Aspect Orientated Programming in Ruby

Matthew Ford
matt@new-bamboo.co.uk

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Matthew Ford

- Eclipse project AJDT @ IBM (AspectJ Development Tools)
- New Bamboo http://new-bamboo.co.uk

Outline

- Introduction to Aspect Orientated Programming (AOP)
- Why use AOP?
- AOP in Ruby
- Demo
- Q & A

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Intro to AOP

- AOP is a new way of thinking about software design.

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Software Design

- What is the ultimate goal when designing software?
- Aim to achieve a one-to-one mapping of design concepts to implementation code

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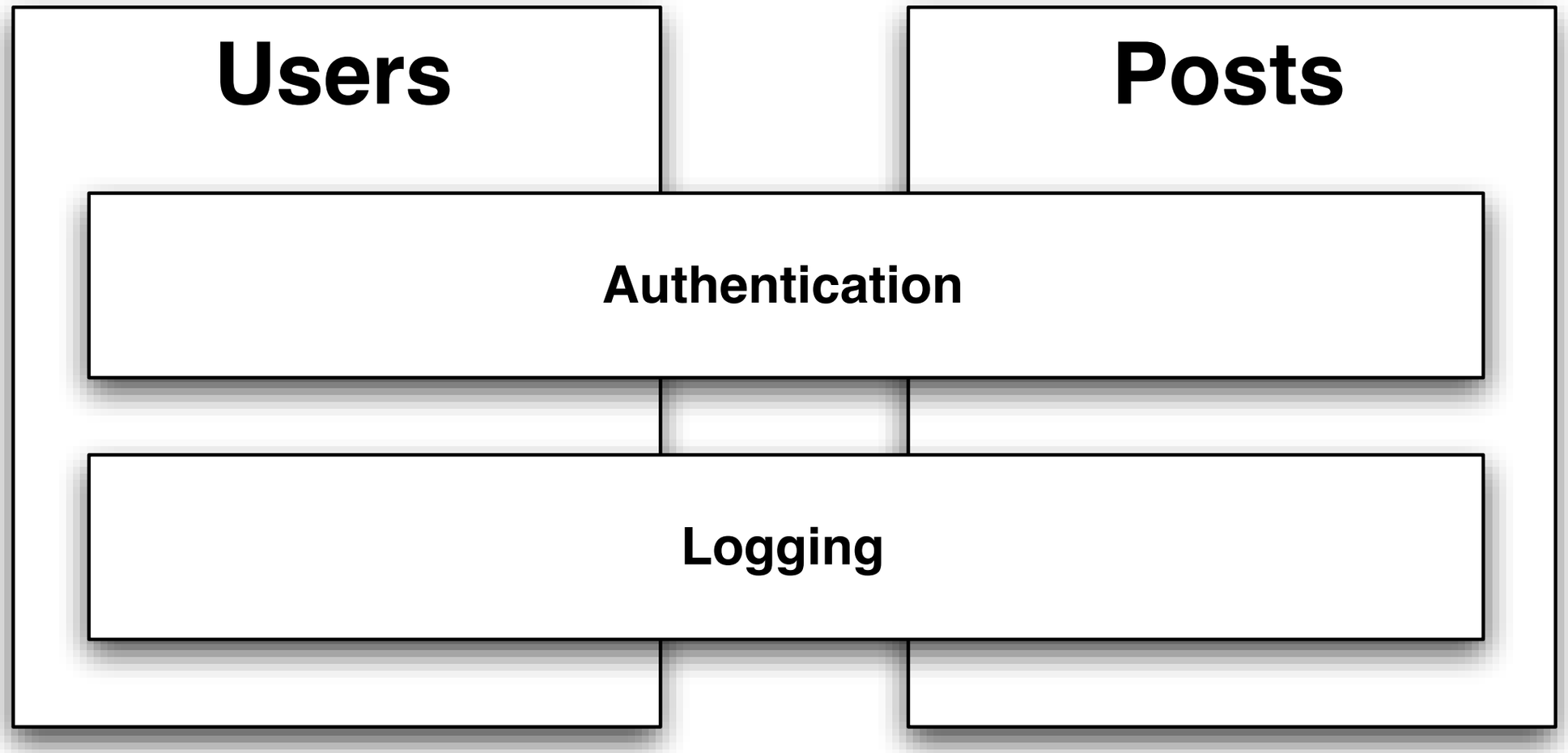
Your app now



