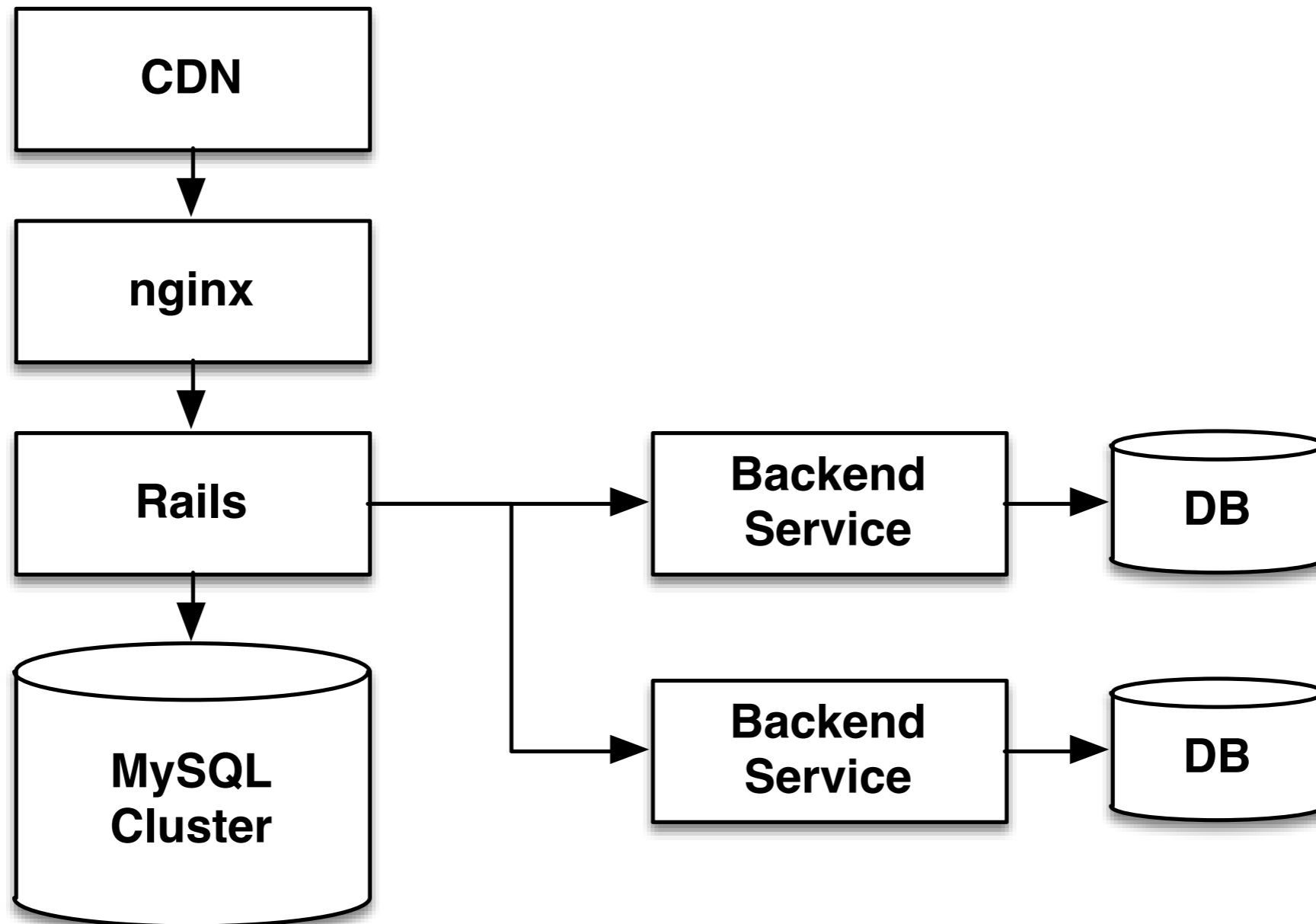


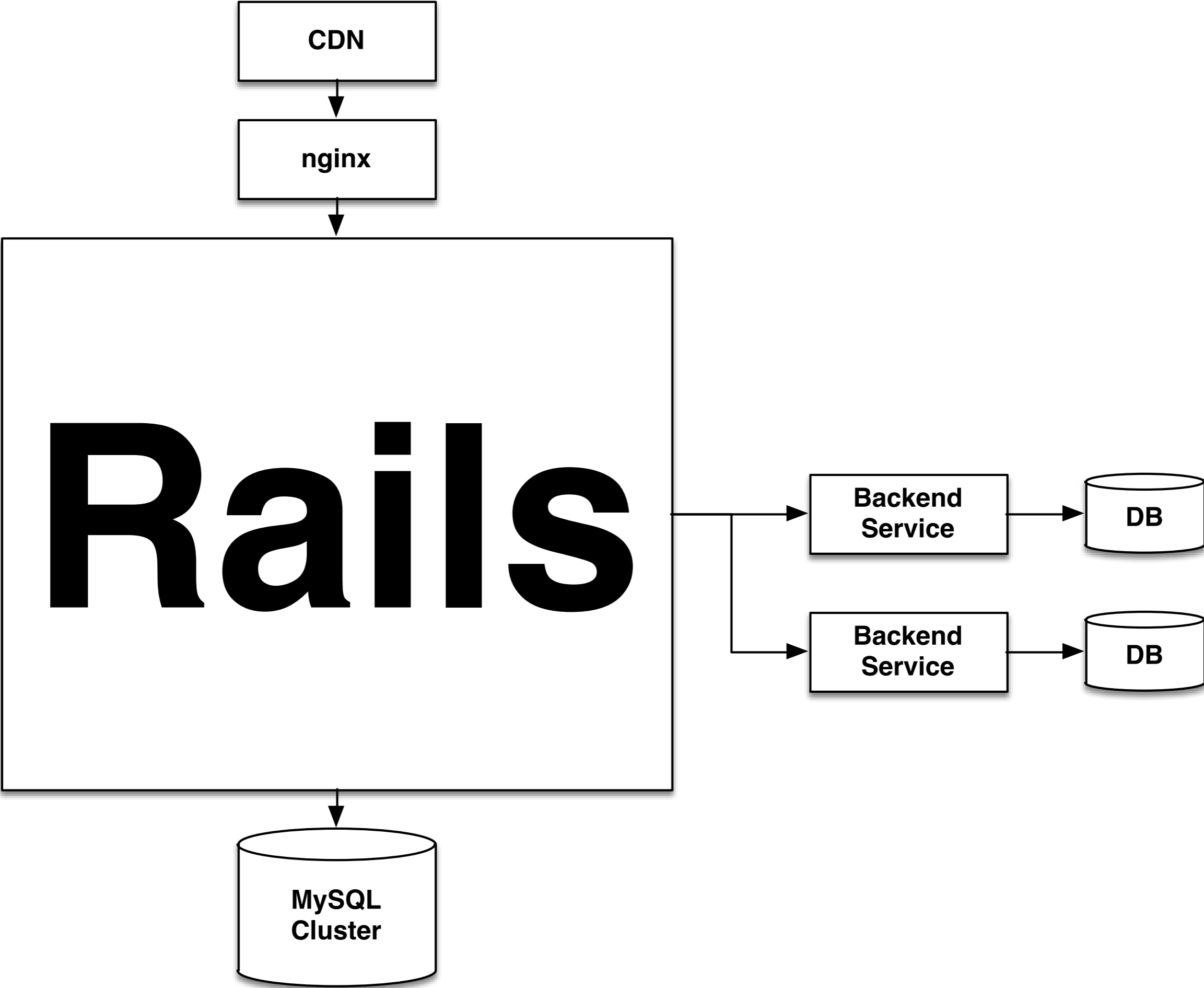
# I-Tier: Dismantling the Monolith

Brian McCallister

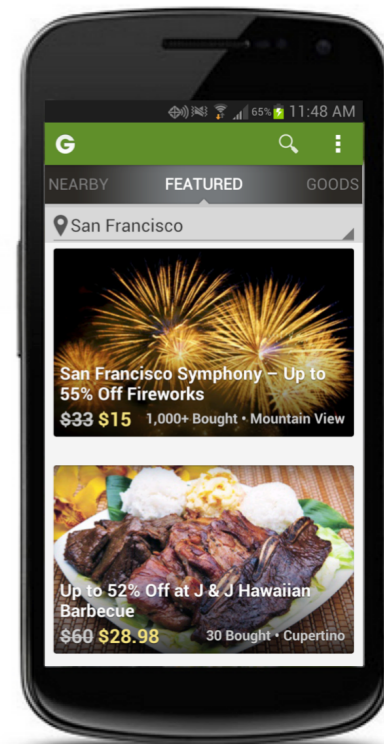
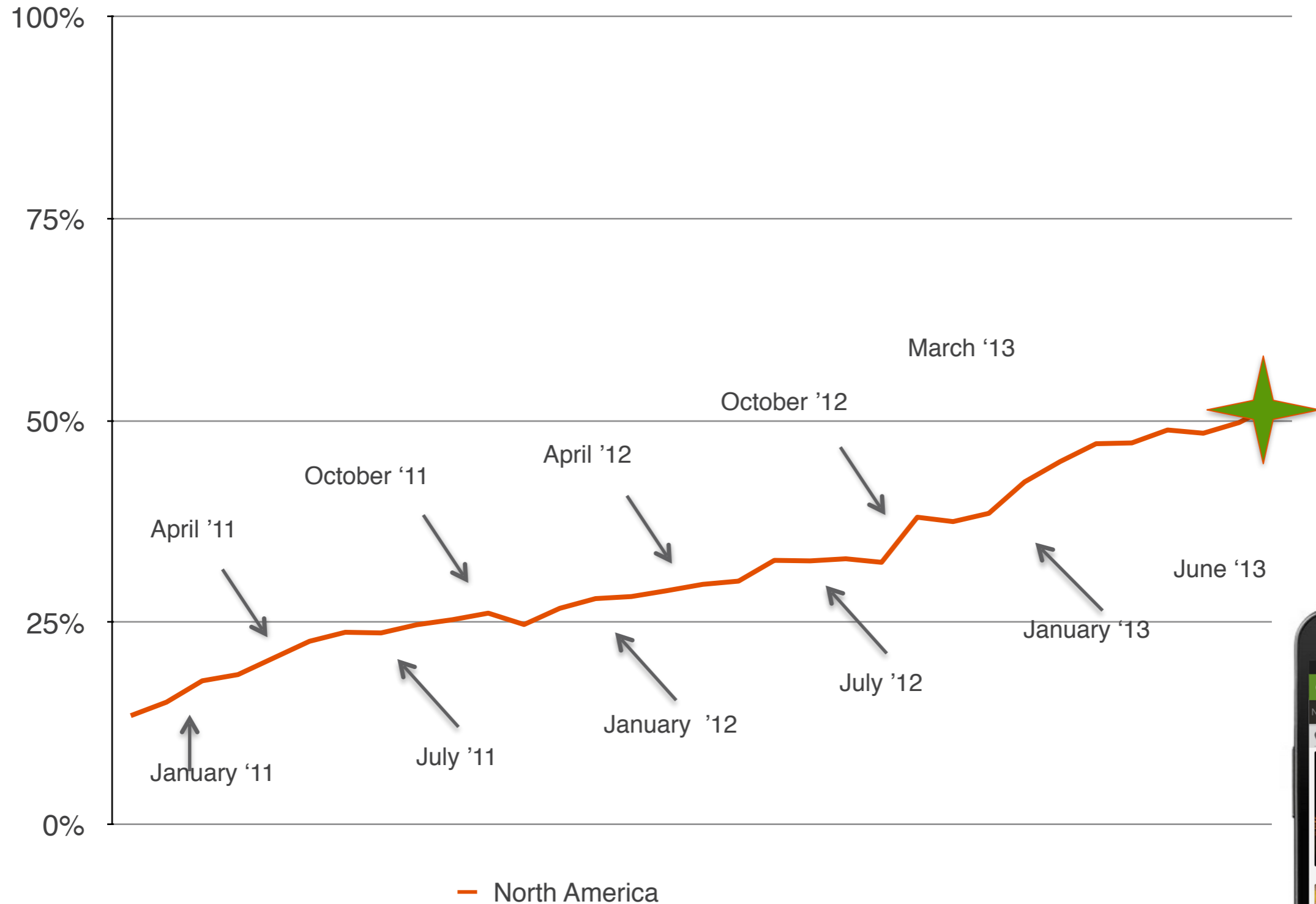
brianm@groupon.com  
@brianm

