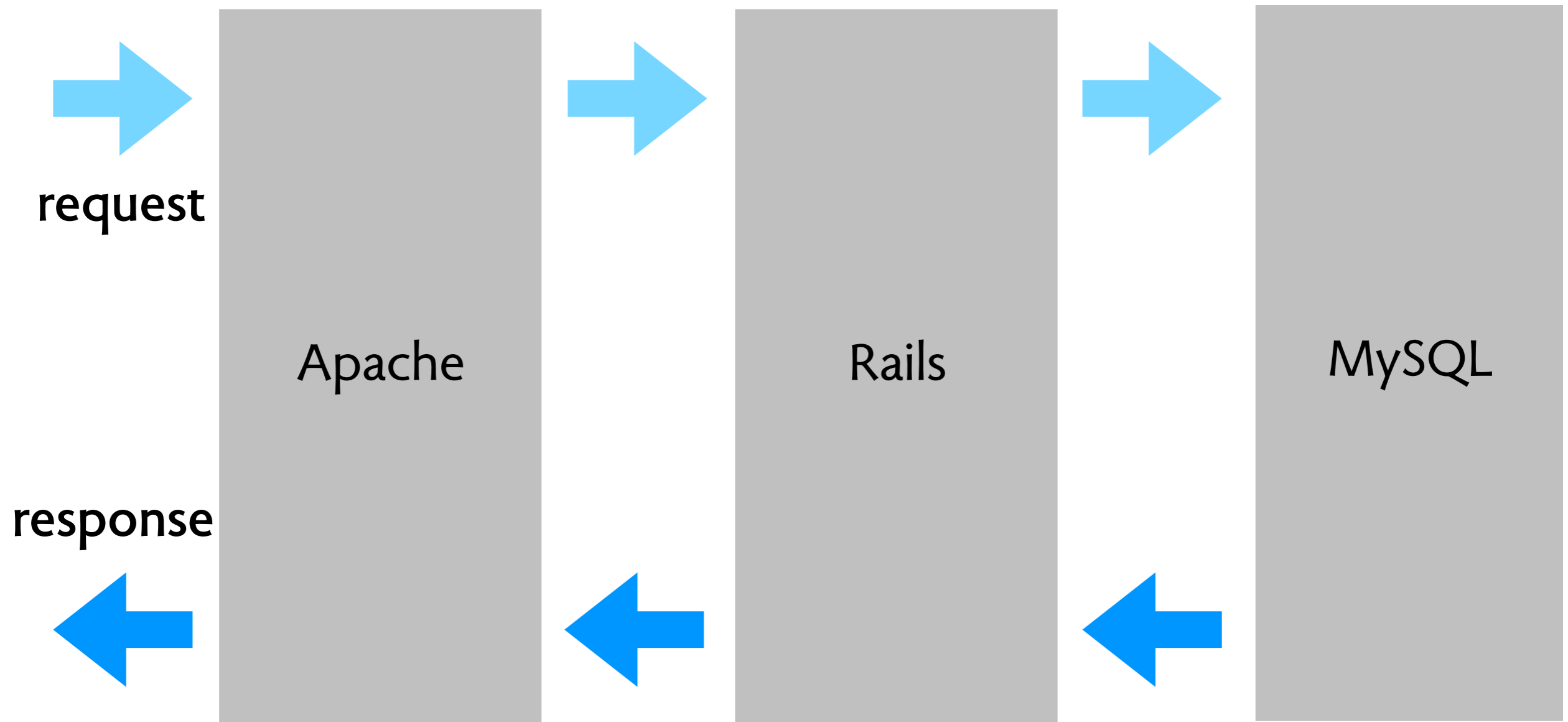


software studio

web frameworks

Daniel Jackson

basic server side architecture



what a framework does

basic areas of built-in functionality

- › routing
- › request data
- › data mapping
- › templates
- › validation
- › session state

routing

separation of concerns

- › client's name for op vs. developer's name for method

example

- › request GET /photos/17
- › routes.rb match *'photos/:id'* => *'photos#show'*
- › call class PhotosController ...
 def show
 ... params[:id] ...
 end

for more, see <http://guides.rubyonrails.org/routing.html>

- › bidirectional
- › RESTful default routing

request data

two kinds of request data

- › query strings from GETs
- › form data from POSTs

read in the same way

- › `params[:field]`

```
class ClientsController < ActionController::Base
  # sample URL: /clients?status=activated
  def index
    if params[:status] == "activated"
      @clients = Client.activated
    else
      @clients = Client.unactivated
    end
  end
end
```

web app = data conversion

update request

tipster: share tips with friends

[home](#) [search](#) [add_entity](#) [logout](#)

Reviewing Clover

Review
Enter your review here

Rating
One star is best

request.form

id	2
rating	5
content	yummy!

database table

reviews				
<i>id</i>	<i>by</i>	<i>content</i>	<i>rating</i>	<i>about</i>
1	3	yummy!	5	2
2	2	neat	4	1

show request

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[[Edit subject](#)]

Name **Clover**
Category Food
Rating ★★★★★ (3.3)

[Add a review](#)

Chloe Closure [[Edit](#)] (4 days ago)
★★★★★
My favorite food truck. Delicious vegetarian dishes, and relatively low ecoli count.

Ben Bitdiddle (4 days ago)
★★★★★
I like this place too. And they have really cool strategy for taking orders, with people outside the ...[more](#)

Alice Alert (4 days ago)
★★★★★
Yeah, sure, the food is good. But what about the atmosphere? Especially in winter when it's snowing.

response

id	2
rating	5
content	yummy!

data mapping

basic idea

- › object in heap = row in table

object relational mapper

- › generates database schema from class defs
- › backs up object methods with SQL updates/queries

Rails ActiveRecord

```
class Client < ActiveRecord::Base
  has_one :address
  has_many :orders
  has_and_belongs_to_many :roles
end

class Address < ActiveRecord::Base
  belongs_to :client
end
```

```
address = client.address
```

```
# Find the client with primary key (id) 10
client = Client.find(10)
```

```
SELECT * FROM clients WHERE (clients.id = 10) LIMIT 1
```


templates

```
<h1>Listing Books</h1>

<table>
  <tr>
    <th>Title</th>
    <th>Summary</th>
    <th></th>
    <th></th>
    <th></th>
  </tr>

  <% @books.each do |book| %>
    <tr>
      <td><%= book.title %></td>
      <td><%= book.content %></td>
      <td><%= link_to 'Show', book %></td>
      <td><%= link_to 'Edit', edit_book_path(book) %></td>
      <td><%= link_to 'Remove', book, :confirm => 'Are you sure?', :method => :delete %></td>
    </tr>
  <% end %>
</table>
```

also

› layouts, partials, flashing

validation

built in functions to check

```
class Person < ActiveRecord::Base
  validates :name, :length => { :minimum => 2 }
  validates :bio, :length => { :maximum => 500 }
  validates :password, :length => { :in => 6..20 }
  validates :registration_number, :length => { :is => 6 }
end
```

messages to be displayed in flash

```
class Coffee < ActiveRecord::Base
  validates :size, :inclusion => { :in => %w(small medium large),
    :message => "%{value} is not a valid size" }
end
```

session state

session variable holds session state

```
session[:user_id] = @current_user.id  
User.find(session[:user_id])
```

where's session state stored?

- › in a (hidden) database table; cookie just holds id
- › or entirely in cookie

what's the tradeoff?

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6.170 Software Studio
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