

coding {the} architecture



Software teams
and
master builders



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@simonbrown on Twitter



Writing

Training and consulting



Software Architecture for Developers

*A practical and pragmatic guide to
21st century software architecture*

Technical leadership
Collaboration, consistency
and preventing chaos

Just enough
Structure, shared vision,
risks and firm foundations

Communication
Effective sketches and
lightweight documentation

Simon Brown

coding
(the)
architecture

*Published
incrementally*

Variable pricing

*Buy now and
get free updates*

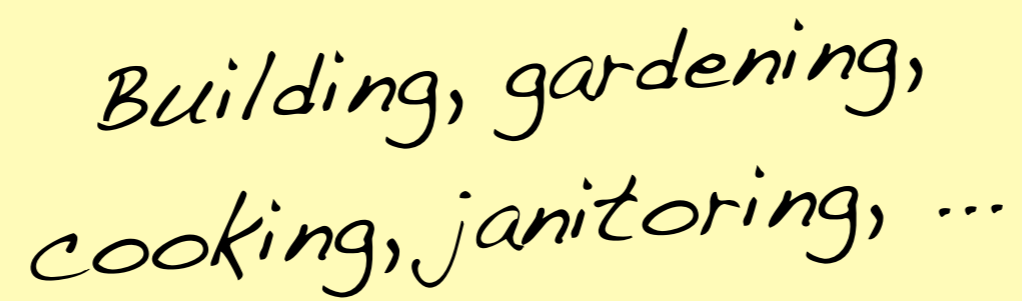
Leanpub

leanpub.com

The
20th century
software architect

Software development
is like

$\$ \{ \text{metaphor} \}$



*Building, gardening,
cooking, janitorial, ...*

$\{ \text{metaphor} \}$
is broken because...

$\vdash p$

Big up front design
and analysis paralysis

Waterfall

UML

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

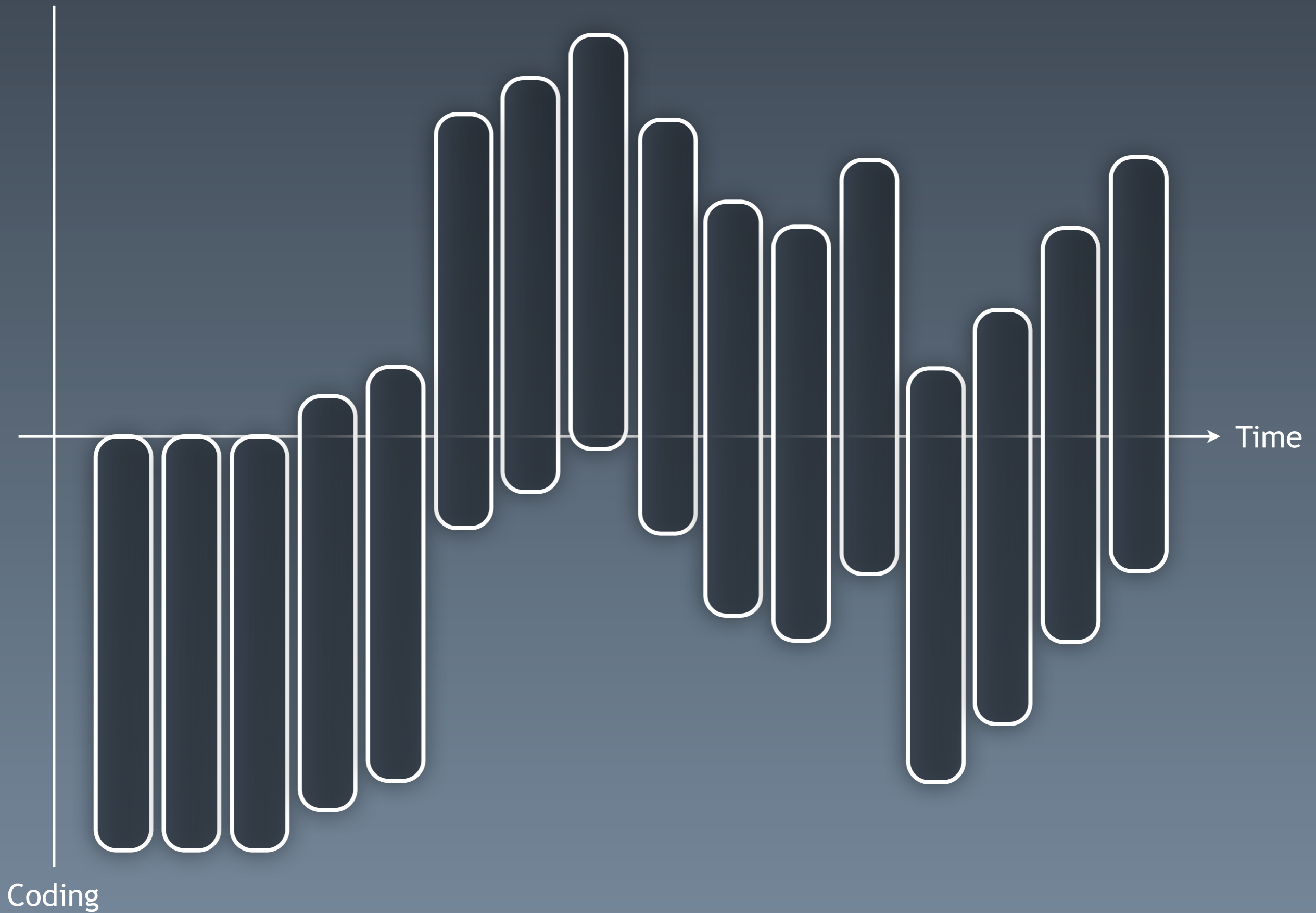
*prove his worth by
going through the
ranks as a stonemason*