# 2012 North America

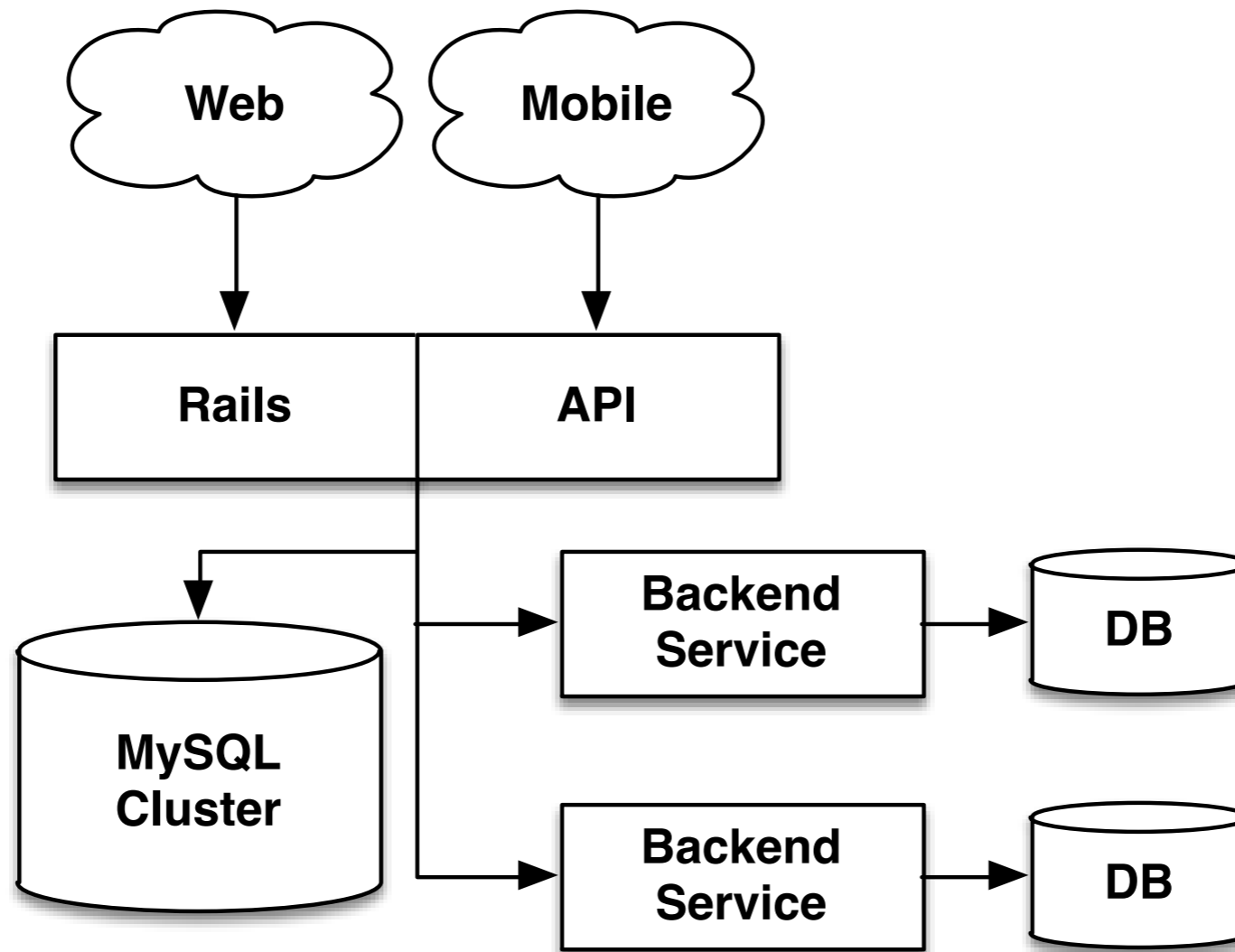


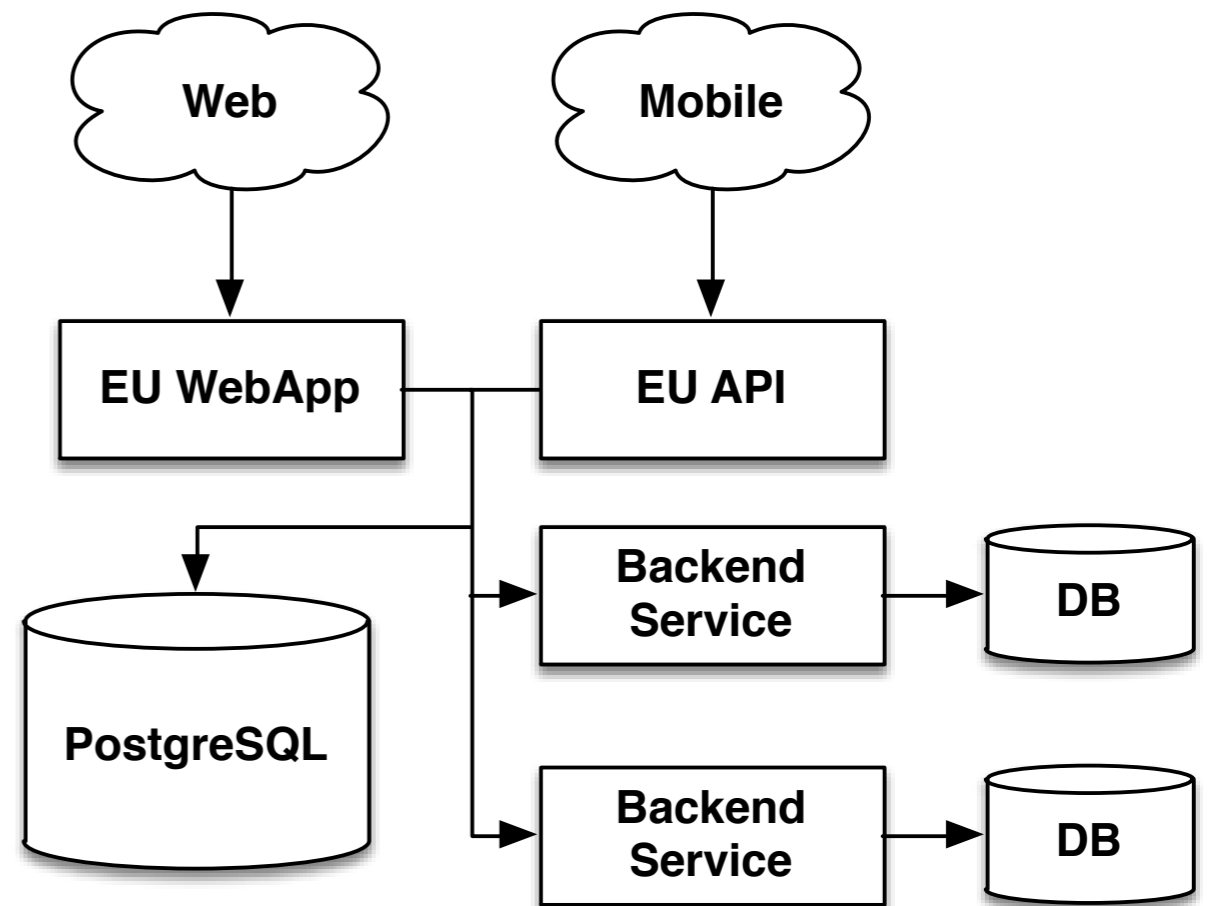
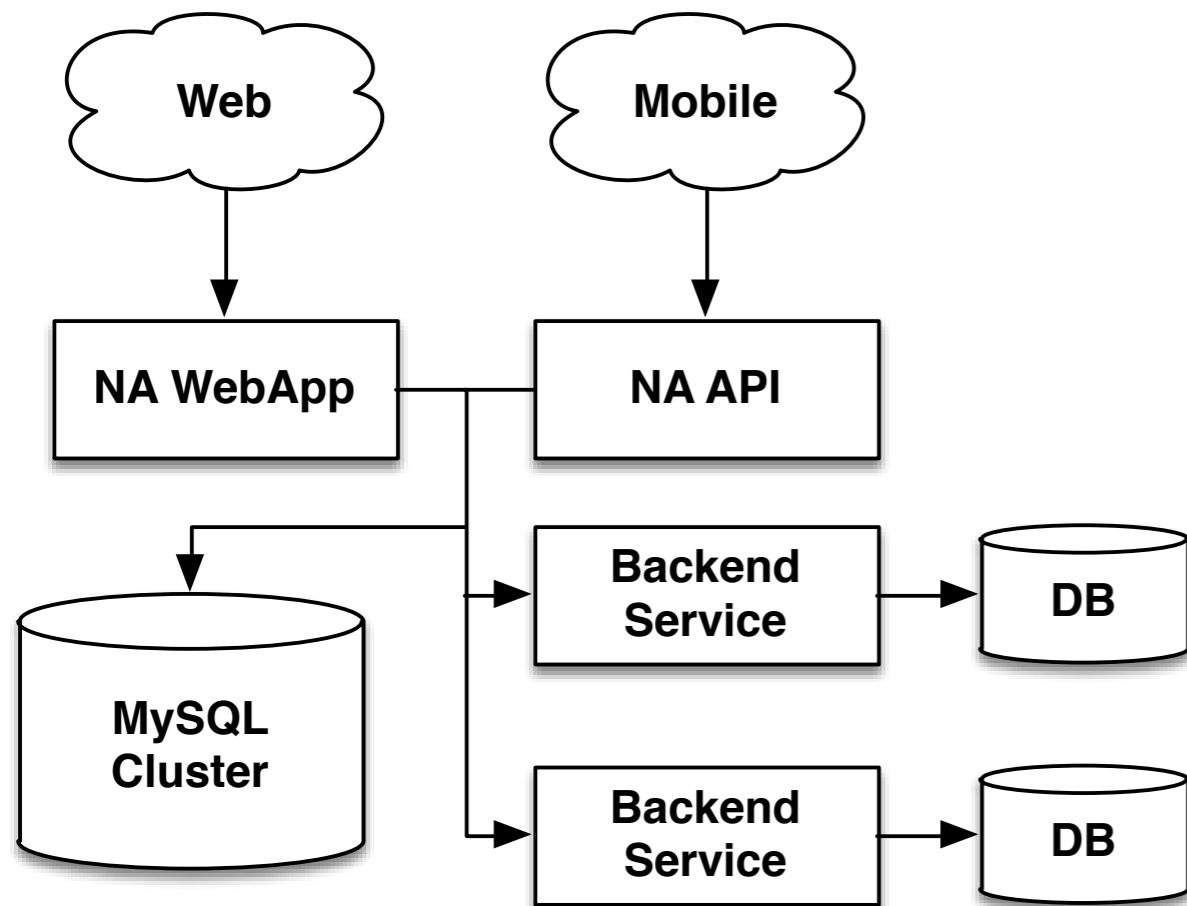


# Mobile Transaction Mix (% of transactions) Monthly, January 2011 to September 2013









Could not build features fast enough

Wanted to build features worldwide

Mobile and web lacked feature parity

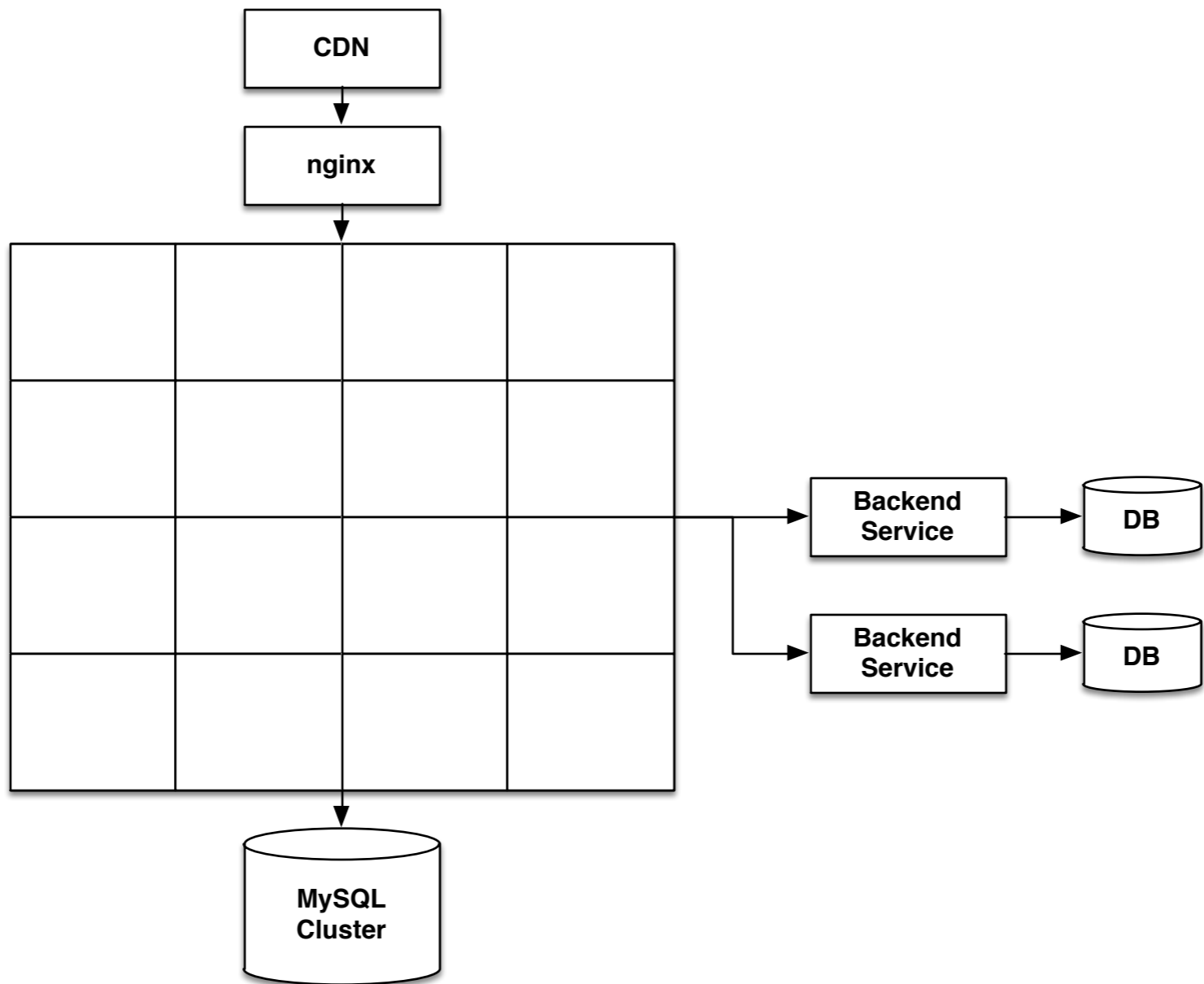
Could not change look and feel!

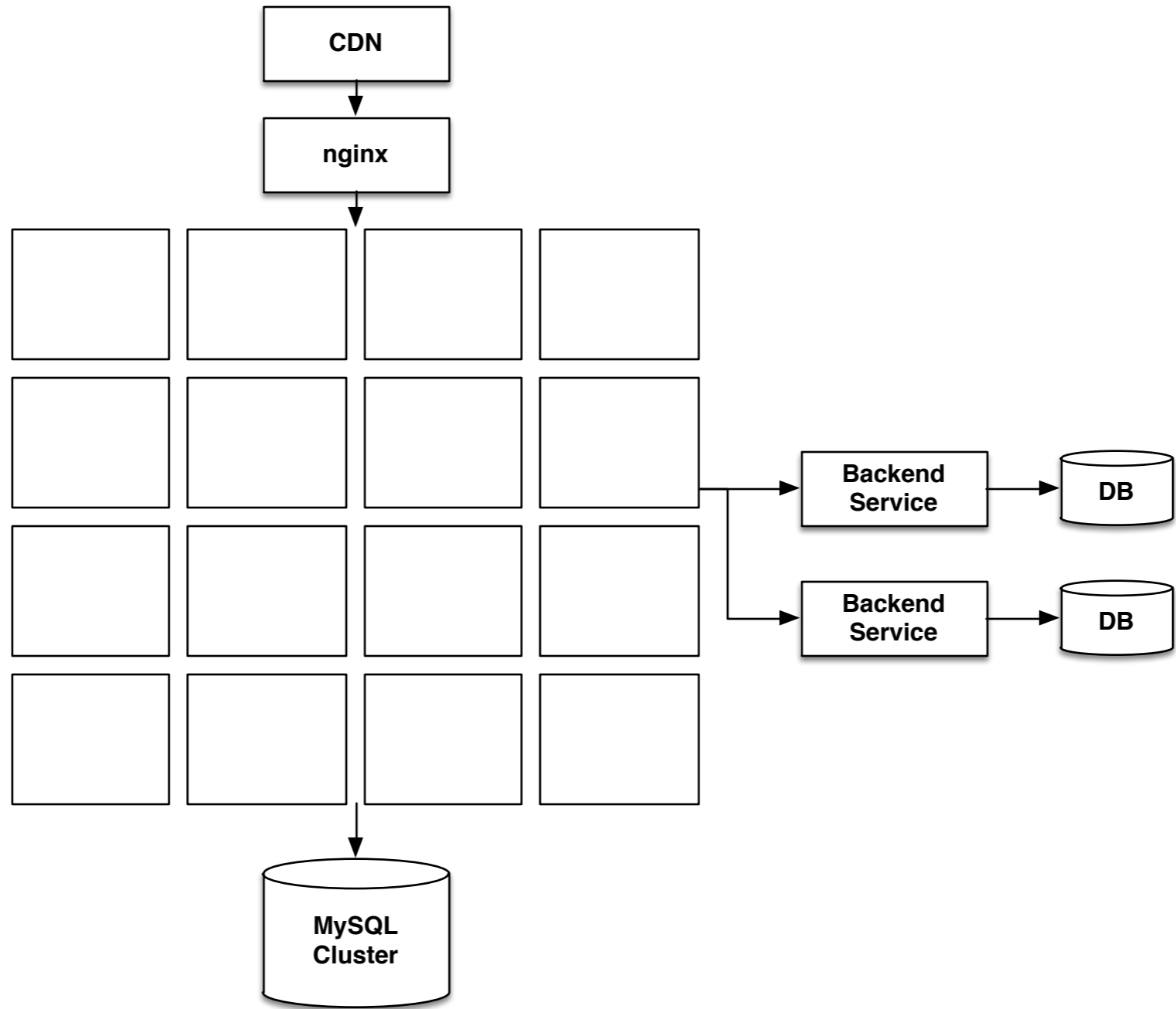


**Joel on Software**

# Things You Should Never Do, Part I

*by Joel Spolsky*





# GROUPON<sup>®</sup>

## Save 50% to 90% IN San Francisco

1

### Your Email Address

We'll send you unbeatable deals in San Francisco.

