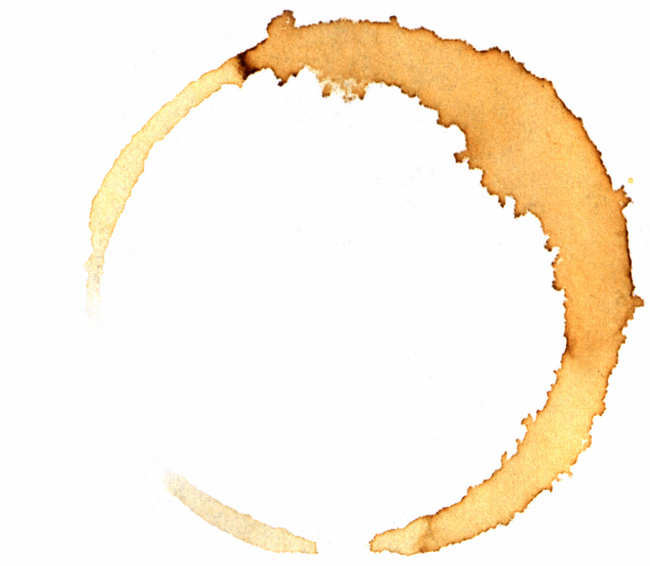
Scaling with Four Million Users

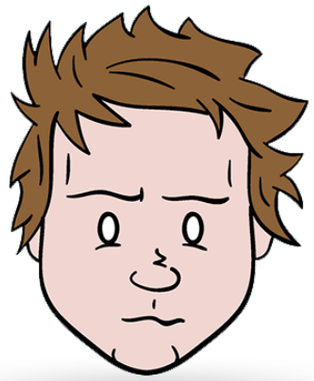
Simon Engledew



MyMaths Platform Tech Team

(we are tiny)

