

Philadelphia Emerging Technology

for the enterprise!

Aaron Patterson

@tenderlove

aaron.patterson@gmail.com



at&t



Interactive

Señor Engineer

Señor Engineer

^

Enterprise

ruby-core
rails-core



WWFMD?

Philadelphia Emerging Technology

for the enterprise!

STAR

TREK

EDGEAGE!

The *Latest* in Replicator Technology

Philadelphia Emerging Technology

for the enterprise!

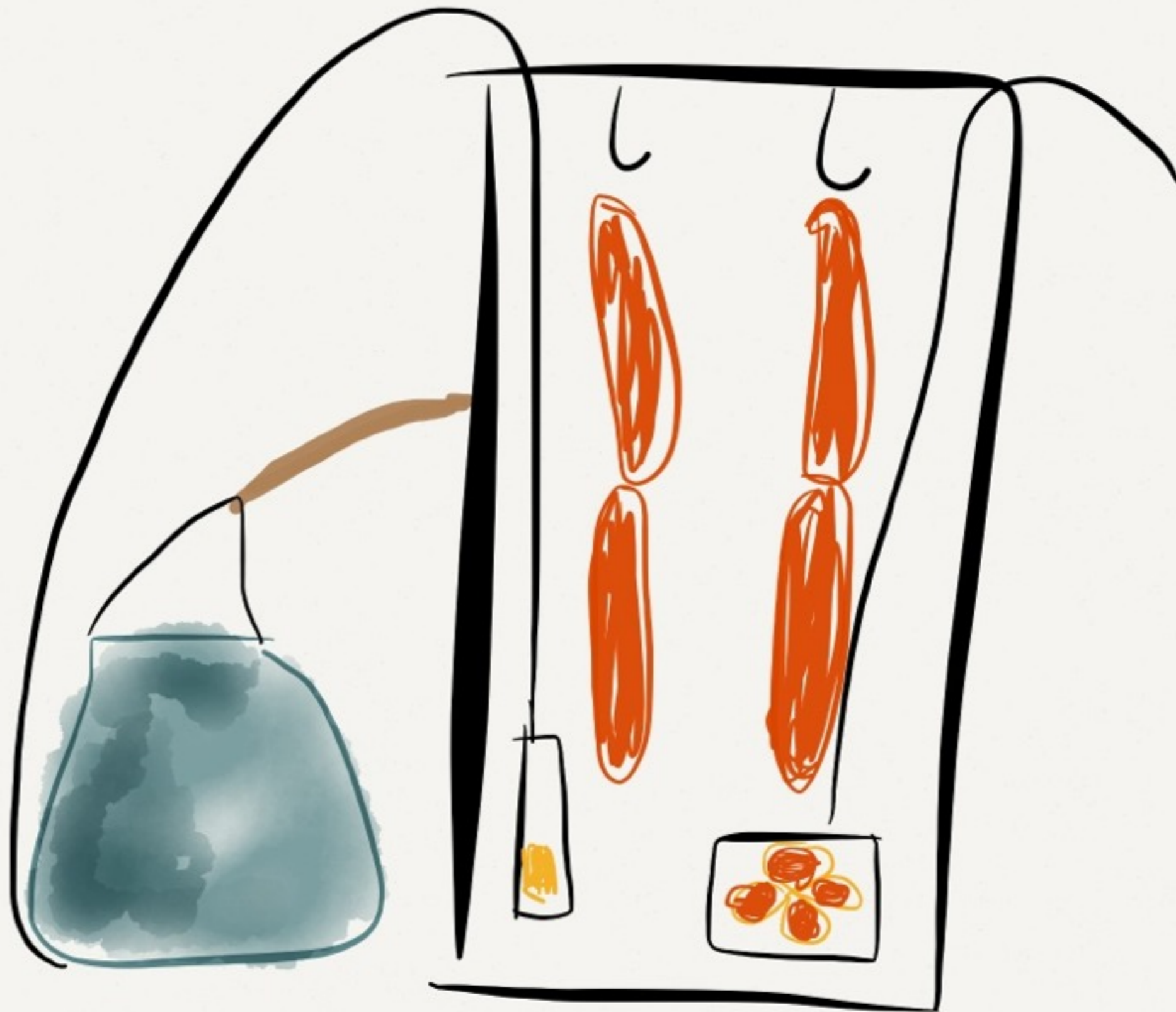
Code Charcuterie

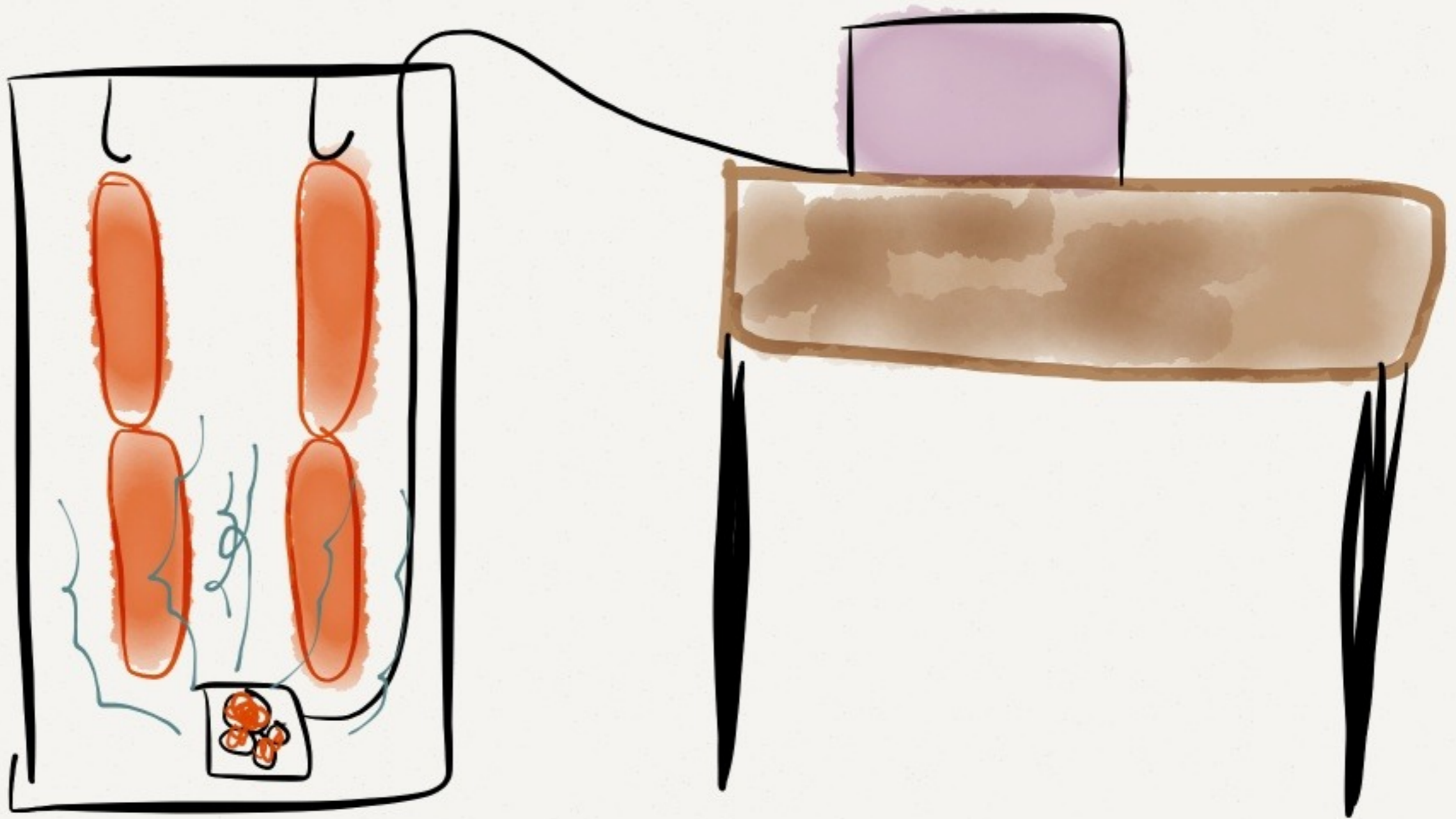
Curing Rails

Amateur
Charcuterier (sp?)









Tight Coupling?

Managing Risk

Set Expectations

Enterprise

Risk Management

Rails

Enterprise

What does it mean?

- Favorites
 - Inbox (4)
 - Sent Items
 - Deleted Items (20)
- apatterson@attinteractive.c
 - Inbox (4)
 - Drafts
 - Sent Items
 - Deleted Items (20)
 - Apple Mail To Do
 - Junk E-mail
 - Outbox
 - RSS Feeds
 - Search Folders

Search Inbox (Ctrl+E)

Arrange By: Date Newest on top

Today		
	Aaron Patterson	2:46 PM
HELLO		
Last Week		
	News Now	Sat 3/31
		Fri 3/30
	Benefits	Fri 3/30
Cigna Life & Disability Plan Information		
Two Weeks Ago		
		3/19/2012
	News Now	3/19/2012
	New Relic	3/19/2012
[New Relic] Weekly performance report		
	New Relic	3/19/2012
[New Relic] Weekly performance report		
Three Weeks Ago		
		3/16/2012
		3/16/2012
Reminder--last chance to take survey:		
		3/13/2012
Older		
	Claudette Colimon	2/27/2012
	Ryan Davis	2/27/2012
	Jeff Casimir	2/24/2012
		2/24/2012
	Fritz Thielemann	2/24/2012

HELLO

Aaron Patterson

Sent: Mon 4/2/2012 2:46 PM

To: Aaron Patterson

Hello Aaron!!!

JOIN US IN THE CAFETERIA FOR SHARK WEEK!!!

YAY!

THINK ABOUT THE ENVIRONMENT, DO NOT PRINT THIS EMAIL.

Windows Desktop Search is not available.

**** info Wed Mar 07 10:20:03 EST 2012 1331076003265 /atg/epub/process/ProcessDataRepository SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003281 /atg/epub/process/ProcessDataRepository SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003390 /atg/epub/file/PublishingFiles-ver SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003421 /atg/epub/file/PublishingFileRepository SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003781 /atg/userprofiling/InternalProfileRepository SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003890 /atg/dynamo/security/AdminSqlRepository SQL Repository startup complete
[exec] **** info Wed Mar 07 10:20:03 EST 2012 1331076003890 /atg/dynamo/security/AdminAccountInitializer Initializing account database /atg/dynamo/security/AdminAccountManager from /atg/dynamo/security/SimpleXmlUserAuthority
[exec] Nucleus running
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004453 / Unable to create class atg.deployment.server.DeploymentServer for configuration /atg/epub/DeploymentServer
java.lang.NoClassDefFoundError: javax/ejb/FinderException
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / Unable to resolve component /atg/epub/Configuration java.lang.NoClassDefFoundError: javax/ejb/FinderException
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at java.lang.Class.forName0(Native Method)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at java.lang.Class.forName(Class.java:242)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.PropertyEditors.getPropertyEditor(PropertyEditors.java:254)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.getProperty(BeanConfigurator.java:731)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.configureStateProperty(BeanConfigurator.java:683)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.configureStateProperty(BeanConfigurator.java:594)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.configureState(BeanConfigurator.java:418)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.PropertyConfiguration.configureState(PropertyConfiguration.java:809)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.PropertyConfiguration.configureService(PropertyConfiguration.java:748)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SingleNucleusConfigurator.configureService(SingleNucleusConfigurator.java:62)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureService(NucleusNameResolver.java:1319)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureAndStartService(NucleusNameResolver.java:1119)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:787)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:569)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:550)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.resolveName(NucleusNameResolver.java:394)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.resolveName(NucleusNameResolver.java:1051)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.ConfigurationRefArray.getValue(ConfigurationRefArray.java:146)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleComponentState.setBeanProperty(SimpleComponentState.java:357)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleConfigurationState.saveToBean(SimpleConfigurationState.java:218)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleConfigurationState.configureBean(SimpleConfigurationState.java:241)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.configureBean(BeanConfigurator.java:275)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.PropertyConfiguration.configureService(PropertyConfiguration.java:752)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SingleNucleusConfigurator.configureService(SingleNucleusConfigurator.java:62)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureService(NucleusNameResolver.java:1319)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureAndStartService(NucleusNameResolver.java:1119)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:787)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:569)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:550)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.resolveName(NucleusNameResolver.java:394)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.resolveName(NucleusNameResolver.java:1051)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.ConfigurationRefArray.getValue(ConfigurationRefArray.java:146)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleComponentState.setBeanProperty(SimpleComponentState.java:357)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleConfigurationState.saveToBean(SimpleConfigurationState.java:218)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SimpleConfigurationState.configureBean(SimpleConfigurationState.java:241)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.BeanConfigurator.configureBean(BeanConfigurator.java:275)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.PropertyConfiguration.configureService(PropertyConfiguration.java:752)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.SingleNucleusConfigurator.configureService(SingleNucleusConfigurator.java:62)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureService(NucleusNameResolver.java:1319)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.configureAndStartService(NucleusNameResolver.java:1119)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:787)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:569)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.createFromName(NucleusNameResolver.java:550)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.NucleusNameResolver.resolveName(NucleusNameResolver.java:394)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.Nucleus.resolveName(Nucleus.java:2648)
[exec] **** Error Wed Mar 07 10:20:04 EST 2012 1331076004484 / at atg.nucleus.GenericService.resolveName(GenericService.java:315)