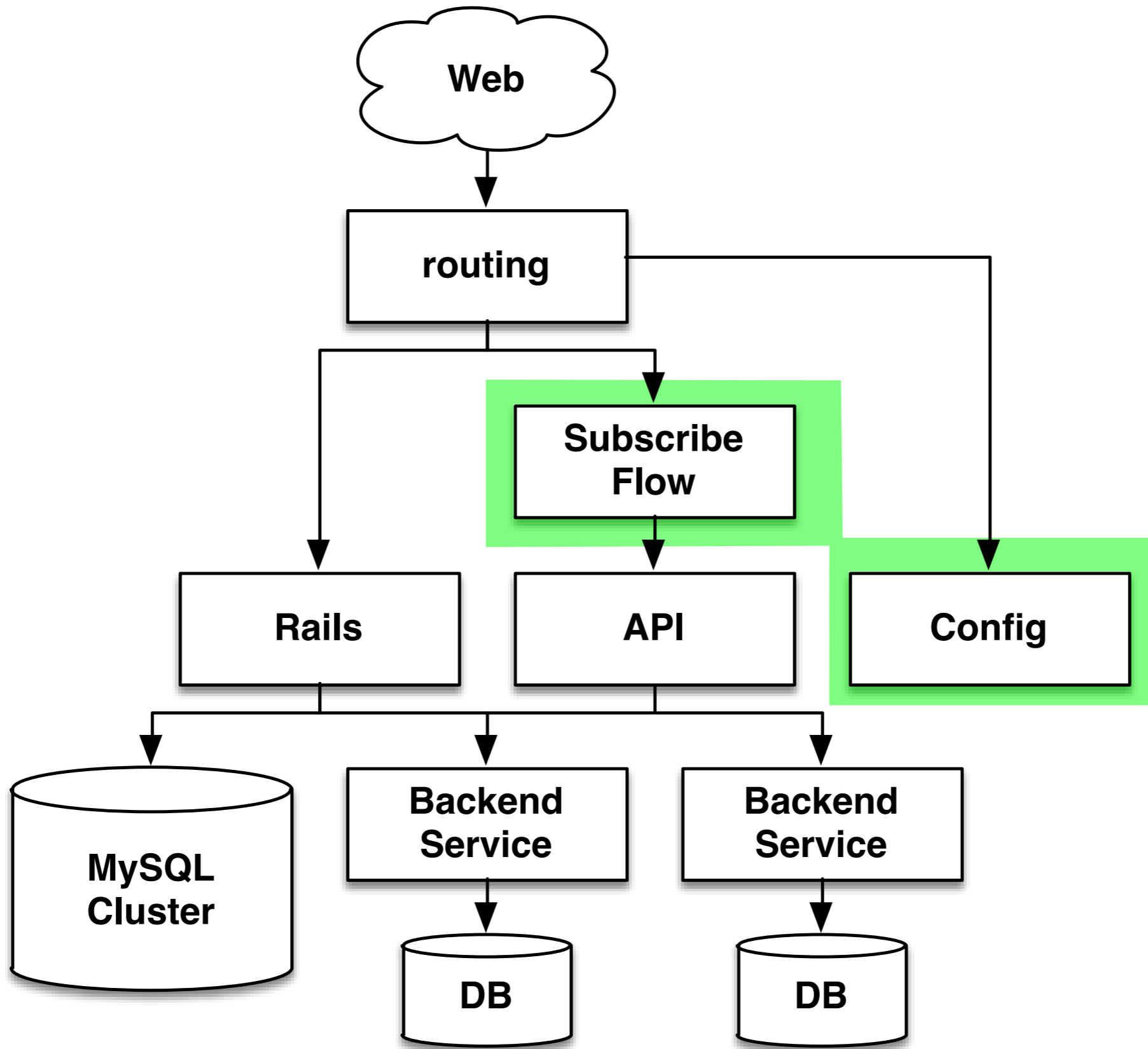
Continue

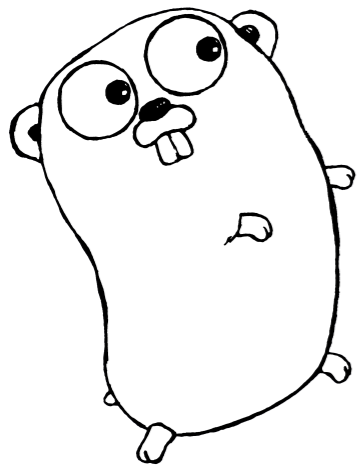
By clicking Continue, I agree to the [Terms of Service](#) and [Privacy Statement](#).

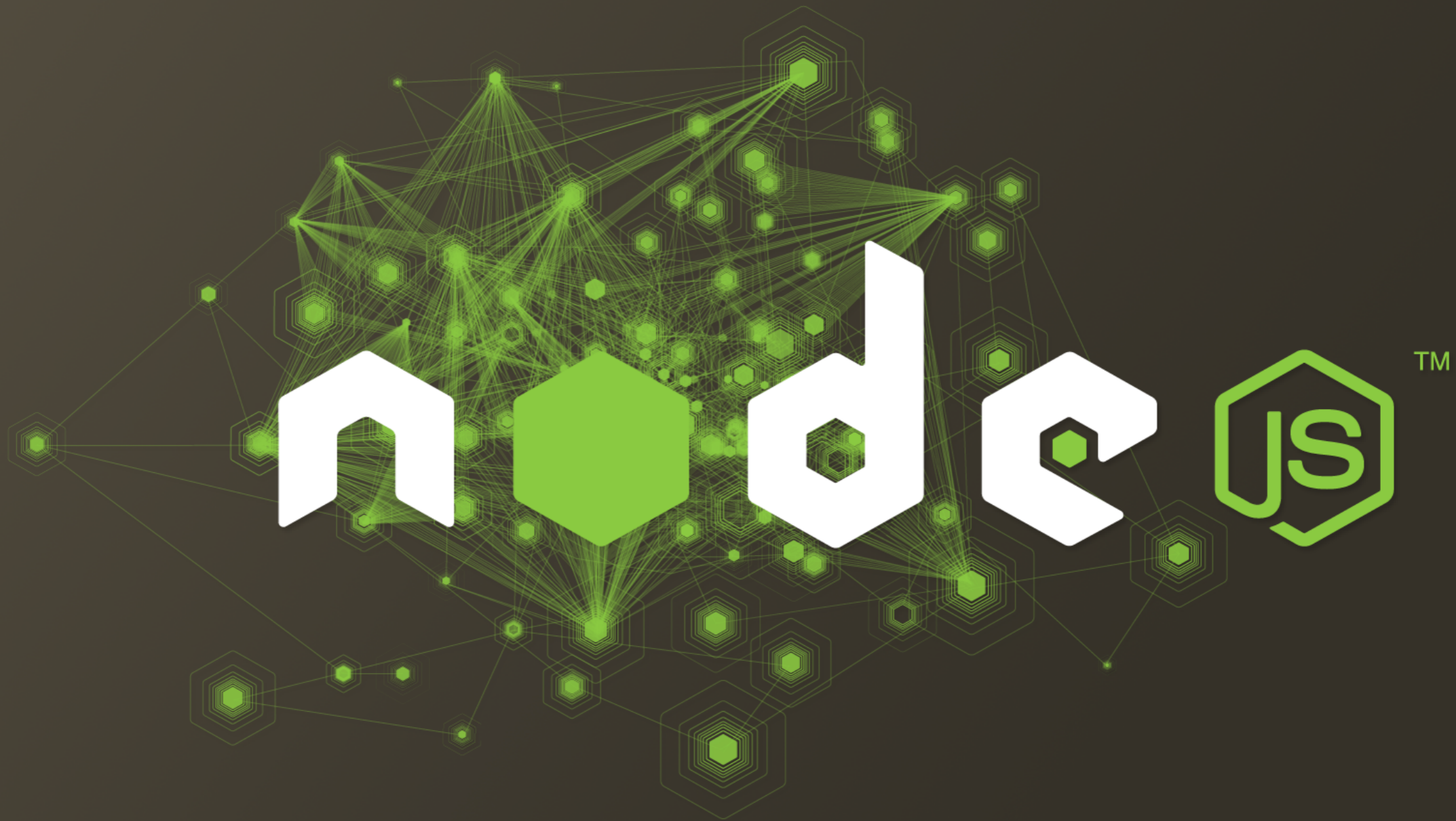
Already have an account? [Sign In](#) | [Privacy Statement](#)

























Move division logic into presenter, create division module

 **mccullough** authored 2 years ago latest commit 79912aeb29 

 <a href="#">core</a>	Move division logic into presenter, create division module	2 years ago
 <a href="#">modules</a>	Move division logic into presenter, create division module	2 years ago
 <a href="#">stylewizard</a>	Create a form and post	2 years ago
 <a href="#">templates</a>	Improve emport docs and implementation	2 years ago
 <a href="#">tmp</a>	Correctly ignore tmp/* other than tmp/.gitignore	2 years ago
 <a href="#">.gitignore</a>	Merge commit 'e9e982e'	2 years ago
 <a href="#">.groc.json</a>	Add documentation to Makefile	2 years ago
 <a href="#">AUTHORS</a>	Moved AUTHORS.md back to AUTHORS	2 years ago
 <a href="#">Makefile</a>	Merge commit 'e9e982e'	2 years ago
 <a href="#">PATTERNS.md</a>	Pull in upstream typo fixes	2 years ago
 <a href="#">README.md</a>	Merge commit 'e9e982e'	2 years ago
 <a href="#">env.sh</a>	Use UAT	2 years ago
 <a href="#">npm-shrinkwrap.json</a>	Regenerate shrinkwrap with new pipette version	2 years ago
 <a href="#">package.json</a>	Add groc, generate docs	2 years ago

 [README.md](#)

# Subscription Flow

The Groupon Subscription Flow implemented in node.js.

Goals:

- Handle extremely high dynamic request volume. For example: 100% of the incoming page requests with caching for html responses turned off at the CDN.
- A [simple](#), heavily documented, modular codebase.
- An implementation that lends itself to internationalization.

---

Language	files	blank	comment	code
CoffeeScript	10	88	251	203
make	1	12	18	25
Bourne Shell	1	1	2	5
Javascript	3	3	3	3
SASS	1	0	0	2
SUM:	16	104	274	238

---

```
main: ( {attributes, renderCallback} ) ->
  # Presenter that sets the layout
  view = presenters.page 'subscribe', attributes
  # Grab the list of all the divisions
  grouponAPI.fetch { endpoint: 'divisions' }, (err, {divisions}, details) ->
    # If there's an error, bail and pass the error along
    return renderCallback err if err?

  divisionsPresenter = presenters.divisions divisions, {
    currentDivision: attributes.query?.division_p
  }

  # Add divisions to the page presenter
  view.set { divisions: divisionsPresenter }

  render.pageHtml view, renderCallback
```

Within two hours we  
had a major site outage





Refer Friends, Get \$10\*



Pizza, massage, etc.

Location: San Jose, CA

GO

# Food & Drink

80 results



Blue Water Seafood and Crab

## Up to 41% Off at Blue Water Seafood and Crab

Selections of boiled crabs, mussels, clams, and shrimp pair with glasses of wine and house cocktails

San Jose

~~\$62.99~~ **\$37**

[View Deal](#)



