

Jonathan Wakely – Smarter Than The Average Pointer

Seb Rose – Transformation Priority Premise

Aaron Ridout – Advocating References

Mike Long - Metricide

Anna-Jayne Metcalfe – Don't Let The Big Ball of Mud Sneak

Up on You

Roger Orr – Code Critiques

Pete Goodliffe – The C++ Cathedral & The Bizarre

Peter Sommerlad – C++'s “hello, world” Considered Harmful

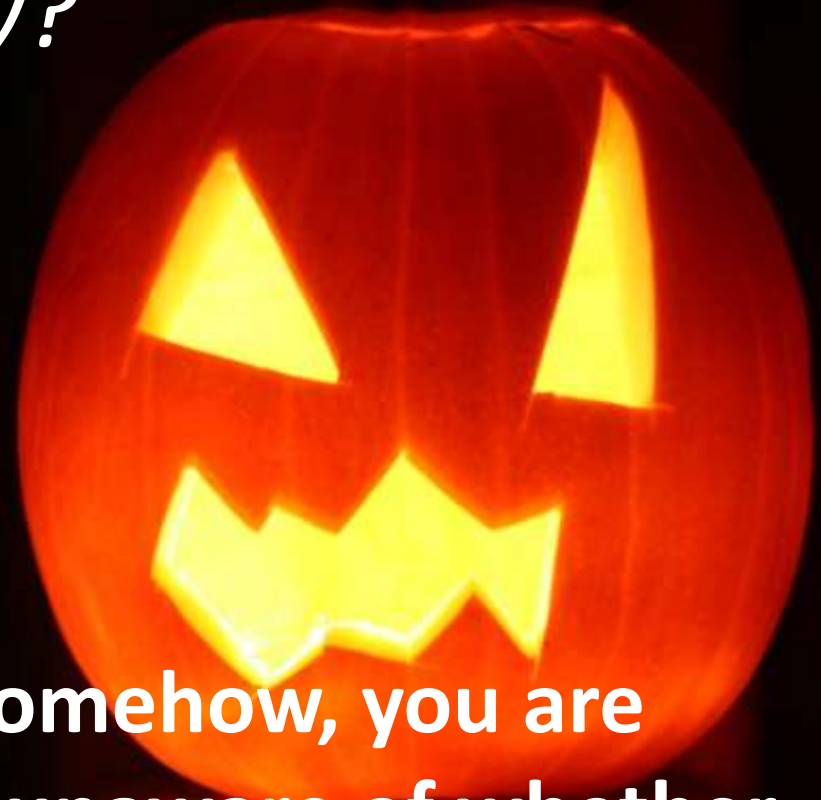
Don't let the Big Ball of Mud Sneak Up On You

Why don't we just rewrite the damn thing in C#?

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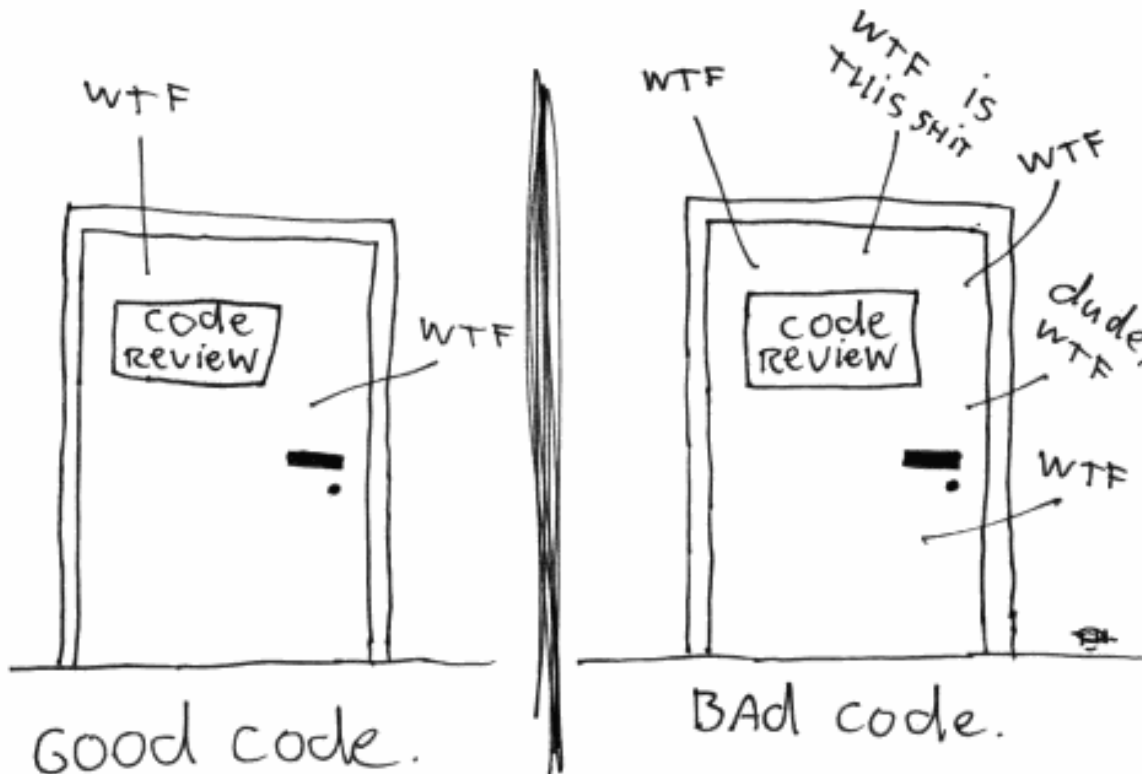
How much of a mess is **your** software, *really?*

- Do you know?
- If not, why not?
- **Unless you measure it somehow, you are likely to be blissfully (?) unaware of whether the code is getting better or worse over time, and (more importantly) *why***



Measuring Code Quality?