Stacktrace

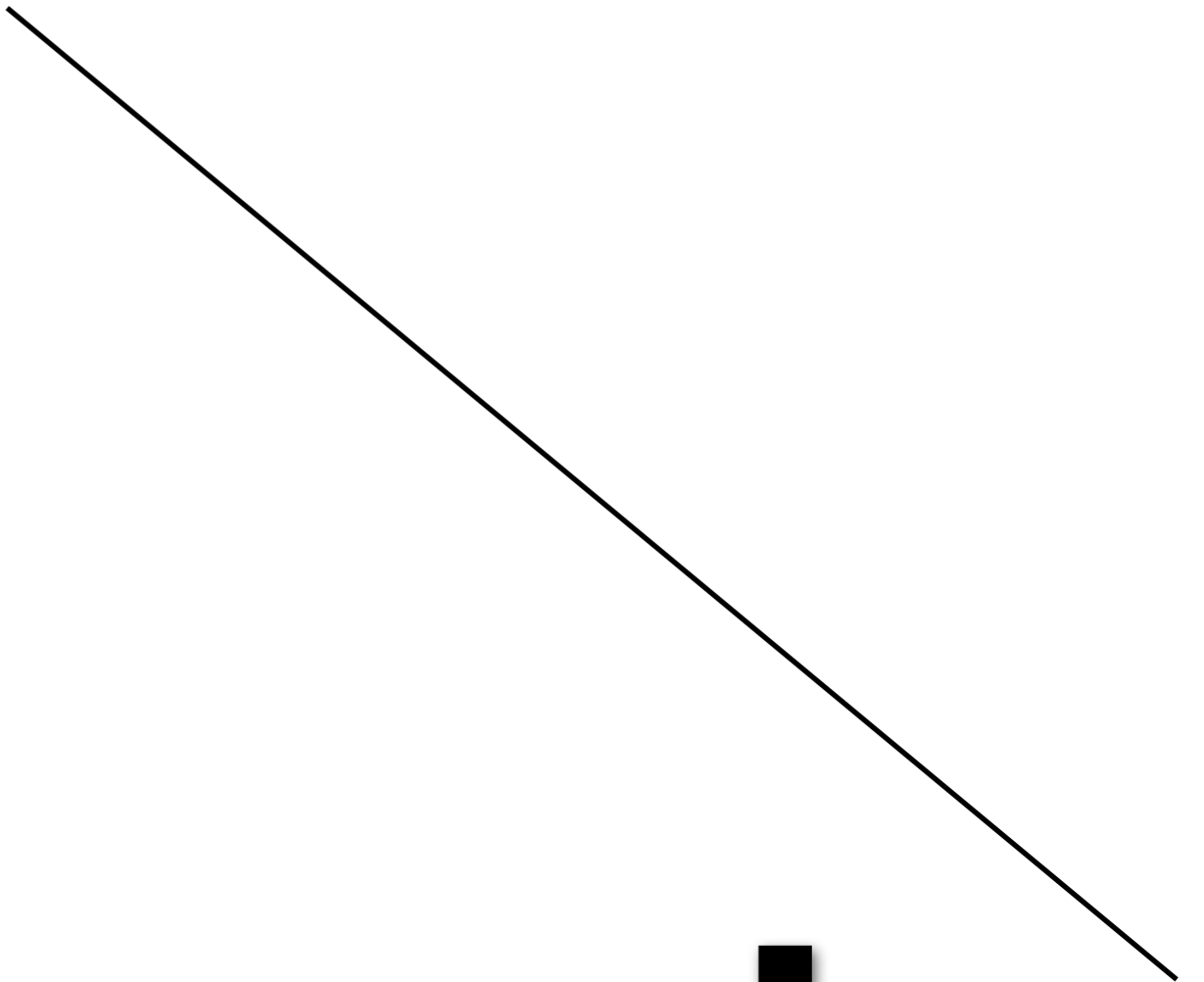
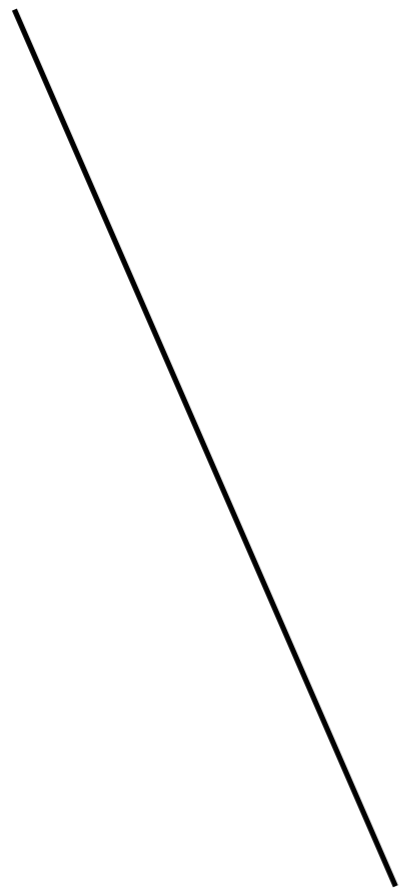
Numerous Developers

Legacy Systems

Conservative Estimates

Developer

Enterprise



Developer

Speed of tests

SPEED

Fast Development

Fast Feedback



Scale like a
Barn Door

Scale-able

Stabile

Testable

Integration

A yellow sticky note with a small 'x' icon in the top right corner and a small icon in the bottom right corner. The text is written in a black, rounded, sans-serif font.

Reason about
our System

Understandable

A yellow sticky note with a small 'x' icon in the top right corner and a small icon in the bottom right corner. The text is written in a bold, black, sans-serif font.

How long for
feature XYZ?

Effort

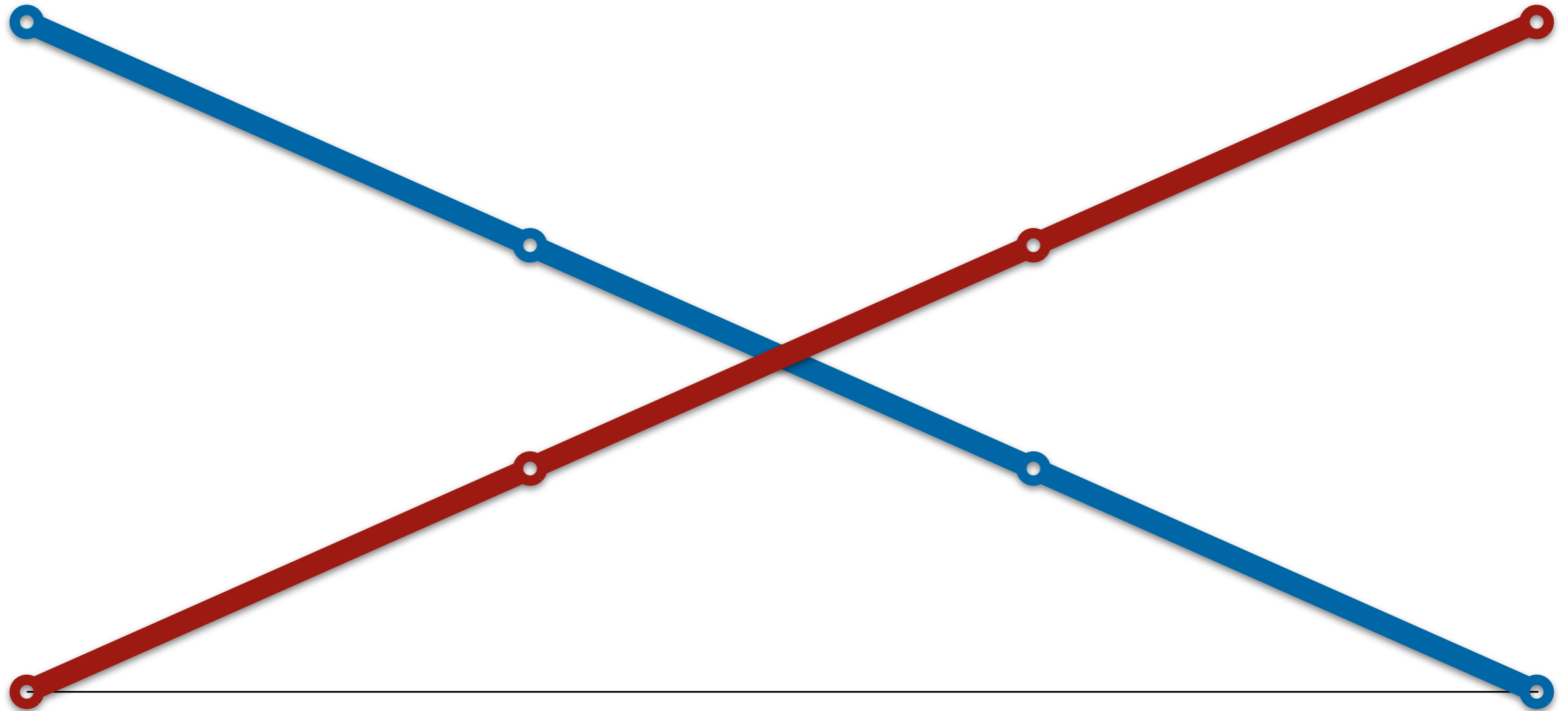
Risk

Enterprise

Developer

○ Risk

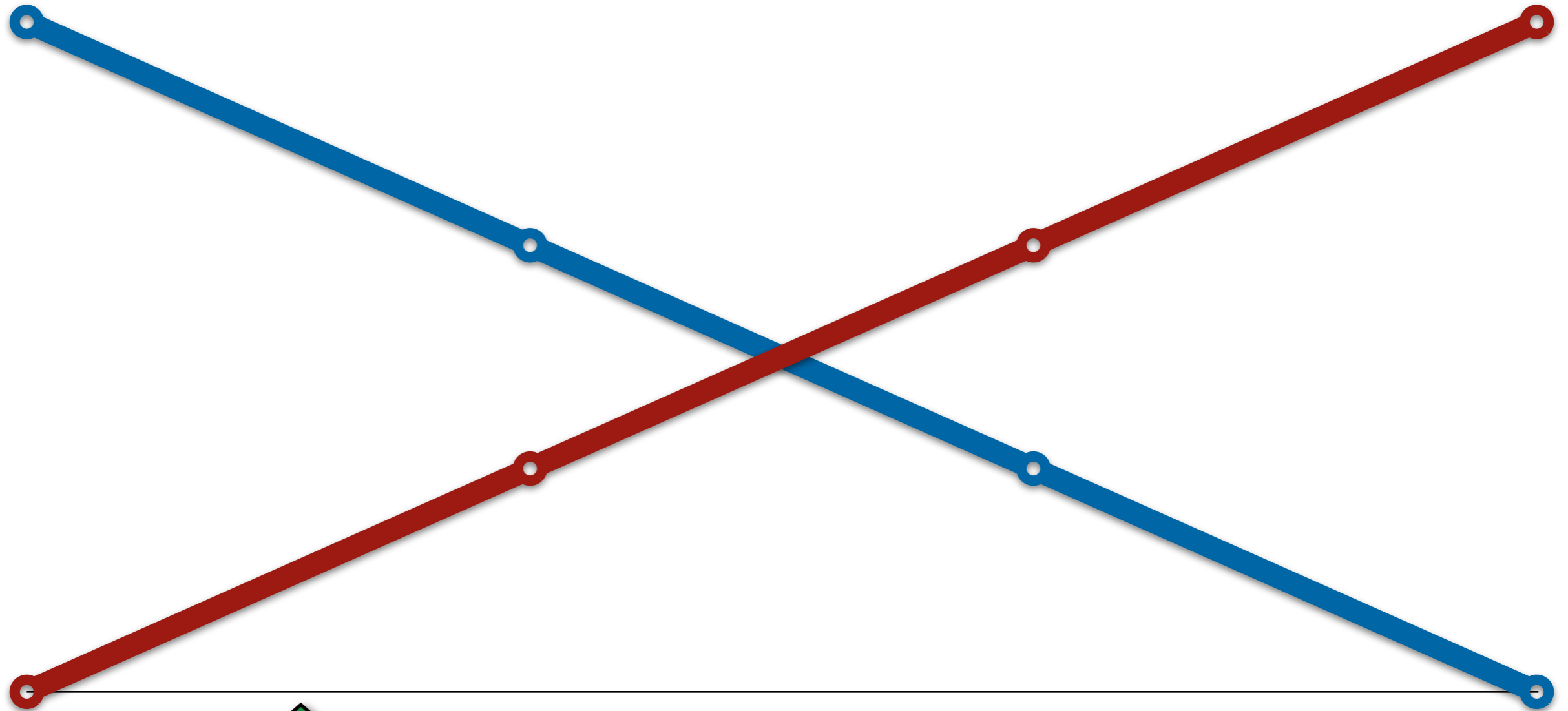
○ Time to Market



Enterprise?