### Up to 38% Off Three-Course Fondue Dinner at The Melting Pot

The Melting Pot  
San Mateo

~~\$136~~ **\$89**



### Half Off at Korea House

Korea House  
Santa Clara

~~\$39.95~~ **\$20**

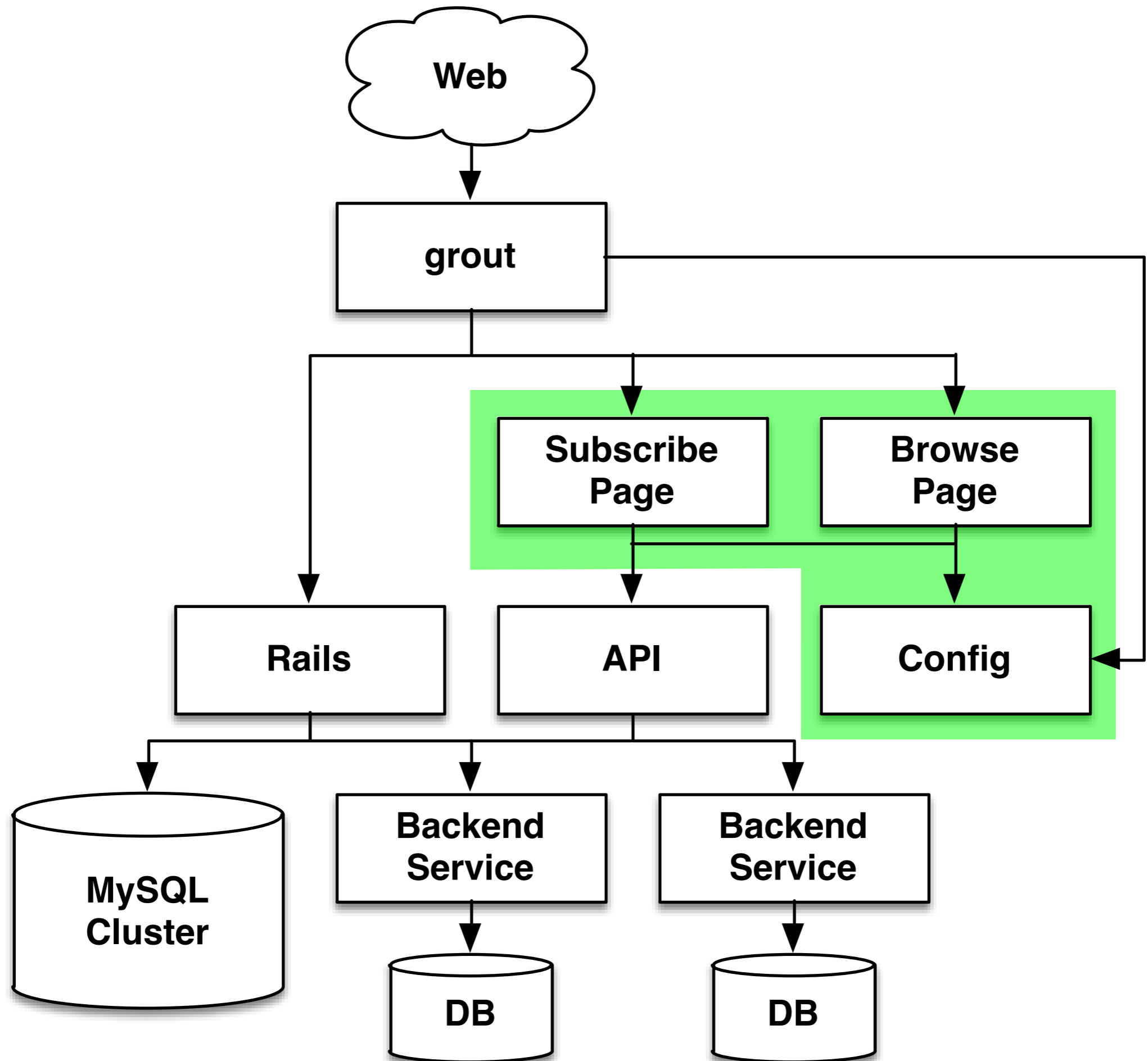


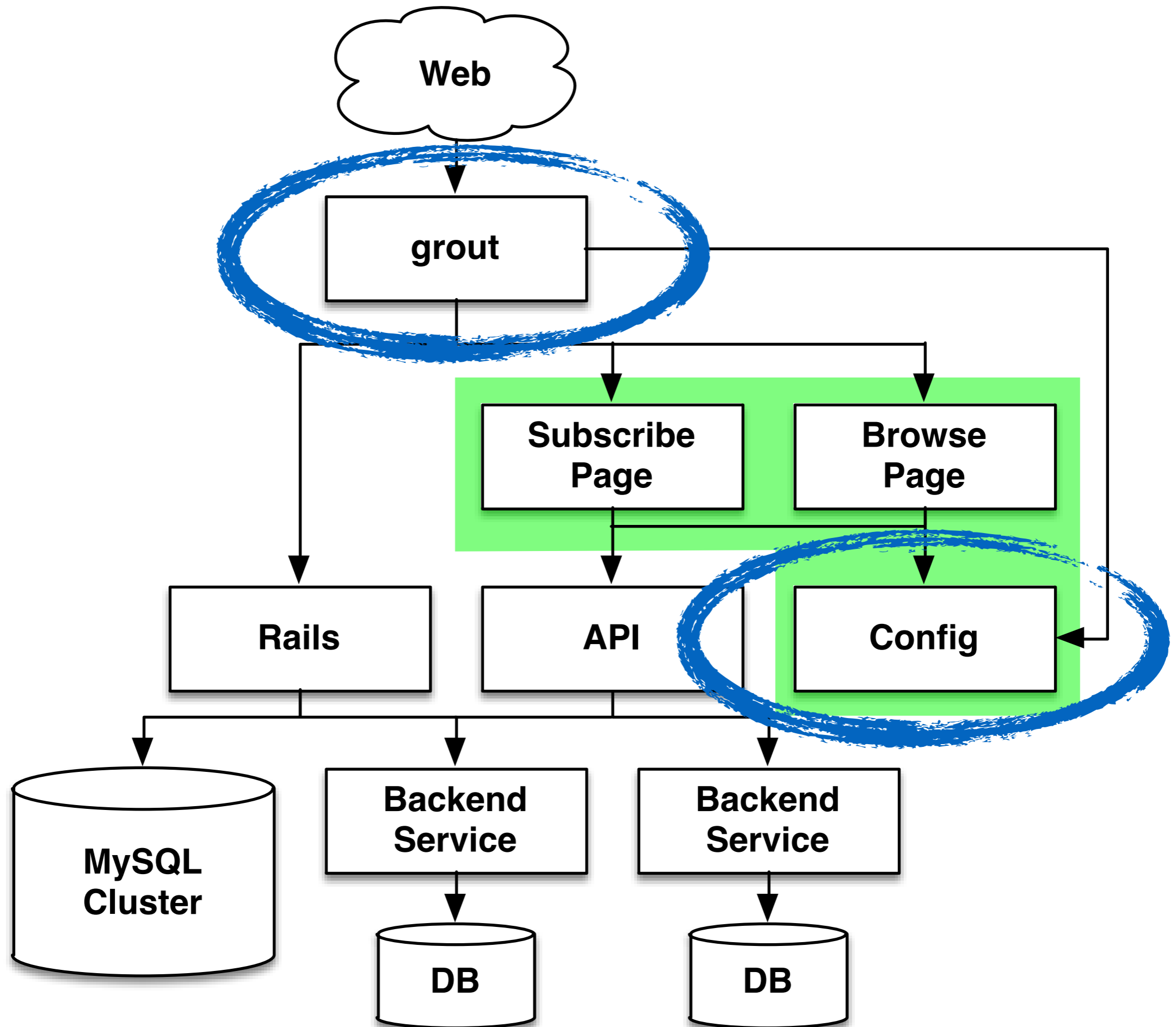
### Half Off Sushi Dinner with Sake at Sushi Blvd

Sushi Blvd  
Sunnyvale

~~\$50~~ **\$25**







# Routing Configuration

Audit Locales **snc1** lup1 hkg1

Routing Layers Upstreams Segments Redirects Logging Deployments

## Routing Layers Read Only

Filter layers  Reorder New Layer

### Layer Definitions

▼ My Groupons and Voucher Assets	Edit Layer
100% <b>Everyone</b> /mygroupons-assets	
▼ Vouchers	Edit Layer
100% <b>ITA Vouchers Experiment</b> exact~/users/:user_id/vouchers/print.pdf, exact~/users/:user_i...	
▼ My Groupons	Edit Layer
100% <b>ITA My Groupons Experiment</b> exact~/mygroupons, exact~/users/:user_id/groupons, exa...	
▼ Giftcards	Edit Layer
100% <b>ITA Giftcards Experiment</b> /giftcards	
▼ Getaways - Browse	Edit Layer
100% <b>ITA Getaways - Browse Experiment</b> /getaways, /getaways-assets, exact~/:division/geta...	
▼ Reserve (HTTPS)	Edit Layer
100% <b>ITA Reserve</b> /reserve/confirmations, /reserve/feedback, /reserve/checkout, /reserve/deals	
▼ Reserve (HTTP)	Edit Layer
100% <b>ITA Reserve</b> /reserve	

### Routing Priority

<b>My Groupons and Voucher Assets</b> /mygroupons-assets
<b>Vouchers</b> exact~/users/:user_id/vouchers/print.pdf exact~/users/:user_id/vouchers/print exact~/users/:user_id/vouchers/:groupon_code.pdf exact~/users/:user_id/vouchers/:groupon_code exact~/users/:user_id/membership_coupons/:gro... exact~/deals/:deal_id/coupon/preview_all.pdf exact~/users/:user_id/groupons/print.pdf exact~/users/:user_id/groupons/print exact~/users/:user_id/groupons/:groupon_code/b... exact~/gifts/:auth_token/print exact~/gifts/:auth_token/barcode/:id.png exact~/deals/:deal_id/coupon/preview exact~/deals/:deal_id/coupon/preview.pdf exact~/deals/:deal_id/coupon/preview_all exact~/deals/:deal_id/coupon/barcode/:deal_optio... exact~/users/:user_id/vouchers/sandbox exact~/deals/:deal_id/gift/:deal_option_id exact~/deals/:deal_id/gift/:deal_option_id.pdf exact~/gifts/:gift_auth_token/print.pdf
<b>My Groupons</b> exact~/mygroupons exact~/users/:user_id/groupons exact~/users/:user_id/groupons/:filter

# Routing Configuration

Audit
Locales
snc1
**lup1**
hkg1

Routing Layers
Upstreams
Segments
Redirects
Logging
Deployments

## New Routing Layer

Cancel
Save Changes

Layer Name

Fallback Upstream

Allow Edge Experiments

### Layer Experiments

Experiment Name

Mode

Buckets Range 0-999

Routes Separate routes with new lines

#### ▼ Guards

Guards Separate guards with new lines

#### ▼ Variants

Variant Name

Upstream

Scheme



[+ Add Variant](#)

## brianm\_test.configs History Read Only

[Edit](#)

Saved successfully.

▼ brianm\_test.configs.3afa8ba4245cba3065a03d101e1a8dbf15b5d570 : bmccallister

Thu, 06 Mar 2014 11:06:41 GMT

Viewing [Contents](#) | [Diff](#)

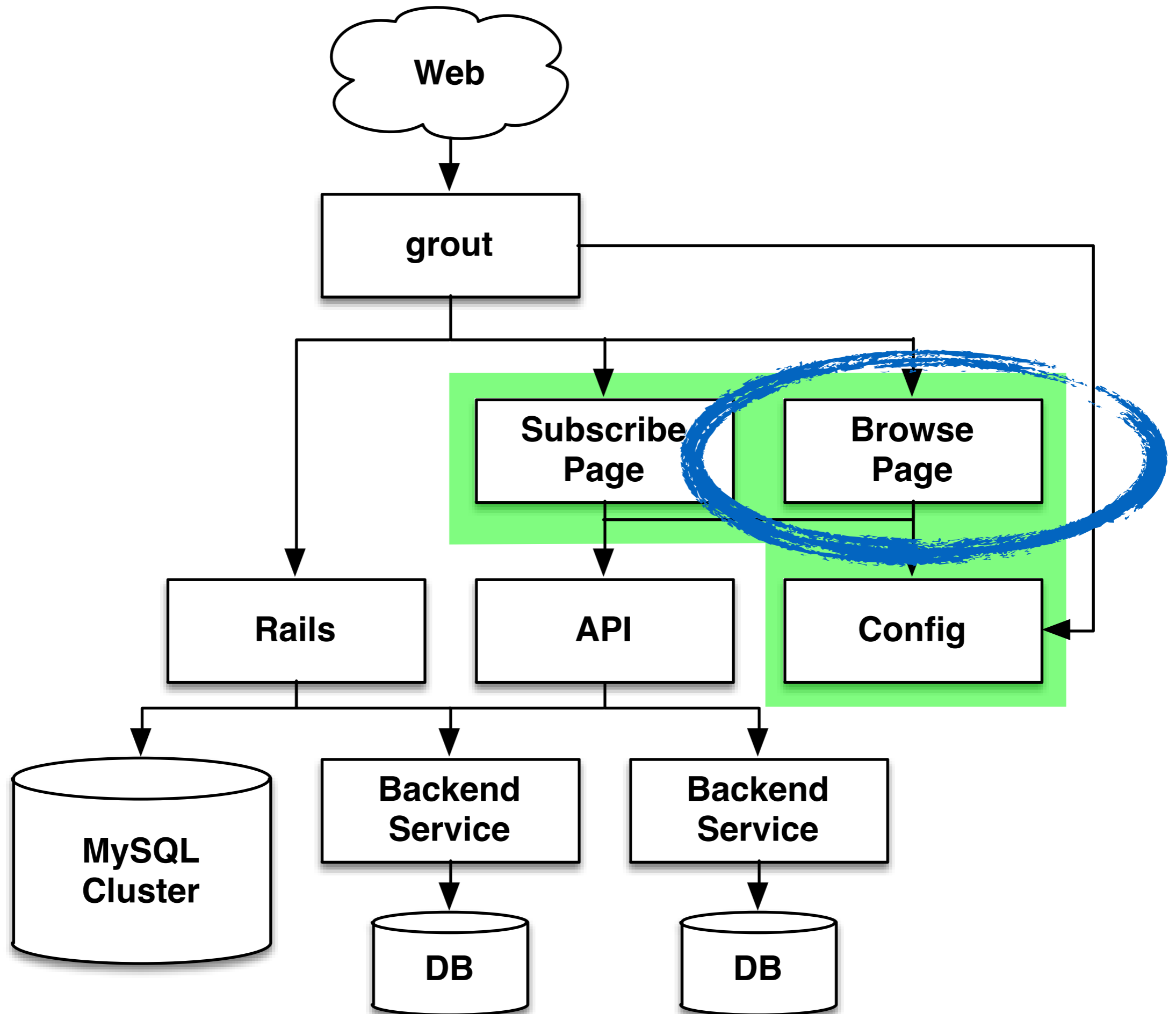
```
{
  "keys": [
    "dynamicConfig",
    "server",
    "api",
    "localization",
    "logging",
    "memcached",
    "urls",
    "assets",
    "feature_flags",
    "finch",
    "templates",
    "serviceClient",
    "tracing"
  ],
  "order": [
    "servergroup",
    "colo",
    "country",
    "server"
  ]
}
```