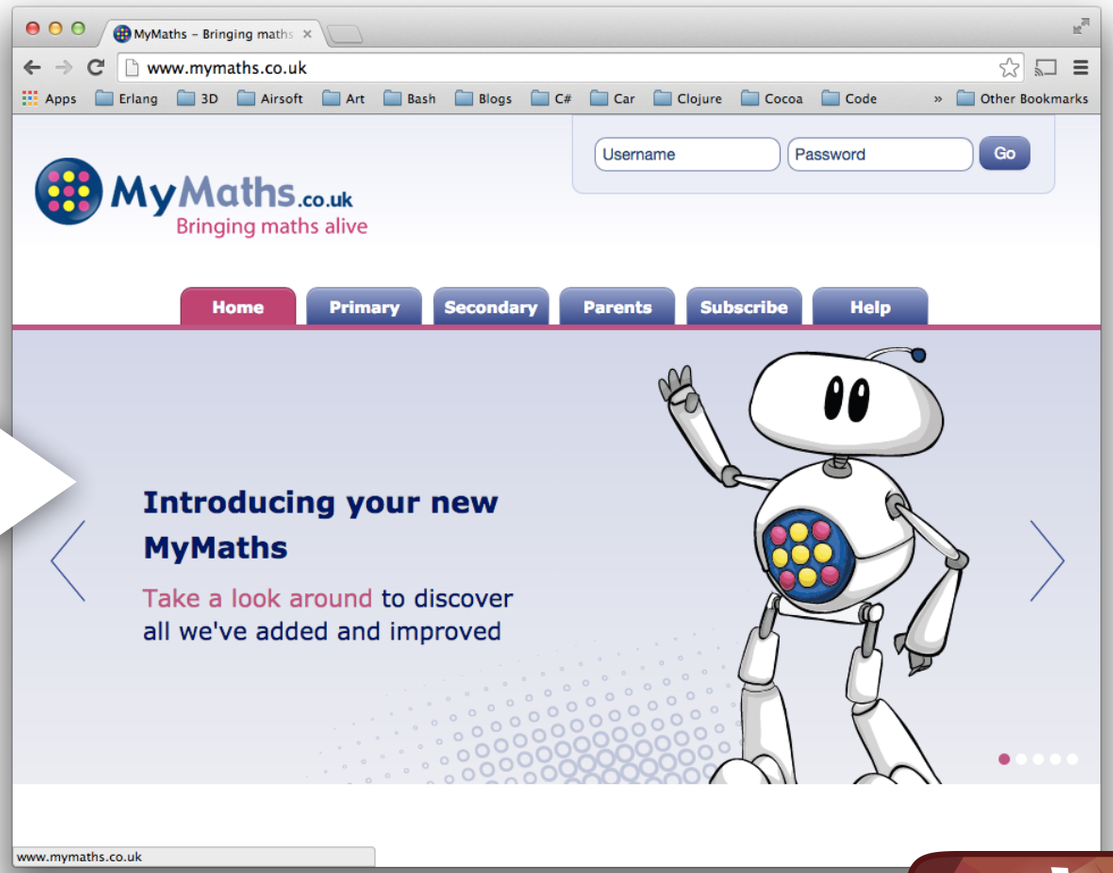
Simon Engledew
Senior Engineer



Darren Royle
Platform Manager

Ed Smith
Engineer

Product rewrite

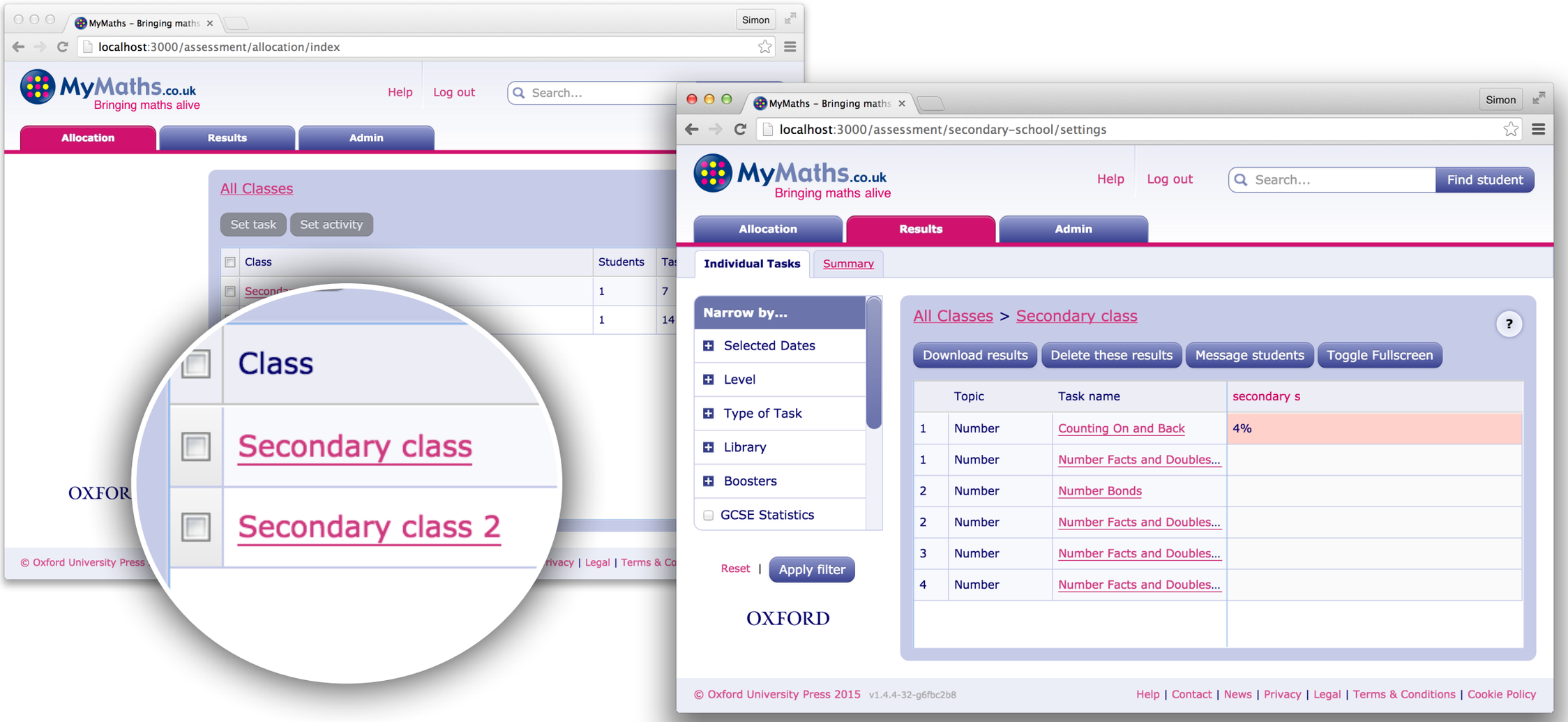


ASP Active Server Pages

RAILS

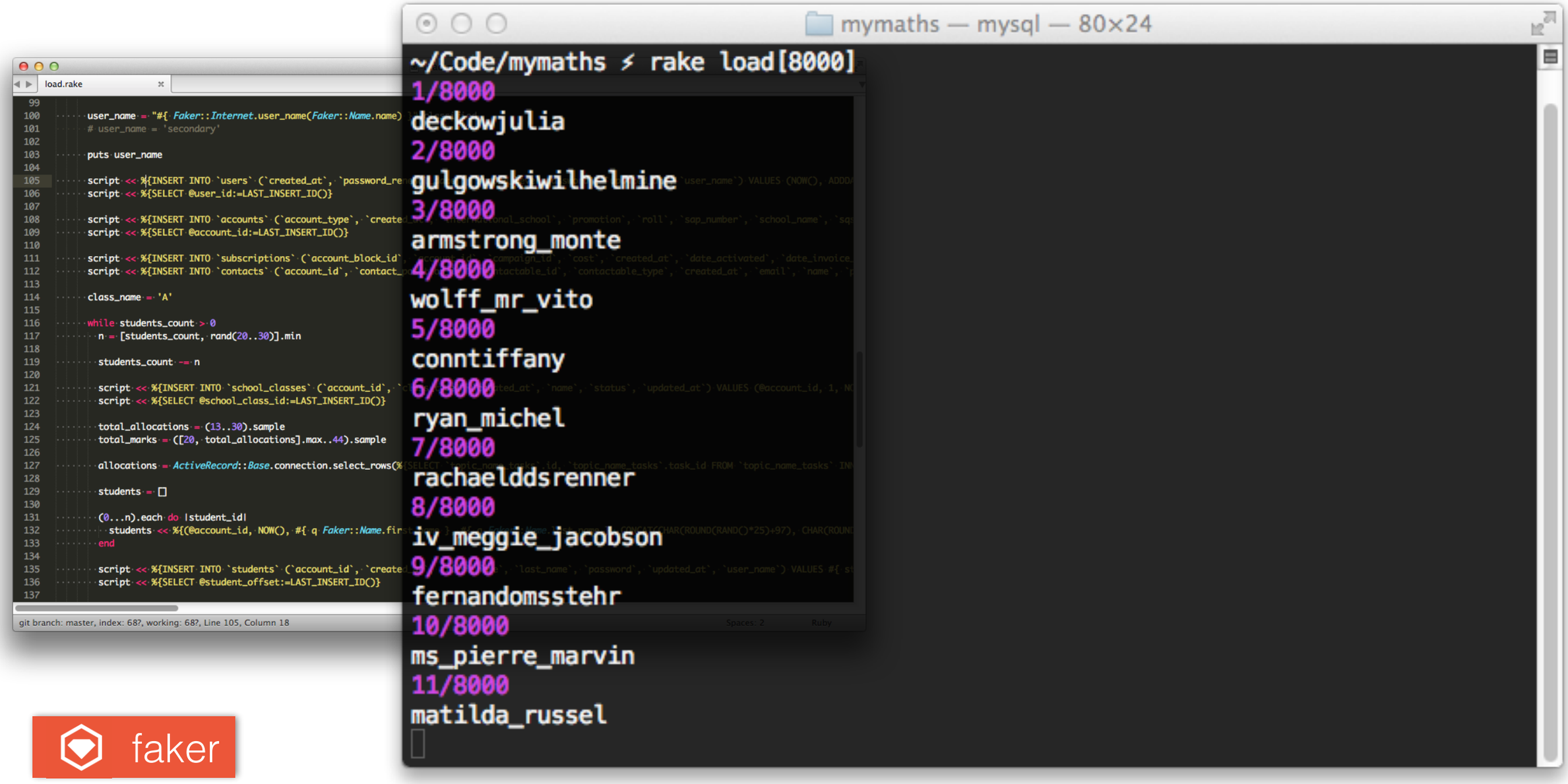
Getting ready for production

6 months to go, heads on the block...



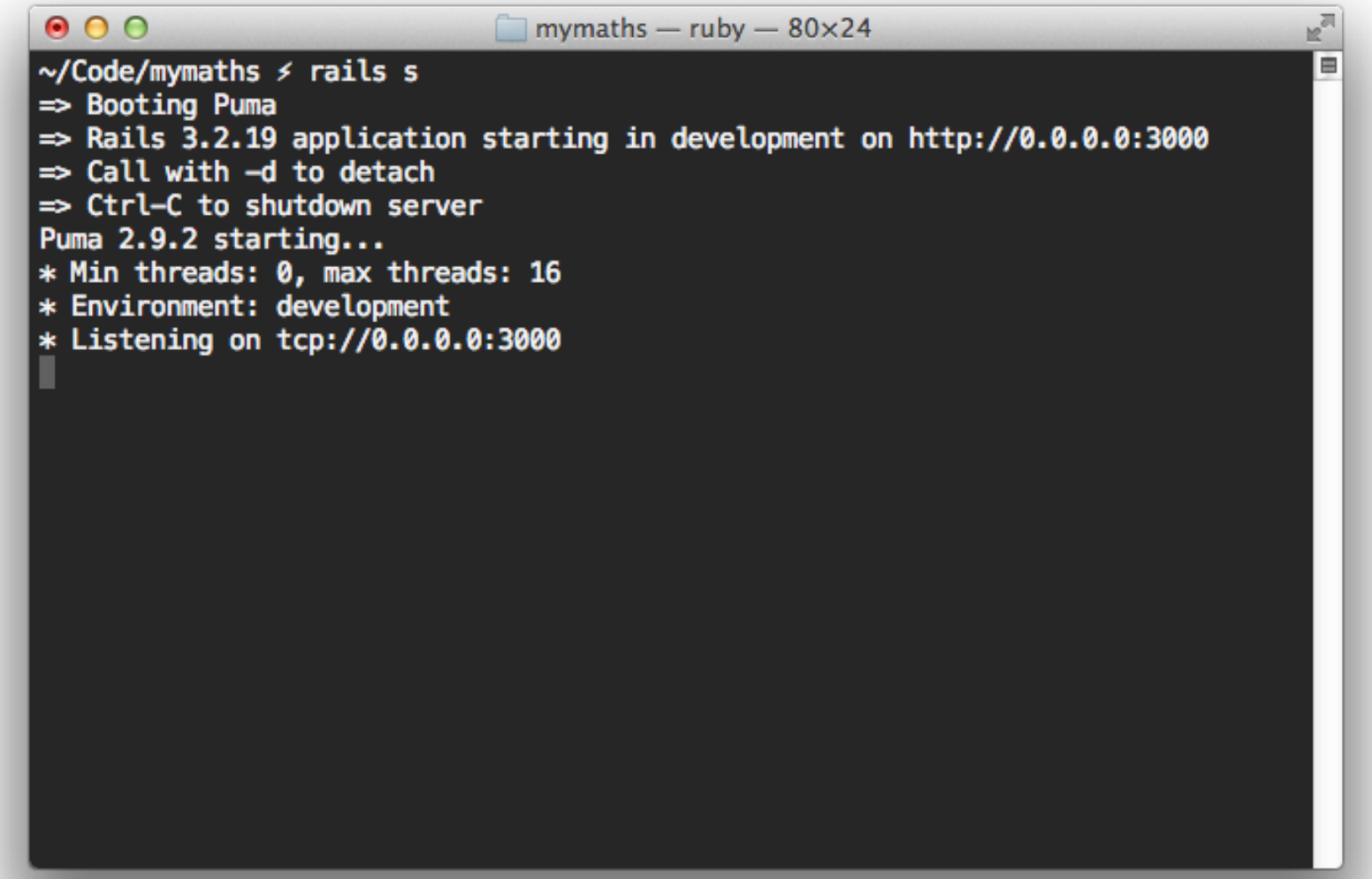
Generate Realistic Test Data

(300 million records should do)