The ONLY VALID MEASUREMENT
OF CODE QUALITY: WTFs/MINUTE



(c) 2008 Focus Shift

Thom Holwerda
[http://www.osnews.com/
story/19266/WTFs_m](http://www.osnews.com/story/19266/WTFs_m)

Cyclomatic Complexity

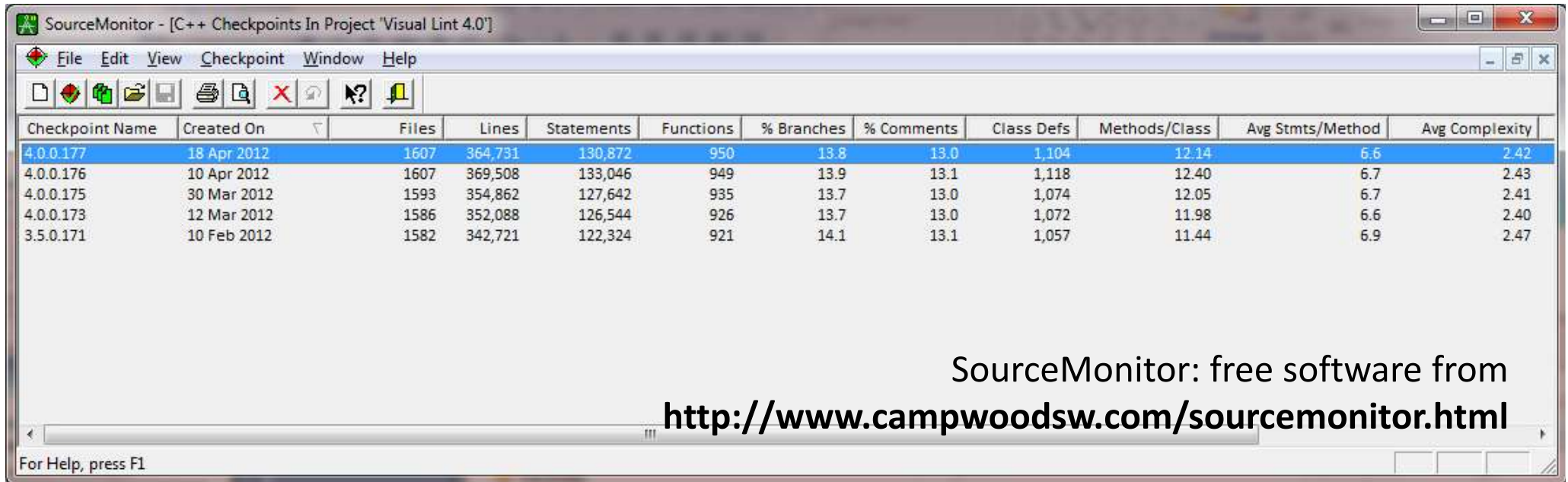
- How many paths are there through a function?
 - A function with no branches has a complexity of 1
 - A function with a single branch condition has a complexity of 2
 - etc.
- A value of **10** in any function tends to be considered a warning sign of overcomplex (=> probably untestable) code
- Keeping complexity low tends to lead to shorter, simpler functions



What does this tell us?

- Averaged across all functions, cyclomatic complexity gives you a quick & easy summary of how complex the codebase is
- If you **monitor it build by build**, you will have a very simple way to identify whether the code is getting more or less complex

A real example – Visual Lint



SourceMonitor - [C++ Checkpoints In Project 'Visual Lint 4.0']

File Edit View Checkpoint Window Help

Checkpoint Name	Created On	Files	Lines	Statements	Functions	% Branches	% Comments	Class Defs	Methods/Class	Avg Stmts/Method	Avg Complexity
4.0.0.177	18 Apr 2012	1607	364,731	130,872	950	13.8	13.0	1,104	12.14	6.6	2.42
4.0.0.176	10 Apr 2012	1607	369,508	133,046	949	13.9	13.1	1,118	12.40	6.7	2.43
4.0.0.175	30 Mar 2012	1593	354,862	127,642	935	13.7	13.0	1,074	12.05	6.7	2.41
4.0.0.173	12 Mar 2012	1586	352,088	126,544	926	13.7	13.0	1,072	11.98	6.6	2.40
3.5.0.171	10 Feb 2012	1582	342,721	122,324	921	14.1	13.1	1,057	11.44	6.9	2.47

SourceMonitor: free software from
<http://www.campwoodsw.com/sourcemonitor.html>

For Help, press F1

- **v1.0.0.40** (November 2005): **49048 LOC** with an average branch depth of **1.65** and an average cyclomatic complexity of **2.84**
- **v4.0.0.177** (April 2012): **364,731 LOC** with an average branch depth of **1.55** and an average cyclomatic complexity of **2.42**
- => *v4.0 is 7.4 times bigger, but less complex than v1.0*

That's It!

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