▶ brianm\_test.configs.e1164a7ad47ff323e07601800109a632c5cfc854 : bmccallister

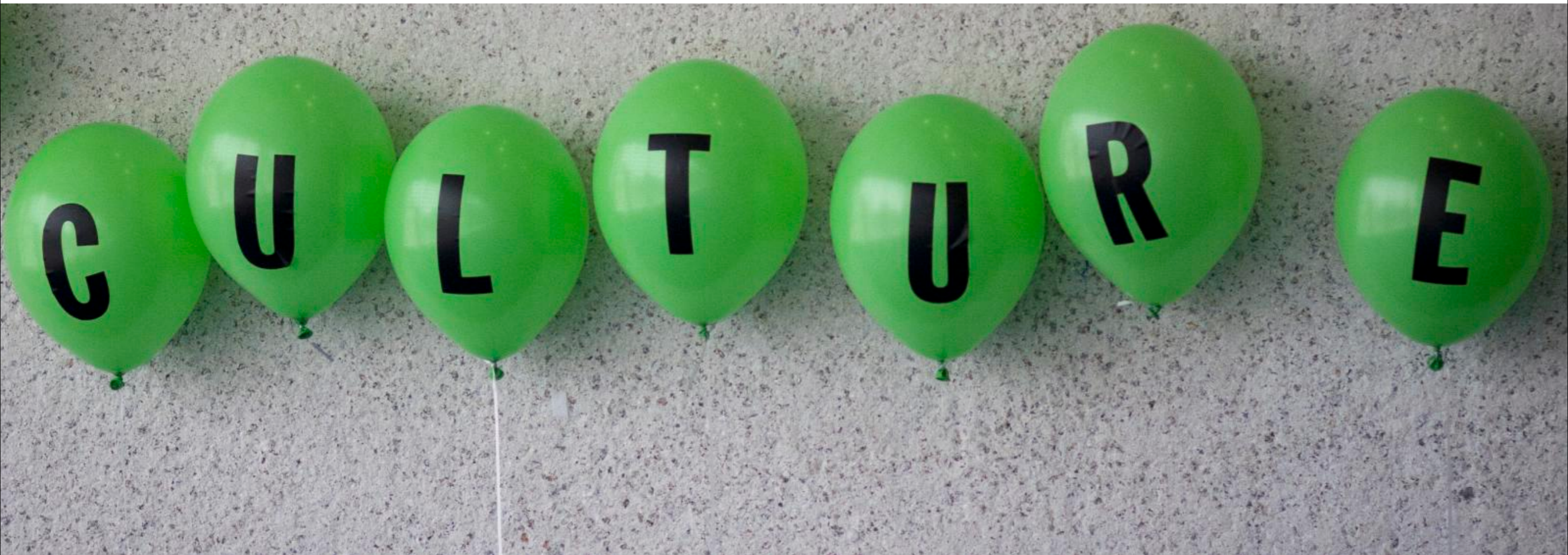
Wed, 05 Mar 2014 15:52:55 GMT

▶ brianm\_test.configs.3afa8ba4245cba3065a03d101e1a8dbf15b5d570

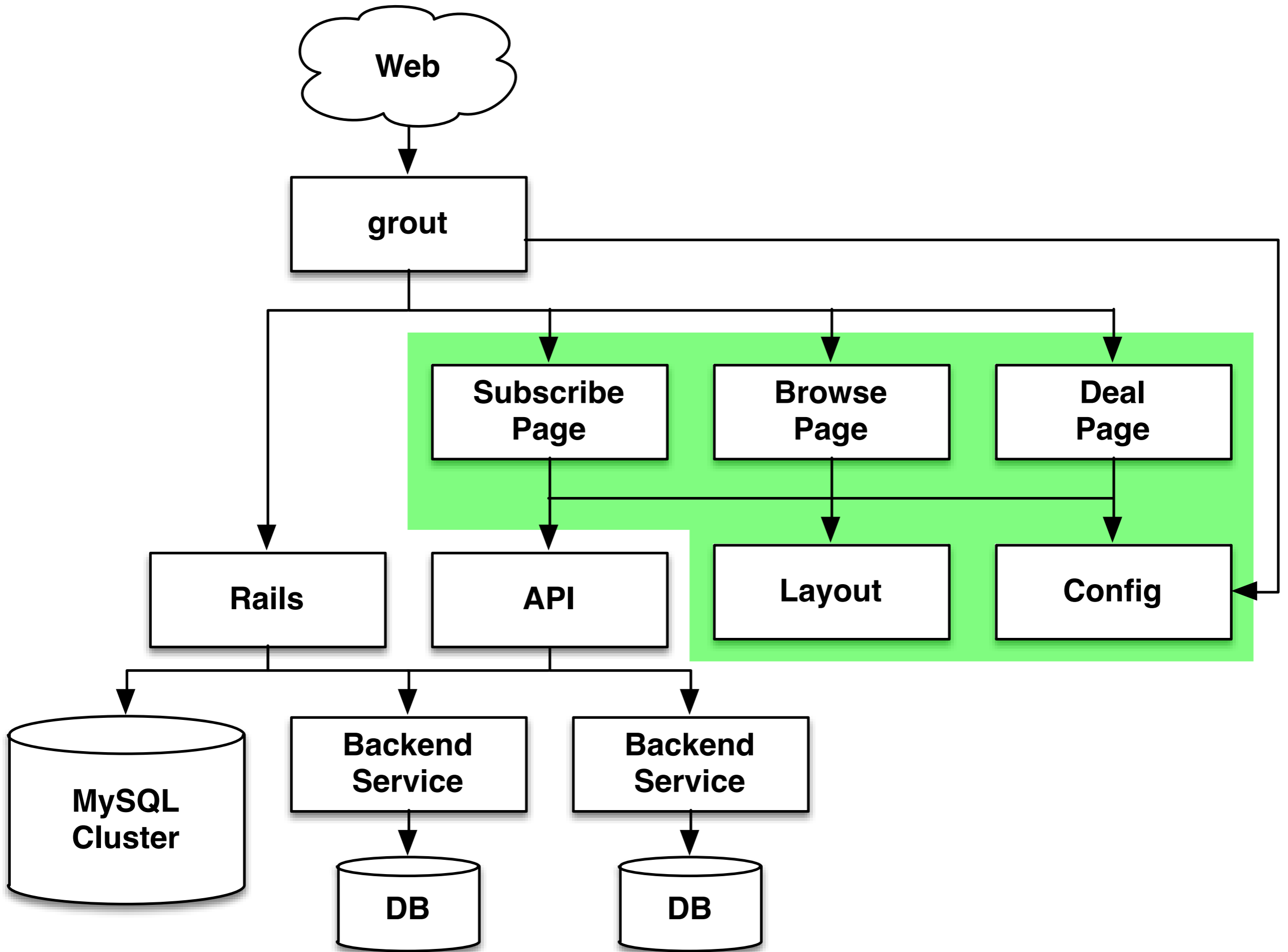
Wed, 05 Mar 2014 15:46:23 GMT



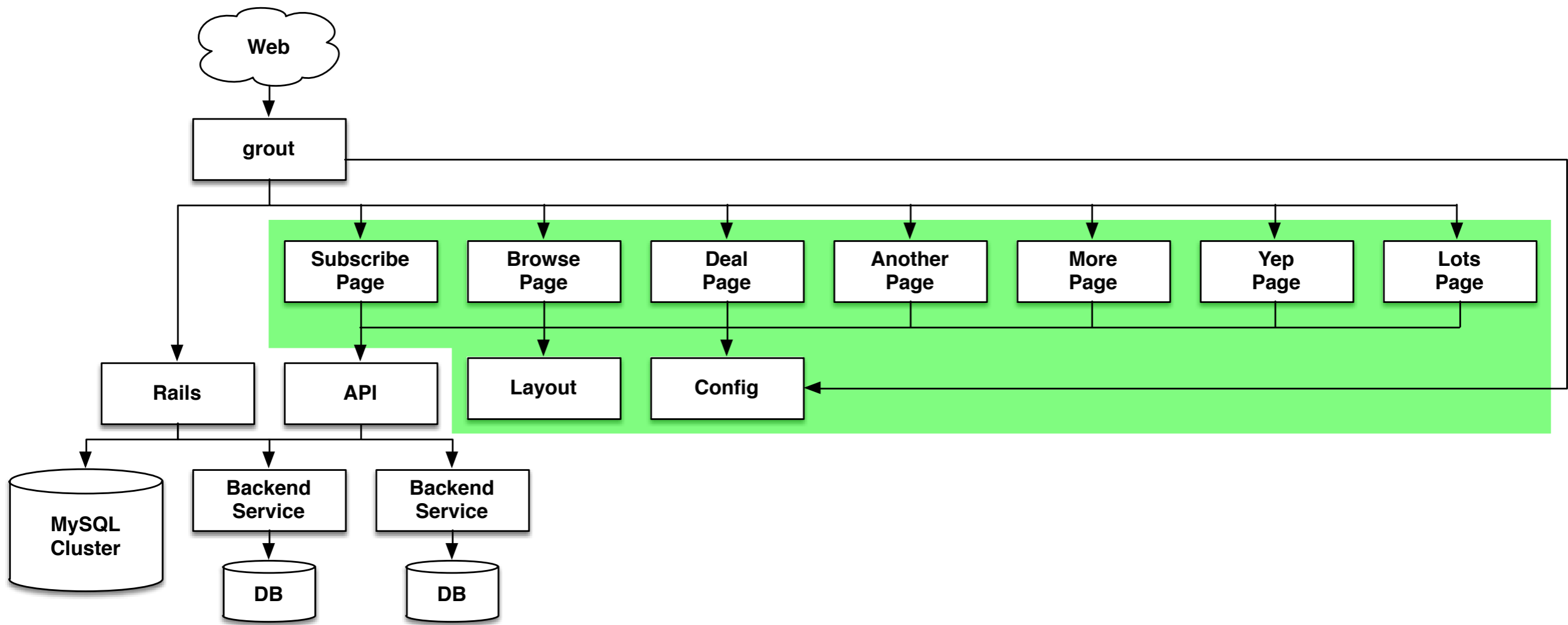




(cc) Newfrontiers <http://flic.kr/p/9u346u>









**Basics**

README

Getting Started

Guide

**Development**

Backend Patterns

Controllers

Frontend Patterns

Testing

Contribution

Configuration

User Authentication

Internationalization

Writing Modules

A/B Testing and Tracking

**Operations**

Launching

Deployment

Monitoring

Getting Started with I-Tier

# Interaction Tier Applications (ITA)

An ITA is a node.js app for requesting data from service endpoints and responding with HTML. [Groupon.com](#) is served by a collection of ITAs.

## Getting Started with I-Tier

1. If you are brand new, [read the history of the I-Tier architecture](#).
2. Read the [Launching New Apps Guide](#) to learn the operational steps involved with building and shipping a new I-Tier application to production. Please reach out to the teams listed as soon as possible - before you start designing and building your app.
3. [Install Node.js and other dependencies](#) ( **v0.10.x** )
4. Read the [Tutorial](#) to learn the skeleton-node toolkit and how to build an app.
5. Check out the [skeleton-node-examples](#) application and look through the example code.
6. Fork the [skeleton-node](#) application and start building your I-Tier web client application!

## Small



## Normal



## Large



## Extra-Large



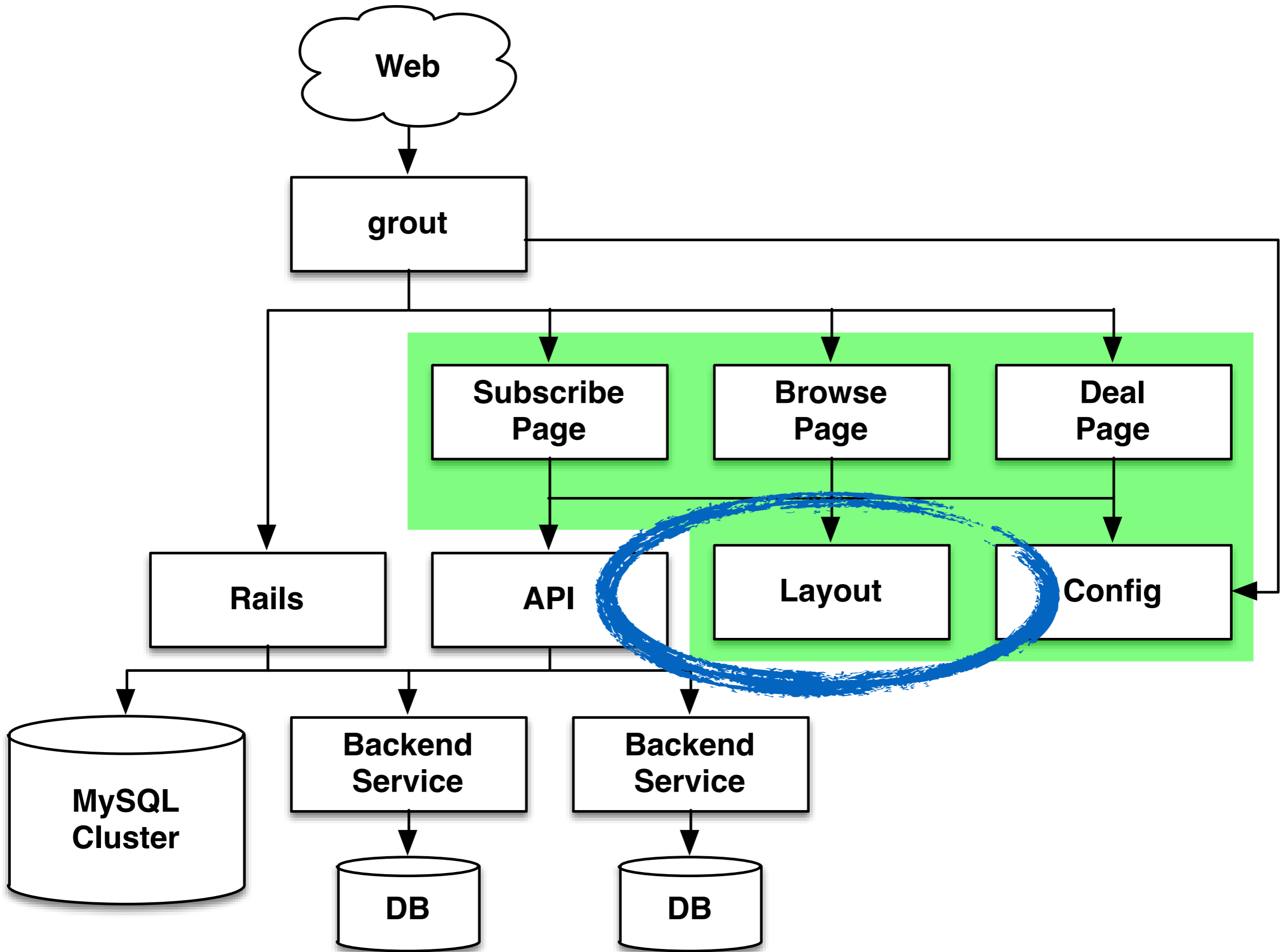
[Link](#)