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.*

“Architecture”



*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,

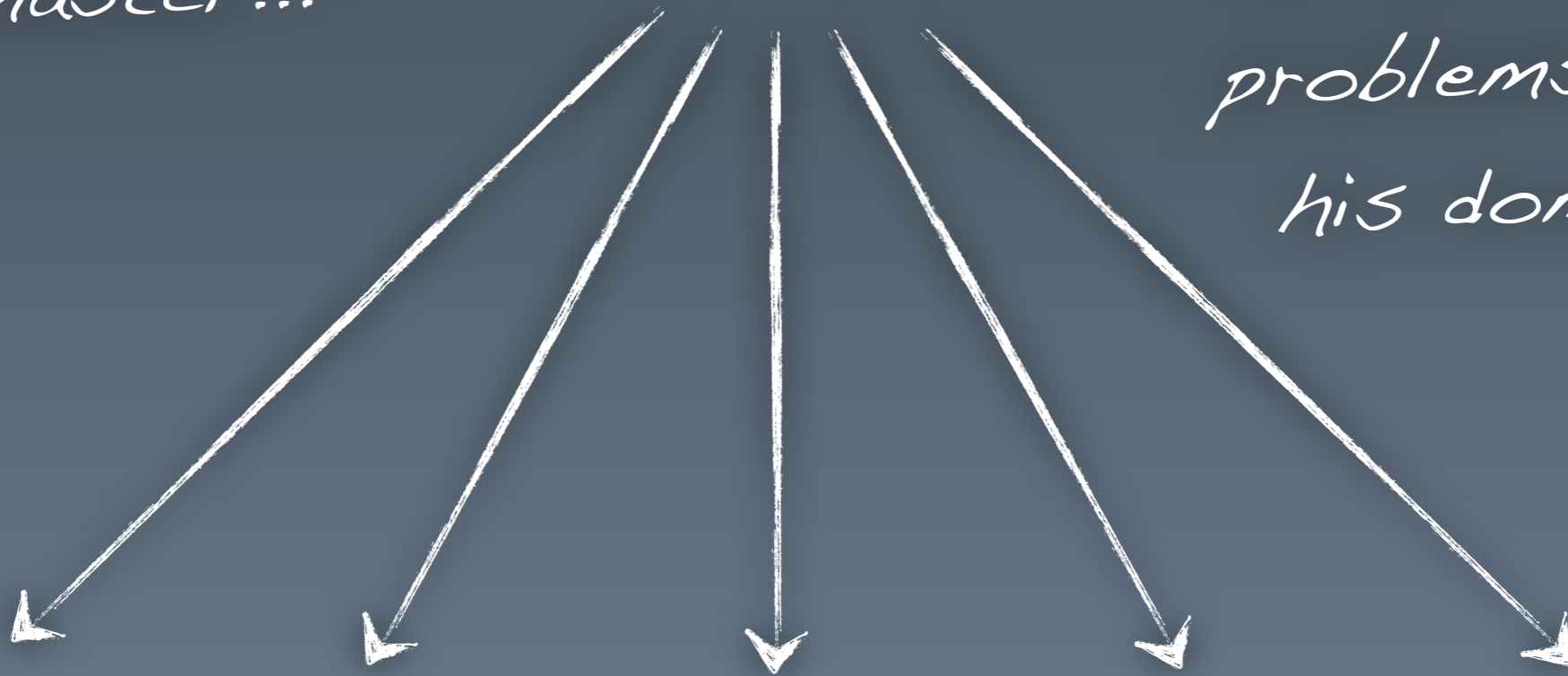
*everybody who worked
on a building site was
under the supervision of
the Master Mason.*

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



Master Mason

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



Mason



Mason



Mason



Mason



Mason

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.

...

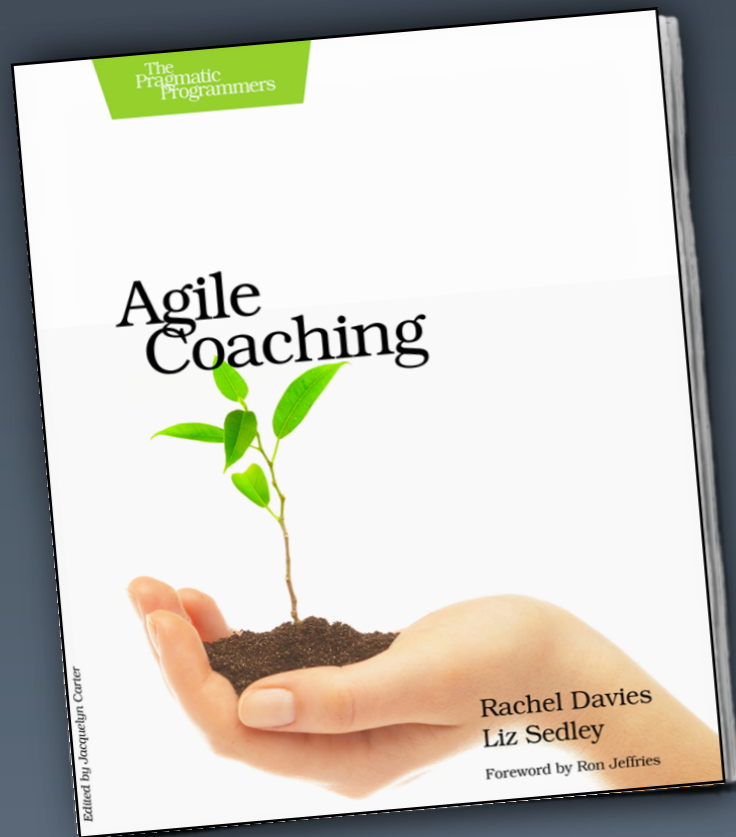
If, as seems likely, this multiplicity of tasks was normal it is

***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’.*



"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."