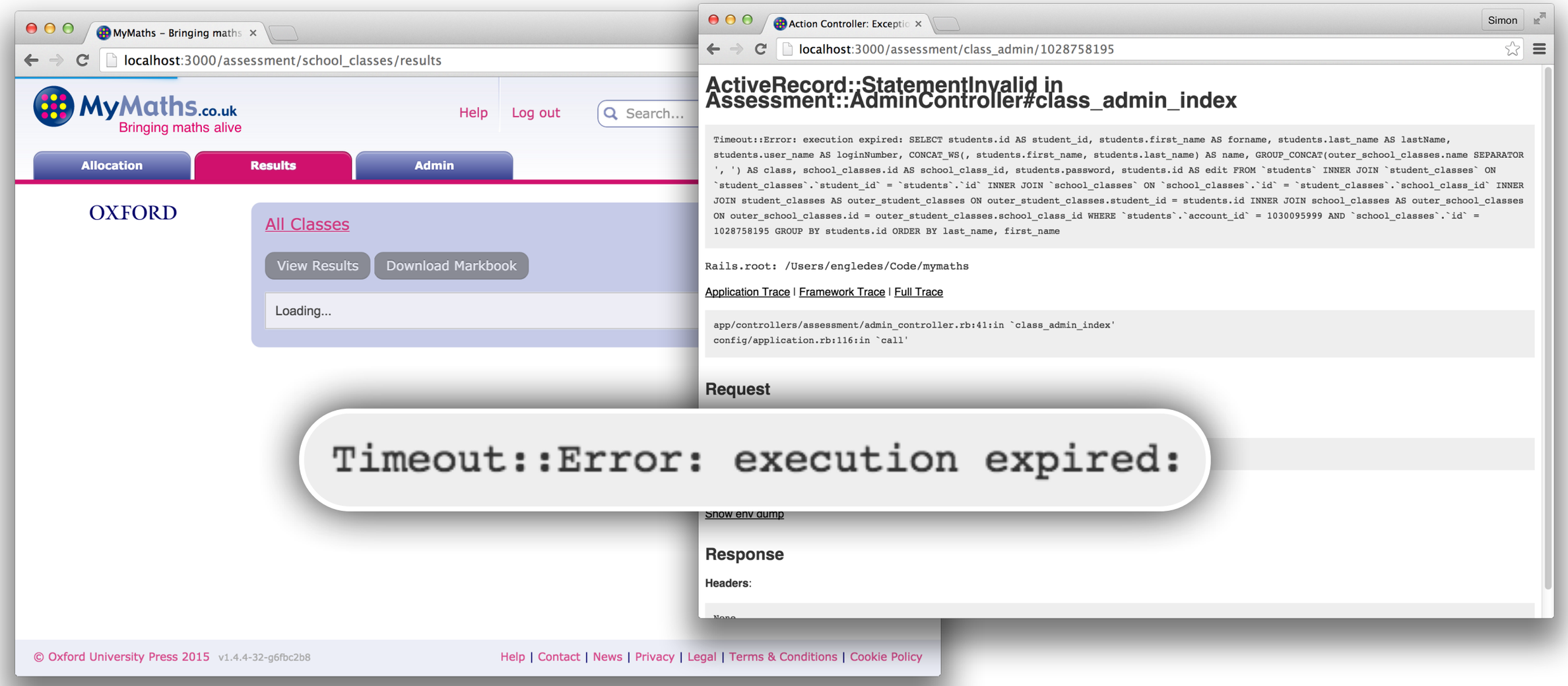
faker

Started up the site to have a look...



Boom!

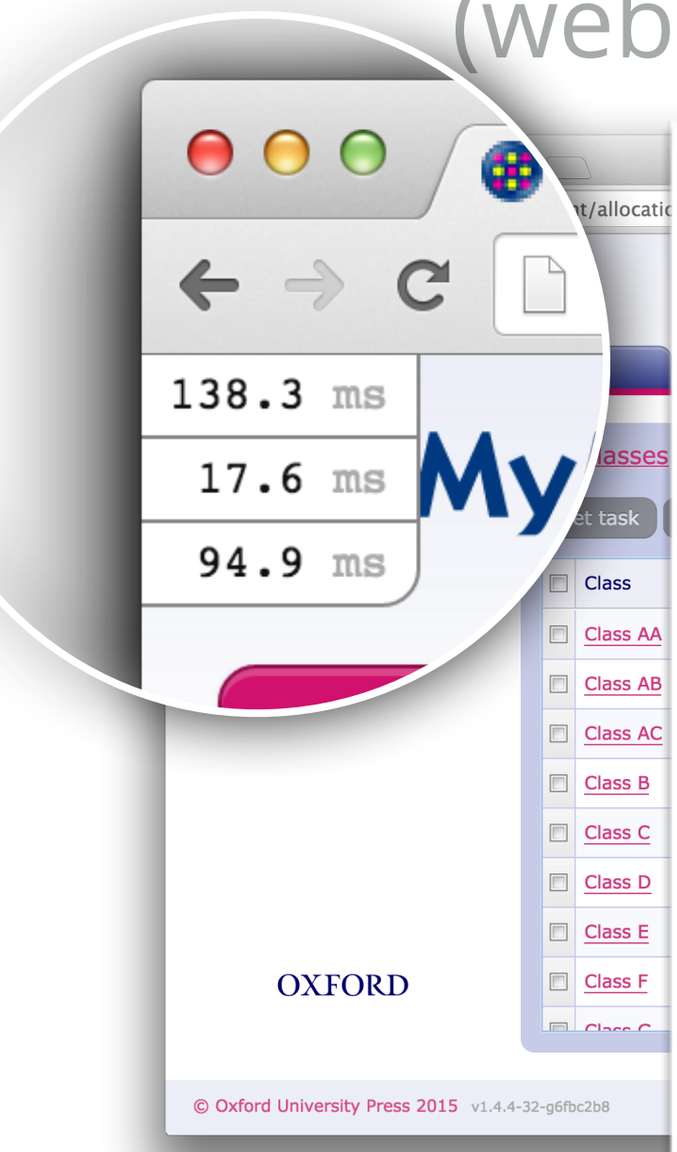
(…don’t panic)



Timeout::Error: execution expired:

Profiling

(web middleware can help big time!)



	duration (ms)	from start (ms)	query time (ms)	
GET http://localhost:3000/assessment/allo...	18.2	+0.0		
Executing action: allocation_index	63.2	+17.0	2 sql	0.5
Rendering: /assessment/manager/man...	9.3	+80.0		
Rendering: /assessment/manager/ma...	1.6	+85.0		
Rendering: /assessment/manager/m...	10.3	+86.0	3 sql	0.8
Rendering: /assessment/manager/ma...	7.5	+100.0		
Rendering: /assessment/manager/ma...	5.5	+109.0		
Rendering: layouts/application	12.4	+115.0		
Rendering: /shared/secondary/_header	1.6	+118.0		
Rendering: shared/_footer	3.1	+127.0		