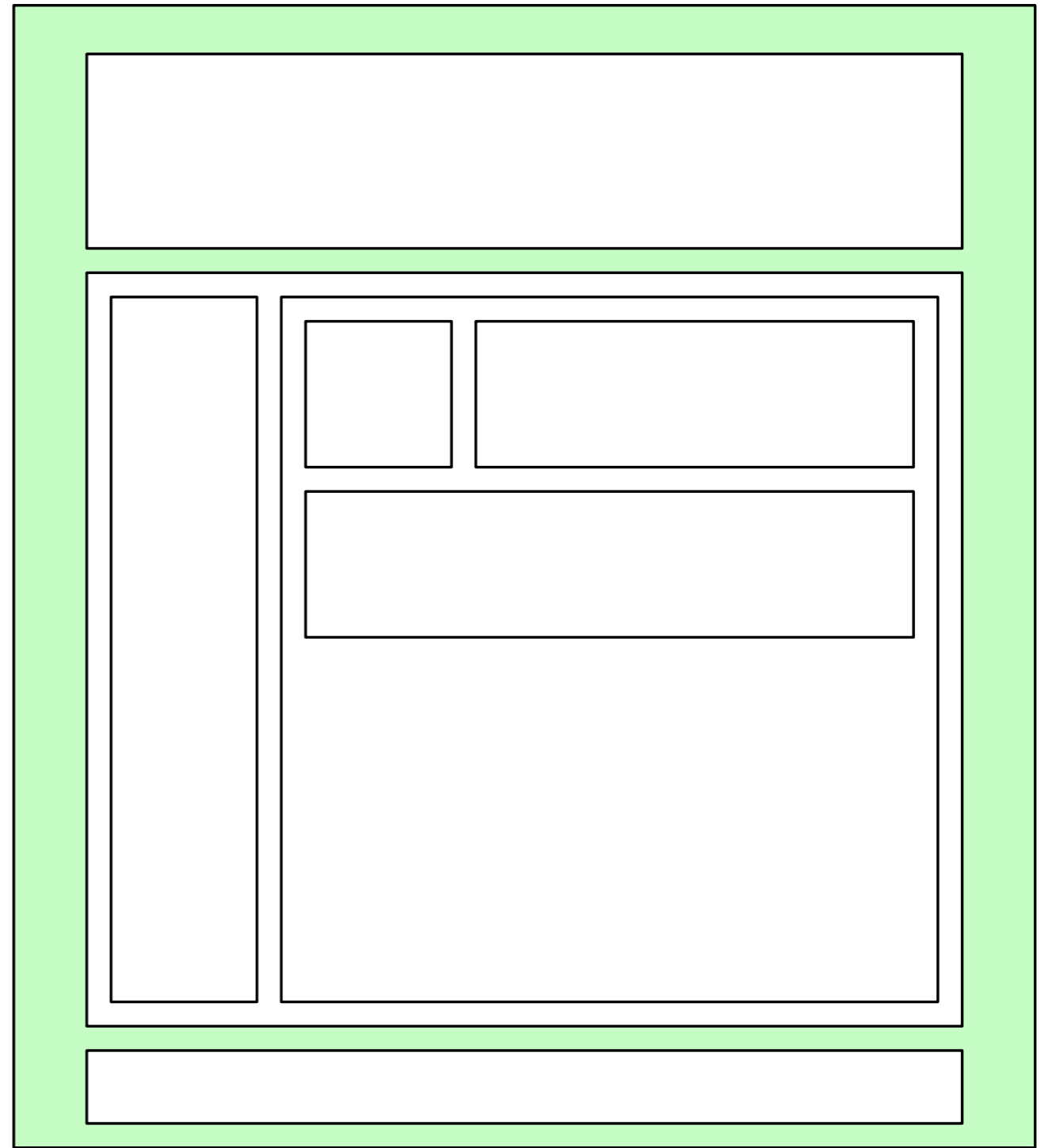
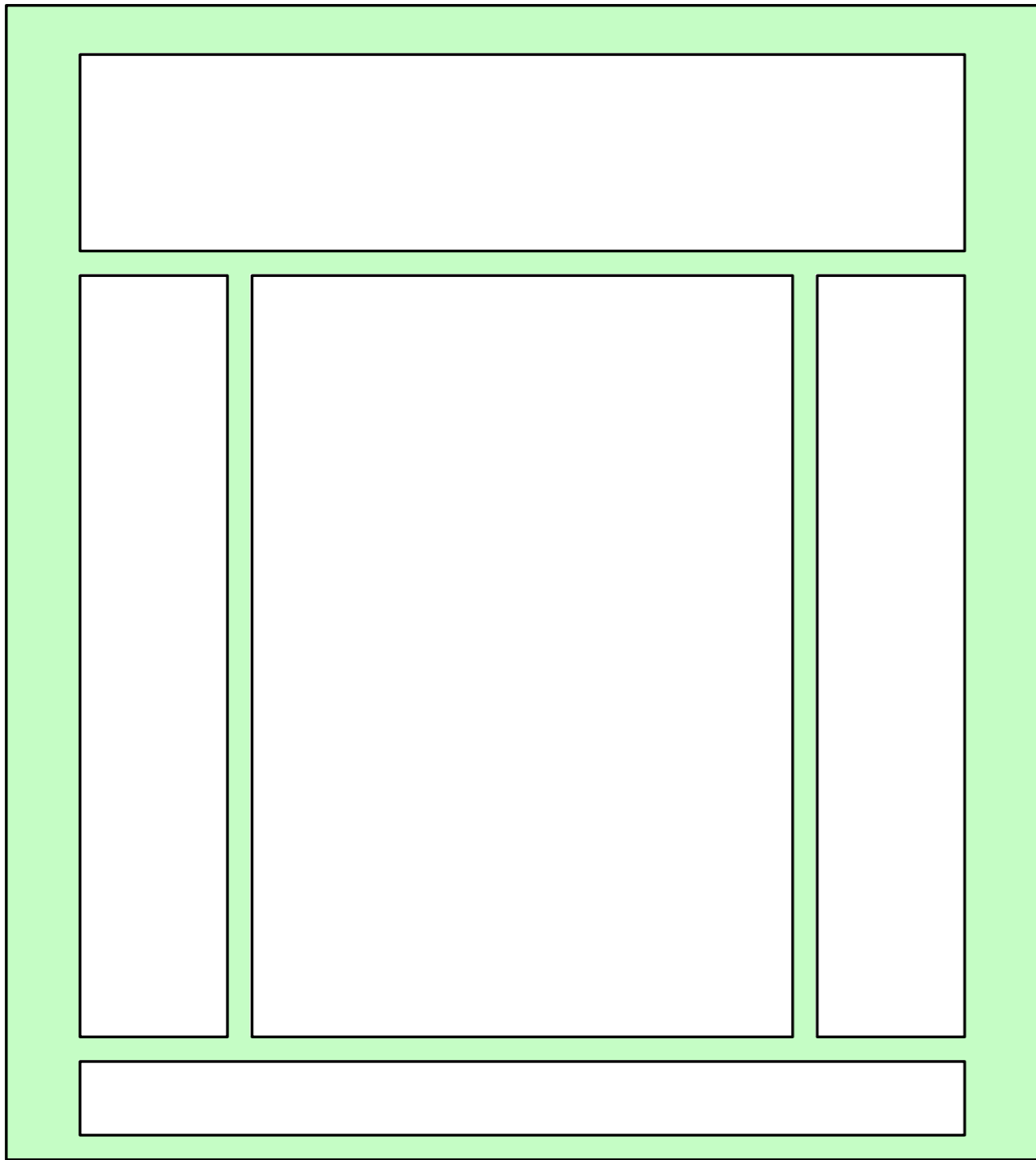
### Featured Deal Buy Button



Search Button







GET /layout/v3.8/gig\_application\_layout HTTP/1.1

Accept: \*/\*

Accept-Encoding: gzip, deflate, compress

Host: uat.groupon.com

User-Agent: HTTPie/0.7.2

HTTP/1.1 200 OK

Cache-Control: public, max-age=1800

Content-Encoding: gzip

Content-Type: application/json; charset=utf-8

Date: Sun, 02 Mar 2014 18:31:01 GMT

Transfer-Encoding: chunked

```
{
  "templateName": "remote_gig_application_layout_main@v3_8",
  "html": "<!DOCTYPE html>\n<!-- : gig_application_layout@v3.8.3 -->\n<!--[if lt IE 7]> <html class=\"lt-ie10 lt-ie9 lt-ie8 lt-ie7\"{{#htmlAttr}} {{{htmlAttr}}}{{/htmlAttr}}> <![endif]-->\n<!--[if IE 7]> <html class=\"lt-ie10 lt-ie9 lt-ie8\"{{#htmlAttr}} {{{htmlAttr}}}{{/htmlAttr}}> <![endif]-->\n<!--[if IE 8]> <html class=\"lt-ie10 lt-ie9\"{{#htmlAttr}} {{{htmlAttr}}}{{/htmlAttr}}> <![endif]-->\n<!--[if IE 9]> <html class=\"lt-ie10\"{{#htmlAttr}} {{{htmlAttr}}}{{/htmlAttr}}> <![endif]-->\n<!--[if gt IE 9]><!--> <html class=\"\"{{#htmlAttr}} {{{htmlAttr}}}{{/htmlAttr}}>
  "data": {
    ...
  }
}
```

**GROUPON**

Featured Deal

All Deals

Getaways

Goods

{{#hasCategories}}

{{friendlyName}}

{{#categories}} {{/categories}}

{{#hasChildren}} {{/hasChildren}}

{{/hasCategories}}



**Refer Friends, Get \$10\***

{{{body}}}



**GROUPON**

🔍 What are you looking for?

📍 Enter your location

[SIGN IN](#) | [SIGN UP](#)

All Deals

Goods

Getaways

{{body}}

Great Deals  
at Your  
Fingertips

Search, Purchase and Redeem



**GROUPON  
Works™**

Grow Your Business  
Get new customers and  
grow your business by  
[selling on Groupon](#). See  
how it works.

**GROUPON  
Grassroots™**

Help Your Community  
Discover local causes and  
lend a helping hand. Make a  
big impact with one little  
click. [Get involved.](#)

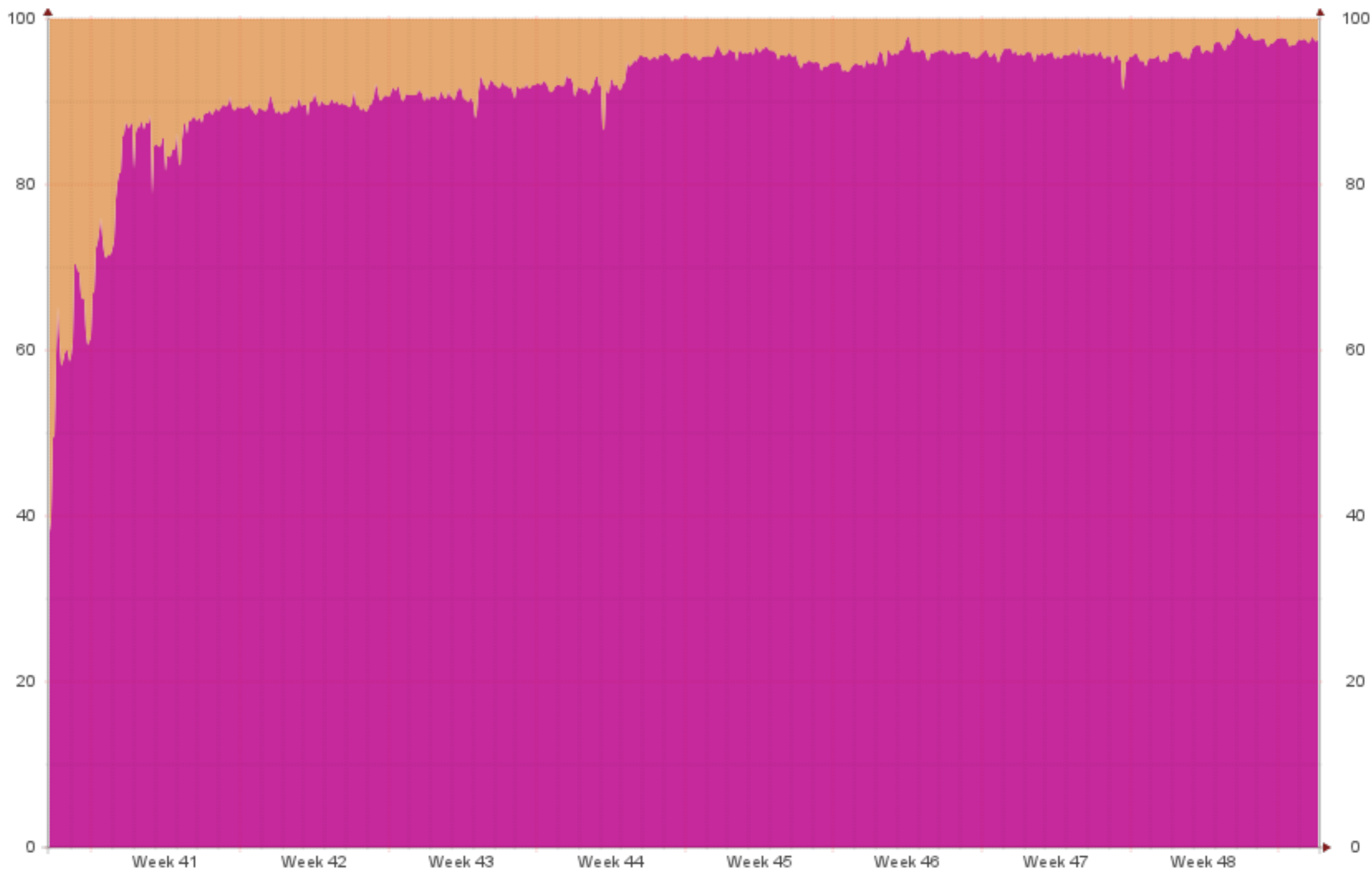


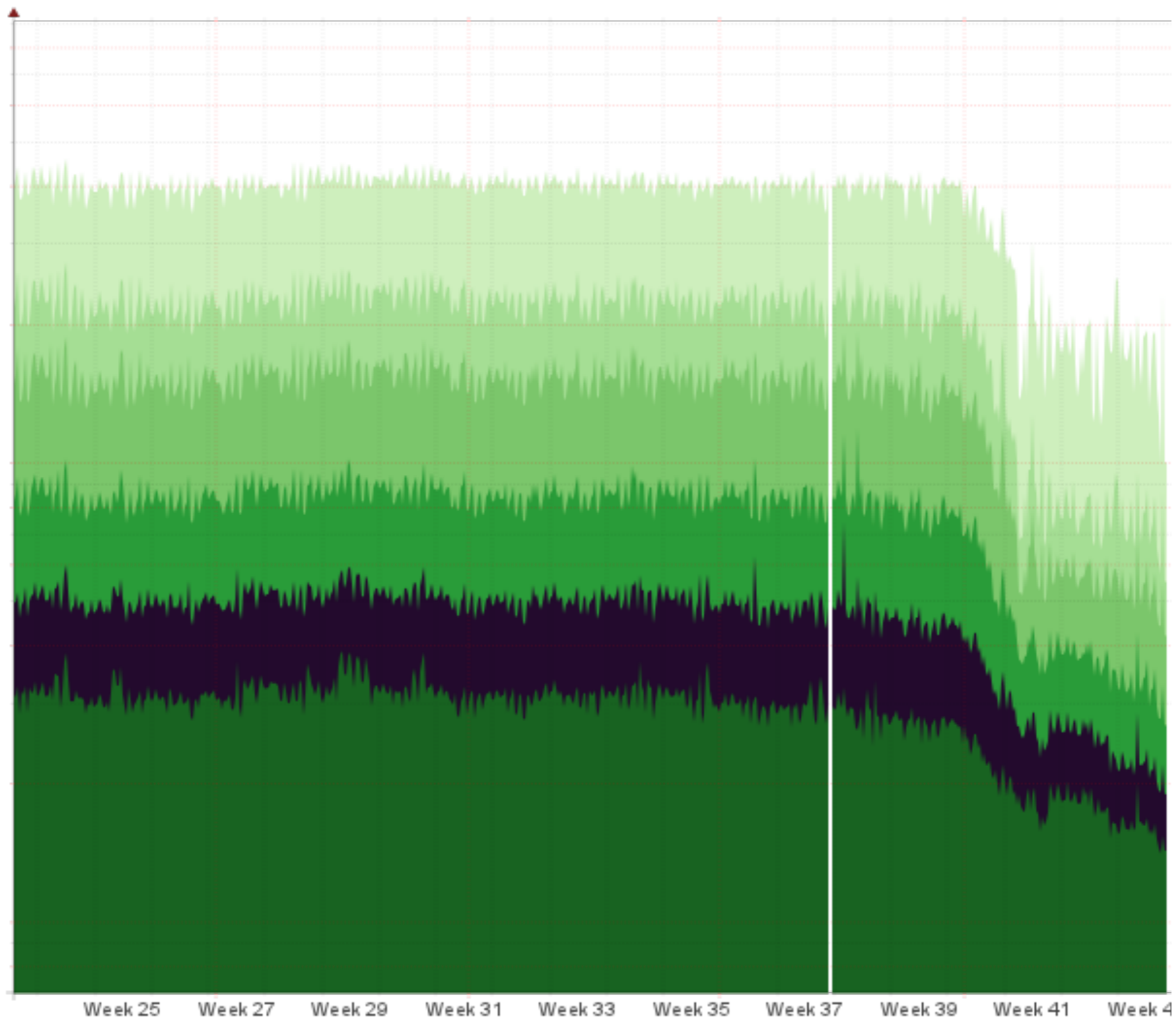
American Express® Cards  
Welcomed by Groupon

