Joel Hammond-Turner
@Rammesses

10 *more* things

YOU NEED TO DO TO SUCCEED AS A TECH LEAD

Landmark® INFORMATION GROUP

The Original 10 Things

1 – Have Coding Standards

2 – Have Process & Automation

3 – Use Personas

4 – Use Sketches

5 – NuGet all the things

6 – Handle Tech Debt

7 – Use MDDs & POCs

8 – Drive Sprint Planning

9 – Listen, Appraise & Decide

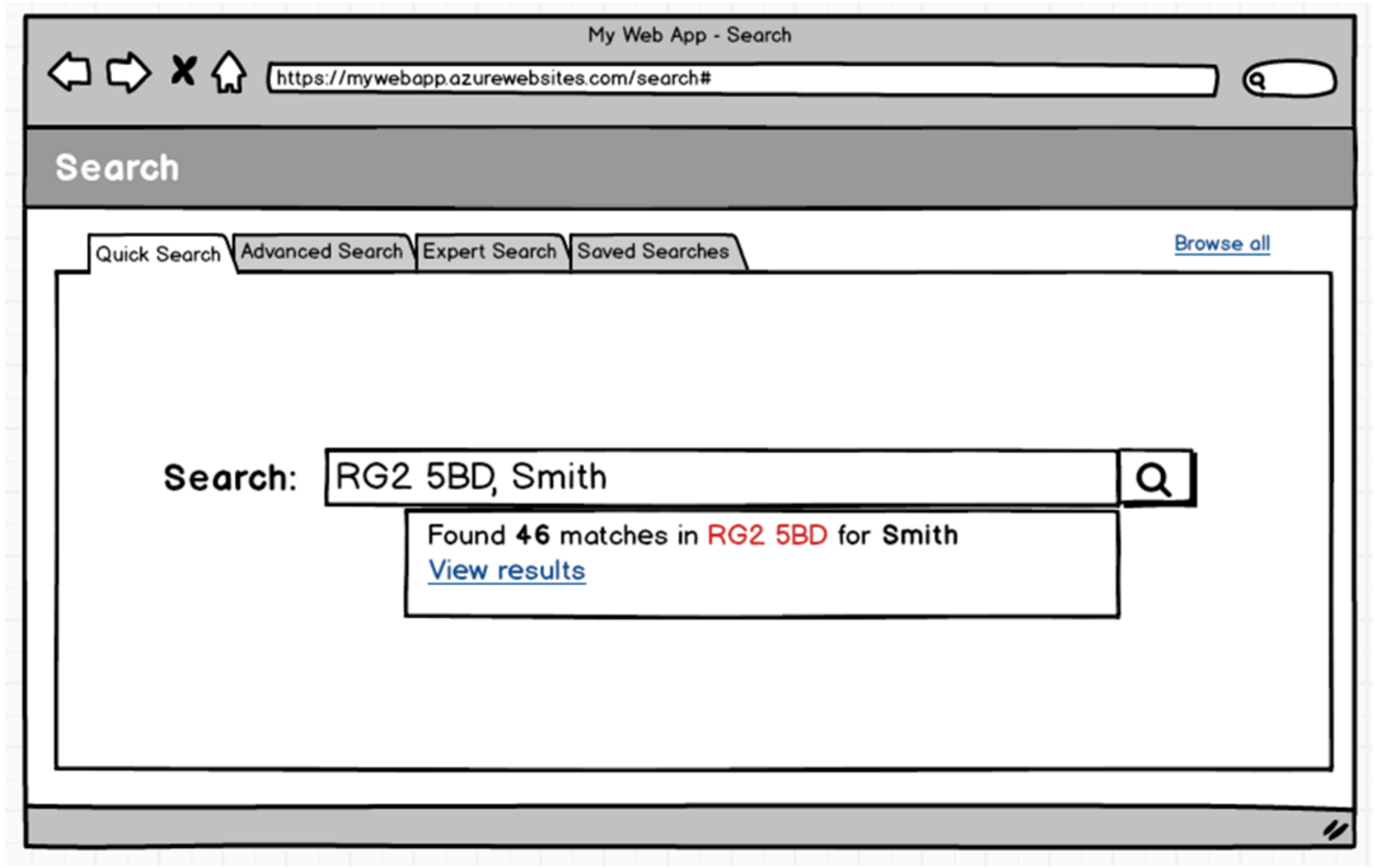
10 – Learn & Share Continually

New!

Thing 1: Break down your Requirements

Implement Quick Search

Create Web App (inc build & deployment)
Search page (controller / view)
    Authorization restriction
Tabs on Search Page
    Authorization restrictions
Search box
Type-and-show-Summary (dummy API)
Type-and-show-Summary API
    (depends on Search Engine)
Search button & View Results link
    Log search query for audit
Browse All link
    Log usage for audit



Found 46 matches in RG2 5BD for Smith

New!