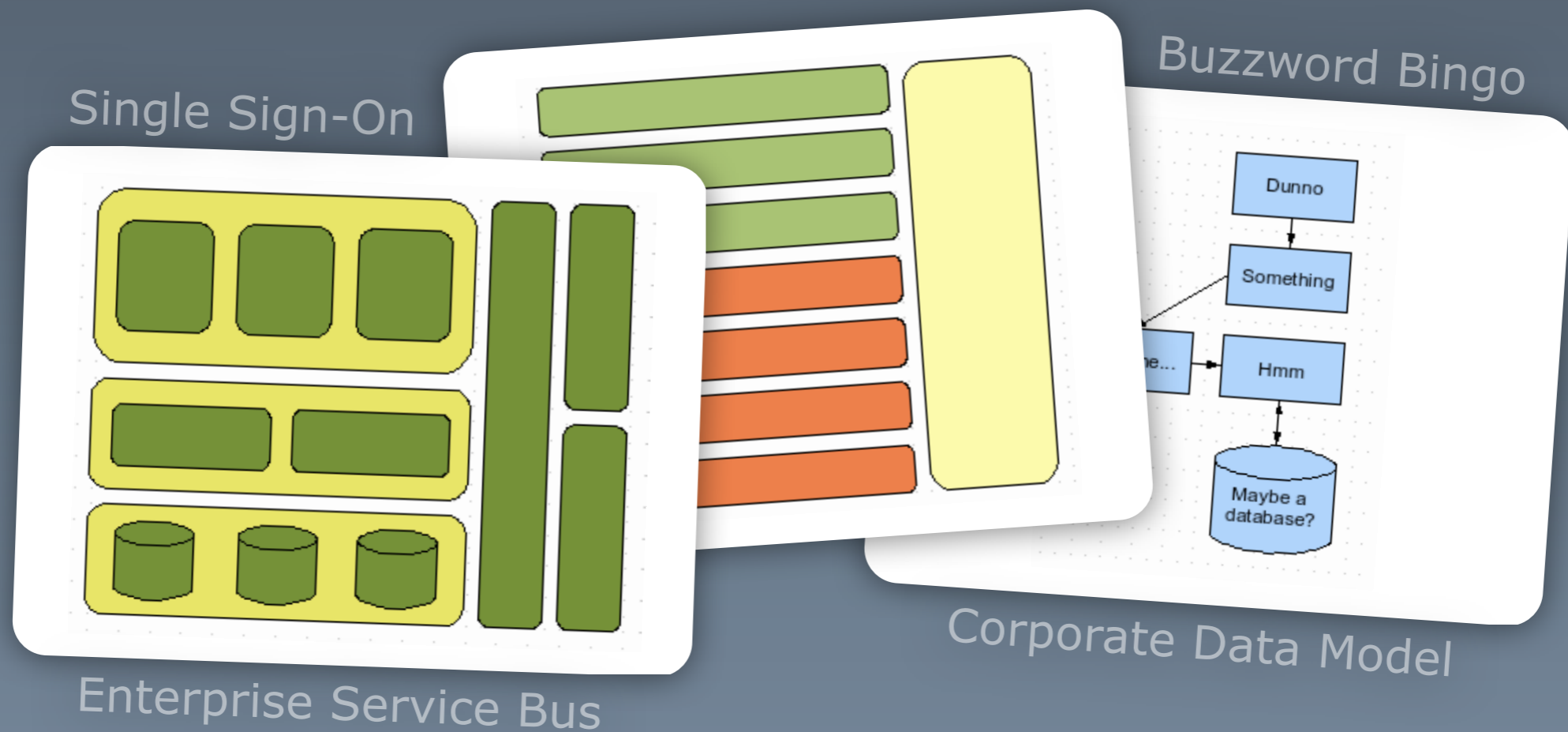
They may also think that you're overstepping your role and interfering in how they do their job, so give such advice sparingly."

