Welcome to…

Software Architect 2012

@SoftArchConf #SoftArchConf

www.software-architect.co.uk

Housekeeping

- Conference schedule
- Missing slides & code samples
- Evaluation forms & T-shirts
- Mobile phones

Cancelled sessions

- Jesus Rodriguez
  - Today at 14.00
    "NodeJS for the .NET developer"
  - Tomorrow at 09.30
    "I am a .NET developer but I have an iPhone and an Android"

Free drinks!

- 5.30pm tonight
- In the catering area
- Beer, wine, soft drinks & nibbles
- Meet the exhibitors and speakers

Thanks to our sponsors

Skills Matter	www.skillsmatter.com
PlanetRecruit	www.planetrecruit.com
developerFusion	www.developerFusion.com

Save the date!

www.devweek.com

4th - 8th March 2013
Barbican Centre
London

Software Architect 2012

And finally…

Thank you!

Software Architect 2012

And finally finally…

✗

✓

coding {the} architecture

The journey to becoming a

21st century architect

software

Simon Brown

Jersey, Channel Islands

simon.brown@codingthearchitecture.com

@simonbrown on Twitter

Writing

Training and consulting

coding (the) architecture

Software Architecture for Developers

A practical and pragmatic guide to software architecture

Technical leadership
Collaboration, consistency and preventing chaos

Communication
Effective sketches and lightweight documentation

Just enough
Structure, shared vision, risks and firm foundations

Simon Brown

Published incrementally

Variable pricing

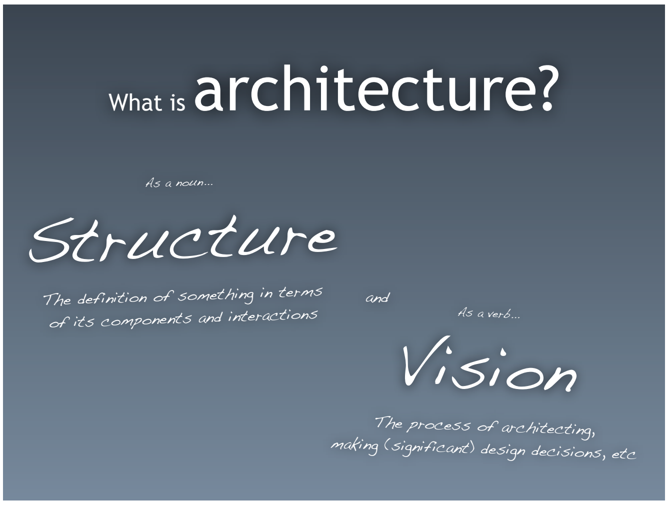
Buy now and get free updates

Leanpub

leanpub.com

Let’s start from the

beginning…



What is **architecture?**

As a noun…

Structure

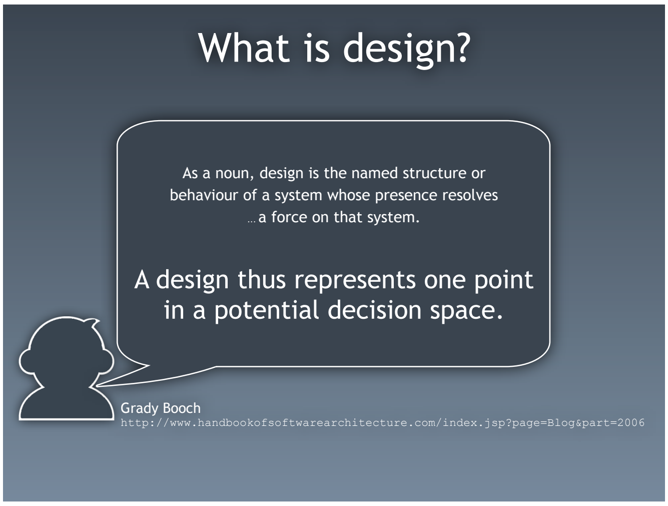
The definition of something in terms of its components and interactions

and

As a verb…

Vision

The process of architecting, making (significant) design decisions, etc

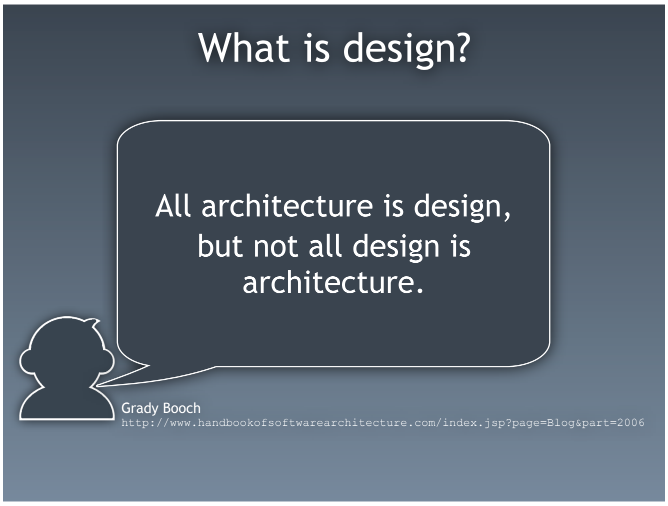


What is design?

As a noun, design is the named structure or behaviour of a system whose presence resolves …a force on that system.

A design thus represents one point in a potential decision space.

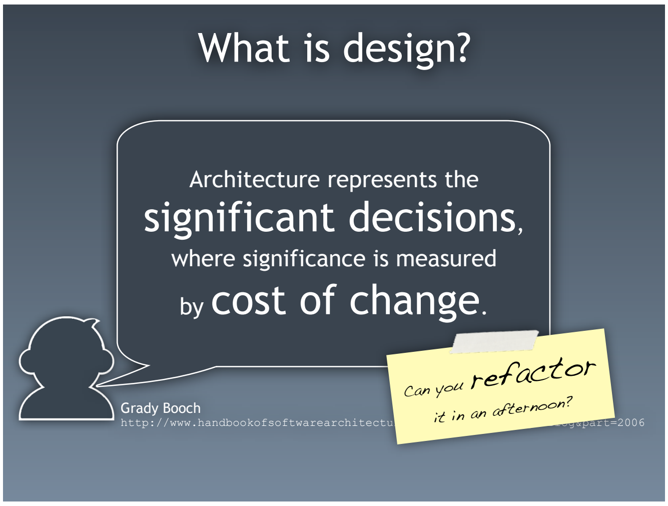
Grady Booch
http://www.handbookofsoftwarearchitecture.com/index.jsp?page=Blog&part=2006



What is design?

All architecture is design, but not all design is architecture.

Grady Booch
http://www.handbookofsoftwarearchitecture.com/index.jsp?page=Blog&part=2006



What is design?

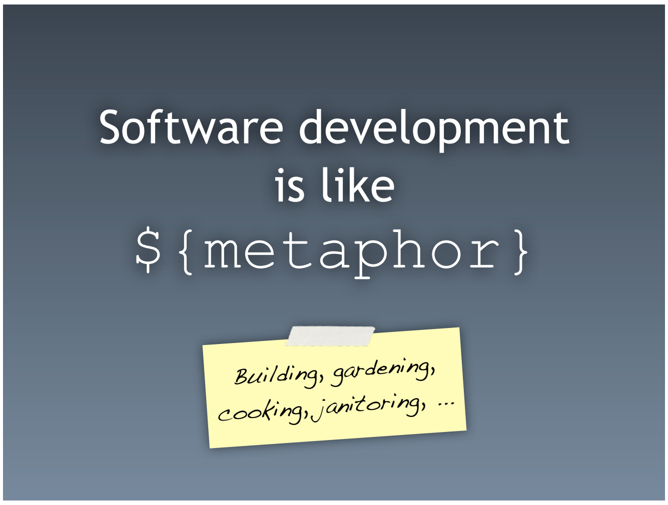
Architecture represents the **significant decisions,** where significance is measured by **cost of change.**

Can you refactor it in an afternoon?

Grady Booch
http://www.handbookofsoftwarearchitectu og&part=2006

The

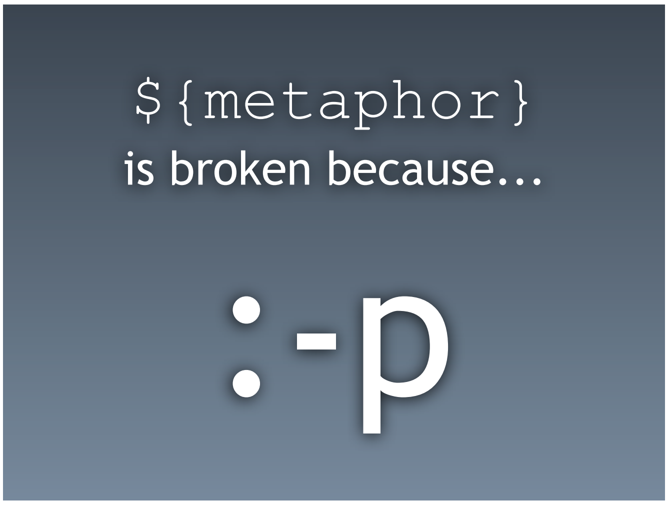
20th century software architect



Software development is like

${metaphor}

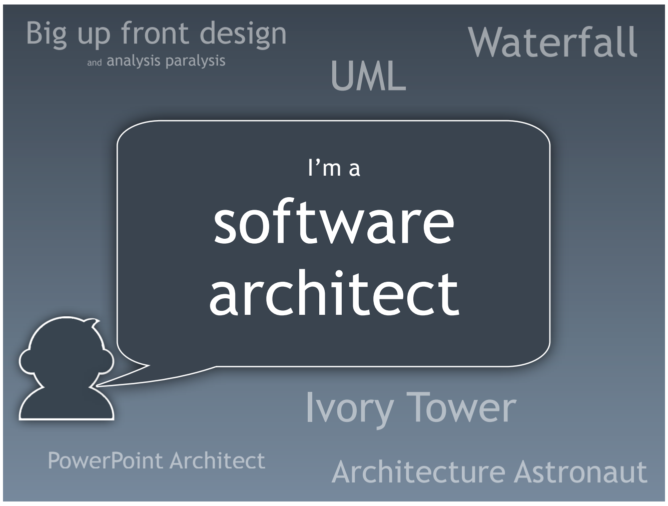
Building, gardening, cooking, janitoring, ...



${metaphor}

is broken because...