○ Risk

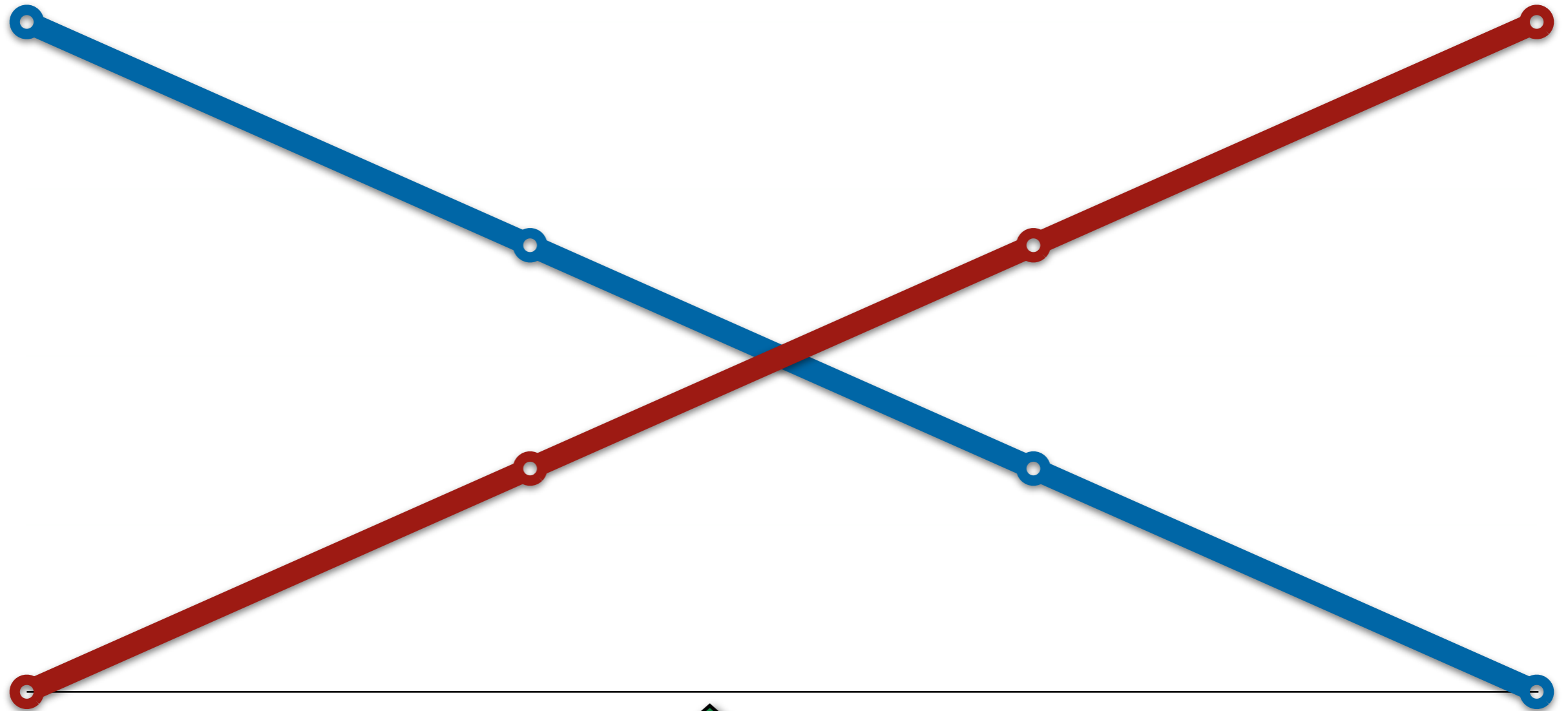
○ Time to Market



Enterprise?

○ Risk

○ Time to Market



Enterprise?

Startup dev: no time to set
up two DCs

Enterprise dev: we must
have the availability

RISK vs. Time

Impostor

Syndrome

Señor Engineer

^

Enterprise

Señor Engineer

Risk Management

Hardware

App Architecture

Rails

Code

Hardware

CDNs

Load Balancers

App Servers

DBs

**Startups probably
won't use this technique**

CDNs

Load Balancers

App Servers

DBs

CDNs

Load Balancers

App Servers

DBs

**Startups probably
won't use this technique**

App Architecture

Service Oriented

Rails

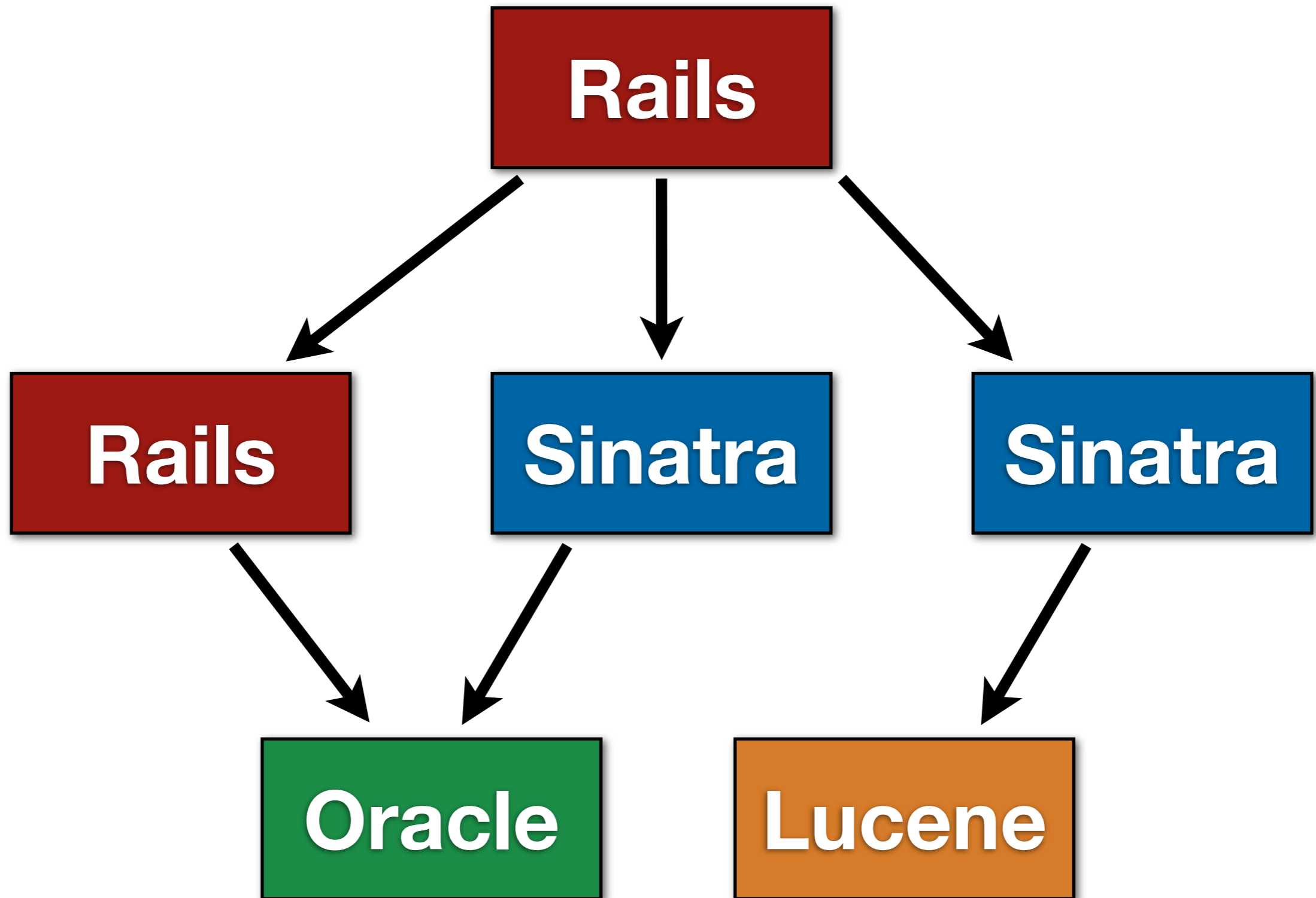
Rails

Sinatra

Sinatra

Oracle

Lucene



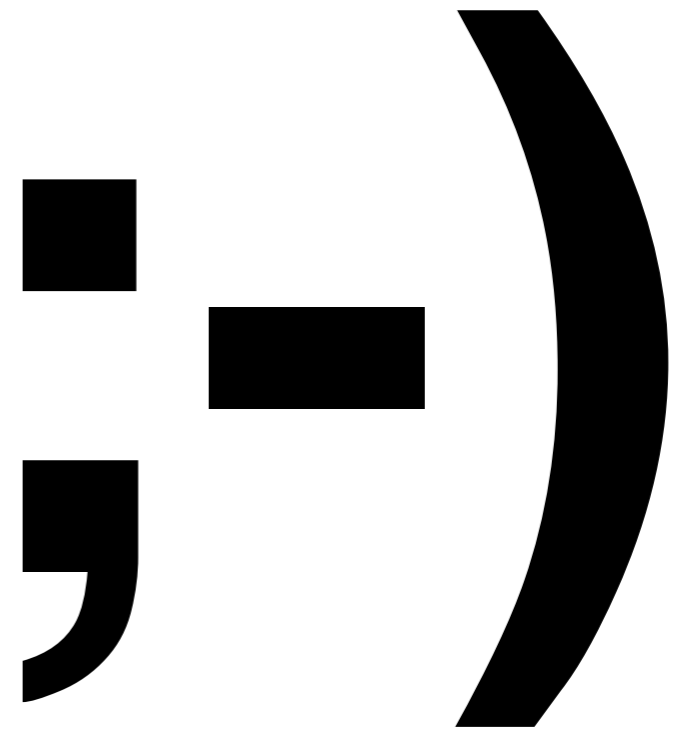
Rails

Enterprise Extensions

3 Steps to Enterprise

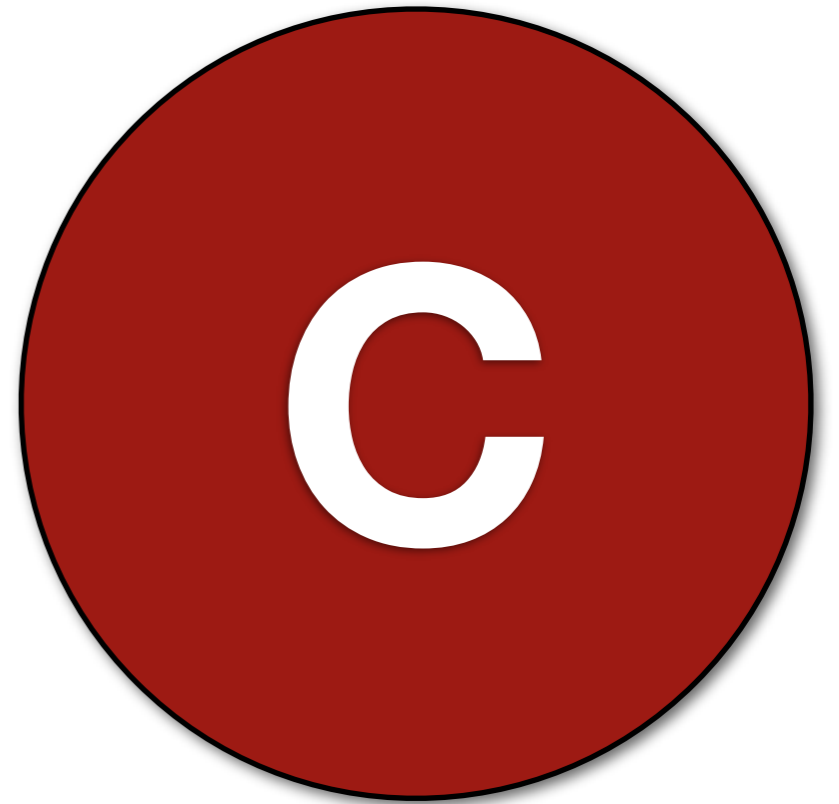
3 Steps to Enterprise

- gem install sox
- gem install pci
- gem install COPA



Architecture

"Lay of the land"