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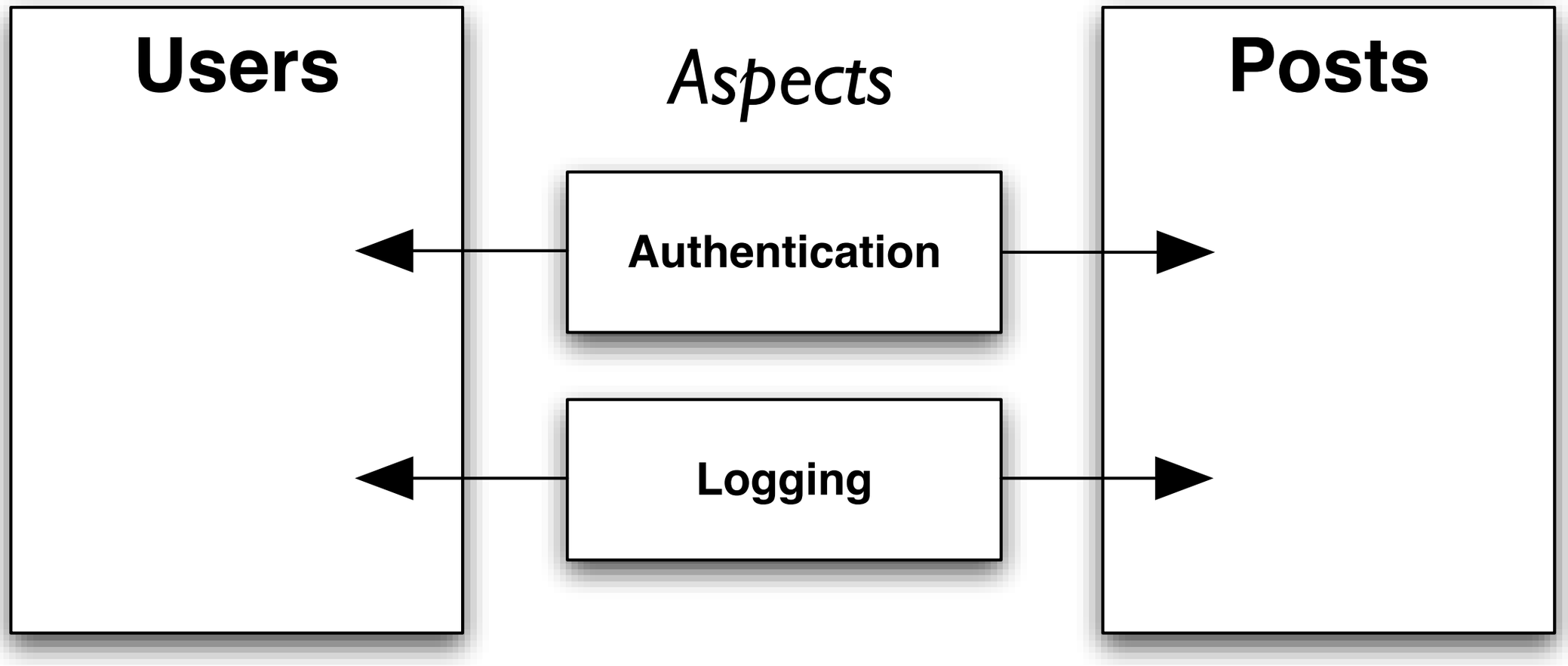
With AOP



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What is AOP?

- A technique for modularising cross cutting concerns

Cross Cutting Concerns

- Profiling
- Persistence
- Transactions
- Access Control Lists
- Exception Handling

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Scattered

- Code where a design concept is spread over a number of models
- one-to-n
- DRY?

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Tangled

- Code which deals with multiple design concepts
- n-to-one mapping
- Hard to maintain?

The Real World

- Some requirements don't always map nicely in OOP
  - n-to-n
  - scattered and tangled

