



# Tools of the Trade

Web Development at Fairfax Media

# Who am I?

George Wright

Engineering Manager - Metro Publishing

Fairfax Media

I am responsible for a delivery team that provides a core platform.



# I apologise in advance

This presentation has a lot of:

## Acronyms, Buzzwords & Brands

- Software architecture is evolving rapidly and is extremely diverse.
- There are no right answers!



# Software Developers

The CRAFT of software

- part engineering - accuracy and efficiency
- part designing - elegance
- part project managing - accountable
- part poetry - expressive



# Microservices are the new norm.

- Serverless where possible.
- Engineering for interoperability is key.
- No longer a monoculture approach.
- No one technology is the silver bullet.
- Continuous Integration/Deployment.



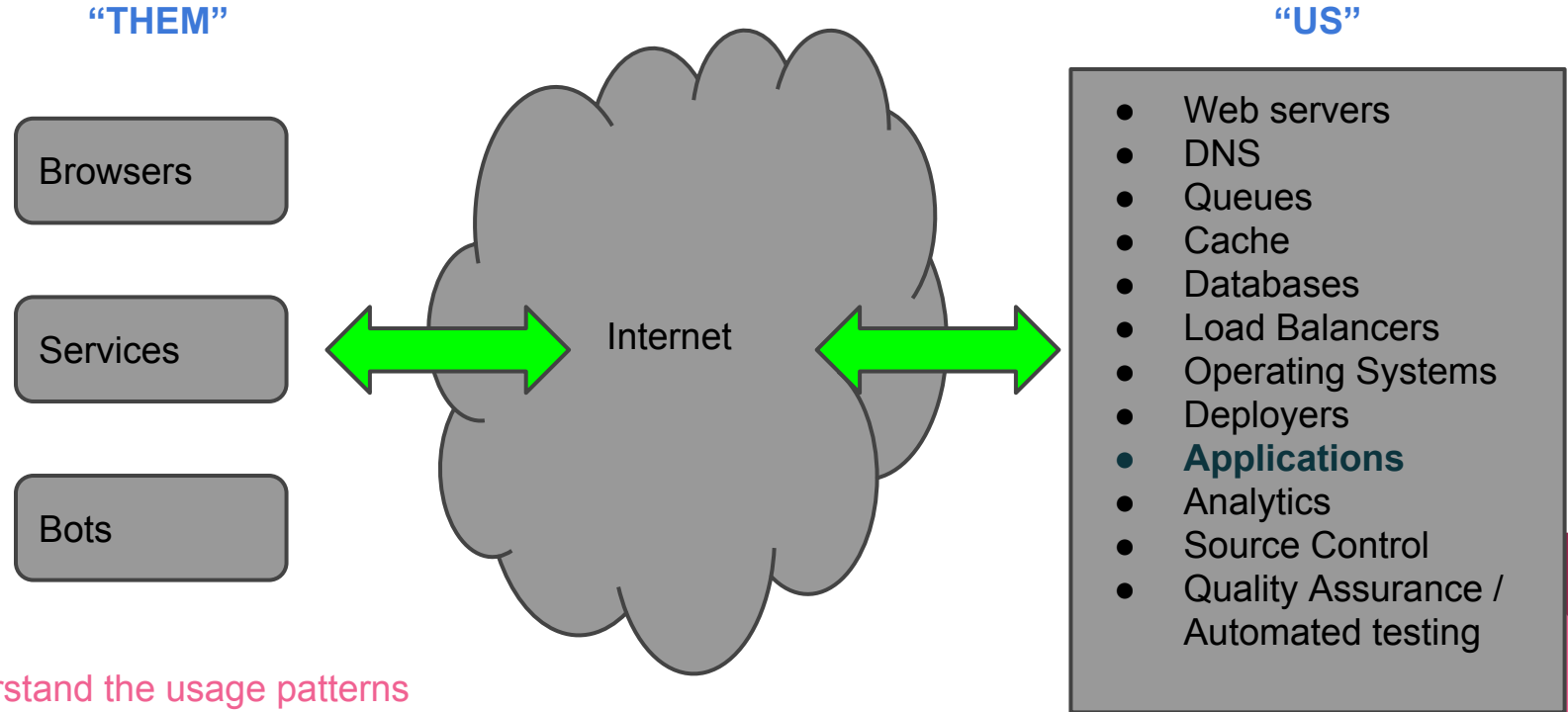
# the “Stack”

All of the systems and services that fulfil a request (end-to-end) - in this case a request from a web client.

The stack is the largest box you can draw around the things you can control/influence.