ActionDispatch

```
graph TD; A[ActionDispatch] --> B[ActiveRecord]; A --> C[ActionView];
```

ActiveRecord

ActionView

Controller

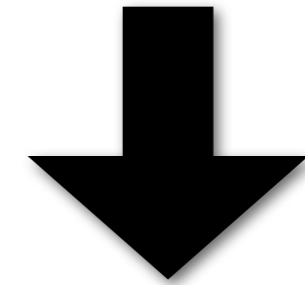
Rack

Journey

ActionDispatch

Controller

Controller



Rack

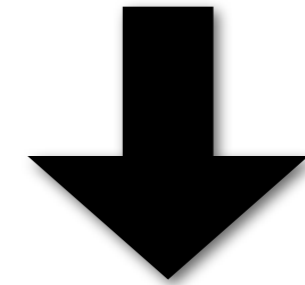
Journey

ActionDispatch

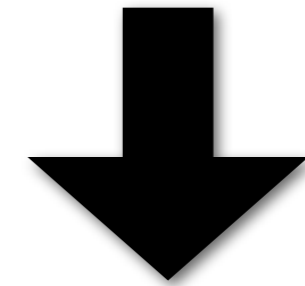
Controller

Controller

Journey



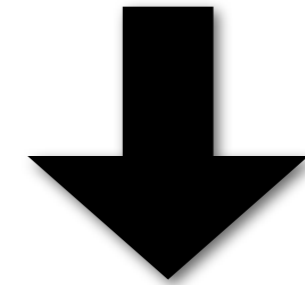
Rack



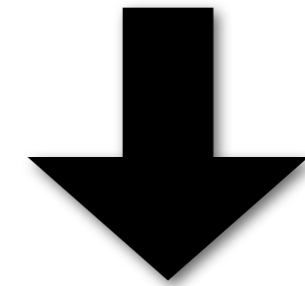
ActionDispatch

Controller

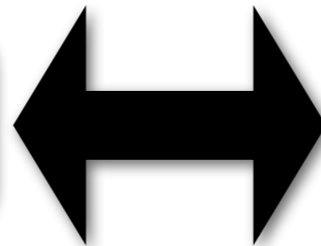
Controller



Rack



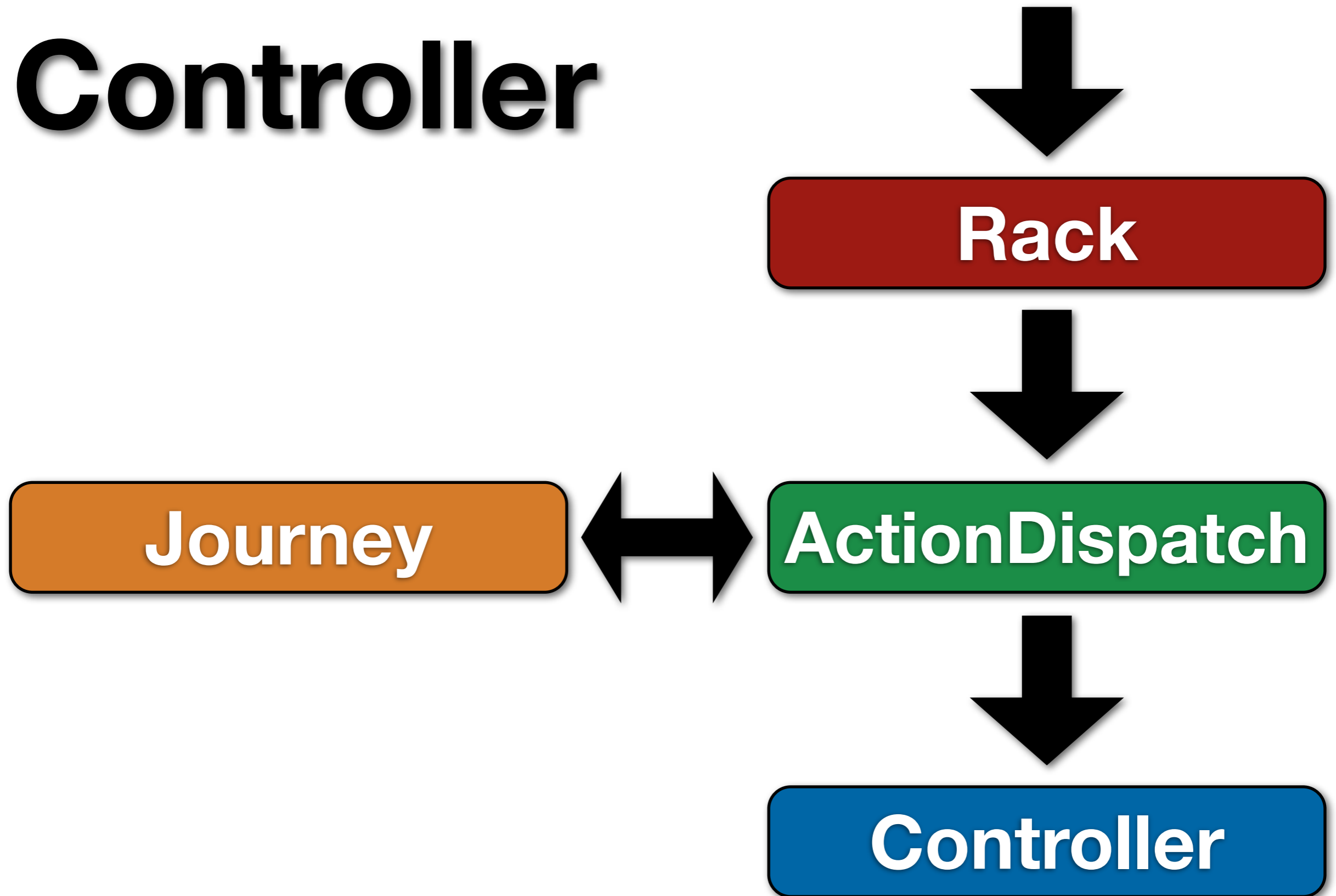
Journey



ActionDispatch

Controller

Controller



```
class MyController
  def show
    @user = User.find 1
  end
end
```

Model

`User.find(1)`

`ARel`

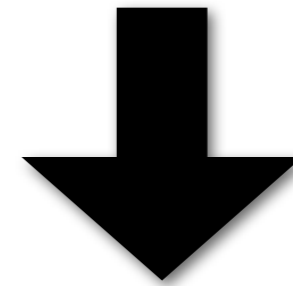
`ActiveRecord`

`Database`

`DB Adapter`

Model

User.find(1)