Spaghetti Code

AOP to the rescue

- Aspects
- AOP is essentially a DSL built on top of the language

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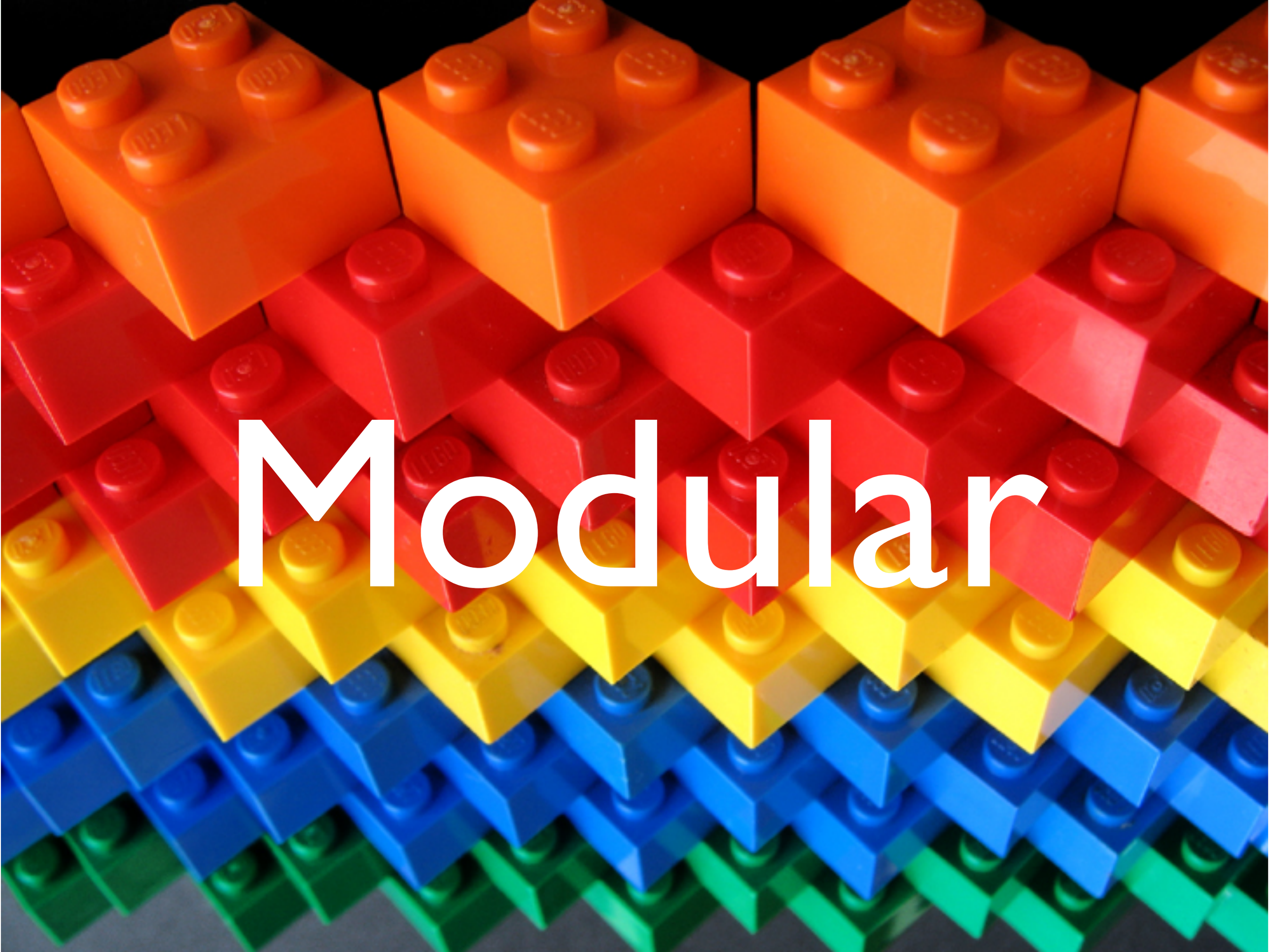
Modular

Wait! Ruby has Metaprogramming

So why use AOP in Ruby?

- AOP provides another level of abstraction
- Clear syntax for describing points in your application where to inject code
- Modularises behaviour

AOP in Ruby

- Aquarium is a Ruby AOP framework
- DSL for describing cross cutting behaviour with aspects