:-p



Big up front design

and analysis paralysis

UML

Waterfall

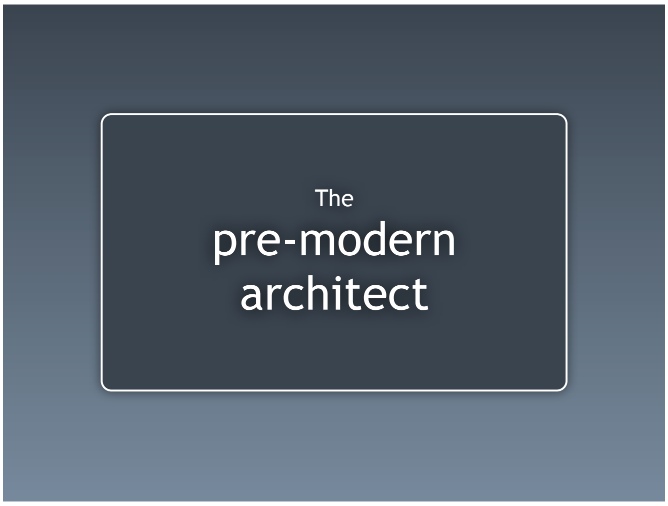
I'm a

software architect

Ivory Tower

PowerPoint Architect

Architecture Astronaut



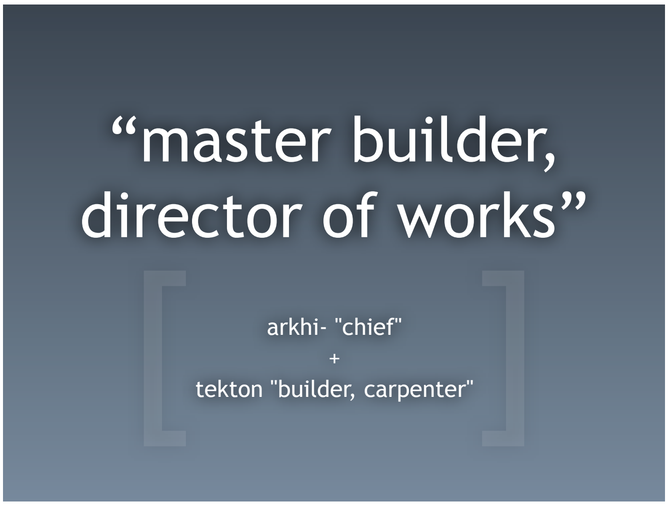
The

pre-modern architect

"architect"

Latin: architectus

Greek: arkhitekton



"master builder, director of works"

arkhi- "chief"

+

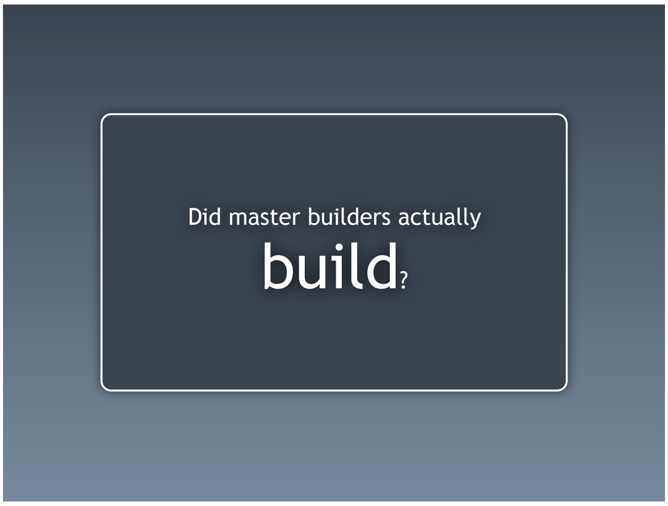
tekton "builder, carpenter"

Master builder = “master mason”

a stonemason

most major buildings were constructed of stone at the time

A master mason, is a **manipulator** of stone, an **artist** in stone and a **designer** in stone.



Did master builders actually

build?

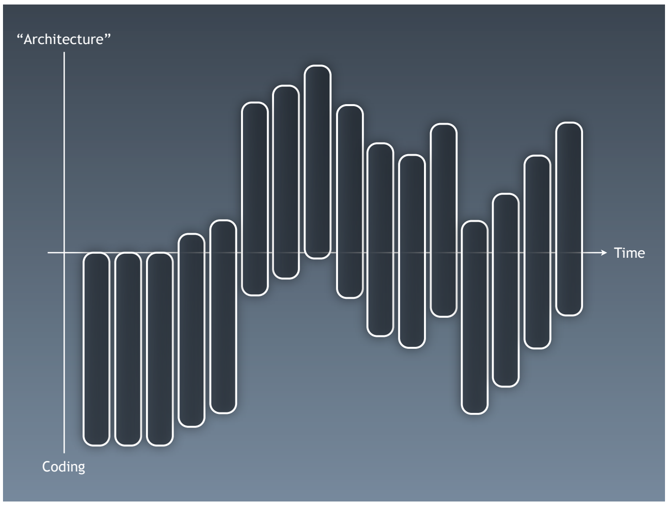
Although a master mason was a respected and usually wealthy individual, he first had to

prove his worth by going through the ranks as a stonemason

and then a supervisor, before being appointed to the highest position in his trade.

Throughout ancient and medieval history, most architectural design and construction was carried out by artisans, such as stone masons and carpenters,

rising to the role of master builder.

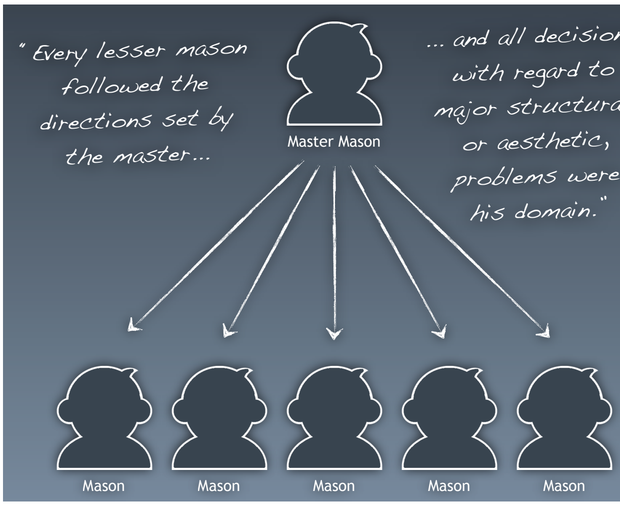


How much contact he actually had with this substance is, however, ***debatable.***

Ivory towers?

A mason who was at the top of his trade was a master mason. However, a Master Mason, by title, was the man who had overall charge of a building site and master masons would work under this person. A Master Mason also had charge over carpenters, glaziers etc. In fact,

everybody who worked on a building site was under the supervision of the Master Mason.



" Every lesser mason followed the directions set by the master… … and all decisions with regard to major structural, or aesthetic, problems were his domain."

The master mason, then, designed the structural, aesthetic and symbolic features of what was to be built; organised the logistics that supported the works; and, moreover, prioritised and decided the order of the work.

…

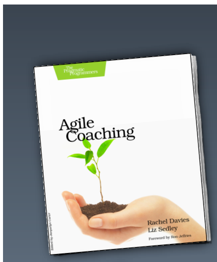
If, as seems likely, this multiplicity of tasks was normal it is

hardly surprising that master masons took little part in the physical work

(even had their status permitted it).

Testimony of this supposition is supplied by a sermon given in 1261 by Nicholas de Biard

railing against the apparent sloth of the master mason 'who ordains by word alone'.



Agile Coaching

Rachel Davies & Liz Sedley

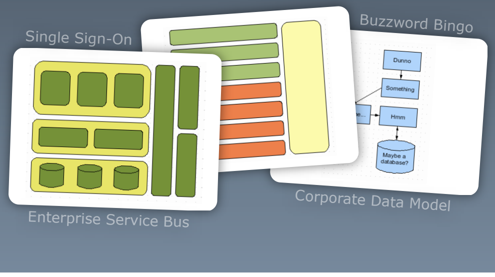
"If you know how to program, it's often tempting to make suggestions about how developers should write the code. Be careful, because you may be wasting your time—

developers are likely to ignore your coding experience if you're not programming on the project.

They may also think that you're overstepping your role and interfering in how they do their job, so give such advice sparingly."

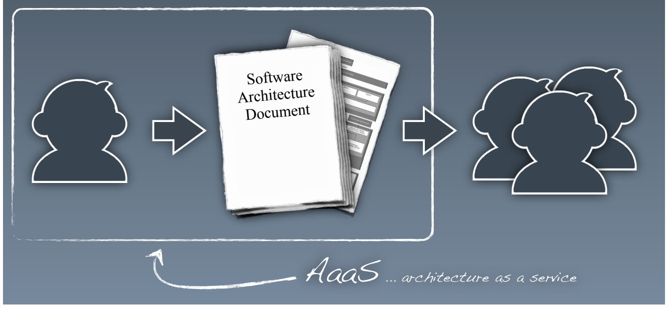
PowerPoint

Architecture



Software development is not a

relay sport



AaaS ... architecture as a service

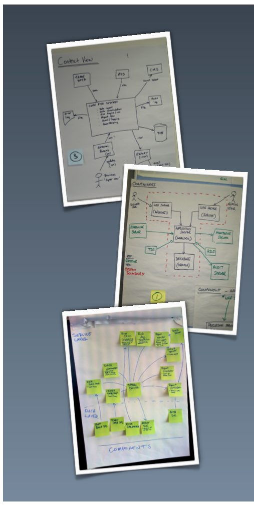
Successful software delivery

is **not** an

"implementation detail"

Should software architects

write code?



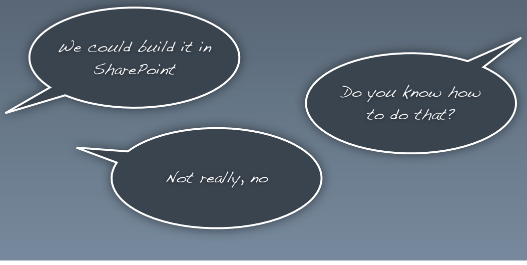
Would we

code

it that way?