Agile Coaching

Rachel Davies & Liz Sedley

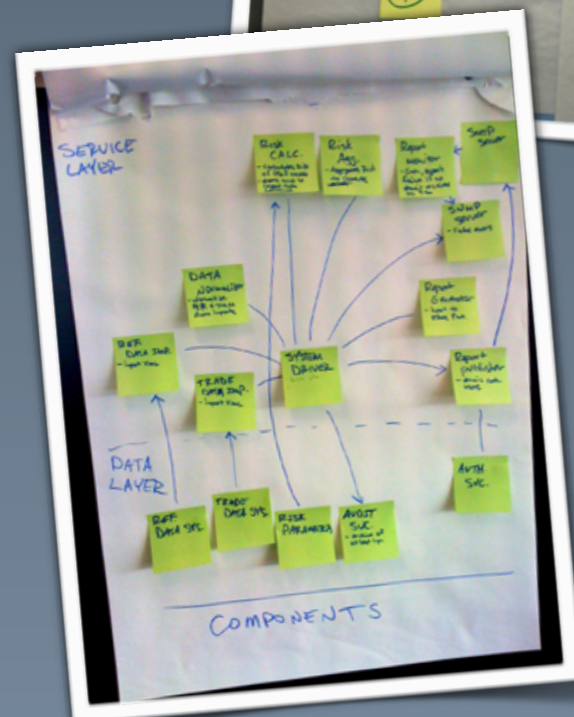
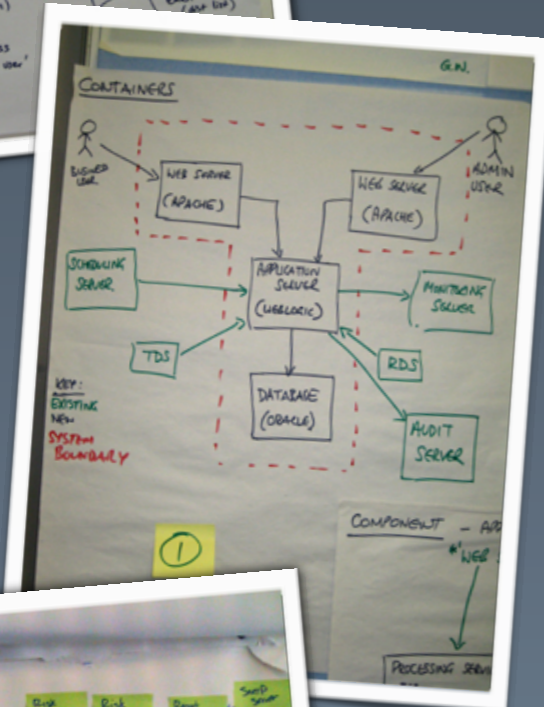
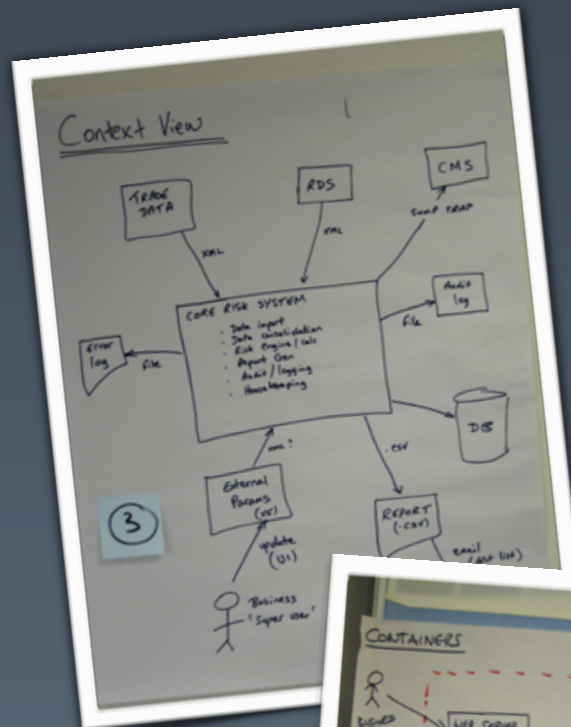
PowerPoint

Architecture



Should software architects
write code?

Would we code it that way?




The people designing software must

understand technology



*We could build it in
SharePoint*



*Do you know how
to do that?*



Not really, no

All decisions
involve a
trade-off

Why did you choose
technology A?



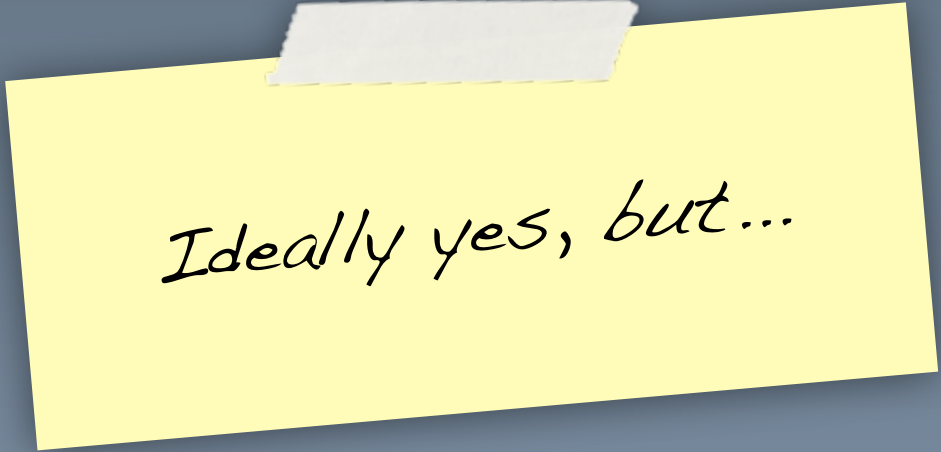
Would you hire me to design an
Erlang system?

Would you hire me to design a
Java system?

Should software architects write

code

on software projects?



Ideally yes, but...

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



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




Structural
Engineer



*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?!