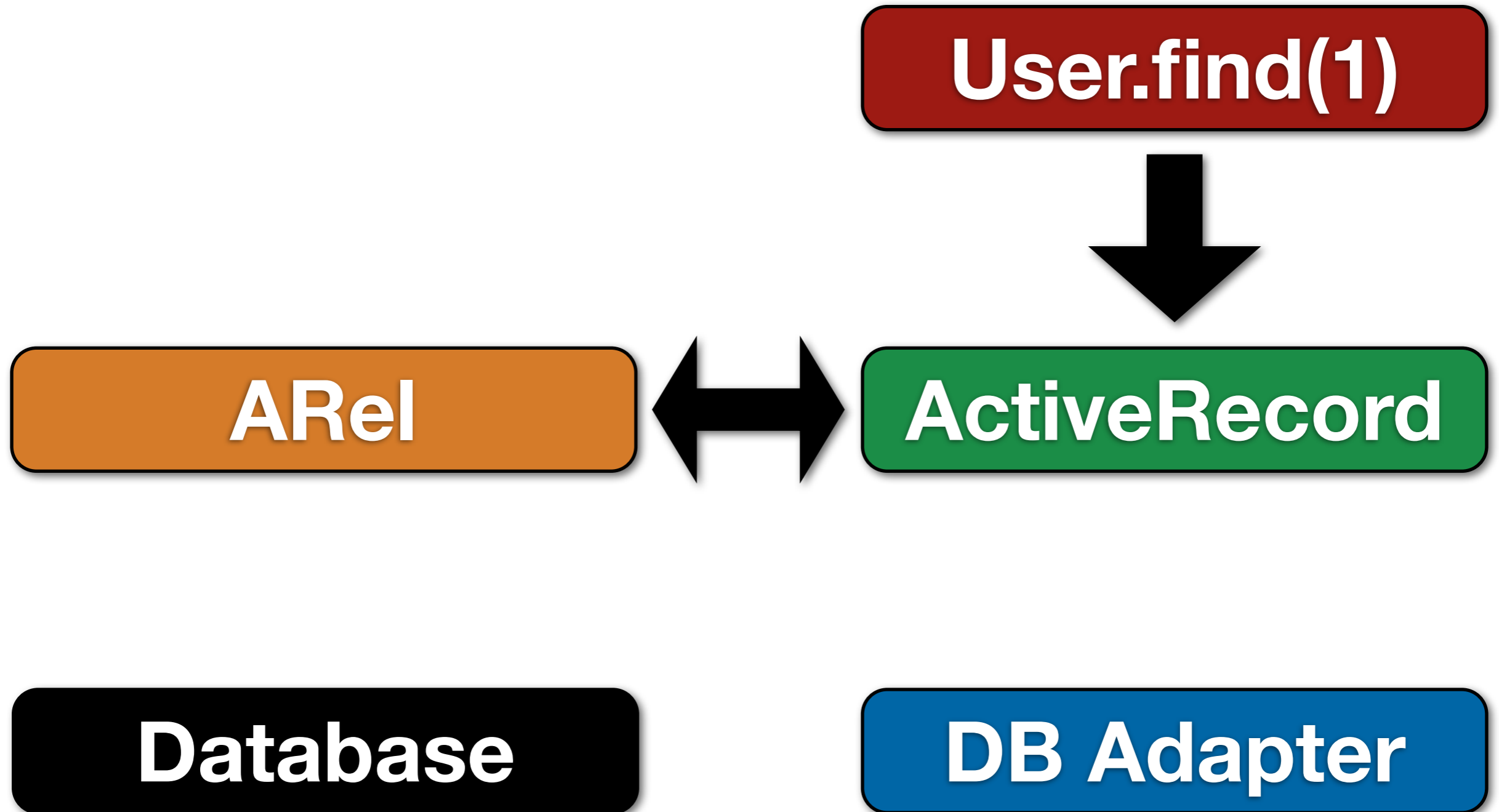
ActiveRecord

DB Adapter

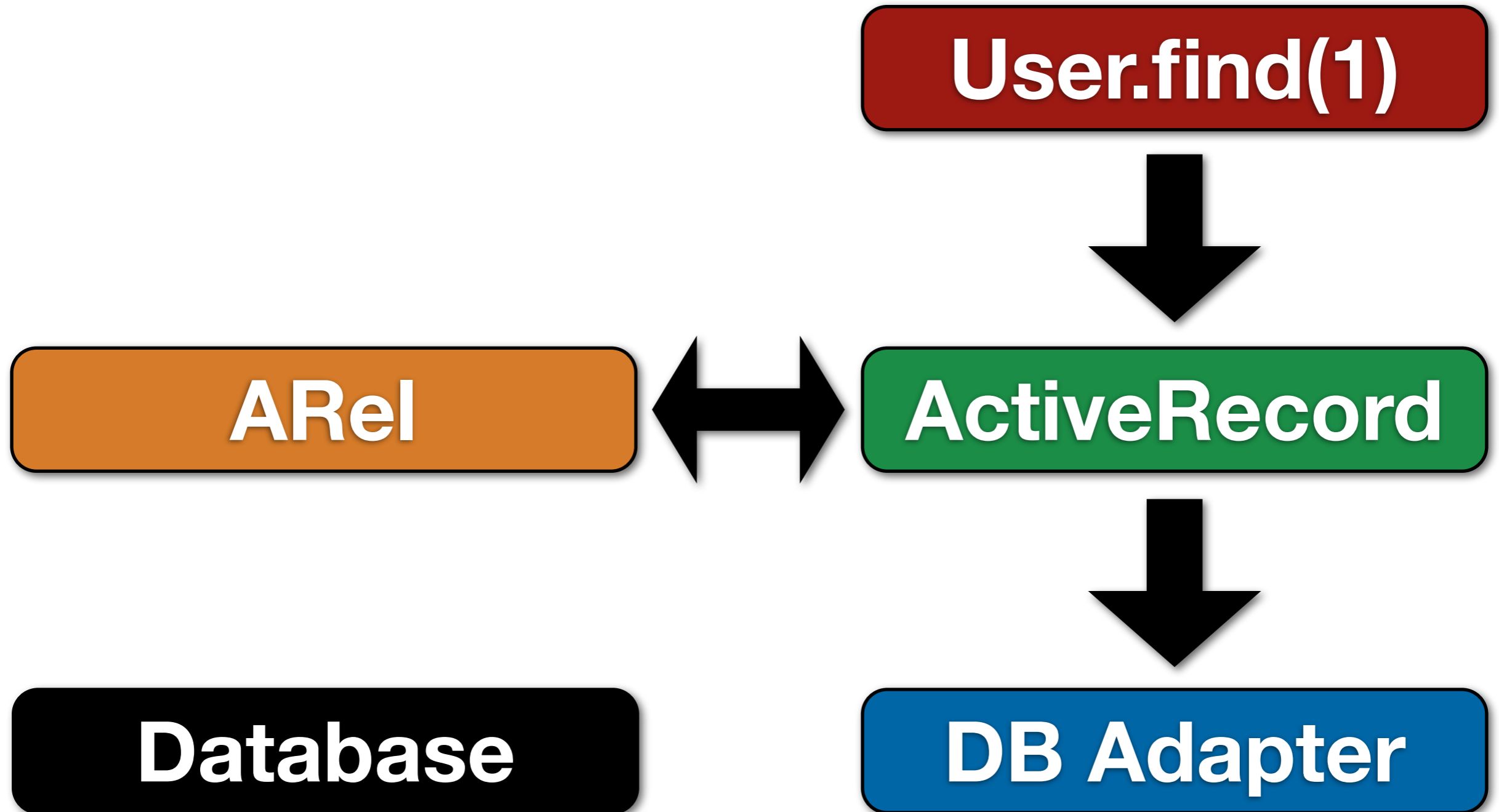
ARel

Database

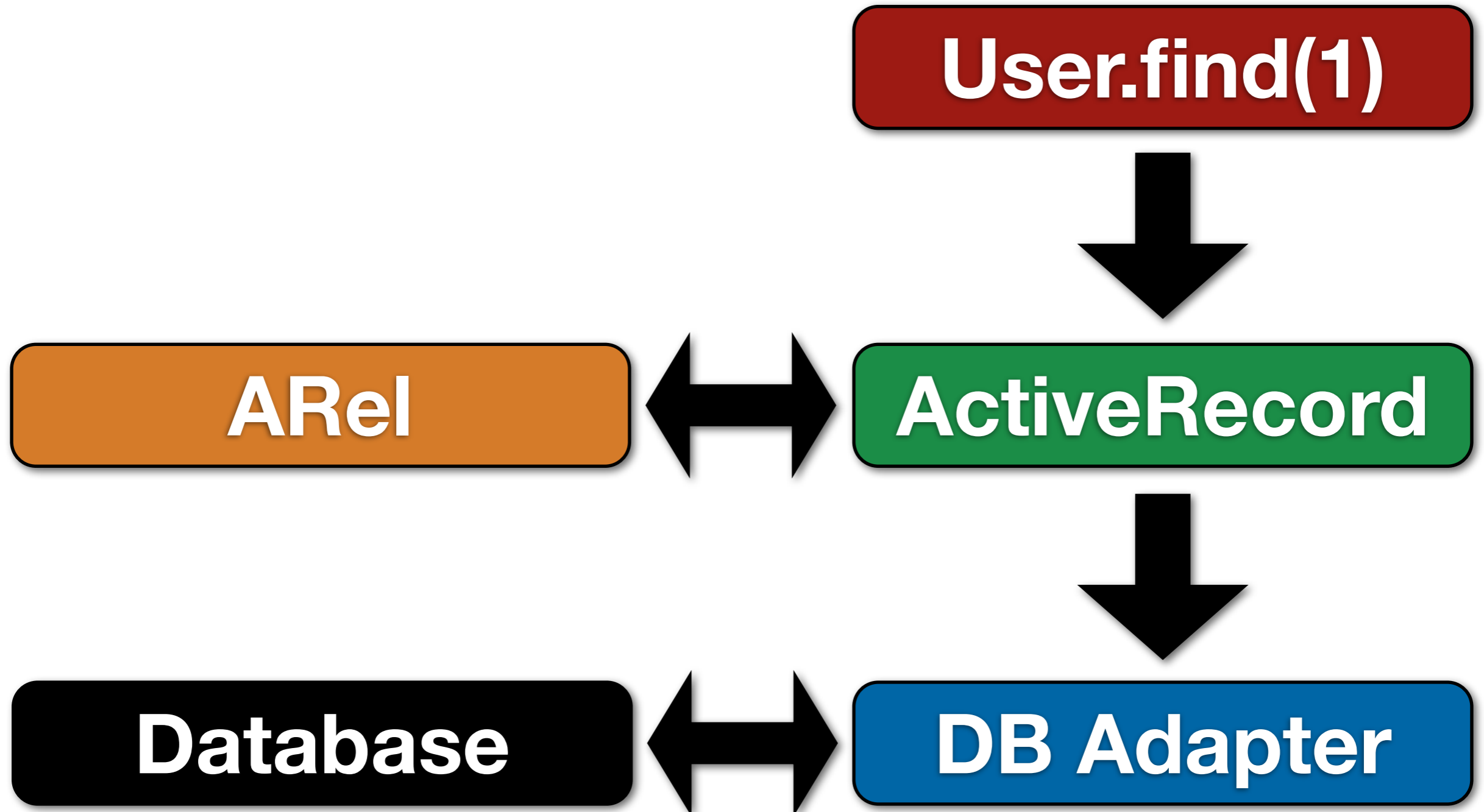
Model



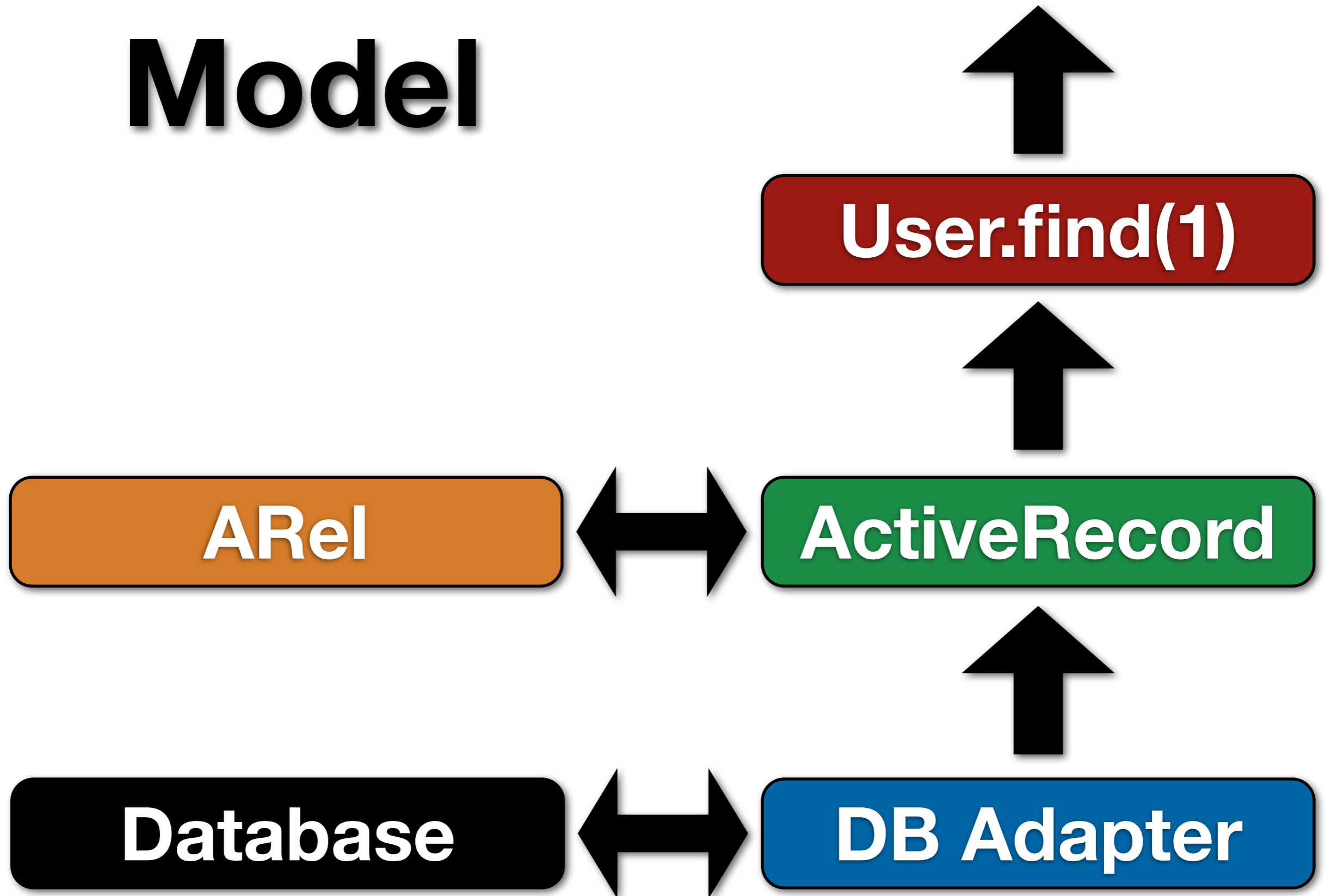
Model



Model



Model




```
<html>
<body>
  Hello! <%= @user.name %>,

  How are you?
</body>
</html>
```