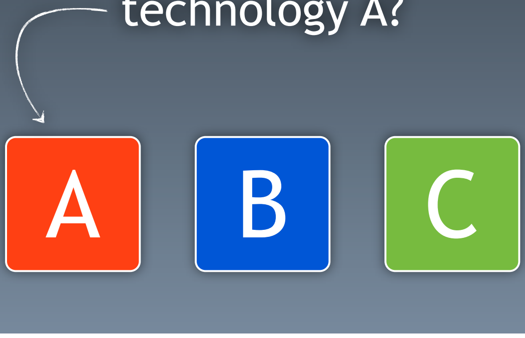
The people designing software must

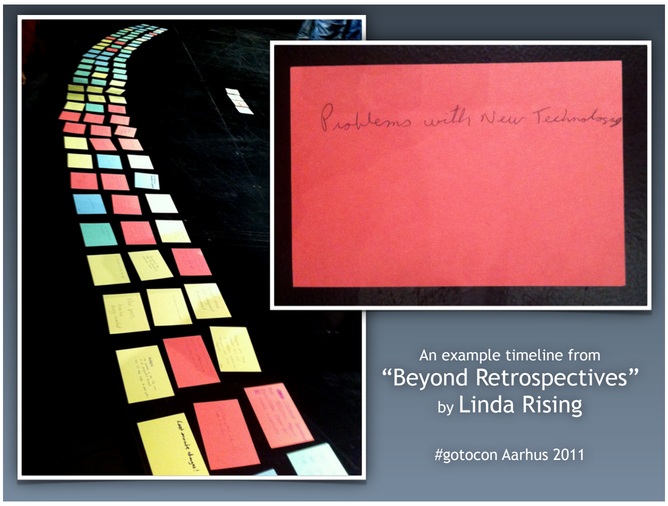
understand technology



All decisions involve a trade-off

Why did you choose technology A?





An example timeline from “Beyond Retrospectives” by Linda Rising

#gotocon Aarhus 2011

Would you hire me to design a

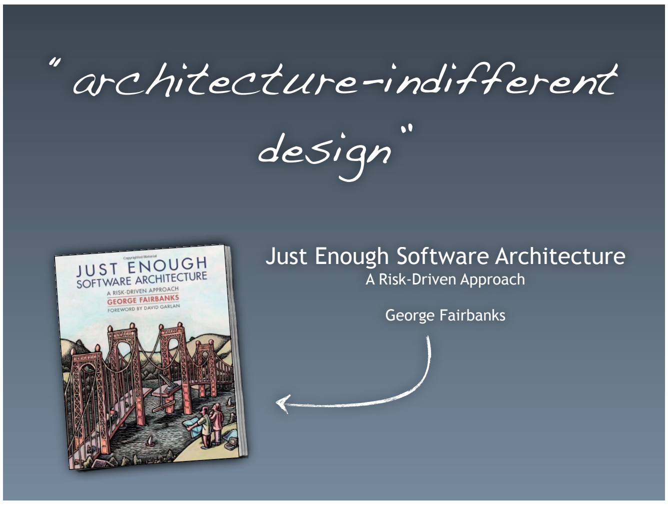
TypeScript app?

Would you hire me to design an

Erlang system?

Would you hire me to design a

Java system?



"architecture-indifferent design"

JUST ENOUGH
SOFTWARE ARCHITECTURE
A RISK-DRIVEN APPROACH
GEORGE FAIRBANKS
FOREWORD BY DAVID GARLAN

Just Enough Software Architecture

A Risk-Driven Approach

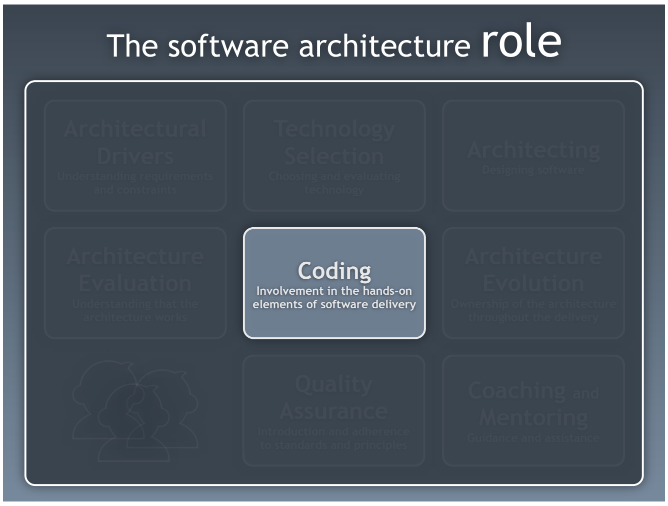
George Fairbanks

Should software architects write

code

on software projects?

Ideally yes, but...



The software architecture role

Architectural Drivers
Understanding requirements and constraints

Technology Selection
Choosing and evaluating technology

Architecting
Designing software

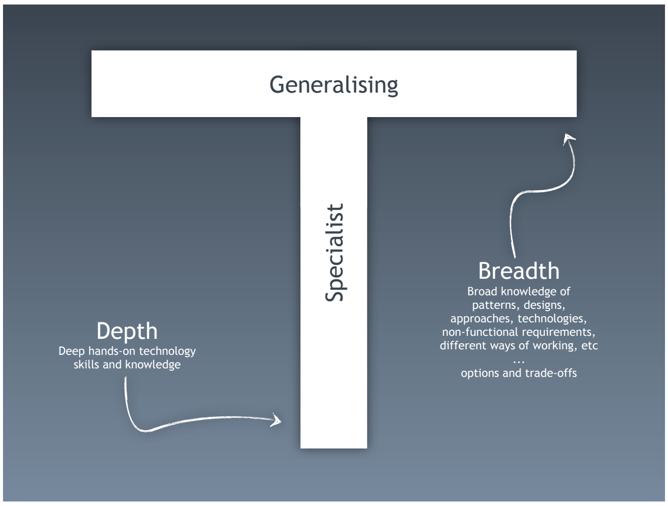
Architecture Evaluation
Understanding that the architecture works

Coding
Involvement in the hands-on elements of software delivery

Architecture Evolution
Ownership of the architecture throughout the delivery

Quality Assurance
Introduction and adherence to standards and principles

Coaching and Mentoring
Guidance and assistance



Generalising

Specialist

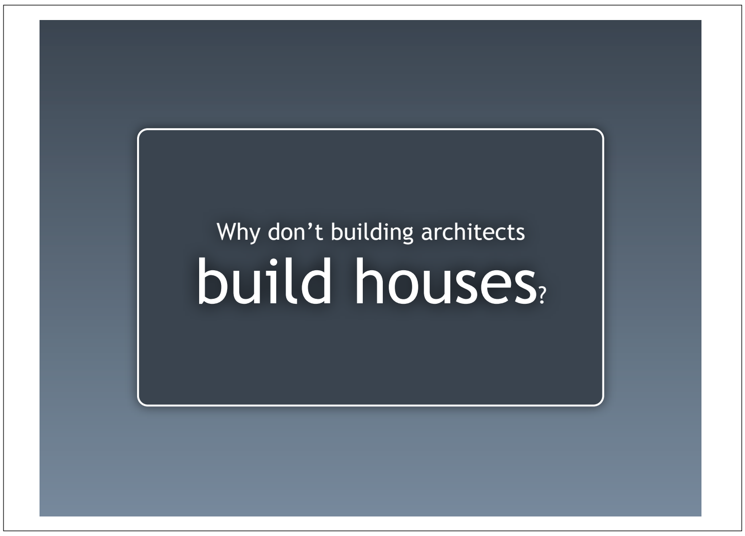
Depth
Deep hands-on technology skills and knowledge

Breadth
Broad knowledge of patterns, designs, approaches, technologies, non-functional requirements, different ways of working, etc
...
options and trade-offs

Software architects must be master builders

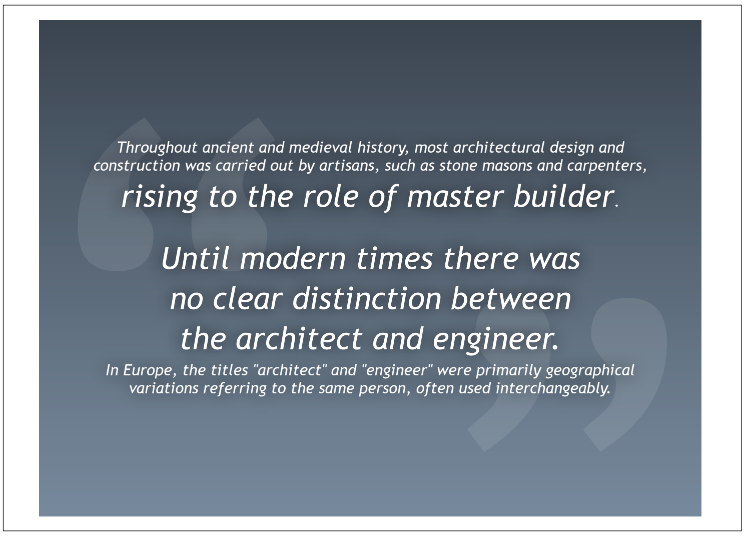
And coding is a great way to retain this skill

Plus it reduces many of the problems associated with ivory tower architecture



Why don't building architects

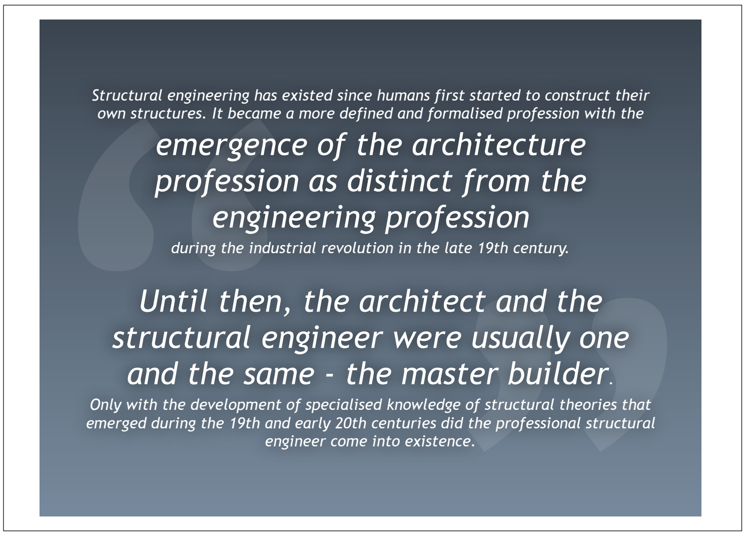
build houses?



Throughout ancient and medieval history, most architectural design and construction was carried out by artisans, such as stone masons and carpenters, rising to the role of master builder.

Until modern times there was no clear distinction between the architect and engineer.