Thing 1: Break down your Requirements

- Bite-sized – ***NOT*** snack or meal-sized PBIs
  - From a Developer's perspective
- Business Analysts think in Features, not PBIs
  - Don't get distracted by implementation details at Feature level
- You're building it, YOU break it down

New!

Thing 2: Instrumentation

What to capture?

Counters – Incrementing or Decrementing counts

Gauges – Instantaneous Values

Meters – Rates of events

Histograms – Distribution of stream values

Timers – How long did a code block take to execute?

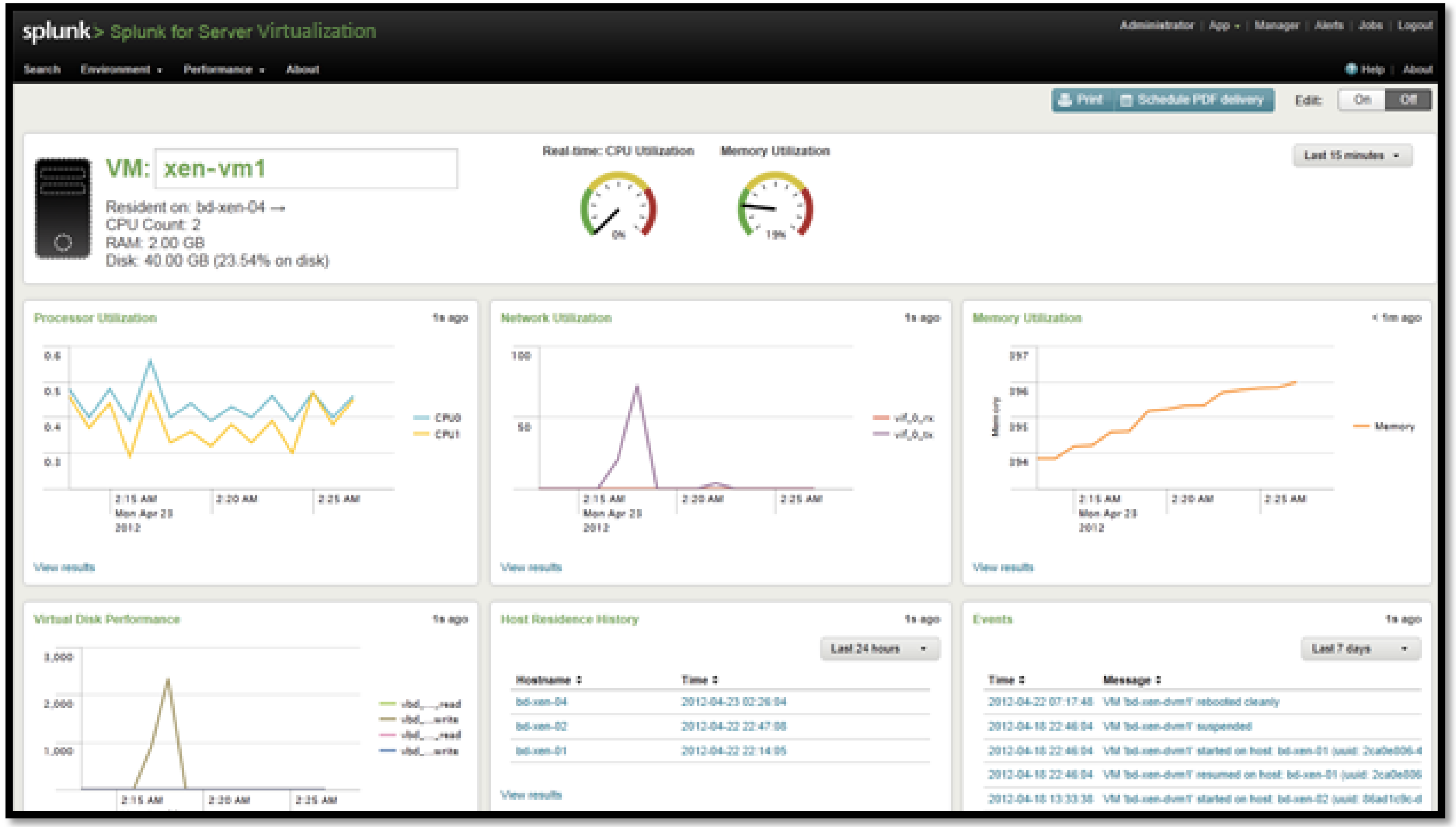
New!

Thing 2: Instrumentation

Visualise your metrics

- Ask questions about your software.
- Answer them visually.
- Make them available.

DASHBOARD ALL THE THINGS!