View

ERB gets evaluated
with IVAR contexts

ionView

Ruby

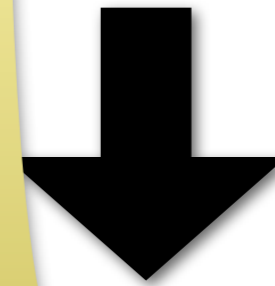
ERB

Call Method

View

ERB gets evaluated
with IVAR contexts

ionView



Ruby

ERB

Call Method

View

ERB gets evaluated with IVAR contexts

ionView



Ruby



ERB

Call Method

View

ERB gets evaluated with IVAR contexts

ionView

Ruby

ERB

Call Method

View

ERB gets evaluated with IVAR contexts

ionView

Ruby

ERB

Call Method

View Caching

ActionView

Ruby

ERB

Call Method

View Caching

ActionView

Call Method

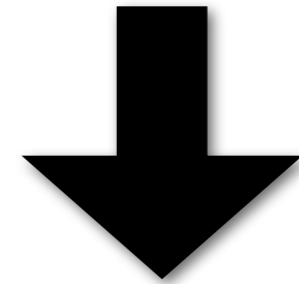
View Caching

ActionView

Call Method

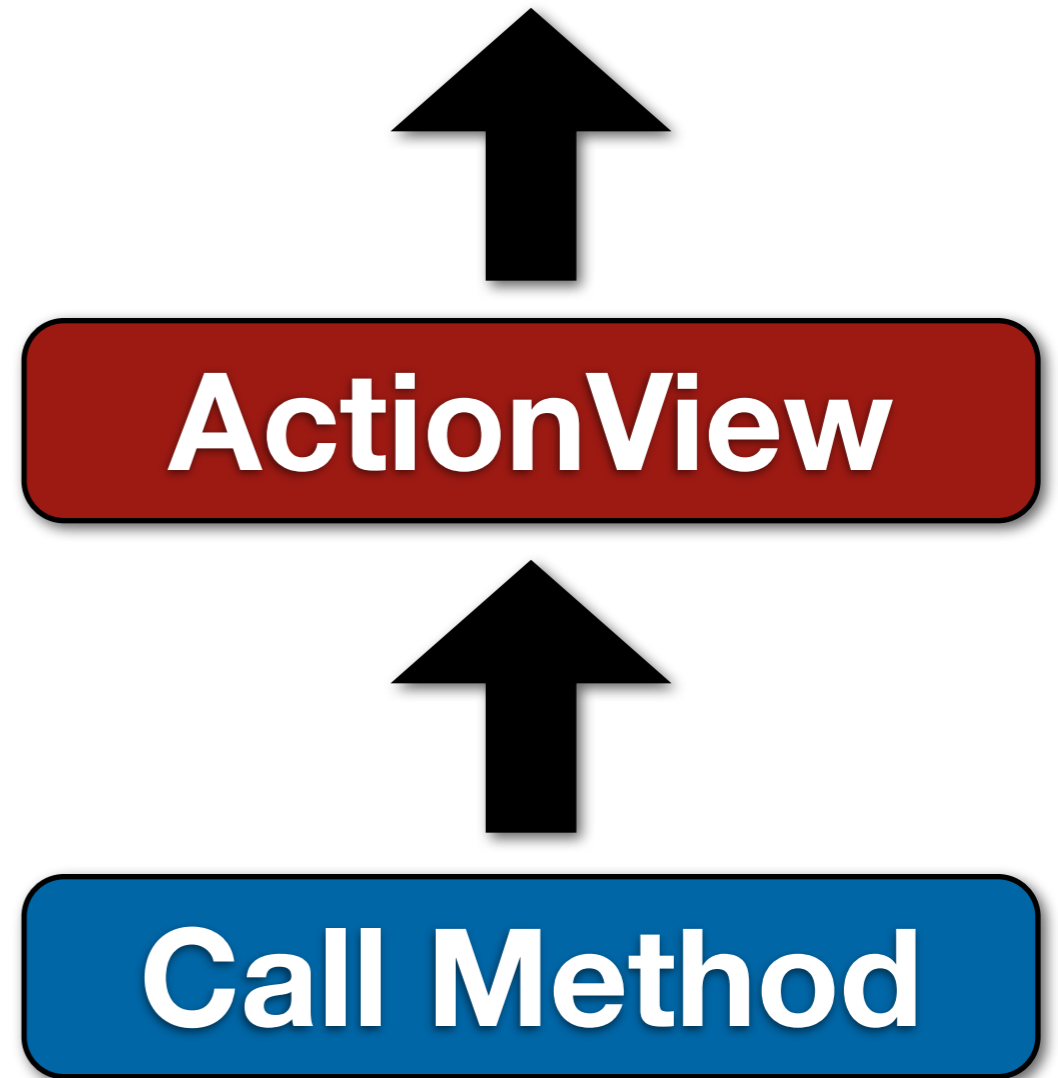
View Caching

ActionView



Call Method

View Caching



Loggins



Loggins

Logging

Default

```
Started GET "/users" for 127.0.0.1 at 2012-04-09 07:38:54 -0700
Processing by UsersController#index as */*
  Rendered users/index.html.erb within layouts/application (3.8ms)
Completed 500 Internal Server Error in 76ms
```

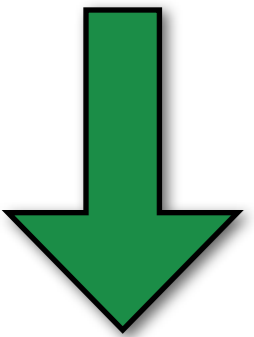
Use Ruby's Logger

```
config.logger = ::Logger.new($stdout)  
config.logger.formatter = ::Logger::Formatter.new
```


Ruby's Logger

```
I, [2012-04-09T07:50:39.655003 #64706] INFO -- :  
I, [2012-04-09T07:50:39.673190 #64706] INFO -- : Processing by  
D, [2012-04-09T07:50:39.698997 #64706] DEBUG -- :   User Load (0.1...  
I, [2012-04-09T07:50:39.741429 #64706] INFO -- :   Rendered users/  
I, [2012-04-09T07:50:39.747837 #64706] INFO -- : Completed 500  
Internal Server...  
F, [2012-04-09T07:50:39.751075 #64706] FATAL -- :
```

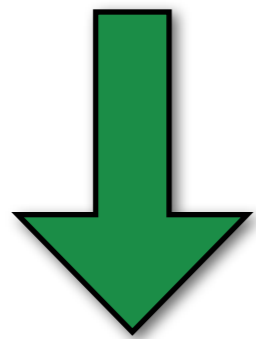
Ruby's Logger



Log Level

```
I, [2012-04-09T07:50:39.655003 #64706] INFO -- :  
I, [2012-04-09T07:50:39.673190 #64706] INFO -- : Processing by  
D, [2012-04-09T07:50:39.698997 #64706] DEBUG -- :   User Load (0.1...  
I, [2012-04-09T07:50:39.741429 #64706] INFO -- :   Rendered users/  
I, [2012-04-09T07:50:39.747837 #64706] INFO -- : Completed 500  
Internal Server...  
F, [2012-04-09T07:50:39.751075 #64706] FATAL -- :
```

Ruby's Logger

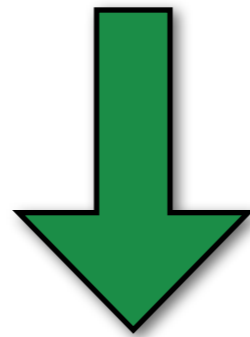


Timestamp

```
I, [2012-04-09T07:50:39.655003 #64706] INFO -- :  
I, [2012-04-09T07:50:39.673190 #64706] INFO -- : Processing by  
D, [2012-04-09T07:50:39.698997 #64706] DEBUG -- : User Load (0.1...  
I, [2012-04-09T07:50:39.741429 #64706] INFO -- : Rendered users/  
I, [2012-04-09T07:50:39.747837 #64706] INFO -- : Completed 500  
Internal Server...  
F, [2012-04-09T07:50:39.751075 #64706] FATAL -- :
```

Ruby's Logger

PID



```
I, [2012-04-09T07:50:39.655003 #64706] INFO -- :  
I, [2012-04-09T07:50:39.673190 #64706] INFO -- : Processing by  
D, [2012-04-09T07:50:39.698997 #64706] DEBUG -- : User Load (0.1...  
I, [2012-04-09T07:50:39.741429 #64706] INFO -- : Rendered users/  
I, [2012-04-09T07:50:39.747837 #64706] INFO -- : Completed 500  
Internal Server...  
F, [2012-04-09T07:50:39.751075 #64706] FATAL -- :
```

Filesystem Buffers

Log Sync Mode

```
if log.respond_to?(:write) and log.respond_to?(:close)
  @dev = log
else
  @dev = open_logfile(log)
  @dev.sync = true
end
```

No Buffering

```
config.logger = Logger.new('prod.log')
```

Write Buffer

```
fh = File.open('logs.log', 'wb')  
config.logger = Logger.new(fh)
```

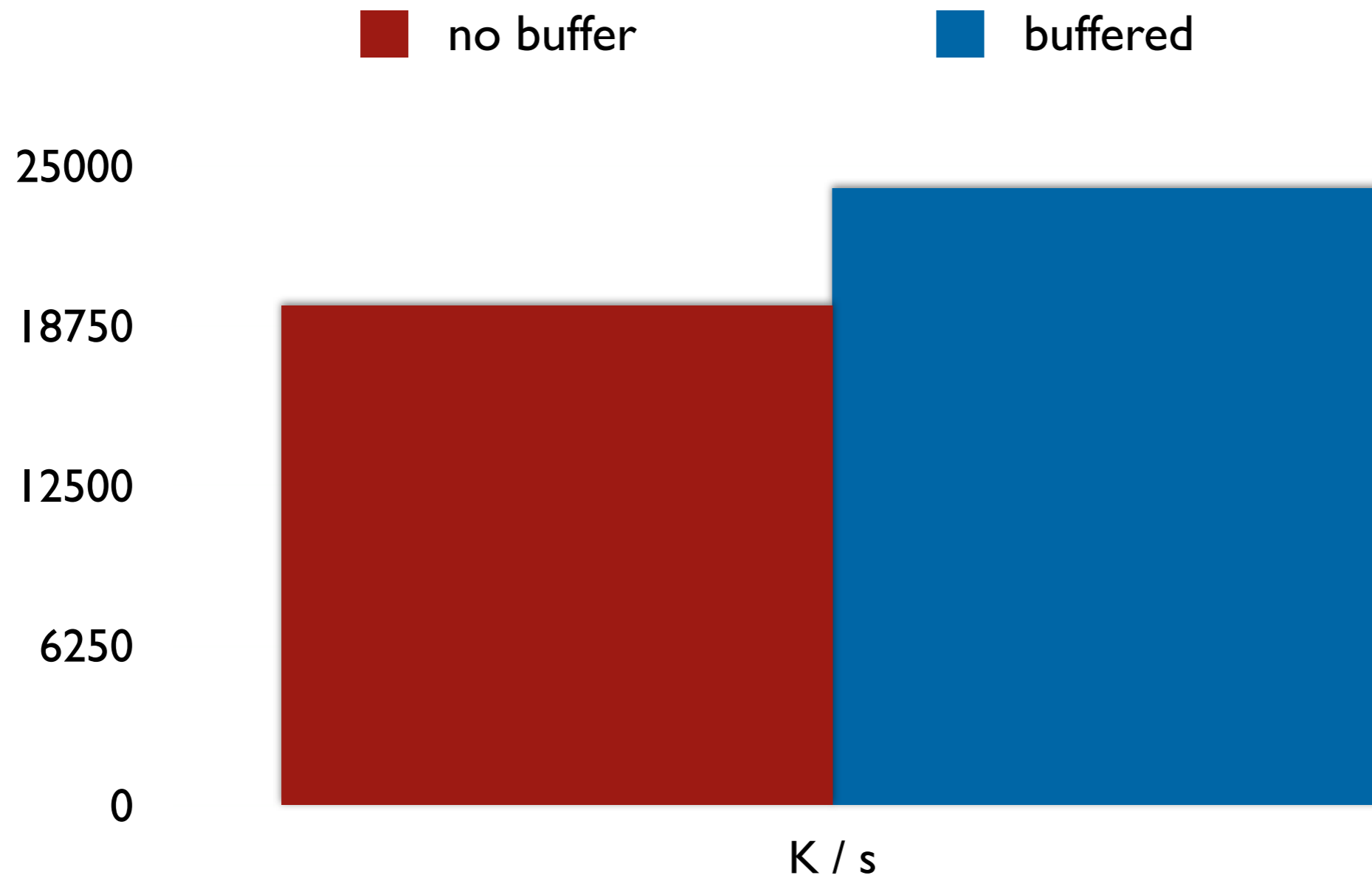

Throughput

```
fh          = File.open 'buf.log', 'wb'  
buffered    = Logger.new fh  
unbuffered  = Logger.new 'unbuf.log'
```

```
txt = "X" * 1024
```

```
Benchmark.ips do |x|  
  x.report("buffered")    { buffered.info txt }  
  x.report("unbuffered") { unbuffered.info txt }  
end
```

Throughput



8K buffer

SyslogLogger

```
gem install  
syslog_logger
```

```
config.logger = SyslogLogger.new
```

LWES

<http://www.lwes.org/>

Trade
performance
for data
integrity

Offs

Code

Prepared Statement Caching

Program

Database

Program

```
select * from users where id = ?
```

Database

Program

select * from users where id = ?