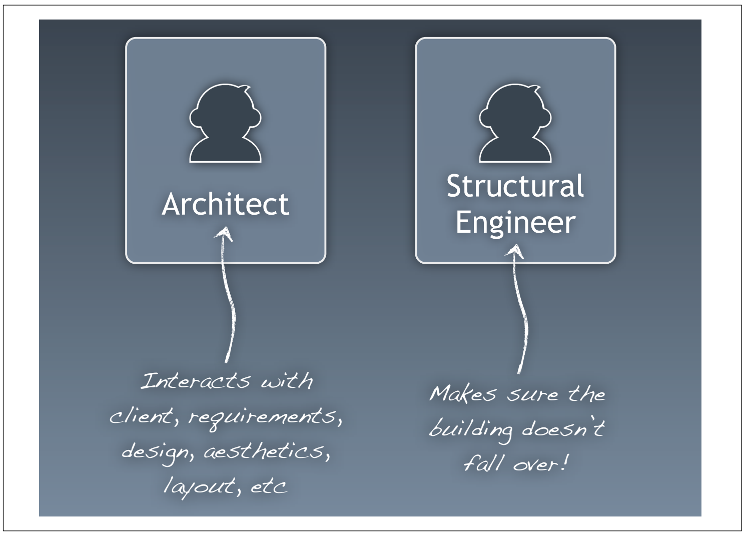
In Europe, the titles "architect" and "engineer" were primarily geographical variations referring to the same person, often used interchangeably.



Structural engineering has existed since humans first started to construct their own structures. It became a more defined and formalised profession with the emergence of the architecture profession as distinct from the engineering profession during the industrial revolution in the late 19th century.

Until then, the architect and the structural engineer were usually one and the same - the master builder.

Only with the development of specialised knowledge of structural theories that emerged during the 19th and early 20th centuries did the professional structural engineer come into existence.

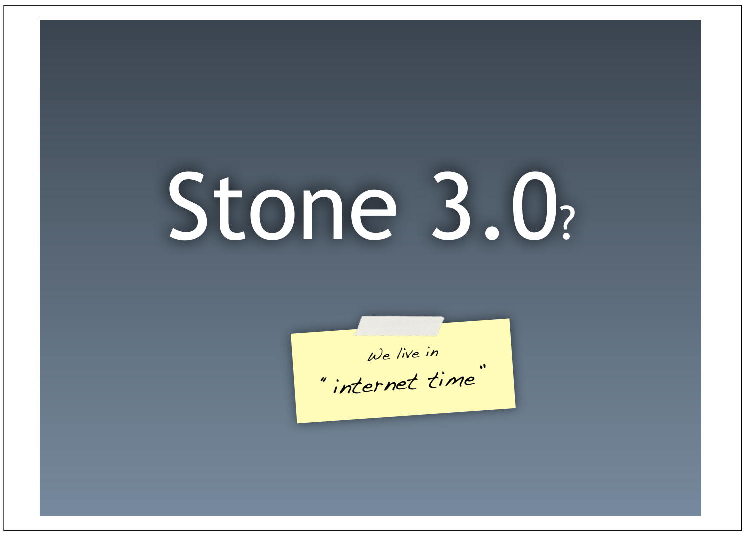


Architect

Structural Engineer

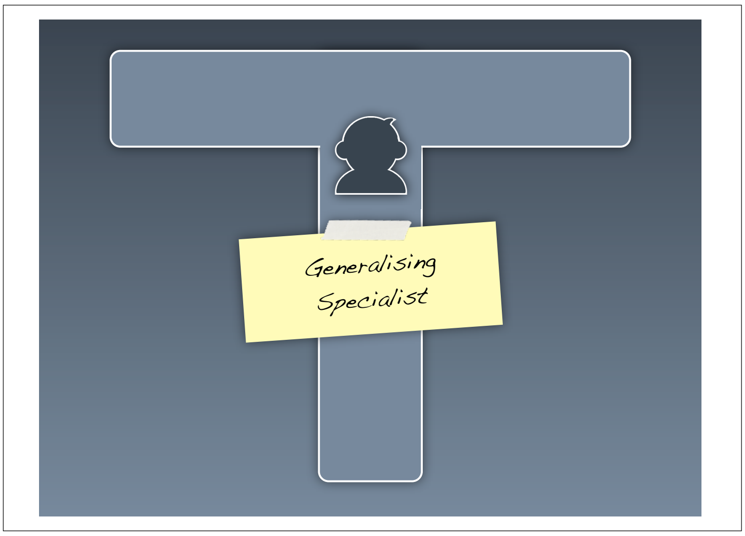
Interacts with client, requirements, design, aesthetics, layout, etc

Makes sure the building doesn't fall over!

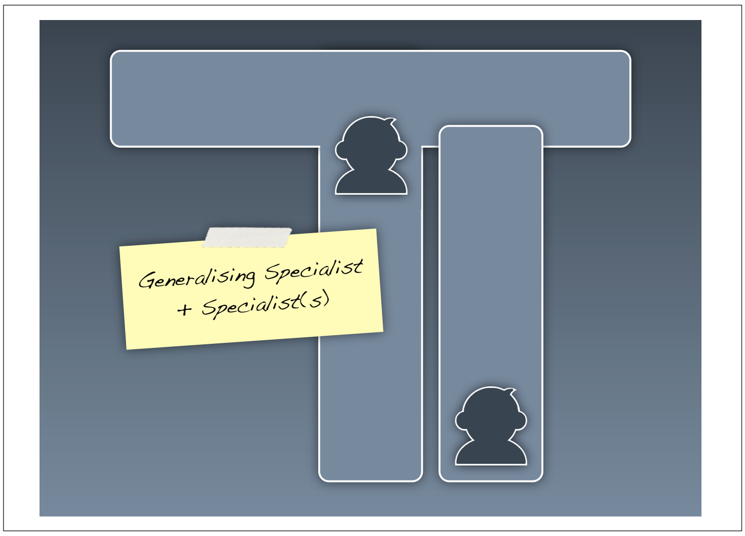


Stone 3.0?

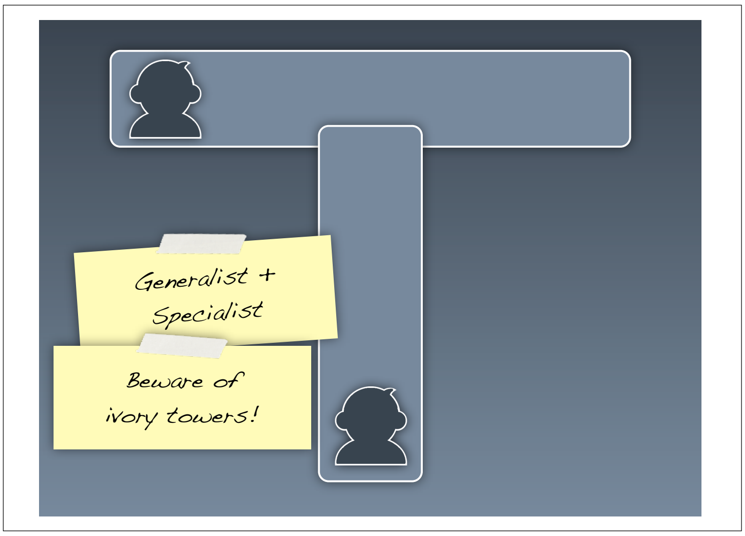
We live in "internet time"



Generalising Specialist

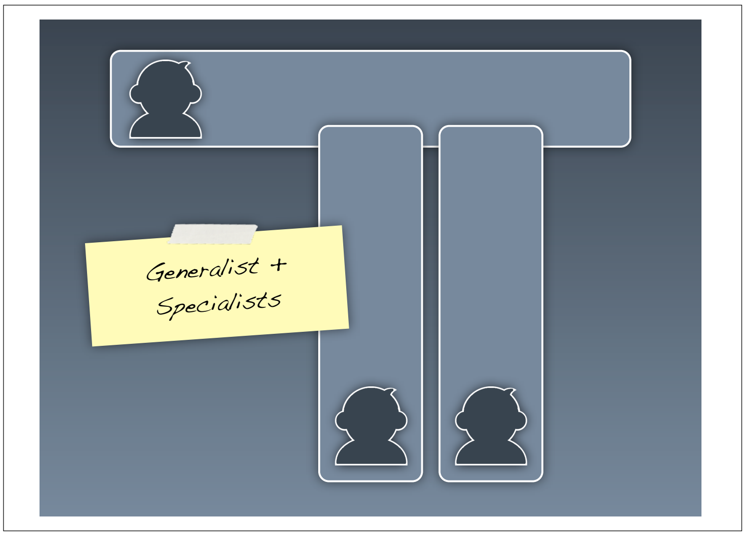


Generalising Specialist + Specialist(s)

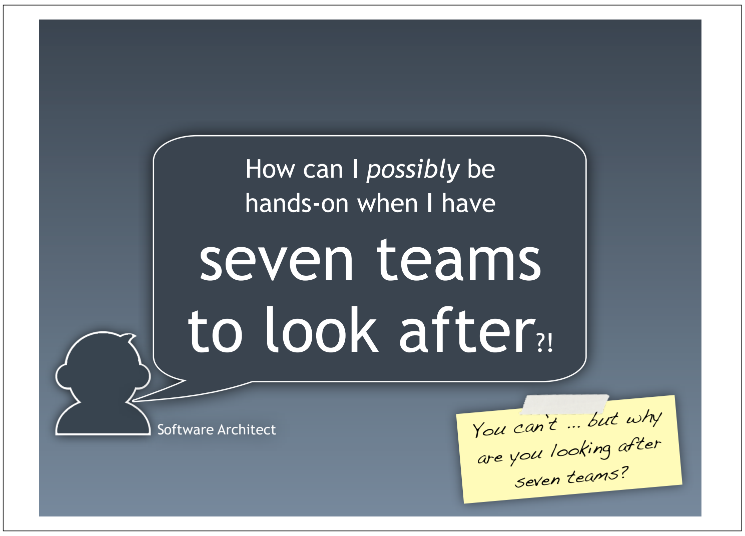


Generalist + Specialist

Beware of ivory towers!



