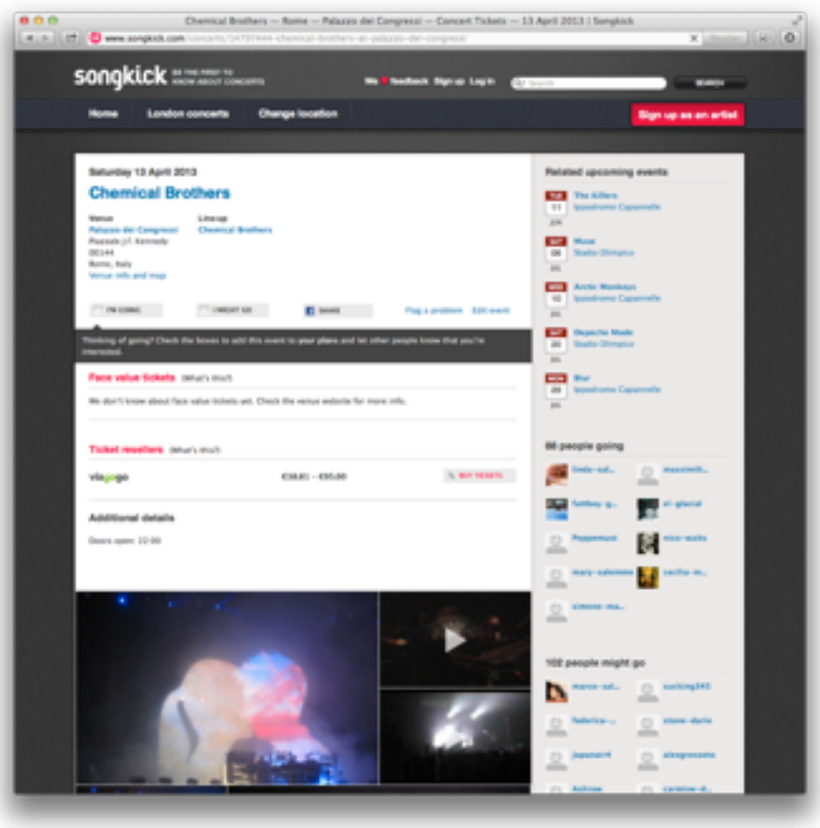
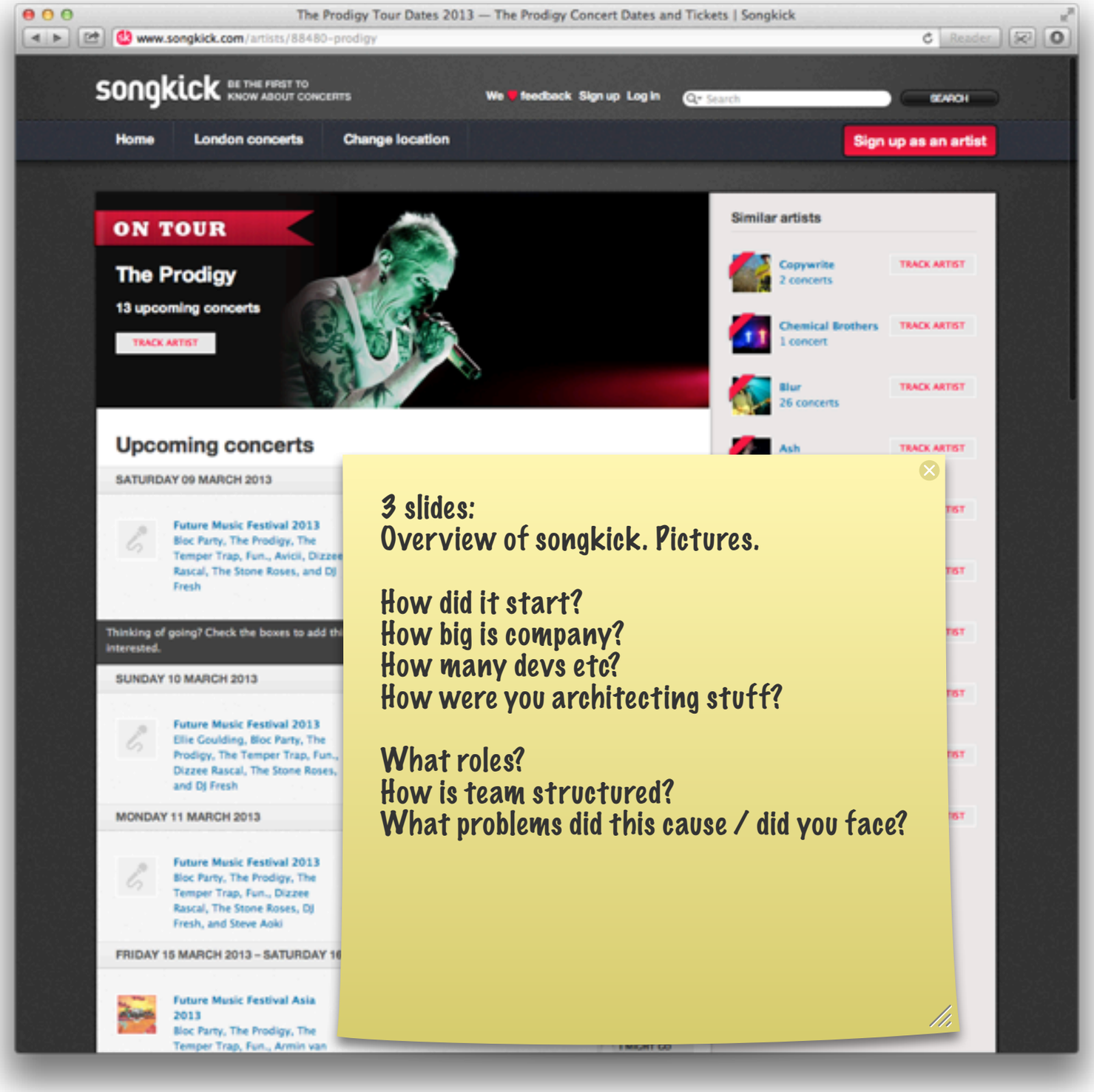
How we scaled Songkick