show time with children

0.9 % in sql

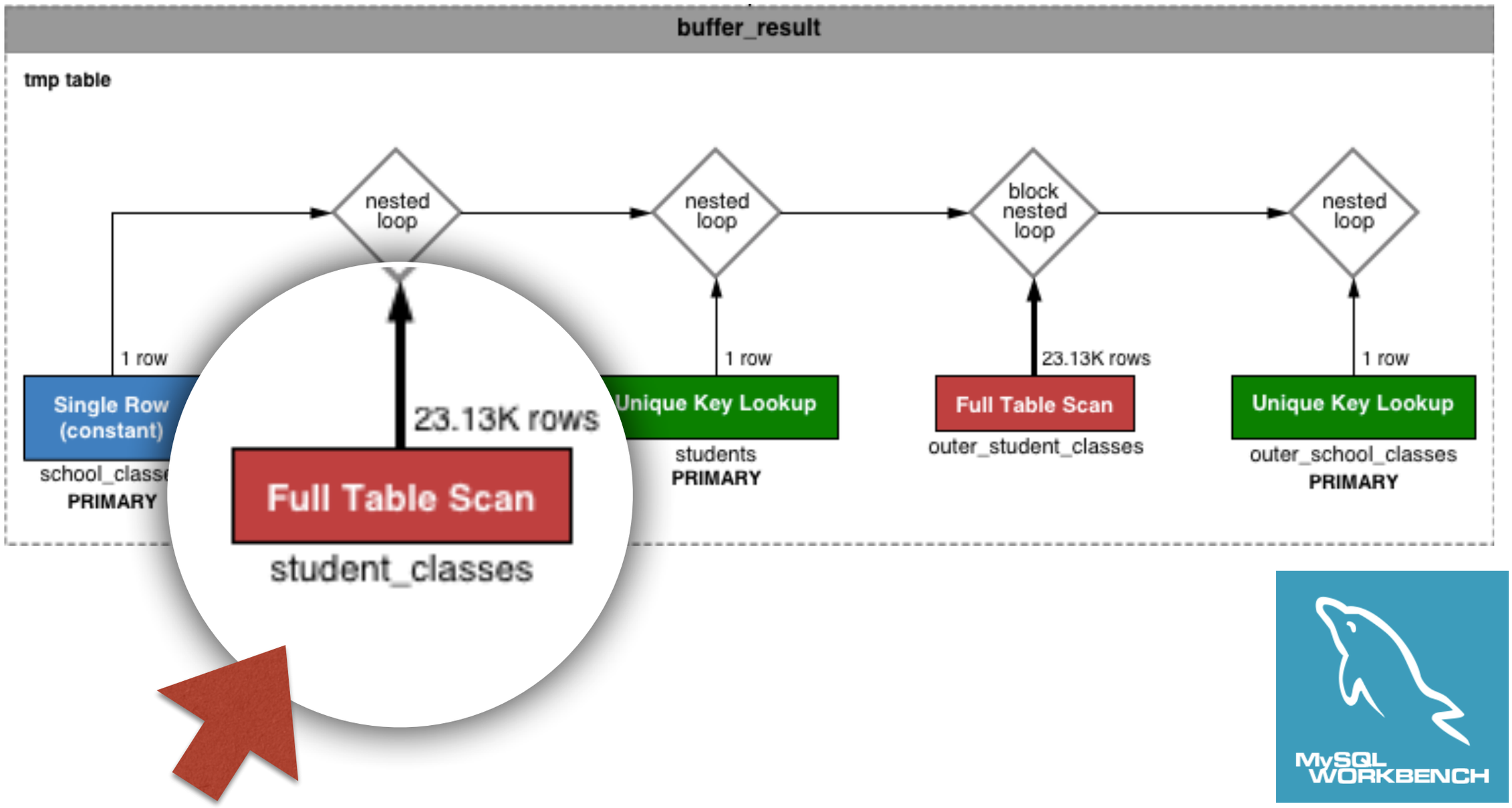
client event	duration (ms)	from start (ms)
Redirect	22.0	+0.0
Response	1.0	+165.0
Dom Content Loaded Event	168.0	+571.0
First Paint Time		+836.0

share show trivial

rack-mini-profiler

Pick the low hanging fruit first

(check the database)



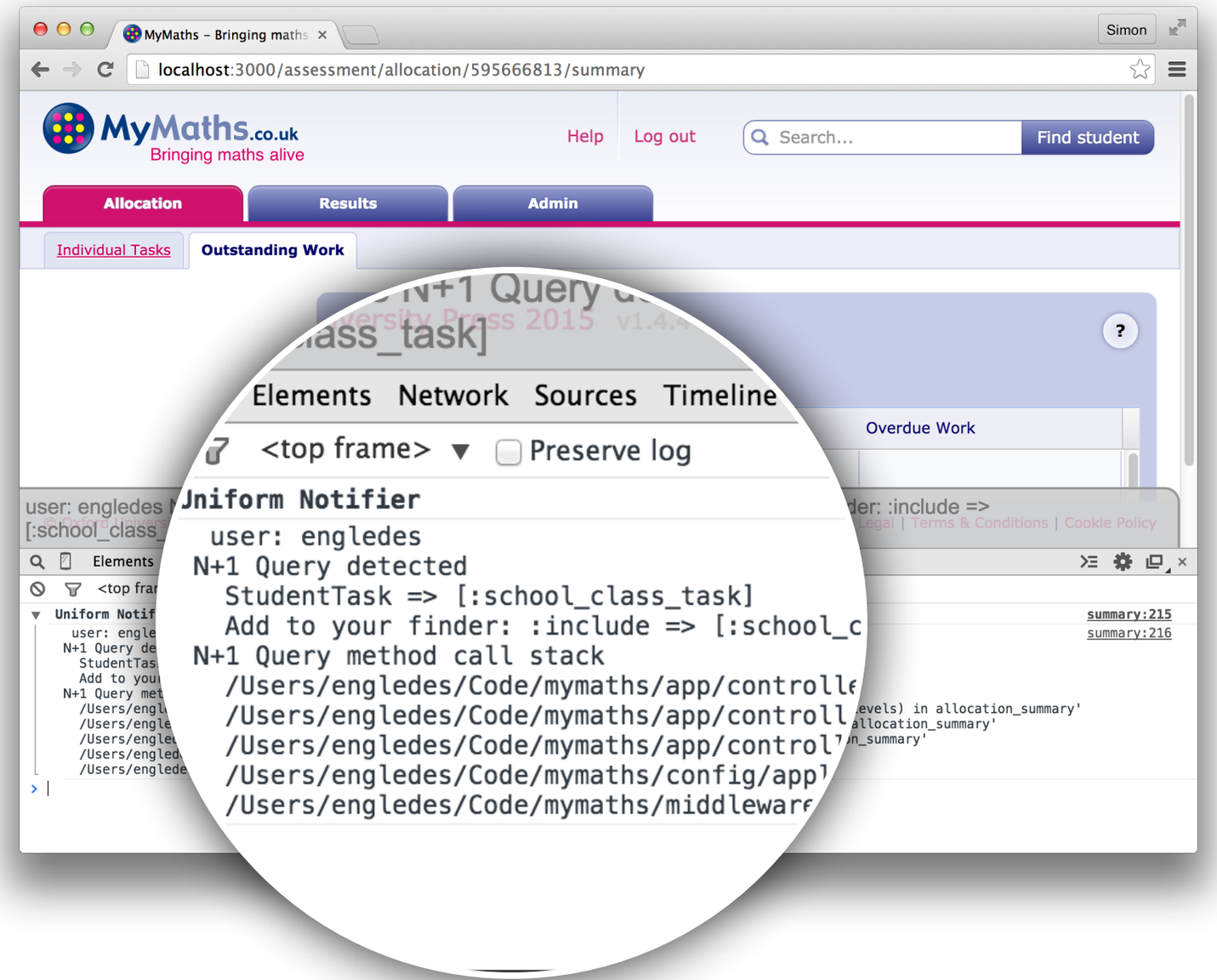
MySQL WORKBENCH

Add Database Indexes

(best will in the world, you will have missed some)

Fix N+1 Queries

(look for loops around your application)

