

# The Code is the Easy Part

Patrick Cauldwell

Software Architect

SoftSource Consulting

<http://www.cauldwell.net>



# Who am I?

## ■ I am

- ❖ A Software Architect at SoftSource Consulting
  - Currently working on a customer facing web application
- ❖ Adjunct instructor at the Oregon Institute of Technology
  - Currently teaching .NET application Development

## ■ I have

- ❖ Worked on a large variety of web projects for a diverse set of organizations over the last 15 years



# Building Business Software

- **Most of us build software for business**
- **Business software is**
  - ❖ About business, not technology
  - ❖ About customers, not technologists
  - ❖ Not rocket science
- **Business software is challenging because**
  - ❖ Requirements are hard to come by and change rapidly
  - ❖ Development teams are often geographically diverse
  - ❖ Development teams span different levels of ability
  - ❖ Schedules are usually very short



# Given that...

- **The solution comes down to**
  - ❖ Communication
  - ❖ Collaboration
  - ❖ Optimization



# Communication

- **Talk to your customer(s)**
- **Talk to your colleagues**
- **Talk to your testers**



# Communication

- **Communicate your intent to other developers through code**
  - ❖ Comments can be the least useful means of communicating intent!
  - ❖ Communicate your intent through
    - Design
    - Contract
    - Tests
    - Errors
    - Trace messages



# Communication

- **Communicate with your end users through error messages**
  - ❖ Make them actionable
    - Tell the end user what happened, why, and what to do about it



# Bad

System.IO.FileNotFoundException: Could not find the file specified.

File name: 'myConfig.xml'

at InnoTech.ErrorMessage.generateIOException() in C:\Documents and Settings\patrick.cauldwell\My Documents\InnoTech\ErrorMessage.cs:line 10

at InnoTech.ErrorMessage.BadMessage() in C:\Documents and Settings\patrick.cauldwell\My Documents\InnoTech\ErrorMessage.cs:line 11

OK





Good



The application was unable to find a required configuration file  
at c:\program files\MyApplication\config\myConfig.xml.  
Please make sure that the configuration file has not been moved or renamed, and restore  
a copy if required.

OK



# Communication

- **Communicate (and record) meaningful information through**
  - ❖ Defect/issue tracking system
    - Record what you did to fix defects
  - ❖ Source Code Control
    - Record task/activity boundaries



# Collaboration

- **Developers have to be able to work well together**
  - ❖ Everyone must understand the development process
  - ❖ Everyone must understand how to use your tools
  - ❖ Everyone must have a common understanding of design
- **Design by contract**
  - ❖ Develop contracts very early
    - It's OK to change them
  - ❖ Contracts insulate you from implementation details
  - ❖ Contracts provide boundaries for people to work within



# Collaboration

- **Get feedback**

- ❖ If you are adding new classes/modules/assemblies, let the group know and get feedback

- **Come up with a centralized way of managing and reporting on tasks**

- ❖ Don't email excel spreadsheets around
- ❖ Do use a collaboration tool like Basecamp, Sharepoint, or a dedicated project tool like VersionOne



# Optimization

- **Developer productivity is your most precious commodity**
- **Anything that hampers developer productivity costs your project sponsor money**
- **Developer productivity suffers if**
  - ❖ There are merge conflicts
  - ❖ The build breaks
  - ❖ Developers use exclusive locks in SCC



# Optimization

- **Set up an integration branch in SCC**
- **Don't let developers check in isolated changes to the integration branch**
- **Use task branches, and merge from them into the integration branch**
  - ❖ Task branches provide valuable history, and isolate the integration branch
  - ❖ Use a standardized naming convention for task branches



# Optimization

- **Make your build and test process FAST**
- **Make as many unit tests as possible a part of every build**
- **Set up a Continuous Integration server**
- **Run every time someone checks in changes**
- **Add additional reports to your CI build**
  - ❖ FxCop
  - ❖ Simian
  - ❖ Ndepend



# Optimization

- **Broken builds are a huge problem**
  - ❖ Build breakers should be publicly shamed: they are costing the project sponsor money
- **Faster builds are less likely to be broken**
  - ❖ Developers will be willing to run them more frequently





# Optimization

- **Make sure that doing the right thing is easy**
- **Give rapid and consistent feedback about whether or not the right thing IS being done**

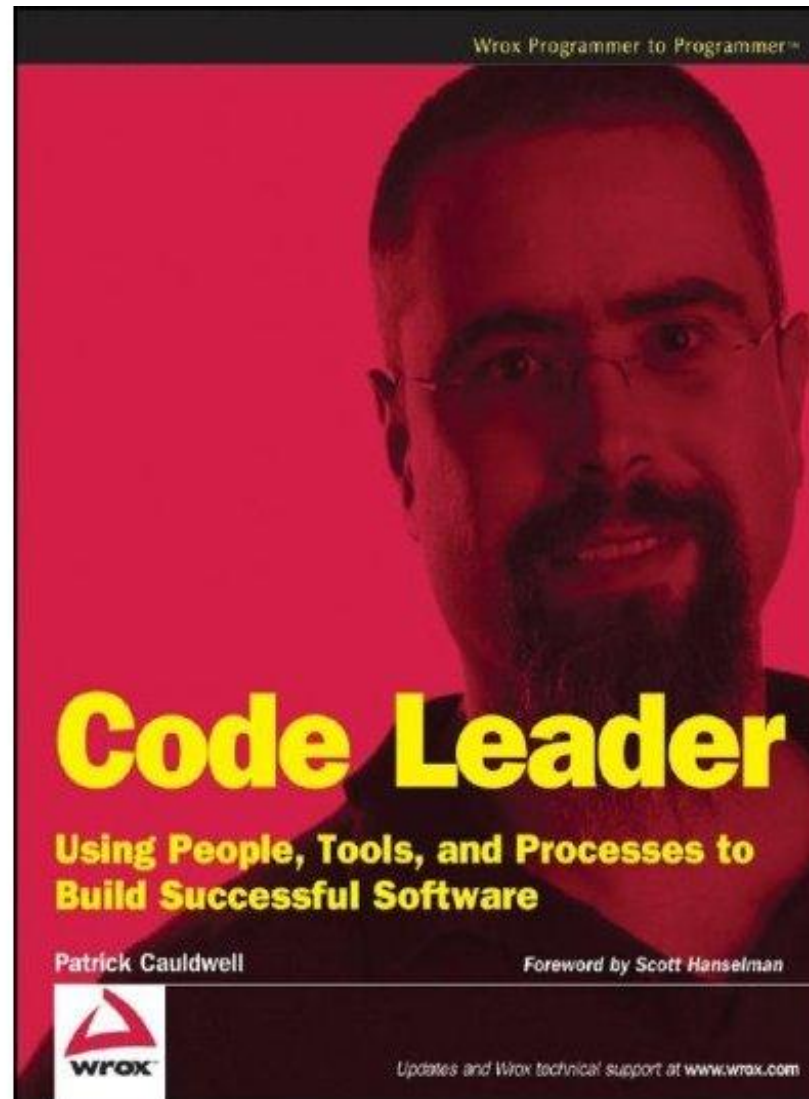


# Crass Commercial Announcements

- **I'm with SoftSource, we're here to help**



# Crass Commercial Announcements





# Contact Info

- [www.cauldwell.net](http://www.cauldwell.net)
- [www.sftsrc.com](http://www.sftsrc.com)