songkick.com

- Founded 2007
- Hundreds of thousands of upcoming concerts
- 3.4 million past concerts
- 8 million uniques a month
- Second most visited live music website after ticketmaster





3 slides:
Overview of songkick. Pictures.

How did it start?
How big is company?
How many devs etc?
How were you architecting stuff?

What roles?
How is team structured?
What problems did this cause / did you face?

We Started small

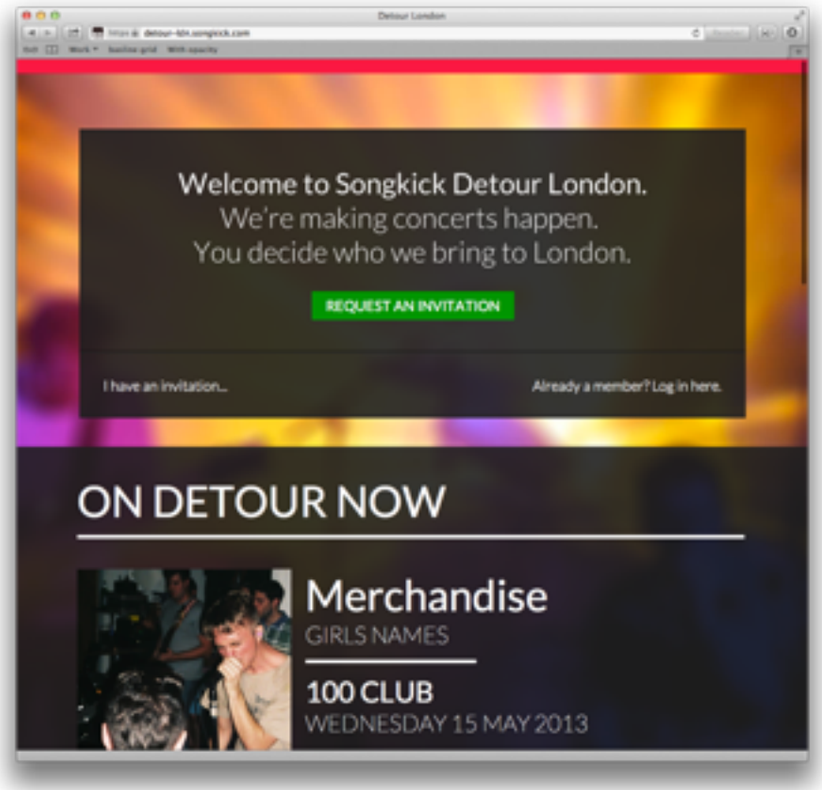
- Four people in a flat in Spitalfields
- And grew