VM: xen-vm1

Resident on: bd-xen-04 →
CPU Count: 2
RAM: 2.00 GB
Disk: 40.00 GB (23.54% on disk)

Host Residence History — Last 24 hours

Hostname	Time
bd-xen-04	2012-04-23 02:26:04
bd-xen-02	2012-04-22 22:47:08
bd-xen-01	2012-04-22 22:14:05

Events — Last 7 days

Time	Message
2012-04-22 07:17:48	VM 'bd-xen-dvm1' rebooted cleanly
2012-04-18 22:46:04	VM 'bd-xen-dvm1' suspended
2012-04-18 22:46:04	VM 'bd-xen-dvm1' started on host: bd-xen-01 (uuid: 2ca0e006-4
2012-04-18 22:46:04	VM 'bd-xen-dvm1' resumed on host: bd-xen-01 (uuid: 2ca0e006
2012-04-18 13:33:38	VM 'bd-xen-dvm1' started on host: bd-xen-02 (uuid: 86ad1c8c-d

New!

Thing 2: Instrumentation

- Instrument ***EVERYTHING***

  - Metrics.Net
  - Performance Counters
  - Frequency as well as Duration

- Build Dashboards to surface metrics
  - Splunk

New!

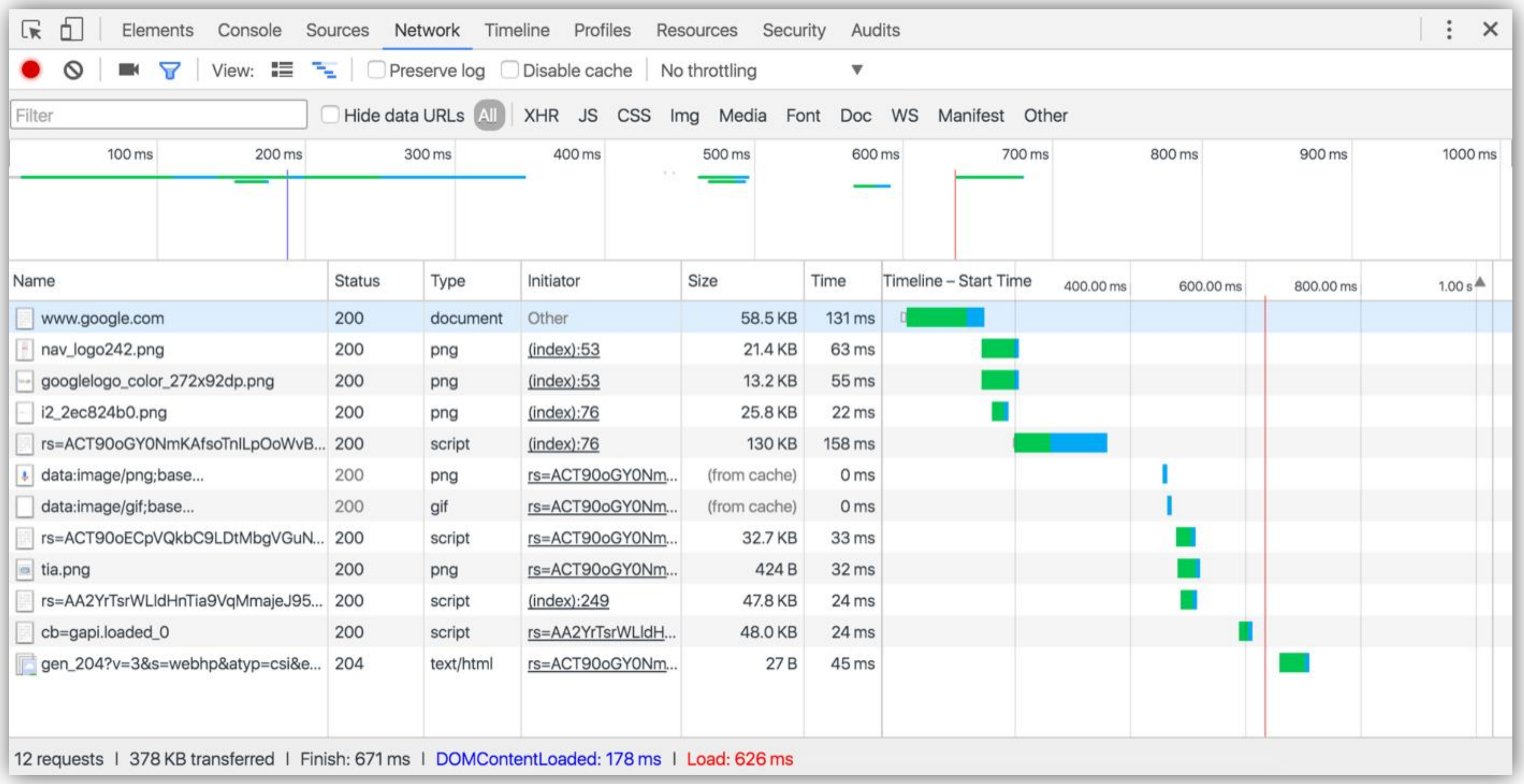
Thing 3: Benchmark Performance

What are your

Load-times ?