Database

Program

id: 123456

Database

Program

id: 123456

Database

Program

Database

Program

[id: 123456, 27]

Database

Program

[id: 123456, 27]

Database

Program

[row, row, row]

Database

User.find(1)



User.find(1)

Select

Table

Where

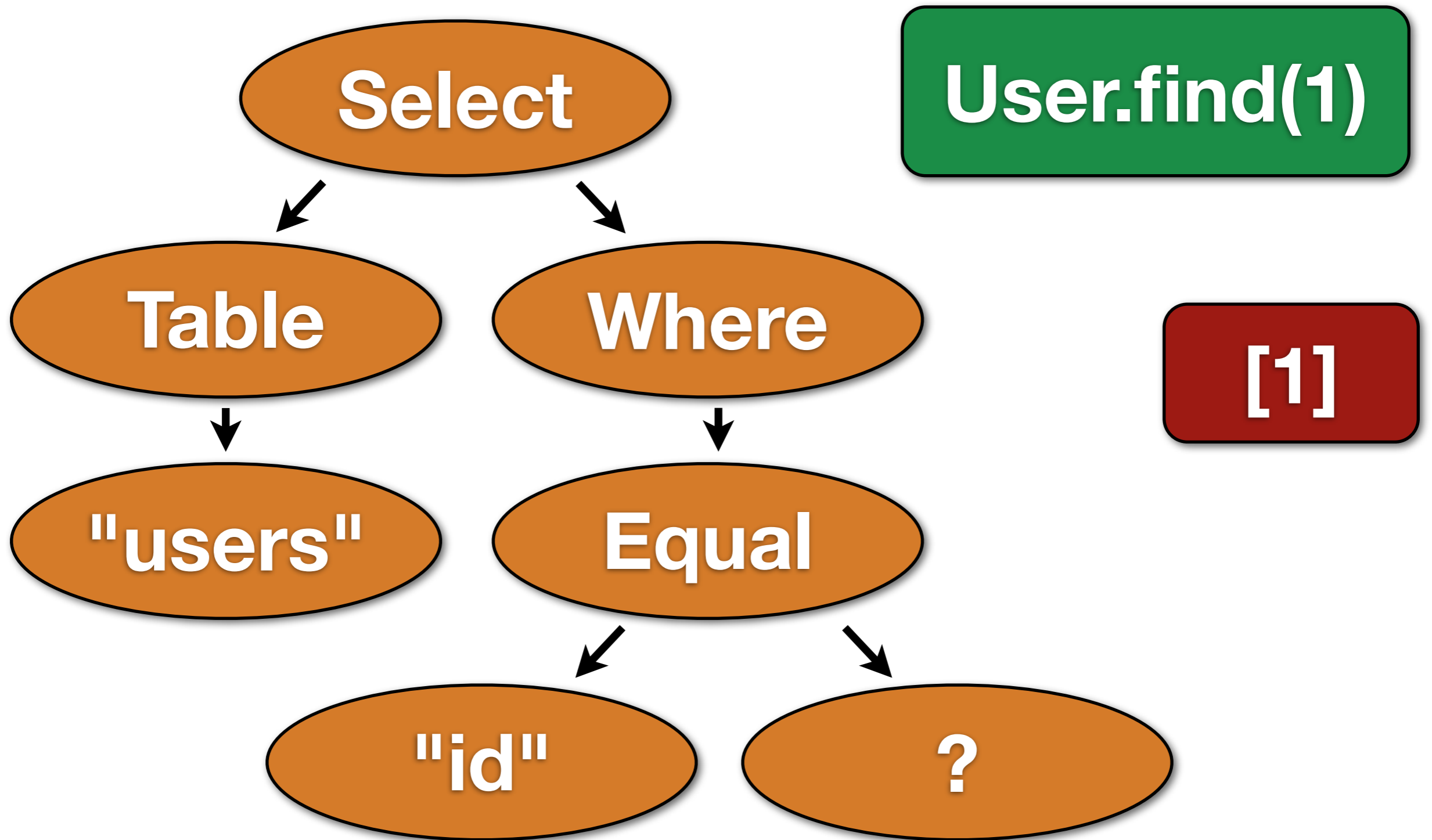
"users"

Equal

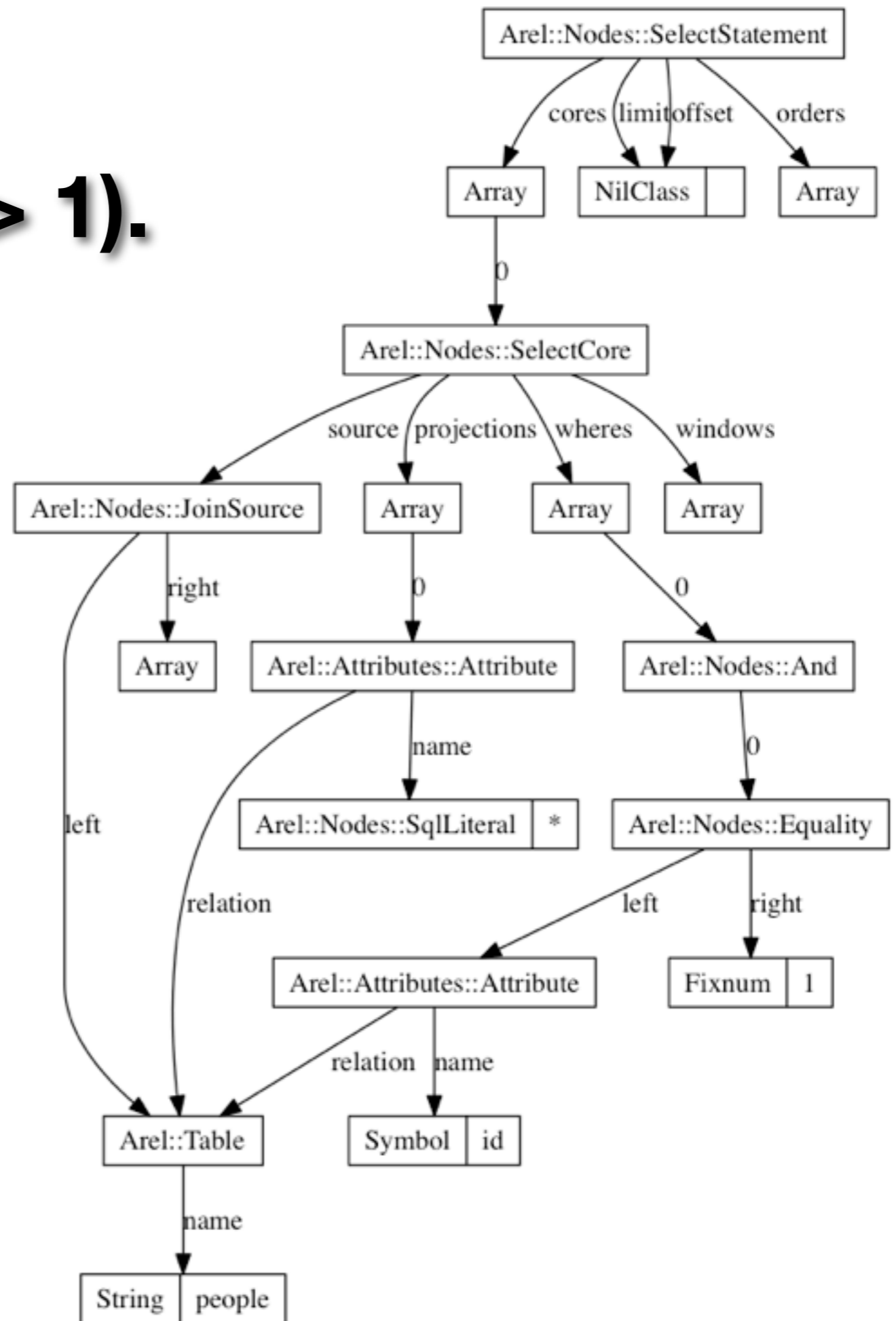
"id"

1





**Person.where(:id => 1).
arel.to_dot**



AST Transformations
Buy New Features

**Configuration
Disables Bind Values**

Instrumentation

Publishing

```
ActiveSupport::Notifications.instrument("render") do  
  render :text => "Foo"  
end
```

Subscribing

```
events = []
```

```
ActiveSupport::Notifications.subscribe("render") do |*e|  
  events << e  
end
```

**Always Time.now
even if no-one
listening**

```
def instrument(name, payload={})
```

```
  started = Time.now
```

```
  begin
```

```
    yield
```

```
  ensure
```

```
    @notifier.publish(name, started, Time.now, @id, payload)
```

```
  end
```

```
end
```

my time + children

Missing Information

```
-> start rendering
  -> start execute SQL
  <- finish execute SQL
  -> start execute SQL
  <- finish execute SQL
<- finish rendering
```


Rendering

```
graph TD; A[Rendering] --> B[SQL]; A --> C[SQL];
```

The diagram consists of a central green rounded rectangle at the top containing the word 'Rendering' in white. Two black arrows point downwards from the bottom corners of this rectangle to two separate dark red rounded rectangles below. Each of these lower rectangles contains the word 'SQL' in white. The entire diagram is set against a plain white background.

SQL

SQL

```
class Listener
  def start(event)
  end

  def finish(event)
  end
end
```

```
listener = Listener.new
```

```
AS::Notifications.subscribe("render", listener)
```

Evented Publishing

```
def instrument(name, payload={})  
  @notifier.start(name, @id, payload)  
  begin  
    yield  
  ensure  
    @notifier.finish(name, @id, payload)  
  end  
end
```

Make it Quack

```
class Timed
  def initialize(pattern, delegate)
    @delegate = delegate
    @timestack = Hash.new { |h,id|
      h[id] = Hash.new { |ids,name| ids[name] = [] }
    }
  end

  def start(name, id, payload)
    @timestack[id][name].push Time.now
  end

  def finish(name, id, payload)
    started = @timestack[id][name].pop
    @delegate.call(name, started, Time.now, id, payload)
  end
end
```

Tiny Factory

```
def subscribe(pattern = nil, listener = Proc.new)
  if listener.respond_to?(:call)
    subscriber = Timed.new pattern, listener
  else
    subscriber = listener
  end
  @subscribers << subscriber
end
```

**Mitigate Risk by
Inspecting Objects**

Our Reward

```
class Indented
  def initialize
    @indentation = 0
  end

  def start name, id, payload
    print indent
    puts "-> #{name} -- #{payload[:virtual_path]}"
    @indentation += 1
  end

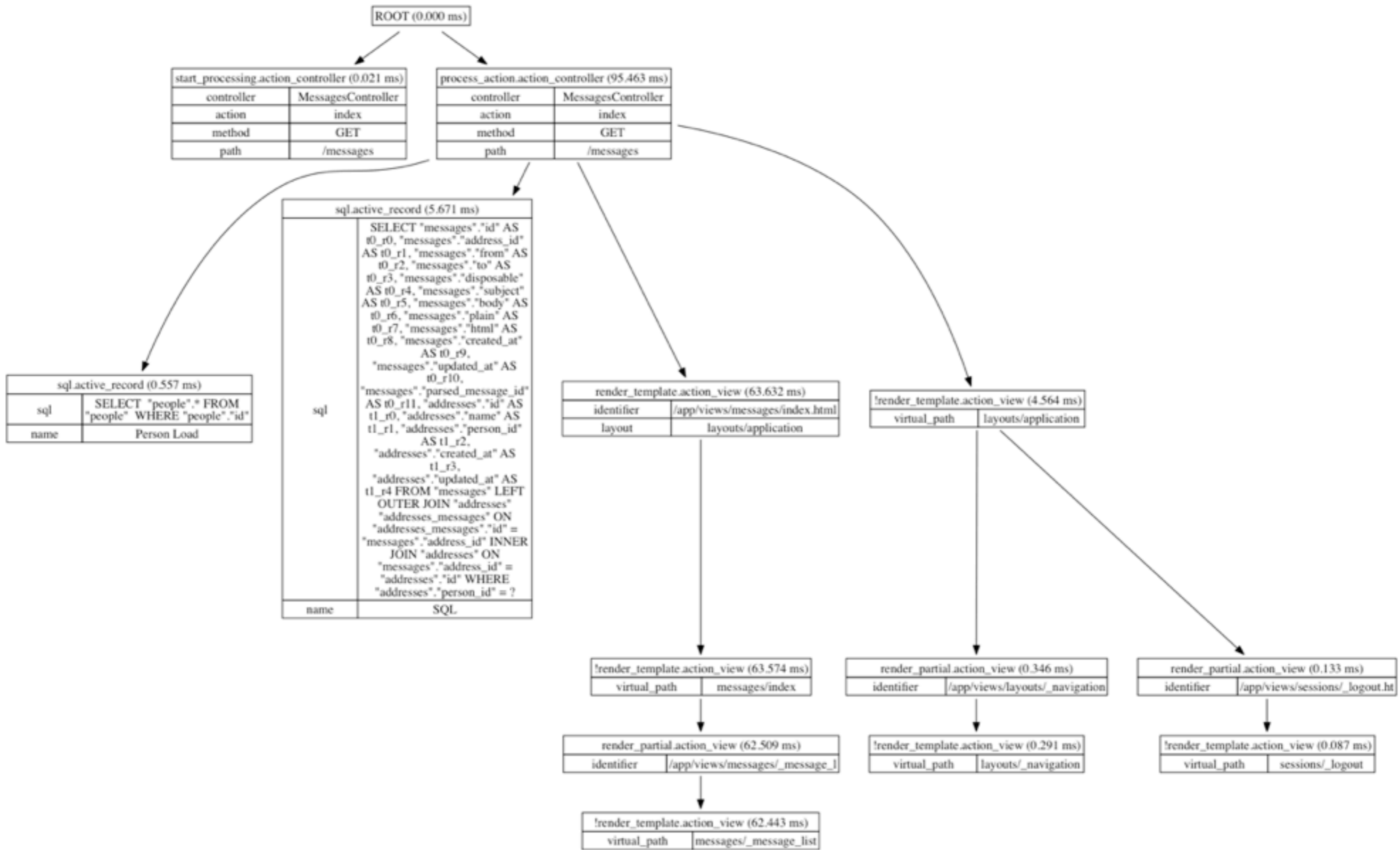
  def finish name, id, payload
    @indentation -= 1
    print indent
    puts "<- #{name} -- #{payload[:virtual_path]}"
  end

  private
  def indent
    "  " * @indentation
  end
end
```

```
ActiveSupport::Notifications.notifier.subscribe(nil, Indented.new)
```