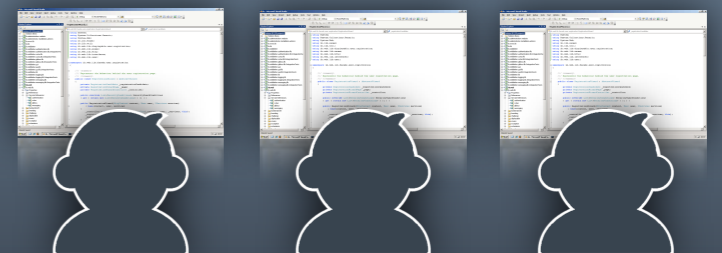
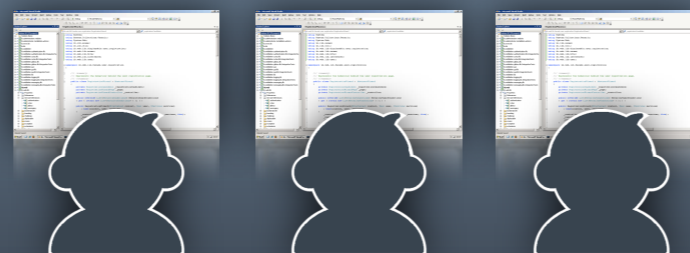
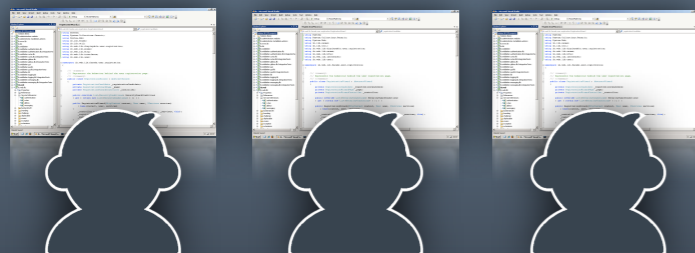
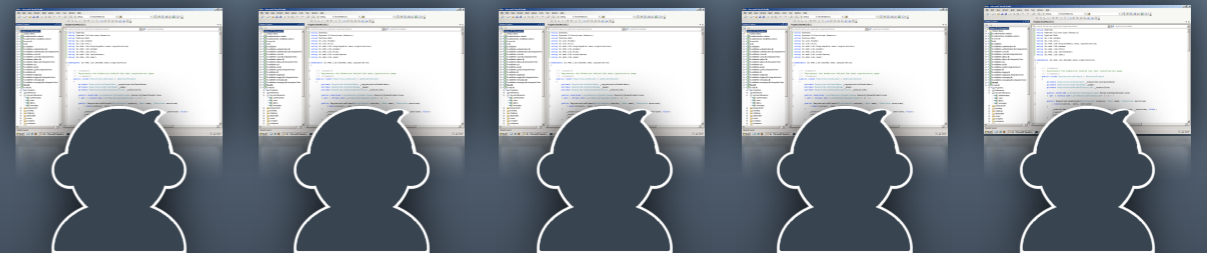
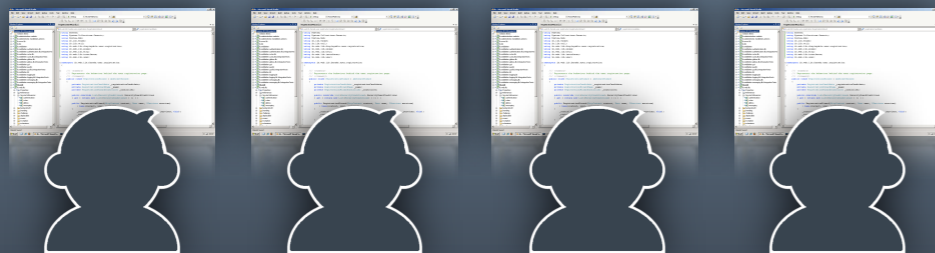
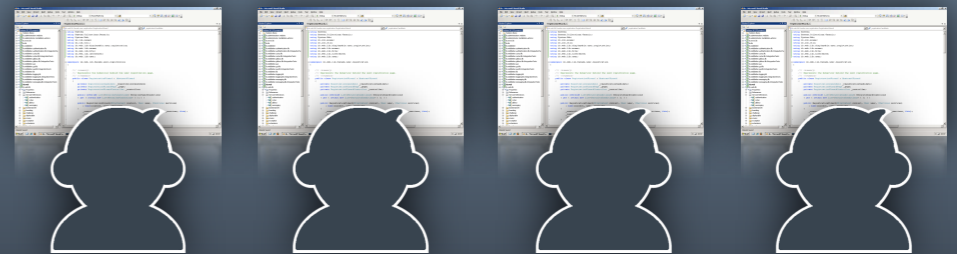
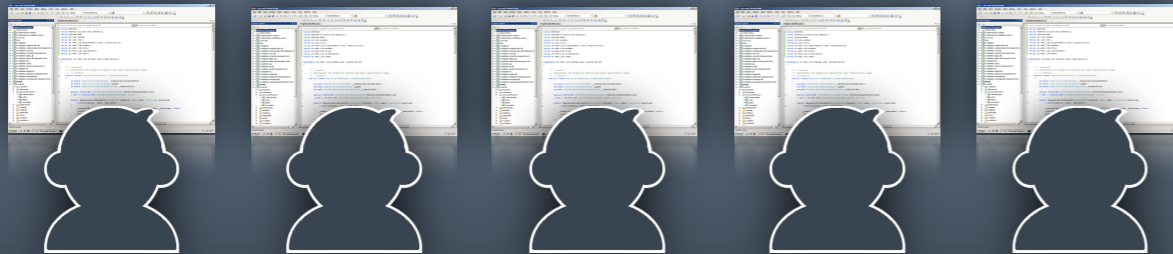