- Chrome DevTools
- BrowserPerf
- PerfJankie

- Part of your test suite



Name	Status	Type	Initiator	Size	Time	Timeline – Start Time
www.google.com	200	document	Other	58.5 KB	131 ms	
nav_logo242.png	200	png	(index):53	21.4 KB	63 ms	
googlelogo_color_272x92dp.png	200	png	(index):53	13.2 KB	55 ms	
i2_2ec824b0.png	200	png	(index):76	25.8 KB	22 ms	
rs=ACT90oGYONmKAfsoTnILpOoWvB...	200	script	(index):76	130 KB	158 ms	
data:image/png;base...	200	png	rs=ACT90oGYONm...	(from cache)	0 ms	
data:image/gif;base...	200	gif	rs=ACT90oGYONm...	(from cache)	0 ms	
rs=ACT90oECpVQkbC9LDtMbgVGuN...	200	script	rs=ACT90oGYONm...	32.7 KB	33 ms	
tia.png	200	png	rs=ACT90oGYONm...	424 B	32 ms	
rs=AA2YrTsrWLIdHnTia9VqMmajeJ95...	200	script	(index):249	47.8 KB	24 ms	
cb=gapi.loaded_0	200	script	rs=AA2YrTsrWLIdH...	48.0 KB	24 ms	
gen_204?v=3&s=webhp&atyp=csi&e...	204	text/html	rs=ACT90oGYONm...	27 B	45 ms	

12 requests | 378 KB transferred | Finish: 671 ms | DOMContentLoaded: 178 ms | Load: 626 ms

New!

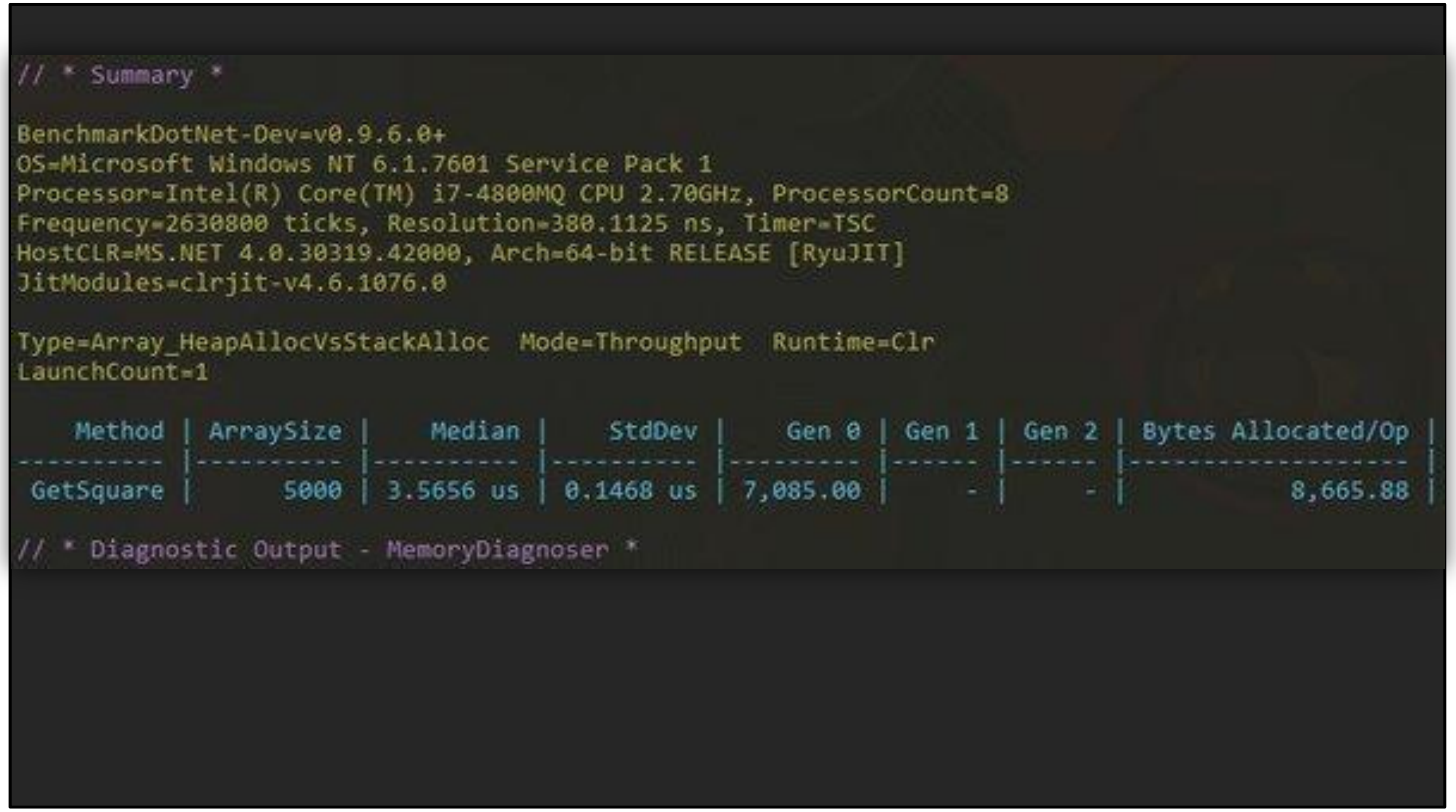
Thing 3: Benchmark Performance

What are your

run-times?