Generalist + Specialists

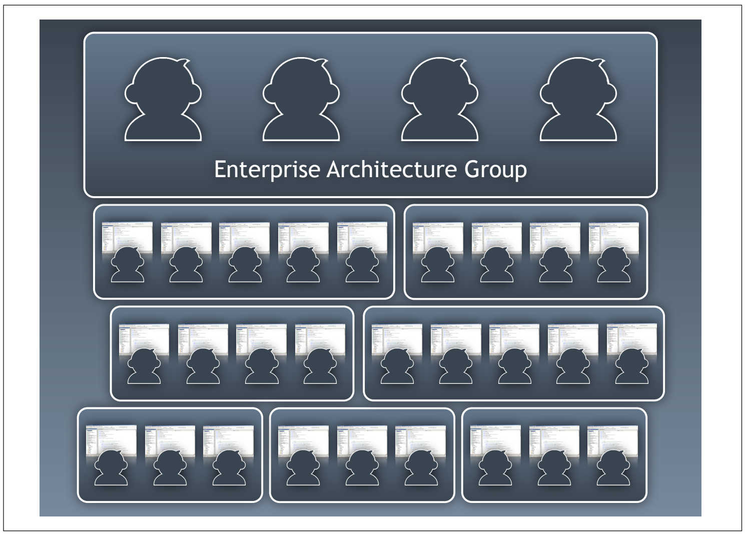


How can I *possibly* be hands-on when I have

seven teams to look after?!

Software Architect

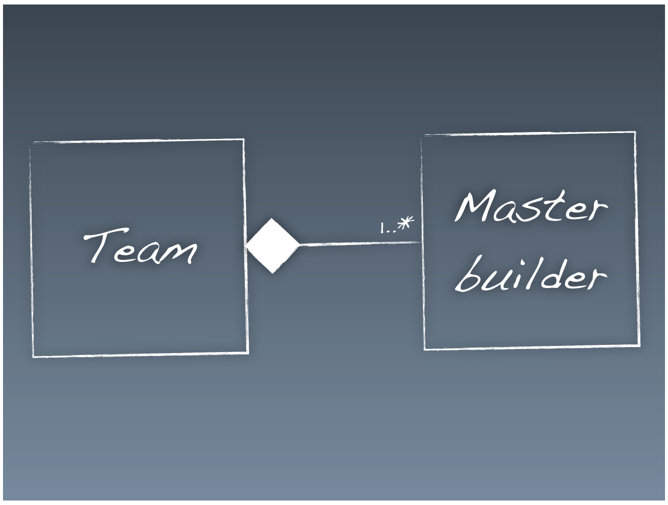
You can't ... but why are you looking after seven teams?



Enterprise Architecture Group

Although they may not have touched stone, master masons

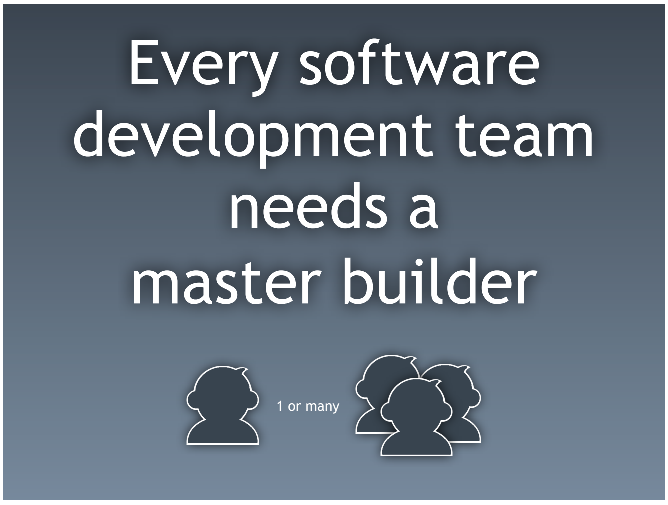
worked with the teams



Team

1..*

Master builder

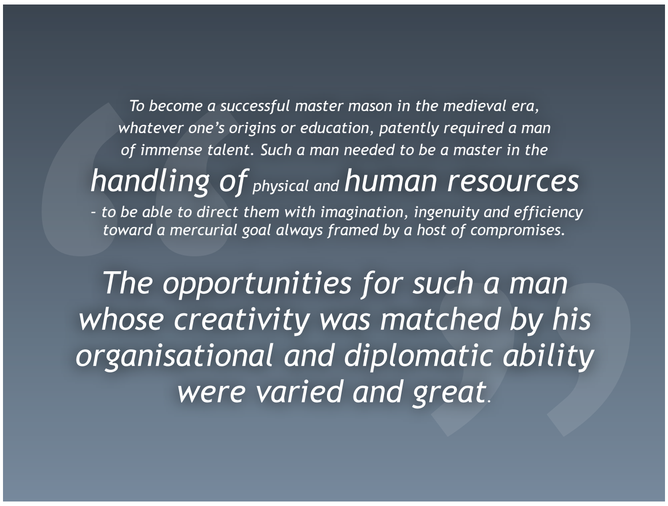


Every software development team needs a master builder

1 or many

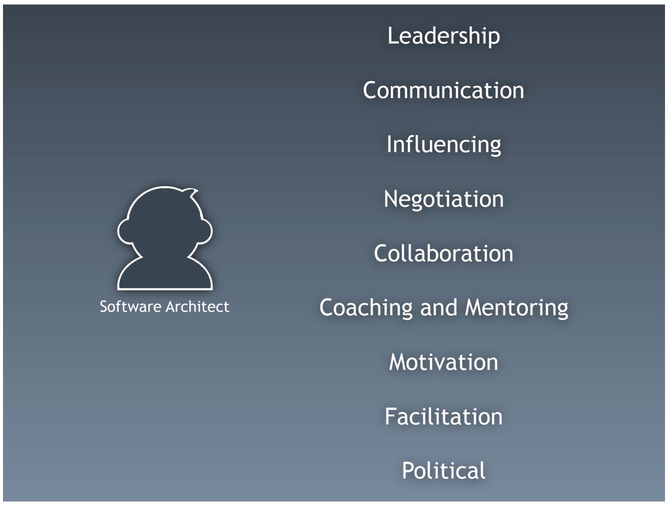
Software teams also need

leadership



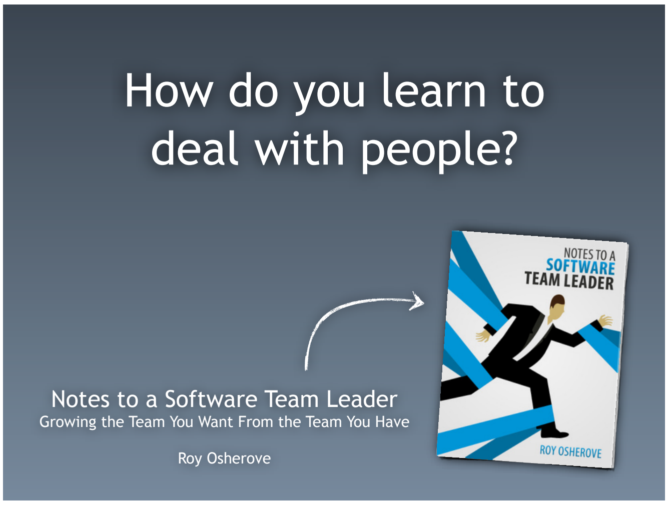
> *To become a successful master mason in the medieval era, whatever one's origins or education, patently required a man of immense talent. Such a man needed to be a master in the* ***handling of** physical and **human resources*** *- to be able to direct them with imagination, ingenuity and efficiency toward a mercurial goal always framed by a host of compromises.*
>
> ***The opportunities for such a man whose creativity was matched by his organisational and diplomatic ability were varied and great.***

Soft skills?



Software Architect

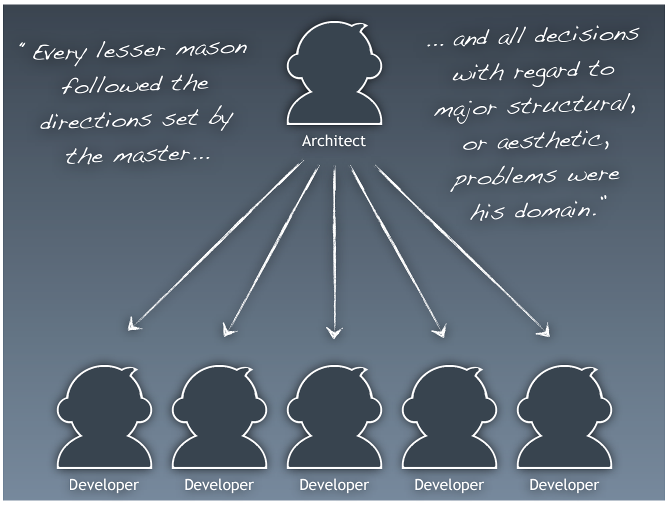
- Leadership
- Communication
- Influencing
- Negotiation
- Collaboration
- Coaching and Mentoring
- Motivation
- Facilitation
- Political



How do you learn to deal with people?

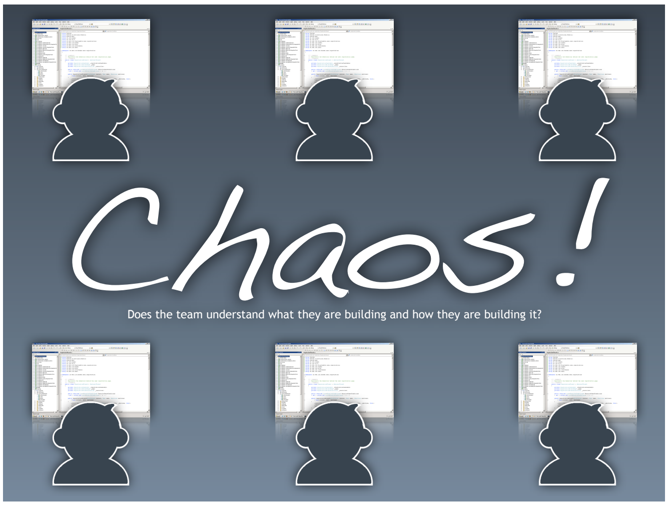
Notes to a Software Team Leader
Growing the Team You Want From the Team You Have

Roy Osherove



" Every lesser mason followed the directions set by the master...

... and all decisions with regard to major structural, or aesthetic, problems were his domain."



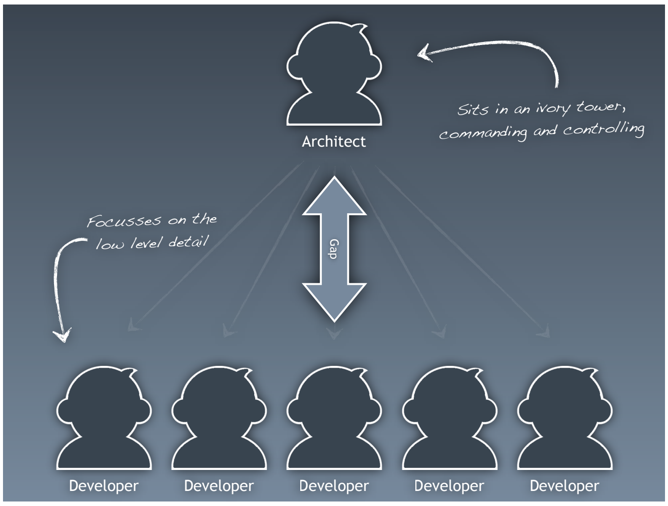
Chaos!