Software Architect

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

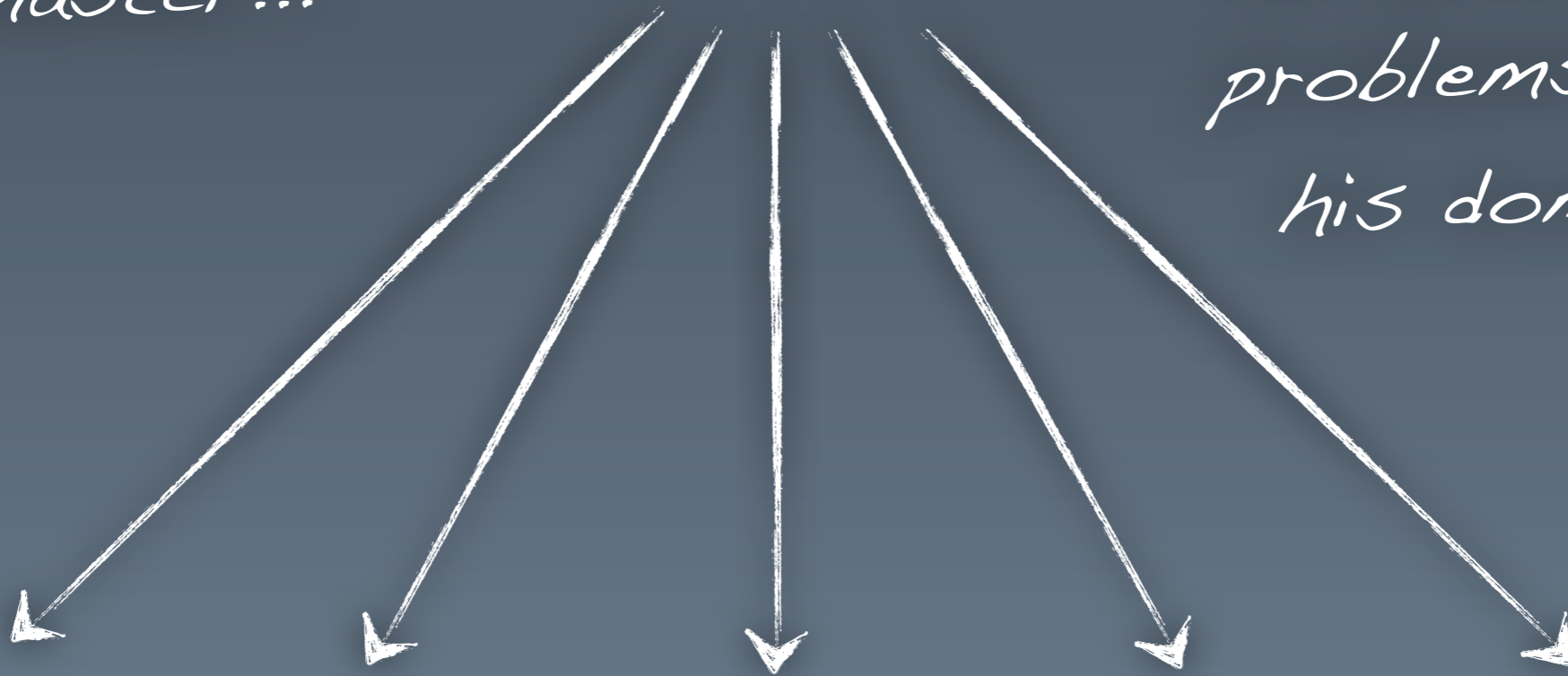


"Every lesser mason followed the directions set by the master..."



Architect

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



Developer



Developer



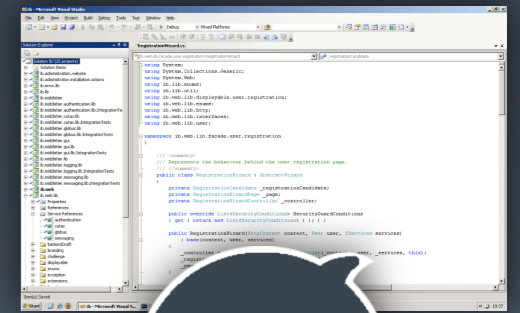
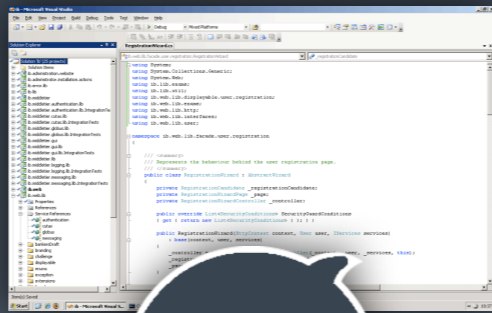
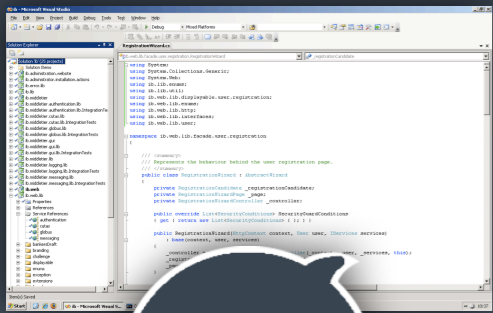
Developer