- BenchmarkDotNet

Part of your unit tests



```
// * Summary *

BenchmarkDotNet-Dev=v0.9.6.0+
OS=Microsoft Windows NT 6.1.7601 Service Pack 1
Processor=Intel(R) Core(TM) i7-4800MQ CPU 2.70GHz, ProcessorCount=8
Frequency=2630800 ticks, Resolution=380.1125 ns, Timer=TSC
HostCLR=MS.NET 4.0.30319.42000, Arch=64-bit RELEASE [RyuJIT]
JitModules=clrjit-v4.6.1076.0

Type=Array_HeapAllocVsStackAlloc  Mode=Throughput  Runtime=Clr
LaunchCount=1

    Method | ArraySize |     Median |     StdDev |    Gen 0 | Gen 1 | Gen 2 | Bytes Allocated/Op |
---------- |---------- |----------- |----------- |--------- |------ |------ |------------------- |
 GetSquare |      5000 | 3.5656 us | 0.1468 us | 7,085.00 |     - |     - |           8,665.88 |

// * Diagnostic Output - MemoryDiagnoser *
```

New!

Thing 3: Benchmark Performance

- Depends on instrumentation - usually

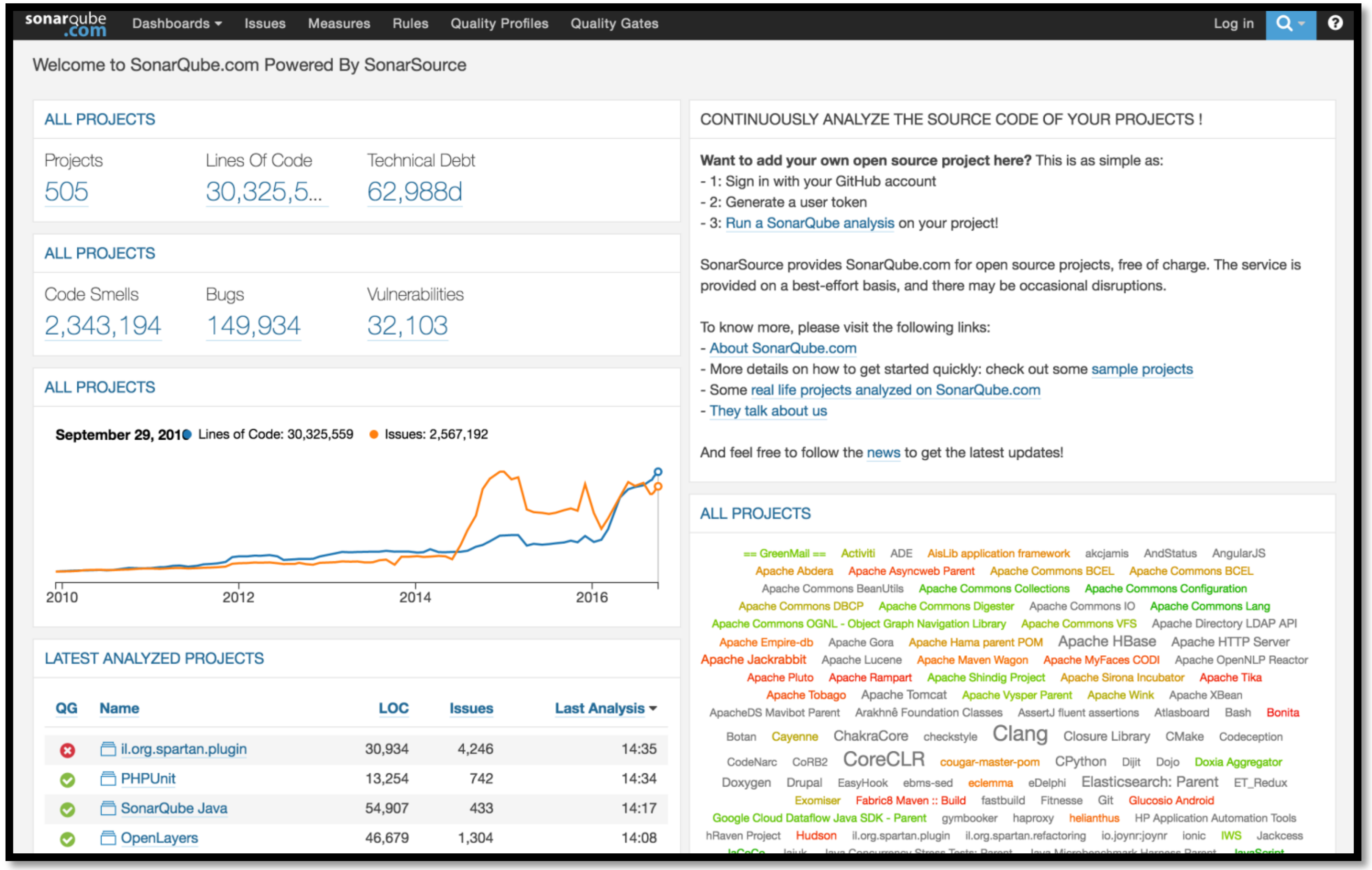
- Performance baseline
  - Against representative data sets
  - Compare ***before*** and ***after*** changes