Does the team understand what they are building and how they are building it?

No defined structure,
inconsistent approaches,
big ball of mud,
spaghetti code, ...

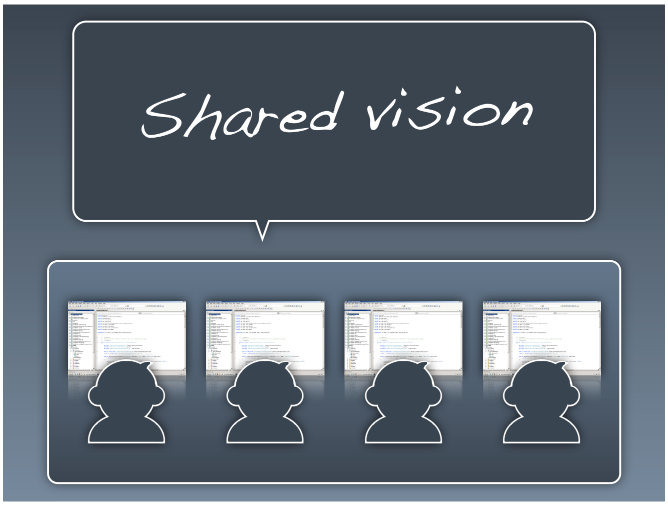
STOP

Slow, insecure, unstable, unmaintainable,
hard to deploy, hard to change,
over time, over budget, ...



Sits in an ivory tower, commanding and controlling

Focusses on the low level detail



Shared vision

What's **stopping**
teams doing this?

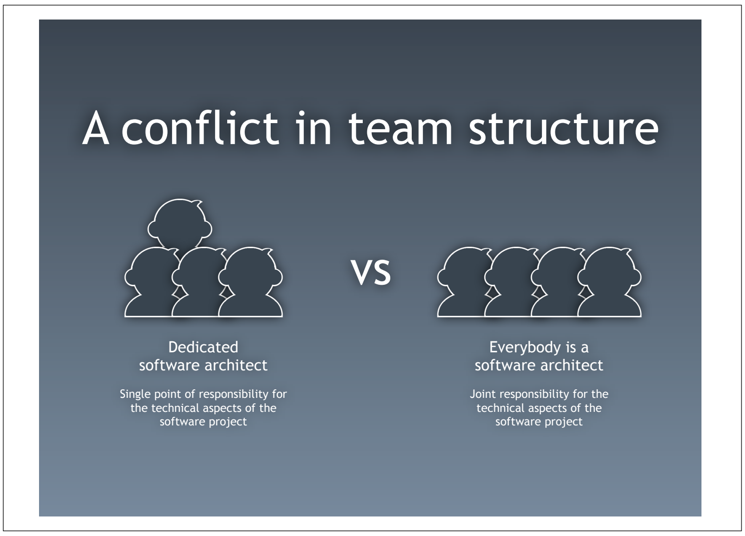
The conflict between agile and architecture

Myth or reality?

Myth

There is no conflict between agile and architecture

All software projects need structure and vision



A conflict in team structure

vs

Dedicated
software architect

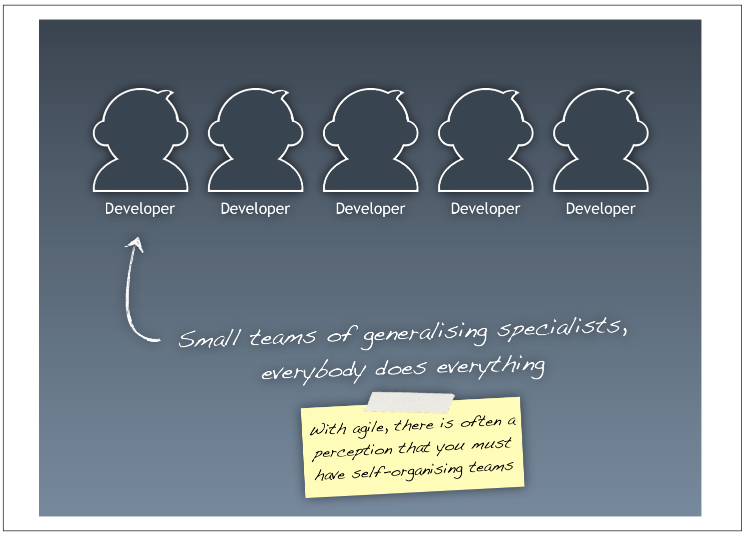
Single point of responsibility for the technical aspects of the software project

Everybody is a
software architect

Joint responsibility for the technical aspects of the software project

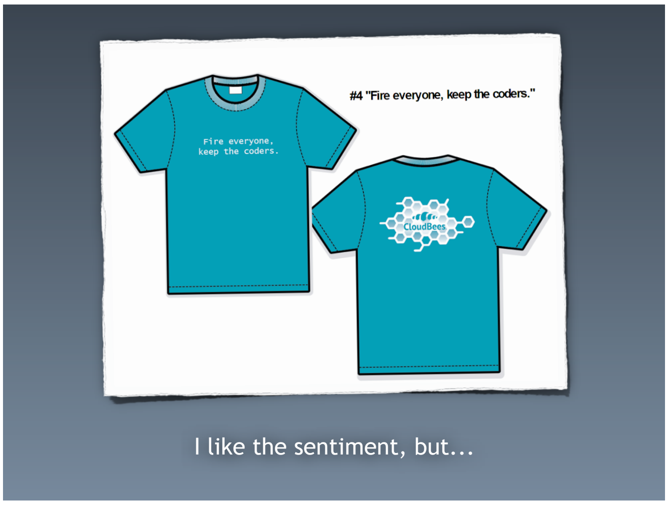
Architects?

We don't need no
stinkin' architects!

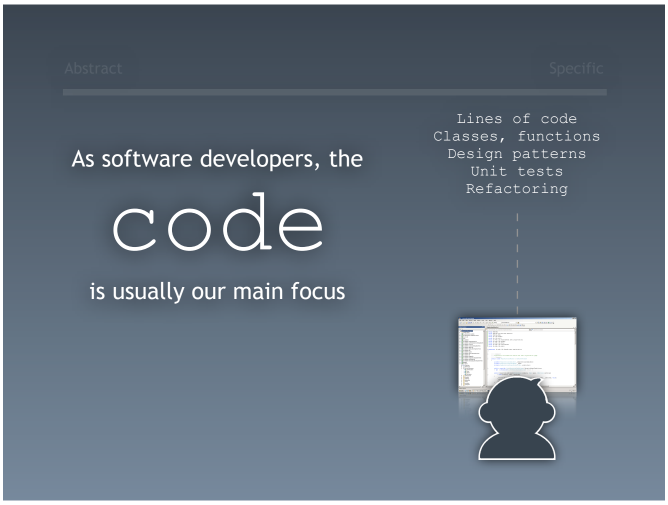


Small teams of generalising specialists, everybody does everything

With agile, there is often a perception that you must have self-organising teams


#4 "Fire everyone, keep the coders."
Fire everyone, keep the coders.
CloudBees

I like the sentiment, but...

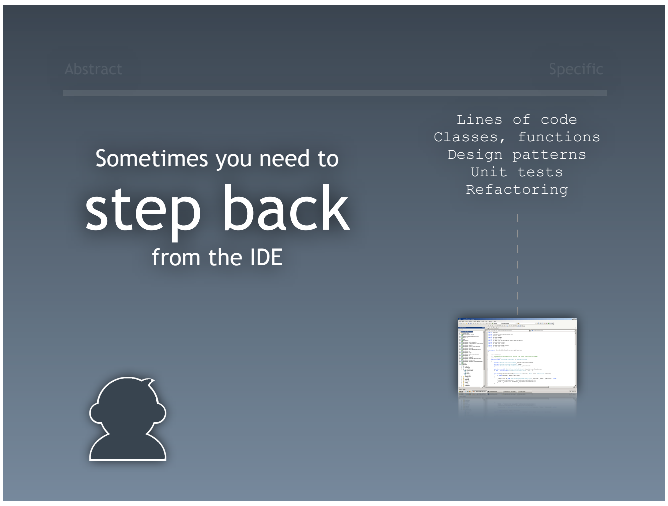


As software developers, the

code

is usually our main focus

```
Lines of code
Classes, functions
Design patterns
Unit tests
Refactoring
```

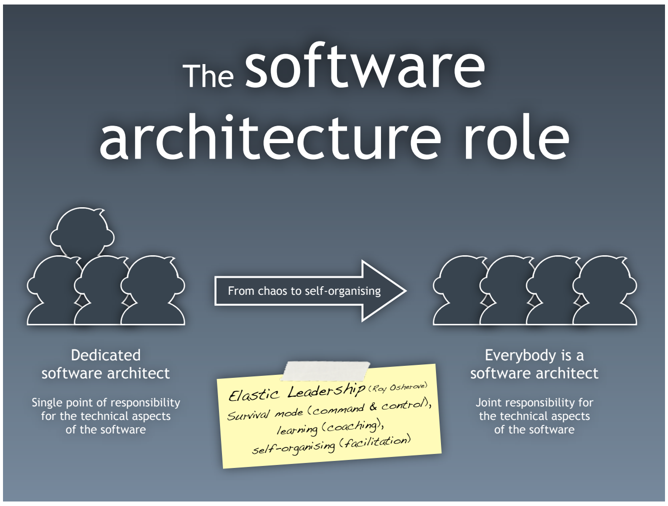


Sometimes you need to

step back

from the IDE

```
Lines of code
Classes, functions
Design patterns
Unit tests
Refactoring
```