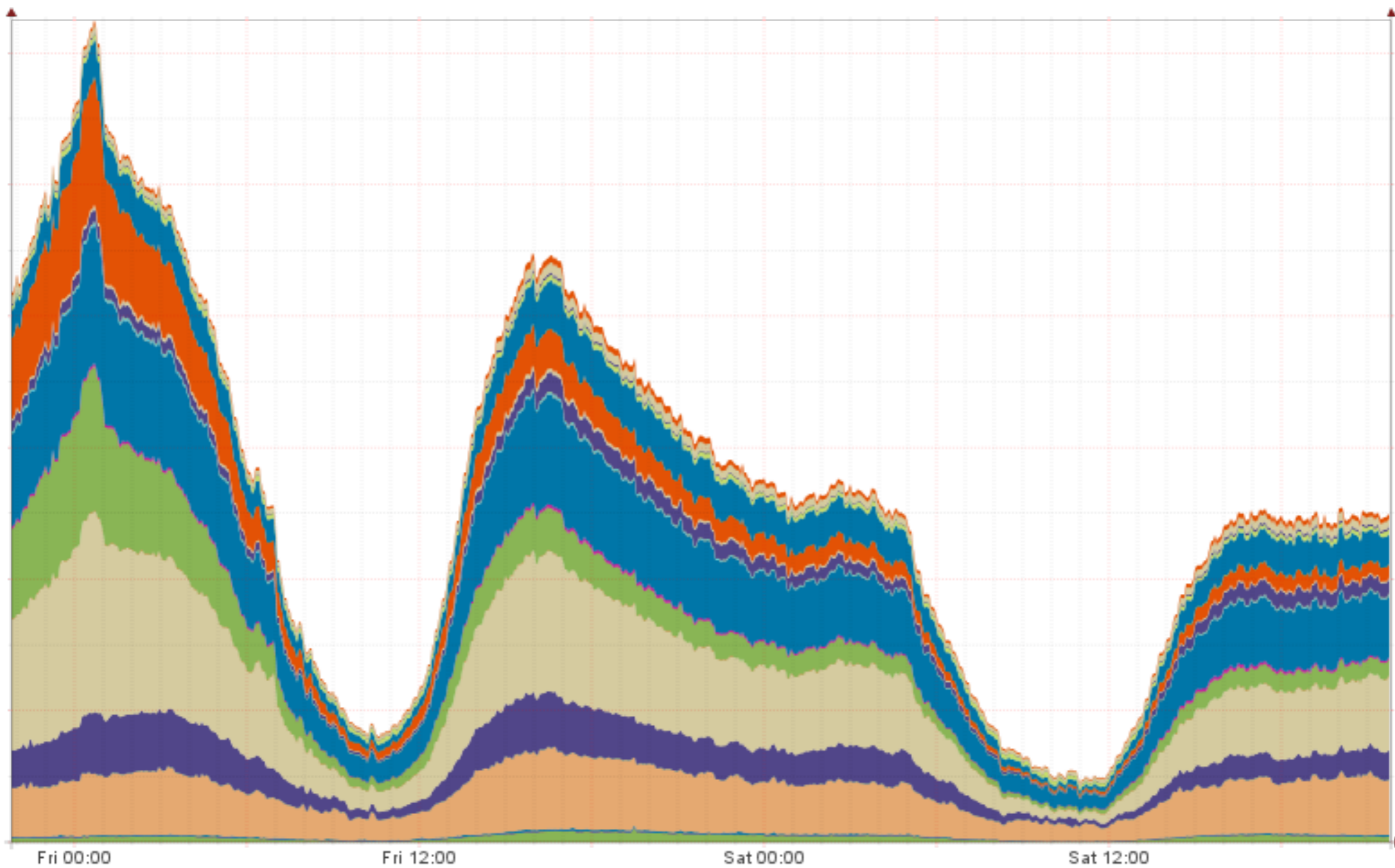
# Finish It!

~2 months

~150 Developers







Fri 00:00

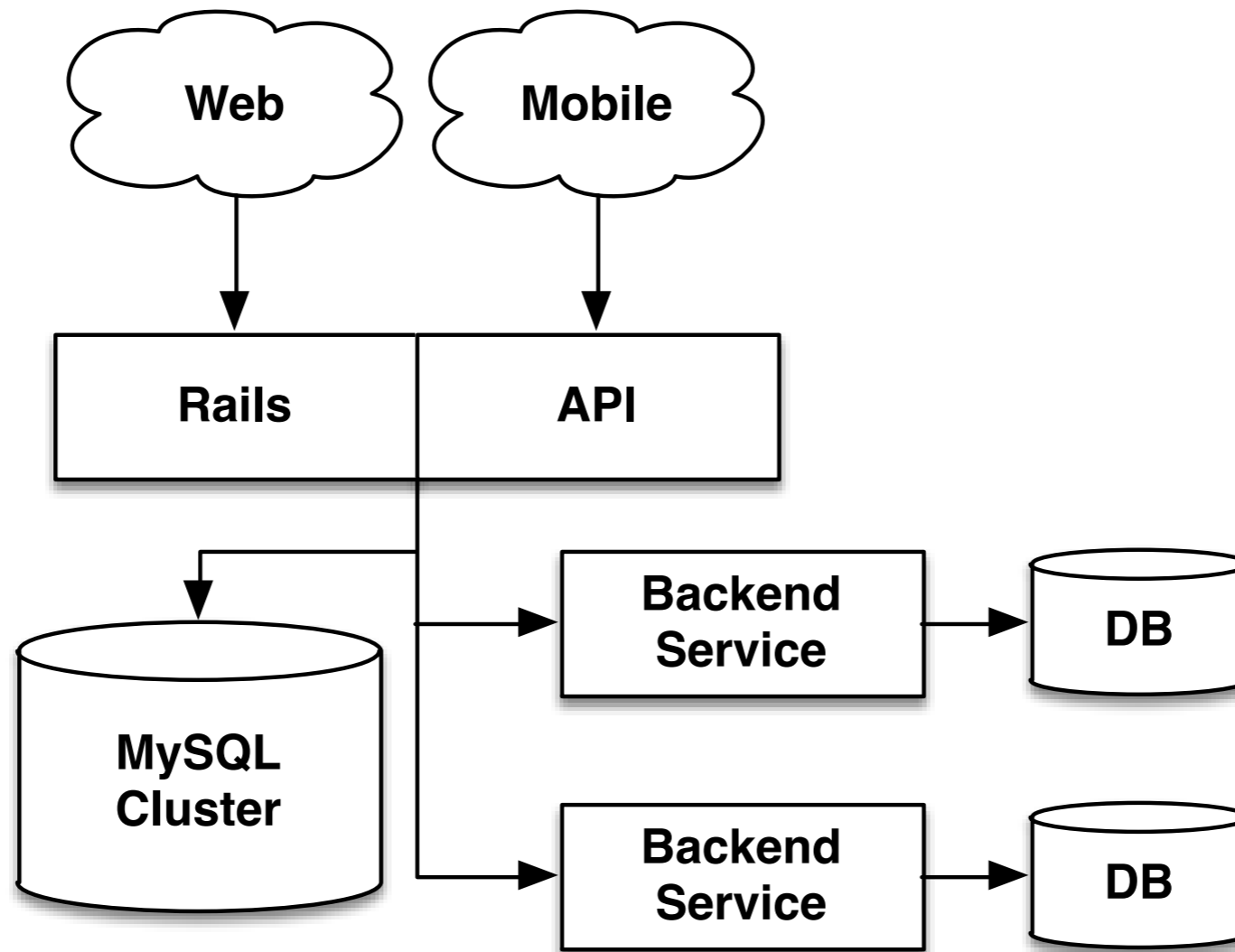
Fri 12:00

Sat 00:00

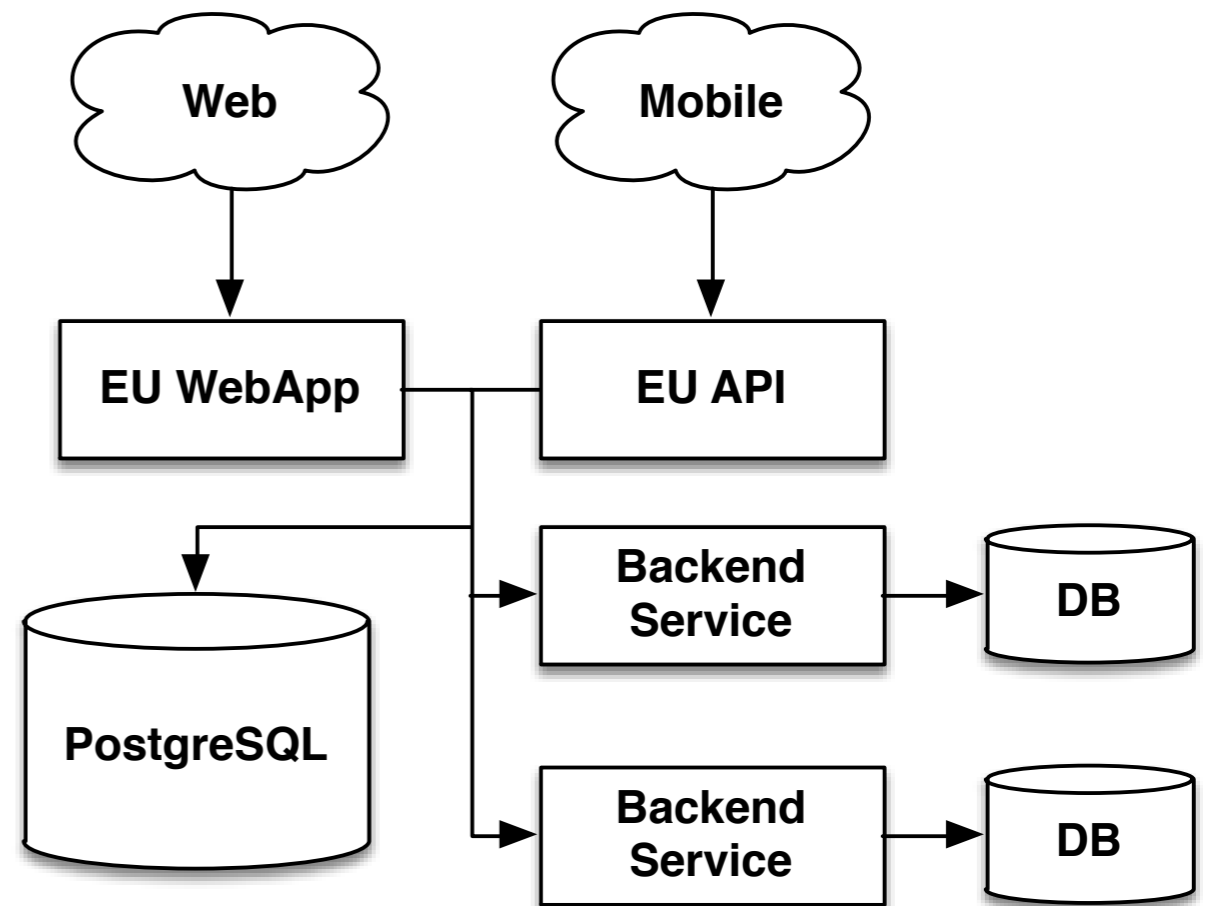
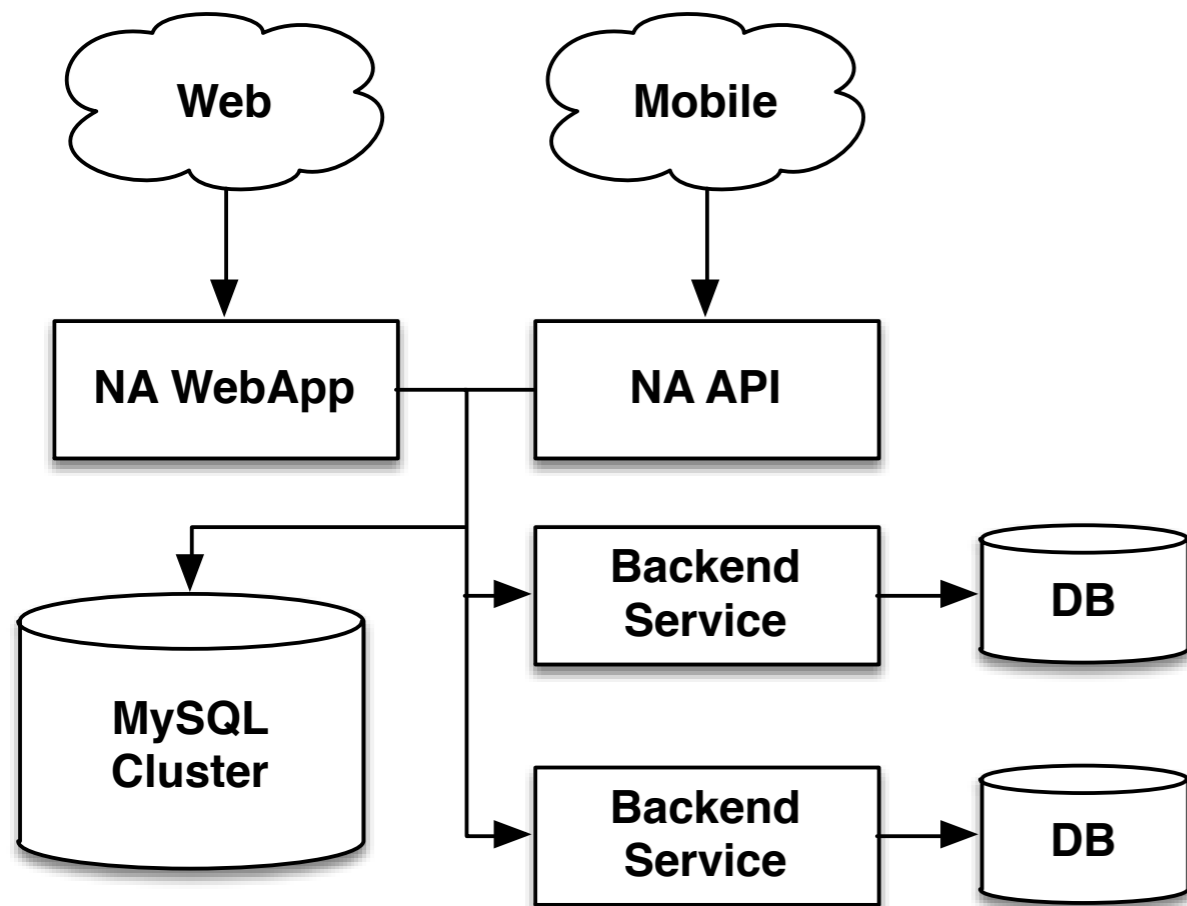
Sat 12:00