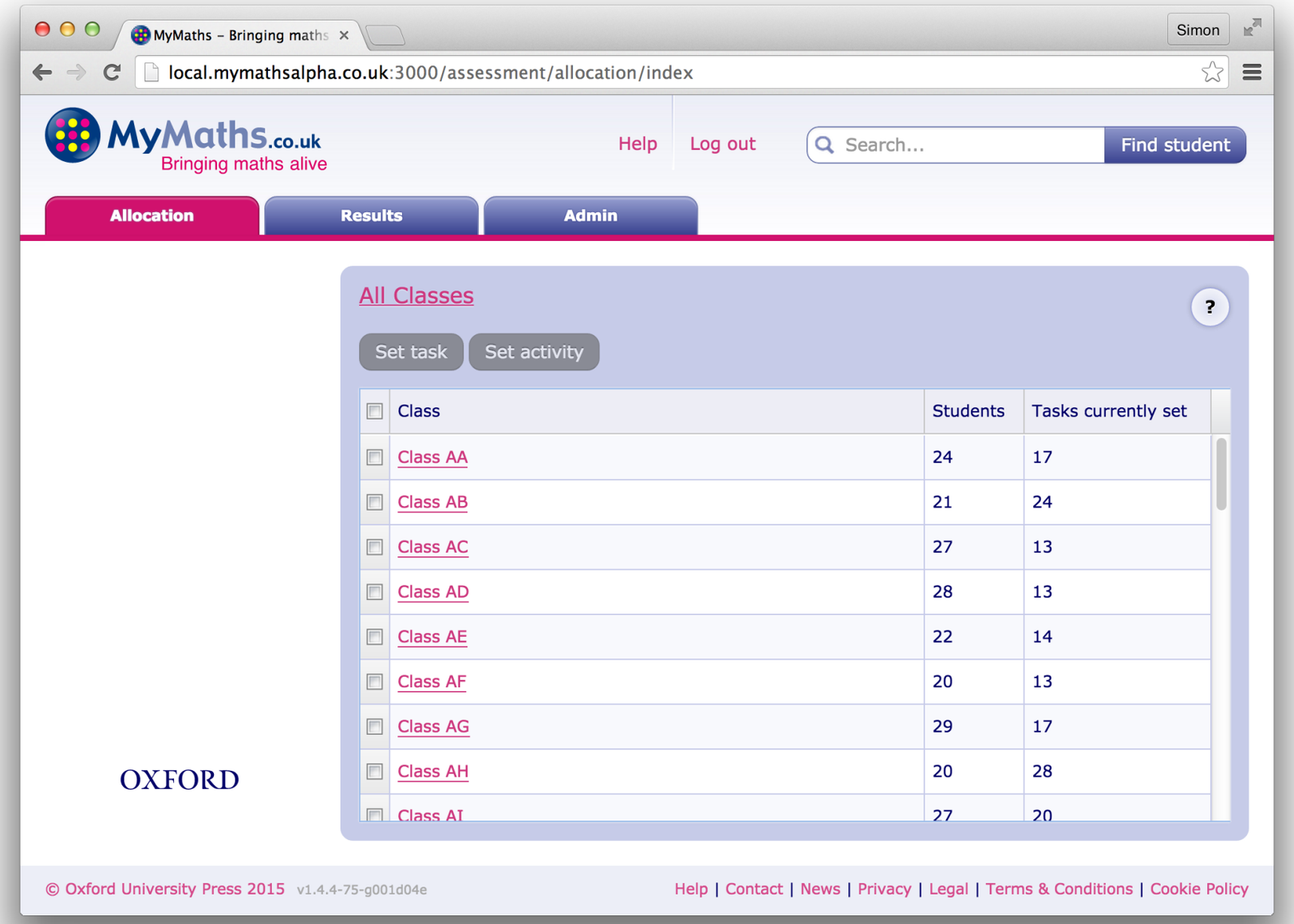


bullet

see also: GROUP_CONCAT

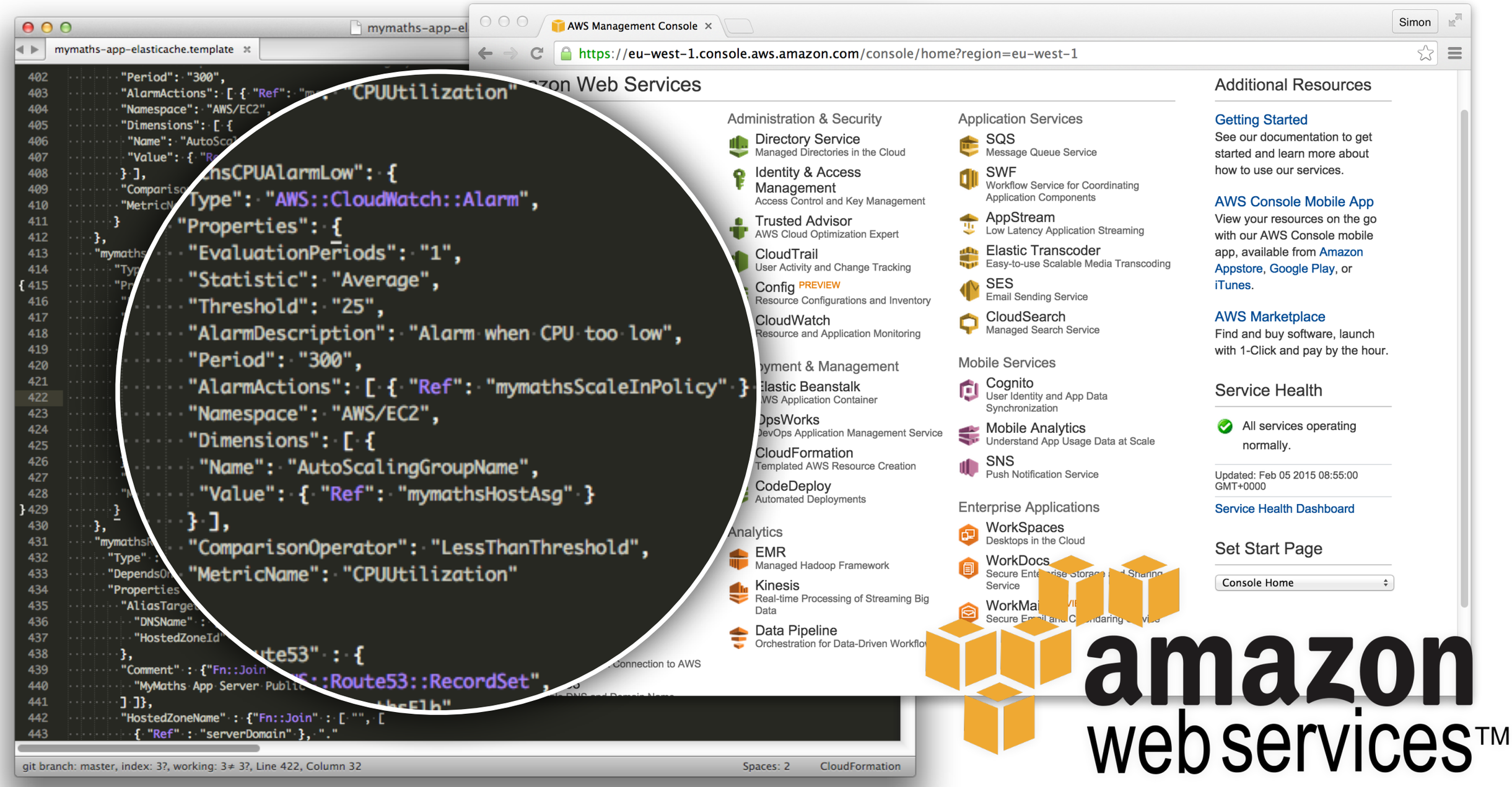
Now the site is loading again

(with some meaty data)