- Tools: Benchmark.Net, Application Insights, SQL Profiler, PerfJankie

New!

Thing 4: Track your Technical Debt

- SonarLint / SonarQube
  - Analyses source code
  - Records Results
  - Tracks changes
- It's a code quality dashboard!



Welcome to SonarQube.com Powered By SonarSource

ALL PROJECTS

Projects	Lines Of Code	Technical Debt
505	30,325,5...	62,988d

ALL PROJECTS

Code Smells	Bugs	Vulnerabilities
2,343,194	149,934	32,103

ALL PROJECTS

September 29, 2016 ● Lines of Code: 30,325,559 ● Issues: 2,567,192

LATEST ANALYZED PROJECTS

QG	Name	LOC	Issues	Last Analysis
✗	il.org.spartan.plugin	30,934	4,246	14:35
✓	PHPUnit	13,254	742	14:34
✓	SonarQube Java	54,907	433	14:17
✓	OpenLayers	46,679	1,304	14:08

CONTINUOUSLY ANALYZE THE SOURCE CODE OF YOUR PROJECTS !

Want to add your own open source project here? This is as simple as:
- 1: Sign in with your GitHub account
- 2: Generate a user token
- 3: Run a SonarQube analysis on your project!

SonarSource provides SonarQube.com for open source projects, free of charge. The service is provided on a best-effort basis, and there may be occasional disruptions.

To know more, please visit the following links:
- About SonarQube.com
- More details on how to get started quickly: check out some sample projects
- Some real life projects analyzed on SonarQube.com
- They talk about us

And feel free to follow the news to get the latest updates!

ALL PROJECTS

== GreenMail == Activiti ADE AisLib application framework akcjamis AndStatus AngularJS Apache Abdera Apache Asyncweb Parent Apache Commons BCEL Apache Commons BCEL Apache Commons BeanUtils Apache Commons Collections Apache Commons Configuration Apache Commons DBCP Apache Commons Digester Apache Commons IO Apache Commons Lang Apache Commons OGNL - Object Graph Navigation Library Apache Commons VFS Apache Directory LDAP API Apache Empire-db Apache Gora Apache Hama parent POM Apache HBase Apache HTTP Server Apache Jackrabbit Apache Lucene Apache Maven Wagon Apache MyFaces CODI Apache OpenNLP Reactor Apache Pluto Apache Rampart Apache Shindig Project Apache Sirona Incubator Apache Tika Apache Tobago Apache Tomcat Apache Vysper Parent Apache Wink Apache XBean ApacheDS Mavibot Parent Arakhnê Foundation Classes AssertJ fluent assertions Atlasboard Bash Bonita Botan Cayenne ChakraCore checkstyle Clang Closure Library CMake Codeception CodeNarc CoRB2 CoreCLR cougar-master-pom CPython Dijit Dojo Doxia Aggregator Doxygen Drupal EasyHook ebms-sed eclemma eDelphi Elasticsearch: Parent ET_Redux Exomiser Fabric8 Maven :: Build fastbuild Fitnesse Git Glucosio Android Google Cloud Dataflow Java SDK - Parent gymbooker haproxy helianthus HP Application Automation Tools hRaven Project Hudson il.org.spartan.plugin il.org.spartan.refactoring io.joynr:joynr ionic IWS Jackcess

New!

Thing 5: Production Readiness

Are you Production Ready?

Is your software…

Don't forget all your lovely NFRs!

Tested
Usable
Reviewed
Logging Monitored
Instrumented
Manageable
Versioned
Deployable
Discoverable
Dashboards
Benchmarked

New!