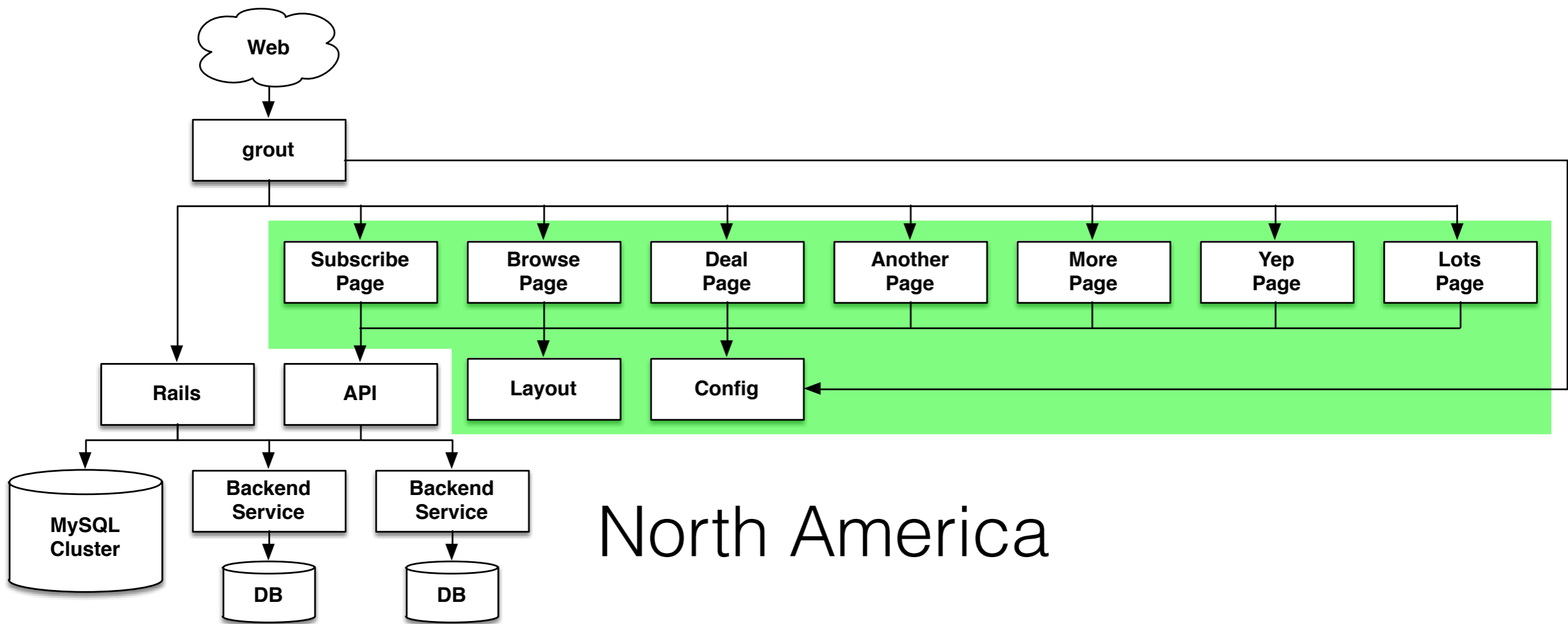
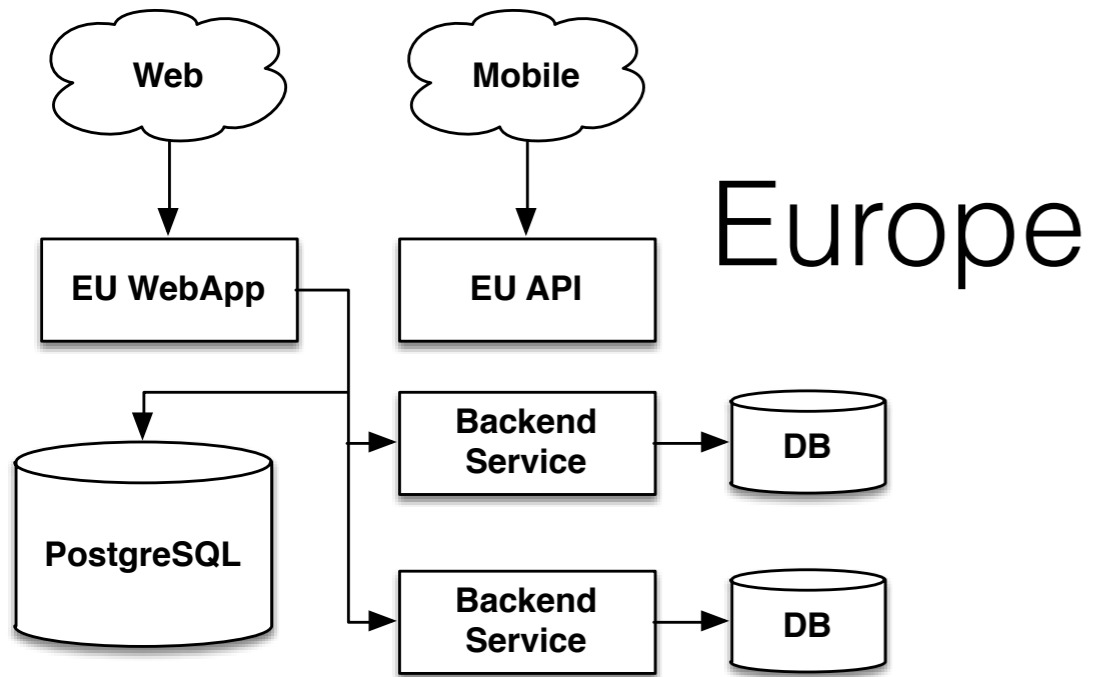
# Forward Looking Statements

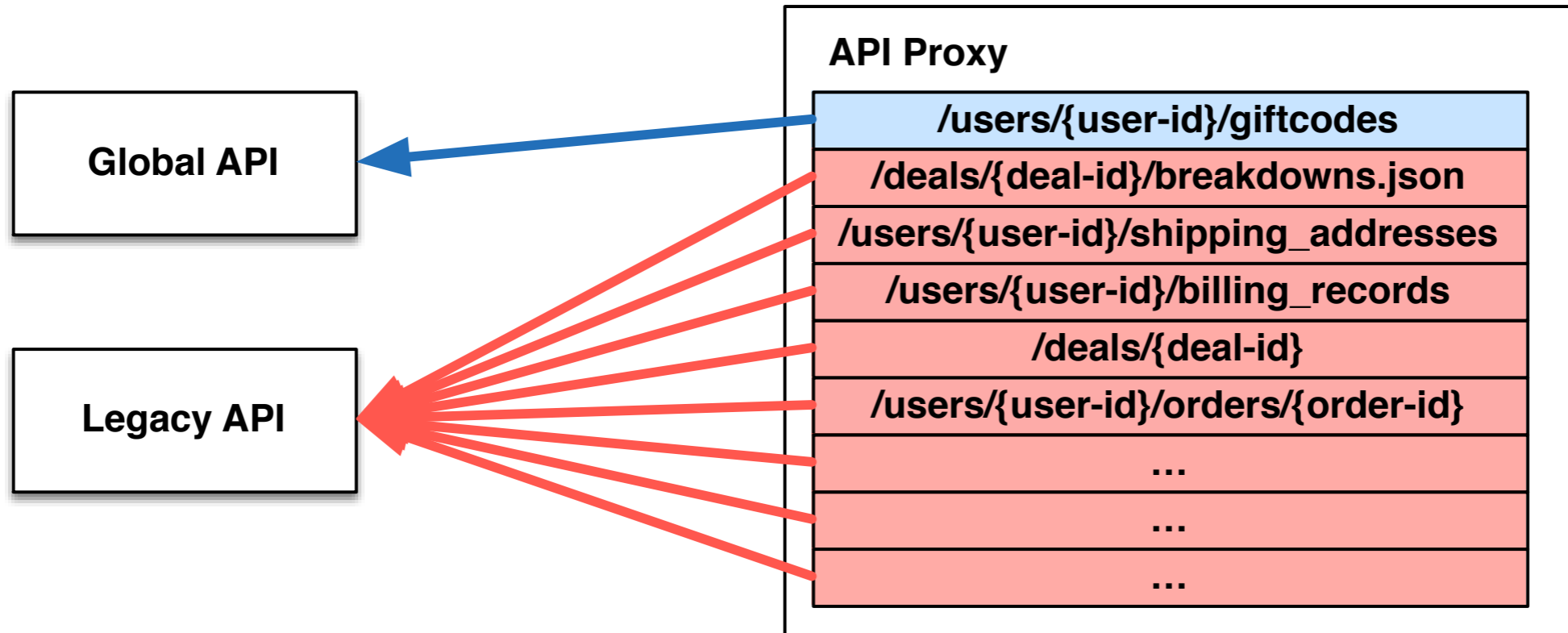
A Tale of **Two** Monoliths

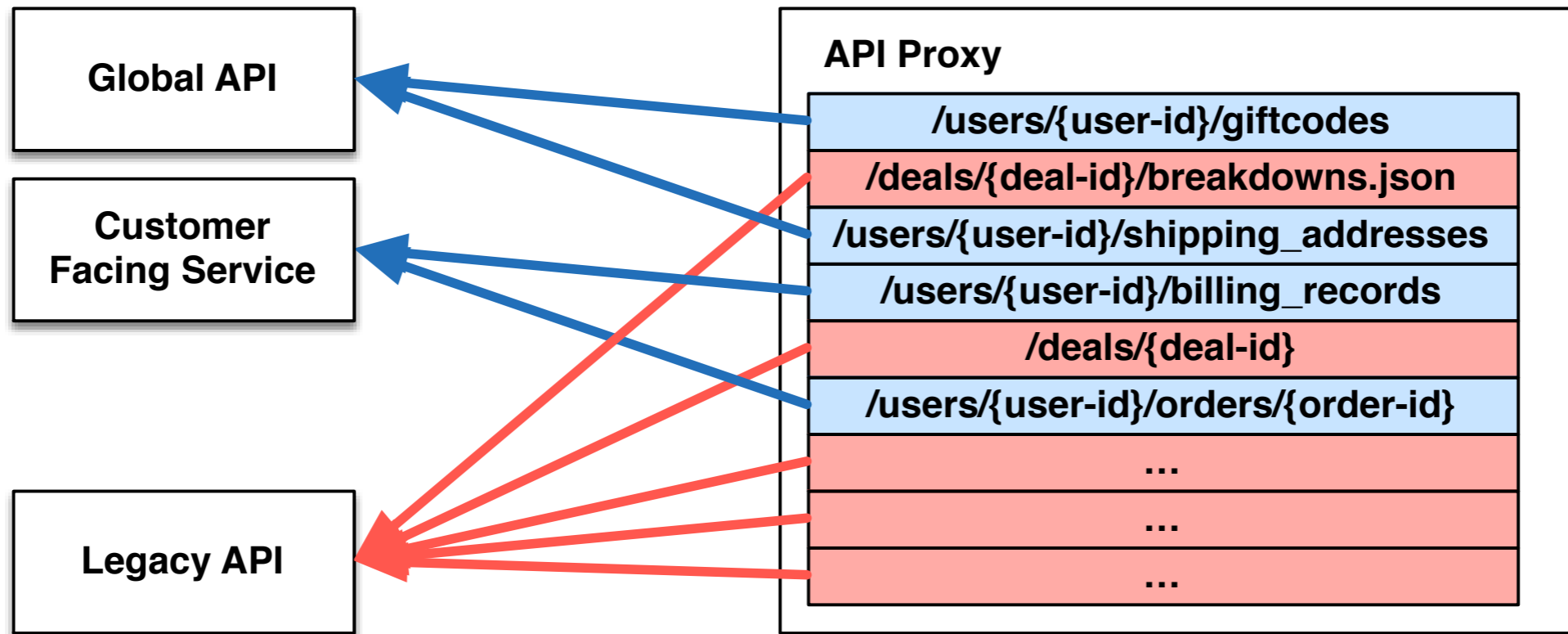


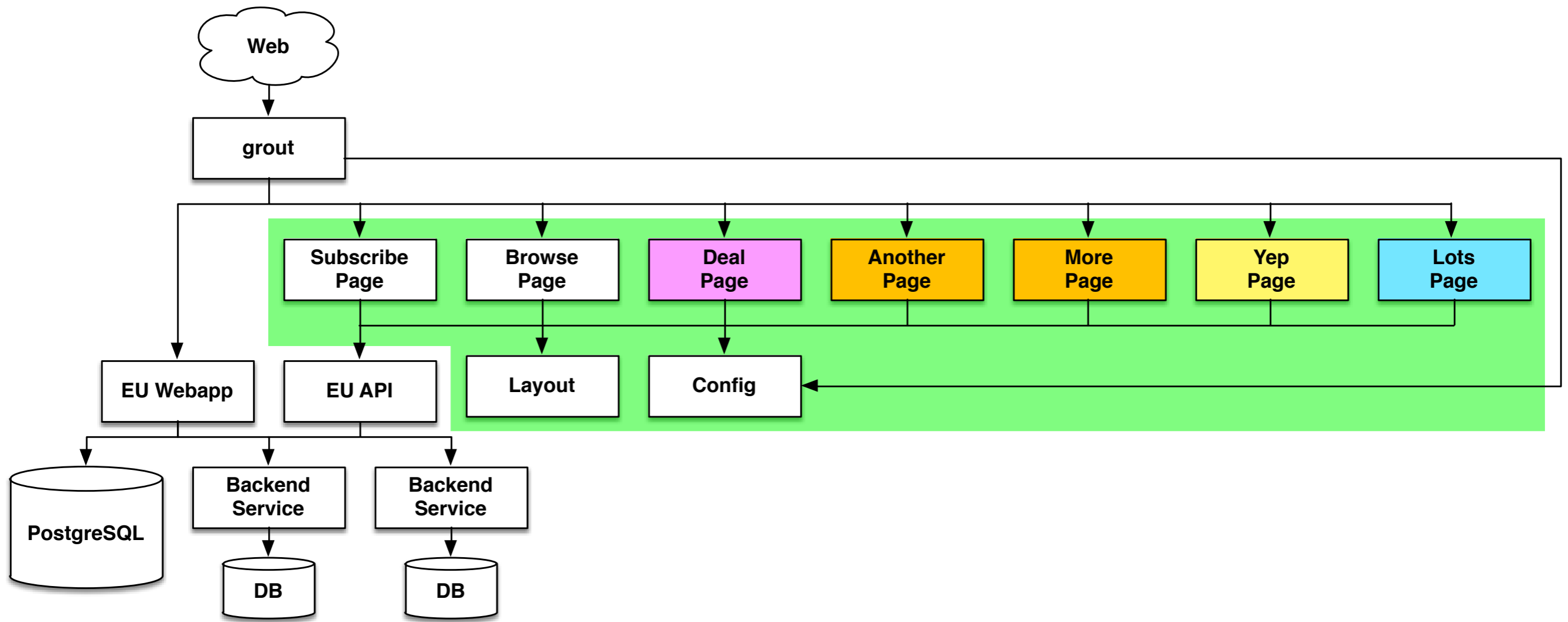












**GROUPON**<sup>®</sup>

Thank You!

Brian McCallister

brianm@groupon.com  
@brianm

Please evaluate  
my talk via the  
mobile app!