_java/)





tweakers.net

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

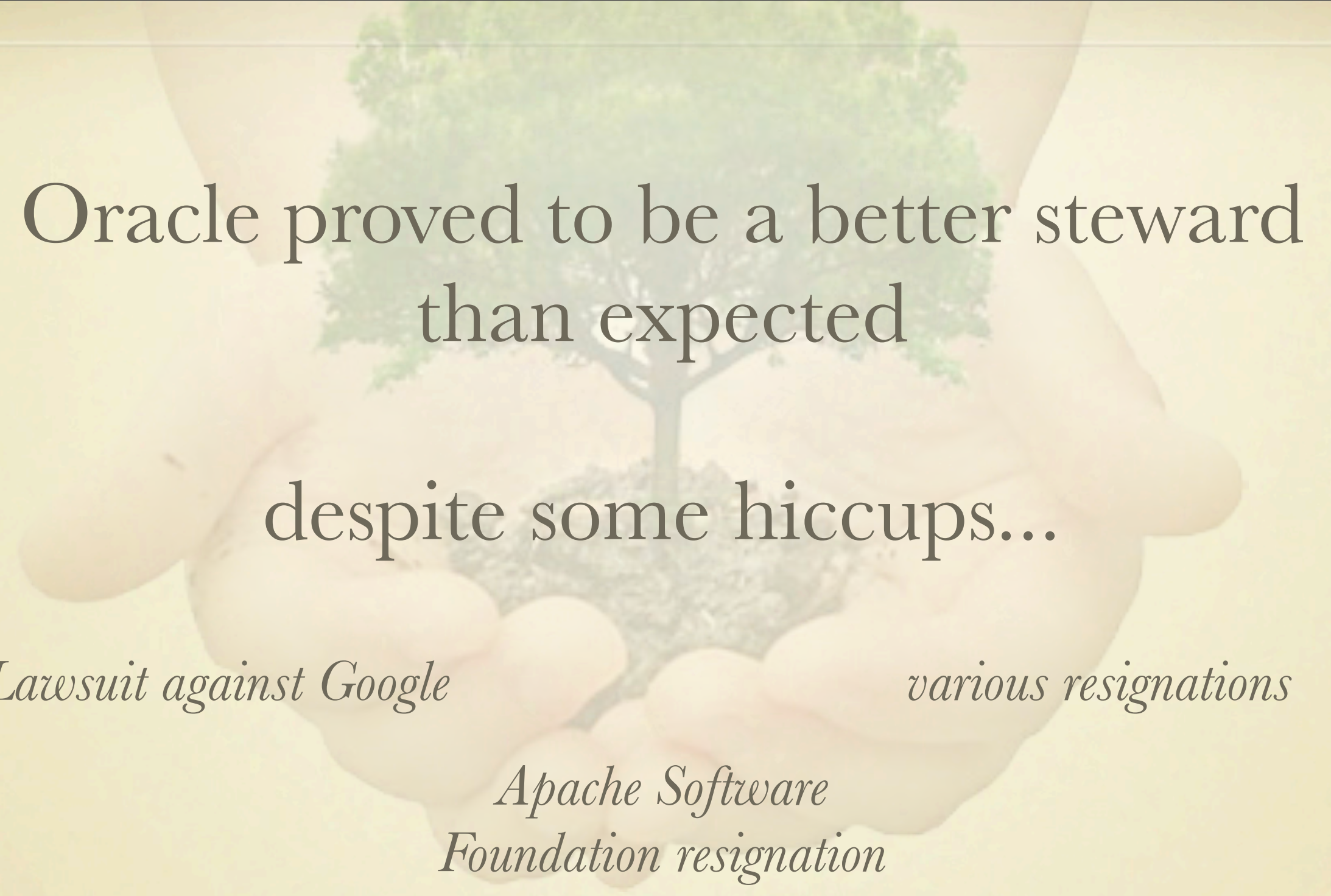
source: <http://tweakers.net/reviews/2779/tweakers-7-waarom-een-eigen-java-back-end.html>





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*

ORACLE®





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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Researchers: Java security problems may not be resolved

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”