Thing 6: …

Step ***away*** from the Shiny thing…

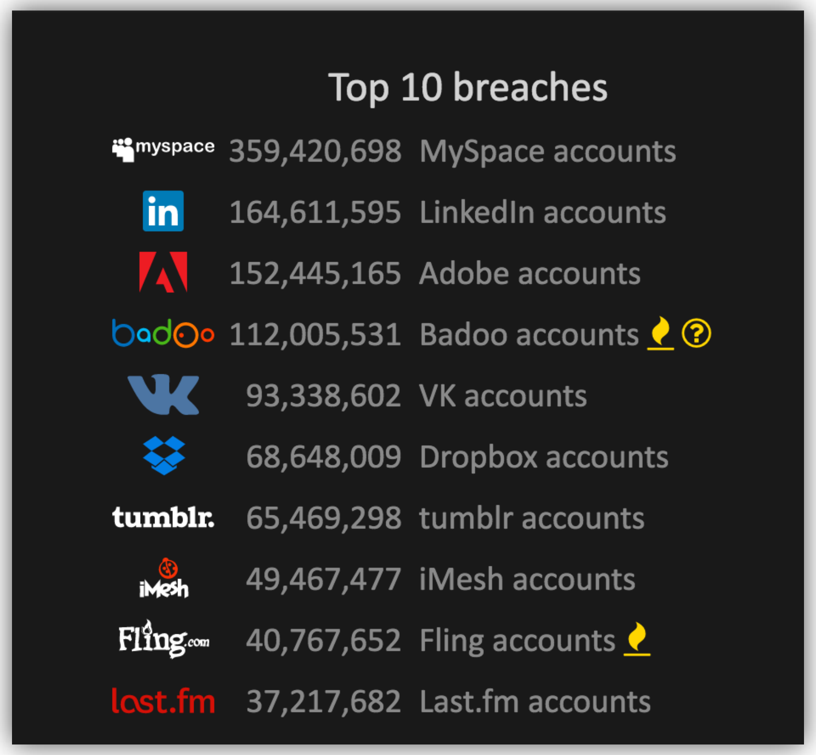
New!

Thing 6: Step ***away*** from the Shiny thing…

- Restrain the urge to use the newest shiny stuff
  - New tools mean new problems
- DO prototype or evaluate
- But also be PRAGMATIC

New!

Thing 7: Security, Security, Security



Top 10 breaches

myspace	359,420,698	MySpace accounts
in	164,611,595	LinkedIn accounts
	152,445,165	Adobe accounts
badoo	112,005,531	Badoo accounts
	93,338,602	VK accounts
	68,648,009	Dropbox accounts
tumblr.	65,469,298	tumblr accounts
iMesh	49,467,477	iMesh accounts
Fling.com	40,767,652	Fling accounts
last.fm	37,217,682	Last.fm accounts

New!

Thing 7: Security, Security, Security

- Build a security culture
- Be objective
  - What are the attack vectors?
  - Where's your data?
- **DON'T** write it yourself
  - Crypto
  - AuthN
- That one PEN test before deployment is NOT enough

Security is a

Level zero

feature

It's NEVER optional

New!

Thing 8: Clean Code Sessions

- Unconference Style
  - Not just a moan-session

- Everyone contributes

- Invite Guests

- Show’n’Tell ***<u>SOMETHING</u>*** each session

New!

Thing 9: It’s all about the money…

Do you know the

COST

of that feature?

New!