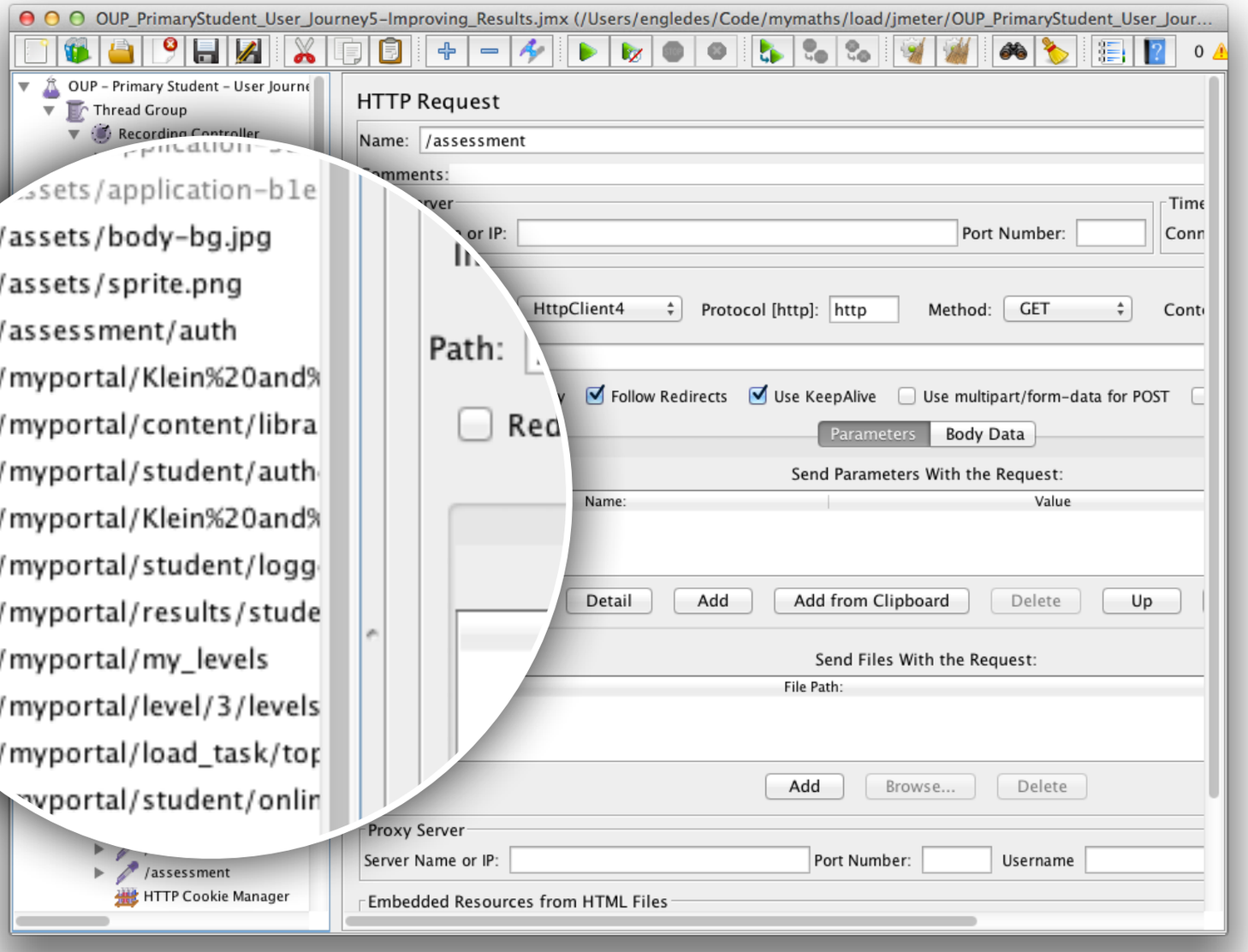
OXFORD

Set up and automate your acceptance environment



Fire up JMeter

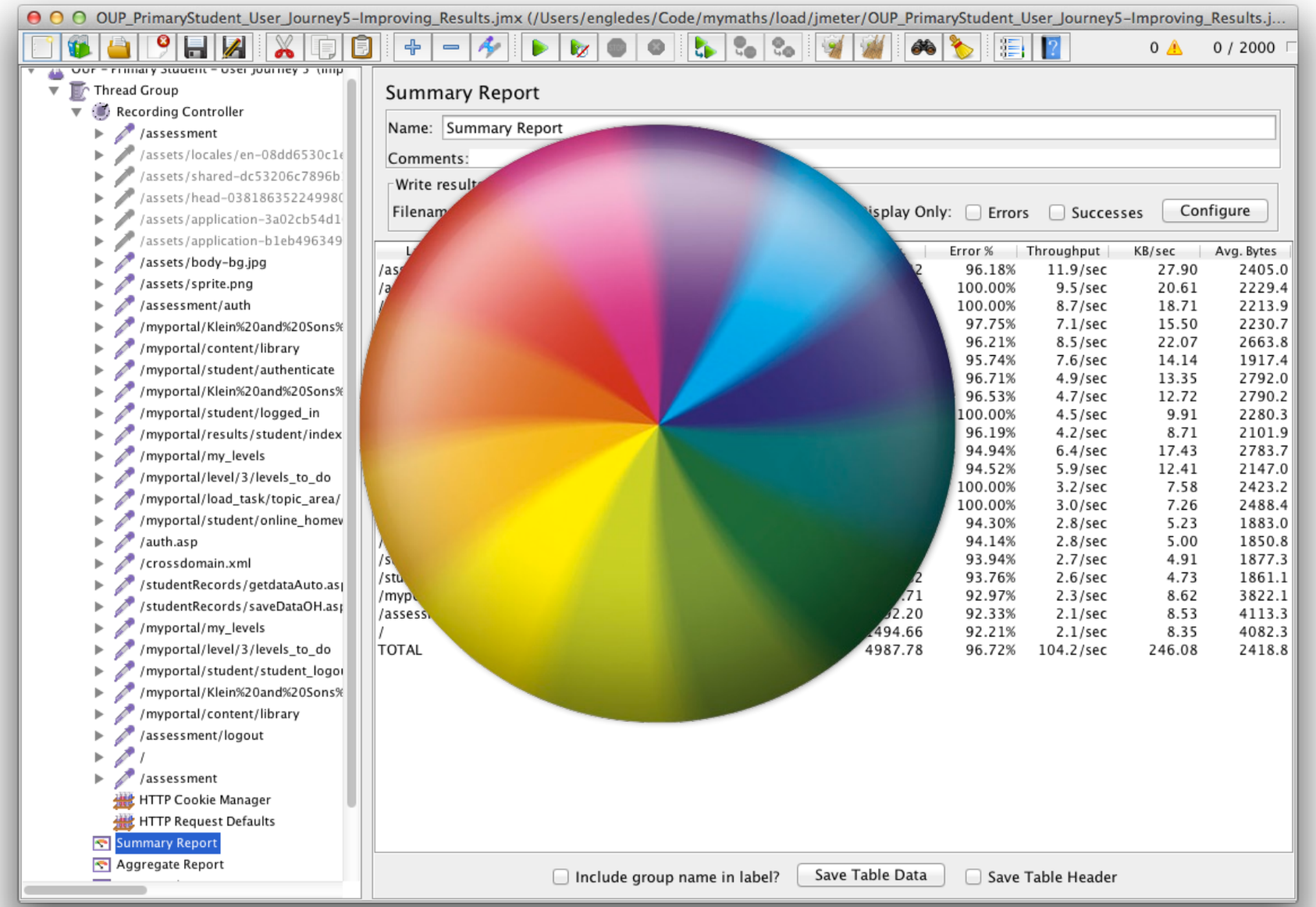
(simulate some user load)



Apache JMeter™

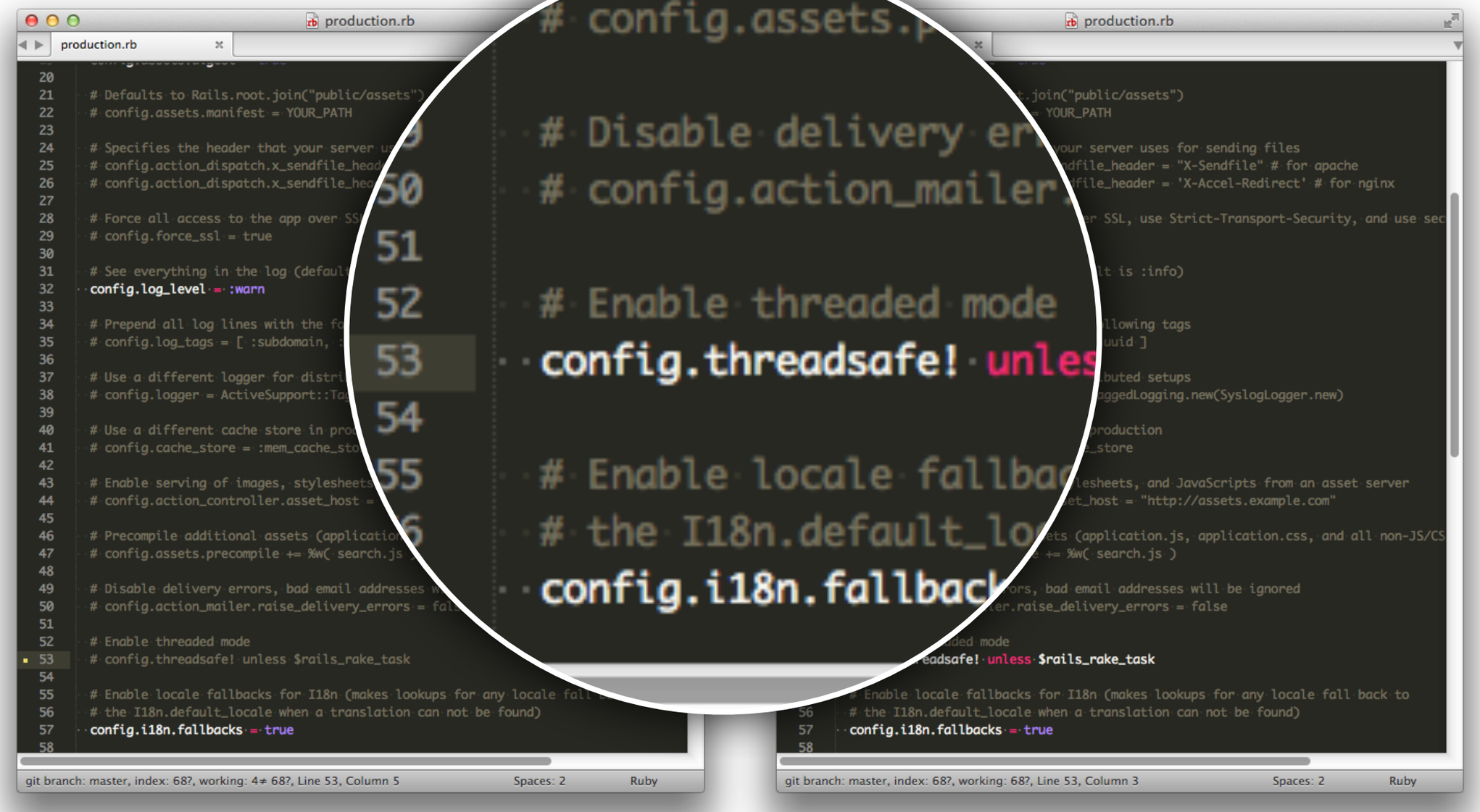
Boom!