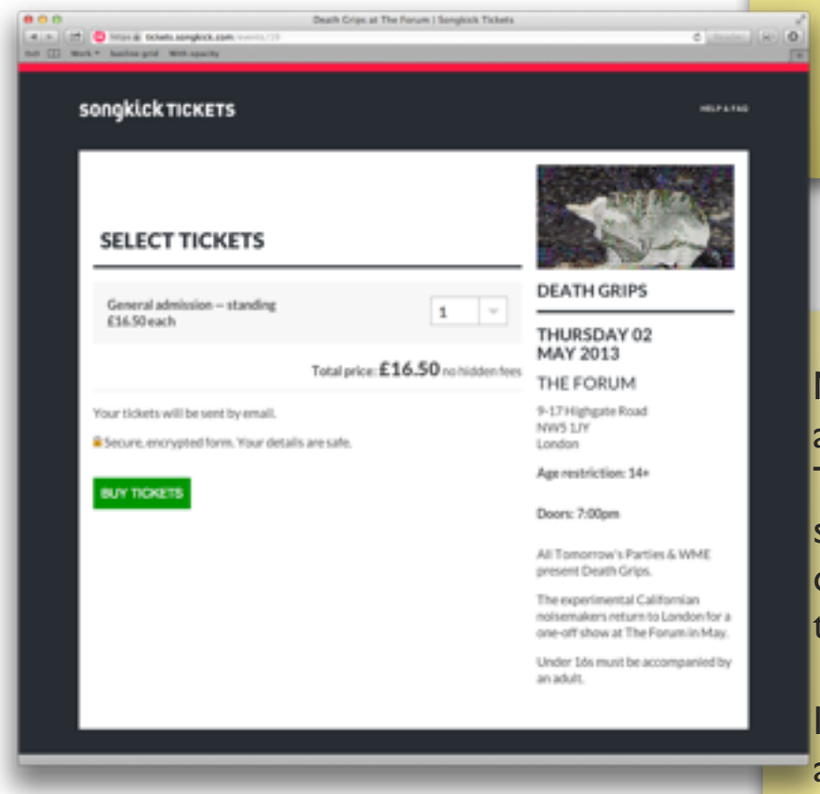
We are still small

- 30 People in an office in Hoxton
- We are divided into cross functional teams the number and size of which change as we need