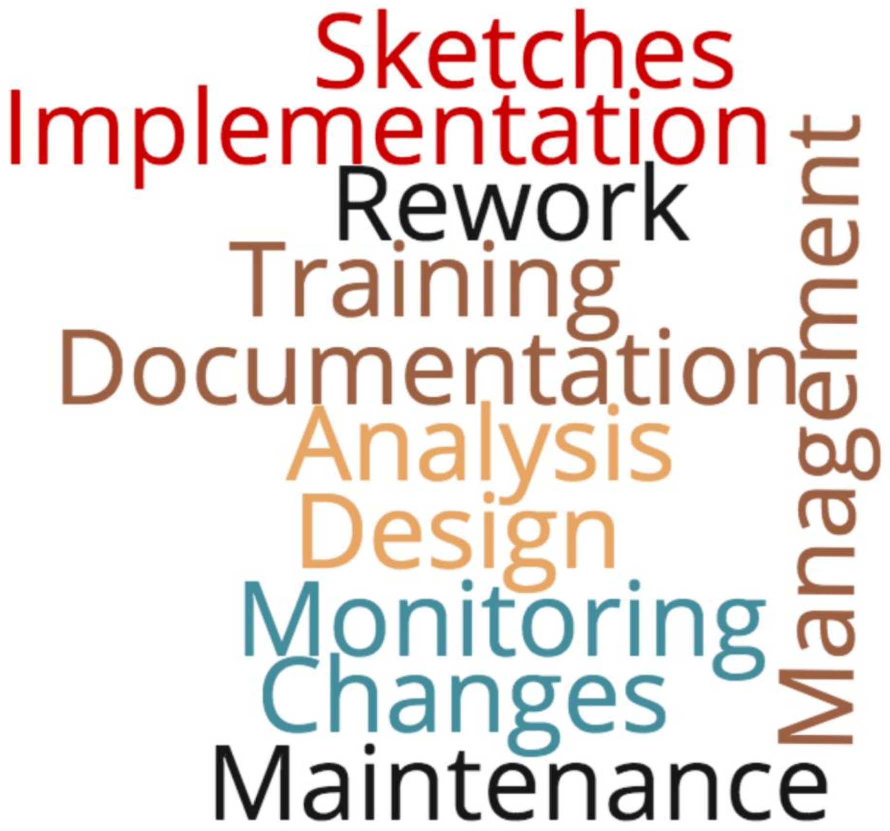
Thing 9: It’s all about the money…

Consider what things actually cost…

”Yes, but let me work out the cost…”

Scaling up / out costs a lot

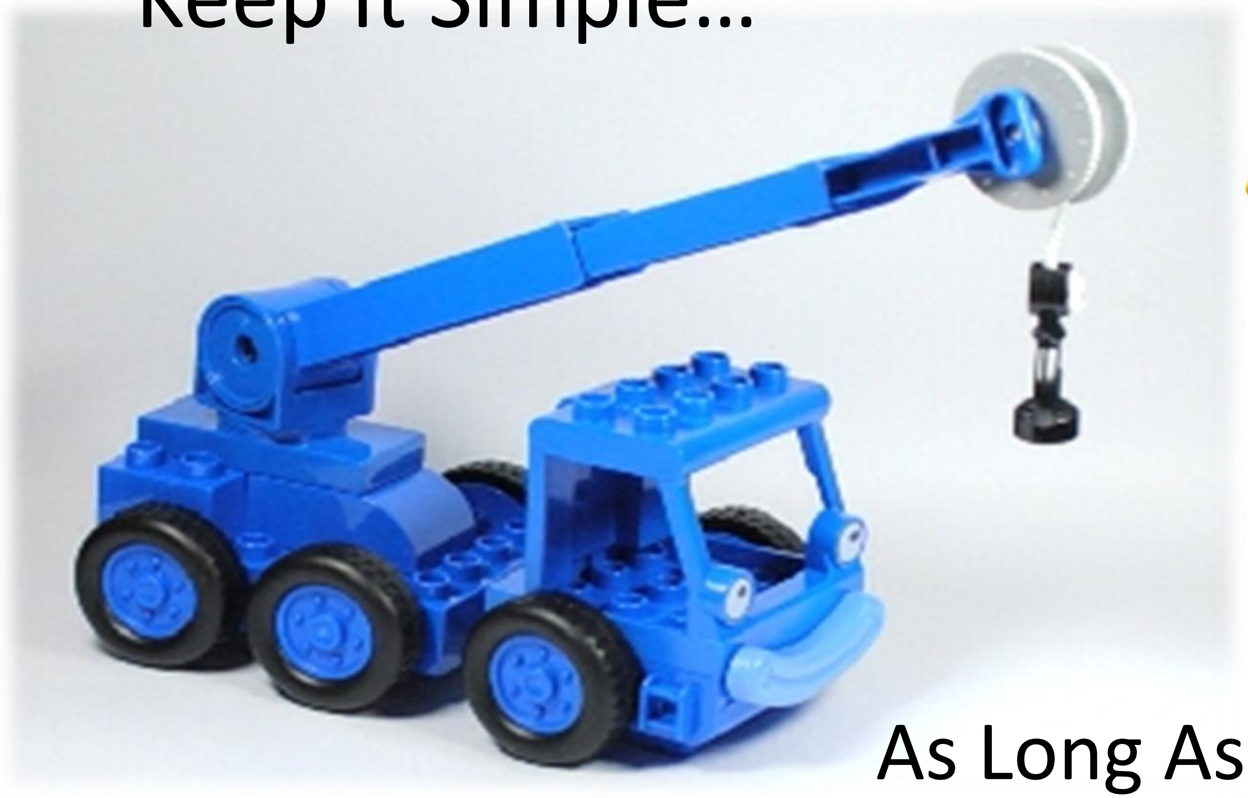
do you need to scale?



New!

Thing 10: K.I.S.A.L.A.P

Keep It Simple…



As Long As Possible.

New!

Thing 10: K.I.S.A.L.A.P

- Balance YAGNI vs Product Capability
- Cost of putting off complexity vs Technical Debt
- Reworking a prototype for Production Readiness > Rewriting from scratch?
- Don’t forget the end-game

In Summary

1 – Breakdown Requirements

2 – Instrument your Software

3 – Benchmark your Software

4 – Track your Technical Debt

5 – Ensure Production Ready

6 – Step ***away*** from the Shiny

7 – Security is never optional

8 – Have Clean Code sessions

9 – Translate work into money

10 – Keep It Simple…
As Long As Possible