(ok, panic a little bit, that should have worked)



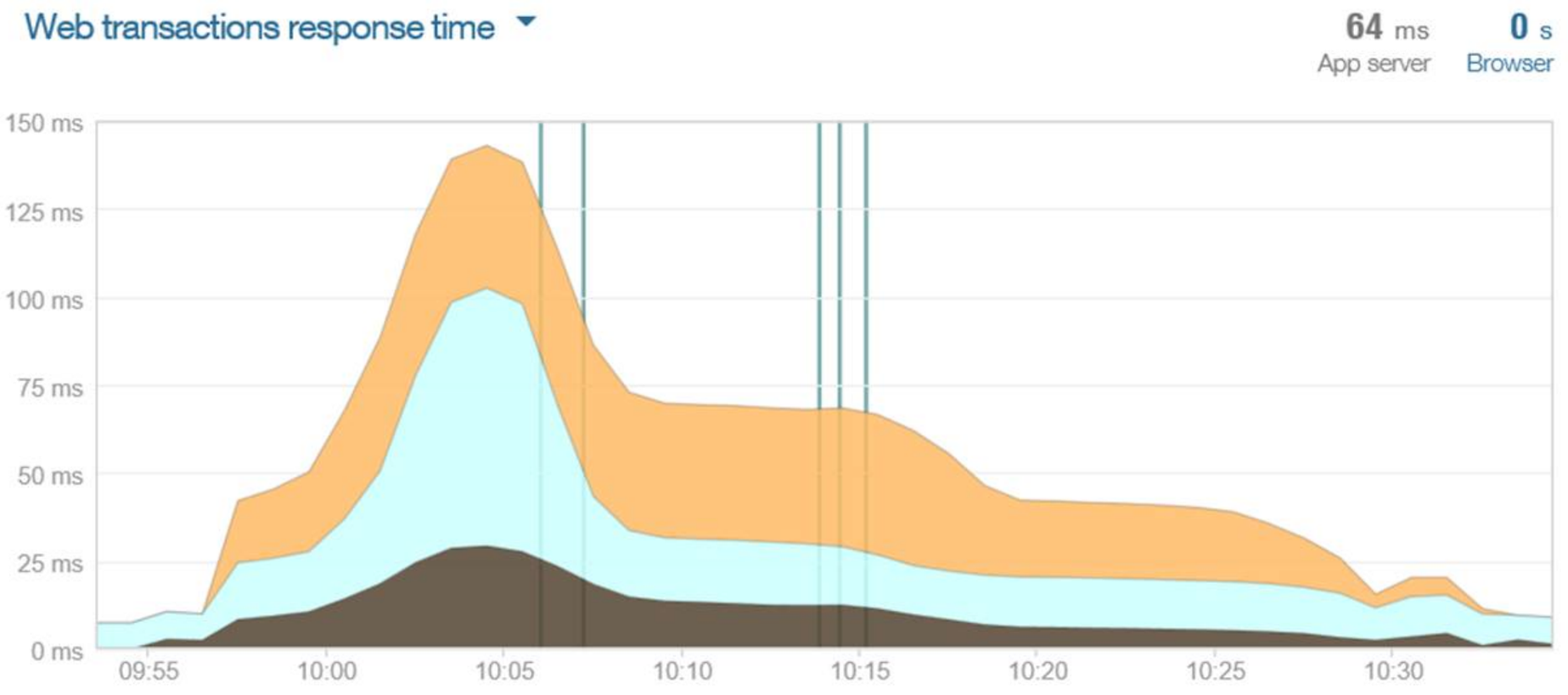
Research good production configuration

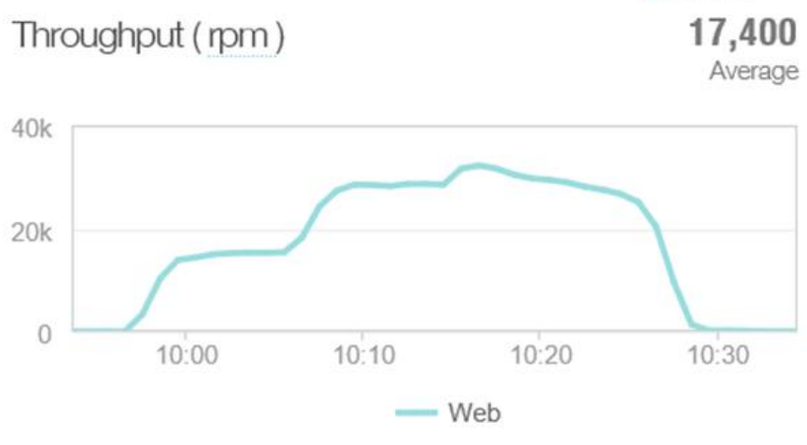
(turning on threading might help)



JMeter Take 2

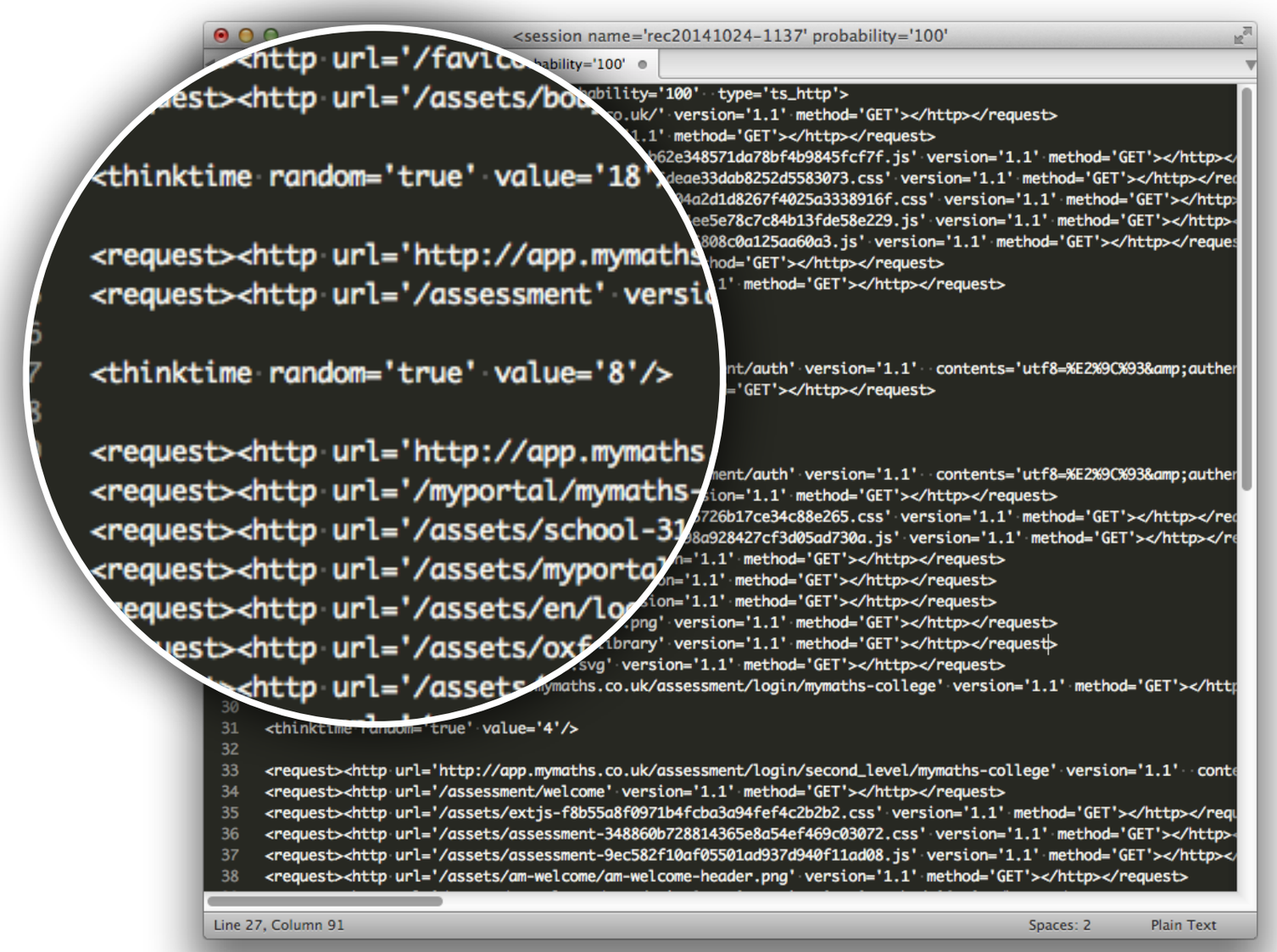
(better!)