# Stack basics



# Stack Shopping



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Founded in August 2008 and based in San Francisco, California, Airbnb is a trusted community marketplace for people to list, discover, and book unique spaces around the world - online or from a mobile phone. Airbnb connects people to unique travel experiences, at any price point, in more than 26,000 cities and 192 countries.

Stack

Details

Application and Data

<b>JavaScript</b> Languages	<b>nginx</b> Web Servers	<b>React</b> JavaScript UI Libraries	<b>Amazon EC2</b> Cloud Hosting
<b>MySQL</b> Databases	<b>Java</b> Languages	<b>Ruby</b> Languages	<b>Rails</b> Frameworks (Full Stack)

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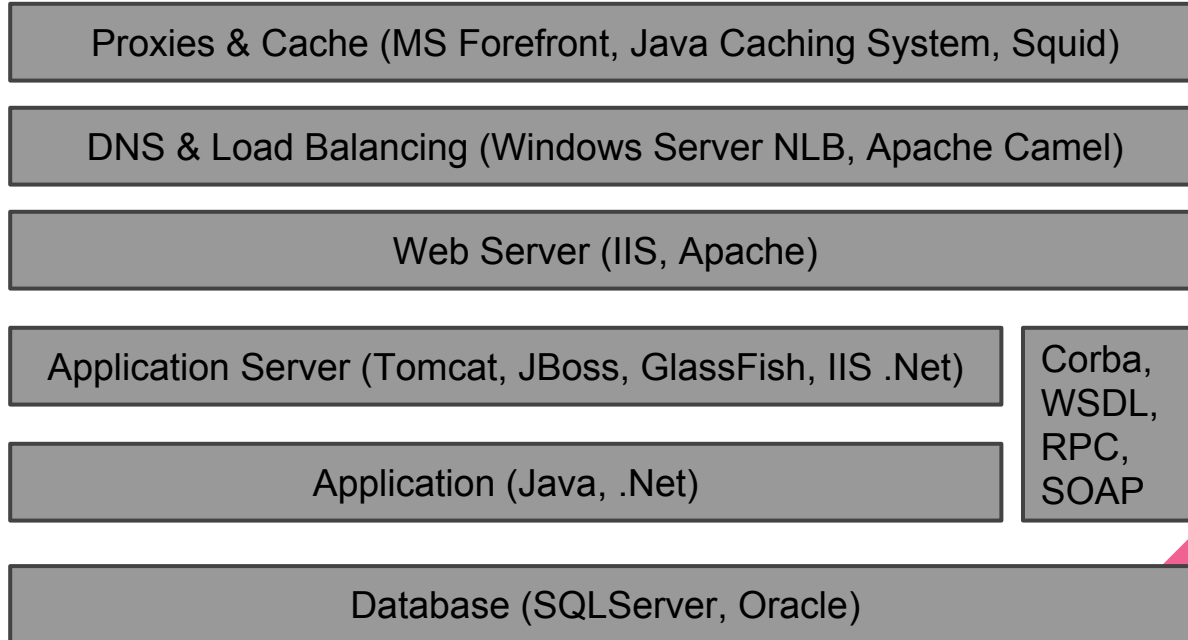
Sentry

Exception Monitoring

Visit Website



# The “Corporate” stack



# The “hipster” stack

## MEAN stands for:

**MongoDB** is the leading NoSQL database, empowering businesses to be more agile and scalable.

**Express** is a minimal and flexible node.js web application framework, providing a robust set of features for building single and multi-page, and hybrid web applications.

**AngularJS** lets you extend HTML vocabulary for your application. The resulting environment is extraordinarily expressive, readable, and quick to develop.

**Node.js** is a platform built on Chrome's JavaScript runtime for easily building fast, scalable network applications.



# Re-Platform

Language: GoLang



Release Pipeline: Concourse



Runtime environment: Docker/Kubernetes



Message Streaming: kinesis

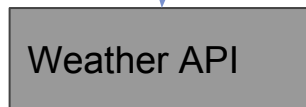
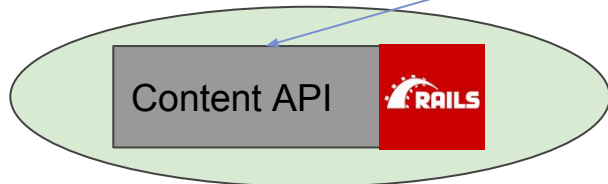
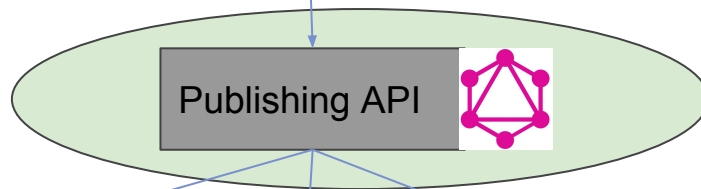
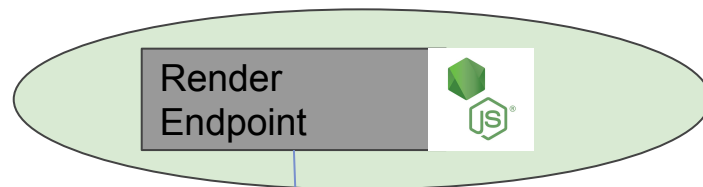
API Contract: GraphQL