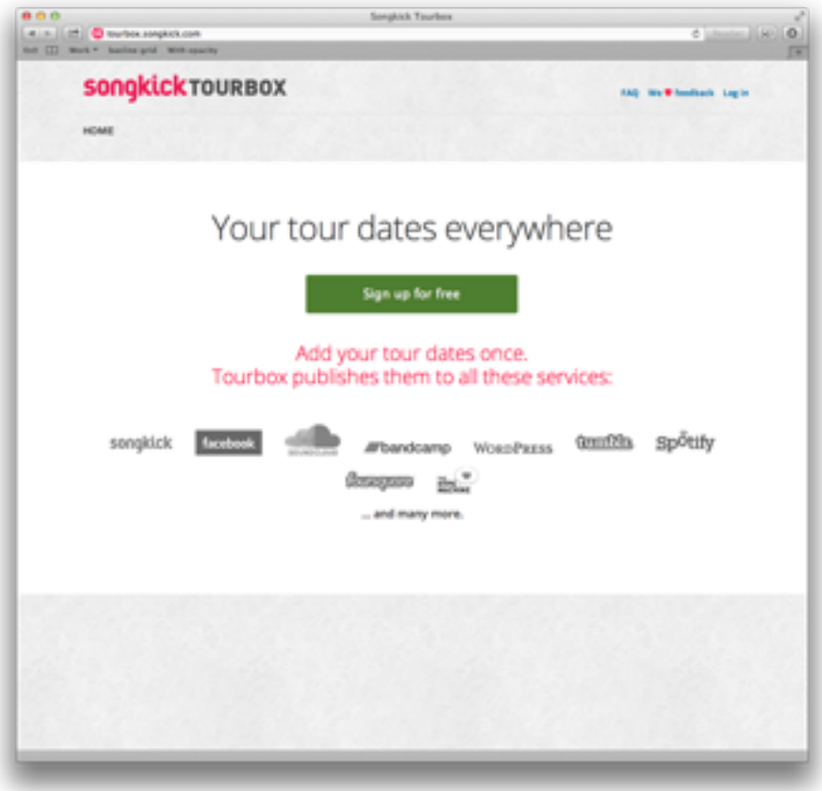
We also do

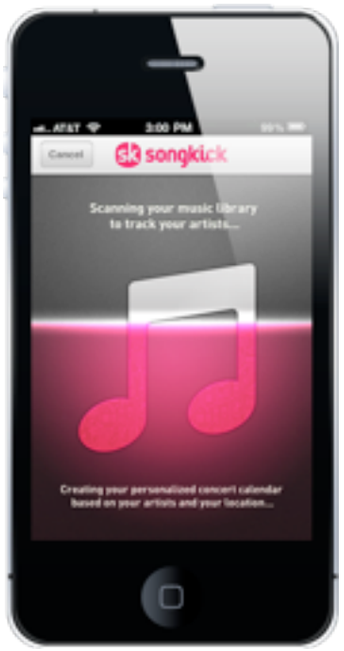
But I'm not going to be talking directly about these, although they do use a similar architecture.

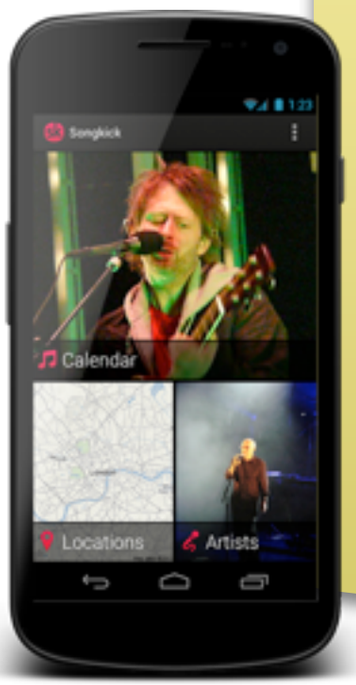




Maybe not the iphone and android applications. Though they use some similar concepts and certainly rest on some of the same infrastructure.



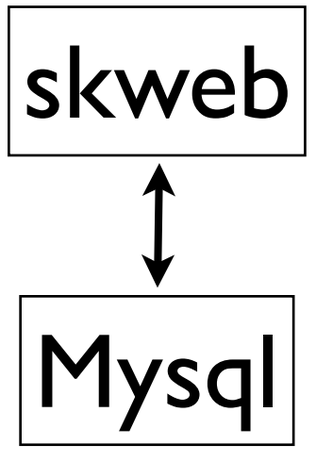




In the case of the iPhone and Android applications the way we know which artists you are interested in is we look on you device. We also use geolocation to find where you are and to notify you, we use push notification.

Again this is just for completeness we are probably not going to mention them much

The old architecture



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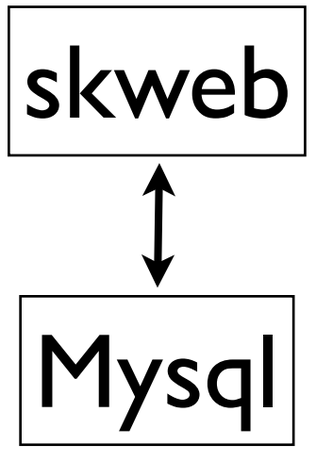


A rails application

What was the problem

- Initially features were over-engineered
- To develop and ship quickly it was easier to stick it all in one place
- But site was up, traffic growing. Trouble brewing …

What's the problem?