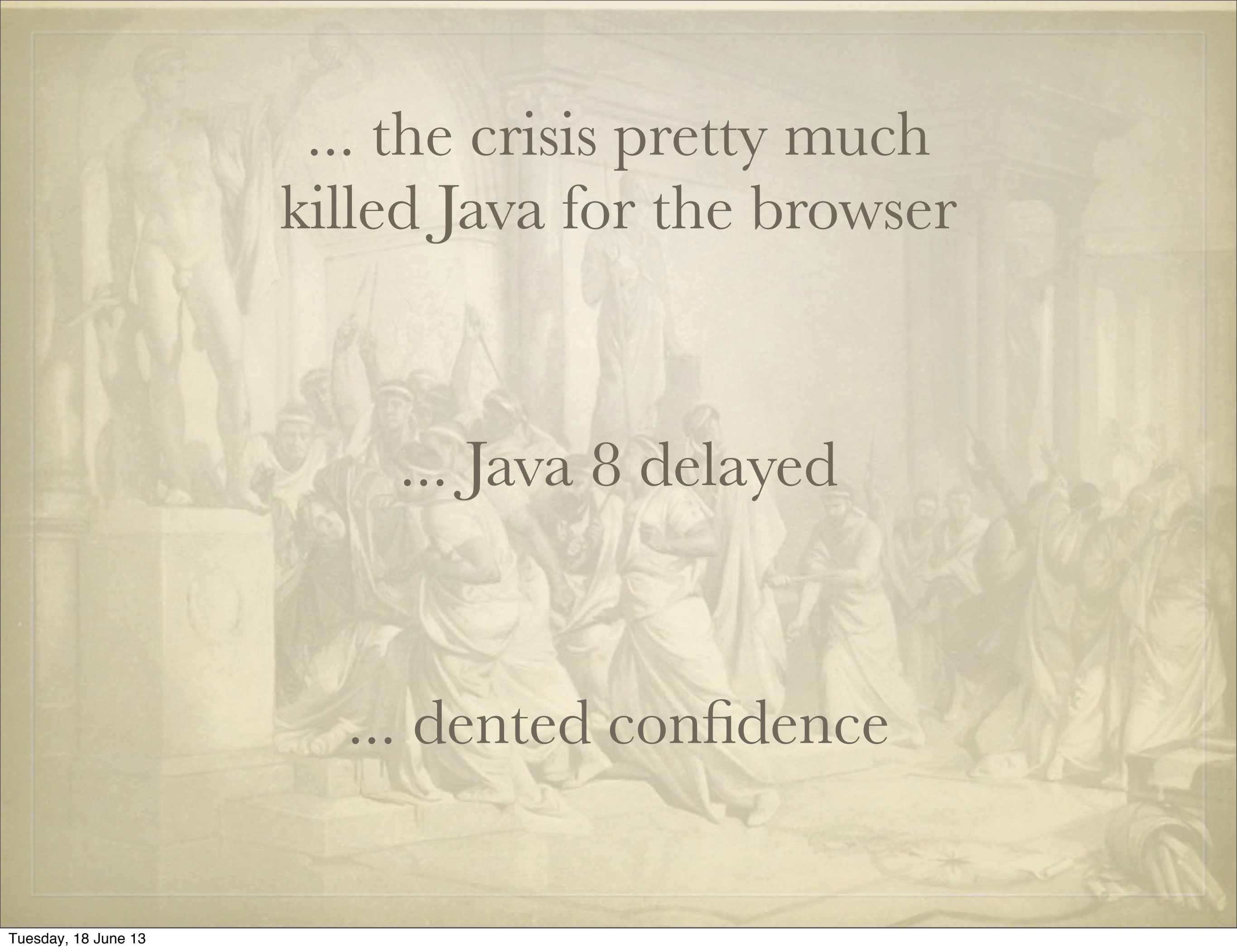
Emergency Java Security Update

Java update: Oracle fixes 42 security issues today

Java's Security Renaissance Begins

Oracle's Java security improvements don't quite satisfy