If you need to be sure… Tsung

(The big guns)



ERLANG

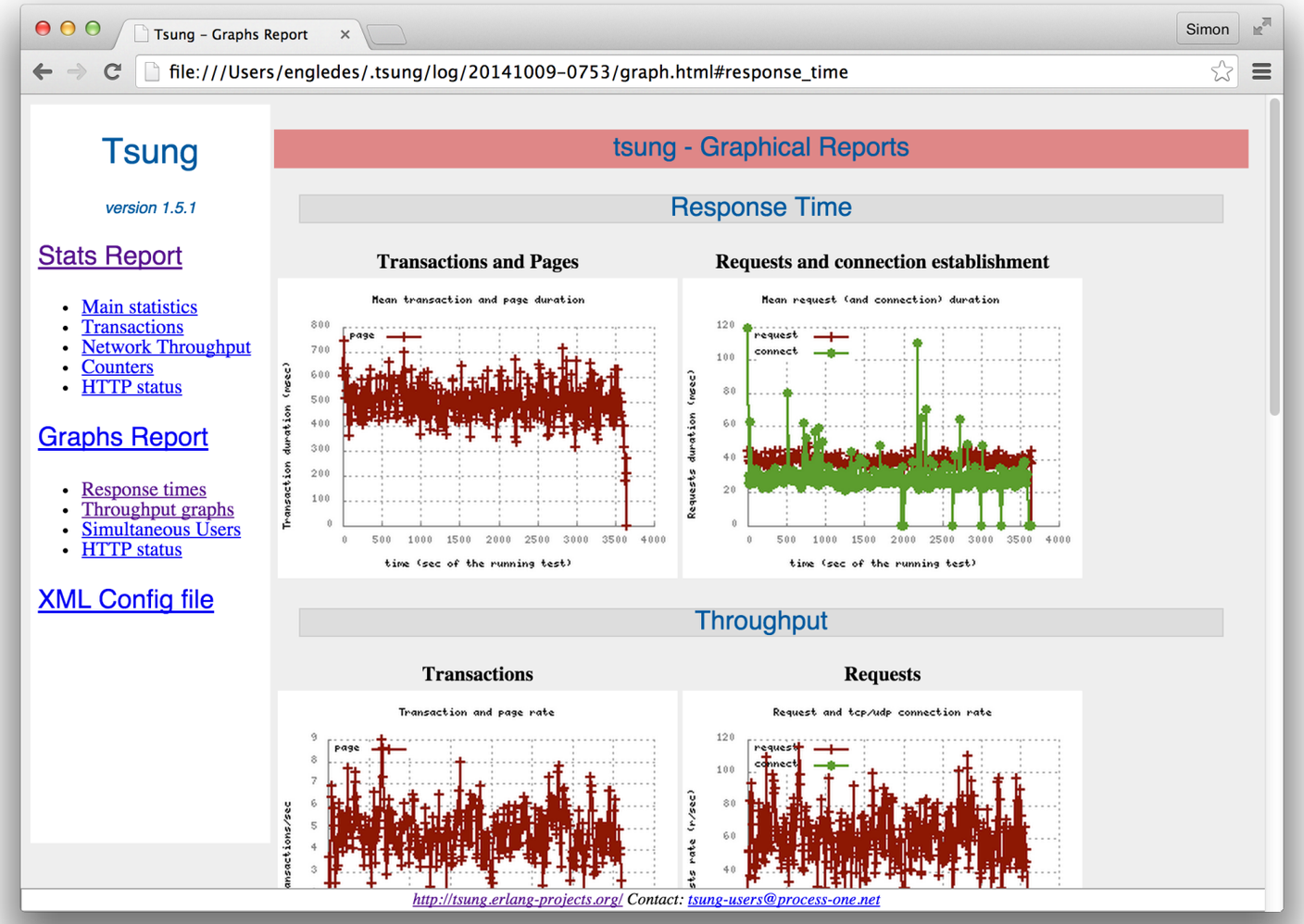
A distributed load testing tool

Tsung

See also: siege

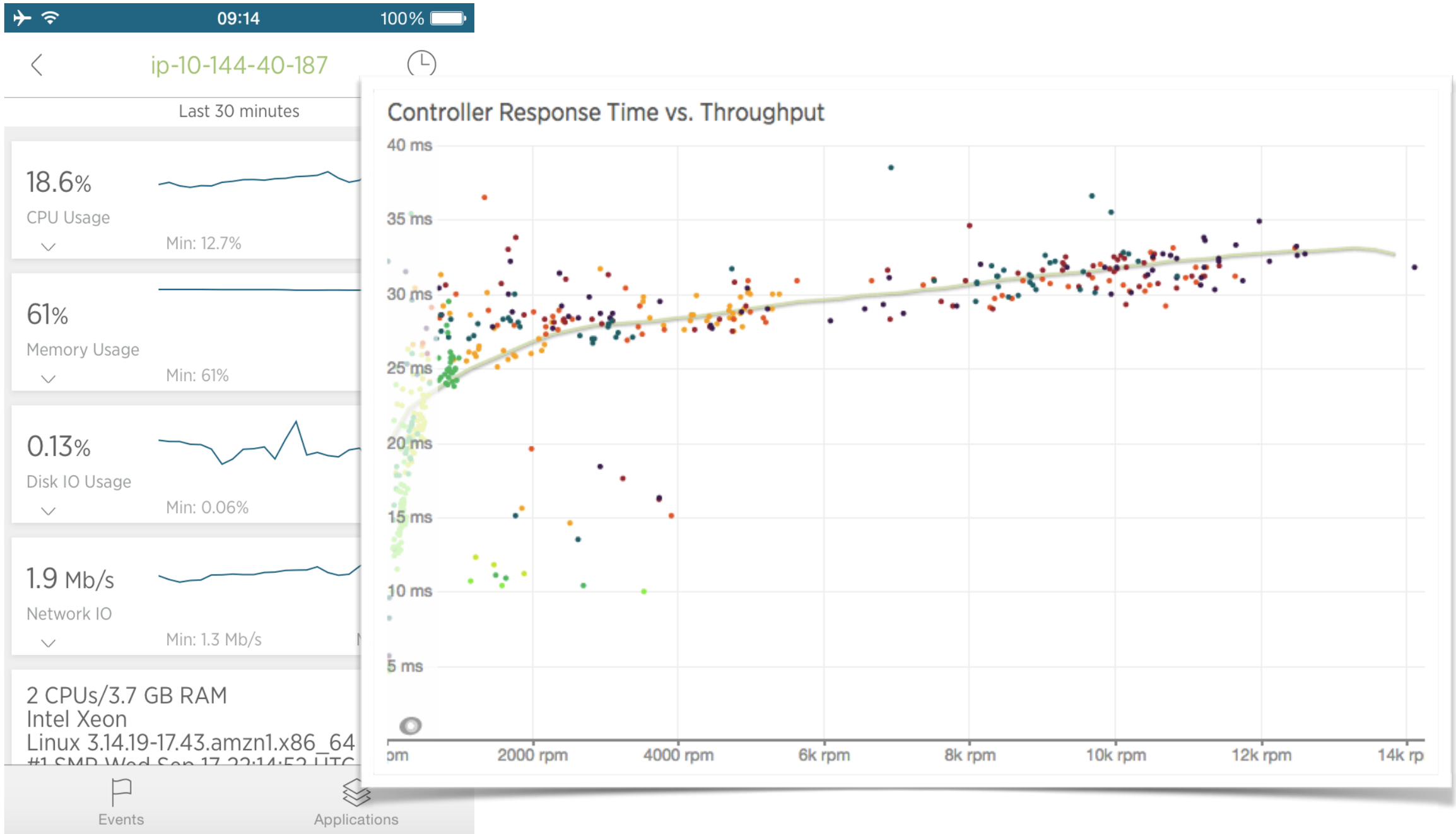
Pour over arcane graphs

(can anyone actually read these?)



Some Hogwarts grade shit here…

Remote Monitoring



Summary

- Even if you have a small site, generate a lot of fake data to magnify the problems
- Understand and automate your environment
- Every disaster you artificially create is a problem your users never saw - be positive and thorough
- Good monitoring will help you to relax afterwards