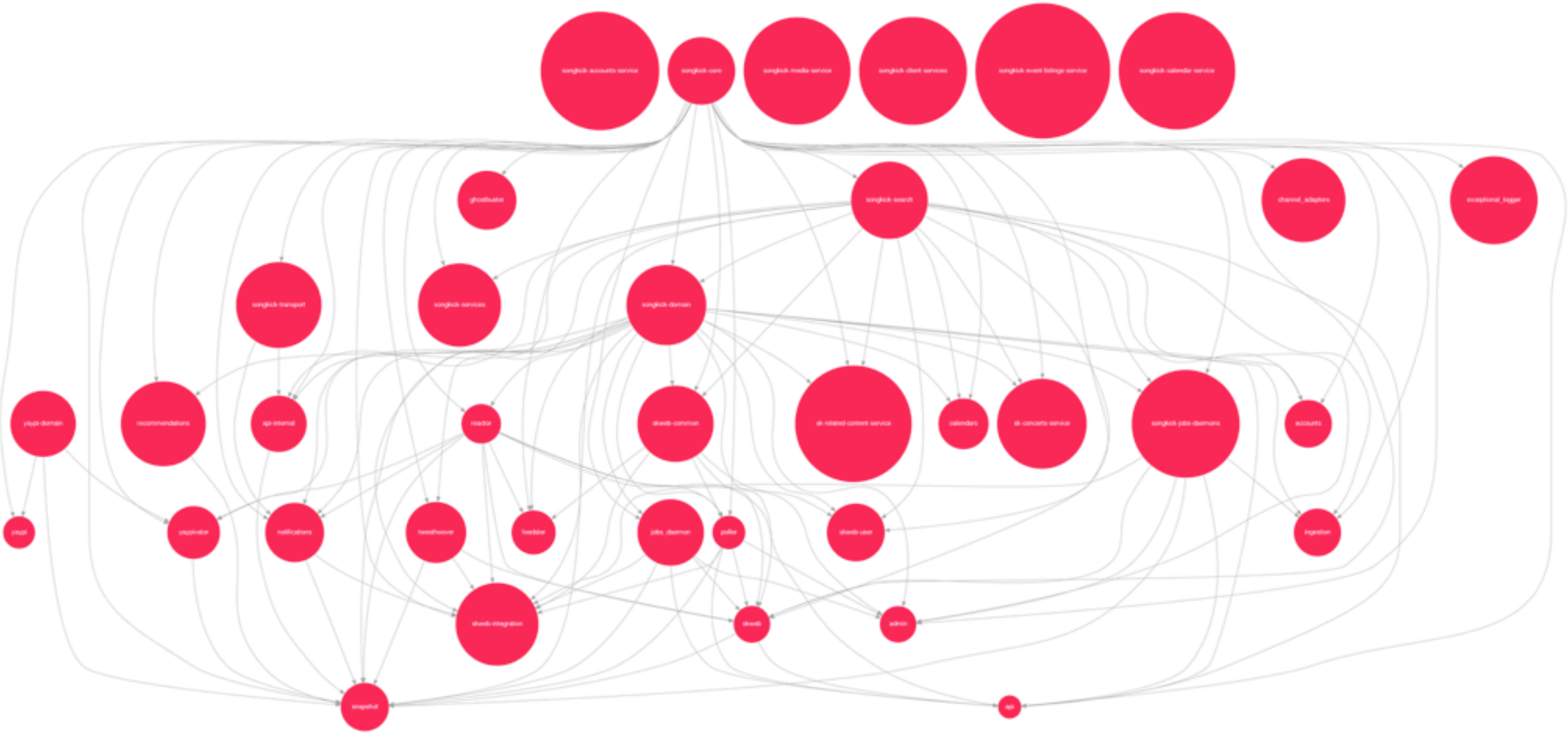
- Shipping new features became difficult
- Our builds were taking hours to run
- We had complex relationships between what were notionally separate applications
- Dependancies were hard to understand and hard to untangle

All these things meant if you wanted to change something, if you wanted to change the copy in an emails, you had to deploy the entire app.

We had a few false starts where we broke up the functions of the application. Unfortunately the boundaries weren't clear and it was still a single code base so we still had to deploy everything together

Integration queue

Our dependency graph



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For us increasing productivity was one of our most important goals.

We can respond to competitors and changes in the market more readily.

Yes performance was import, and, yes we had a lot of code in the app to make it more performant (caching etc) Which did make it reasonably performant.

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Why not re-architect?

These were all real concerns.

How do you persuade the other people in the company that spending six months doing this is worth doing?

This is a start-up you really can't spend six month navel gazing. The company could go bust.

You need to have a compelling reason and a plan.

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- It might be easier to rewrite
- The new architecture might not be better than the old one

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Collaboration!

How did we know what cut and what to keep. iPhone.

Why what things are called?
Shared vocabulary, every one in the company calls the same thing by the same name.

This will become important later on, in the development of the application.

And actually this process of identifying, cutting or adding features, choosing names and prioritising work is iterative. Each step of the way this process is repeated.