... 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

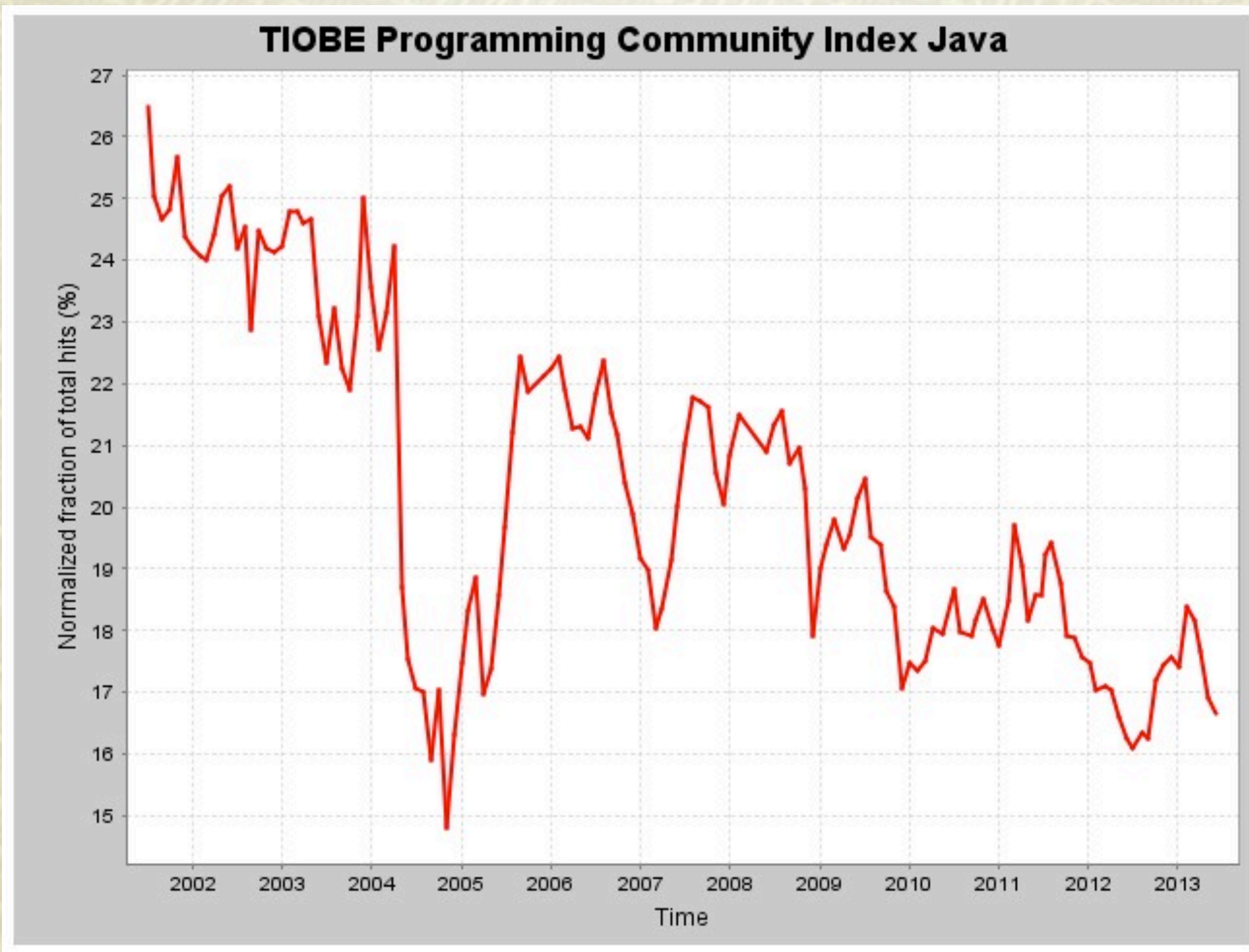
**Critical Ruby On Rails Issue Threatens  
240,000 Websites**