The software architecture role

From chaos to self-organising

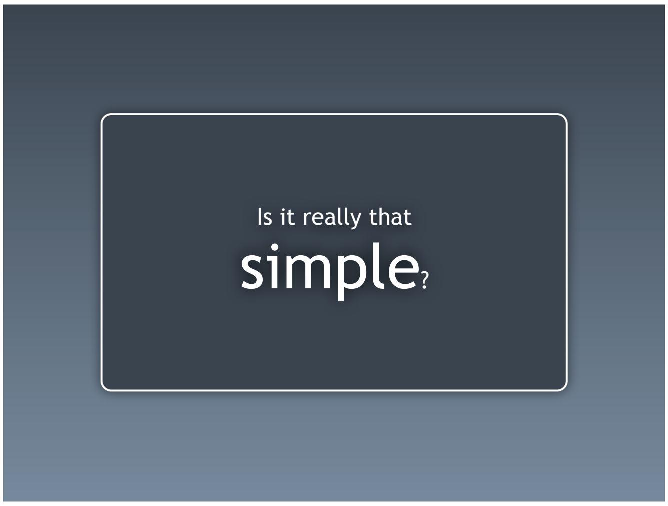
Dedicated
software architect

Single point of responsibility
for the technical aspects
of the software

Elastic Leadership (Roy Osherove)
Survival mode (command & control),
learning (coaching),
self-organising (facilitation)

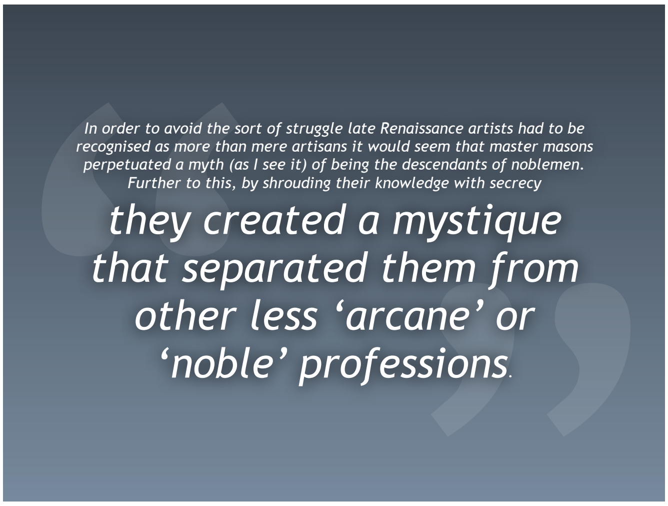
Everybody is a
software architect

Joint responsibility for
the technical aspects
of the software



Is it really that

simple?



In order to avoid the sort of struggle late Renaissance artists had to be recognised as more than mere artisans it would seem that master masons perpetuated a myth (as I see it) of being the descendants of noblemen. Further to this, by shrouding their knowledge with secrecy

they created a mystique that separated them from other less ‘arcane’ or ‘noble’ professions.

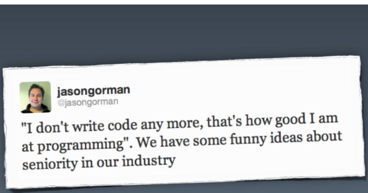
Is "Software Architect" a "high-value" role?

"Software developer" jobs in London £40,000 to £70,000

"Software architect" jobs in London £50,000 to £90,000

Ego

"I", self-importance, etc


jasongorman
@jasongorman

"I don't write code any more, that's how good I am at programming". We have some funny ideas about seniority in our industry

Would you hire a software architect that wouldn't code?

Most important1y, rockstar engineers believe in simplicity and common sense

Top 10 Traits of a Rockstar Software Engineer
http://www.readwriteweb.com/archives/top_10_software_engineer_traits.php

Why do you want to code on this project?

Manager

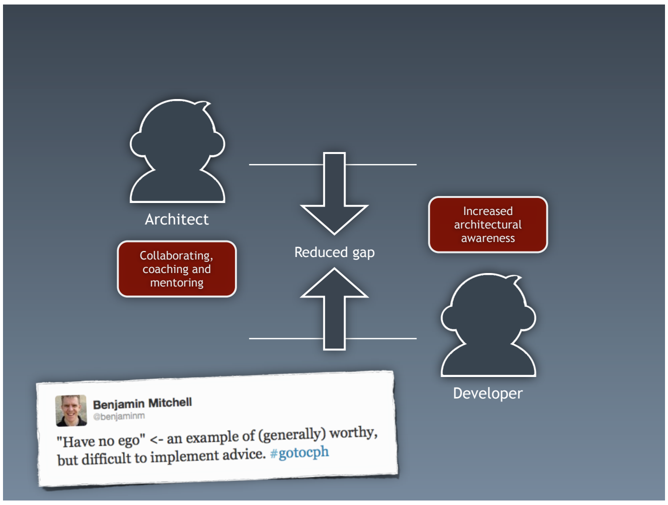
Is coding a commodity?

Software architecture is a

post-technical

career

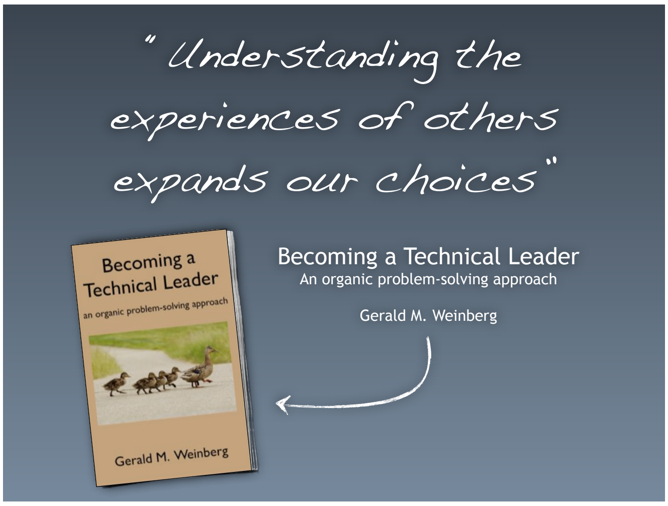
" In ThoughtWorks, one of the most poignant insults one can throw at you is " so-and-so has gone post-technical"."



Architect
Collaborating, coaching and mentoring
Reduced gap
Increased architectural awareness
Developer

Benjamin Mitchell
@benjaminm

"Have no ego" <- an example of (generally) worthy, but difficult to implement advice. #gotocph



" Understanding the experiences of others expands our choices "

Becoming a Technical Leader
an organic problem-solving approach
Gerald M. Weinberg

Becoming a Technical Leader
An organic problem-solving approach

Gerald M. Weinberg

The "corporate career ladder"

Non-technical
(or "post-technical"!)
Technical

Our tech lead and mentor has been " promoted " ...

help!

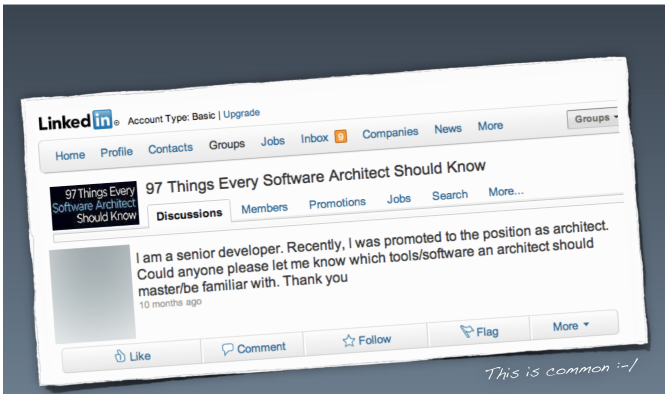
Medieval stonemasons' skills were in high demand, and members of the guild, gave rise to three classes of stonemasons:

apprentices,
journeymen,
and master masons.

Apprentices were indentured to their masters as the price for their training, journeymen had a higher level of skill and could go on journeys to assist their masters, and master masons were considered freemen who could travel as they wished to work on the projects of the patrons.

A mason would have an
apprentice
working for him.

Traditionally medieval stonemasons served a seven-year apprenticeship.



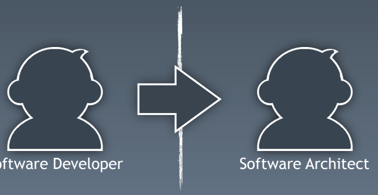
97 Things Every Software Architect Should Know

I am a senior developer. Recently, I was promoted to the position as architect. Could anyone please let me know which tools/software an architect should master/be familiar with. Thank you

10 months ago

This is common :-/

Are you a software architect?



Experience is a good gauge,
but you need to look deeper

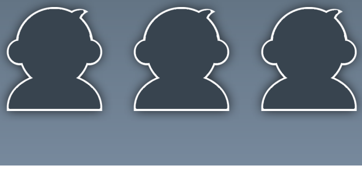
Work with your employer to create a

technical career path

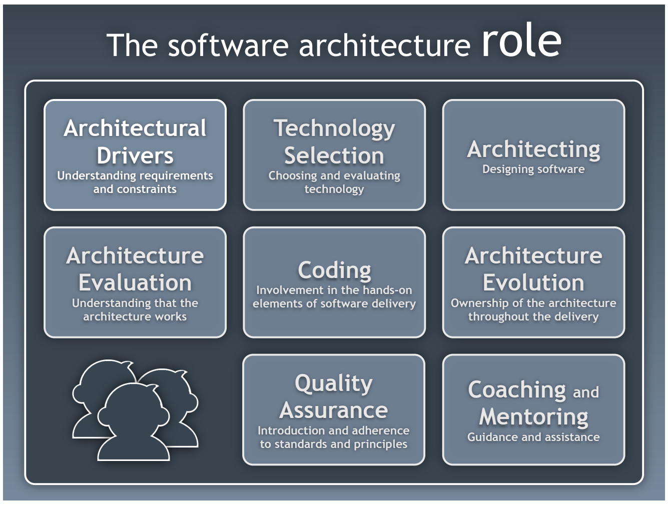
We need to **grow** the

software architects

of tomorrow



A 21st century
software architect



The software architecture role

Architectural Drivers
Understanding requirements and constraints

Technology Selection
Choosing and evaluating technology

Architecting
Designing software

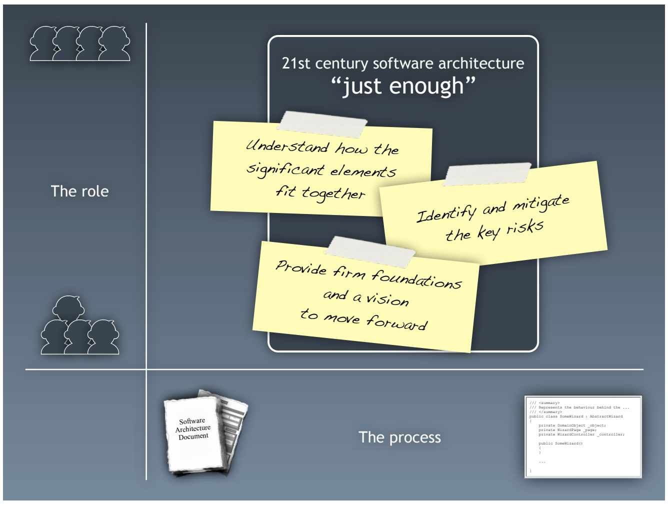
Architecture Evaluation
Understanding that the architecture works