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What we settled on

Which is kind of boring, but, how you get from one to the other is more interesting.

And doing it in a reasonable amount of time and without breaking the existing site and not doing a big bang release is a challenge.

We decided early on that moving to the new architecture would be done in a stepwise fashion. With the refactoring and splitting of the functions one page at a time.

We had a pages that were functionally quite distinct. And if you want to do this step by step you need a unit you can use to measure progress and divide up the work.

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So far, so conventional

What a service looks like

We actually started with dummy services where we implemented the interface to the service inside the application.

Active record leaks up the

Worth noting our services don't have versioning, access control or XML. And that we do not need to maintain backwards compatibility, since we control all the clients. (at least for now)

And they are kind of REST. Not real, phd level REST, but certainly popular, Rails-developer style REST.

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- We added 'pages', 'components' and 'elements'

Pages are ruby classes that model what a pages behaviour should be

How it fits together

What is a page?

Why add pages?

What are components?

What are elements?

Benefits?

What makes a component?
A self contained unit on the page normally you can draw a box around it and give it a name.

Arbitrarily components cannot be nested.

What makes an element? Are common functionality shared between components.

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- Some components are composed of elements

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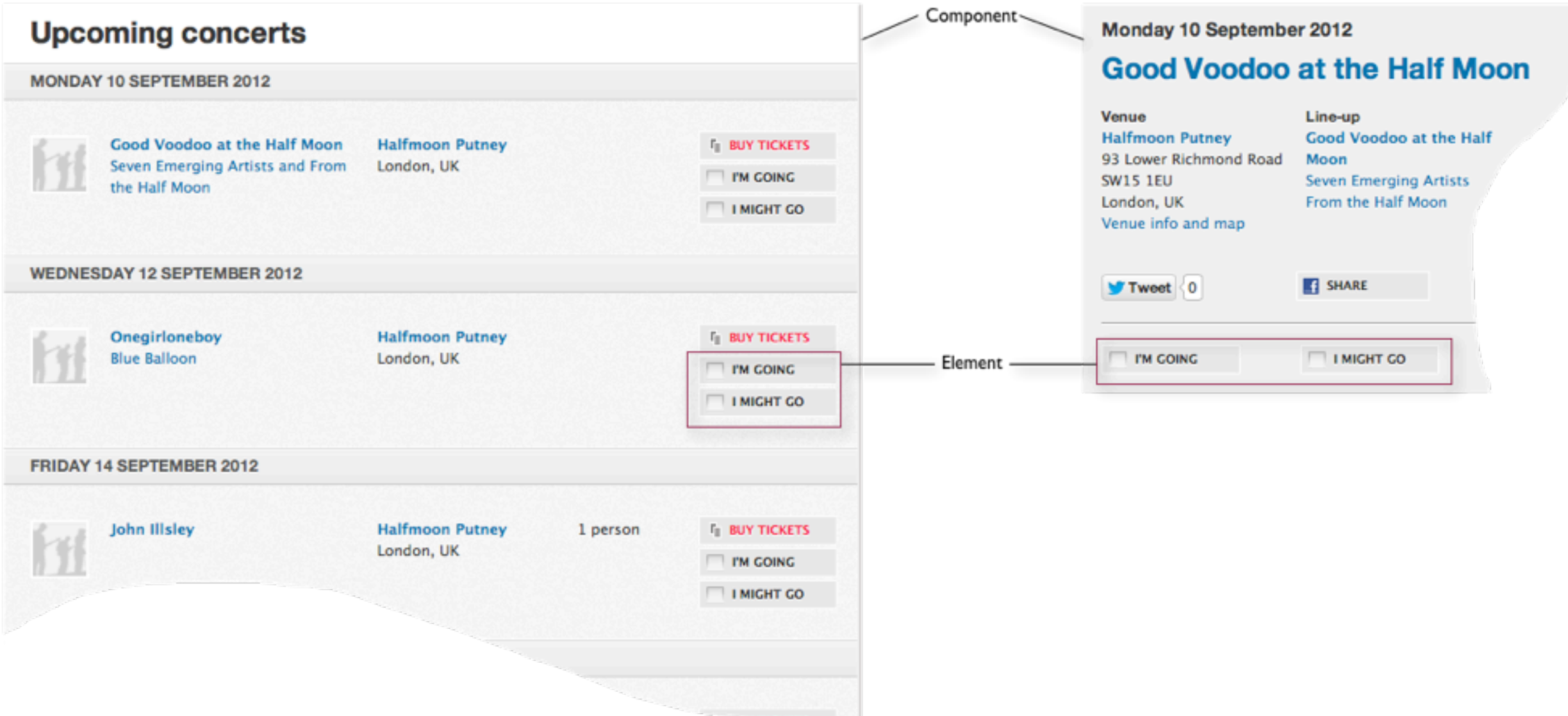
Upcoming concerts
MONDAY 10 SEPTEMBER 2012
Good Voodoo at the Half Moon
Seven Emerging Artists and From the Half Moon
Halfmoon Putney
London, UK
BUY TICKETS
I'M GOING
I MIGHT GO
WEDNESDAY 12 SEPTEMBER 2012
Onegirloneboy
Blue Balloon
Halfmoon Putney
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BUY TICKETS
I'M GOING
I MIGHT GO
FRIDAY 14 SEPTEMBER 2012
John Illsley
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London, UK
1 person
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Component
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Monday 10 September 2012
Good Voodoo at the Half Moon
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93 Lower Richmond Road
SW15 1EU
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Venue info and map
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0
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Event pages need a venue and an artist and an event