Developer

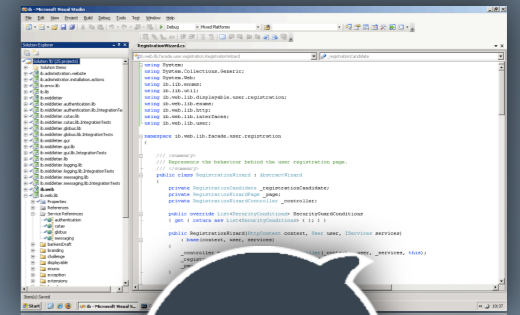
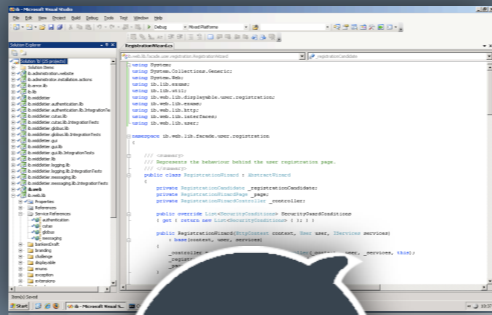
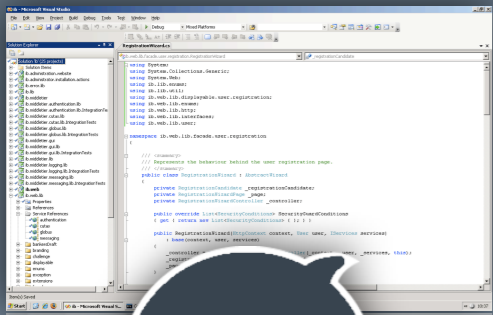


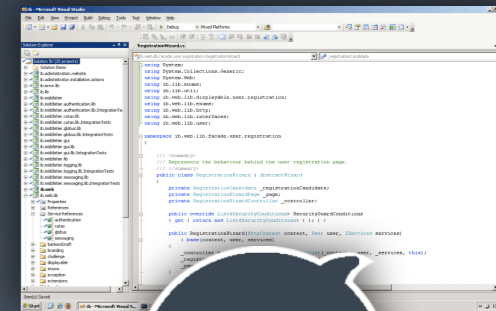
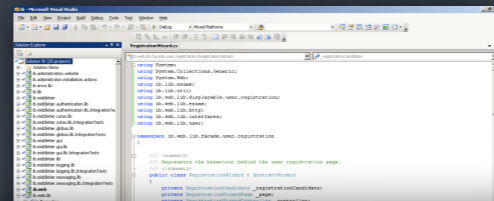
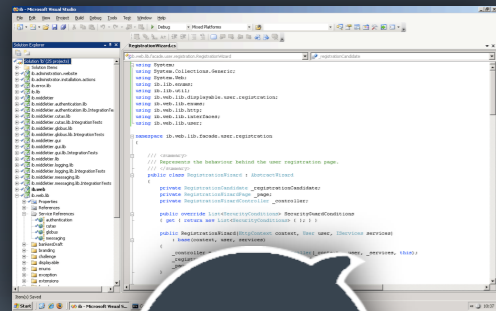
Developer



Chaos!

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

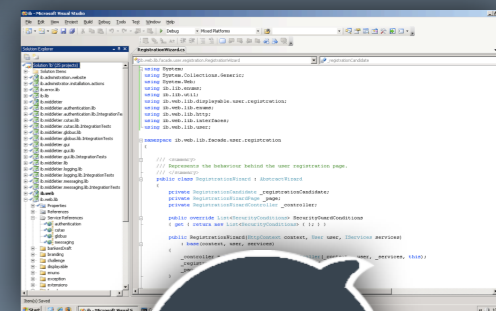
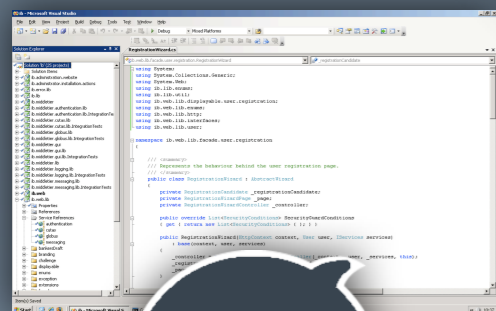




No defined structure,
inconsistent approaches,
big ball of mud,
spaghetti code, ...

STOP

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



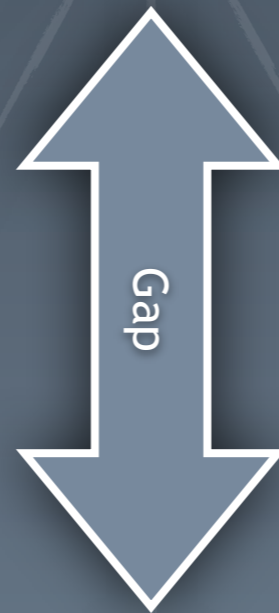


Architect



*Sits in an ivory tower,
commanding and controlling*

*Focusses on the
low level detail*



Developer



Developer



Developer

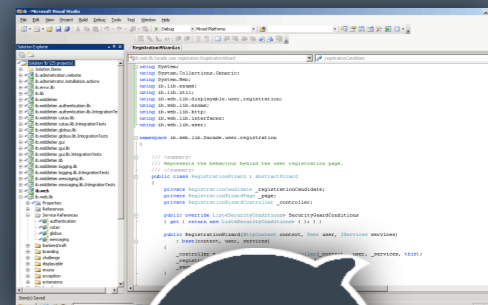
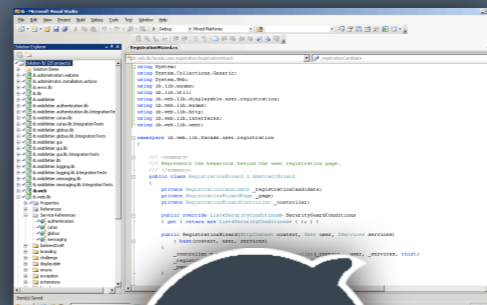
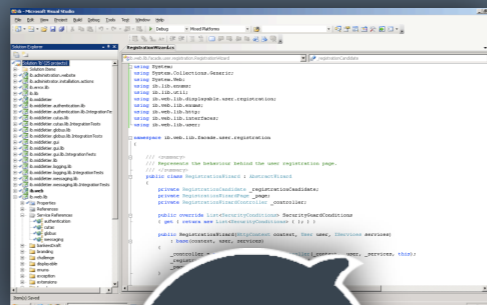
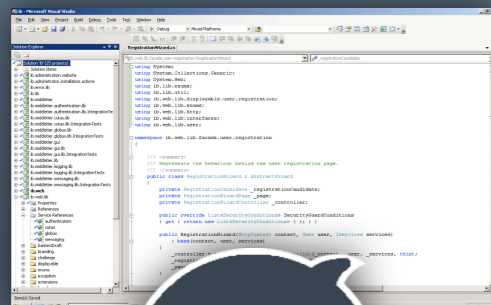


Developer



Developer

Shared vision



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 importantly,
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

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](#)

Non-technical
(or “post-technical”!)