Coding
Involvement in the hands-on elements of software delivery

Architecture Evolution
Ownership of the architecture throughout the delivery

Quality Assurance
Introduction and adherence to standards and principles

Coaching and Mentoring
Guidance and assistance



The role

21st century software architecture
"just enough"

Understand how the significant elements fit together

Identify and mitigate the key risks

Provide firm foundations and a vision to move forward

Software Architecture Document

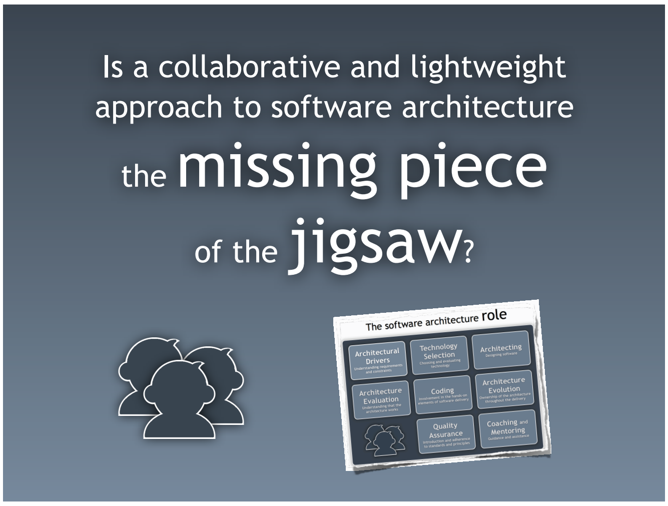
The process

```
/// <summary>
/// Represents the behaviour behind the ...
/// </summary>
public class SomeWizard : AbstractWizard
{
    private DomainObject _object;
    private WizardPage _page;
    private WizardController _controller;

    public SomeWizard()
    {
    }

    ...

}
```



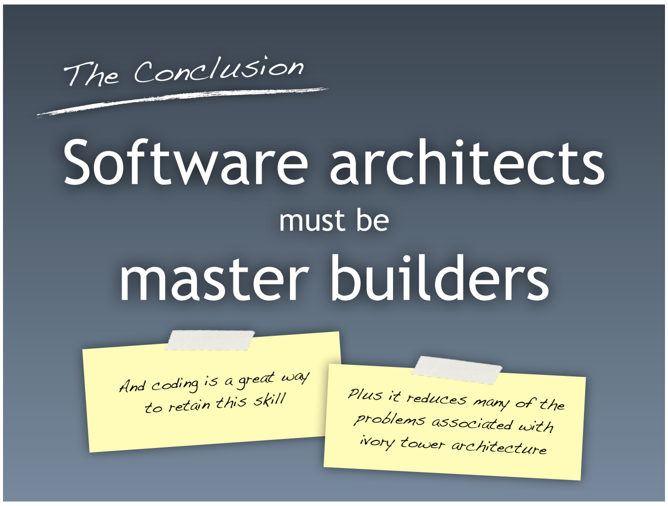
Is a collaborative and lightweight approach to software architecture

the **missing piece**

of the **jigsaw**?

The software architecture role

Architectural Drivers
Technology Selection
Architecting
Architecture Evaluation
Coding
Architecture Evolution
Quality Assurance
Coaching and Mentoring



The Conclusion

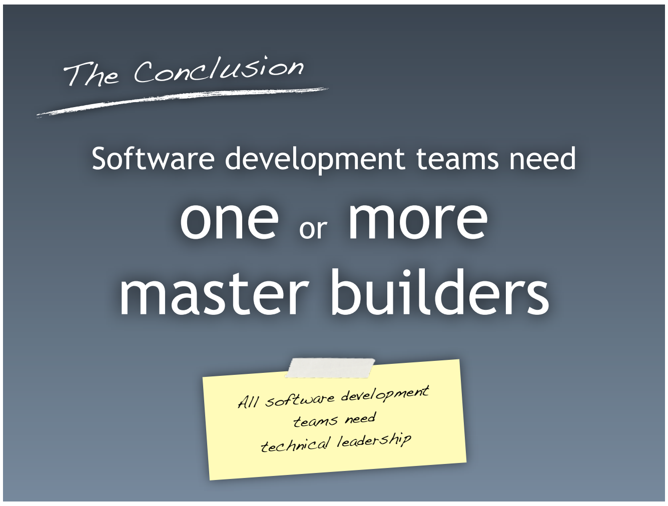
Software architects

must be

master builders

And coding is a great way to retain this skill

Plus it reduces many of the problems associated with ivory tower architecture



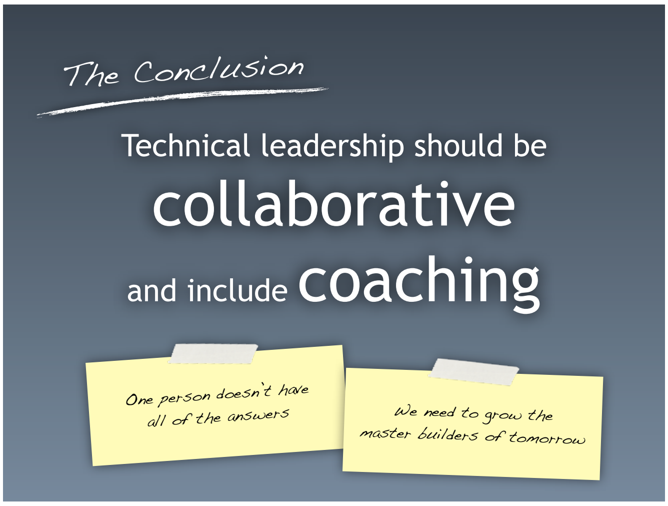
The Conclusion

Software development teams need

one or **more**

master builders

All software development teams need technical leadership



The Conclusion

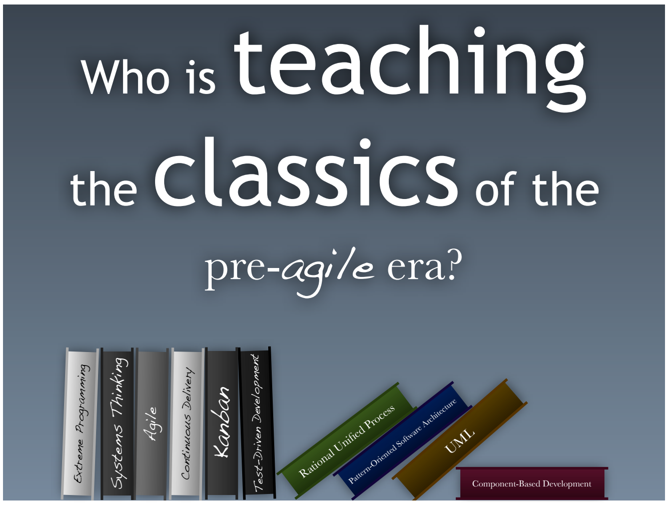
Technical leadership should be

collaborative

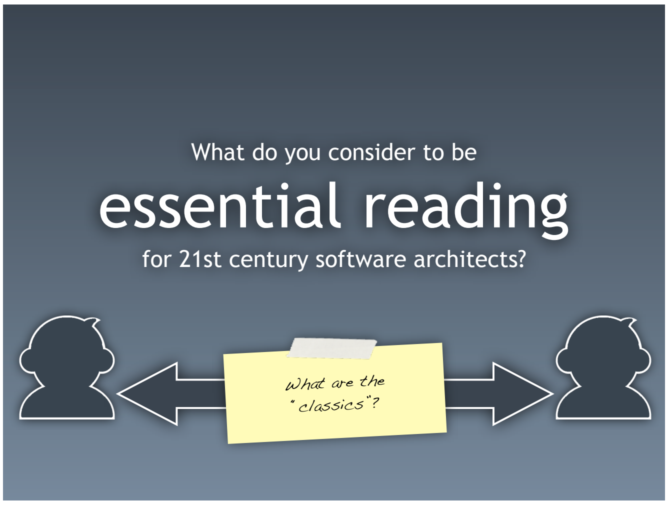
and include **coaching**

One person doesn't have all of the answers

We need to grow the master builders of tomorrow



Who is teaching the classics of the pre-*agile* era?



What do you consider to be

essential reading

for 21st century software architects?

Let's learn from past experience rather than ignoring it

Thank you! :-)

codingthearchitecture.com

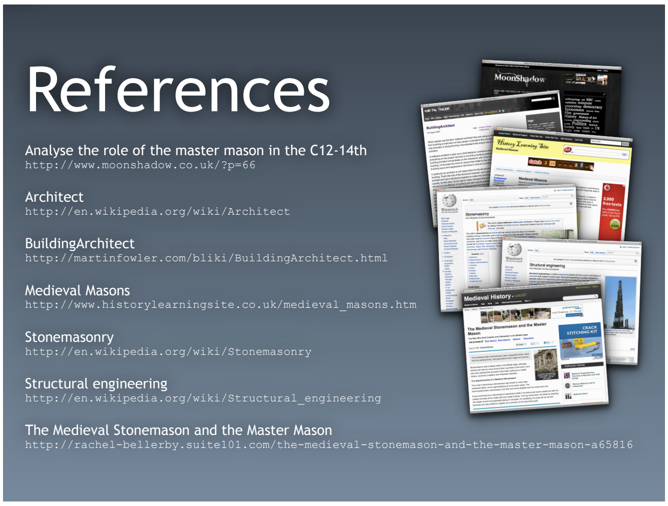
leanpub.com

On-site training and consulting

simon.brown@codingthearchitecture.com

@simonbrown on Twitter

coding the architecture
Software Architecture for Developers
A practical and pragmatic guide to software architecture
Simon Brown
Leanpub



References

Analyse the role of the master mason in the C12-14th
http://www.moonshadow.co.uk/?p=66

Architect
http://en.wikipedia.org/wiki/Architect

BuildingArchitect
http://martinfowler.com/bliki/BuildingArchitect.html

Medieval Masons
http://www.historylearningsite.co.uk/medieval_masons.htm

Stonemasonry
http://en.wikipedia.org/wiki/Stonemasonry

Structural engineering
http://en.wikipedia.org/wiki/Structural_engineering

The Medieval Stonemason and the Master Mason
http://rachel-bellerby.suite101.com/the-medieval-stonemason-and-the-master-mason-a65816