Layers
(it's all about layers)

Artist pages have an artist + calendar and media (see etc)

Users are User + calendar

Services here are classes in the client. They talk to the network and handle passing the data up to the models and dat from the models out to the network

Components

Pages

- Event Page
- Artist Page
- User Page
- Venue Page

Models

- Event
- Artist
- Calendar
- User
- Venue
- Etc …

Services

- Event listings
- Accounts
- Caltrak
- Notifications
- Etc …

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- And we have added some conventions

The conventions

The css file imports smaller files with shared styling

Components are self contained. Each component has a name and takes an object.

The object contains the data the component needs and any decision making is provided by methods on that object.

The name of the component is also the name of the template file on disc, the html class name and the name of its corresponding css and javascript files.

This tight convention around names makes understanding the dependancy between a

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A little bit of code

This is of cause in ruby
but that hardly matters.

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        models/
            page_models/
                venue.rb
            skweb/
                models/
                    venue.rb
        views/
            venues/
                _brief.html.erb
                show.html.erb
    public/
        javascripts/
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Moving to the view

`component()` and `shared_component()` are defined in `ApplicationHelper` and look like this:

Moving to the view

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<div class="primary col">
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  <%= component('map', @page.brief.geolocation) %>
  <%= shared_component('calendar_summary',    @page.calendar_s
  <%= shared_component('media_summary',       @page.media_summ
  <%= shared_component('media_links',         @page.media_link
  <%= shared_component('gigography_summary', @page.gigography
</div>
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</div>
```

`component()` and `shared_component()` are defined in `ApplicationHelper` and look like this:

```
def component(component_name, object)
  return '' if object.nil?
  render :partial => component_name, :object => object
end

def shared_component(component_name, object)
  component("shared/components/#{component_name}", object)
end
```

Moving to the view

```
<div class="primary col">
  <%= component('brief', @page.brief) %>
  <%= component('map', @page.brief.geolocation) %>
  <%= shared_component('calendar_summary',    @page.calendar_s
  <%= shared_component('media_summary',       @page.media_summ
  <%= shared_component('media_links',         @page.media_link
  <%= shared_component('gigography_summary', @page.gigography
</div>
```

`component()` and `shared_component()` are defined in `ApplicationHelper` and look like this:

```
def component(component_name, object)
  return '' if object.nil?
  render :partial => component_name, :object => object
end

def shared_component(component_name, object)
  component("shared/components/#{component_name}", object)
end
```