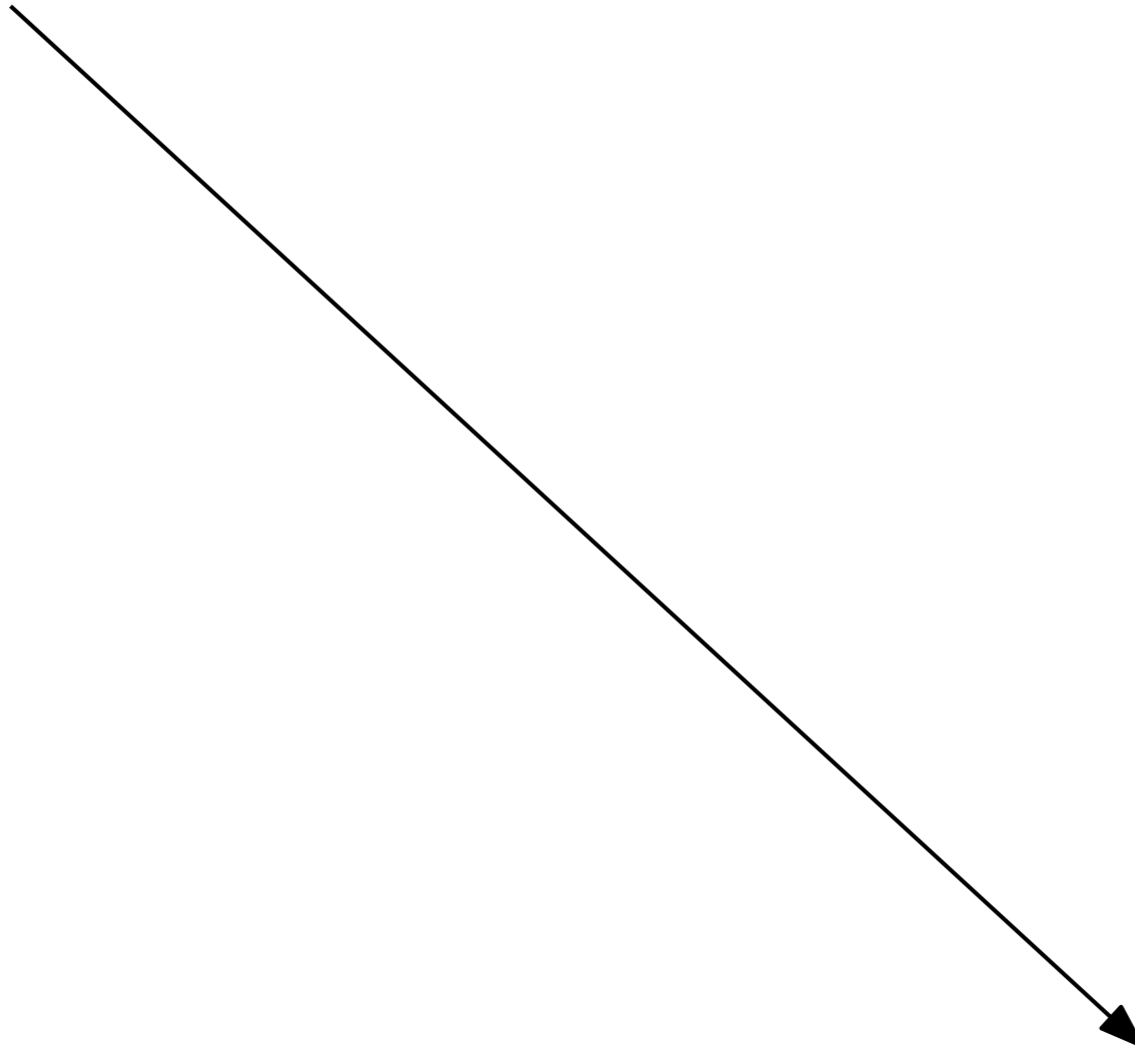
```
-> process_action.action_controller --
  -> render_template.action_view --
    -> !render_template.action_view -- sessions/index
    <- !render_template.action_view -- sessions/index
  <- render_template.action_view --
  -> !render_template.action_view -- layouts/application
    -> render_partial.action_view --
      -> !render_template.action_view -- layouts/_navigation
      <- !render_template.action_view -- layouts/_navigation
    <- render_partial.action_view --
    -> render_partial.action_view --
      -> !render_template.action_view -- sessions/_slim_login
      <- !render_template.action_view -- sessions/_slim_login
    <- render_partial.action_view --
  <- !render_template.action_view -- layouts/application
<- process_action.action_controller --
```



ml



!render_template.action_view (4.564 ms)	
virtual_path	layouts/application



render_partial.action_view (0.346 ms)	
identifier	/app/views/layouts/_navigation



!render_template.action_view (0.291 ms)	
virtual_path	layouts/_navigation

_1

render_partial.action_view (0.133 ms)	
identifier	/app/views/sessions/_logout.ht



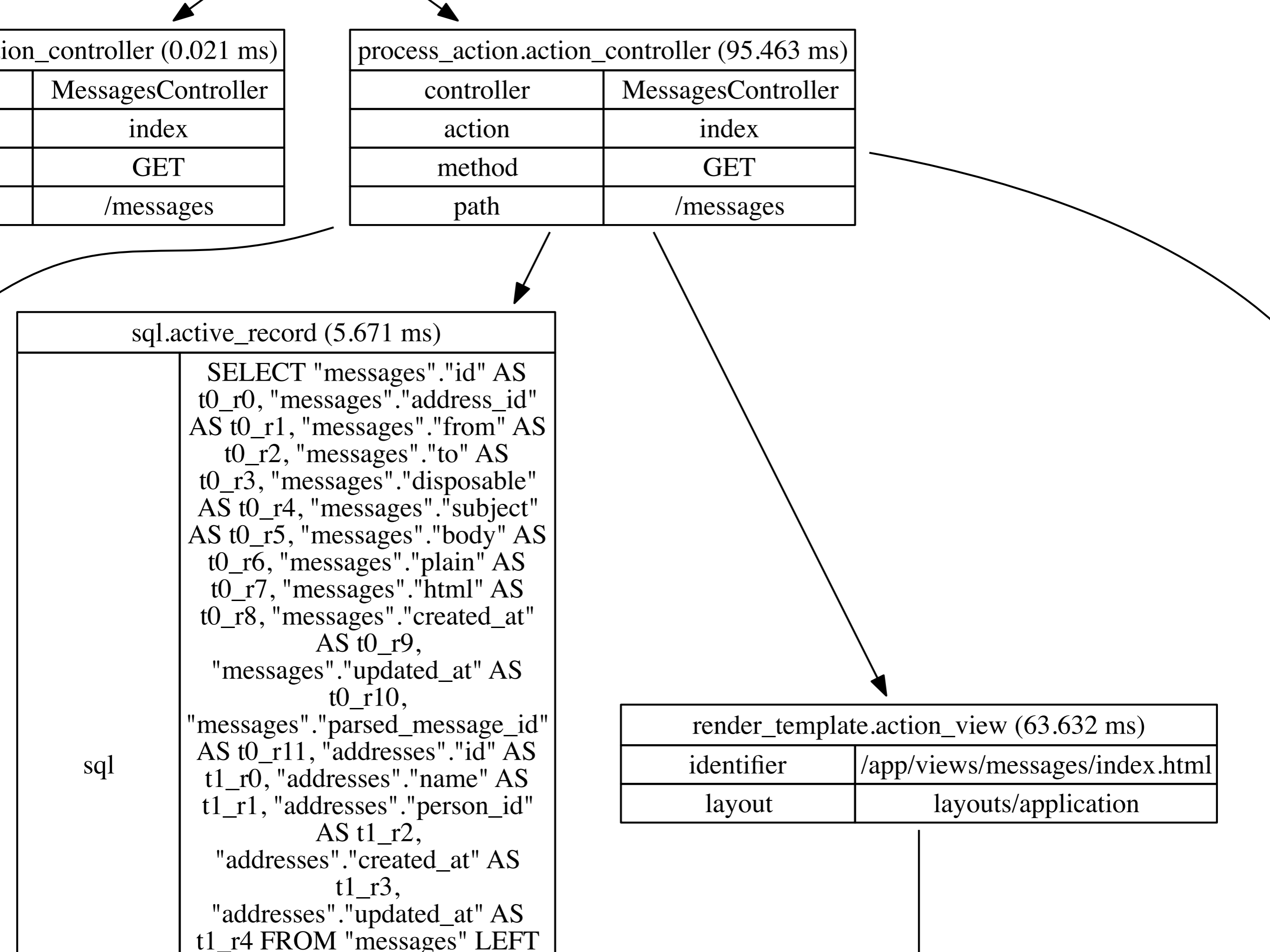
!render_template.action_view (0.087 ms)	
virtual_path	sessions/_logout

ion_controller (0.021 ms)	
MessagesController	
index	
GET	
/messages	

process_action.action_controller (95.463 ms)	
controller	MessagesController
action	index
method	GET
path	/messages

sql.active_record (5.671 ms)	
sql	<pre> SELECT "messages"."id" AS t0_r0, "messages"."address_id" AS t0_r1, "messages"."from" AS t0_r2, "messages"."to" AS t0_r3, "messages"."disposable" AS t0_r4, "messages"."subject" AS t0_r5, "messages"."body" AS t0_r6, "messages"."plain" AS t0_r7, "messages"."html" AS t0_r8, "messages"."created_at" AS t0_r9, "messages"."updated_at" AS t0_r10, "messages"."parsed_message_id" AS t0_r11, "addresses"."id" AS t1_r0, "addresses"."name" AS t1_r1, "addresses"."person_id" AS t1_r2, "addresses"."created_at" AS t1_r3, "addresses"."updated_at" AS t1_r4 FROM "messages" LEFT </pre>

render_template.action_view (63.632 ms)	
identifier	/app/views/messages/index.html
layout	layouts/application



Ruby is an
Awesome Tool

**Rails is an
Awesome Framework**

**But YOU Must
Manage Risk**

Questions?

Avoiding Surprise Null Pointers

Hello <%= @naem %>

```
$stdout.write "Hello "  
$stdout.write(( @naem ).to_s)
```

```
class Controller
  def show
    @name = "Aaron"
  end

  def html
    $stdout.write "Hello "
    $stdout.write(( @naem ).to_s)
    $stdout.write("\n")
  end
end

ctrl = Controller.new
ctrl.show
ctrl.html
```

```
$ ruby test.rb
```

```
Hello
```

```
$
```

ruby -w

```
$ ruby -w test.rb  
test.rb:8: warning: instance variable @naem not initialized  
Hello  
$
```

Use Methods

Hello <%= naam %>


```
$stdout.write "Hello "  
$stdout.write(( naem ).to_s)
```

undefined local variable or method `naem' (NameError)

```
class SessionsController < ApplicationController
  def name
    @user.name
  end

  helper_method :name

  def show
    @user = User.find 1
  end

  def index
    @users = User.all
  end
end
```

NoMethodError: undefined method `name' for nil:NilClass

Context Objects

```
class UserController < ApplicationController
  attr_reader :ctx
  helper_method :ctx

  class ShowContext
    def initialize(user)
      @user = user
    end

    def name
      @user.name
    end
  end

  def show
    @user = User.find 1
    @ctx = ShowContext.new(@user)
  end
end
```

Hello <%= ctx.name %>

```
undefined method `naem' for  
#<UserController::ShowContext:0x1>
```



```
class UserController < ApplicationController
  attr_reader :ctx
  helper_method :ctx

  class ShowContext
    def initialize(user)
      @user = user
    end

    def name
      @user.name
    end
  end
end

class IndexContext
end

def show
  @user = User.find 1
  @ctx = ShowContext.new(@user)
end

def index
  @ctx = IndexContext.new
end
end
```

Testability

Known Failures