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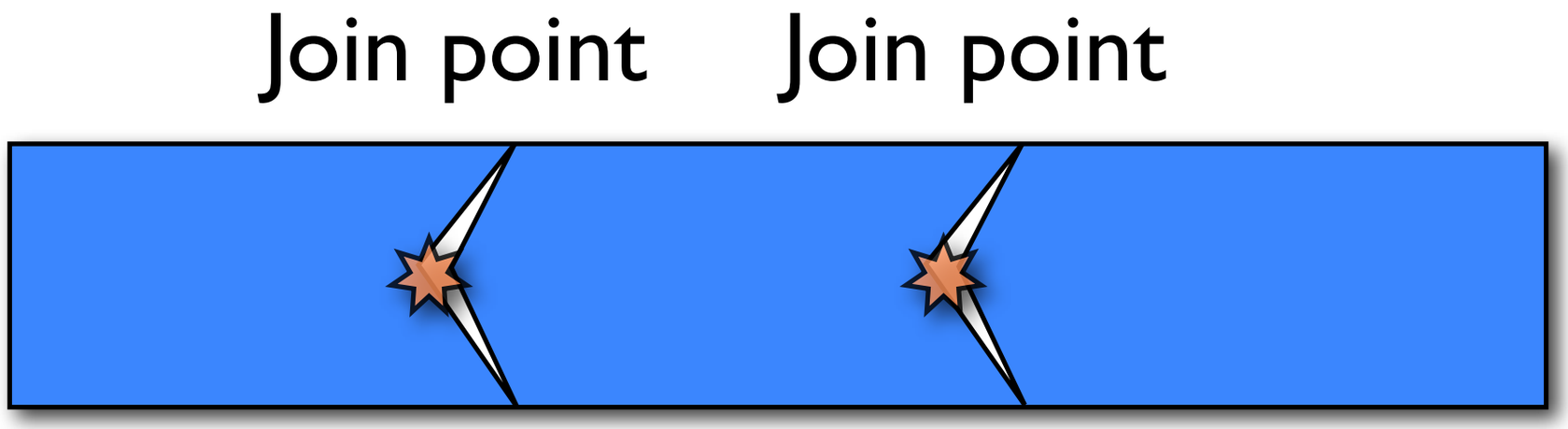
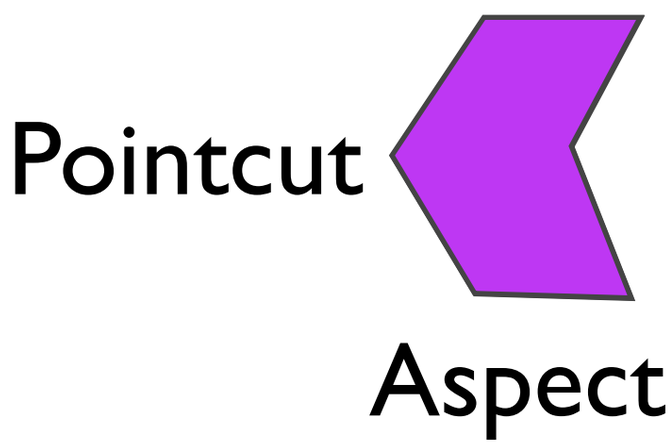
Terminology

- Aspect:
  - Join Point - point in the program
  - Pointcut - matches a number of join points
  - Advice - behaviour evoked at pointcut





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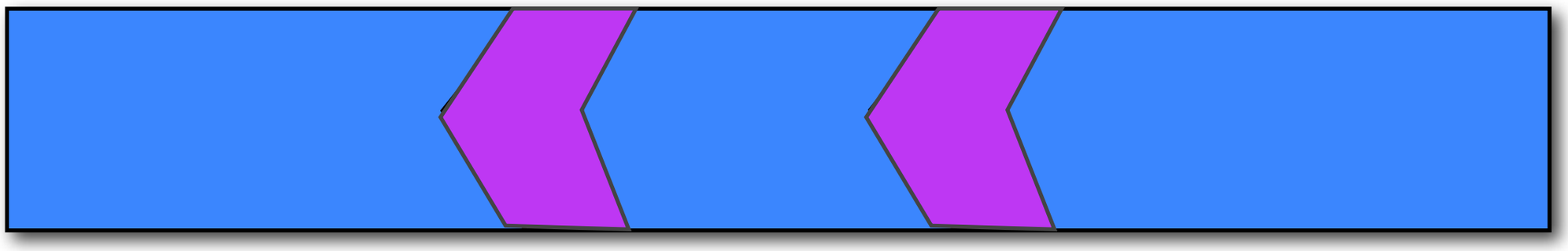

Result of matched aspect

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Demo Time!

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Ruby Advising Java (and visa versa)

- Latest release of Aquarium can run on JRuby
- Ruby aspects can advise Java
- Java aspects can advise Ruby code

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Here Be Dragons

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I'm going to use aspects for everything!

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Don't

HUMANDESCENT

Summary

- Aspects are cool
- Abstract and modularise cross cutting concerns
- Know when to use them!

Links

- Demo App Merb-meet-AOP: https://github.com/deimos1986/merb-meet-aop/
- Aquarium http://aquarium.rubyforge.org/
- New Bamboo blog http://blog.new-bamboo.co.uk
- Dean Wampler (creator of Aquarium) http://blog.aspectprogramming.com/
- The AspectJ Programming Guide http://www.eclipse.org/aspectj/doc/released/progguide/index.html

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Attribution

- Spaghetti pic - http://www.flickr.com/photos/cstein96/2344488576/in/set-72157604157601577/
- Dragon pic - Flight of the Conchords- Albi
- Squicken pic - humandescent.com

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Q & A

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Thanks!