```
@import 'shared/components/brief.css';
@import 'components/venue-brief.css';
@import 'components/venue-map.css';
@import 'shared/components/media-summary.css';
@import 'shared/components/event-listings.css';
```

What did this give us

I'd hoped to have a graph showing improved page response times, but unfortunately we didn't keep them

Many of our services can be scaled horizontally mean at lest in the medium term we can increase capacity by adding nodes

The compartmentalisation of the application.

The independence of the services means parallelising development is simpler.

Knowing where to add functionality is easier.

What did this give us

- Developer productivity was radically improved

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What did this give us

- Developer productivity was radically improved
- Application performance was much better

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A leaner code base

Before	After	
3.5MB	1.4MB	./app
1.8MB	744KB	./features
1.2MB	724KB	./spec

Faster Builds

Before

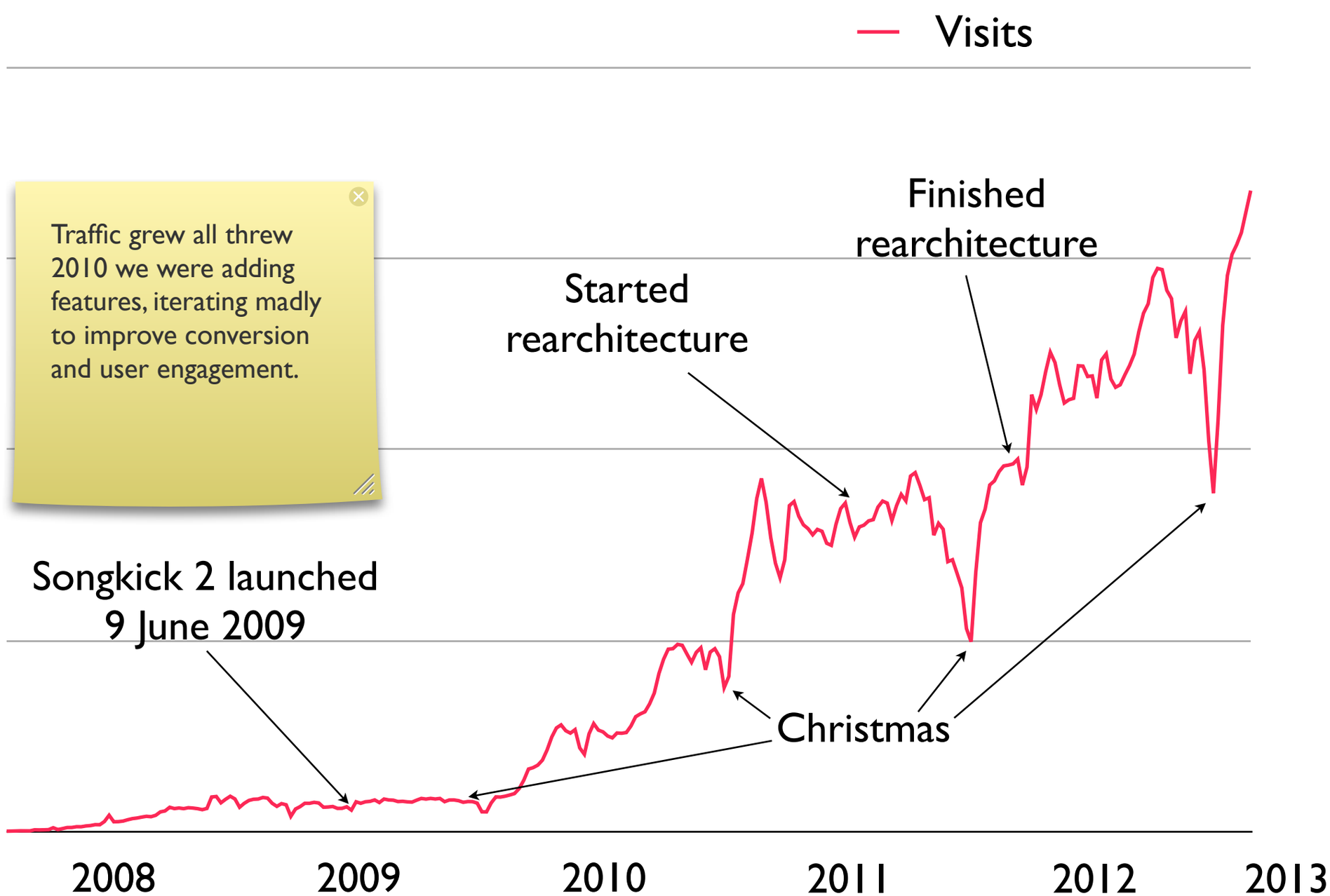
- Over an hour
- Parallelized with 1 local and 10 ec2 instances

After

- 10 minutes
- 1 local machine

A time line of how our traffic has grown.

Weekly visits



Traffic grew all threw 2010 we were adding features, iterating madly to improve conversion and user engagement.

Releases per month