Technical



The “corporate
career ladder”

*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

97 Things Every Software Architect Should Know

Discussions

Members

Promotions

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More...



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

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This is common :-/

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 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

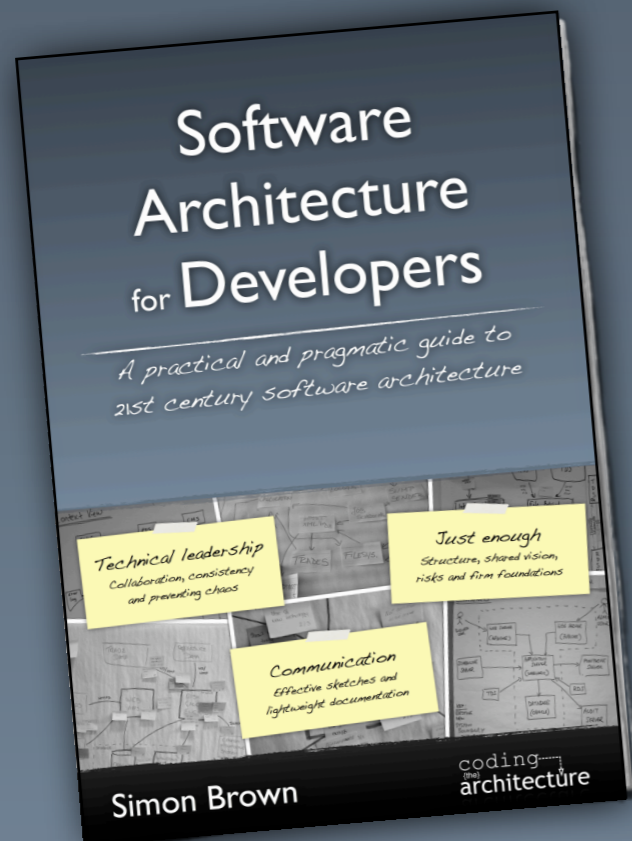
Technical leadership should be
collaborative
and include **coaching**

*One person doesn't have
all of the answers*

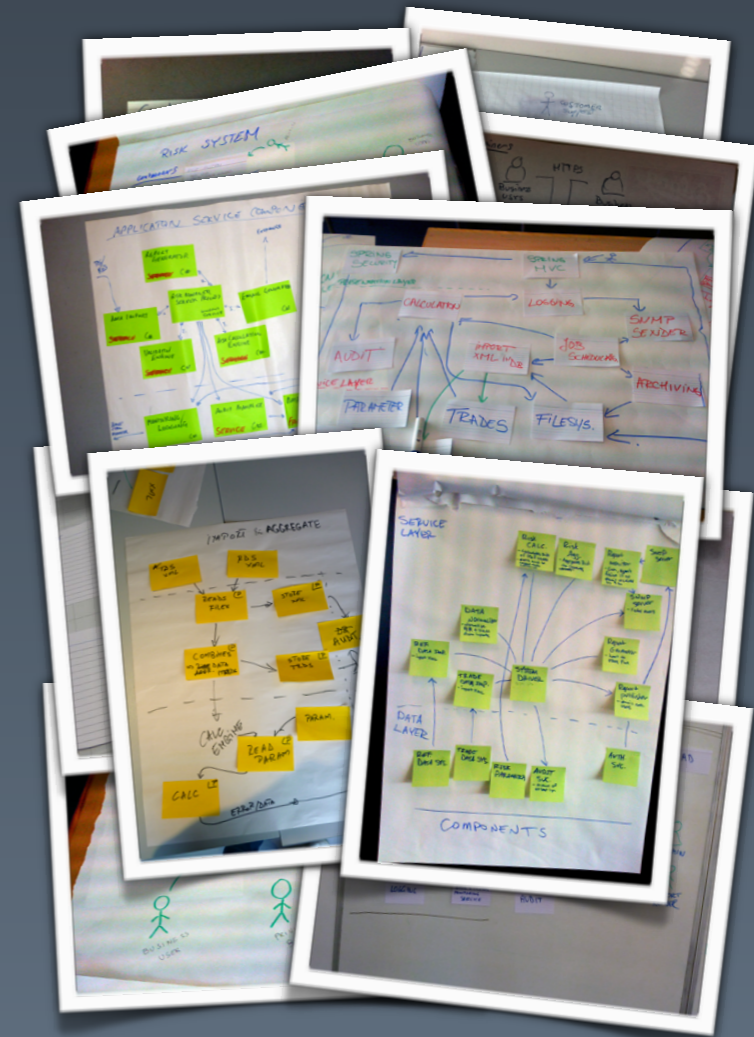
*We need to grow the
master builders of tomorrow*



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On-site training and consulting



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@simonbrown on Twitter

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