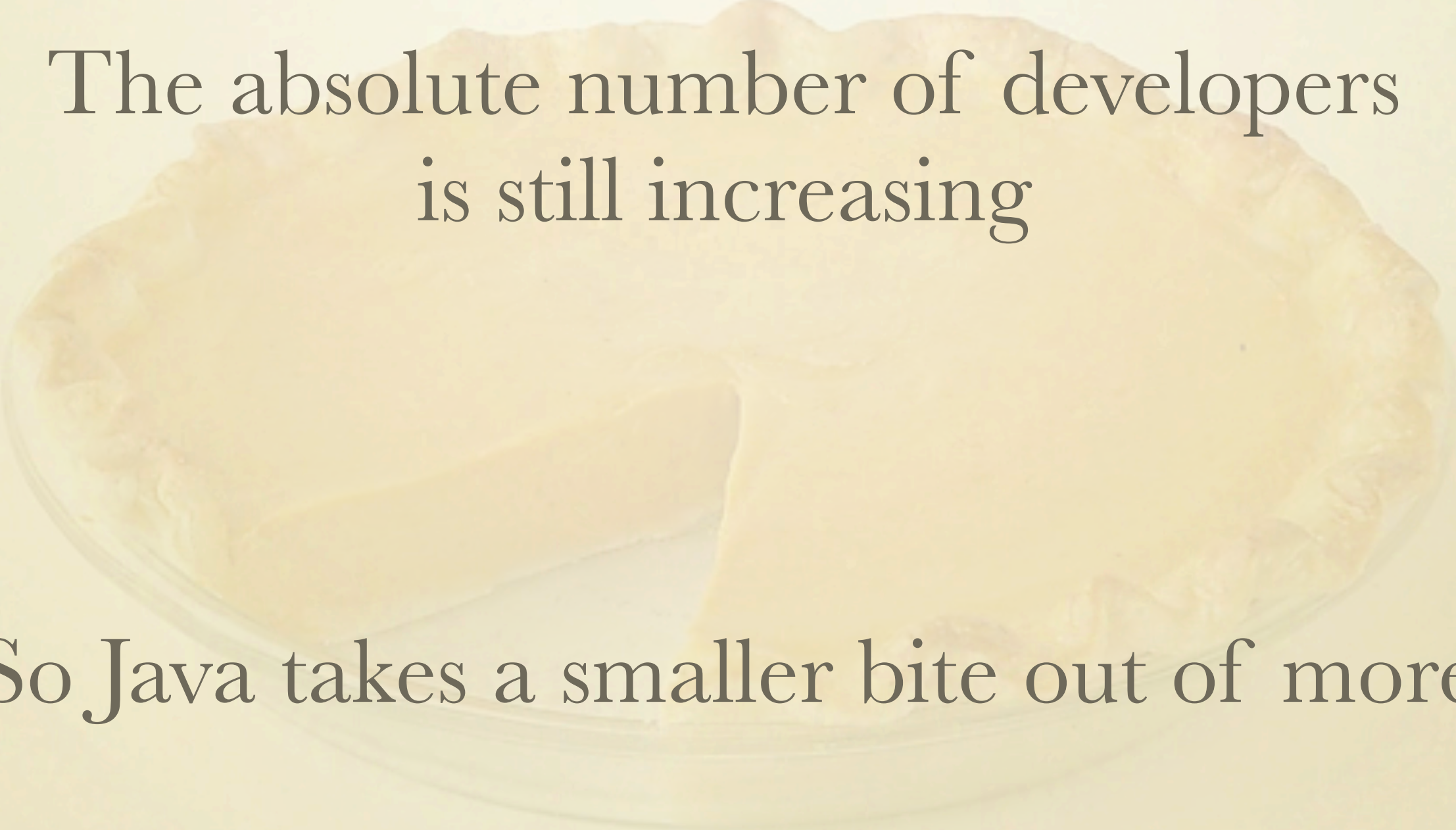
# FUTURE OF JAVA





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




A large, round, golden-brown pie with a slice removed, resting on a glass plate. The pie has a crimped edge and a slightly uneven, rustic appearance. The background is a light, neutral color.

The absolute number of developers  
is still increasing

So Java takes a smaller bite out of more



A person is standing on a beach, looking out at the ocean. The person is in silhouette, wearing a dark jacket and pants. The ocean is visible in the background, with waves breaking. A sign on a pole is visible on the right side of the image. The text is overlaid on the image.

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



A blue car is flipped upside down on a city street. A man in a hat and sunglasses stands on the sidewalk, looking up at the car. The background shows palm trees and a traffic light.

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)