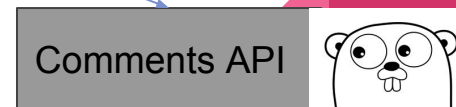
DOM rendering: React



# Microservices



...



# Amazon AWS

## Rethinking the architecture at scale:

- Compute (EC2) - processing
  - Elastic Load Balancer
  - Storage (S3/Glacier)
  - Database  
(DynamoDB/RDS/Redshift)
  - In Mem. Cache (Elasticache)
  - DNS (Amazon Route53)
  - Web Cache (CloudFront)
  - Queues (SQS)
  - Notification (SNS, SES)
  - Analytics (EMR)
  - Applications (ElasticBeanStalk)
- + Many, many more.

# Alternatives

Application Hosting - Heroku, EngineYard, OpenShift, Google AppEngine, Microsoft Azure, Joyent + new entrants every day.

Check out DigitalOcean tutorials

[https://www.digitalocean.com/community/tutorial\\_series](https://www.digitalocean.com/community/tutorial_series)



# The Browser “Basics”

- HTML5
- CSS3
- Javascript - JQuery(?), Modernizr
- Debugging - FireBug, Chrome Dev Tools
- JSON - CORS and JSONP
- REST



# Frontend Stack provides:

- Package Management
- Templating
- Testing framework
- Common widgets
- Databinding
- Server communication





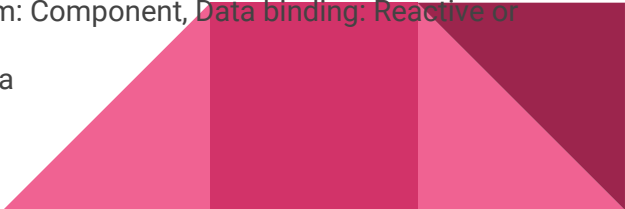
# But wait there's more..

## Frontend JS frameworks (just a sample)

**Yeoman:** **Package manager:** yeoman, **Module system:** RequireJS, AMD, **Build system:** Grunt, **Widgets:** Bootstrap


**Angular/Closure:** **Module system:** Closure Library modules, **Build system:** ClosureBuilder, **Templates:** AngularJS, **Data binding:** AngularJS, **Sync:** AngularJS services, **Widgets:** Closure Library, **Test framework:** Closure Library testing

**Foundation:** **Package manager:** Component, **Module system:** CommonJS, **Build system:** Component, **Data binding:** Reactive or Rivets or Knockout or Backbone, **Sync:** component/model, **Test framework:** test/assert, Mocha




# Developer stack

Every developer should have their own personal productivity stack including:

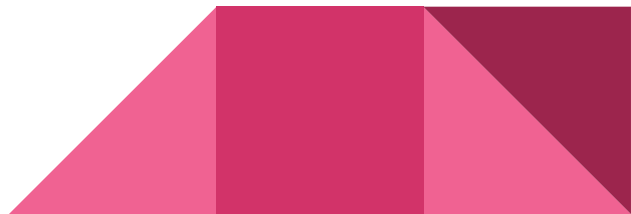
- Editor - Notepad++, Atom, Sublime, vim etc.
  - IDE - Visual Studio, JetBrains, Netbeans, Eclipse
  - Version Control - git, mercurial, bazaar, cvs
  - Repository - gitorious, github, bitbucket, launchpad
  - Issue tracking - JIRA, Redmine, Bugzilla
  - Agile/SCRUM - Greenhopper, Trello
- 

# Quality assurance stack

- Automated testing eg. Mocha, Jasmine, Selenium etc.
  - User acceptance testing tools
  - Production monitoring
  - Disaster recovery plan
  - Peer reviewed documentation
  - Stakeholder management
  - Legal signoff(?)
- 

# Advice for new developers

- Code is disposable but features are not!
- “Perfect” code. Substance vs Purpose and excellentia (scale) vs perfectio (absolute).
- Practice Fermi Estimation techniques.
- Understand the difference between classical **C**riticism and **c**riticism.
- Right tool for the right job.



**Thank you UNSW**

Questions?